Consultant Course

Construction Edition

V300 Construction Edition 2021 R2

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Acumatica
The Cloud ERP

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How to Use This Course

This training course provides a set of lessons that illustrate the processes of construction project management in a midsize company. The course consists of lessons that guide you step by step through the examples and explanations of the configuration and business process flow in Acumatica ERP Construction Edition. The course is divided into the following major parts:

- Part 1 provides a brief overview of projects, describes how projects are integrated with the general ledger, explains the structure of the project budget, and explains how the project costs are captured.
- Part 2 is dedicated to managing subcontracts and commitments to projects. The lessons of the part also describe the joint payment processing and illustrates how to set up compliance tracking for vendor documents, and how to generate lien waivers.
- Part 3 is dedicated to working with construction project budget and estimating costs and revenues.
- Part 4 consists of lessons dedicated to managing cost and revenue budget changes.
- Part 5 explains how the retainage is calculated and applied to financial documents related to construction projects. Also, this part includes the lessons dedicated to construction-specific reports.
- Part 6 is dedicated to project documentation management. The lessons of the part explain how to work with photo logs, drawing logs, requests for information, daily field reports, and submittals.

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.

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 2021 R2 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 2021 R2, 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 Is in Additional Materials

In the **Additional Materials** chapter, you can find the following information related to the processes and scenarios covered in the corresponding parts of the guide:

- Additional information related to the processes
- Transactions generated as a result of the processes
- Details about the reports, inquires, and forms you can use to review and gather information related to the processes
- Explanations on how to perform mass-processing operations related to the processes

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

To add to an existing Acumatica ERP instance a tenant with the *U100* dataset, which is required for the completion of this course, and prepare the tenant for completing the activities, perform the following instructions:

1. Go to *Amazon Storage*.
2. Open the folder of your Acumatica ERP instance version.
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 to 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 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 with which you will work 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 *01-2020* financial period. In November 2020, 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. Because the company has grown, the equipment center has begun its operations in *01-2021*.

In October *2020*, the company received an investment and opened a subsidiary company for construction (ToadGreen). In February *2021*, the company started its first construction project.

The Muffins & Cakes company was established in January 2020 and started using Acumatica ERP at the end of the *01-2021* financial period.

The base currency of the company and its subsidiaries is U.S. Dollars (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 cafés. 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 cafés. 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.

Part 1: Projects for Construction

Lesson 1: Reviewing 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
- Set up project security
- Process a project during its life cycle

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 the project 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 life cycle, 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.

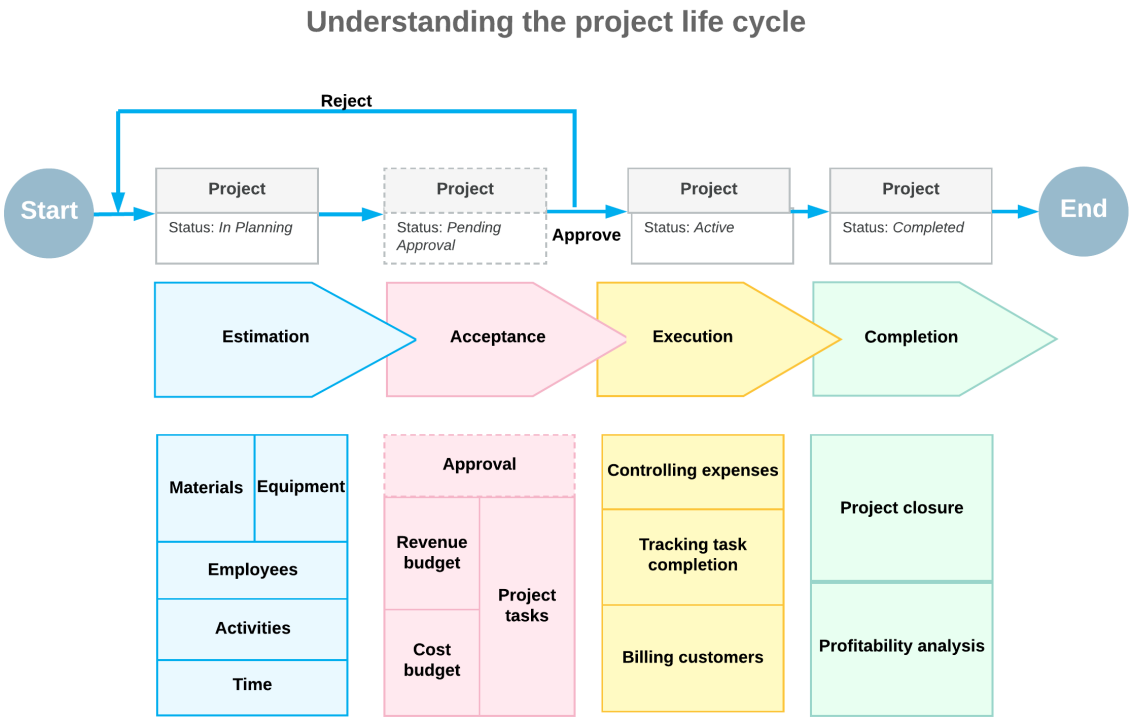
For a project, on the **Summary** tab (**Project Properties** section) of the *Projects* (PM301000) form, you can use the **Revenue Budget Level** and **Cost Budget Level** boxes to specify the way the system represents budget lines and classify revenues or expenses by cost codes as well as other factors.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

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.



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.

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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

- The *Construction* and *Construction Project Management* features have been enabled on the *Enable/Disable Features* (CS100000) form.
- 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 Settings** tab (**General** 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.

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

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.

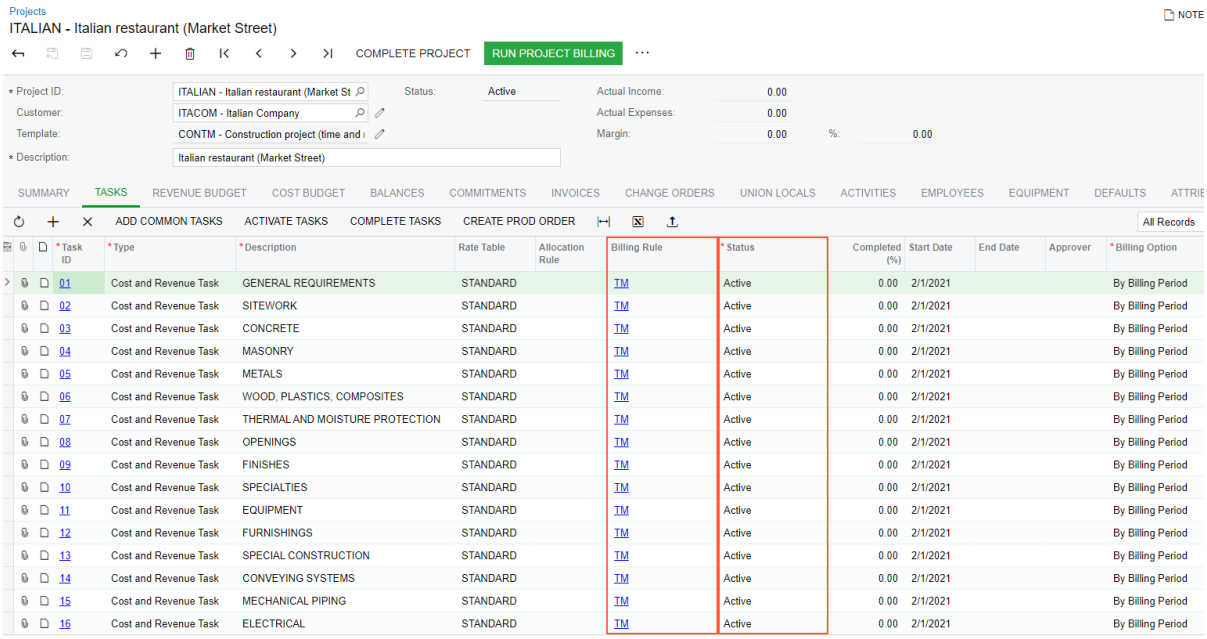
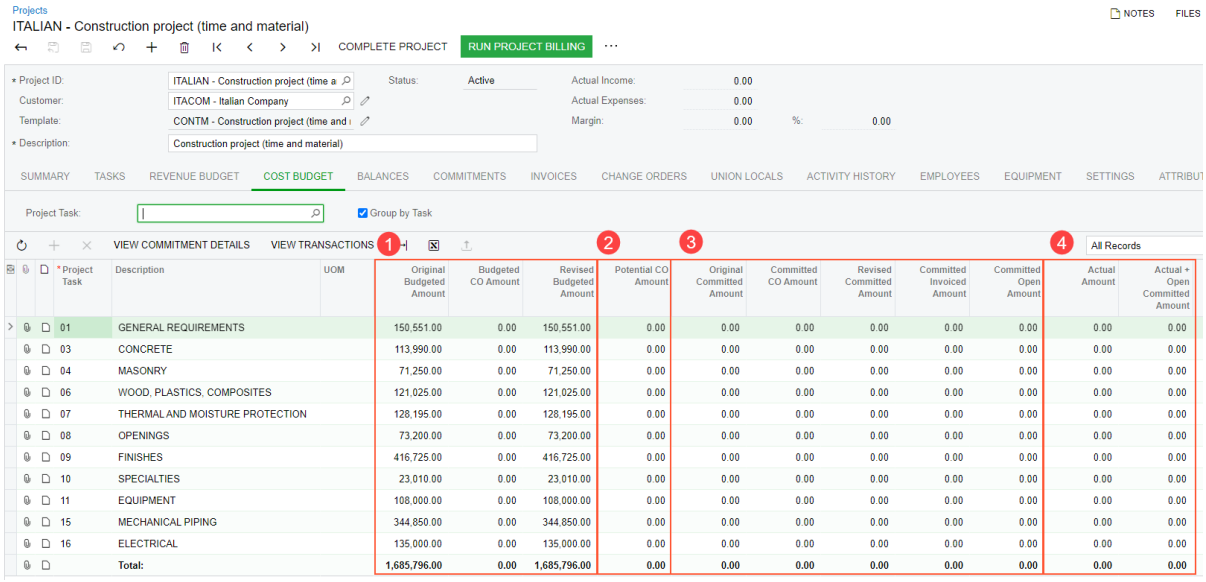


Figure: Project tasks of the ITALIAN project

Step 2: Reviewing Project Budget

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

1. While still reviewing the *ITALIAN* project on the *Projects* (PM301000) form, on the **Summary** tab of the *Projects* form, 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, 1 in the screenshot below (the columns with **Budgeted** in the names): The planned costs of the project. Original budgeted values are entered manually on the **Cost Budget** of the project, or on the *Project Budget* (PM309000) form. Revised budgeted values can also be entered manually if change orders are not used.
   - Potential (2) (the **Potential CO Amount** column): 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 (3) (the columns with **Committed** in their names) 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 (4) (the columns with **Actual** in their names): The total amounts and total quantities of project transactions released. These totals are calculated automatically.



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 Settings** 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.

   > 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 Settings** 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: Capturing Project Costs

Account Groups: General Information

An account group is an entity in Acumatica ERP that you map to a subset of general ledger accounts and then specify in project-related documents. Because they are mapped to general ledger accounts, account groups facilitate transfer of the project-related financial information between the general ledger transactions and project transactions.

Learning Objectives

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

- Prepare the system for the creation of account groups
- Create an account group and map accounts to this group
- Review the chart of accounts and find the account group associated with a particular GL account

Applicable Scenarios

You may need to create an account group in the following cases:

- When you are initially configuring project accounting functionality
- When you are going to track a particular type of expenses or another type of project balances separately

Types of Account Groups

You create account groups on the *Account Groups* (PM201000) form. An account group can belong to one of the following types: *Asset*, *Liability*, *Expense*, *Income*, or *Off-Balance*. An account group may include any number of general ledger accounts of particular types:

- An account group of the *Asset* or *Liability* type may include asset or liability accounts. Transactions posted to these account groups are displayed on the *Project Budget* (PM309000) form and on the **Balances** tab of the *Projects* (PM301000) form, but are not displayed on the **Revenue Budget** and **Cost Budget** tabs of the *Projects* form.
- An account group of the *Income* or *Expense* type may include accounts of any type (income, expense, asset, or liability). Transactions posted to these account groups are displayed on the *Project Budget* form, on the **Balances** tab of the *Projects* form, and on the **Revenue Budget** and **Cost Budget** tabs of the *Projects* form.
- An account group of the *Off-Balance* type may include accounts of any type (income, expense, asset, or liability).

You can use account groups of the *Off-Balance* type to collect and track for projects statistical and other information that is unrelated to finance. Account groups of the *Off-Balance* type are not mapped to any general ledger accounts; thus, the transactions posted to account groups of this type will not update the general ledger. For example, you might define an off-balance group for unrecognized revenue: You may want to see the amount in your project reporting, but you do not want to post to the general ledger until the actual billing is done and thus the revenue is recognized. As another example, you can create an off-balance group for recording all work hours spent by employees on the project if you want to know the total amount associated with the number of work hours spent, but you do not want to post those amounts to general ledger. In addition, you can select the **Expense** check box to track the amounts in the off-balance account group as expenses. The system will display the transactions

posted to this account group on the *Project Budget* form and on the **Balances** and **Cost Budget** tabs of the *Projects* form.

Recommendations for Creating Account Groups

Before you define account groups, you should identify the accounts that will be used in project-related transactions. We recommend that you consider the following rules and limitations as you plan the account groups you will create:

- Each general ledger account can be mapped to only one account group.
- Accounts receivable accounts (accounts debited by project billing) and accounts payable accounts (accounts credited by vendor bills) should not be included in account groups.
- Accounts that are linked to cash accounts (that is, accounts for which the **Cash Account** check box is selected on the *Chart of Accounts* (GL202500) form) should not be included in account groups.
- Allocation and billing rules select transactions by account groups. If transactions of two accounts should follow different allocation or billing rules or use different rates, these two accounts should be included in different account groups. If the transactions usually use the same rate, consider including their accounts in one group.

Account Groups: To Create an Off-Balance Group

In this implementation activity, you will learn how to create an account group to be used for collecting statistical information.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that you are a construction project manager who is configuring project accounting for the ToadGreen Building Group company. You want to know the total amount associated with the number of work hours spent by employees on construction projects (including an extra work beyond the budgeted number of work hours), but you do not want to post these amounts to the general ledger because these expenses are billed monthly under separate project budget lines related to labor.

You need to create an off-balance account group for tracking burden expenses in construction projects.

System Preparation

To prepare to perform the instructions of the activity, launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded; you should sign in as a construction project manager by using the *ewatson* username and the *123* password.

Step: Creating an Account Group

To create an account group for tracking burden expenses, do the following:

1. Open the *Account Groups* (PM201000) 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**.
3. In the **Account Group ID** box, type `BURDEN`.

   Notice that the **Active** check box is selected by default.
4. In the **Type** box, select *Off-Balance*.
5. In the **Description** box, type `Burden Expenses`.
6. Save the account group.

Project Transactions: General Information

Project accounting is integrated with other functional areas of Acumatica ERP. Project-related information from other functional areas flows to projects by means of project transactions that are used for tracking budget costs and revenue. You can also create project transactions directly without involving other documents.

Learning Objectives

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

- Capture project costs using project transactions
- Make the system create a project transaction based on a GL transaction
- Create a project transaction without posting to the general ledger

Applicable Scenarios

You manually create project transactions if you need to directly capture project costs without updating the general ledger. The transactions created for a project update the actual values of the project budget with the incurred expenses that you may need in one of the following cases:

- To control the amount of money spent on the project against the budgeted values
- To bill the customer for the incurred expenses
- To control the project profitability

You manually create general ledger transactions for a project if you need to directly capture project costs without creating original documents (such as bills, purchase orders, or time activities).

Creation of Project Transactions

You can create a project transaction directly on the *Project Transactions* (PM304000) form. When you specify the **Debit Account** and **Credit Account** for the project transaction and release the transaction, the system creates the following general ledger transactions on the *Journal Transactions* (GL301010) form, based on whether the amount of the project transaction is positive or negative:

- For a positive amount, the GL transaction debits the debit account of the project transaction and credits the credit account.
- For a negative amount, the GL transaction debits the credit account of the project transaction and credits the debit account.

If you specify no debit and credit accounts for a project transaction on the *Project Transactions* form or specify only the debit account, on the release of the transaction, the system does not generate the corresponding GL transaction.

Project Budget Update

The system uses the combination of the project, project task, account group, and inventory item to match the transaction with a project budget line. If a budget line with the same combination exists, the system updates the **Actual Quantity** and **Actual Amount** of the corresponding budget line. For a new combination that does not exist in the project budget, the system creates a new budget line.

For the revenue budget, the system creates a revenue budget line with the same inventory item as the inventory item of the transaction if the *Detailed* option is selected in the **Revenue Budget Update** box on the **General** tab (**General Settings** section) of the *Projects Preferences* (PM101000) form. With the *Summary* option selected, the system creates a revenue budget line with the empty item code (*N/A*) instead of the inventory item of the transaction. Similarly, the system creates cost budget lines based on the option selected in the **Cost Budget Update** box on the **General** tab (**General Settings** section) of the *Projects Preferences* form.

If the project does not have such a line, the system automatically creates a new one. The system updates the actual values of the project budget line using the following rules:

- If the debit account of the project transaction is an asset or expense account and the amount is positive, the system updates the corresponding cost budget line with positive actual values. If the amount is negative, the system updates the cost budget line with negative actual values.
- If the debit account of the project transaction is an income or liability account and the amount is positive, the system updates the corresponding revenue budget line with negative actual values. If the amount is negative, the system updates the revenue budget line with positive actual values.

  If an income or liability account is selected as the credit account of the project transaction and the amount is positive, the system updates the corresponding revenue budget line with positive actual values.

Creation of GL Transactions Related to Projects

On the *Journal Transactions* (GL301000) form, you can directly create a general ledger transaction related to a specific project and project task. To associate the transaction line with a project, you specify this project in the **Project/Contract** column and the applicable project task in the **Project Task** column.

If a general ledger transaction has a project and project task specified, in the **Account** column on the *Journal Transactions* form, you can select only an account that is mapped to an account group on the *Account Groups* (PM201000) form.

When a batch of GL transactions is released, for each transaction line in the batch with a project and project task specified, the system creates the corresponding project transaction with the following settings specified in a row of the table on the *Project Transactions* (PM304000) form:

- **Project**: The project associated with the GL transaction
- **Project Task**: The project task associated with the GL transaction
- **Inventory ID**: The inventory item associated with the GL transaction

  If no item is associated with the GL transaction, the system uses the empty item code, which is *<N/A>* by default and specified on the *Projects Preferences* (PM101000) form.
- **Debit Account**: The account of the GL transaction
- **Account Group**: The account group to which the account of the GL transaction is mapped on the *Account Groups* form
- **Credit Account**: Empty
- **Amount**: The debit amount of the GL transaction, if the account of the GL transaction is debited, or the credit amount of the GL transaction with the negative sign, if the account of the GL transaction is credited
- **GL Batch Nbr.**: The batch number of the GL transaction

When a transaction is generated in another functional area of Acumatica ERP—such as accounts receivable, accounts payable, order management, or time and expenses—and posted to the general ledger, the system generates the corresponding project transaction in the same way as on the release of GL transactions.

Construction Project Budget: To Capture Project Costs

This activity will walk you through the process of capturing project costs by using project transactions.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that ToadGreen Building Group is a general contractor building an Italian restaurant for its customer, the Italian Company. At the start of the project, the construction project manager made sure that the construction permit was promptly obtained for the construction site and that the design plans and specifications were prepared and agreed upon. The expenses related to the work must be reflected in the project budget and categorized in the general ledger because they will later be billed and reflected in financial statements. Also suppose that the construction manger has spent some time on extra communication, which has not initially been budgeted. This time should not be billed because the project manager's salary is fixed and is billed monthly under a separate project budget line related to labor; however, these expenses must be reflected in the project budget for better estimation of the burden and overhead of the construction project.

Acting as the ToadGreen construction project manager, you will create a project with tasks that correspond to the work to be performed, specify the project budget, and activate the project to indicate that work on the project has started.

Then acting as the project accountant, you will enter the general ledger transactions to directly capture the costs and record the work related to gathering the requirements, getting all the necessary construction permits, and preparing the design plans and specifications. Then you will enter the project transaction to capture the additional expenses incurred by the construction project manager.

A project transaction that does not affect the general ledger can also be billed if necessary. In this activity, the processed project transaction will be left as an internal burden expense for informational purposes and will not be billed or allocated.

Configuration Overview

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

- The *Construction* feature has been enabled on the *Enable/Disable Features* (CS100000) form to provide support for the construction functionality.
- On the *Project Templates* (PM208000) form, the *CONTM* project template has been created. This project template provides default settings for a construction project billed for time and material.

Process Overview

On the *Journal Transactions* (GL301000) form, you will create a batch of general ledger transactions with the project, project task, and cost code specified to record the work related to the first phase of the construction project. You will release the batch, which will generate the corresponding project transaction. Then you will review this

transaction on the *Project Transaction Details* (PM401000) form. Finally, on the *Project Transactions* (PM304000) form, you will create a batch of project transactions that represent additional work performed by the construction project manager that will not be billed and do not affect the general ledger; you will then release this batch.

System Preparation

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

1. As a prerequisite activity, complete *Account Groups: To Create an Off-Balance Group* to define the account group for collecting statistical information.
2. Download the *ITALIAN3_Cost_Budget.xlsx* file to your computer.
3. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded; you should sign in as the construction project manager by using the *ewatson* username and the *123* password.

Step 1: Creating a Project Based on the Project Template

To create a project based on a preconfigured project template, do the following:

1. Open the *Projects* (PM301000) 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** to create a new project, and in the Summary area, specify the following settings:
   - **Project ID**: `ITALIAN3`
   - **Customer**: *ITACOM*
   - **Template**: *CONTM*

     When you select the project template, the system fills in the relevant elements of the project with the settings specified for the template, including tasks and revenue budget lines.
   - **Description**: `Construction project (Italian Restaurant)`
3. Save your changes to the project.
4. On the table toolbar of the **Tasks** tab, click **Activate Tasks** to change the status of the project tasks to *Active*. An active project task can be selected in a document or transaction (or a detail line of these) that reflects work on or expenses of the project task.
5. On the **Revenue Budget** tab, make sure that revenue budget lines have been copied to the project from the selected project template.
6. On the table toolbar of the **Cost Budget** tab, click **Load Records from File**, and upload the cost budget from the *ITALIAN3_Cost_Budget.xlsx* file, which you have downloaded with the course. While you are uploading the lines, leave the default column mapping.
7. Save the project.
8. On the form toolbar, click **Activate Project**. The system assigns the project the *Active* status.
9. Sign out from the system.

Step 2: Creating General Ledger Transactions

To create a batch of general ledger transactions to represent the work related to the first phase of the construction project, do the following:

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

2. Open the *Journal Transactions* (GL301000) form.
3. On the form toolbar, click **Add New Record** to create a new batch of general ledger transactions, and in the Summary area, make sure *GL* is selected as the **Module**.
4. In the **Description** box, type `Construction permits, design plans, specifications`.
5. On the table toolbar, click **Add Row** to add the first row, which represents the expenses associated with procuring construction permits, and specify the following settings in the row:
   - **Account**: *54300 - Project Other Expense*
   - **Project/Contract**: *ITALIAN3*
   - **Project Task**: *01 - General Requirements*
   - **Cost Code**: *01-300*
   - **Debit Amount**: `15,400`
   - **Description**: `Construction permits`
6. Add the second row, which represents the expenses for design plans and specifications, and specify the following settings in the row:
   - **Account**: *54300 - Project Other Expense*
   - **Project/Contract**: *ITALIAN3*
   - **Project Task**: *01 - General Requirements*
   - **Cost Code**: *01-330*
   - **Debit Amount**: `37,500`
   - **Credit Amount**: `0`
   - **Transaction Description**: `Design plans and specifications`
7. Add the third row, which balances the batch of transactions, and specify the following settings in the row:
   - **Account**: *23015 - Accrued Expenses*
   - **Project**: *X* (inserted automatically)
   - **Cost Code**: *00-000*
   - **Credit Amount**: `52,900` (inserted automatically)
8. On the form toolbar, click **Remove Hold** to assign the general ledger transaction the *Balanced* status, and then click **Release** to release the transaction.

   When you release the general ledger transaction, for the line with the specified project and project task, the system creates the corresponding project transaction. In the created project transaction, the system inserts the account group to which the account in the transaction line is mapped.
9. On the *Project Transaction Details* (PM401000) form, in the Summary area, select *ITALIAN3* as the **Project**. In the table, review the project transaction (shown in the following screenshot) that has been created based on the GL transaction that you have processed earlier.

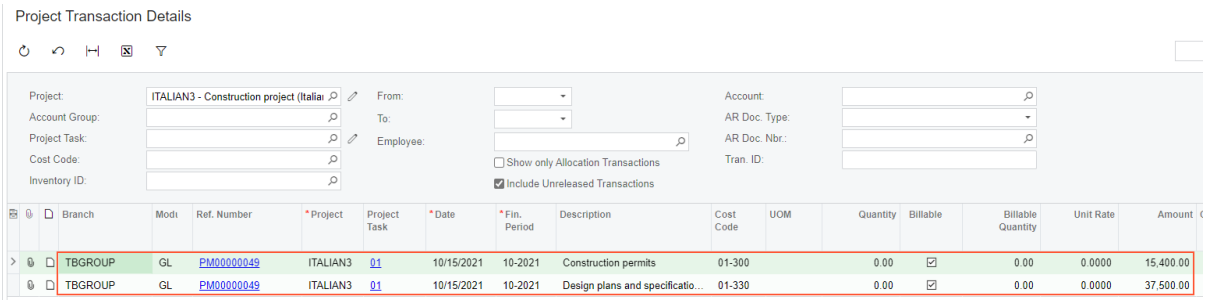


Figure: Project transaction prepared on release of the GL transaction

10. On the *Projects* (PM301000) form, open the *ITALIAN3* project, and on the **Cost Budget** tab, review the cost budget lines with the *01-300* and *01-330* cost codes. Notice that the actual amounts in these lines have been updated with the amounts from the project transaction.

Step 3: Creating a Project Transaction Without Posting to the General Ledger

To create a project transaction that represents the additional expenses, which do not affect the general ledger, do the following:

1. Open the *Project Transactions* (PM304000) form.
2. On the form toolbar, click **Add New Record** to create a new project transaction, and in the Summary area, make sure *PM* is selected as the **Module**.
3. Enter `Additional operational expenses (ITALIAN3 project)` as the **Description**.
4. On the table toolbar, click **Add Row**, and specify the following settings in the added row:
   - **Project**: *ITALIAN3*
   - **Project Task**: *01*
   - **Cost Code**: *01-311*

     Notice that the system warns you that the budget line with this project task, cost code, and account group has not been initially planned in the cost budget of the project.
   - **Account Group**: *BURDEN*
   - **Quantity**: `20`
   - **UOM**: *HOUR*
   - **Billable**: Cleared
   - **Amount**: `1,200`

   You leave the **Debit Account** and **Credit Account** columns empty, so that the corresponding general ledger transaction will not be created. The system also will not use this transaction for billing because you cleared the **Billable** check box in the line.
5. On the form toolbar, click **Save** and then **Release** to save your changes to the project transaction and release it.

   Notice that the **GL Batch Nbr.** column is empty, as shown in the following screenshot, indicating that no corresponding general ledger transaction has been created.
6. On the *Projects* (PM301000) form, open the *ITALIAN3* project, and on the **Cost Budget** tab, notice that a new cost budget line has been added to the budget (see the following screenshot) based on the project transaction that you created and released. The original budgeted values in the line are zero; the actual values in the line have been updated based on the project transaction that you have processed.

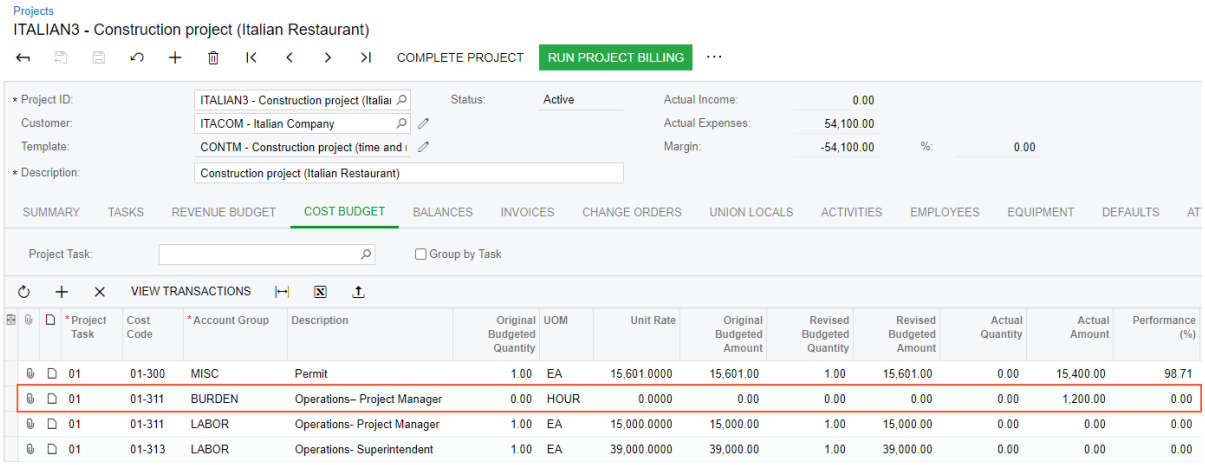


Figure: Project transactions prepared on release of the GL transaction

You have finished capturing costs for the project.

Part 2: Subcontracts and Accounts Payable

Lesson 3: 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
- Review the generated general ledger transactions and project transactions
- Review how the processed subcontract affects the project budget

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.

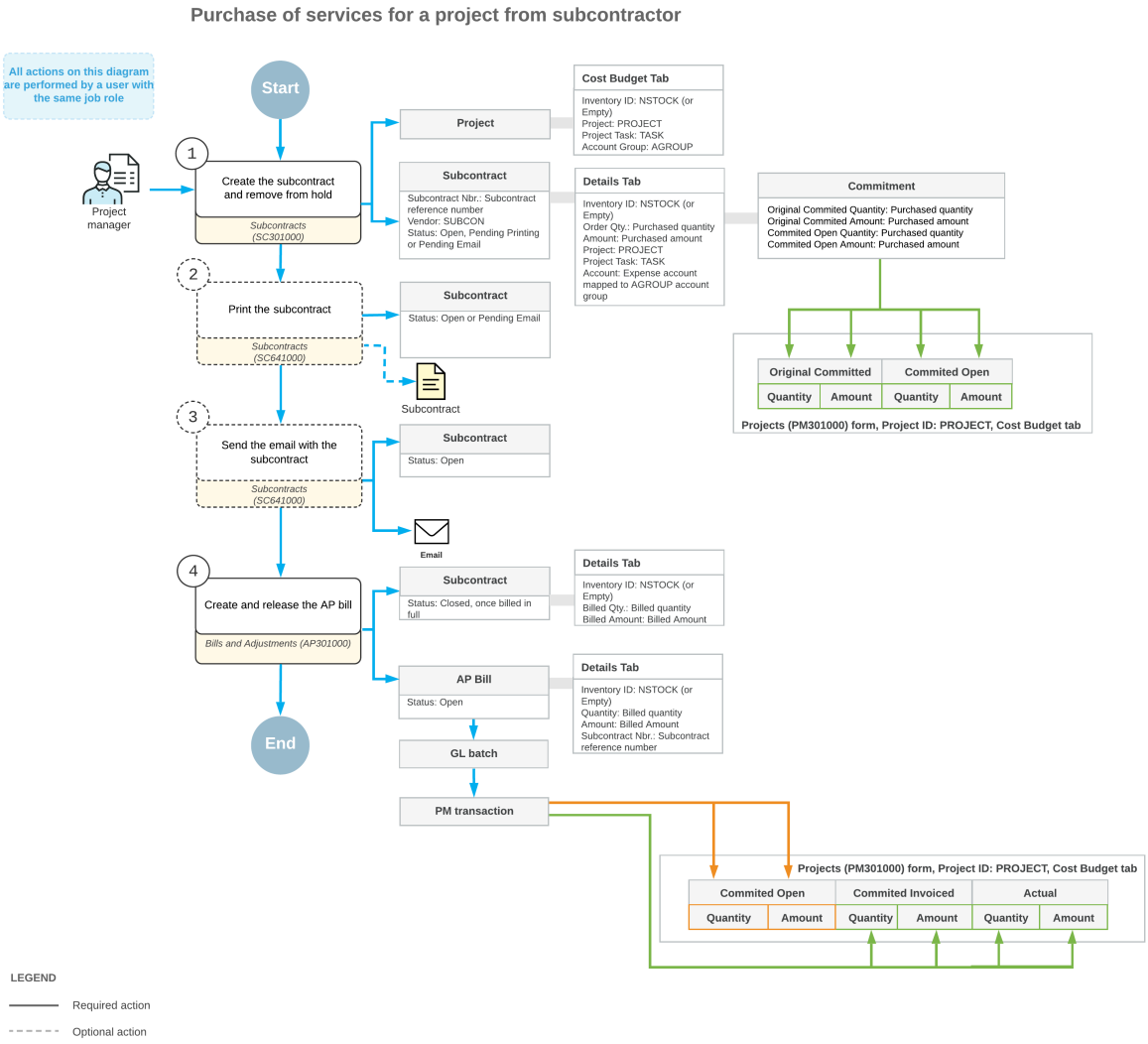
For each line, you specify the project budget key—that is, the project, the project task, and, optionally, the inventory ID and cost code—to record this commitment to the cost budget of the project. In a line, you can leave the **Inventory ID** box empty, or specify a non-stock item that does not require 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 will increase the vendor's balance in the system in the amount to be paid for received goods and will update 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.



Subcontracts: Process Activity

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

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on February 1, 2021, 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, 2021, 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, for the purposes of this activity, the following tasks have been performed:

- 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 *Stock Items* (IN202500) 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

Before you start working with subcontracts, do the following:

1. Launch the Acumatica ERP website, and sign in 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 *2/1/2021*. If a different date is displayed, click the Business Date menu button, and select *2/1/2021* 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:

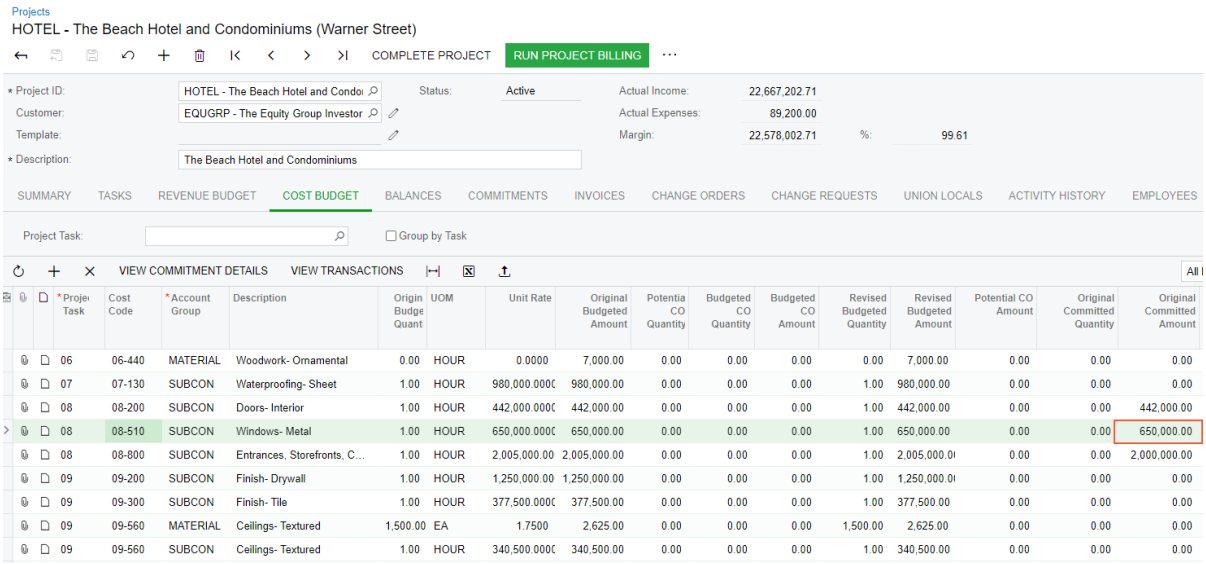
1. Open the *Subcontracts* (SC301000) form.

   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**: *2/1/2021*
   - **Start Date**: *2/1/2021*
   - **Description**: `Installing 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*	650,000
SUBCONTR	*HOTEL*	*08*	*08-200*	Doors and frames	*EA*	442,000
SUBCONTR	*HOTEL*	*08*	*08-800*	Entrance	*EA*	2,000,000

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, note 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.



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	Original Committed Quantity	Original Committed Amount
06	06-440	MATERIAL	Woodwork- Ornamental	0.00	HOUR	0.0000	7,000.00	0.00	0.00	0.00	0.00	7,000.00	0.00	0.00	0.00
07	07-130	SUBCON	Waterproofing- Sheet	1.00	HOUR	980,000.0000	980,000.00	0.00	0.00	0.00	1.00	980,000.00	0.00	0.00	0.00
08	08-200	SUBCON	Doors- Interior	1.00	HOUR	442,000.0000	442,000.00	0.00	0.00	0.00	1.00	442,000.00	0.00	0.00	442,000.00
08	08-510	SUBCON	Windows- Metal	1.00	HOUR	650,000.0000	650,000.00	0.00	0.00	0.00	1.00	650,000.00	0.00	0.00	650,000.00
08	08-800	SUBCON	Entrances, Storefronts, C...	1.00	HOUR	2,005,000.00	2,005,000.00	0.00	0.00	0.00	1.00	2,005,000.0	0.00	0.00	2,000,000.00
09	09-200	SUBCON	Finish- Drywall	1.00	HOUR	1,250,000.00	1,250,000.00	0.00	0.00	0.00	1.00	1,250,000.0	0.00	0.00	0.00
09	09-300	SUBCON	Finish- Tile	1.00	HOUR	377,500.0000	377,500.00	0.00	0.00	0.00	1.00	377,500.00	0.00	0.00	0.00
09	09-560	MATERIAL	Ceilings- Textured	1,500.00	EA	1.7500	2,625.00	0.00	0.00	0.00	1,500.00	2,625.00	0.00	0.00	0.00
09	09-560	SUBCON	Ceilings- Textured	1.00	HOUR	340,500.0000	340,500.00	0.00	0.00	0.00	1.00	340,500.00	0.00	0.00	0.00

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 *2/25/2021*.
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* (AP505200) 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. 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.

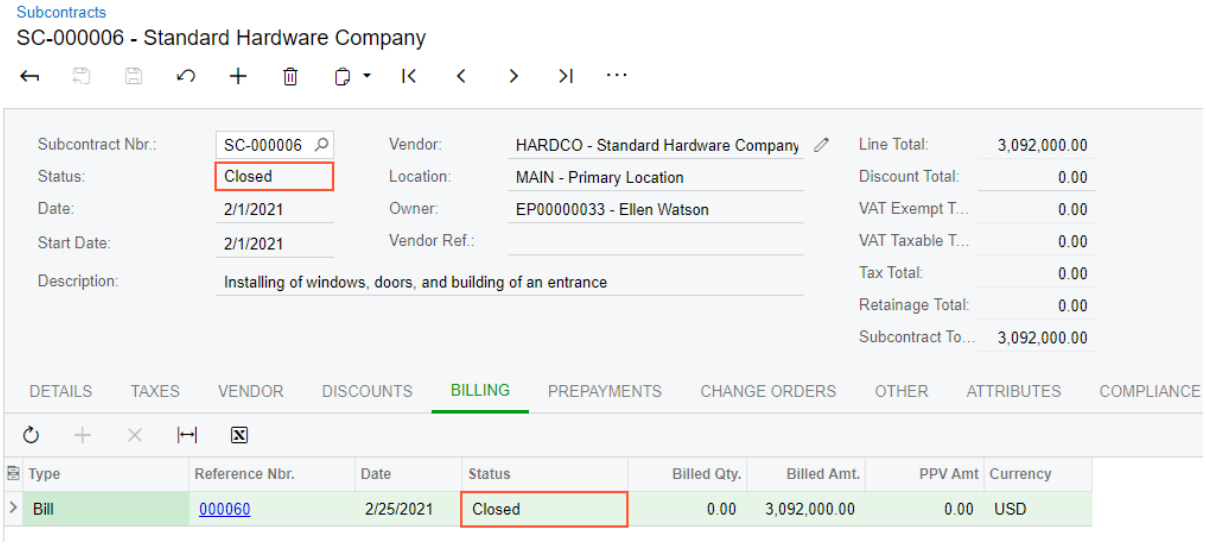


Figure: Closed subcontract

You have finished processing the subcontract document.

Lesson 4: 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.

  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.

  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.

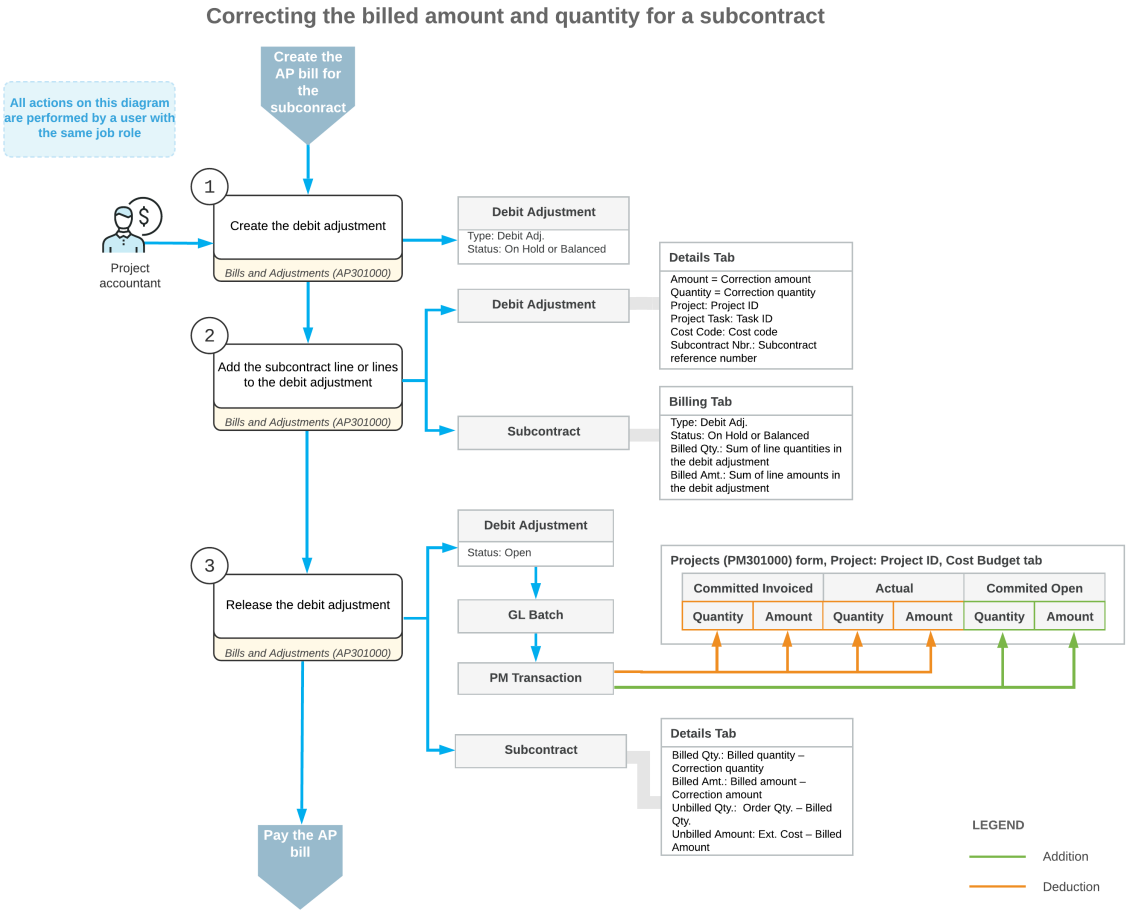
If a subcontract line had the **Closed** and **Completed** check boxes selected at the time of its addition to the debit adjustment, on release of this debit adjustment, the system clears the check boxes in the subcontract line. The clearing of both check boxes indicates that the line is not billed in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

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 *Single-Tier Change Management: Tracking Changes to Commitments*.

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.



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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on March 1, 2021, 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, $10,000.00 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, 2021, 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 $7,000.00, 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 as 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

Before you start correcting the bill, do the following:

1. Launch the Acumatica ERP website, and sign in 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, click the Business Date menu button, and select *3/25/2021* 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.

   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**: *3/25/2021*
- **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 *3/1/2021* with the *HOTEL* project and $10,000.00 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 must be $1,000.00 (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. Also, notice that the retainage amount in the line is equal to zero, because the processed debit adjustment does not change the retained amounts.
5. On the form toolbar, click **Save**.

Step 3: Releasing the Debit Adjustment and Reviewing the Result

You will 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 to *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.

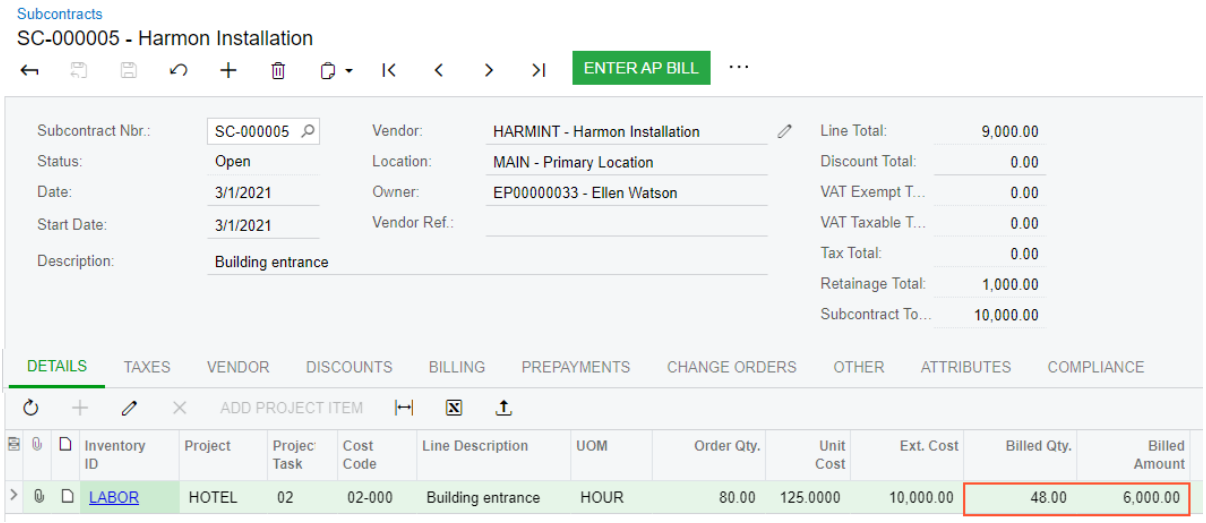


Figure: The adjusted amount and quantity in the subcontract line

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 5: Processing Negative Commitments

Single-Tier Change Management: General Information

Acumatica ERP provides change order functionality, which you can use to track changes to project's budgeted and committed values and to control the profitability of every change initiated by a customer. A change order is a document for profitability analysis and an audit of changes to the project revenue budget, commitments, and budgeted costs. Change orders do not alter the original figures of a project directly; they are tracked separately.

Learning Objectives

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

- Configure a change order class
- Create a change order for a project
- Update the project budget with the change order
- Update cost commitments with the change order
- Review the changes made with change orders in the project budget
- Prevent direct purchases for the project

Applicable Scenarios

You turn on the change order workflow for a project if you want to control changes made to the budgeted and committed values of the project budget and to track these changes at the budget level. To make changes to the project budget, you create change orders that do not alter the original budgeted and committed values.

You prevent the direct creation of purchase orders for the project if you want to create new purchase orders only by means of change orders to track these purchases as changes to the project budget.

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. You must specify a change order class for each change order you create, so you first need to configure change order classes on the *Change Order Classes* (PM203000) form.

To allow users to make changes to the project budget by using a change order of a particular class, on the **Details** tab of the *Change Order Classes* form, you select any combination of the following check boxes for the change order class:

- **Revenue Budget**: To allow changes to the revenue budget
- **Cost Budget**: To allow changes to the cost budget
- **Commitments**: To allow changes to committed values

You can grant access rights to particular change order classes for particular users. For example, you can configure access rights so that an employee responsible for purchases can use a change order class with only the **Commitments** check box selected on the **Details** tab of the *Change Order Classes* form. This class of change orders

will have only the **Commitments** tab on the *Change Orders* (PM308000) form, and the employee will not be able to adjust the revenue or cost budget of a project by using change orders.

Change order classes also make it possible to group change orders by their impact on projects. For example, you can segregate changes by class in reports to analyze which types of changes have the greatest impact on project profitability.

You can specify a default change order class in the **Default Change Order Class** box on the **General** tab (**General Settings** section) of the *Projects Preferences* (PM101000) form. The default change order class is then automatically assigned to each newly created document on the *Change Orders* form.

Change Order Workflow

To make it possible for users to track changes for a project by using change orders, you select the **Change Order Workflow** check box on the **Summary** tab of the *Projects* (PM301000) form for the project. You need to select this check box for each project for which you want to turn on the change order workflow.

Once you have selected this check box for a project, you can create a change order for the project on the *Projects* form by clicking **Create Change Order** on the More menu or clicking **Create Change Order** on the table toolbar of the **Change Orders** tab. The system creates a change order of the default class with the *On Hold* status and the project selected and opens it on the *Change Orders* (PM308000) form. If no default change order class is specified on the *Projects Preferences* (PM101000) form, you must select the change order class manually. You can override the default change order class, if needed.

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

In a change order with the *On Hold* status, on the **Revenue Budget** and **Cost Budget** tabs of the *Change Orders* form, you can increase and decrease values in existing project budget lines as well as create new budget lines. When you edit a change order line, you can see the following values: the original budgeted amount in the **Original Budgeted Amount** column; the released and draft change order amounts in the **Previously Approved CO Amount** and **Other Draft CO Amount** columns, respectively; and the revised budgeted amount in the **Revised Budgeted Amount** column.

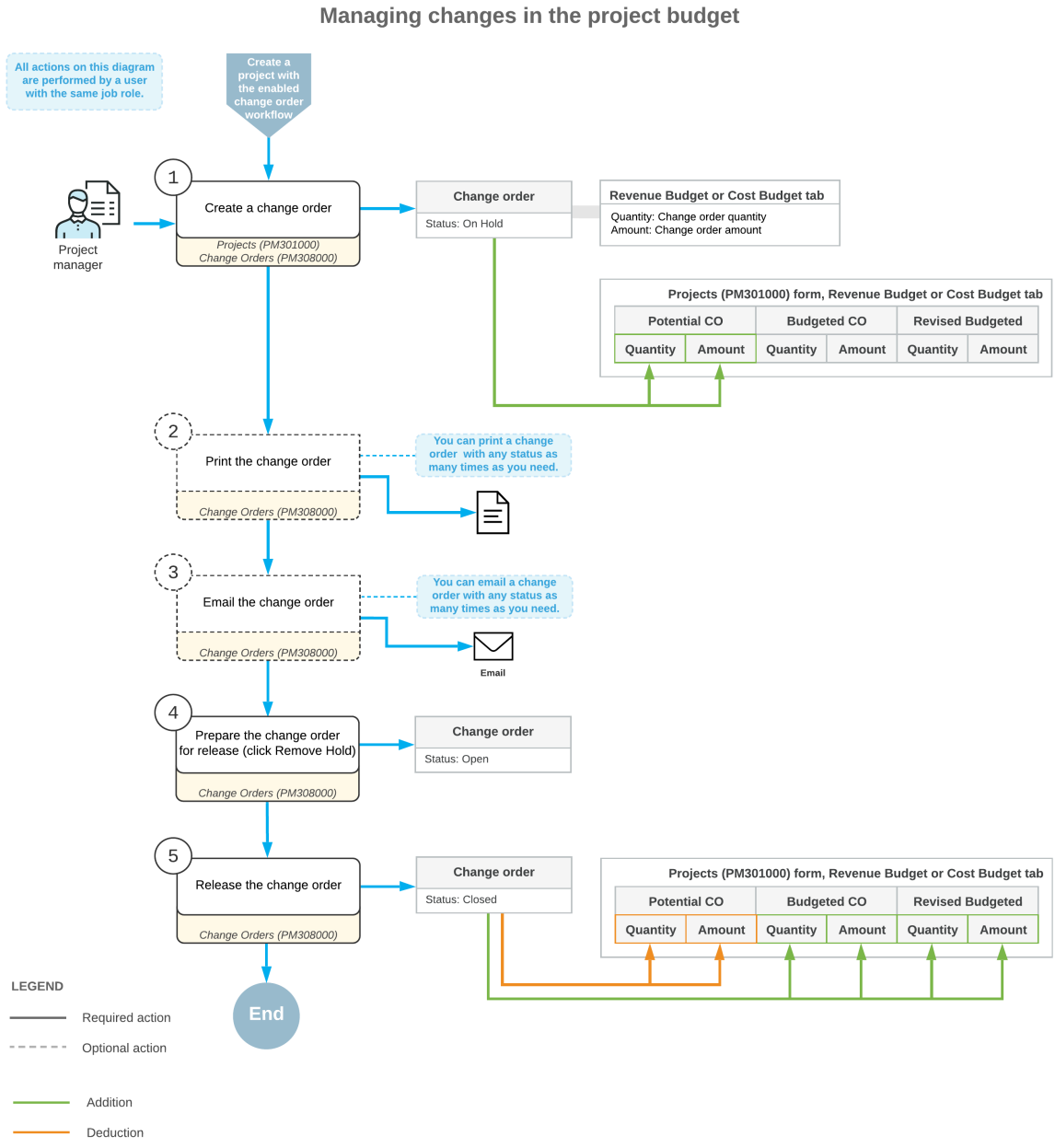
While a change order has the *On Hold* status, the **Quantity** and **Amount** values of a revenue budget line or cost budget line of the change order increase the **Potential CO Quantity** and **Potential CO Amount** of the corresponding revenue budget line or cost budget line of the project on the *Projects* form.

A change order with any status can be printed and emailed to the customer. To print the change order, on the form toolbar of the *Change Orders* form, you click **Print**. To email the change order, on the form toolbar of the same form, you click **Email**.

When a change order is released, the **Potential CO Quantity** and **Potential CO Amount** of the corresponding budget lines are decreased and the **Budgeted CO Quantity** and **Budgeted CO Amount** are increased on the *Projects* form.

Workflow of Managing Changes to the Project Budget

The following diagram illustrates the workflow of managing changes to the project budget.



Update of the Project Budget when a Change Order Is Released

When a change order is released, the budgeted values of the corresponding project on the *Projects* (PM301000) form are updated as follows:

- If the project has a revenue budget line with the same project task, account group, and inventory item as a revenue budget line of the change order, the system updates the following columns of the revenue budget line of the project on the **Revenue Budget** tab, with the column values computed as noted:
  - **Budgeted CO Quantity** = The total quantity of released change orders
  - **Budgeted CO Amount** = The total amount of released change orders
  - **Revised Budgeted Quantity** = **Original Budgeted Quantity** + **Budgeted CO Quantity**
  - **Revised Budgeted Amount** = **Original Budgeted Amount** + **Budgeted CO Amount**

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

  > As the result of the update of the **Pending Invoice Amount**, the amount can be a rational value, including a negative one.

- If the project has a cost budget line with the same project task, account group, and inventory item as a cost budget line of the change order, the system updates the following columns of the cost budget line of the project on the **Cost Budget** tab, with the column values computed as noted:
  - **Budgeted CO Quantity** = The total quantity of released change orders
  - **Budgeted CO Amount** = The total amount of released change orders
  - **Revised Budgeted Quantity** = **Original Budgeted Quantity** + **Budgeted CO Quantity**
  - **Revised Budgeted Amount** = **Original Budgeted Amount** + **Budgeted CO Amount**
- If the project does not have a revenue or cost budget line with the same project task, account group, and inventory item as a revenue or cost budget line of the change order, the system creates a new revenue or cost budget line for the project based on the revenue or cost budget line of the change order.

  > In the new cost or revenue budget line created based on the change order, the unit rate is copied from the corresponding change order line.

Single-Tier Change Management: To Create a Change Order Class

This activity will walk you through the process of configuring a change order class.

> The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that you, as the system administrator of the SweetLife Fruits & Jams company, need to configure a change order class to be used by a purchase manager for creating change orders for project commitments. The change order class must prevent users from changing the revenue and cost budgets of a project.

Configuration Overview

For the purposes of this activity, the following features have been enabled on the *Enable/Disable Features* (CS100000) form:

- *Project Accounting*, which provides support for the project accounting functionality
- *Construction*, which provides support for the construction functionality
- *Change Orders*, which gives you the ability to track changes to projects with change orders

Process Overview

You will configure a change order class on the *Change Order Classes* (PM203000) form.

System Preparation

Launch the Acumatica ERP website, and sign in as a system administrator by using the *gibbs* username and the *123* password.

Step: Configuring a Change Order Class

To configure a change order class that will be used for creating change orders for project commitments, perform the following instructions:

1. Open the *Change Order Classes* (PM203000) 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 enter the following settings in the Summary area:
   - **Class ID**: `COMMITMENT`
   - **Description**: `Change orders to commitments`

   Notice that the **Active** check box is selected by default.
3. On the **Details** tab, clear the **Cost Budget** and **Revenue Budget** check boxes, and leave the **Commitments** check box selected. With these settings, for the change orders with this class selected, users can make changes to only commitments without the cost and revenue budgets being affected.
4. Save the change order class you have created.

You have configured a change order class that can be used for creating change orders that affect project commitments.

Single-Tier Change Management: Tracking Changes to Commitments

By using the change order functionality in Acumatica ERP, you can manage changes to a project's committed values if the commitment functionality is configured for project accounting. For more information on commitments, see *Committed Costs: General Information*.

Change Order Workflow

On the *Change Orders* (PM301000) form, in a change order with the *On Hold* status, you can process the following changes to a project's committed values that have been created based on purchase orders of the *Normal* type:

- Creating a new purchase order for a project
- Adding a new line to an existing purchase order
- Adjusting an existing purchase order by adding a new negative line
- Making an addition to or deduction from an existing purchase order with a positive or negative amount

  > The amount of a negative change order line may not exceed the **Line Total** amount of the purchase order.

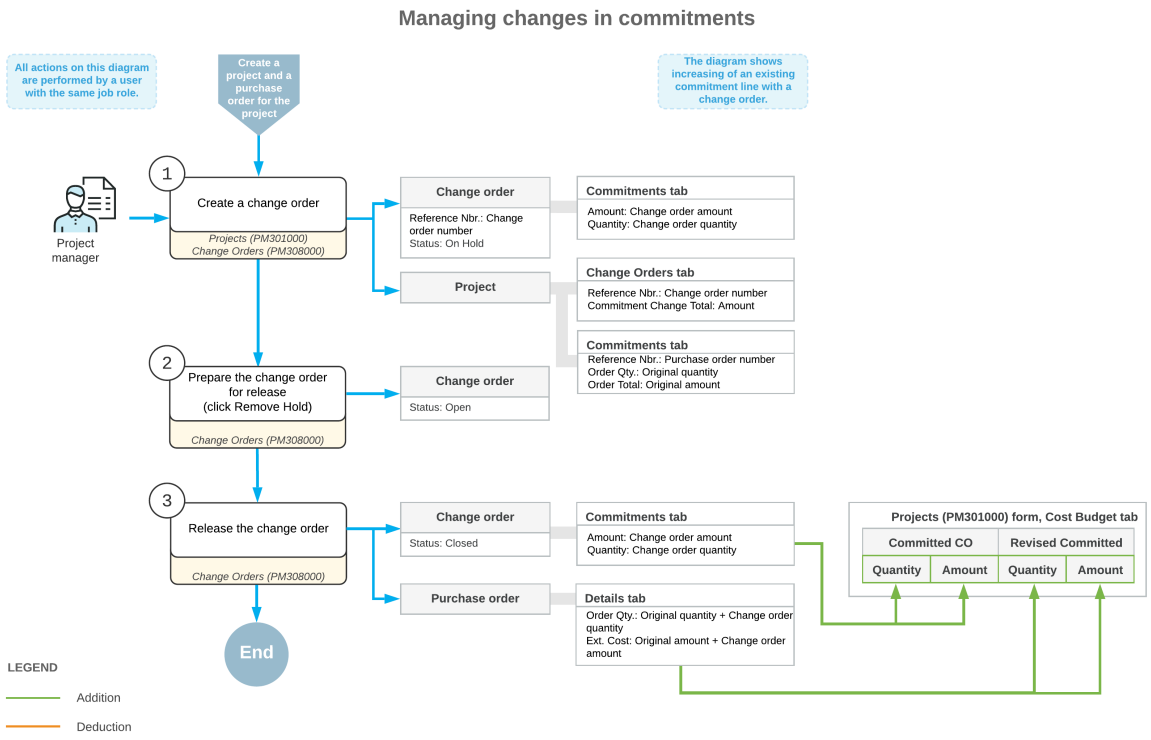
- Making an addition to or deduction from an existing purchase order line with a positive or negative amount

  > The quantity and amount of a negative change order line may not exceed the received or billed quantities and amounts of the purchase order.

When you release the change order, based on the **Quantity** and **Amount** of a commitment line on the **Commitments** tab of the *Change Orders* form, the system updates the related purchase order or creates a new one, depending on the type of the commitment line, and updates the **Committed CO Quantity** and **Committed CO Amount** of the corresponding cost budget line of the project on the *Projects* (PM301000) form.

Workflow of Managing Changes to Commitments

The following diagram illustrates the workflow of managing changes to commitments.



Update of a Purchase Order on the Release of a Change Order

When a change order is released, the system updates or creates purchase order or orders on the *Purchase Orders* (PO301000) form based on the commitment lines of the change order—that is, the lines on the **Commitments** tab of the *Change Orders* (PM301000) form—as follows:

- If a commitment line of the change order has the *Update* or *Reopen* status, the system updates the following columns of the corresponding purchase order line on the **Details** tab of the *Purchase Orders* form, with the column values computed as noted:
  - **Order Qty.** = Original **Order Qty.** of the purchase order line + **Quantity** of the corresponding commitment line of the change order
  - **Ext. Cost** = Original **Ext. Cost** of the purchase order line + **Amount** of the corresponding commitment line of the change order
  - **Requested** = **Order Date** of the corresponding commitment line of the change order
  - **Completed**, **Canceled**, and **Closed** check boxes = Cleared
- If a commitment line of the change order has the *New Line* status, the system adds a new line with the following column values to the **Details** tab of the *Purchase Orders* form of the corresponding purchase order:
  - **Order Qty.** = **Quantity** of the corresponding commitment line of the change order
  - **Ext. Cost** = **Amount** of the corresponding commitment line of the change order

    - **Requested** = **Order Date** of the corresponding commitment line of the change order
- If any commitment lines of the change order have the *New Document* status, the system groups these lines by vendor and creates a new purchase order on the *Purchase Orders* form for each vendor with key settings determined as follows:
    - The date of the created purchase order is the earliest **Order Date** of the commitment lines of the change order.
    - The **Requested** date of each purchase order line is the **Order Date** of the corresponding commitment line of the change order.
    - The description of the created purchase order is `Change Order #CONumber`, where `CONumber` is the reference number of the change order.

Update of the Project Budget on the Release of a Change Order

For each purchase order line on the *Purchase Orders* (PO301000) form updated by a change order, the system updates the corresponding project commitment. For each purchase order line created from a change order, the system creates a new project commitment. If the project has a cost budget line with the same project task, account group, and inventory item on the **Cost Budget** tab of the *Projects* (PM301000) form as an updated or newly created purchase order line, the system updates the cost budget line of the project. Otherwise, the system creates a new cost budget line for the project based on the commitment. The **Original Committed Quantity** and **Original Committed Amount** of the updated cost budget line remain the same, whereas other columns on the **Cost Budget** tab of the *Projects* form are updated with the column values computed as noted:

- **Revised Committed Quantity** = **Order Qty.** of the purchase order line
- **Revised Committed Amount** = **Ext. Cost** of the purchase order line
- **Committed CO Quantity** = **Revised Committed Quantity** – **Original Committed Quantity**
- **Committed CO Amount** = **Revised Committed Amount** – **Original Committed Amount**
- **Committed Open Amount** = **Open Amount** of the purchase order line

Subcontracts: To Update a Negative Line in a Subcontract

In this activity, you will learn how you can update a negative line in a subcontract with a change order.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on *3/22/2021*, the ToadGreen company hires a subcontractor, Standard Hardware Company, to perform a part of work for the hotel that is being built by ToadGreen. According to contract, Standard Hardware Company will install the watering system for the hotel and the price of performed work will be $450,000. The subcontractor agrees to provide the discount for the subcontract in the amount of $1,500.

Later, due to minor scheduling issues, Standard Hardware Company has agreed to increase the discount amount to $1,600. Acting as the construction project manager, you will process all the needed documents in the system.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction*, *Cost Codes*, and *Change Orders* features have 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 **Summary** tab, the **Change Order Workflow** check box is selected.
- On the *Stock Items* (IN202500) 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 on the *Subcontracts* (SC301000) form. Then on the *Change Orders* (PM308000) form, you will create and process a change order with the negative line for this subcontract. On the *Commitments* (PM306000) form, you will review the resulting commitments that the system has created based on the subcontract.

System Preparation

1. As a prerequisite activity, complete the *Single-Tier Change Management: To Create a Change Order Class* to create the change order class.
2. Launch the Acumatica ERP website and sign in as construction project manager using the *ewatson* username and *123* password.
3. 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 *3/22/2021*. If a different date is displayed, click the Business Date menu button, and select *3/22/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.
4. Open the *Projects Preferences* (PM101000) form, and on the **General** tab (**General Settings** section), make sure the **Internal Cost Commitment Tracking** check box is selected.

Step 1: Entering a Subcontract

To create a subcontract, do the following:

1. On the *Subcontracts* (SC301000) form, create a subcontract, and specify the following settings in the Summary area:
   - **Vendor**: *HARDCO (Standard Hardware Company)*
   - **Date**: *3/22/2021*
   - **Start Date**: *3/22/2021*
   - **Description**: `Watering system installation for HOTEL`
2. On the **Details** tab, add lines with the following settings.

Inventory ID	Project	Project Task	Cost Code	Line Description	UOM	Ext. Cost
SUBCONTR	*HOTEL*	*02*	*02-510*	`Watering system`	*EA*	`450,000`
SUBCONTR	*HOTEL*	*02*	*02-510*	`Discount on installation`	*EA*	`-1500`

3. In the Summary area, in the **Subcontract Total** box, make sure that the total is *448,500.00*.
4. On the form toolbar, click **Remove Hold** to assign the subcontract the *Open* status. The system creates commitments to the project based on the subcontract lines.
5. On the *Projects* (PM301000) form, open the *HOTEL* project and review the cost budget of the project. On the **Cost Budget** tab, make sure the budget line with the *02-510* cost code has appeared in the cost budget, and notice that the committed open amount for the lines equals the amount of the subcontract that you have processed ($448,500). The original committed values of the line equals the revised committed values.

Step 2: Processing Changes to the Subcontract

To change the project commitments by processing a change order to subcontract, do the following:

1. While remaining on the *Projects* (PM301000) form, on the More menu, click **Create Change Order**. The system creates a change order and opens it on the *Change Orders* (PM308000) form.
2. In the Summary area, specify the following settings:
   - **Class**: *COMMITMENT*
   - **Description**: `Decreasing the discount amount`
3. On the table toolbar on the **Commitments** tab, click **Select Commitments**.
4. In the **Select Commitments** dialog box, which opens, select the unlabeled check box in the commitment line with the *02* project task, *02-510* cost code, *SUBCONTR* inventory item, and *-1500* line amount, and click **Add Lines & Close**.

   The system adds the selected purchase order line to the change order and closes the dialog box. Notice that the status of the added line is *Update*.
5. In the added line, enter `-100` in the **Amount** box.

   The system calculates the **Potentially Revised Amount** value in the line, which is equal to *-1600*, as the sum of the **Ext. Cost** and **Amount** values. This is the revised amount of the subcontract line after processing the change order will be finished.
6. Save your changes to the change order.

   The **Commitment Change Total** in the Summary area must be equal to -$100, as shown in the following screenshot.

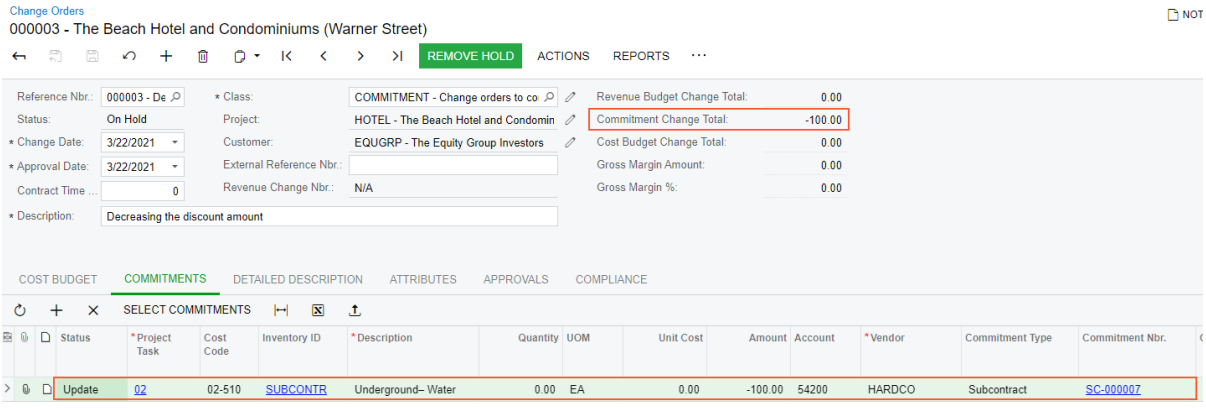


Figure: Changes to project commitments

7. On the form toolbar, click **Remove Hold** to assign the change order the *Open* status, and then click **Release** to release the change order.
8. On the *Subcontracts* (SC301000) form, open the subcontract that you have created earlier in this activity, and on the **Details** tab, review the subcontract lines. Notice that the **Ext. Cost** of the line with the *Discount on*

installation description is now *-1,600*. In the Summary area, notice that the total amount of subcontract has been adjusted and is now *$448,400.00*.

9. Open the *Commitments* (PM306000) form.
10. In the Summary area, select *HOTEL* in the **Project** box and *02-510* in the **Cost Code** box. Make sure other boxes are cleared, and on the **Cost Commitments** tab, review commitments that the system has created when you saved the subcontract with the *Open* status. There are two commitments:
    - The commitment with the *SUBCONTR* item and committed original and revised amounts of $450,000
    - The commitment with the *SUBCONTR* item and committed original amount of *-1,500* and revised committed amount of *-1,600*
11. On the **General** tab (**General Settings** section) of the *Projects Preferences* (PM101000) form, clear the **Internal Cost Commitment Tracking** check box, and save your changes to the project accounting preferences.

You have finished processing a negative commitment for the project.

Lesson 6: 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. He or she 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. He or she 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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on March 15, 2021, the ToadGreen Building Group company hired a subcontractor to install air conditioning systems for the hotel being built. By the subcontract, $2,400,000.00 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, 2021, ToadGreen receives the first bill for the completed work, which is 30% of the total work, in the amount of $720,000.00. 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, for the purposes of this activity, the following tasks have been performed:

- 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, 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

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 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 *3/25/2021*. If a different date is displayed, click the Business Date menu button, and select *3/25/2021* 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.

   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**: *3/25/2021*
- **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 `240,000.00`
   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 boxes for both lines, and make sure that the in the Selection area, the **Selection Total** amount is *$648,000*, 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 that 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.

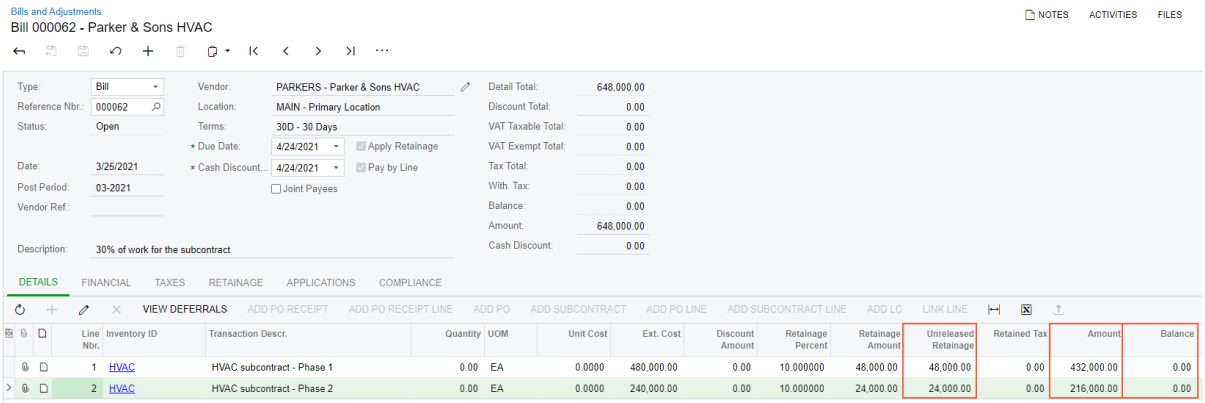


Figure: Open bill with partial payment and unreleased retainage

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*
   - **Vendor**: *PARKERS*
   - **Age as of Date**: 3/25/2021
3. On the form toolbar, click **Run Report**. In the displayed report, the retainage amount held for the AP bill (*72,000*) 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 Balances**: Selected
3. In the **Retainage to Release** column of the table, for the lines that are displayed, specify the following amounts:
   - Line 1: `4,800.00`
   - Line 2: `2,400.00`
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*, 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* 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* form that the system has opened.
6. On the *Release Payments* (AP505200) 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 7: Preparing Payments for Projects

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

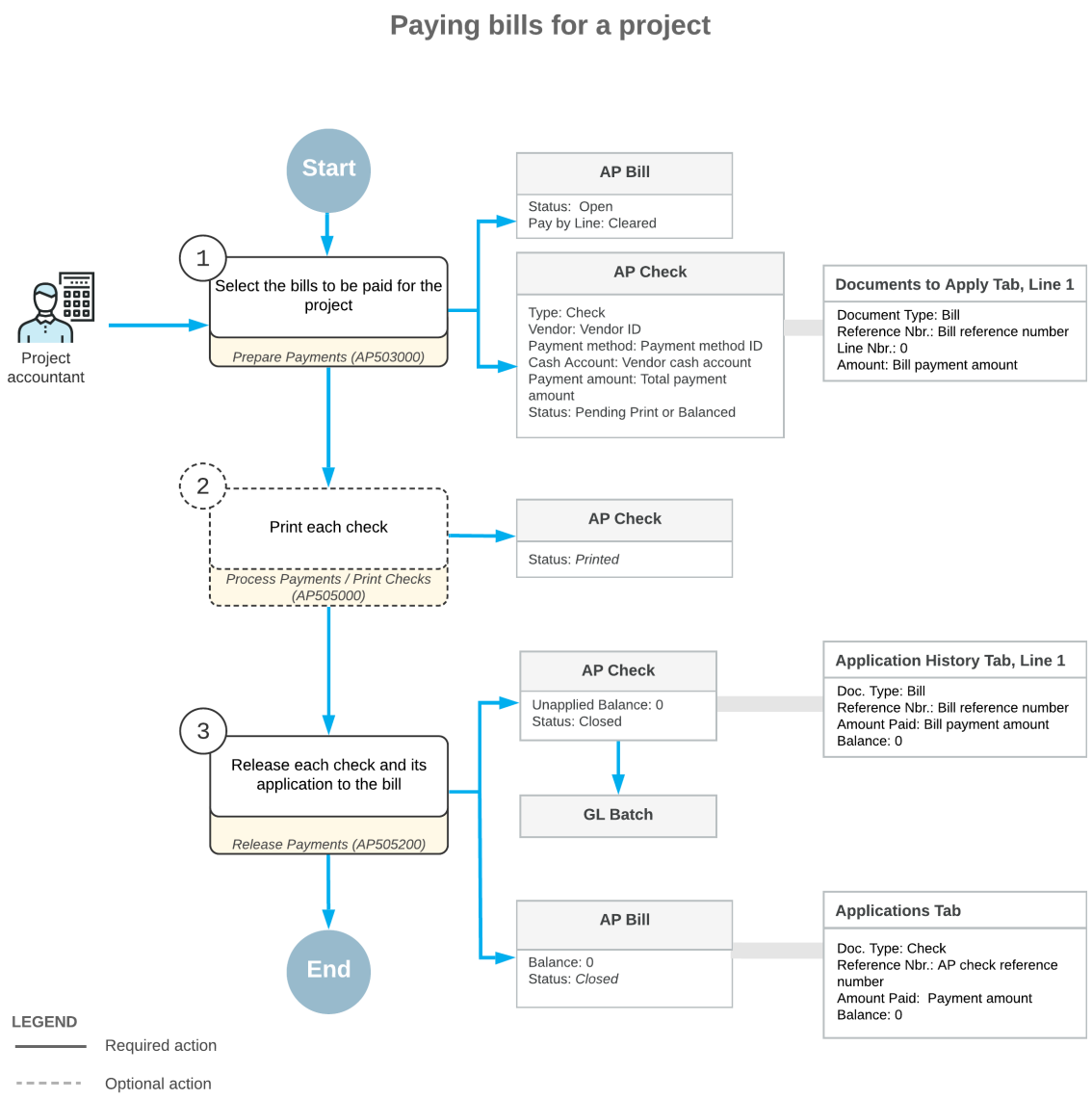
To speed the process of preparing and processing payments for a project, you initiate the payment process on the *Prepare Payments* (AP503000) form. In the Selection area of the *Prepare Payments* form, you select the project for which you want to list bills for possible payment generation. You can also 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.

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.



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*.

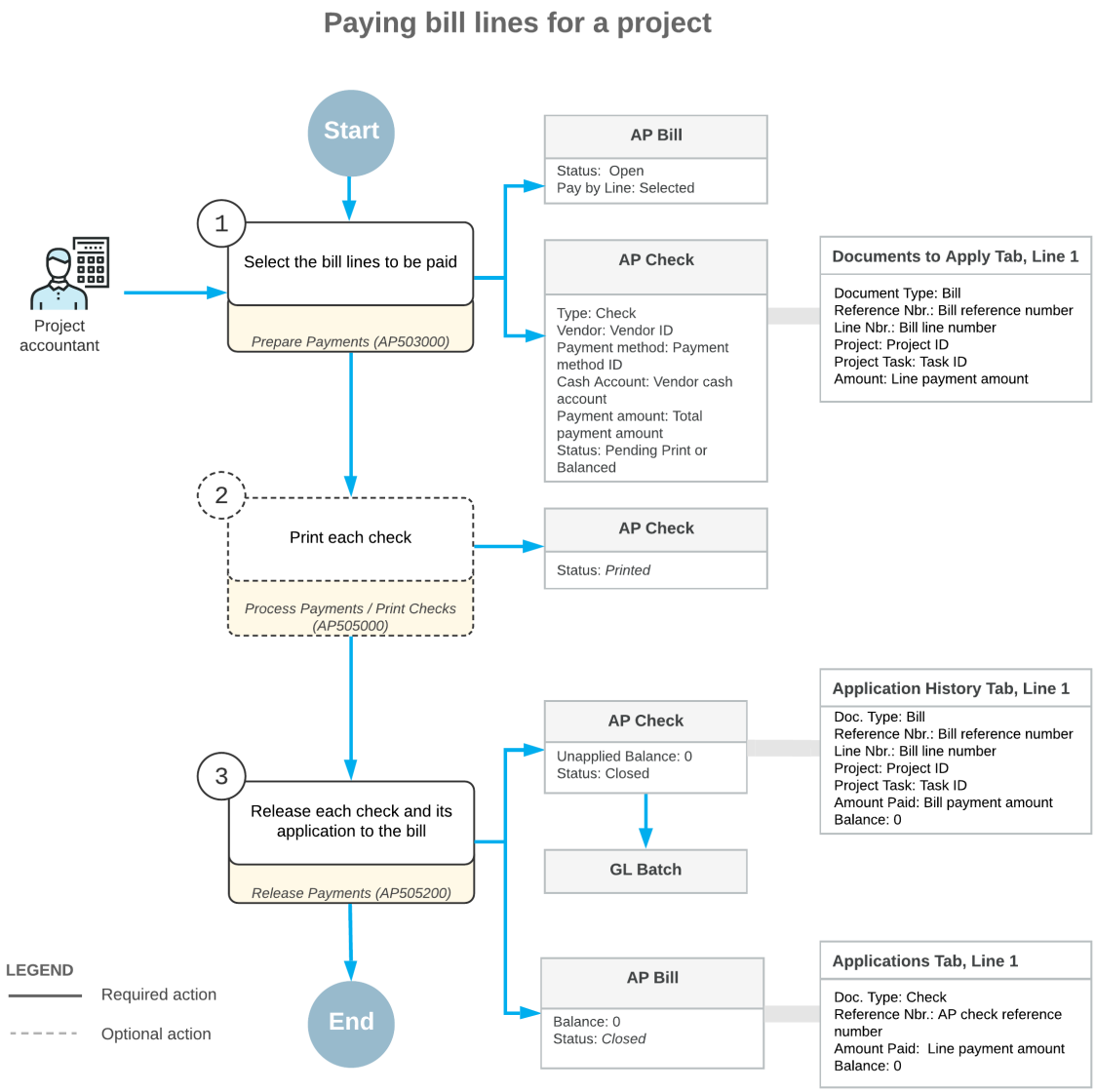
You can use the *Prepare Payments* (AP503000) form to process bill lines just as you use it to process bills. You can prepare and process payments that include both bills and individual bill lines. You start by specifying selection criteria, which can include the vendor and the project, for the bills 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.



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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, 2021, 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, 2021, the company also hired this vendor as a subcontractor to perform on-site work, which is broken into three phases.

On January 30, 2021, 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 1/15/2021) for all of the purchased materials, and another (with a date of 1/17/2021) 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, for the purposes of this activity, the following tasks have been performed:

- The following features have been enabled on the *Enable/Disable Features* (CS100000) form:
  - *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 the system, 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 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 *1/30/2021*. If a different date is displayed, click the Business Date menu button, and select *1/30/2021* 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**: *1/30/2021*
   - **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 separate 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 that 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** pop-up window, 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.

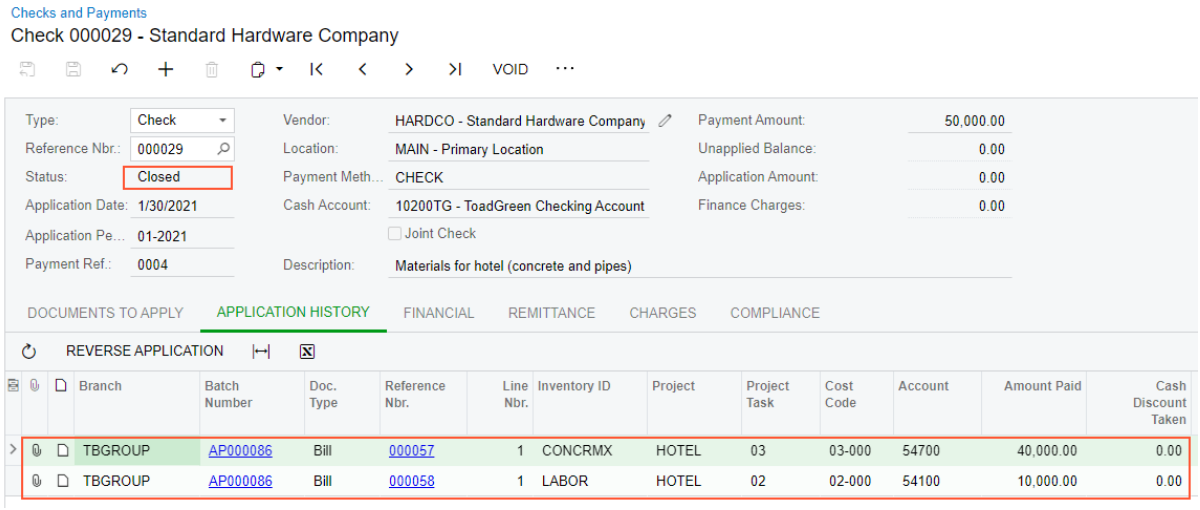


Figure: Single payment applied to lines of two bills

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 Details** tab of the *Checks and Payments* (AP302000) form.

Lesson 8: Preparing Joint Payments

Joint Payments: General Information

A joint check is a check generated for an accounts payable bill that is made payable to joint payees: your vendor, whose work is tracked as part of the project, and another supplier or contractor who supplies materials or work for this vendor directly. By issuing a joint check, you ensure that subcontractors pay their suppliers for their materials or their work on the project.

In Acumatica ERP Construction Edition, you can create an AP bill for the vendor you work with and specify other vendors in the bill who are not a part of a project but partially provide services or materials for the project. Then you can create a joint check for this bill to the vendor you work with and to its supplier or subcontractor.

Learning Objectives

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

- Specify joint payees for an AP bill
- Specify joint amounts for different lines of an AP bill
- Create joint checks and process the payments

Applicable Scenarios

You process a joint payment to register that the payment for the work performed for a particular project was made jointly to two or more parties.

Creation of an AP Bill from Joint Payees

You enter a bill for joint payees on the *Bills and Adjustments* (AP301000) form. You perform the same steps as you do when you add a bill for one vendor (including selecting the vendor that is working directly with you on the project), except that you select the **Joint Payees** check box in the Summary area, and specify the following settings for each payee involved on the **Joint Payees** tab:

- A joint payee or multiple joint payees who are not specified in the **Vendor** box, which you can specify in either of the following ways:
  - If the joint payee is also registered in your system as a vendor, you can select that vendor in the **Joint Payee (Vendor)** column.
  - If there is no vendor record that corresponds to the joint payee, you can type the name to be specified on the joint check in the text box in the **Joint Payee** column.
- In the **Bill Line Nbr.** column, the bill line for which the joint payee is going to receive the payment (if the **Pay by Line** check box is selected in the Summary area of the form).
- In the **Joint Amount Owed** column, the amount to be received by the joint payee, and in the **Joint Amount Paid** column, the amount to be paid to the payee in the check to be created.

  If the **Pay by Line** check box is selected in the Summary area of the form, on the **Details** tab, the **Balance** of the line is reduced by the amount specified in the **Joint Amount Paid** column when the payment is released. If the check box is cleared, the **Joint Amount Paid** affects the balance of the entire bill.

  The sum of the joint amounts paid by all joint payees cannot be greater than or equal to the total amount of the bill. At first, the joint balance for each line equals the joint amount owed. Partial payments may be applied to the lines, and as a result, the joint balance will decrease until it is completely paid and thus reduced to zero.

For details on creating a bill, see *AP Bills: General Information*.

Payment to Joint Payees

While you are viewing an AP bill for joint payees on the *Bills and Adjustments* (AP301000) form, you can create a check for the joint bill by clicking **Pay** on the form toolbar. The system opens the **Indicate Amounts to Pay** dialog box, in which you specify the amounts to be paid for each vendor. When you click **Confirm** in this dialog box, the system creates a separate AP check for each vendor. You then print and release the checks to apply the payment to the bill. For details on payments, see *AP Bill Payments: General Information*.

Joint Payments: Process Activity

This activity will walk you through the process of paying joint payees.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that a storm broke windows in the hotel that the ToadGreen company is building for its customer, Equity Group Investor. The ToadGreen project manager has decided to hire the Acme Doors & Glass vendor to handle the replacement of the broken windows, the disposal of waste, and the cleaning of the area. In turn, Acme Doors & Glass has hired the Standard Hardware Company and Conwaste subcontractors to dispose of the waste and clean the area. On *1/30/2021*, the subcontractors have performed part of the work and requested a first payment. Acting as the ToadGreen project manager, you need to process all of the documents involved in paying the companies for this part of the work, including joint payment.

Process Overview

To make a joint payment, you will first create an AP bill for the provided work on the *Bills and Adjustments* (AP301000) form; you will add joint payees to it and specify the joint payment amounts. Then you will create and process a check for this bill on the *Checks and Payments* (AP302000) form.

Configuration Overview

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

- The following features have been enabled on the *Enable/Disable Features* (CS100000) form:
  - *Construction*
  - *Payment Application by Line*
  - *Cost Codes*
- On the *Vendors* (AP303000) form, the *ACMEDO* vendor has been created. On the **Payment Settings**, the **Pay by Line** check box is selected for the vendor. In the **Cash Account** box, the *10200TG* cash account is specified for the vendor.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks, including the *02 - SITEWORK* project task.
- On the *Non-Stock Items* (IN202000) form, the *WDISMANT*, *WDISPOS*, and *WCLEAN* items have been added.

System Preparation

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 a 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 *1/30/2021*. If a different date is displayed, click the Business Date menu button, and select *1/30/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Processing a Joint Bill

Do the following:

1. On the *Bills and Adjustments* (AP301000) form, create a new document, and specify the following settings in the Summary area:
   - **Type**: *Bill*
   - **Vendor**: *ACMEDO (Acme Doors & Glass)*
   - **Apply Retainage**: Cleared
   - **Pay by Line**: Selected

     With this setting, you can prepare separate payment documents for individual bill lines.
   - **Joint Payees**: Selected
   - **Description**: `Replacing broken windows after the storm`
2. On the **Details** tab, add lines with the following settings.

Inventory ID	Quantity	Unit Cost	Project	Project Task	Cost Code
WDISMANT	*8*	*500.00*	*HOTEL*	*02*	*02-000*
WDISPOS	*4*	*200.00*	*HOTEL*	*02*	*02-000*
WCLEAN	*4*	*100.00*	*HOTEL*	*02*	*02-000*

3. On the **Joint Payees** tab, add lines with the settings specified in the table below.

Joint Payee (Vendor)	Joint Payee	Bill Line Nbr.	Joint Amount Owed
Empty	`Conwaste`	*2*	*450.00*
HARDCO	Empty	*3*	*210.00*

4. On the form toolbar, click **Remove Hold**, and then click **Release**.

Step 2: Processing a Joint Payment

Do the following:

1. While you are still on the *Bills and Adjustments* (AP301000) form with the bill that you have entered, on the form toolbar, click **Pay**.

2. In the **Indicate Amounts to Pay** dialog box, which opens, specify the details of the joint payments to be prepared by doing the following:
   a. In the **Amount to Pay** box, enter `390`.

      This amount defines the part of the payment that the *Acme Doors & Glass* vendor is going to receive.
   b. In the table line for the *Conwaste* joint payee, specify `190` in the **Joint Amount to Pay** column.
   c. In the table line for the *HARDCO* joint payee, specify `120` in the **Joint Amount to Pay** column.
   d. Click **Confirm**. The system closes the dialog box and prepares the following joint checks:
      - A $390 check, which is the payment to the *ACMEDO* vendor. The system opens this check on the *Checks and Payments* (AP302000) form.
      - A $190 check, which is the joint payment for the *Conwaste* joint payee.
      - A $120 check, which is the joint payment for the *HARDCO* joint payee.
3. On the *Checks and Payments* form with the $390 check, click **Remove Hold** on the form toolbar, and save your changes.
4. On the form toolbar, click **Go to Next Record** to open the $190 check. Click **Remove Hold** on the form toolbar, and save your changes.
5. Again click **Go to Next Record** on the form toolbar to open the $120 check. Click **Remove Hold** on the form toolbar, and save your changes.
6. Open the *Process Payments / Print Checks* (AP505000) form, and specify the following settings in the Selection area:
   - **Payment Method**: *CHECK*
   - **Cash Account**: *10200TG*
7. In the table, select the unlabeled check box for all three joint checks, and on the form toolbar, click **Process** to print the checks. A separate browser tab is opened showing the printable version of the checks.
8. Review the printable version of the check, and close the browser tab to return to the *Release Payments* (AP505200) form that the system has opened.
9. On the *Release Payments* form, make sure that the unlabeled check boxes are selected for all three payments, and on the form toolbar, click **Process** to release the payments.
10. On the *Bills and Adjustments* form, open the bill to *ACMEDO* for which you have processed the payment, and review the **Joint Amount Application** tab, as shown in the following screenshot.

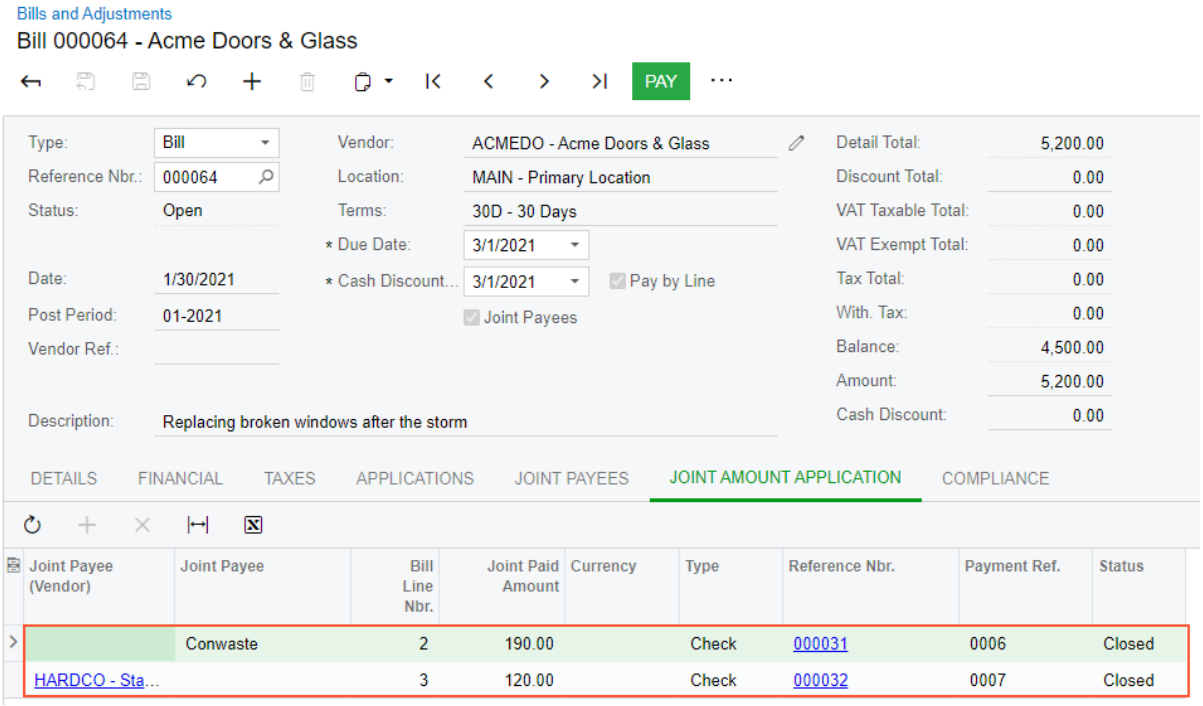


Figure: Joint payments prepared for the bill

You have prepared joint checks and partially paid the bill.

Lesson 9: Processing Compliance Documents and Lien Waivers

Compliance Documents: General Information

Companies that manage construction projects have requirements to protect their customers, vendors, suppliers, and partners from potential issues associated with compliance. These compliance issues might be associated with federal, state, and local governmental requirements, but may also be legal and procedural. By tracking compliance, a company can establish the compliance documents that should be captured for different types of entities, so that this information can be used for in-place warnings to users and for reports on project exposure.

Learning Objectives

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

- Configure categories and statuses for compliance documents
- Enter compliance documents for a vendor
- Track expired compliance documents

Applicable Scenarios

You apply a compliance document to an entity in the system when it is necessary to warn users about potential issues associated with compliance.

Creation of Compliance Types

You can use compliance types—that is, types of compliance documents—for tracking and reporting on compliance issues. The following compliance types are predefined on the **Custom Attributes** tab of the *Compliance Preferences* (CL301000) form:

- *Certificate*
- *Insurance*
- *Lien Waiver*
- *Notice*
- *Status*
- *Other*

You define the values of the custom attributes for any of the listed compliance types on the *Compliance Preferences* form. On the **Common Attributes** tab of the form, you can also configure common attributes that are available for all types of compliance documents. Once attribute values have been configured for a compliance type, you can enter and view compliance documents of that type on the *Compliance Management* (CL401000) form.

Warnings About Compliance Issues

Each compliance document can be associated with various types of documents and with multiple entities, such as project, project task, cost code, vendor, and customer. On the **Compliance** tab of each of the following forms, you can enter and review the compliance document associated with the document or entity:

- *Vendors* (AP303000)
- *Bills and Adjustments* (AP301000)
- *Checks and Payments* (AP302000)
- *Customers* (AR303000)
- *Invoices and Memos* (AR301000)
- *Projects* (PM301000)
- *Project Tasks* (PM302000)
- *Project Transactions* (PM304000)
- *Purchase Orders* (PM301000)
- *Change Orders* (PM308000)
- *Subcontracts* (SC301000)

Based on the entered information, the system warns users of any records with compliance issues where applicable. For example, if a compliance document is overdue for a particular bill, the system displays a warning message on the *Bills and Adjustments* form.

Compliance Documents: To Configure Attributes for Compliance Documents

This activity will walk you through the process of specifying custom attributes for compliance documents.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company needs to keep track of the insurance documents and certificates in the system. Acting as a ToadGreen system administrator, you need to specify the values for the custom attributes of the *Insurance*, *Certificate*, and *Status* compliance type, so that users can specify their values for the compliance documents.

Configuration Overview

For the purposes of this activity, the *Construction* feature has been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form.

System Preparation

Launch the Acumatica ERP website, and sign in as a system administrator by using the *gibbs* username and the *123* password.

Step: Configuring Document Categories and Statuses

To perform configuration, do the following:

1. Open the *Compliance Preferences* (CL301000) form.
2. On the **Custom Attributes** tab, in the **Attribute** box, select *Insurance* to specify the possible types for the insurance documents.
3. In the table, add five rows (by clicking **Add Row** on the table toolbar for each), and specify the following values in the **Value** column of each row:
   - `General Liability Coverage`
   - `Worker's Compensation Insurance`
   - `Commercial Automotive Insurance`
   - `Surety Bonds`
   - `Asset Protection`
4. In the **Attribute** box, select *Certificate* to specify the possible types for the certificate documents.
5. In the table, add five rows, and specify the following values in the **Value** column of each row:
   - `Safety Certification`
   - `Hazardous Materials Certification`
   - `Occupational Safety and Health Administration (OHSA)`
   - `Project Management Institute (PMI)`
   - `Leadership in Energy & Environmental Design (LEED)`
6. In the **Attribute** box, select *Status* to specify the possible statuses for all compliance documents.
7. In the table, add two rows, and specify the following values in the **Value** column of each row:
   - `Valid`
   - `Expired`
8. Save your changes.

You have configured the types of compliance documents and defined the applicable statuses for them.

Compliance Documents: To Track Compliance Documents for a Vendor

This activity will walk you through the process of working with compliance documents.

Story

Suppose that the Standard Hardware Company vendor has provided the ToadGreen company with its OSHA certificate and its general liability insurance. Acting as a construction project manager, you need to enter this information in the system.

Configuration Overview

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

- 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 added.

Process Overview

You will add compliance documents on the *Compliance Management* (CL401000) form. You will then review the documents of a particular vendor on the *Vendors* (AP303000) form.

System Preparation

Do the following:

1. As a prerequisite activity, complete the *Compliance Documents: To Configure Attributes for Compliance Documents* to configure custom attributes for compliance documents.
2. Launch the Acumatica ERP website, and sign in as a construction project manager by using the *ewatson* username and the *123* password.
3. 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 *1/30/2021*. If a different date is displayed, click the Business Date menu button, and select *1/30/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Entering Compliance Documents

To enter the OSHA certificate and general liability insurance documents, do the following:

1. Open the *Compliance Management* (CL401000) form.
2. On the **All Records** tab, click **Add Row** on the table toolbar, and specify the following settings in the added row:
   - **Document Type**: *Certificate*
   - **Creation Date**: *1/30/2021*
   - **Document Category**: *Occupational Safety and Health Administration (OHSA)*
   - **Status**: *Valid*
   - **Required**: Selected
   - **Received from Vendor**: Selected
   - **Effective Date**: 1/1/2021

- **Expiration Date**: 1/31/2021
- **Vendor**: *HARDCO*
- **Certificate Number**: `235568`

3. Save the changes.
4. Again click **Add Row** on the table toolbar, and specify the following settings in the added row:
   - **Document Type**: *Insurance*
   - **Creation Date**: *1/30/2021*
   - **Document Category**: *General Liability Coverage*
   - **Status**: *Valid*
   - **Required**: Selected
   - **Received from Vendor**: Selected
   - **Effective Date**: The first day of the current year
   - **Expiration Date**: The last day of the current month
   - **Limit**: `10,000,000`
   - **Vendor**: *HARDCO*
   - **Insurance Company**: `Insurance of NY`
   - **Policy**: `865532`
5. Save the changes.

Step 2: Tracking the Compliance Documents

Do the following:

1. Open the *Vendors* (AP303000) form.
2. Select the *HARDCO* vendor, and make sure the compliance documents are shown on the **Compliance** tab.
3. In the info area, in the upper-right corner of the top pane, change the business date to 2/1/2021. On the **Compliance** tab, review the compliance expiration warnings for each line.

   Because you have specified the expiration date of the compliance documents as the last day of the current month, the system now marks those documents as expired.
4. Open the *Bills and Adjustments* (AP301000) form.
5. On the form toolbar, click **Add New Record**, and in the Summary area, specify the following settings:
   - **Type**: *Bill*
   - **Vendor**: *HARDCO*

   As soon as you select the *HARDCO* vendor, a warning about the expired compliance document appears next to the **Vendor** box.
6. Close the form without saving your changes to the bill, which was created solely for testing purposes.

You have added compliance documents for the vendor and verified that the compliance is tracked.

Compliance Documents: Lien Waivers

A lien waiver is a compliance document involved in the payment process for a project. The party that receives a payment (for instance, a contractor, subcontractor, or supplier of materials) signs a lien waiver to waive their rights against the property in exchange for the payment.

Learning Objectives

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

- Configure the automatic generation of lien waivers
- Print and email lien waivers
- Manually add a lien waiver for a document
- Set up warnings on outstanding lien waivers

Applicable Scenarios

In construction projects, you issue lien waivers to reflect that a payee waives their lien rights for a corresponding amount in exchange for the received payment or the promise of payment.

Lien Waiver Configuration Checklist

The system will generate lien waivers if the following configuration conditions are met:

- The generation of lien waivers of the particular type (conditional or unconditional) has been configured on the *Compliance Preferences* (CL301000) form.
- The **Generate Lien Waivers Based on Project Settings** check box is selected for the particular vendor (or joint payee) on the **Financial** tab of the *Vendors* (AP303000) form. Also, on the **Mailing & Printing** tab of this form, mailing settings have been configured for the vendor.
- The vendor (or joint payee) belongs to a vendor class that is listed in the settings of the project to which the commitment is performed—that is, it is listed in the table on the **Lien Waiver Settings** tab of the *Projects* (PM301000) form.
- The accounts payable check has the related commitment (that is, a subcontract or a purchase order); the amount of this commitment is larger than or equal to the minimum commitment amount specified on the *Projects* form for the vendor class to which the vendor (or joint payee) belongs.
- If the accounts payable check includes lines related to multiple projects, the related accounts payable bills must have the **Pay by Line** check box selected in the Summary area of the *Bills and Adjustments* (AP301000) form.

For detailed descriptions of the lien waiver types and settings, see the sections below.

Configuration of Lien Waivers for Vendors

You can set up the automatic generation of lien waivers in the system for conditional or unconditional lien waivers. You also can manually create lien waivers and edit them (including those generated automatically).

The system automatically generates lien waivers for the vendors that belong to the vendor classes that have the **Generate Lien Waivers Automatically** check box selected on the **General** tab of the *Vendor Classes* (AP201000) form.

For a particular vendor of the class, you can disable the generation of lien waivers by clearing the **Generate Lien Waivers Based on Project Settings** check box on the **Financial** tab of the *Vendors* (AP303000) form.

For each particular project, you can configure the list of vendors for which the lien waivers should be generated by specifying the applicable vendor classes on the **Lien Waiver Settings** tab of the *Projects* (PM301000) form. For each vendor class, you specify a minimum commitment amount so that lien waivers are automatically generated for each project commitment whose amount is larger than or equal to the specified minimum amount.

If the primary vendor and the joint vendor are paid with one accounts payable check, one lien waiver is generated for each combination of vendor and joint payee. After the lien waiver is processed, one printed form of the document is attached to the primary vendor and one to the joint payee.

Conditional Lien Waivers

The system generates two types of conditional lien waivers: partial lien waivers and final lien waivers. You can set up the automatic generation of lien waivers in the system for conditional lien waivers. You also can manually create lien waivers, and edit lien waivers (including those generated automatically).

You enable the generation of conditional waivers in the system by selecting the **Automatically Generate Lien Waivers** check box in the **Conditional Lien Waiver** section on the *Compliance Preferences* (CL301000) form. The system will generate lien waivers on paying an AP bill—that is, when the status of the corresponding accounts payable check changes to *Pending Printing* or *Balanced*.

Conditional lien waivers for partial payment are generated when a progress payment on the project is expected. A signed lien waiver of this type becomes effective immediately after the payment has been prepared.

Final lien waivers of this type are generated in any of the following cases:

- The entire commitment value is to be paid at one time.
- The payment in question is the final payment for a commitment—that is, other lien waivers related to the same combination of project, vendor, and commitment exist in the system, and the lien notice amount is specified. The lien notice amount is equal to the sum of all lien waiver amounts related to the combination of project, vendor, and commitment (excluding newly created lien waivers) plus the AP bill amount.

A signed final lien waiver becomes effective only after the payment has been prepared. The amount of an automatically generated final conditional lien waiver equals the amount of the accounts payable bill.

Unconditional Lien Waivers

The system generates two types of unconditional lien waivers: partial lien waivers and final lien waivers. You enable the generation of unconditional waivers in the system by selecting the **Automatically Generate Lien Waivers** check box in the **Unconditional Lien Waiver** section of the *Compliance Preferences* (CL301000) form. The system will generate lien waivers when an AP bill is paid—that is, when the status of the corresponding accounts payable check is changed to *Pending Printing* or *Balanced*.

Unconditional waivers for partial payment are generated when a progress payment on the project is expected. A lien waiver of this type becomes effective after it has been signed, regardless of whether the payment has actually been received.

Final lien waivers of this type are generated in any of the following cases:

- The entire commitment value is to be paid at one time.
- The payment in question is the final payment for a commitment, that is, other lien waivers related to the same combination of project, vendor, and commitment exist in the system, and the lien notice amount is specified. (The lien notice amount equals the sum of all lien waiver amounts related to the combination of project, vendor, and commitment (excluding newly created lien waivers) plus the amount paid.)

A final lien waiver becomes unconditionally effective once it has been signed, even if no payment has actually been received. The amount of an automatically generated unconditional lien waiver will equal the amount paid on the accounts payable bill.

Manual Creation of Lien Waivers

You may need to manually add a lien waiver in the following cases:

- The automatic generation of conditional or unconditional lien waivers is not set up in the system.
- Generation of lien waivers has not been configured for a particular vendor for which you need to create a lien waiver.

- An accounts payable bill is not linked to a project commitment (that is, to a purchase order or a subcontract).

You can manually add a lien waiver as follows:

- On the *Compliance Management* (CL401000) form, you can add a row to the table, and select *Lien Waiver* in the **Document Type** column, and specify the type of the lien waiver in the **Document Category** column. Then you need to specify the document (accounts payable bill or check) for which the lien waiver is being added, the corresponding project, the lien waiver amount, and other applicable details. In the payment created for the bill for which a manual lien waiver was specified, you can review this lien waiver on the **Compliance** tab of the *Checks and Payments* (AP302000) form.
- On the *Bills and Adjustments* (AP301000) form, you open the document for which you need to create a lien waiver, and on the **Compliance** tab, you add a row for a lien waiver. In this line, you select the **Link to Payment** check box, select *Lien Waiver* in the **Document Type** column, and specify the type of the lien waiver in the **Document Category** column.

Notification About Outstanding Lien Waivers

An outstanding lien waiver is a lien waiver that has not been marked as received and whose **Through Date** on the *Compliance Management* form is earlier than the current business date in the system. The system searches for outstanding lien waivers through all compliance documents related to the particular combination of the project and primary and joint vendors.

You configure the notification about outstanding lien waivers on the *Compliance Preferences* (CL301000) form. To do this, you select the **Warn of Outstanding Lien Waivers During AP Bill Entry** check box to show a warning when a user enters an accounts payable bill. You can also select the **Warn of Outstanding Lien Waivers when Selecting AP Bill for Payment** to show a warning when a user attempts to pay a bill. To completely prevent the payment of bills for which linked outstanding lien waivers exist, you select the **Stop Payment of AP Bill when There Are Outstanding Lien Waivers** check box.

If the primary vendor specified in an accounts payable check has an outstanding lien waiver, the payment for the joint payee will be prohibited from processing as well.

Mass-Processing of Lien Waivers

You run the printing or emailing of lien waivers on the *Print/Email Lien Waivers* (CL502000) form. On this form, you select *Print Lien Waivers* or *Email Lien Waivers* in the **Action** box, select the unlabeled check boxes in the rows for the lien waivers to be processed, and click **Process** on the form toolbar. The system prepares printable forms for the selected documents. For the joint payments, the printable form is generated both for the primary vendor and for all joint payees in the check.

Compliance Documents: To Configure Lien Waivers

This activity will walk you through the process of configuring the mailing and generation of lien waivers.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company requires conditional lien waivers to be automatically generated when payments of an amount greater than $2000 are submitted. Acting as a system administrator, you need to configure

the mailing and automatic generation of lien waivers. Then you need to configure the automatic generation of lien waivers for a particular vendor.

Configuration Overview

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

- The *Construction* and *Construction Project Management* features have been enabled on the *Enable/Disable Features* (CS100000) form.
- On the *Vendor Classes* (AP201000) form, the *SUBCON* vendor class has been created.
- On the *Projects* (PM301000) form, the *HOTEL* project has been defined.

System Preparation

Before beginning this activity, you should sign in as a system administrator by using the *gibbs* username and the *123* password.

Step 1: Configuring the Mailing of Lien Waivers

The processing of lien waivers includes emailing the documents to vendors who should return signed versions of them. In this step, you will perform the needed configuration of this mailing so that the system can generate emails with lien waivers attached.

To configure the mailing, do the following:

1. Create a notification template for lien waivers as follows:
   a. Open the *Notification Templates* (SM204003) 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.

   b. Click **Add New Record** on the form toolbar, and specify the following settings in the Summary area:
      - **Screen Name**: *Print/Email Lien Waivers (CL502000)*
      - **Description**: `Lien Waivers`
      - **Subject**: `Lien waiver`
   c. In the text editor area on the **Message** tab, enter the following text:

      ```
      Dear Vendor,

      Your lien waiver is attached. Please return a signed version of the
      document.

      Sincerely yours,

      ToadGreen Building Group
      ```

   d. Save your changes.
2. On the *Vendor Classes* (AP201000) form, open the *SUBCON* vendor class.
3. On the **Mailing & Printing** tab, do the following:
   a. In the line with the *Conditional Final* mailing in the **Mailings** table, select *Lien Waivers* in the **Notification Template** column. Make sure that the **Active** check box is selected and *CL.64.20.03* is specified in the **Report** box in the line.
   b. In the **Recipients** table, add a new line and select *Remittance* in the **Contact Type** box.

c. In the line with the *Conditional Partial* mailing in the **Mailings** table, select *Lien Waivers* in the **Notification Template** column. Make sure that the **Active** check box is selected and *CL.64.20.01* is specified in the **Report** box in the line.

d. In the **Recipients** table, add a new line and select *Remittance* in the **Contact Type** box.

e. Save your changes.

When generating emails with lien waivers, the system will insert the email address of the remittance contact of the vendor as the recipient address. Emails will be sent from the default system email account.

Step 2: Configuring the Automatic Generation of Lien Waivers for a Vendor

Do the following:

1. On the **Lien Waiver Settings** tab of the *Compliance Preferences* (CL301000) form, do the following:
   a. Select the **Automatically Generate Lien Waivers** check box in the **Conditional Lien Waivers** section.
   b. Review the default settings, and click **Save** on the form toolbar.
2. Open the *HOTEL* project on the *Projects* (PM301000) form.
3. In the **Conditional Lien Waivers** section on the **Lien Waiver Settings** tab, make sure *Posting Period End Date* is specified in the **Through Date** box.
4. In the table, add a new row, and specify the following settings in the added row:
   - **Vendor Class**: *SUBCON*

     This indicates that conditional lien waivers can be automatically generated for vendors that belong to this vendor class.
   - **Minimum Commitment Amount**: *2000*

     Lien waivers will be automatically generated for commitments whose amount is greater than or equal to this amount.
5. Save your changes.
6. Open the *SUBCON* vendor class on the *Vendor Classes* (AP201000) form.
7. On the **General** tab, select the **Generate Lien Waivers Automatically** check box to indicate that lien waivers will be automatically generated for vendors that belong to this vendor class. The lien waiver settings specified for the particular project will be used for generating the lien waivers.
8. Save your changes.
9. Open the *Vendors* (AP303000) form,
10. Click **Add New Record** on the form toolbar, and specify the following settings in the Summary area:
    - **Vendor ID**: `ARCHCO`
    - **Vendor Class**: *SUBCON*
11. On the **General** tab, enter `Architectural Design Company` in the **Account Name** box.
12. In the **Primary Contact** section, specify the following settings:
    - **First Name**: `Evelyn`
    - **Last Name**: `Stewart`
    - **Email**: `eve.stewart@arc.com`
13. On the **Financial** tab, make sure that the **Generate Lien Waivers Based on Project Settings** check box is selected.
14. On the **Payment** tab, select the **Override** check box in the **Remit-To Info** section, and type `eve.stewart@arc.com` in the **Email** box.
15. Save the changes.

You have configured lien waivers and created a vendor for which the system will send lien waivers automatically based on the amount of the commitment.

Compliance Documents: To Send Lien Waivers

This activity will walk you through the process of working with lien waivers.

Story

Suppose that the ToadGreen company pays a bill to a subcontractor, the Architectural Design Company. Acting as a project manager, you need to enter a subcontract, create and pay these bills in the system, and make sure that the related lien waivers have been generated and sent to the subcontractor.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled.
- On the *Non-Stock Items* (IN202000) form, the *CONCRMX* non-stock item has been created.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks, including *02 - SITEWORK*.

System Preparation

Before you start working with subcontracts, do the following:

1. As a prerequisite to the current activity, perform the *Compliance Documents: To Configure Lien Waivers* activity to configure the mailing settings for lien waivers and specify the lien waiver settings for the vendor.
2. Launch the Acumatica ERP website, and sign in as a construction project manager by using the *ewatson* username and the *123* password.
3. 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step: Working with Lien Waivers

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. Click **Add New Record** on the form toolbar, and specify the following settings in the Summary area:
   - **Vendor**: *ARCHCO*
   - **Location**: *MAIN* (selected automatically)
   - **Date**: *2/15/2021*
   - **Description**: `Purchase of concrete for Hotel project`
3. On the **Details** tab, add a row, and specify the following settings in the added row:

- **Inventory ID**: *CONCRMX*
- **Project**: *HOTEL*
- **Project Task**: *02 - SITEWORK*
- **Cost Code**: *02-000*
- **Order Qty.**: 100
- **Unit Cost**: 500

The subcontract total is *50,000*, which exceeds the minimum commitment amount specified for the vendor and project.

4. On the form toolbar, click **Remove Hold** to assign the subcontract the *Open* status.
5. On the form toolbar, click **Enter AP Bill**.

   The *Bills and Adjustments* (AP301000) form opens with the new document that has the *Bill* type (which is specified in the **Type** box in the Summary area) and the document details copied from the subcontract to the **Details** tab.
6. On the form toolbar, click **Remove Hold**, and then click **Release** to release the bill.
7. On the form toolbar, click **Pay**.

   The *Checks and Payments* (AP302000) form opens with the AP check prepared for the bill. The check should have the *On Hold* status. Open the **Compliance** tab and notice that it is empty.
8. On the form toolbar, click **Remove Hold**, and then click **Save**. The system automatically generates a lien waiver and adds a line on the **Compliance** tab, as shown in the following screenshot.

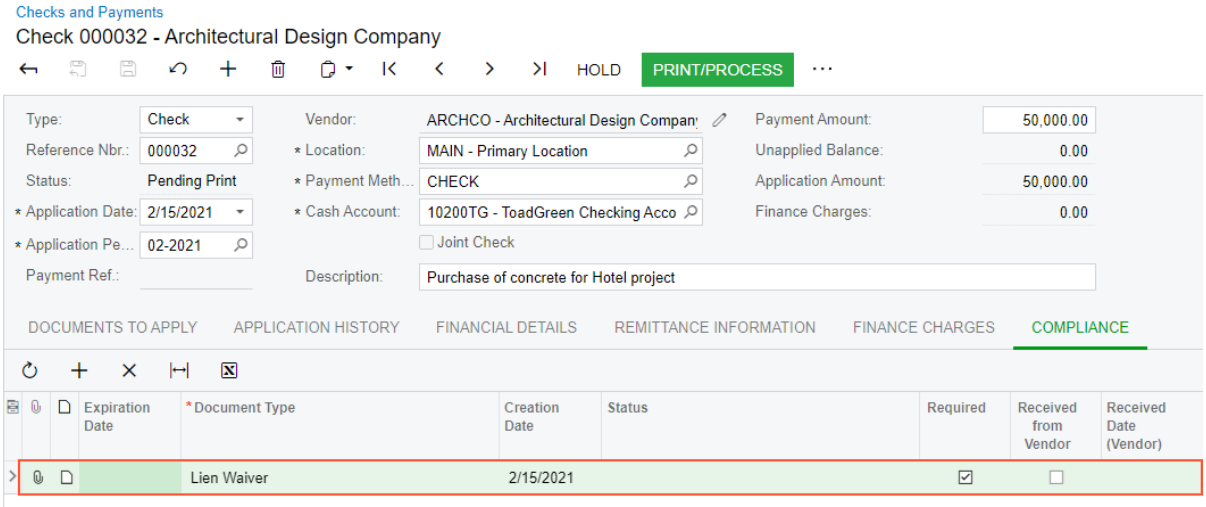


Figure: Lien waiver generated for the payment

> The same lien waiver record also appears on the **Compliance** tab of the *Projects* (PM301000), *Vendors* (AP303000), *Subcontracts* (SC301000), and *Bills and Adjustments* (AP301000) forms for the involved records; it also appears on the *Compliance Management* (CL401000) form.

9. On the *Print/Email Lien Waivers* (CL502000) form, do the following:
   a. In the **Action** box, select *Email Lien Waivers*.
   b. Select the unlabeled check box for the lien waiver that was automatically created earlier in this activity.
   c. Click **Process** on the form toolbar.
10. Open the *Outgoing* (CO409020) form.

11. On the **My Emails** tab, review the list of outgoing emails. Make sure the line for the sent email has been added; the line should have the *Lien waiver* description in the **Subject** box, and *eve.stewart@arc.com* must be specified in the **To** box.
12. Open the *Compliance Management* (CL401000) form.
13. On the **Lien Waivers** tab, review the details of the processed lien waiver, and make sure it has the **Processed** check box selected.
14. In the row with the lien waiver, select the **Received from Vendor** check box to indicate that the signed copy of the lien waiver has been received from the vendor.
15. Save your changes.

You have finished working with the lien waiver.

Lesson 10: Processing Purchases with a Sales Tax

Purchases with a Sales Tax: General Information

A sales tax is a tax paid by a company to its vendors as a part of the amount of an AP bill. When the company pays the accumulated tax amounts to the responsible tax agency, the tax amounts are reduced by the amount of sales tax paid to the vendors. In Acumatica ERP, the system calculates the sales tax in vendor documents automatically.

Learning Objectives

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

- Learn how to configure a sales tax
- Learn how to create an AP bill with a sales tax applied
- Release an AP bill and review the GL batch generated by the system

Applicable Scenarios

You create an AP bill with any number of sales taxes to record a purchase that is subject to sales taxes.

Tax Calculation in Purchase Orders

The system calculates taxes based on the following details specified in the AP document:

- The vendor
- The inventory IDs
- The total price of the inventory items
- The document date

The system calculates the tax and taxable amounts by using the settings of each tax that corresponds to both of the following:

- The tax category of the specified inventory ID
- The tax zone of the selected vendor

The system calculates the tax and taxable amounts for each line of the document or for the total document amount, depending on the settings of the applied tax. The system inserts the sales tax amount in the **Tax Total** box in the Summary area of the *Bills and Adjustments* (AP301000) form.

When you release the AP document, the system creates the corresponding GL transaction and records these amounts to the appropriate GL accounts.

Purchases with a Sales Tax: To Configure a Sales Tax for Project Purchases

This activity will walk you through the process of creating a sales tax in the system.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company buys goods from its suppliers and pays sales tax on these purchases. The rate of the sales tax is 8.875%; the tax amount must be calculated on the sum of the line amounts to which this tax is applied. You need to configure a sales tax to be calculated for AP documents; the calculated tax amounts can then be claimed from a tax agency.

Configuration Overview

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

- On the *Tax Zones* (TX206000) form, the *NYZONE* tax zone has been created.
- On the *Tax Categories* (TX205500) form, the *TAXABLE* category has been created.
- On the *Chart of Accounts* (GL202500) form, the *24100 - Tax Payable* and *69000 - Tax Expenses* accounts have been created. The *69000 - Tax Expenses* account is included in the *MATERIAL* account group.

System Preparation

Launch the Acumatica ERP website, and sign in as a system administrator by using the *gibbs* username and the `123` password.

Step: Creating a Sales Tax

To create a sales tax, proceed as follows:

1. Open the *Taxes* (TX205000) 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 on the **Tax Settings** tab:
   - **Tax ID**: `NYSALESTAX`
   - **Description**: `New York sales tax`
   - **Tax Type**: *Sales*
   - **Calculation Rule**: *Exclusive Document-Level*

This setting means that the tax amount is calculated on the sum of the line amounts to which this tax is applied.

- **Cash Discount**: *Does Not Affect Taxable Amount*

3. On the **Tax Schedule** tab, click **Add Row** on the table toolbar, and specify the following settings:
   - **Start Date**: *1/1/2021*
   - **Tax Rate**: `8.875`
   - **Reporting Group**: *Default Input Group*
   - **Group Type**: *Input* (specified automatically)

     An *Input* group is specified for a tax that can be claimed from a tax agency.
4. On the **Categories** tab, click **Add Row** on the table toolbar, and select *TAXABLE* in the **Tax Category** column.
5. On the **Zones** tab, click **Add Row** on the table toolbar, and select *NYZONE* in the **Tax Zone ID** column.
6. On the **GL Accounts** tab, specify the following settings:
   - **Tax Payable Account**: *24100 - Tax Payable*

     The Tax Payable account is the liability account that accumulates the tax amounts to be paid to the tax agency. The account is credited in the tax amount when taxable invoices are released.
   - **Use Tax Expense Account**: Selected
   - **Tax Expense Account**: *69000 - Tax Expenses*

     The *Tax Expenses* account (*69000*) is included in the *MATERIAL* account group so that tax expenses will be posted to the project specified for the AP document lines.
7. On the form toolbar, click **Save** to save your changes.

You have configured a sales tax.

Purchases with a Sales Tax: To Process a Project-Related Bill with a Tax

This activity will walk you through the process of creating and releasing an AP bill with a sales tax.

Story

Suppose that on *1/30/2021*, the ToadGreen company purchases 500 packages of a concrete mix from the Concrete Supply Co. vendor. The vendor is located in the state of New York, and the New York sales tax has to be applied to this purchase. Acting as the project manager, you need to enter the AP bill, release it, and review how the system calculates the sales tax.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Projects*, *Cost Codes*, and *Construction* features have been enabled.
- On the *Vendors* (AP303000) form, the *CONCRESUP* vendor account for the Concrete Supply Co. has been created. On the **Purchase Settings** tab (**Default Location Settings** section), in the **Tax Zone** box, the *NYZONE* tax zone is selected for this vendor.
- On the *Non-Stock Items* (IN202000) form, the *CONCRMX* non-stock item has been created.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks, including the *02 - SITEWORK* project task. The *02-000* cost code has been created on the *Cost Codes* (PM209500) form.

Process Overview

You will create and release a bill with a taxable item on the *Bills and Adjustments* (AP301000) form. You will then review the transaction generated on release of the bill on the *Journal Transactions* (GL301000) form, and the related project transaction on the *Project Transactions* (PM304000) form.

System Preparation

Do the following:

1. As a prerequisite to this activity, be sure you have configured the sales tax as described in *Purchases with a Sales Tax: To Configure a Sales Tax for Project Purchases*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a project manager by using the *ewatson* username and the *123* password.
3. 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 *1/30/2021*. If a different date is displayed, click the Business Date menu button, and select *1/30/2021* 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 and Releasing an AP Bill with a Sales Tax

Do the following:

1. Open the *Bills and Adjustments* (AP301000) 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 in the Summary area, specify the following settings:
   - **Type**: *Bill*
   - **Vendor**: *CONCRESUP*
   - **Description**: `Concrete mix for HOTEL project`
3. On the **Details** tab, add a line with the following settings:
   - **Inventory ID**: *CONCRMX*
   - **Quantity**: `500`
   - **UOM**: *EA*
   - **Unit Cost**: `85`
   - **Project**: *HOTEL*
   - **Project Task**: *02 - SITEWORK*
   - **Cost Code**: *02-000*
   - **Tax Category**: *TAXABLE*
4. Save the bill, and on the **Taxes** tab, review the details of the calculated sales tax. The system applied the *NYSALESTAX* to the bill based on the tax zone settings and the tax category of the item. The taxable amount is $42,500.00, and the calculated total tax is $3,771.88.
5. On the form toolbar, click **Remove Hold**, and then click **Release** to release the bill.

Step 2: Reviewing the GL Batch and Related Project Transaction

Perform the following steps:

1. While you are still on the *Bills and Adjustments* (AP301000) form, on the **Financial** tab, click the **Batch Nbr.** link. The system opens the batch of general ledger transactions on the *Journal Transactions* (GL301000) form.
2. Review the batch that was generated on release of the bill, and make sure the amounts have been recorded to general ledger as follows:
   - The *Accounts Payable* account of the vendor (*20000*) is credited in the total amount of the bill (the total of the line plus the total of the calculated tax). The non-project code (*X*) is specified in this line.
   - The *Project Material Expense* account (*54700*) is debited in the amount specified in the document line. The material expenses have been recorded to the *HOTEL* project and the *02* project task.
   - The *Tax Expenses* account specified for the tax (*69000*) is credited in the calculated tax amount. The tax expenses have been recorded to the *HOTEL* project and the *02* project task.
3. On the *Project Transactions* (PM304000) form, open the project transaction with *AP* specified as the **Module** and with the *Concrete mix for HOTEL project* description that was generated from the general ledger transaction. Make sure that the project transaction includes two lines: a line related to the materials bought for the project, and a line for the related tax expenses, as shown in the screenshot below.

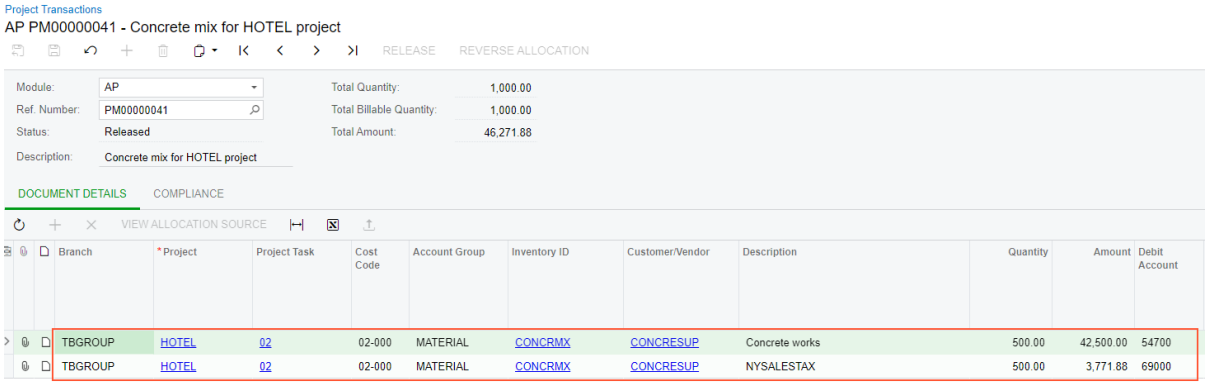


Figure: Project transaction generated for the batch

You have finished processing a taxable bill for a project and have recorded the expenses to the project budget.

Part 3: Project Budget Tracking

Lesson 11: Forecasting Budget

Budget Forecasts: General Information

You prepare a budget forecast for a long-term project if you need to break down the structure of the project budget by financial period. This gives you the ability to compare and analyze monthly budgets versus actual revenue and expenditures.

Learning Objectives

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

- Create a budget forecast for a project
- Add financial periods to the budget forecast
- Distribute budgeted values among the financial periods
- Update the project budget based on the forecast
- Update the financial periods in the forecast based on the updated actual values

Applicable Scenarios

You create a budget forecast for a project if you need to break down the budget structure by financial periods to be able to control the budget performance by periods.

Creation of the Project Budget Forecast

Each project can have multiple revisions of the budget forecast. For a new project budget forecast, in the Summary area of the *Project Budget Forecast* (PM209600) form, you select the project and enter an alphanumeric revision identifier of the budget forecast, which must be unique within the project. When you enter the revision, the system automatically fills in the table with the revenue and cost budget lines of the selected project.

In a forecast revision, you distribute the original and revised budget amounts of existing revenue and cost budget lines among the financial periods in the selected range to estimate planned project revenue and expenses by these periods.

You can manually add financial periods for a selected budget line of the forecast revision by clicking **Add Periods** on the table toolbar and selecting the range of financial periods in the **Add Periods** dialog box.

You can also make the system automatically add financial periods for all the project budget lines of the forecast revision listed in the table according to the selection criteria specified in the Summary area. When you click **Generate Periods** on the form toolbar, for each line in the table, the system adds financial periods based on the settings of the project task and related project transactions. For more information on how the system determines the range of periods to be added, see *Project Budget Forecasts: Generation of Periods*.

Each financial period added for a project budget line of the forecast revision has quantities and amounts of zero. You can manually specify the **Original Budgeted Quantity**, **Original Budgeted Amount**, **Revised Budgeted Quantity**, and **Revised Budgeted Amount** values for each period of the project budget line.

You can also distribute the original and revised quantities and amounts of project budget lines among period lines automatically by clicking **Generate Forecast** on the form toolbar. In the **Distribute** dialog box, you specify which values the system should distribute, in which columns, and for which budget lines. The distribution function rounds equally distributed values by using the logarithmic rounding algorithm. For an example of rounding, see *Project Budget Forecasts: Example of Rounding*.

For each project budget line with added period lines, the system calculates the following totals in the **Original Budgeted Quantity**, **Original Budgeted Amount**, **Revised Budgeted Quantity**, and **Revised Budgeted Amount** columns:

- **Total**: The total of the period lines
- **Delta**: The difference between the value of the project budget line and the total of the period lines

Processing Project Budget Forecasts

When the actual values of a project are updated, the system automatically updates the actual values of the budget forecasts of the project. The system calculates the differences between the revised budgeted values and the actual values in the **Revised Quantity - Actual Quantity** and **Revised Amount - Actual Amount** columns on the *Project Budget Forecast* (PM209600) form, so that you can compare the performance of each budget line by period.

If you need to update financial periods of a project budget line of the forecast revision, you click this line in the table on the *Project Budget Forecast* form, and on the table toolbar, click **Update Forecast Lines**. For the selected line, the system adds the financial periods to which actual values or change order values have been posted for the corresponding project budget line and that have been missed in the forecast revision.

If you need to update the original and revised budgeted values of the corresponding project budget line on the *Projects* form with the delta values of a project budget line of the forecast revision, you click this line of the forecast revision in the table on the *Project Budget Forecast* form, and on the table toolbar, click **Update Project Budget Line**.

- The system updates the original budgeted values of the project only if the project budget is not locked. For more information on locking the project budget, see *Project Budget: Locking of the Budget*.
- The system updates the revised budgeted values of the project budget only if the change order workflow is disabled for the project. Otherwise, you must use change orders to update the project budget. For more information on change orders, see *Single-Tier Change Management: General Information*.

Budget Forecasts: To Prepare a Budget Forecast

This activity will walk you through the process of working with a project budget forecast in a construction project.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen project estimator wants to prepare a budget forecast to be able to compare and analyze monthly budgets versus actual costs broken down by period. Because some work on interior lighting will be performed for the project in September and October of 2021, the project estimator wants to distribute the total lighting budget across the periods when this work is going to be performed. Also suppose that the work performed in October will cost an additional $5000 that had not been planned in the project budget.

Acting as the project estimator, you will prepare a budget forecast for further review and analysis of budget performance.

Configuration Overview

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

- On the *Account Groups* (PM201000) form, the *SUBCON* account group has been created on the *Account Groups* (PM201000) form.
- On the *Projects* (PM301000) form, the *ITALIAN* project has been created with multiple project tasks, including *16 - ELECTRICAL*. Also, on the **Cost Budgets** tab, the cost budget is defined for the line with the *16-510* cost code and the *SUBCON* account group for this project.
- On the *Vendors* (AP303000) form, the *HOMEDEP* vendor has been added.

Process Overview

To track the changes in the project budget forecast, you will create the first revision of the budget forecast on the *Project Budget Forecast* (PM209600) form. Then you will generate periods and distribute budget amounts across these periods.

System Preparation

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 the project estimator by using the *wendell* username and the *123* password.
2. Open the *Enable/Disable Features* (CS100000) form, and on the form toolbar, click **Modify**.
3. In the *Projects* group of features, select the **Budget Forecast** check box.
4. On the form toolbar, click **Enable**.
5. 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 the First Revision of the Project Budget Forecast

Prepare a budget forecast by doing the following

1. On the *Projects* (PM301000) form, open the *ITALIAN* project.
2. On the More menu, under **Budget Operations**, click **Project Budget Forecast**. The system opens the *Project Budget Forecast* (PM209600) form with the *ITALIAN* project selected in the Summary area.
3. In the Summary area, in the **Revision** box, type `1`, and press Enter.

   The system displays a list of project tasks in the table.
4. In the **Description** box, type `2021 Budget Forecast`.
5. On the form toolbar, click **Save** to save the budget forecast revision, and click **Generate Periods**. The system adds periods to each budget line, along with the **Total** and **Delta** lines.
6. Save the budget forecast.
7. In the Summary area, specify the following settings:
   - **Account Group**: *SUBCON*
   - **Cost Code**: *16-510*

The system filters the budget lines and displays the only line that matches the selection criteria you have specified.

8. Click the line with the *02-2021* period, and on the table toolbar, click **Delete Row**. Save your changes.
9. On the table toolbar, click **Add Periods**. The system opens the **Add Periods** dialog box.
10. In the **Period From** box, specify *09-2021*.
11. In the **Period From** box, specify and the **Period To** box, specify *10-2021*.
12. Click **OK**. The system adds the line for the *09-2021* and *10-2021* period to the forecast.
13. Click **Save** on the form toolbar.

Step 2: Distributing Amounts Across the Periods

Do the following:

1. While you are still viewing the project budget forecast on the *Project Budget Forecast* (PM209600) form, on the form toolbar, click **Generate Forecast**.
2. In the **Distribute** dialog box, leave the default values, and click **OK**. The system distributes the amount so that for the *09*-2021 and *10*-2021 periods, the **Original Budgeted Amount** is now *15,000*.
3. Save the forecast.
4. In the **Original Budgeted Amount** and **Revised Budgeted Amount** columns, for the *09-2021* period, change the specified values to *20000.00*.

   Notice that the **Delta** line has appeared in the table with the *-5000* amount specified; the total in the **Original Budgeted Amount** and **Revised Budgeted Amount** columns is now *35,000.00*.
5. Save the forecast.
6. On the table toolbar, click **Update Project Budget Line**.

   The **Delta** line has disappeared from the budget forecast, and the budget forecast should look as shown in the following screenshot. The system has updated the cost budget of the *ITALIAN* project with the **Total** value ($35,000) for this line.

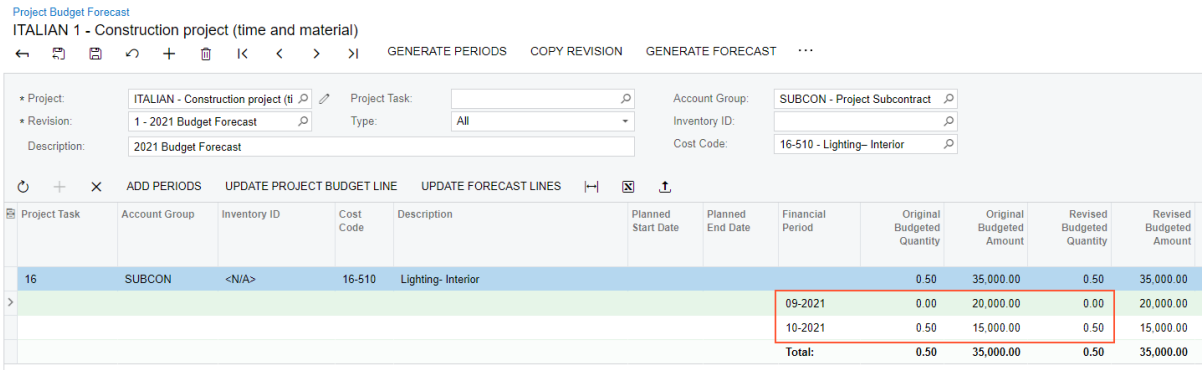


Figure: Budget forecast for the Lighting - Interior line

7. Save the forecast.
8. On the *Projects* (PM301000) form, open the *ITALIAN* project. On the **Cost Budget** tab, notice that in the line with the *16-510* cost code and the *SUBCON* account group, the value in the **Original Budgeted Amount** and **Revised Budgeted Amount** boxes has been updated and is now *35,000.00*.

You have prepared a forecast revision and updated the project budget with the forecasted values.

Lesson 12: Tracking Budget Overruns

In Acumatica ERP Construction Edition, you can enable budget control for construction projects to make the system display warnings if the project budget is close to being exceeded. The overbudget warnings are displayed for subcontracts, purchase orders, change orders to commitments, and AP bills.

Learning Objectives

In this chapter, you will learn the following:

- How to configure budget control for a project to track documents that exceed the budget
- How to limit the cost codes to the ones that are specified in the project budget

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** (**General Settings** section) tab 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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, 2021, 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, 2021, 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, for the purposes of this activity, the following tasks have been performed:

- 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

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 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 Settings** 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* 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**: *2/15/2021*
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**: `17,000`

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 still reviewing the *ITALIAN* project on the *Projects* (PM301000) form, on the More menu, 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**: *2/25/2021*
   - **Approval Date**: *2/25/2021*
   - **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 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 $2400, 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.

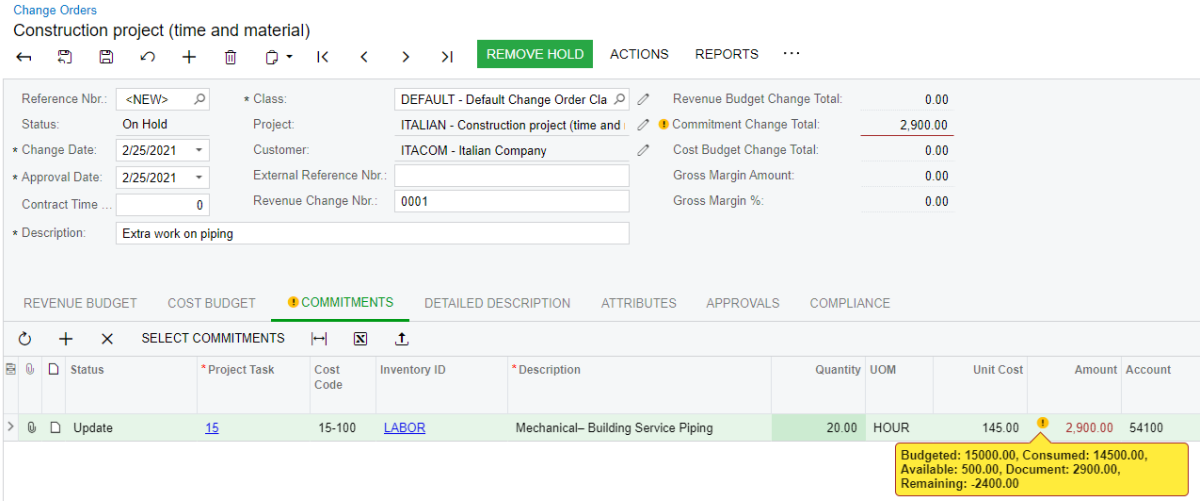


Figure: A warning indicating a budget overrun

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**: *2/15/2021*
   - **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**: *2/1/2021*
   - **To**: *2/28/2021*

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.

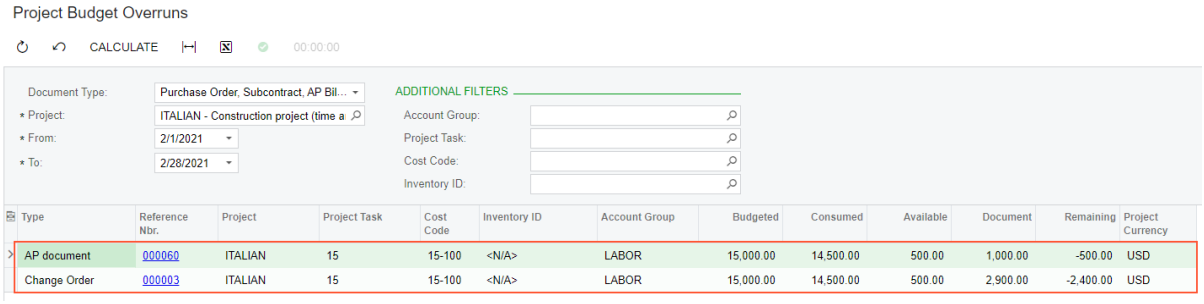


Figure: List of documents that exceed the budgeted amounts

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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that ToadGreen is a general contractor building an Italian restaurant for its customer, The Italian Company. On February 15, 2021, 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 with and 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, for the purposes of this activity, the following tasks have been performed:

- 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.

System Preparation

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 a 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Entering a Subcontract

Enter a subcontract by doing 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 (see the following screenshot).

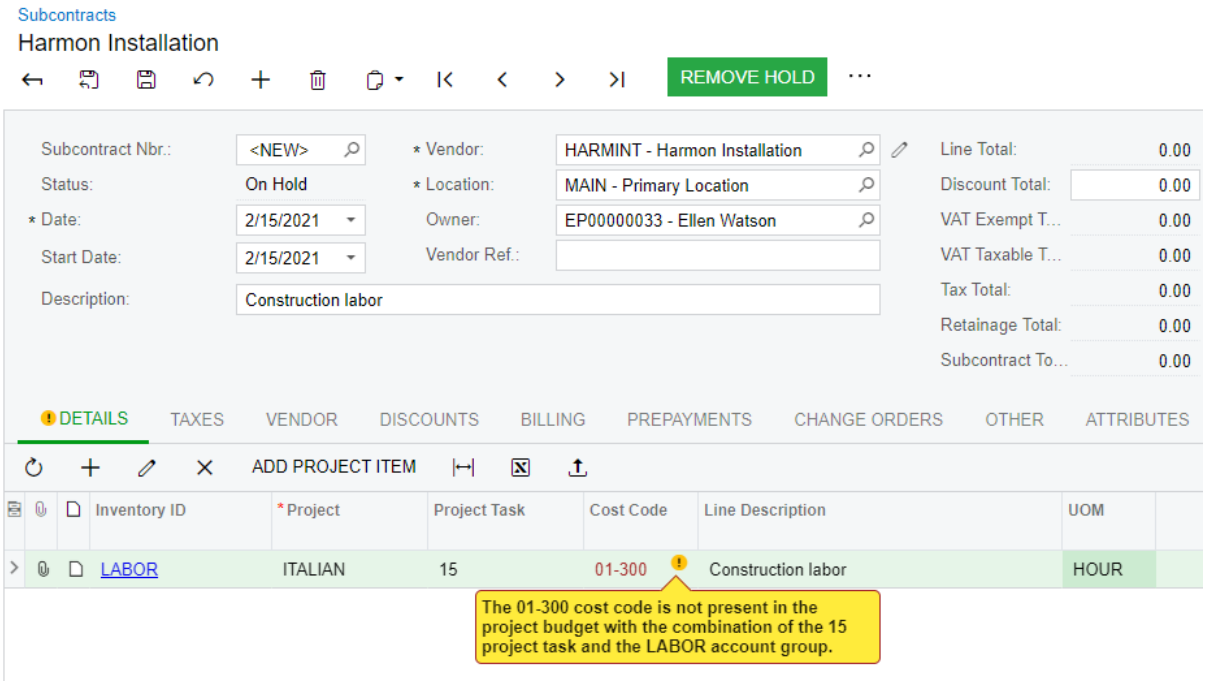
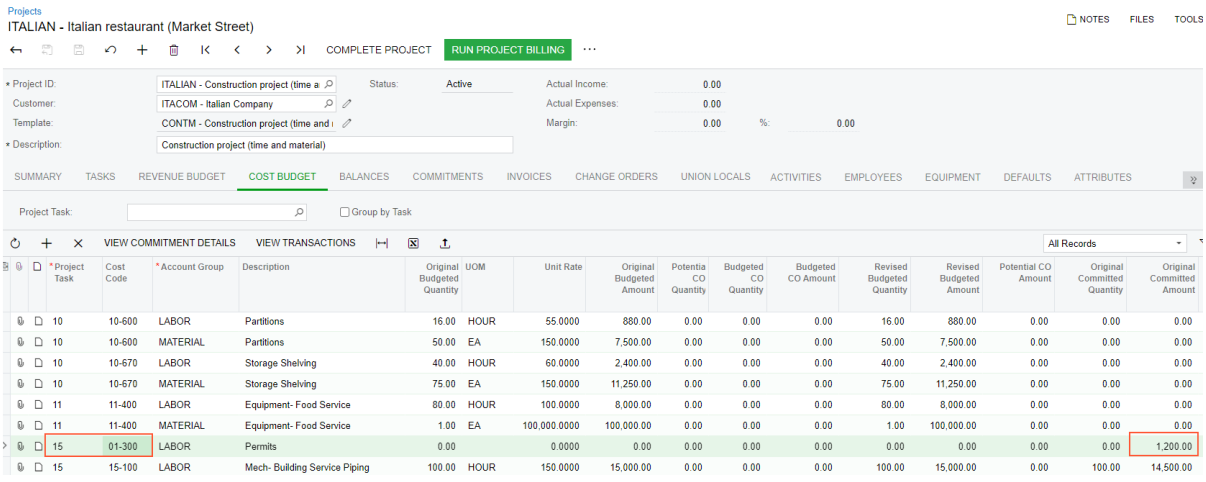


Figure: Line with the cost code that does not exist in the project budget

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 13: Preparing Cost Projections

Project Cost Projections: General Information

You can estimate the final costs and remaining costs of a project at a particular stage by using cost projections.

Learning Objectives

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

- Configure a cost projection class
- Create a cost projection for a project
- Create a new revision of a cost projection
- Estimate the costs of a project at a different level of detail
- Review the projected costs in a project budget

Applicable Scenarios

You create a cost projection revision to compare the calculated costs with the initially estimated costs in the cost budget of a project, and thus to detect parts of the project that may be over the budget.

Budget Detail Level of Cost Projections

A cost projection revision created for a project has a certain budget detail level, which is determined by the cost projection class specified in this cost projection.

You create a cost projection class on the *Cost Projection Classes* (PM203500) form. For the class, you specify the entities that are included in the budget level of detail by selecting or clearing the check boxes in the **Cost Task**, **Account Group**, **Cost Code**, and **Inventory ID** boxes.

A cost projection revision prepared for a particular project must have a cost projection class that provides the same budget detail level as that of the project—which is specified in the **Cost Budget Level** box on the **Summary** tab of the *Projects* (PM301000) form—or it can be less detailed. For instance, if the project has the *Task and Cost Code* cost budget level, the cost projection classes with the following level of detail will be applicable: cost task only, cost code only, or both cost task and cost code. A cost projection class with a greater level of detail (such as cost task, cost code, and account group) will not be applicable for this project.

Creation of a Cost Projection Revision

You create and process revisions of cost projections on the *Cost Projections* (PM305000) form. A newly created cost projection revision has the *On Hold* status and can be edited. You can create as many revisions of a cost projection as are needed for a project.

You can create a new revision of a cost projection based on the previous revision by clicking **Copy Revision** on the form toolbar.

In a new cost projection revision, you specify the cost projection class, the revision ID, and the project for which you need to estimate the costs. Then on the table toolbar of the **Details** tab, you click **Select Budget Lines** on the table toolbar. In the **Select Budget Lines** dialog box, which opens, you select the Included check box in the rows of the cost budget lines of the project for which you need to estimate costs. Then you click **Add Lines** and close the dialog box. The selected cost budget lines are added to the cost projection revision on the **Details** tab.

For each line, the projected values are calculated by using the following formulas:

- `Projected Cost to Complete = Budgeted Cost - (Actual + Unbilled Committed Cost)`
- `Projected Cost at Completion = Projected Cost to Complete + (Actual + Unbilled Committed Cost)`
- `Projected Quantity to Complete = Budgeted Quantity - (Actual + Unbilled Committed Quantity)`
- `Projected Quantity at Completion = Projected Quantity to Complete + (Actual + Unbilled Committed Quantity)`
- `Projected Completed (%) = (Budgeted Cost - Projected Cost to Complete) / Budgeted Cost * 100%`

You can change the projected values in the cost projection revision to see how this affects the cost budget. To change these values, for each cost projection revision line, in the **Mode** column, you select a data entry mode, which defines how the projected values in the line are recalculated:

- *Auto*: You manually modify one of the projected values in the row; the other values are recalculated automatically.
- *Manual Quantity*: You manually modify one of the projected values; the other values are recalculated automatically, except for the **Projected Quantity to Complete** and **Projected Quantity at Completion** values, which are preserved.
- *Manual Cost*: You manually modify one of the projected values; the other values are recalculated automatically, except for the **Projected Cost to Complete** and **Projected Cost at Completion** values, which are preserved.
- *Manual*: You manually modify one of the projected values; the system does not recalculate other projected values.

When a cost projection revision has been prepared, you click **Remove Hold** and then **Release** on the form toolbar of the *Cost Projections* form. The system releases the cost projection revision and assigns it the *Released* status. The projected values in the project are copied from the latest released revision of the cost projection to the corresponding cost budget lines of the specified project on the *Projects* form.

Project Cost Projections: To Create a Cost Projection Class

This activity will walk you through the process of creating a cost projection class.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that you are the construction project manager of the ToadGreen Building Group company, and you need to create a cost projection class to be used for estimating the costs of a project. The cost projection class must provide the ability to estimate the costs at the task, item, and account group level of detail.

Configuration Overview

For the purposes of this activity, the *Construction* feature has been enabled on the *Enable/Disable Features* (CS100000) form.

Process Overview

You will create a cost projection class on the *Cost Projection Classes* (PM203500) form.

System Preparation

Before you start creating a cost projection class, you need to 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.

Step: Creating a Cost Projection Class

To define a cost projection class that will be used for creating cost projections, perform the following instructions:

1. On the *Cost Projection Classes* (PM203500) form, add a new row, and specify the following settings:
   - **Class ID**: *TAGI*
   - **Description**: `Cost projection by task, account group, and inventory item`
   - **Active**: Selected
   - **Cost Task**: Selected
   - **Account Group**: Selected
   - **Inventory ID**: Selected
2. Save the cost projection class you have created.

You have defined a cost projection class that can be used for creating cost projections and estimating the costs of a project.

Project Cost Projections: Process Activity

This activity will walk you through the process of estimating the planned costs of a project that is in progress.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company is building an Italian restaurant for the Italian Company, its customer, and is in the middle of the life cycle of the construction project. The project manager analyzes the current project state and notices the following:

- For the purchases of concrete and on-site work for the project, $6,200 has to be spent; after that, the work will be finished, and the corresponding project tasks will be considered as completed.
- For the masonry work, $11,800 has to be spent to complete the on-site work. The project manager wants to know the exact details of the costs to be incurred for the completion of the task.

In response to the project manager's request the ToadGreen project estimator needs to analyze the current state of the project and estimate how the planned expenses will affect the project budget. Then the project estimator should prepare a construction bonding report with the projected amounts related to masonry work.

Acting as the project estimator, you will prepare a cost projection revision for the project.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction* feature has been enabled.
- On the *Projects* (PM301000) form, the *ITALIAN2* project has been created with the *03* and *04* project tasks in the cost budget of the project. The *Task and Cost Code* option is specified in the **Cost Budget Level** box on the Summary tab for the project. The cost budget has been defined. including the lines with the *03-100*, *03-200*, *03-300*, *03-350*, *04-220*, and *04-700* cost codes.
- On the *Cost Projection Classes* (PM203500) form, the *TC* and *TAC* cost projection classes have been configured. The *TC* cost projection class provides cost projection at the task level of detail (that is, in a cost projection revision, the budget lines with the same task are consolidated). The *TAC* cost projection class provides the same level of detail as the cost project budget of the *ITALIAN2* project.

Process Overview

In this activity, you will create a cost projection revision on the *Cost Projections* (PM305000) form and add budget lines to the projection. Then you will select the calculation mode, update the projected values, and review how this update affects the budgeted values. Finally you will release the cost projection revision and prepare the construction bonding report for the project, which will include the projected values, on the *Construction Bonding Report* (PM650500) form.

System Preparation

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 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: Creating a Cost Projection Revision

To create the first cost projection revision for the *ITALIAN2* project, do the following:

1. On the *Projects* (PM301000) form, open the *ITALIAN2* project, and on the More menu, under **Budget Operations**, click **Cost Projection**. The system opens the *Cost Projections* (PM305000) form with the project selected in the Summary area.
2. In the Summary area, specify the following settings:
   - **Revision**: `1`
   - **Cost Projection Class**: *TC*

     A cost projection class selected for the project must provide the same budget detail level as that of the project, or it can be less detailed. The selected cost projection class has less details than the project budget, so you can estimate values summed by tasks.
   - **Description**: `Estimating (concrete materials and on-site work)`

Step 2: Adding Budget Lines

To add the budget lines to be estimated, while you are still viewing the *Cost Projections* (PM305000) form with the *ITALIAN2* project selected, do the following:

1. On the table toolbar of the **Details** tab, click **Add Budget Lines**.
2. In the **Add Budget Lines** dialog box, which opens, select the unlabeled check boxes in the lines with the *03* and *04* project tasks, and click **Add Lines & Close**. The system adds the budget lines to the cost projection revision.
3. In the **Description** column of the line with the *03* cost task, type `Concrete`. This is the consolidated line to which the system grouped all cost budget lines with the *03-100*, *03-200*, *03-300*, and *03-350* cost codes because you have selected the cost projection class with the cost task level of details for the cost projection revision.
4. In the **Description** column of the line with the *04* cost task, type `Masonry`. This is the consolidated line to which the system grouped all cost budget lines with the *04-220* and *04-700* cost codes. Review the amounts in the lines and notice the following:
   - In the **Budgeted Cost** column, the budgeted cost is *113,990* for the *Concrete* line, and *71,250* for the *Masonry* line. The same values are shown in the **Projected Cost at Completion** column.
   - In the **Actual + Committed Open Cost** column, the actual cost is *106,517* for the *Concrete* line, and *59,755* for the *Masonry* line. These values are the sum of the actual amounts and committed open amounts for the corresponding budget lines.
   - The **Cost to Complete** values are *7,473* for the *Concrete* line, and *11,495* for the *Masonry* line. These values are the costs that would be required to complete the project tasks as initially have been budgeted for the project. The **Projected Cost to Complete** column shows the same values.
5. In the **Projected Cost to Complete** column, specify `6,200` in the *Concrete* line, and `11,800` in the *Masonry* line. These values are the planned amounts needed for the completion of the work related to the cost task in the line. The system recalculates the values in the **Projected Cost at Completion** and **Projected Cost to Complete** column, as shown in the following screenshot.

   In the Summary area, the total budgeted and projected costs are shown. Although a small budget overrun is expected for the masonry work, the total projected costs are still within the initially budgeted costs because the **Total Cost at Completion** in the **Projected** section does not exceed the **Total Cost at Completion** in the **Budgeted** section (also shown in the following screenshot).

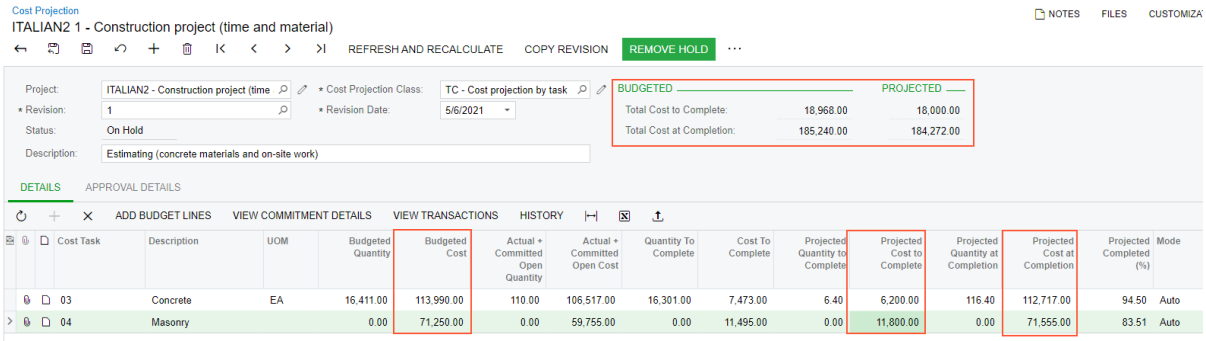


Figure: The prepared cost projection revision

6. Save the cost projection revision.

The cost projection revision that you have created cannot be released because its level of detail does not fit the budget level of detail. So after you have performed the initial analysis, you will create a cost projection revision with a greater level of detail.

Step 3: Creating the Next Cost Projection Revision

In this step, you will create the second cost projection revision and release it. You will then prepare a construction bonding report with the projected amounts. Do the following:

1. While you are still viewing the cost projection revision on the *Cost Projections* (PM305000) form, on the form toolbar, click **Add New Record**.

2. In the Summary area, specify the following settings:
   - **Revision**: `2`
   - **Cost Projection Class**: *TAC*

     This cost projection class has the same level of detail as the project budget (cost task, account group, and cost code), so you can release this cost projection revision and see the projected costs directly in the project budget.
   - **Description**: `Estimating (masonry)`
3. On the table toolbar of the **Details** tab, click **Add Budget Lines**.
4. In the **Add Budget Lines** dialog box, which opens, select the unlabeled check boxes in all the lines with the *04* project tasks, and click **Add Lines & Close**. The system adds four budget lines to the cost projection revision.
5. Update the values in the **Projected Cost to Complete** column as follows:
   - In the row with the *LABOR* account group and the *Masonry- Block* description, enter `7500`.
   - In the row with the *MATERIAL* account group and the *Masonry- Block* description, enter `1420`.
   - In the row with the *LABOR* account group and the *Masonry- Composite Wall* description, enter `2860`.
   - In the row with the *MATERIAL* account group and the *Masonry- Composite Wall* description, enter `20`.
6. In the Summary area, make sure **Total Cost to Complete** in the **Projected** section is *11,800* (as it was in the previous cost projection revision), and notice that the **Total Cost at Completion** in this section is greater than the initially budgeted amount in the **Budgeted** section.
7. On the form toolbar, click **Remove Hold**, and then click **Release**. The system assigns the cost projection the *Released* status.
8. On the *Construction Bonding Report* (PM650500) report form, specify the following settings:
   - **Project**: *ITALIAN2*
   - **Use Cost Projections**: Selected
9. On the report form toolbar, click **Run Report**; review the generated report. Notice that the **Cost To Complete** and **Cost At Complete** columns show the projected values from the cost projection revision that you have released.

You have finished working with the cost projection for the project.

Part 4: Two-Tier Change Management

Change Management: 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

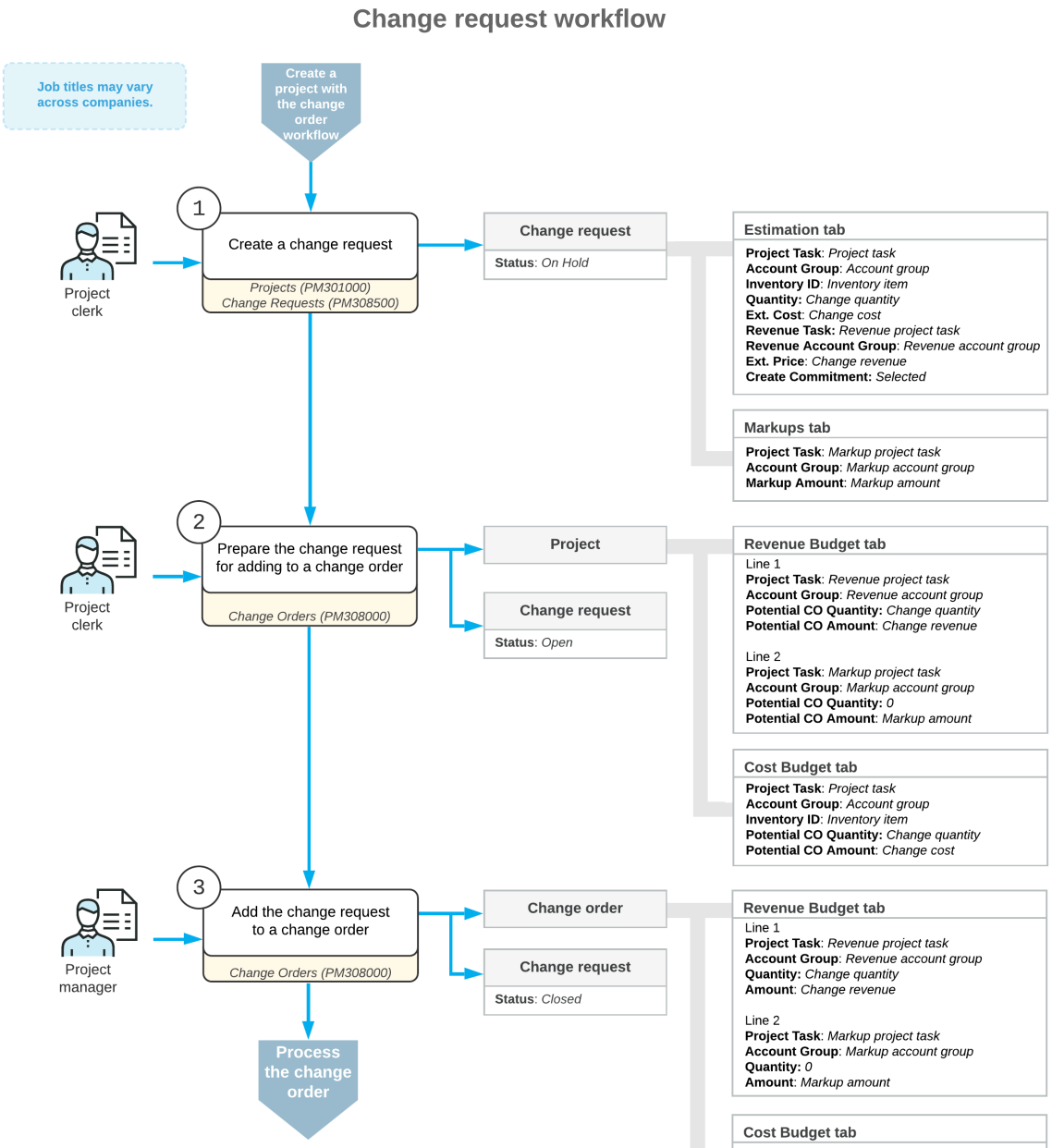
If the change request has a markup line with the project task and account group on the **Markups** tab of the *Change Requests* form but has no estimation line with the same revenue task and revenue account group on the **Estimation** tab, on the **Revenue Budget** tab of the *Change Orders* form, the 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.



Lesson 14: Configuring Two-Tier Change Management

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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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 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

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 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 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. For simplicity, in this activity, you will create and process all documents in the system on this business 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 Settings** 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.

   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, 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. To review how to process change requests, complete the *Change Requests: Process Activity*.

Testing of Settings

To make sure that all settings have been specified correctly, perform the following steps:

1. Open the *Projects* (PM301000) 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 in the Summary area:
   - **Project ID**: `LAKECAFE03`
   - **Customer**: *LAKECAFE*
   - **Description**: `Installation project for Lake Cafe`
3. On the **Summary** tab, make sure the **Change Order Workflow** check box is selected. Notice that the **Change Orders** and **Change Requests** tab are shown on the form, which means the two-tier change management is configured for the project.
4. In the **Document Markups** table on the **Defaults** tab, review the markups configured for the project. The system has copied the default markups that you have specified in the project accounting preferences to the project. You can modify these values for each particular project, if needed.
5. Close the form without saving your changes to the project, which was created solely for testing purposes.

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

Lesson 15: Tracking Cost Changes to Projects

Change Management: To Process Cost Changes to a Project

The following activity will walk you through the process of managing changes to the construction project by using the two-tier change management workflow.

Story

Suppose that ToadGreen is a general contractor building an Italian restaurant for the Italian Company, its customer. The ToadGreen project manager 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.

Further suppose that on *3/21/2021*, an on-site worker found out that the wet subfloor in the building needs to be dried, cleaned, and aired out, and this worker has notified the project manager about this.

After reviewing the damages, the project manager has decided to hire a subcontractor, Acme Doors & Glass, to perform this work. The subcontractor notifies the project manager that four working days are needed for completing the cleaning. For the performed work, the project manager has decided to decrease the default markup to 10%, charge an additional fee in the amount of $1,450, and increase the default profit markup to 10%. Because the work initially had not been planned, the customer for which the project is being performed must approve the changes.

Acting as the project manager, you need to agree upon the work with the customer and reflect the additional work in the project budget. For this purpose, you will prepare a change request and then process the change order and the related commitments, which will increase project revenues and expenses.

Configuration Overview

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

- 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; the project tasks have been created, along with the related cost and revenue budget.

Process Overview

You will update the markup settings for the project on the *Projects* (PM301000) form. Then you will create a change request on the *Change Requests* (PM308500) form. After that, you will create a change order for this change request on the *Change Orders* (PM308000) form and add commitments to this change order. Finally, you will make sure that the processed documents are correctly reflected in the cost and revenue budgets of the project.

System Preparation

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

1. As a prerequisite activity, complete the *Change Requests: Implementation Activity* to define the default markups and change order classes for two-tier change management.
2. Launch the Acumatica ERP website and sign in to a company with the *U100* dataset preloaded. You should sign in as a project manager by using the *ewatson* username and *123* password.
3. 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 *3/21/2021*. If a different date is displayed, click the Business Date menu button, and select *3/21/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Updating Project-Specific Markups

Update the markups that have been specified for the *ITALIAN* project by doing the following:

In a production system, a newly created project will have the default markup settings specified on the *Projects Preferences* (PM101000) form. In the *U100* dataset, the project was predefined before you defined the markups, so you have to specify these settings for the project manually.

1. On the *Projects* (PM301000) form, open the *ITALIAN* project.
2. In the **Document Markups** table on the **Defaults** tab, add lines with the following settings.

Type	Description	Value	Project Task	Account Group	Cost Code
%	`Profit`	`9.00`	*02*	*REVENUE*	*02-000*
%	`Overhead`	`6.00`	*02*	*REVENUE*	*02-000*
Cumulative %	`Default Cumulative %`	`7.00`	*02*	*REVENUE*	*02-000*
Flat Fee	`Additional charges`	`1250`	*02*	*REVENUE*	*02-000*

3. Save your changes to the project.

Step 2: Creating a Change Request

Create the change request that records the planned work to be performed as follows:

1. On the *Change Requests* (PM308500) form, create a new change request, and specify the following settings in the Summary area:
   - **Project**: *ITALIAN*
   - **Change Date**: *3/21/2021*
   - **Contract Time Change, Days**: `4`
   - **Description**: `Work on wet subfloor`
2. On the **Detailed Description** tab, type `Wet subfloor needs to be dried, cleaned, and aired out.`
3. On the **Estimation** tab, add a line with the following settings:
   - **Project Task**: `01`
   - **Account Group**: *LABOR*
   - **Cost Code**: `01-900`
   - **Quantity**: `1`
   - **UOM**: *EA*
   - **Unit Cost**: `1000`
   - **Price Markup (%)**: `10`
   - **Revenue Task**: `01`
   - **Revenue Code**: `01-000`
4. Add one more line with the following settings:
   - **Project Task**: `03`
   - **Account Group**: *SUBCON*
   - **Cost Code**: `03-350`
   - **Quantity**: `10`
   - **UOM**: *HOUR*
   - **Unit Cost**: `38`
   - **Price Markup (%)**: `10`
   - **Revenue Task**: `03`
   - **Revenue Code**: `03-000`

- **Vendor**: *SUNTECH*
- **Create Commitment**: Selected

5. On the **Markups** tab, make sure that the project-specific markups that you have defined in the project are listed in the table.
6. In the line with the *Profit* description, change **Value** to *10*.
7. Add a new markup line with the following settings:
   - **Type**: *Flat Fee*
   - **Description**: `Additional charges for Italian Restaurant`
   - **Value**: `1,450.00`
   - **Project Task**: *02*
   - **Account Group**: *REVENUE*
   - **Cost Code**: *02–000*
8. Save the change request. Suppose that the customer has approved the planned work and the budget.
9. On the form toolbar, click **Remove Hold**, and save the change request, which has the *Open* status. Make sure the **Markup Total** in the Summary area is *2,959.88*.

In production use, you can configure an approval map for change requests and specify it in the **CR Approval Map** box on the *Projects Preferences* (PM101000) form, so that the responsible person will need to approve the change request before it is assigned the *Open* status.

Step 3: Processing the Change Order

Create and process a change order, by doing the following:

1. While you are still reviewing the change request that you have created earlier in this activity on the *Change Requests* (PM308500) form, click **Create Change Order** on the form toolbar.
2. On the *Change Orders* (PM308000) form, which opens, type `Additional costs and revenue for the Italian Restaurant` in the **Description** box.
3. On the **Change Requests** tab, notice that the *Work on wet subfloor* change request has been added to the change order. The system has created the revenue budget lines, cost budget lines and a commitment based on the estimation details of the change request. The change request now has the *Closed* status because its cost and revenue parts has been processed.
4. On the **Revenue Budget** tab, make sure that the revenue budget lines with the *01-000*, *02-000* and *03-000* cost codes have been added.
5. In the **Description** column for each of these three lines, specify the following descriptions:
   - For the line with the *01-000* cost code, `Additional work - drying`
   - For the line with the *02-000* cost code, `Additional work - cleaning`
   - For the line with the *03-000* cost code, `Additional work - airing out`
6. Click the line for the *02-000* cost code, and then click **View Change Request Details** on the table toolbar. In the **Markups** table in the **Change Request Details** dialog box, which opens, review the markups and make sure that the additional markup in the amount of $1,450 that you have earlier specified in the change request is shown in the table.
7. Close the **Change Request Details** dialog box.
8. On the **Cost Budget** tab, make sure that the cost budget lines with the *01-900* and *03-350* cost codes have been added.
9. On the **Commitments** tab, make sure that the potential commitment has been added for the change order.

10. In the **Commitment Type** column of the only line on the **Commitments** tab, change the type of the commitment to be prepared to *Subcontract*. The line has *New Document* in the **Status** box, which means that a new subcontract will be prepared when the change order is released.
11. On the form toolbar, click **Remove Hold**. The system saves the change order and assigns it the *Open* status.
12. On the form toolbar, click **Release** to release the change order.

Step 4: Reviewing the Project Budget

Make sure that the change order has updated the project budget by doing the following:

1. On the *Projects* (PM301000) form, open the *ITALIAN* project.
2. On the **Cost Budget** tab, review the amounts in the budget lines. and notice that they have been moved from the **Potential CO Amount** column to the **Budgeted CO** column, and the system has also updated the amounts in the **Revised Budgeted** column.

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 % 0.0
* Description:	Construction project (time and material)		

SUMMARY | TASKS | REVENUE BUDGET | COST BUDGET | BALANCES | COMMITMENTS | INVOICES | CHANGE ORDERS | CHANGE REQUESTS | UNION LOC

Project Task: | Group by Task

VIEW COMMITMENT DETAILS | VIEW TRANSACTIONS

* 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
01	01-300	MISC	Permit	1.00	EA	15,601.0000	15,601.00	0.00	0.00	0.00	1.00	15,601.00
01	01-311	LABOR	Operations- Project Mana...	1.00	EA	15,000.0000	15,000.00	0.00	0.00	0.00	1.00	15,000.00
01	01-313	LABOR	Operations- Superintendent	1.00	EA	39,000.0000	39,000.00	0.00	0.00	0.00	1.00	39,000.00
01	01-314	LABOR	Operations- Crew Leader	1.00	EA	20,000.0000	20,000.00	0.00	0.00	0.00	1.00	20,000.00
01	01-330	MISC	Design Fees	1.00	EA	37,500.0000	37,500.00	0.00	0.00	0.00	1.00	37,500.00
01	01-505	TRAVEL	Mobilization	1.00	EA	5,000.0000	5,000.00	0.00	0.00	0.00	1.00	5,000.00
01	01-510	MISC	Telephone	1.00	EA	950.0000	950.00	0.00	0.00	0.00	1.00	950.00
01	01-600	MISC	Insurance	1.00	EA	7,500.0000	7,500.00	0.00	0.00	0.00	1.00	7,500.00
01	01-900	LABOR	Clean up	1.00	EA	10,000.0000	10,000.00	0.00	1.00	1,000.00	2.00	11,000.00
03	03-100	MATERIAL	Concrete- Forming	1,500.00	EA	2.0000	3,000.00	0.00	0.00	0.00	1,500.00	3,000.00
03	03-100	SUBCON	Concrete- Forming	30.00	EA	40.0000	1,200.00	0.00	0.00	0.00	30.00	1,200.00
03	03-200	MATERIAL	Concrete- Reinforcing	7,000.00	EA	2.5000	17,500.00	0.00	0.00	0.00	7,000.00	17,500.00
03	03-200	SUBCON	Concrete- Reinforcing	50.00	EA	75.0000	3,750.00	0.00	0.00	0.00	50.00	3,750.00
03	03-300	MATERIAL	Concrete- CIP Slab	775.00	EA	100.0000	77,500.00	0.00	0.00	0.00	775.00	77,500.00
03	03-300	SUBCON	Concrete- CIP Slab	40.00	EA	50.0000	2,000.00	0.00	0.00	0.00	40.00	2,000.00
03	03-350	MATERIAL	Concrete- Finishes	7,000.00	EA	1.2000	8,400.00	0.00	0.00	0.00	7,000.00	8,400.00
03	03-350	SUBCON	Concrete- Finishes	16.00	EA	40.0000	640.00	0.00	0.00	380.00	16.00	1,020.00

Figure: Budgeted amounts updated after the release of the change order

You have completed the processing of a change order and change request for the project.

Lesson 16: Tracking Cost and Revenue Changes to Projects

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 *7/15/2021*, 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, for the purposes of this activity, the following tasks have been performed:

- 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* (PM301000) 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 sign in to the system and prepare to perform the instructions of the activity, do the following:

1. As a prerequisite activity, complete the *Change Requests: Implementation Activity* to configure default markups and change order classes for two-tier change management.
2. Launch the Acumatica ERP website and sign in as a construction project manager using the *ewatson* username and *123* password.
3. 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 *7/15/2021*. If a different date is displayed, click the Business Date menu

button, and select *7/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

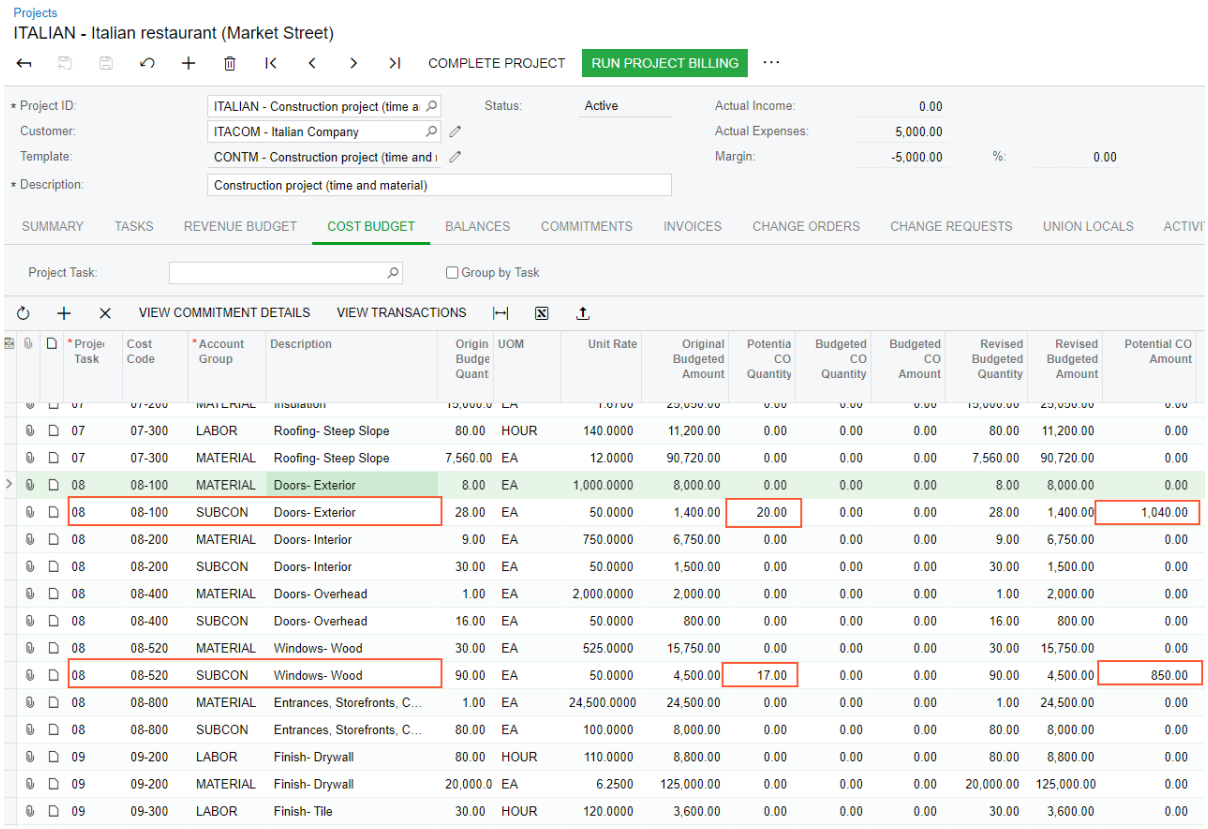
Step 1: Creating a Change Request with the Related Project Issue

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

1. On the form toolbar of the *Change Requests* (PM308500) form, click **Add New Record**, and specify the following settings:
   - **Project**: *ITALIAN*
   - **Change Date**: *7/15/2021*
   - **Contract Time Change, Days**: `4`
   - **Description:** `Issue with French-style window`
2. Click the Edit button to the right of the **Project Issue** box.
3. 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 (days)**: `3,500.00`
   - **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. This needs to be addressed with the engineer, architect, and subcontractors.`
4. 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.
5. 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.`
6. Save the change request.
7. Click **Files** on the form title bar. The **Files** dialog box opens.
8. Click **Browse**, navigate to the *Window-Rough-Openings.jpg* file (which is provided with the training materials), and select this file.
9. Click **Upload**, and close the **Files** window.
10. 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

11. 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
12. On the form toolbar, click **Remove Hold**. The system saves the change request with the *Open* status.
13. 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.
14. 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).



Project 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	07-300	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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. On the form toolbar of the *Change Orders* (PM308000) form, click **Add New Record** to create a change order, and specify the following settings in the Summary area:
   - **Class**: *INTERNAL*
   - **Project**: *ITALIAN*
   - **Change Date**: *7/15/2021*
   - **Approval Date**: *7/15/2021*
   - **Description**: `Extra costs for the Italian Restaurant project`
2. On the **Change Requests** tab, click **Select Change Requests** on the table toolbar.
3. 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.
4. On the form toolbar of the *Change Orders* form, click **Remove Hold** and then click **Release** to release the change order.
5. 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**: *8/29/2021*
   - **Approval Date**: *8/29/2021*
   - **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 *French Style window* change request.
   c. Click **Add Change Requests & Close**.
3. Save the change order. On the **Revenue Budget** tab, make sure the 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 values in the **Budgeted CO Amount** column for the lines with the *02-000* and *08-000* cost codes have been updated with the amounts from the change request.

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

Lesson 17: Track Changes to Budget Forecasts

Change Management: To Track Changes in the Budget Forecast

The following activity will walk you through the process of tracking changes in project budget forecasts.

Story

Suppose that for the restaurant that is being built by the ToadGreen company, some additional work is needed on interior lighting. The work will be performed in October 2021 and will cost an additional $5000 that had not been planned in the project budget. This work must be added to the project budget through the processing of a change order and the related subcontract.

Acting as a project manager, you will create and release the needed documents, and review how these documents affect the budget forecast.

Configuration Overview

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

- The *Budget Forecast* and *Change Orders* features have been enabled on the *Enable/Disable Features* (CS100000) form.
- On the *Account Groups* (PM201000) form, the *SUBCON* account group has been created.
- On the *Projects* (PM301000) form, the *ITALIAN* project has been created with multiple project tasks, including the *16 - ELECTRICAL* project task. Also, on the **Cost Budgets** tab, the cost budget has been defined for the line with the *16-510* cost code and the *SUBCON* account group.
- On the *Vendors* (AP303000) form, the *HOMEDEP* vendor has been added.

Process Overview

To track the changes in the project, you will create and release a change order related to the project on the *Change Orders* (PM308000) form; then you will track the changes in the forecast revision. On the *Bills and Adjustments* (AP301000) form, you will prepare a bill for the subcontract prepared on release of the change order. Finally, you will review the changes in the forecast revision on the *Project Budget Forecast* (PM209600) form.

System Preparation

Do the following:

1. As a prerequisite activity, prepare a project budget forecast by performing the actions described in the *Budget Forecasts: To Prepare a Budget Forecast*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a project estimator by using the *ewatson* username and the *123* password.
3. 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 *10/19/2021*. If a different date is displayed, click the Business Date menu button, and select *10/19/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.

Step 1: Processing a Change Order for a Project

Process a change order by doing the following:

1. Open the *Change Orders* (PM308000) form, and click **Add New Record** on the form toolbar.
2. In the **Class** box of the Summary area, specify *DEFAULT*.
3. In the **Project** box, select *ITALIAN*.
4. In the **Change Date** box, specify *10/19/2021*.
5. In the **Approval Date** box, specify *10/19/2021*.
6. In the **Description** box, type `Additional lighting services`.
7. On the **Cost Budget** tab, add a line with the following settings:
   - **Project Task**: `16`
   - **Cost Code**: `16-510`
   - **Account Group**: *SUBCON*
   - **Quantity**: `1`
   - **UOM**: *EA*
   - **Unit Rate**: `5000`

8. On the **Commitments** tab, add a line with the following settings:
   - **Status**: *New Document* (specified automatically)
   - **Project Task**: `16`
   - **Cost Code**: `16-510`
   - **Inventory ID**: *SUBCONTR*
   - **Quantity**: `1`
   - **UOM**: *EA*
   - **Unit Rate**: `5000`
   - **Vendor**: *HOMEDEP*
   - **Commitment Type**: *Subcontract*

   Based on this line the system will create a new subcontract document to record a commitment to the project.
9. On the form toolbar, click **Remove Hold**, and then click **Release**. The system releases the change order and assigns it the *Closed* status.
10. On the *Project Budget Forecast* (PM209600) form, in the **Project** box, select *ITALIAN* and in the **Revision** box, select *1*.
11. In the Summary area, specify the following settings:
    - **Account Group**: *SUBCON*
    - **Cost Code**: *16-510*

    The system filters the budget lines and displays the only line that matches the selection criteria you have specified.
12. In the **Budgeted CO Amount** column, for the *10-2021* period, note that the amount specified in the change order (*5000*) has appeared. (Potential values are reflected in the financial period of the change date of the change order.)
13. Save the forecast.

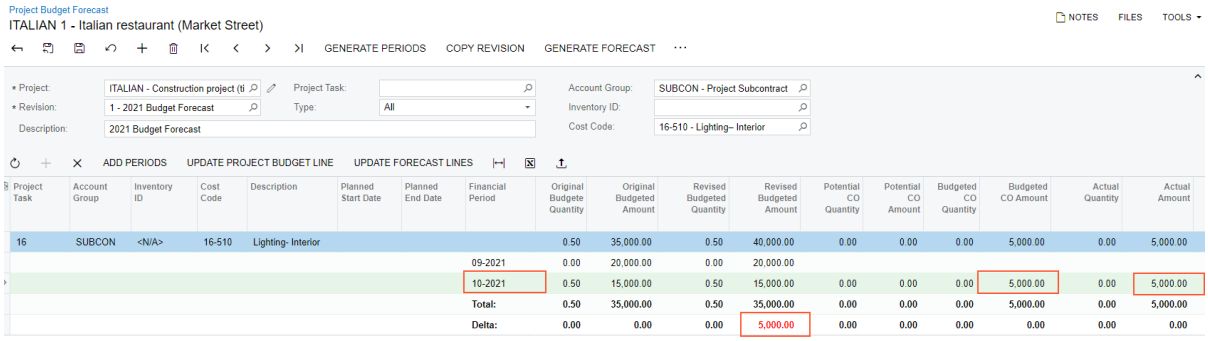
Step 2: Preparing a Bill for the Subcontract

Process a bill for the subcontract by doing the following:

1. On the *Subcontracts* (SC301000) form, open the subcontract to the *HOMEDEP (Bellevue Home Depot)* vendor dated *10/19/2021*, which the system automatically created on release of the change order.
2. On the form toolbar, click **Enter AP Bill**.

   The system opens the *Bills and Adjustments* (AP301000) form, where it has created a new bill and copied the corresponding settings of the subcontract to it.
3. In the **Date** box in the Summary area, specify *10/30/*2021.
4. On the form toolbar, click **Remove Hold** and then click **Release** to release the bill.
5. On the *Project Budget Forecast* (PM209600) form, in the **Project** box, select *ITALIAN* and in the **Revision** box, select *1*.
6. In the Summary area, specify the following settings:
   - **Account Group**: *SUBCON*
   - **Cost Code**: *16-510*

   Review the forecast lines and notice that the system has updated the budgeted and actual amounts for the *10-2021* period, as shown in the following screenshot.



Project Task	Account Group	Inventory ID	Cost Code	Description	Planned Start Date	Planned End Date	Financial Period	Original Budgeted Quantity	Original Budgeted Amount	Revised Budgeted Quantity	Revised Budgeted Amount	Potential CO Quantity	Potential CO Amount	Budgeted CO Quantity	Budgeted CO Amount	Actual Quantity	Actual Amount
16	SUBCON	<N/A>	16-510	Lighting- Interior				0.50	35,000.00	0.50	40,000.00	0.00	0.00	0.00	5,000.00	0.00	5,000.00
							09-2021	0.00	20,000.00	0.00	20,000.00						
							10-2021	0.50	15,000.00	0.50	15,000.00	0.00	0.00	0.00	5,000.00	0.00	5,000.00
							Total:	**0.50**	**35,000.00**	**0.50**	**35,000.00**	**0.00**	**0.00**	**0.00**	**5,000.00**	**0.00**	**5,000.00**
							Delta:	**0.00**	**0.00**	**0.00**	5,000.00	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Figure: Updated amounts in the budget forecast

Note that the value in the **Delta** line for the actual amount is highlighted in red. This means that a period for which an actual amount exists is not displayed in the forecast.

You have updated project actual values and reviewed how this affected the project budget forecast.

Part 5: Project Invoices

Lesson 18: 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.

AR Invoices with Retainage: To Perform Progress Billing with Retainage

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

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

- 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

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 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 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 tab, in the **Pending Invoice Amount** column, enter `100,000`.
3. In the second line (for the *02* project task), in the **Pending Invoice Amount** column, specify `10,000`.
4. Make sure that the **Pending Invoice Amount Total** in the Summary area of the **Revenue Budget** tab is *110,000*, 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 (*1000* and *100*, 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* (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*, the amount of *1,000* has been released, and the remaining unreleased retainage balance is *4,000*. For the second line, the remaining unreleased retainage balance is *400*.
2. On the form toolbar, click **Pay**.

   The system opens the *Payments and Applications* (AR302000) form with 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 `1,000`.
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.

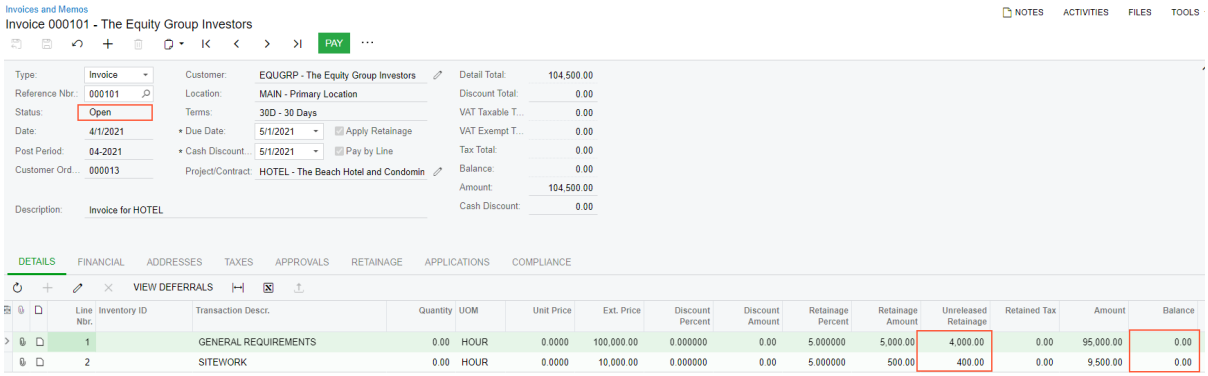


Figure: The original invoice with the unreleased retainage amount

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

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 life cycle 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*.

Lesson 19: 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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

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

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 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

APPLICATION NO: 000011
PERIOD TO: 6/1/2021
PROJECT: HOTELCP
CONTRACT DATE: 3/1/2021

Distribution to:
☐ OWNER
☐ ARCHITECT
☐ CONTRACTOR
☐

FROM CONTRACTOR: ToadGreen Building Group
2295 Oak Street
New York, NY, 13420

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

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	

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.

Figure: AIA Application for Payment

CONTINUATION SHEET

ToadGreen

Page: 2 of 2

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

INVOICE NO: 000011
APPLICATION NO: 0003
APPLICATION DATE: 6/1/2021
PERIOD TO: 7/1/2021
ARCHITECT'S PROJECT NO: HOTELCP

ITEM	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUE	CHANGE ORDERS	REVISED SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED 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	$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 20: 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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, *2021*. 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 *6/10/2021*, 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, for the purposes of this activity, the following tasks have been performed:

- 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

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 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 *6/10/2021*. If a different date is displayed, click the Business Date menu button, and select *6/10/2021* 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 *6/1/2021*, and on the table toolbar, click **AIA Report**. On the Application and Certification 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 *6/1/2021*. 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**: *6/10/2021*
   - **Retainage Percent**: 20
4. Click the unlabeled check box in the column header of the table to select 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 *6/10/2021* 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:

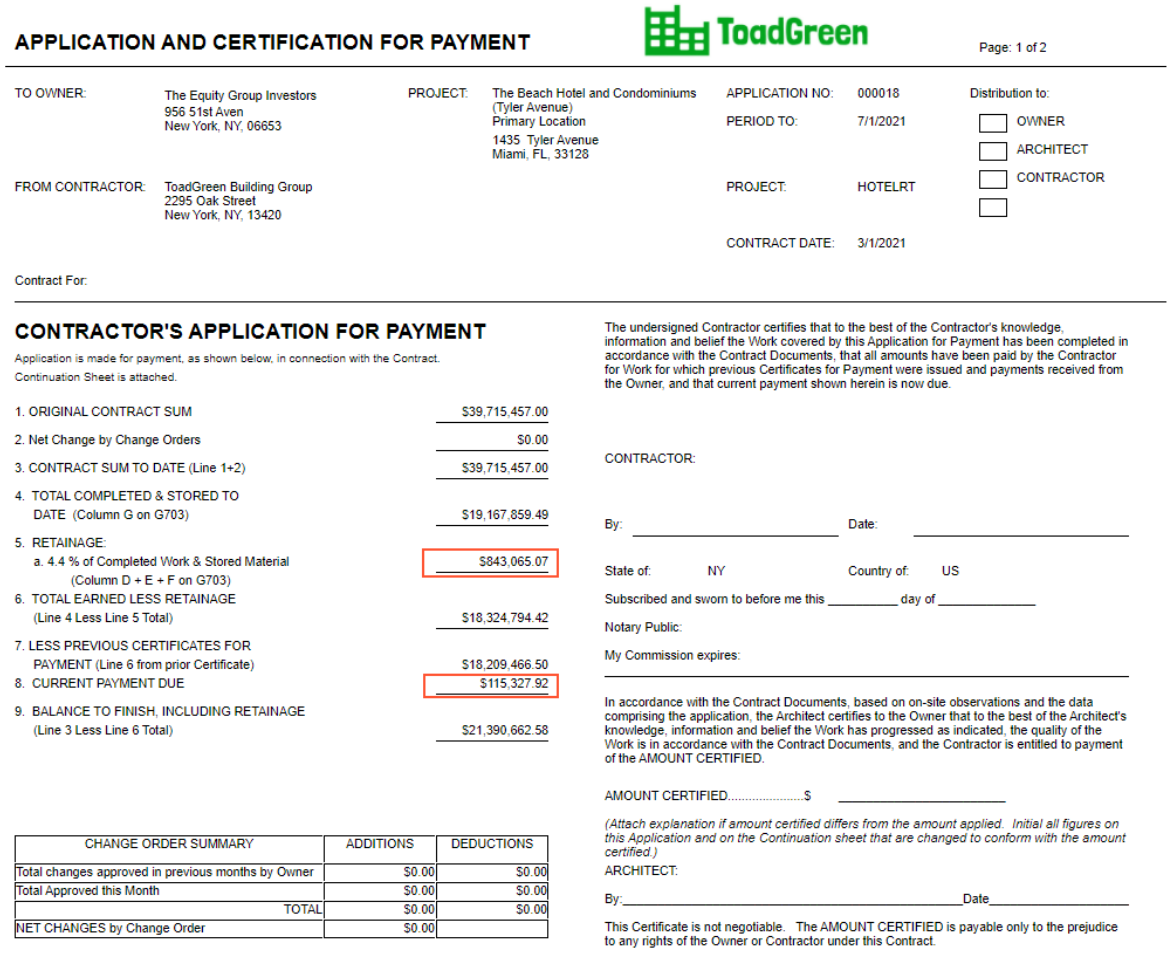
1. On the *Projects* (PM301000) form, open the *HOTELRT* project.
2. In the **Next Billing Date** box on the **Summary** tab, make sure *7/1/2021* is specified.
3. On the **Revenue Budget** tab, make sure **Pending Invoice Amount Total** is *0*.

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 still reviewing 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 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
APPLICATION NO: 000018
PERIOD TO: 7/1/2021
PROJECT: HOTELRT
CONTRACT DATE: 3/1/2021
Distribution to: ☐ OWNER ☐ ARCHITECT ☐ CONTRACTOR ☐
FROM CONTRACTOR: ToadGreen Building Group, 2295 Oak Street, New York, NY, 13420
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

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	

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.

Figure: AIA report with released retainage

You have prepared AIA report with the released retainage amount.

Lesson 21: 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.

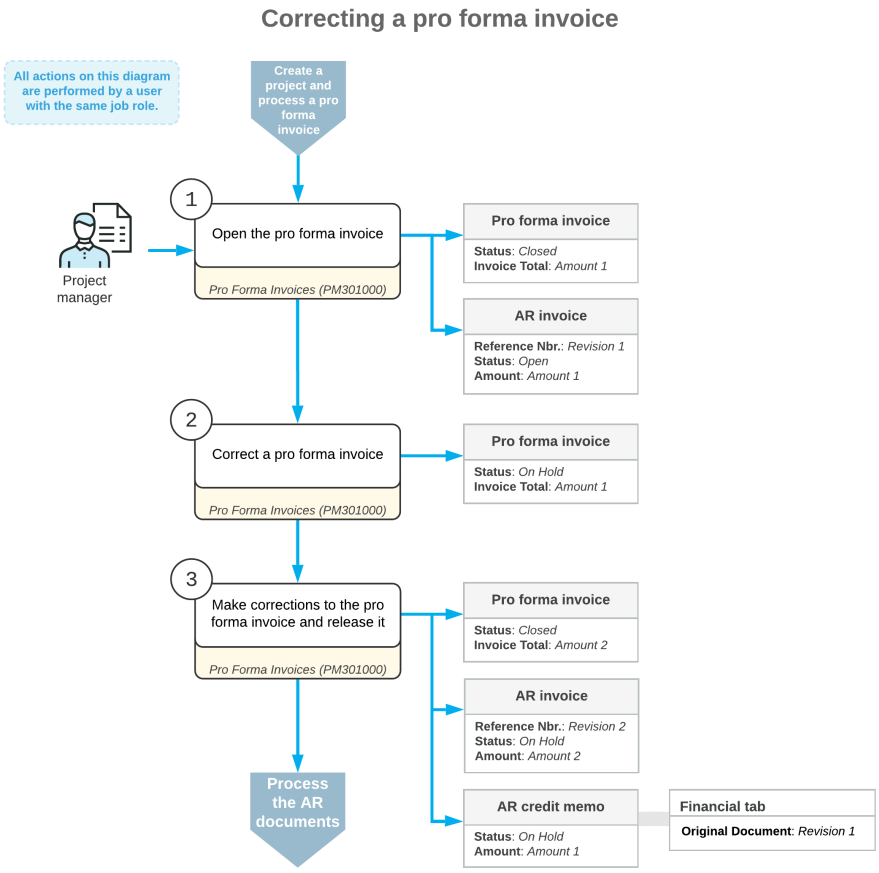
To assign a pro forma invoice the *On Hold* status so that it can be edited, on the More menu of the *Pro Forma Invoices* (PM307000), you click **Correct**. The system changes the status of the pro forma invoice and adds a line with the previous revision of the pro forma invoice to the **Previous Revisions**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



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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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 2021, 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, for the purposes of this activity, the following tasks have been performed:

- 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 *4/1/2021* 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 *5/1/2021* 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 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 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 *5/29/2021*. If a different date is displayed, click the Business Date menu button, and select *5/29/2021* 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 (*4/1/2021*).

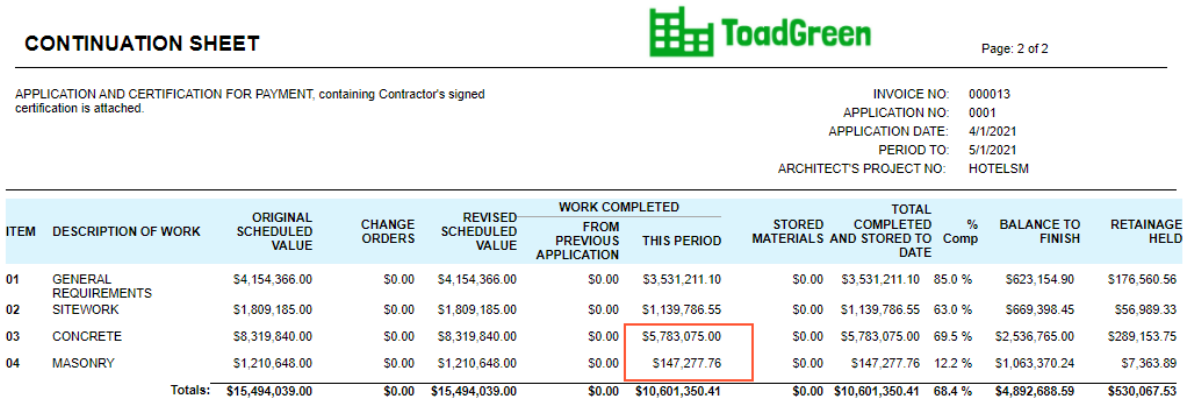
   On the **Financial** tab, notice that the **AR Ref. Nbr.** box (**Invoice Settings** section) is empty (because this pro forma invoice is being edited and has not been released) and a row with the previous revision of the accounts receivable invoice (which has an invoice total of 10,806,560.21) has appeared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



CONTINUATION SHEET ToadGreen Page: 2 of 2

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

INVOICE NO: 000013
APPLICATION NO: 0001
APPLICATION DATE: 4/1/2021
PERIOD TO: 5/1/2021
ARCHITECT'S PROJECT NO: HOTELSM

ITEM	DESCRIPTION OF WORK	ORIGINAL SCHEDULED VALUE	CHANGE ORDERS	REVISED SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION	WORK COMPLETED 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/*2021*.
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 22: Preparing WIP and Bonding Reports

Construction Reports: To Prepare a Bonding Report

This activity will walk you through the process of working with the bonding report.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that to ensure profitability, a project estimator of the ToadGreen company wants to see how projects are progressing in March *2021* , 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, for the purposes of this activity, the following tasks have been performed:

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

- *Construction Project Management*
- On the *Projects* (PM301000) form, multiple projects have been created. (The projects are in the middle of the life cycle.)

System Preparation

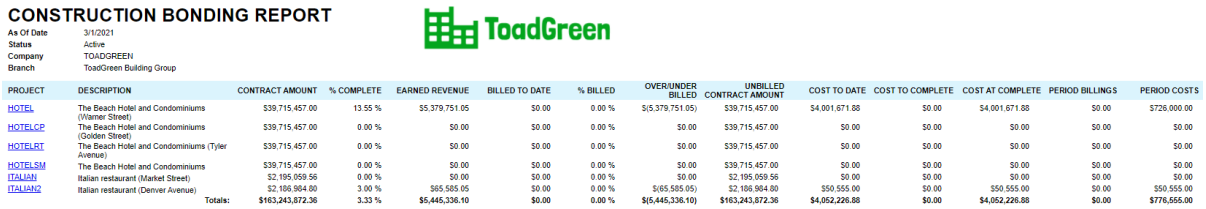
Do the following:

1. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as 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: 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 *3/1/2021* 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

As Of Date 3/1/2021
Status Active
Company TOADGREEN
Branch ToadGreen Building Group

ToadGreen

PROJECT	DESCRIPTION	CONTRACT AMOUNT	% COMPLETE	EARNED REVENUE	BILLED TO DATE	% BILLED	OVER/UNDER BILLED	UNBILLED CONTRACT AMOUNT	COST TO DATE	COST TO COMPLETE	COST AT COMPLETE	PERIOD BILLINGS	PERIOD COSTS
HOTEL	The Beach Hotel and Condominiums (Warner Street)	$39,715,457.00	13.55 %	$5,379,751.05	$0.00	0.00 %	$(5,379,751.05)	$39,715,457.00	$4,001,671.88	$0.00	$4,001,671.88	$0.00	$726,000.00
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	$0.00	$0.00	$0.00	$0.00	$0.00
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	$0.00	$0.00	$0.00	$0.00	$0.00
HOTELSM	The Beach Hotel and Condominiums	$39,715,457.00	0.00 %	$0.00	$0.00	0.00 %	$0.00	$39,715,457.00	$0.00	$0.00	$0.00	$0.00	$0.00
ITALIAN	Italian restaurant (Market Street)	$2,195,059.56	0.00 %	$0.00	$0.00	0.00 %	$0.00	$2,195,059.56	$0.00	$0.00	$0.00	$0.00	$0.00
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	$50,555.00	$0.00	$50,555.00	$0.00	$50,555.00
	Totals:	$163,243,872.36	3.33 %	$5,445,336.10	$0.00	0.00 %	$(5,445,336.10)	$163,243,872.36	$4,052,226.88	$0.00	$4,052,226.88	$0.00	$776,555.00

Figure: Construction bonding report for March

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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company is building an Italian restaurant for the Italian Company, its customer, and is in the middle of the life cycle 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, for the purposes of this activity, 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 *ITALIAN2* project has been created with project tasks and their budgets.

System Preparation

Do the following:

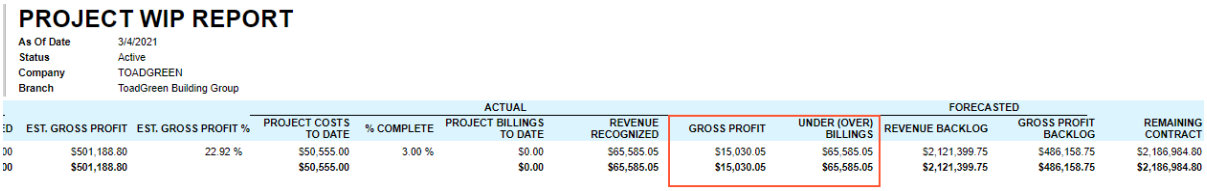
1. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as the project estimator by using the *wendell* username and the *123* password.
2. In the info area, in the upper-right corner of the top pane of the Acumatica ERP screen, make sure that 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**: *3/4/2021*
   - **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.



PROJECT WIP REPORT

As Of Date 3/4/2021
Status Active
Company TOADGREEN
Branch ToadGreen Building Group

			ACTUAL						FORECASTED		
ED	EST. GROSS PROFIT	EST. GROSS PROFIT %	PROJECT COSTS TO DATE	% COMPLETE	PROJECT BILLINGS TO DATE	REVENUE RECOGNIZED	GROSS PROFIT	UNDER (OVER) BILLINGS	REVENUE BACKLOG	GROSS PROFIT BACKLOG	REMAINING CONTRACT
00	$501,188.80	22.92 %	$50,555.00	3.00 %	$0.00	$65,585.05	$15,030.05	$65,585.05	$2,121,399.75	$486,158.75	$2,186,984.80
00	$501,188.80		$50,555.00		$0.00	$65,585.05	$15,030.05	$65,585.05	$2,121,399.75	$486,158.75	$2,186,984.80

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.

Lesson 23: Tracking Retainage with a Cap

Retainage with a Cap: General Information

In Acumatica ERP Construction Edition, you can configure a project with contract cap retainage to be able to define the maximum retainage amount that can be held for the project. For a project with contract cap retainage, you perform progress billing, and the particular invoice amount is retained until the specified retainage limit is reached.

Learning Objectives

In this chapter, you will do the following:

- Learn how to configure a project with a contract cap
- Learn how the contract cap retainage is calculated
- Create pro forma invoices with retainage for the project until the retainage cap is reached
- Release the retainage for the project for multiple project budget lines
- Mass-process retainage invoices

Applicable Scenarios

You configure a project with contract cap retainage when it is necessary to specify the maximum retainage amount that can be held for the project. When you bill this project, the retainage is withheld for the invoice lines until the specified contract cap is reached.

The Application of Retainage with a Contract Cap

Construction projects with contractual agreements are typically billed based on the progress of the work; that is, the customer generally has to make partial payments to the general contractor as the work progresses. Requests for payments are prepared periodically—for example, monthly—and include the cost of the work accomplished since the previous payment to the general contractor was made.

In accordance with the terms of the project, the customer usually retains a prescribed percentage of each progress payment being made; a typical scenario is billing a project with contract cap retainage, which means that the retainage is being withheld until it reaches the agreed-on amount (which is typically specified as a percentage of the total project amount). After that, if the work is progressing and the customer is satisfied, the subsequent progress payments are made in full. The accumulated retainage is held by the customer until the work receives final certification by the architect. Once the customer accepts the project, the final payment, which includes the accumulated retainage, is made to the general contractor.

When you bill a project for which contract cap retainage is configured, the selected contract cap retainage is applied to the project when you bill it until the cap is reached. Retainage is calculated by the following formula:

```
Retainage Amount = Amount to Invoice * Retainage %
```

After the cap has been reached and the total retained amount held for the project, which is specified on the **Summary** tab (**Retainage** section) of the *Projects* (PM301000) form, is at its maximum, no new retainage amount is calculated for further invoices created during project billing. The **Total Retained Amount** held for the project is

reallocated between the invoice lines, based on their weight and retainage capacity. That is, the invoices have the same total allocated retained amount but with different portions of it in the invoice lines (which are allocated to the lines based on the calculated line weight).

On the *Release AR Retainage* (AR510000) form, you can gradually release the retainage held to clear the unreleased retainage balance held on the AR invoice lines; this in turn causes decreases of the **Retained Amount** in the revenue budget lines on the **Revenue Budget** tab of the *Projects* form.

The total retainage amount held for the project stays the same across all the invoices prepared for the project, unless a change order that affects the project revenue budget has been released. If you configure the project to include change orders in the retainage calculation—that is, if the **Include CO** check box is selected on the **Summary** tab of the *Projects* form—the contract total, the completed percentage, and the cap amount are recalculated in accordance with the changes in the revenue budget that have been introduced by the released change orders.

Calculation of Retainage Amounts

In a pro forma invoice prepared on the *Pro Forma Invoices* (PM307000) form for a project with contract cap retainage, the system calculates the **Allocated Retained Amount** (that is, the amount of retainage that is considered to be held for the related revenue budget line in this pro forma invoice), by using the following formula:

```
Allocated Retained Amount = (Total Retained Amount - Total Released Retainage)
* Line Weight
```

In this formula:

- `Total Retained Amount` is the sum of the retained amounts for all revenue budget lines of the project.
- `Total Released Retainage` is the sum of the amounts of the released AR retainage documents that are related to the project.

Once the contract cap is reached, in the subsequent invoices, the system reallocates the accumulated retainage amount of each billing line based on a line weight calculation. For each pro forma invoice line, `Line Weight` is calculated as follows:

```
Line Weight = (Amount to Invoice + Previously Invoiced) / Total Completed
```

In this formula, `Total Completed` is the sum of the `Amount to Invoice` and `Previously Invoiced` amounts for all pro forma invoice lines.

Retainage in AIA Reports

The calculated **Allocated Retained Amount** of a pro forma invoice line is shown in the **Retainage Held** column in the continuation sheet of an American Institute of Architects (AIA) report: in Acumatica ERP Construction Edition, *AIA Report* (PM644000) or *AIA Report with Quantity* (PM644500) report. In the AIA report generated for a project with contract cap retainage, the retainage held amount is equal to the allocated retained amount from the pro forma invoice that was calculated by using the formula above.

In projects with retainage without contract cap, a pro forma invoice prepared for a project does not include the allocated retained amount. In the AIA report prepared for such a project, the retainage held amount is equal to the **Retainage Amount** of the pro forma invoice on the *Pro Forma Invoices* (PM307000) form.

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. Once the retainage is released, the released retainage amount is included in the current payment due amount.

Retainage with a Cap: Process Activity

This activity will walk you through the process of performing progress billing for a project with contract cap retainage.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen Building Group company is a general contractor that is building a hotel for The Equity Group Investors. The project manager has created a fixed-price project; for this project, the customer will be billed once a month based on the progress of the performed work. Also, in the project, the project manager has defined the original project budget, which was also agreed upon with the customer. According to the contract, the customer retains 5% from each invoice, which guarantees to the customer that the ToadGreen company will meet its obligations in building the hotel.

Because the ToadGreen company, as a general contractor, needs to have enough resources for performing daily operations, the contract also includes a 50% retainage cap, which specifies the maximum retainage amount that can be held for the project.

Acting as the project manager, you need to make sure that the pro forma invoices prepared for the customer include the correct retainage amounts, and that the retainage is no longer held after the cap has been reached.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction*, *Payment Application by Line*, and *Retainage Support* features have been enabled.
- On the *Customers* (AR303000) form, the *EQUGRP* customer has been created; the **Pay by Line** and **Apply Retainage** check boxes are selected on the **General** tab for this customer. On the **GL Accounts** tab, *18000* is specified in the **Retainage Receivable Account** box.
- On the *Billing Rules* (PM207000) form, the *PROGRRET* billing rule has been created.
- On the *Projects* (PM301000) form, the *HOTELCP* project has been created with multiple project tasks and their budgets. For each task, the *PROGRRET* billing rule is specified. On the **Summary** tab of the form, the contract cap retainage settings have been configured for the project.
- For the project, three billing iterations have been performed. The pro forma invoices and the corresponding AR invoices have been prepared and released on the *Pro Forma Invoices* (PM307000) and *Invoices and Memos* (AR301000) forms, respectively; in each invoice, the retainage amount has been calculated.

Process Overview

You will review the billing details of a previously prepared pro forma invoice by using the *Projects* (PM301000) and *Pro Forma Invoices* (PM307000) forms. You will then perform billing while the cap has not been reached by using the same forms, and review the retainage that the system will calculate for the invoice. After that, you will perform billing when the cap has been reached so that retainage is not calculated for this invoices.

System Preparation

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 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.
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 the Retainage Details of the Project

Review the details of the project as follows:

1. Open the *Projects* (PM301000) form.
2. In the **Project ID** box, select *HOTELCP*. In the **Retainage** section of the **Summary** tab, review the retainage details for the project. The **Total Retained Amount** is *958,392.99*, while the calculated cap amount is *992,886.42*. The contract completion percentage shown in the **Completed (%)** box is *48.26*, which means that the 50% cap has not been reached and that additional retainage could still be withheld from the next invoice.
3. On the **Invoices** tab, click the **Pro Forma Reference Nbr.** link for the pro forma invoice with the *0003* in the **Application Nbr.** box.

   On the *Pro Forma Invoices* (PM307000) form, which opens in a pop-up window with the selected pro forma invoice, review the retainage amounts on the **Progress Billing** tab. In each line, the retainage amount is calculated as the retainage percentage applied to the amount to invoice; for example, for the line with the *01-000* cost code, **Retainage Amount** is *103,859.15* (2,077,183.00 * 0.05).

   The **Retainage Total** in the Summary area of the invoice (see the following screenshot) is the sum of the **Retainage Amount** column values for this pro forma invoice. The total project retainage (held for all three invoices prepared for the project by this moment) is shown in the **Allocated Retained Total** box in the Summary area; this amount is the sum of the **Allocated Retained Amount** column values.

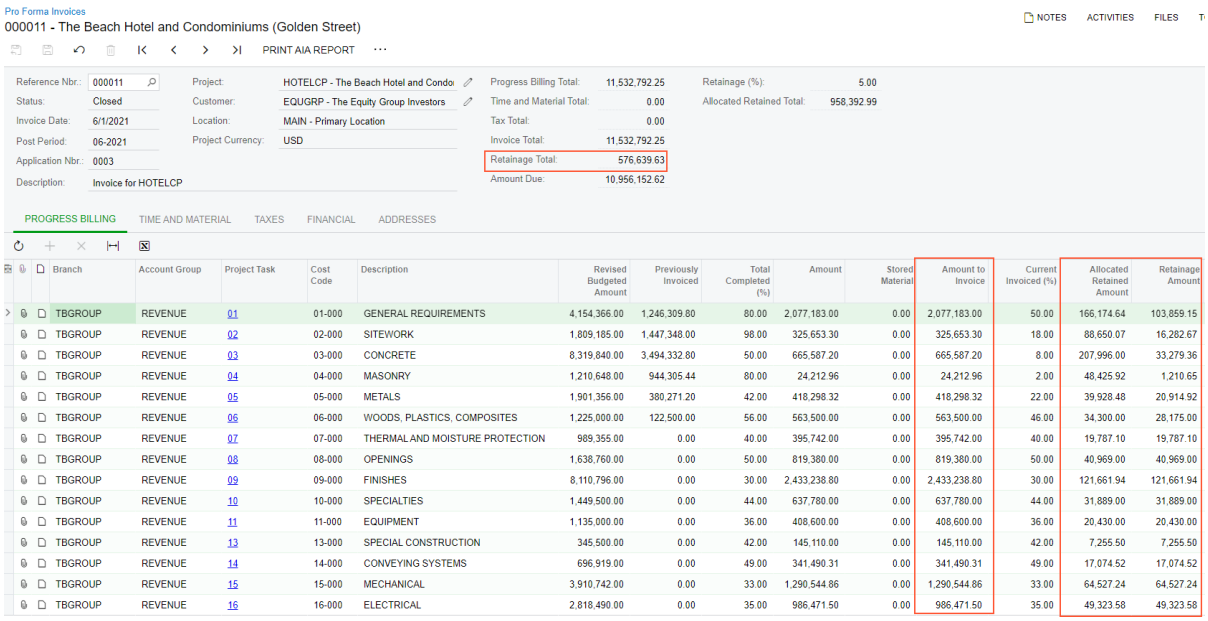


Figure: The pro forma invoice with the retainage calculated

Step 2: Billing a Project Based on Progress

Do the following:

1. Return to the *HOTELCP* project on the *Projects* (PM301000) form, and on the **Revenue Budget** tab, in the **Completed (%)** box, change the amounts as follows:
   - In the line with the *05-000* cost code, change **Completed (%)** to `66`. The system calculates the **Pending Invoice Amount** in the line to be *456,325.44*.
   - In the line with the *06-000* cost code, change **Completed (%)** to `75`. The system calculates the **Pending Invoice Amount** in the line to be *232,750.00*.
   - In the line with the *07-000* cost code, change **Completed (%)** to `80`. The system calculates the **Pending Invoice Amount** in the line to be *395,742.00*.
   - In the line with the *08-000* cost code, change **Completed (%)** to `75`. The system calculates the **Pending Invoice Amount** in the line to be *409,690.00*.
2. In the Summary area of the tab, make sure the **Pending Invoice Amount Total** equals *1,494,507.44*, and on the form toolbar, click **Save**.
3. On the form toolbar, click **Run Project Billing** to generate a new pro forma invoice for the project. The system opens the prepared document on the *Pro Forma Invoices* (PM307000) form, as shown in the screenshot below.

   Notice that the **Allocated Retained Total** equals *992,886.42*: This is the maximum retainage amount that can be held for the project. To avoid exceeding the retainage cap, for this invoice, the system has calculated the rest of the retainage that can be held and has reallocated it proportionally between the invoice lines.

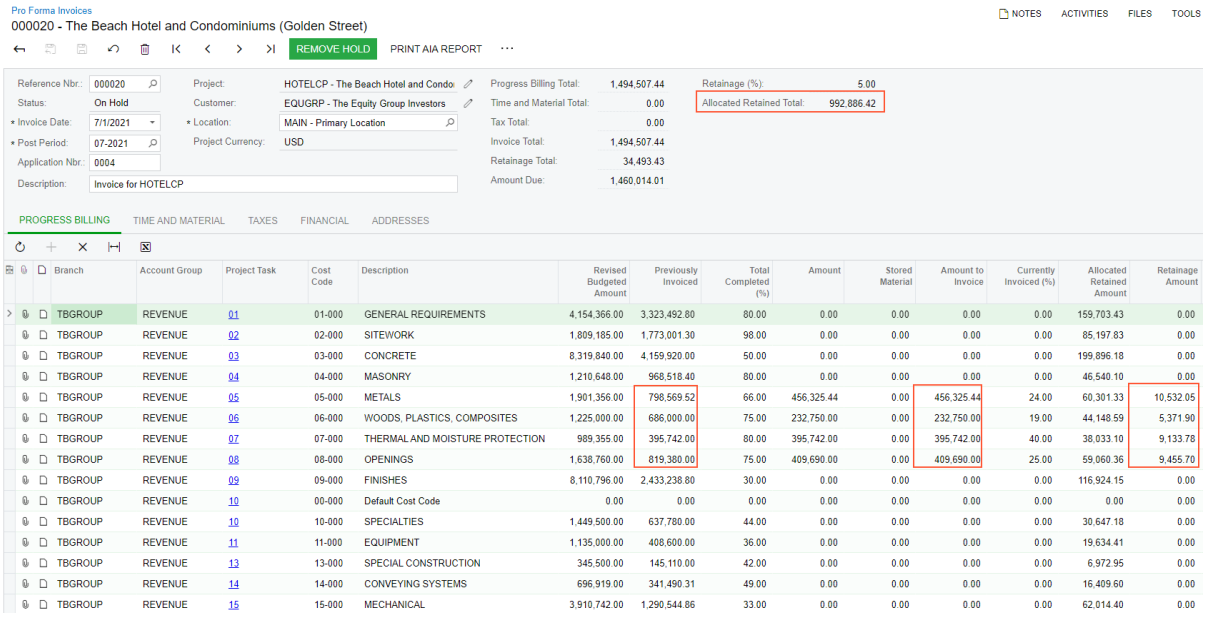


Figure: The pro forma invoice with retainage

4. On the form toolbar, click **Remove Hold**, and then click **Release**.
5. On the *Invoices and Memos* (AR301000) form, open the invoice to *EQUGRP* in the amount of *1,460,014.01*, which has been created on release of the pro forma invoice.

   On the **Details** tab, notice that the calculated retainage percent is the same for all lines and is less then 5% percent defined in the project. (Small differences between the retainage percentage in lines could occur due to rounding.)
6. On the form toolbar, click **Remove Hold**, and then click **Release**.

The cap has been reached, so no more retainage will be calculated for the project. For the remaining invoices prepared for the project, the system will not calculate retainage amounts.

Lesson 24: Billing Project for Time and Material with Retainage

AR Invoices with Retainage: To Perform Time and Material Billing with Retainage

This activity will walk you through the process of performing time and material billing with retainage.

> The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen Building Group company is building a hotel for The Equity Group Investors. A ToadGreen project accountant bills the customer for some extra time spent on the project that initially was not budgeted for the project; as was initially agreed with the customer, 5% retainage is held on these invoices.

Acting as the project manager, you need to create a new project task, enter a project transaction that represents the extra work, and create an invoice for that work with the retained amount.

Configuration Overview

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

- 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 **General** tab for this customer.
- On the *Account Groups* (PM201000) form, the *MATERIAL*, *LABOR*, and *SUBCON* account groups have been created.
- On the *Non-Stock Items* (IN202000) form, the *LABOR* item has been created.
- On the *Billing Rules* (PM207000) form, the *TM* billing rule has been created. The rule has three steps for billing of transactions that are posted to *MATERIAL*, *LABOR*, or *SUBCON* account groups. The calculation formula is the following: The amount of expense multiplied by 1.25 equals the billed amount for the transaction.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created with multiple project tasks and their budgets. 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 create a project task and assign the time and material billing rule to it on the *Projects* (PM301000) form. You will then process a project transaction on the *Project Transactions* (PM304000) form to record the extra work, and run project billing on the *Projects* form. Then you will release the generated pro forma invoice on the *Pro Forma Invoices* (PM307000) form. Finally, you will release the related AR invoice with retainage on the *Invoices and Memos* (AR301000) form

System Preparation

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 a 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 1: Adding a Task with a Time and Material Billing Rule

Do the following:

1. On the *Projects* (PM301000) form, open the *HOTEL* project. On the **Summary** tab, notice the date in the **Next Billing Date** box. You will need to process the transaction with a date before this date.
2. On the table toolbar of the **Tasks** tab, click **Add Row**, and add a new project task with the following settings:
   - **Task ID**: `20`
   - **Type**: *Cost and Revenue Task*
   - **Description**: `Ad-hoc miscellaneous expenses`

- **Billing Rule**: *TM*
- **Status**: *Active*

3. Click **Save** to save your changes to the project.

Step 2: Creating and Releasing a Project Transaction

Enter and process the project transaction by doing the following:

1. Open the *Project Transactions* (PM304000) 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** to create a new project transaction, and in the Summary area, make sure *PM* is selected as the **Module**.
3. In the **Description** box, type `Miscellaneous expenses`.
4. On the **Details** tab, click **Add Row**, and specify the following transaction details:
   - **Project**: *HOTEL*
   - **Project Task**: *20*
   - **Cost Code**: *00-000*
   - **Account Group**: *LABOR*
   - **Inventory ID**: *LABOR*
   - **UOM**: *HOUR*
   - **Quantity**: `1`
   - **Billable**: Selected
   - **Billable Quantity**: `1`
   - **Unit Rate**: `45`
   - **Amount**: *45.00* (calculated automatically)
   - **Date**: The date three days before **Next Billing Date**
5. Save the transaction.
6. On the form toolbar, click **Release** to release the project transaction.

Step 3: Running Project Billing

Perform billing for the entered project transaction as follows:

1. On the *Projects* (PM301000) form, open the *HOTEL* project.
2. On the form toolbar, click **Run Project Billing**.

   The system opens the *Pro Forma Invoices* (PM307000) form with the pro forma invoice that was created, which includes one line on the **Time and Material** tab. The billed amount in the line is 56.25 (which is calculated by using the billing rule formula, 45 * 1.25, which is calculated by using the billing rule formula). The retainage amount is calculated as the retainage percentage applied to the amount to invoice of the line and equals *2.81*.
3. On the form toolbar, click **Remove Hold** to assign the pro forma invoice the *Open* status, and then click **Release** to release the pro forma invoice.
4. On the **Financial** tab, click the Edit button next to the **AR Ref. Nbr.** box to open the generated AR invoice on the *Invoices and Memos* (AR301000) form. In the invoice, which opens, make sure that the invoice has one

line with an **Ext. Price** value equal to the sum of the **Amount to Invoice** value from the pro forma invoice line (*56.25*) and a **Retainage Amount** of *2.81*.

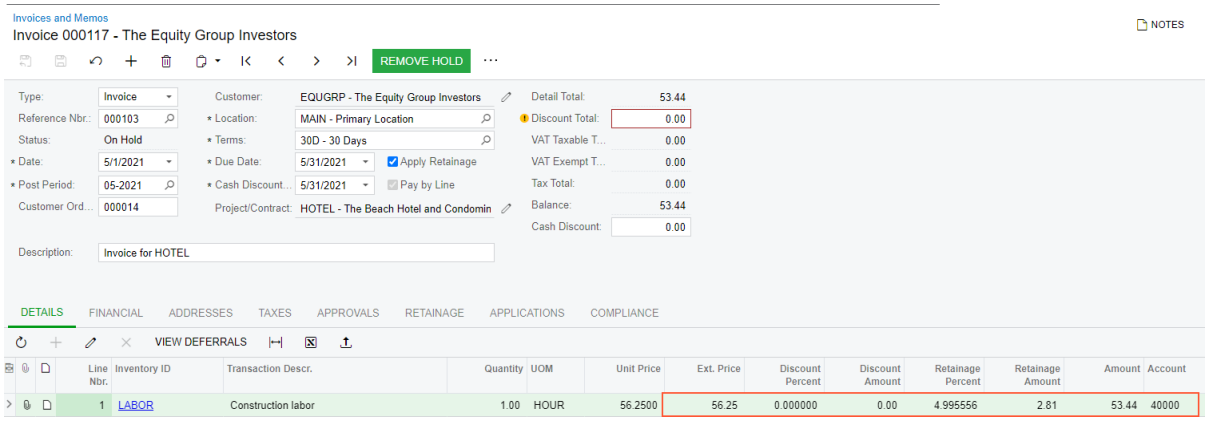


Figure: AR invoice with retainage

> ⚠ The retainage percent in the AR invoice line is calculated as `Retainage Amount / Ext. Price` and thus may differ from the retainage percent of the pro forma line due to rounding differences.

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

You have billed a project for time and material and included the retainage amount in the invoice.

Part 6: Project Management

Lesson 25: Working with 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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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

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 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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on February 15, 2021, 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, for the purposes of this activity, the following tasks have been performed:

- 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.

System Preparation

Do the following:

1. As a prerequisite to the current activity, complete *Daily Field Reports: To Configure Approval for Daily Field Reports*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a construction foreman by using the *epsmith* username and the *123* password.
3. 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.
4. Download the *DFR_CR1.xlsx*, *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.

   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

In this step, you will 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**: 1,200

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

Do the following to add records about site visitors:

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, as shown in the following screenshot.

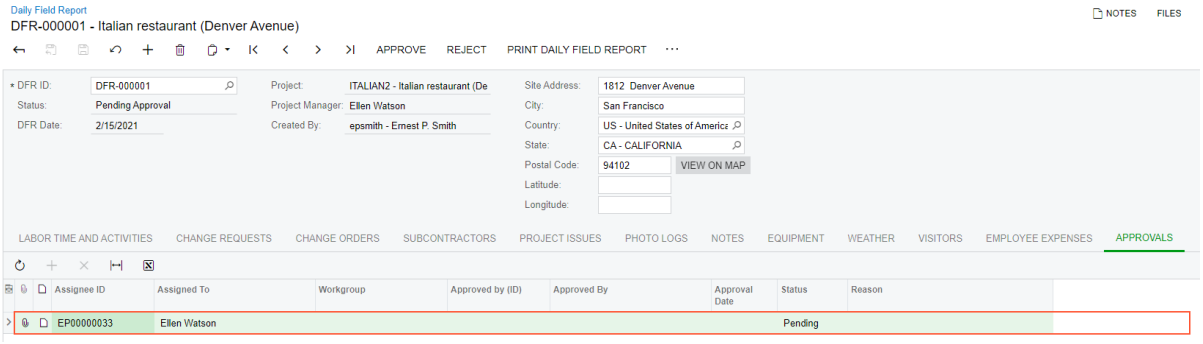


Figure: Daily field report submitted for approval

You have prepared the daily field report and sent it for approval.

Lesson 26: Working with 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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

- The *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form.
- 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

Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a system administrator by using the *gibbs* username and the *123* password.

Step 1: Specifying System Settings for Project Issues

Do the following:

1. Open the *Project Management Preferences* (PJ101000) form.
2. In the **Project Issue Settings** section, 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** 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 *3/21/2021*, 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, for the purposes of this activity, the following tasks have been performed:

- 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

Do the following:

1. As a prerequisite activity, configure the two-tier change management by performing the instructions in the *Change Requests: Implementation Activity*.
2. As a prerequisite activity, configure the project issue types by performing the instructions in the *Project Issue: Implementation Activity*.
3. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a construction project manager by using the *ewatson* username and the *123* password.
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 *3/21/2021*. If a different date is displayed, click the Business Date menu button, and select *3/21/2021* 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 First Project Issue

To create the project issue, do the following:

1. Open the *Project Issue* (PJ302000) 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 in the Summary area:
   - **Summary**: `Hole in the wall needs to be patched`
   - **Project**: *HOTEL*
   - **Class ID**: *FIELD*
   - **Due Date**: *3/28/2021*
   - **Project Issue Type**: *Accident*
   - **Owner**: *Ricky Thompson*
   - **Schedule Impact**: Selected
   - **Schedule Impact (days)**: `1`
   - **Cost Impact**: Selected
   - **Cost Impact**: `2,000`
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 a 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 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 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.

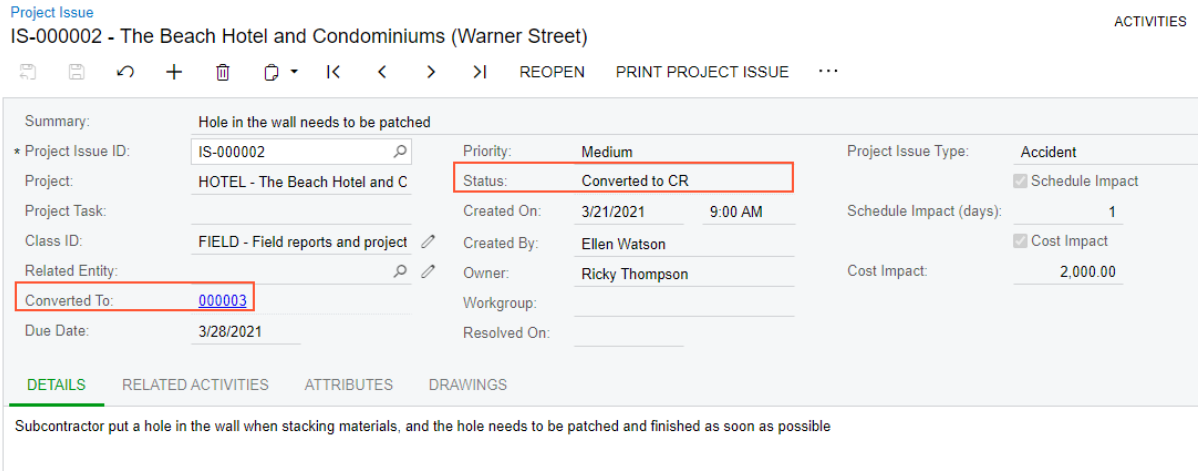


Figure: Project issue that has been converted to a change request

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 27: Working with 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.

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

- The *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form.
- 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

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 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* 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.

   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.

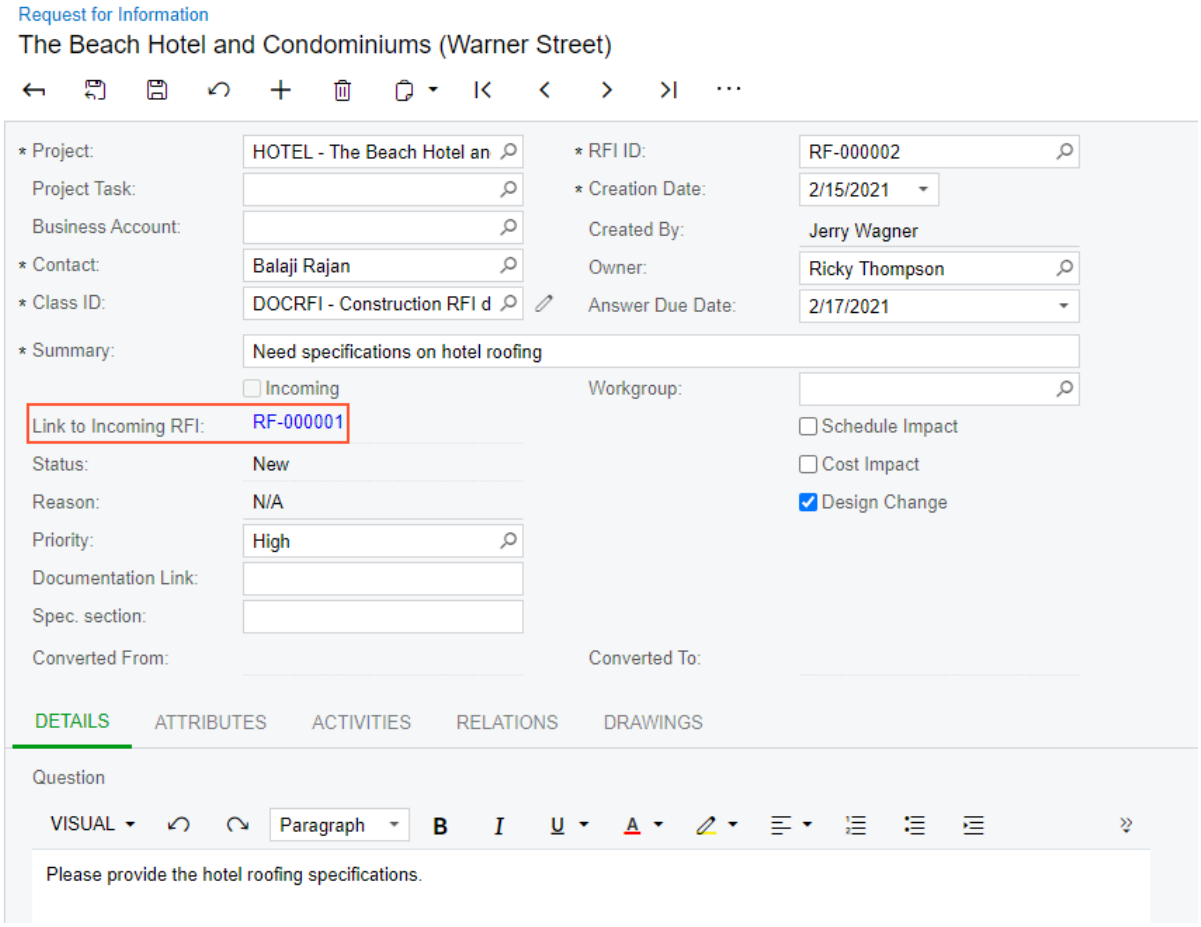


Figure: Outgoing request for information

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 message: `Please provide the specifications for hotel roofing.`
5. On the form toolbar, click **Send** to send the email, close the form, and return 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 *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.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

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, for the purposes of this activity, the following tasks have been performed:

- The *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form.
- 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

Do the following:

1. As a prerequisite activity, configure the project issue types by performing the instructions in the *Project Issue: Implementation Activity*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a construction foreman by using the *epsmith* username and the *123* password.
3. 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* 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.

   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**: *2/22/2021*
   - **Owner**: *Ricky Thompson*
   - **Project Issue Type**: *Design Issue*
   - **Schedule Impact**: Selected
   - **Schedule Impact (days)**: `3`
   - **Cost Impact**: Selected
   - **Cost Impact**: `60,000`
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 an Request for Information

To convert the issue to the request for information, do the following:

1. While still reviewing 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.

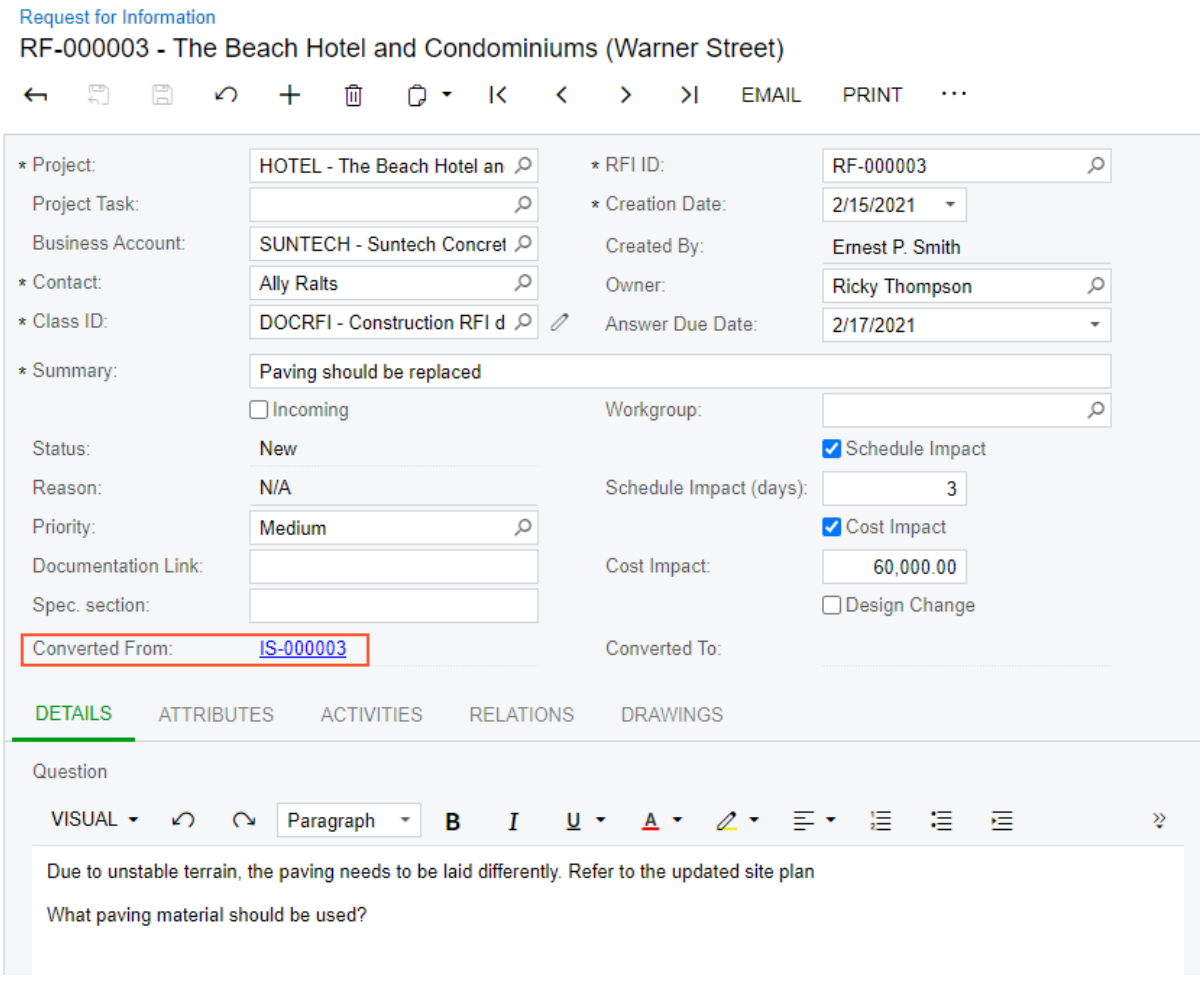


Figure: Request for information created based on the project issue

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 28: Working with Photo Logs

Photo Logs: General Information

In the construction industry, field superintendents and other employees may use mobile devices to take progress photos, and then they may need to store and share those photos by using a secure online service. In Acumatica ERP Construction Edition, you can create photo logs. You can associate each photo log with a particular project and, optionally, a project task.

Learning Objectives

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

- Create a photo log
- Upload photos to the photo log
- Download a ZIP archive with all the photos and files of the photo log
- Send an email with all the photos and files of the photo log
- Search for a photo log or a particular photo in the system

Applicable Scenarios

You create a photo log when you have any number of photos taken at a construction site, and you want to associate with one another and keep them for a project or project task.

Preparation to Use Photo Logs

Before you can starting using photo logs, numbering sequences should be specified for both photo logs and photos on the *Photo Log Preferences* (PJ103000) form.

On the **Status** tab of this form, you can also define custom statuses for photo logs. The *N/A* status, which is the only predefined status in the system, is specified by default for a new photo log. This status cannot be deleted, but you can change its name and description, if needed.

On the **Attributes** tab of the form, you can specify the list of attributes that will be available for individual photos in a photo log. When a user adds a photo in the photo log, the user specifies the appropriate attribute values for the photo.

Creation of a Photo Log

You can create a photo log by using the *Photo Log* (PJ305000) form. This form opens when you click **Add New Record** on the form toolbar of the *Photo Logs* (PJ405000) form.

On the *Photo Log* form, you need to specify the project for which the photo log is being created, the date, and the status. Also, you can specify a project task and a brief description of the photo log.

On the **Photos** tab, you need to click **Add Row** on the table toolbar to open the *Photo* (PJ305010) form, through which you can upload a photo and add it to a photo log. To add the photo to the photo log, you click the **Upload Photo** button next to the **Photo Log ID** box (which the system initially fills in with the ID of the photo log from which you added the photo), select a photo in the **Upload New Photo** dialog box, click **Upload**, and then save your changes. You can add any number of photos to a photo log.

In the Summary area of the *Photo* form, if you select the **Main Photo** check box, the photo is displayed in the preview area on the *Photo Logs* form as the main photo of the entire photo log. Only one photo can be marked as the main photo for a photo log. If no photo is marked as the main photo of a photo log, the preview area remains empty.

Use of Photo Logs

When working with photo logs on the *Photo Logs* (PJ405000) inquiry form, you can also do the following:

- Narrow the list of photo logs by using the **Project** and **Project Task** boxes in the Selection area.
- Download photos from selected photo logs to a single ZIP archive by selecting the unlabeled check boxes for the needed photo logs in the table in the right pane and clicking **Export Photo Logs** on the form toolbar.
- Email photos from selected photo logs as an email attachment by selecting the unlabeled check boxes for the needed photo logs in the table in the right pane and clicking **Email Photo Logs** on the form toolbar.

If you delete a photo log, all photos included in the photo log are also deleted.

To move a photo from one photo log to another, you can select the destination photo log in the **Photo Log ID** box for the photo on the *Photo* (PJ305010) form and save your changes.

Photo Logs: Implementation Activity

This activity will walk you through the process of specifying the statuses that can be used for photo logs.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company needs to keep photo logs in the system. Acting as a system administrator, you need to define the statuses to be used for photo logs.

Configuration Overview

For the purposes of this activity, the following features have been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form:

- *Construction*
- *Construction Project Management*

System Preparation

Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a system administrator by using the *gibbs* username and the *123* password.

Step: Specifying Photo Log Settings

Do the following:

1. Open the *Photo Log Preferences* (PJ103000) form.
2. On the **Status** tab, in the **Status** column of the only row, change the settings of the *N/A* predefined status as follows:
   - **Status**: `In Progress`
   - **Description**: `Work in progress`

   This is the status that the system will assign by default to a newly created photo log.
3. On the table toolbar, click **Add Row**, and specify the following settings in the added row:
   - **Status**: `Not Started`
   - **Description**: `Work not started`
4. On the table toolbar, click **Add Row**, and specify the following settings in the added row:
   - **Status**: `Completed`
   - **Description**: `Work completed`
5. Click **Save** on the form toolbar to save the settings.

You can now create photo logs in the system.

Photo Logs: Process Activity

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

The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that on February 15, 2021, the construction foreman has inspected the project site and taken progress photos. Acting as the construction foreman, you will create a photo log for the particular project and project task and upload the photos to this photo log. Then you will send the photos to the responsible person.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled.
- On the *Projects* (PM301000) form, the *HOTEL* project has been created, and the project tasks for the project have been specified on the **Tasks** tab, including the *02 – SITEWORK* project task.

Process Overview

You will create the photo log on the *Photo Log* (PJ305000) form and upload the progress photos to the log by using the *Photo* (PJ305010) form. You will then download all the photos to your device by using the *Photo Logs* (PJ405000) form. From this form, you will also open the *Email Activity* (CR306015) form to send an email with the ZIP archive.

System Preparation

Do the following:

1. As a prerequisite to this activity, prepare the system for using photo logs by completing the *Photo Logs: Implementation Activity*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a construction foreman by using the *epsmith* username and the *123* password.
3. 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.
4. Download the *Photo_Log_Concrete_Headwall*, *Photo_Log_Erosion*, and *Photo_Log_Culvert* files to your device.

Step 1: Creating a Photo Log

To create the photo log, do the following:

1. Open the *Photo Logs* (PJ405000) form.
2. On the form toolbar, click **Add New Record**, and on the *Photo Log* (PJ305000) form that opens, specify the following settings in the Summary area:
   - **Date**: *2/15/2021*
   - **Project**: *HOTEL*
   - **Project Task**: *02 - SITEWORK*
   - **Description**: `Problem with the drainage system`
   - **Status**: *In Progress* (inserted automatically)
3. On the form toolbar, click **Save**.

   Notice that an identifier has been automatically generated for the photo log. The system generates this identifier in accordance with the numbering sequence specified on the *Photo Log Preferences* (PJ103000) form.

Step 2: Uploading Photos to the Photo Log

Upload the photos to the photo log by doing the following:

1. While you are still viewing the created photo log on the *Photo Log* (PJ305000) form, upload first photo by doing the following:
   a. In the right pane on the **Photos** tab, click **Add Row** on the table toolbar.
   b. On the *Photo* (PJ305010) form, which opens, click the **Upload Photo** button, which is next to the **Photo Log ID** box.
   c. In the **Upload New Photo** dialog box, which opens, click **Choose File**, select the `Photo_Log_Concrete_Headwall.jpg` file to upload, and click **Upload**.
   d. On the form toolbar of the *Photo* form, click **Save & Close** to save the uploaded photo and return to the *Photo Log* form.

      On the **Photos** tab, notice that the line for the uploaded photo is now listed in the table. The right pane shows the photo preview.
2. Upload second photo by doing the following:

a. In the right pane on the **Photos** tab, click **Add Row** on the table toolbar.

b. On the *Photo* (PJ305010) form, which opens, click **Upload Photo**.

c. In the **Upload New Photo** dialog box, which opens, click **Choose File**, select the `Photo_Log_Culvert.jpg` file to upload, and click **Upload**.

d. On the form toolbar of the *Photo* form, click **Save & Close** to save the uploaded photo and return to the *Photo Log* form.

3. Upload third photo by doing the following:

a. In the right pane on the **Photos** tab, click **Add Row** on the table toolbar.

b. On the *Photo* (PJ305010) form, which opens, click **Upload Photo**.

c. In the **Upload New Photo** dialog box, which opens, click **Choose File**, select the `Photo_Log_Erosion.jpg` file to upload, and click **Upload**.

d. On the form toolbar of the *Photo* form, click **Save & Close**.

4. Select the **Main Photo** check box in the row with the *Photo_Log_Culvert* photo to indicate that this photo must be displayed in the preview area on the *Photo Logs* form as the main photo of this photo log, as the following screenshot shows.

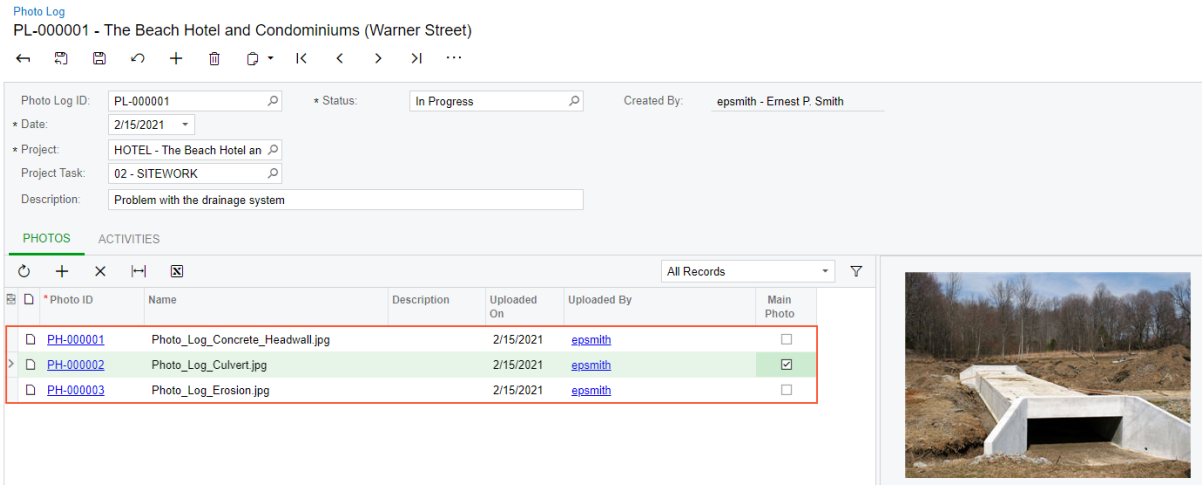


Figure: Photo log with uploaded photos

5. Save your changes.

You have created a photo log with multiple photos for the project.

Lesson 29: Working with Drawing Logs

Drawing Logs: General Information

A drawing log is a collection of drawings and designs related to a project. A member of a project team can create a drawing log, specify all relevant settings of the drawing log, and upload a drawing or a group of drawings to the drawing log.

Learning Objectives

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

- Configure drawing logs and set up disciplines and statuses
- Create drawing logs
- Upload and download images linked to drawing logs
- Link requests for information and project issues to existing drawing logs
- Email drawings and requests for information
- Create revisions of drawing logs

Applicable Scenarios

You create a drawing log when a new file with a drawing, design, or sketch needs to be associated with a project and no drawing log has already been created for the project.

Drawing Log Creation

You can create a drawing log on one of the following forms:

- *Drawing Log* (PJ303000): On this data entry form, you create one drawing log and specify all of its settings.
- *Drawing Logs* (PJ403000): On this inquiry form, you can view a list of drawing logs and initiate the creation of a drawing log.

For a newly created drawing log, you specify a discipline—that is, a field or area in construction used for categorizing drawing log documents.

If any changes have been made to the initial drawing, you can update the drawing by uploading a new file version to the existing drawing log or creating a new revision of the drawing. If the uploaded drawing is an update of a previous drawing in the log, you should specify the revision number, which indicates the up-to-date version of the drawing.

Additionally, you can upload sketches (that is, drafts of drawings). When you upload a sketch, you should specify the sketch number in the **Sketch** box.

You can download multiple images attached to a drawing log document as a zip file by clicking **Export Drawing Log** on the form toolbar of the *Drawing Log* (PJ303000) form or by selecting the unlabeled check box for the needed drawing log on the *Drawing Logs* (PJ403000) form and then clicking **Export Drawing Log** on the form toolbar.

Related RFI and Project Issues

To link a drawing log to a request for information (RFI), you click **Create RFI** on the More menu of the *Drawing Log* (PJ303000) form. The system creates the RFI, whose settings you specify, and links this RFI to the drawing log. When you send an email with the RFI, you can attach drawings from the linked drawing log to the email. Also, from the *Drawing Logs* (PJ403000) form, you can create an RFI that is linked to multiple drawing logs.

From the *Drawing Log* form, you can create a project issue linked to a particular drawing log. To do this, you click **Create Project Issue** on the More menu. The system creates the project issue, whose settings you specify, and links this project issue to the drawing log. When you send an email with the project issue, you can attach drawings from the linked drawing log to the email. Also, from the *Drawing Logs* form, you can create a project issue that is linked to multiple drawing logs.

Drawing Logs: Implementation Activity

This activity will walk you through the process of configuring drawing logs and defining their disciplines and statuses.

> The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company needs to maintain drawing logs in the system. Acting as a system administrator, you need to perform the necessary configuration 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

Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as a system administrator by using the *gibbs* username and the *123* password.

Step: Specifying the Settings to Be Used for Drawing Logs

Do the following:

1. Open the *Drawing Log Preferences* (PJ102000) form.
2. On the **Disciplines** tab, review the predefined list of disciplines, and make sure that there is a line with the *Architectural* discipline specified and the **Active** check box selected in this line.
3. On the **Status** tab, in the **Status** column of the only row, rename the predefined *N/A* status to `Active`, and change the description to `New drawing log`. This status will be assigned by default to each newly created drawing log.
4. On the table toolbar, click **Add Row**, and specify the following settings in the added row:
   - **Status**: `Inactive`
   - **Description**: `The document is obsolete`
5. Add three more rows with the settings listed in the following table.

Status	Description
`Submitted`	`The drawing log needs to be re-viewed by the project manager`
`Accepted`	`The project manager has accepted the drawing log`

Status	Description
Rejected	The project manager has rejected the drawing log

6. Click **Save** on the form toolbar.

You can now create drawing logs in the system.

Drawing Logs: Process Activity

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

> The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen architect has prepared a floor plan blueprint for the Beach Hotel and Condominiums, the project that the ToadGreen company is working on. Then the architect has submitted a request for information about the plan of the first floor to make sure that the current location of the storage room (next to the service elevator) is correct. Based on the submitted request for information, a new revision of the blueprint should be created and linked to the original drawing, and the original blueprint must be marked as obsolete.

Acting as the architect, you will process all required documents in the system with the assumption that these changes will not affect the schedule, cost, and design.

Configuration Overview

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

- The *Construction* and *Construction Project Management* features have been enabled in the *Projects* group of features on the *Enable/Disable Features* (CS100000) form.
- 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 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 *EP00000033 – Ellen Watson* and *EP00000013 – Anna Johnson* employee records have been created.

Process Overview

You will create a drawing log with the initial floor plan on the *Drawing Log* (PJ303000) form. You will then create a request for information on the *Request for Information* (PJ301000) form and send an email to the person responsible for receiving the needed information. After that, based on the answer to the request for information that you have received, you will create a new drawing log on the *Drawing Log* (PJ303000) form.

System Preparation

Do the following:

1. As a prerequisite to this activity, prepare the system for using drawing logs by completing the *Drawing Logs: Implementation Activity*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as an architect by using the *rsmith* username and the *123* password.
3. 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 *2/15/2021*. If a different date is displayed, click the Business Date menu button, and select *2/15/2021* on the calendar. For simplicity, in this activity, you will create and process all documents in the system on this business date.
4. Download the *Floor_Plan_Revision_1* and *Floor Plan Revision 2.jpg* files to your device.

Step 1: Creating a Drawing Log

To create a drawing log, do the following:

1. Open the *Drawing Log* (PJ303000) 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 in the Summary area:
   - **Project**: *HOTEL*
   - **Discipline**: *Architectural*
   - **Owner**: *Ellen Watson*
   - **Drawing Number**: `1`
   - **Title**: `Floor plan`
   - **Description**: `Floor plan blueprint`
3. Click **Save** on the form toolbar.

   In the Summary area, note that the status of the drawing log is *Active* and that the **Current** check box is selected for the drawing log to mark it as up to date.
4. On the table toolbar of the **Drawings** tab, click **Files**.
5. In the **Files** dialog box, which opens, click **Browse**, select the *Floor_Plan_Revision_1* file, click **Upload**, and close the dialog box. Notice that the line with the uploaded drawing has appeared in the table.

Step 2: Linking a Request for Information to the Drawing Log

To create a request for information, do the following.

1. While still reviewing the drawing log that you have created on the *Drawing Log* (PJ303000), click **Create RFI** on the More menu.
2. On the *Request for Information* (PJ301000) form, which opens with the new request for information, specify the following settings in the Summary area:
   - **Project**: *HOTEL* (inserted automatically)
   - **Contact**: *Anna Johnson*
   - **Class ID**: *DOCRFI*
   - **Summary**: `Storage room should be next to service elevator`
   - **Owner**: *Ellen Watson*
3. Leave the **Schedule Impact**, **Cost Impact**, and **Design Change** check boxes cleared.
4. On the **Details** tab, enter the following text:

- **Question** pane: `Is the storage room next to the service elevator?`
- **Answer** pane: `No. The blueprint should be updated.`

5. On the **Drawings** tab, make sure the row with the `Floor plan` drawing log that you have prepared is shown.
6. On the form toolbar, click **Save** to save the request for information.
7. On the form toolbar, click **Email**.

   The system opens the *Email Activity* (CR306015) form with the *Anna Johnson* contact specified in the **To** box.
8. On the form toolbar, click **Attach**.

   The system opens the **Attach Files** dialog box with the file from the drawing log that you created.
9. Select the Included check box for the file, and click **Attach** to close the dialog box and attach the selected file to email.
10. Click **Send** to send the email, close the form, and return to the *Request for Information* form with the request for information that you have created earlier.

Step 3: Creating a Revision

To create a new revision of the drawing log with the updated floor plan, do the following:

1. Open the *Drawing Logs* (PJ403000) form, and in the table, click the link in the **Drawing Log ID** column of the row with the *Floor plan* drawing log that you have created earlier in this activity.
2. On the form toolbar of the *Drawing Log* (PJ303000) form, which opens with the drawing log, click **Create Revision**.
3. In the **Revision** box of the Summary area, enter the number of the revision: `1`.
4. In the **Description** box, change the text to `Revised floor plan blueprint`.
5. Save the drawing log. Notice that in the Summary area, the **Original Drawing** box shows a link to the initial drawing document.
6. On the table toolbar of the **Drawings** tab, click **Files**.
7. In the **Files** pop-up window, which opens, click **Browse**, select the *Floor Plan Revision 2.jpg* file, click **Upload**, and close the window. Notice that the **Current** check box is selected for the new revision of the drawing log, as shown in the following screenshot.

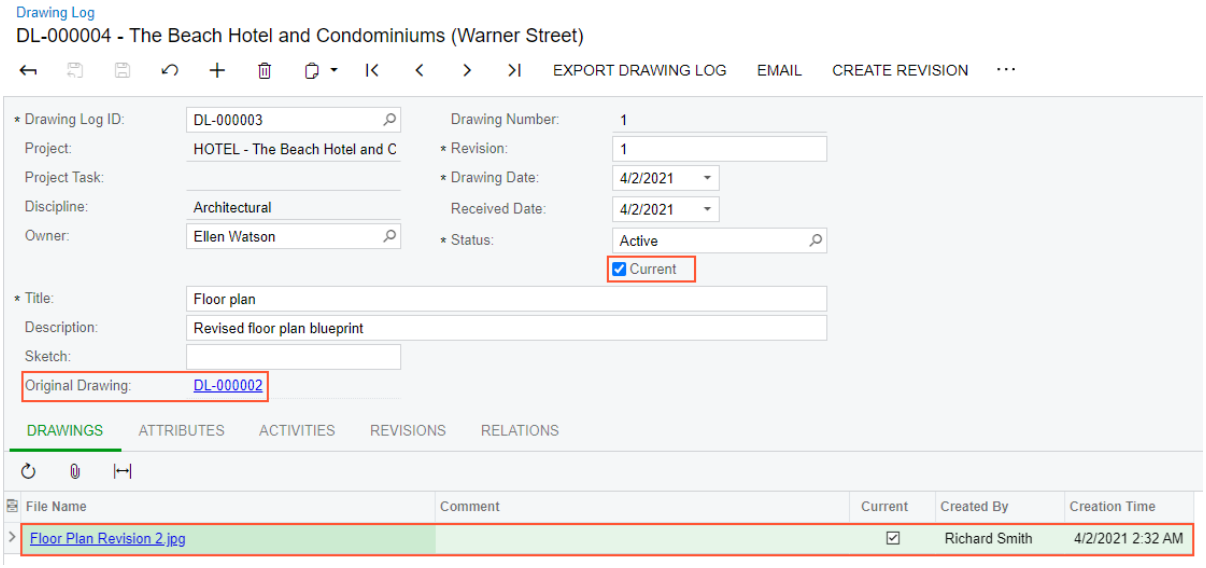


Figure: The new revision of the drawing log

8. In the Summary area, click the link in the **Original Drawing** box. The *Drawing Log* form opens with the original drawing log.
9. In the Summary area of the form, select *Inactive* in the **Status** box.
10. Clear the **Current** check box to indicate that the original drawing log is obsolete.
11. On the form toolbar, click **Save & Close** to save your changes.

You have finished creating a new revision for a drawing log.

Lesson 30: Working with Submittals

Submittals: General Information

The submittal functionality in Acumatica ERP Construction Edition is used to organize the tracking of the approval of the submittals related to documents and materials before they are fabricated and delivered for use in the project. With up-to-the minute knowledge of the progress and status of these approvals, you can ensure that the work on the project site uses approved specifications and materials.

Learning Objectives

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

- Configure submittal types
- Create a submittal in the system
- Define the people that will take part in processing a submittal and their submittal roles
- Process submittal-related activities
- Create a new revision of a submittal
- Close the completed submittal

Applicable Scenarios

You process a submittal when you want to track the process of verifying a document or material that is necessary for a particular construction project.

Submittal Types

If you need to categorize the submittals, you can create submittal types on the **Submittal Settings** tab on the *Project Management Preferences* (PJ101000) form. In the **Submittal Types** table, the *Schedules* type is predefined. In the table, you add the necessary types of submittals; you can then filter the existing submittals by these types on the *Submittals (PM3060PL)* form.

Submittal Roles

For each submittal, you can specify the people who perform functions in the processing of this particular submittal. You assign each specified person one of the following submittal roles:

- Owner: A person who enters the submittal.
- Submitter: A person who submits the documents or materials.
- Approver: A person who reviews or needs to approve the submitted documents or materials. You can define multiple approvers for the submittal, if needed.
- Reviewer: A person who reviews the submitted documents or materials for informational purposes. You can define multiple reviewers for the submittal, if needed.

Submittal Processing Workflow

You enter, modify, and process submittals on the *Submittals* (PJ306000) form. The processing of a submittal in the system includes the following general steps:

1. Entry of the submittal: The owner enters the submittal in the system. The submittal has the *New* status.

   If the owner already has the submittal documents or materials, the owner can act as a submitter and then submit the documents for approval.
2. Specification of the people to be involved in this submittal: The owner enters the submitter, approver, and, optionally, reviewer who will work on this submittal.
3. Opening of the submittal: When the submittal is ready, the owner indicates that the processing of the submittal has been started by opening the submittal in the system. The system assigns the submittal the *Open* status.
4. Requesting that documents or materials be submitted:

   The owner sends an email to the submitter indicating that this person needs to submit documents or materials.
5. Submitting of documents or materials: The submitter submits the documents or materials to be approved.
6. Approval of documents or materials: The owner sends the submitted documents or materials for approval to the person defined as the reviewer. The approver approves or rejects the submitted documents or materials.
7. Creation of a new submittal revision (optional): If the submittal has been rejected by the approver because a revised or additional version of the submitted documents or materials is needed, the owner closes the rejected submittal revision (that becomes a closed revision with a revision ID of *0*) and creates a new revision. The first revision of a particular submittal is assigned a revision ID of *1*, and this ID is incremented by 1 for each subsequent revision of this submittal.

The new revision has the same submittal ID as the original submittal and the *New* status. The system also copies details from the original submittal to the **Details** and **Submittal Workflow** tabs. For the new revision the process of submitting and approving documents and materials starts from the beginning.

8. Informational review of the documents and materials (optional): After the submittal has been approved, the owner sends the submitted documents or materials for review to the reviewer.
9. Closing of the submittal: The owner indicates that the processing of the submittal has been completed by closing the submittal in the system. The submittal has the *Closed* status.

Entry of a Submittal

When you create a new submittal (acting as the owner), in the Summary area of the *Submittals* (PJ306000) form, you specify the applicable project and a short description of the submittal; optionally, you can also specify the submittal type and the project task and cost code to which the submittal relates. You can also specify the specification reference number, the related section in the specification, the date by which the submittal process must be finished, and the date when the documents and materials are required on site. On the **Description** tab, you can provide a more complete description of the submittal.

On the **Submittal Workflow** tab, you add a row for each person that will take part in processing this submittal. For each person, you specify the following details:

- Contact information. You select a contact from the list of existing contacts or click **Add Row** on the table toolbar of the lookup table (which navigates you to the *Contacts* (CR302000) form where you can add a new contact.)
- Submittal role (*Submitter*, *Approver*, or *Reviewer*).
- Optionally, the number of days that are scheduled for the review or the provision of the submitted document or materials.

When you save the new submittal, the system assigns it the *New* status and automatically specifies *0* in the **Revision ID** box to indicate that this submittal is newly created and has no revisions. In the **Date Created** box, the system inserts the current business date by default. The system also inserts your employee name in the **Owner** box (to indicate that you have created this submission) and in the **Ball in Court** box to indicate that you are currently responsible for taking action on this submittal.

When you have specified the summary settings and defined the people involved in the submittal workflow, you open the submittal by clicking **Open** on the form toolbar of the *Submittals* form. The system changes the submittal's status to *Open*.

Submitting Documents

To notify a person in the workflow about the need to perform a particular action, you send an email to each responsible person in the submittal by selecting the **Email To** check box on the **Submittal Workflow** tab and clicking the **Email** button on the form toolbar. The system opens the *Email Activity* (CR306015) form in a pop-up window with the email address of this person or these people inserted in the **To** box. When you send the email, the system adds a row for this email on the **Activities** tab.

After you have sent an email to a submitter, in the corresponding row on the **Submittal Workflow** tab, you select *Pending* in the **Status** column. The system automatically changes the contact or employee in the **Ball in Court** box of the Summary area to the submitter contact; this indicates the party that currently require to perform the next action for the submitted document or material. The system also specifies the due date in the row based on the values in the **Start Date** and **Days for Review** columns in this row.

Once the person responsible for the submittal replies, the incoming email appears on the **Activities** tab of the *Submittals* form. You change the status of the row on the **Submittal Workflow** tab to *Completed* and the reason in the Summary area to *Submitted* (and attach the provided document to the submittal, if applicable).

Approval or Rejection of Submitted Documents

When the necessary documents or materials have been submitted, you send an email to the approver (or multiple approvers) of the submittal; you also attach the submittal to the email if it is in the form of a file. (Physical materials are instead delivered to approvers.)

When the approver or approvers have the needed document or material, you specify *Pending Approval* in the **Reason** box of the Summary area and change the status of the row of the approver to *Pending* on the **Submittal Workflow** tab. The system inserts the name of the approver in the **Ball in Court** box in the Summary area; if you have changed the status to *Pending* for multiple approvers on the **Submittal Workflow** tab, the system uses the name of the first approver listed in the table. For each approver with the *Pending* status on the **Submittal Workflow** tab, the system also inserts the date in the **Start Date** column and calculates the date in the **Due Date** column if a number of days for review is specified for the applicable approvers.

Once an approver replies to the email, the incoming email appears on the **Activities** tab of the *Submittals* form. If the approver approves the submitted documents, you change the status of the row on the **Submittal Workflow** tab to *Approved* (and attach the provided materials to the submittal, if necessary).

If an approver rejects the submitted documents and asks for changes to be made in the submitted documents or materials, you change the status of the row on the **Submittal Workflow** tab to *Rejected*, and proceed to closing the submittal and creating a new submittal revision.

Reviewing of Submittal Documents

After the submitted documents or materials have been approved, you send an email with the documents to the informational reviewer (or multiple reviewers), and change the status of the corresponding rows on the **Submittal Workflow** tab to *Pending*.

The system inserts the employee name of the reviewer in the **Ball in Court** box in the Summary area; if you have changed the status to *Pending* for multiple reviewers on the **Submittal Workflow** tab, the system uses the name of the first such person listed in the table. For each reviewer with the *Pending* status on the **Submittal Workflow** tab, the system also inserts the date in the **Start Date** column and calculates the date in the **Due Date** column if a number of days for review is specified for the applicable reviewer.

Once a reviewer has completed the review and replies to the email, the incoming email appears on the **Activities** tab of the *Submittals* form. You change the status of the corresponding row on the **Submittal Workflow** tab to *Completed*.

Closing of a Submittal

Based on the replies received from approvers and reviewers, you close the submittal by clicking **Close** on the form toolbar of the *Submittals* (PJ306000) form. In the **Details** dialog box, which opens, you specify the closure date in the **Date Closed** box, and one of the following closure reasons in the **Reason** box:

- *Approved*: The submittal was approved with no concerns.
- *Approved as Noted*: The submittal was approved with some concerns.
- *Rejected*: The submittal did not fit the requirements.
- *Revise and Resubmit*: The submittal was rejected with some comments that should be taken into consideration. After the needed changes are made, the new revision of this submittal could be approved.

After you click **OK** in the dialog box, the system inserts the specified reason in the **Reason** box and assigns the submittal revision the *Closed* status. If the submittal processing has not yet been completed, you create a new revision of this submittal by clicking the **Create Revision** button on the More menu, and proceed with submittal process for the new revision.

Submittals: Implementation Activity

This activity will walk you through the process of creating submittal types, which are used to categorize submittals in the system.

> ⚠ The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen company needs to track submittals. Also, the construction project manager wants to be able to categorize the submittals for which photos have been provided, and those for which product samples have been provided. Thus, you need to create these types of submittals in the system. Acting as a system administrator, you need to configure the submittal types to be used for the categorization of submittals 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

Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as an administrator by using the *gibbs* username and the *123* password.

Step: Creating Submittal Types

Do the following:

1. Open the *Project Management Preferences* (PJ101000) form.
2. On the **Submittal Settings** tab, on the table toolbar of the **Submittal Types** table, click **Add Row**. In the row, specify the following settings:
   - **Submittal Type**: `Photos`
   - **Description**: `Photos`
3. Again click **Add Row**, and specify the following settings in the new row:
   - **Submittal Type**: `Product Samples`
   - **Description**: `Product Samples`
4. On the form toolbar, click **Save**.

You have configured the types of submittals that can be created and processed in the system.

Submittals: Process Activity

This activity will walk you through the processing of a submittal.

> The following activity is based on the *U100* dataset. If you are using another dataset, or if any system settings have been changed in *U100*, these changes can affect the workflow of the activity and the results of the processing. To avoid any issues, restore the *U100* dataset to its initial state.

Story

Suppose that the ToadGreen Building Group company is building an Italian restaurant for the Equity Group Investors customer. The company needs to confirm that the customer wants to use the carpet being proposed for the dining area of the restaurant.

Ellen Watson, as the construction project manager, is managing the submittal process. A sample of the carpet has to be sent to the customer's designer by Teresa Willis, a new sales manager of Karn Design Inc.; the construction project manager needs to add a contact for Teresa in the system. After receiving the sample, Jonathan Stone, the customer's designer, should approve the main color and the material of the carpet.

Also suppose that after reviewing the sample, the designer rejects the submittal because a part of the carpet's pattern was cut off; the designer requests a larger sample. After the new sample is received, the designer approves it. Then the construction project manager sends the approved sample for an informational review to Larry Robinson, a purchase manager of the ToadGreen company. After the purchase manager confirms that he has reviewed the sample, the construction project manager finishes the submittal process because all required actions have been performed.

Acting as the construction project manager, you need to create a new contact to be used in the submittal, enter the submittal in the system, open it, and add the necessary information during the processing of the submittal.

> For simplicity, in this activity, you will perform all actions while remaining signed in as Ellen Watson. In a production system, all actions would be performed by the responsible persons.

Configuration Overview

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

- On the *Enable/Disable Features* (CS100000) form, the *Construction* and *Construction Project Management* features have been enabled.
- On the *Contacts* (CR302000) form, a contact record for *Jonathan Stone* has been created, and on the *Employees* (EP203000) form, employee accounts for *Larry Robinson* and *Ellen Watson* have been created.
- On the *Projects* (PM301000) form, the *ITALIAN* project with the *12 - FURNISHINGS* project task has been created. Also, on the *Cost Codes* (PM209500) form, the *12-460 - Furnishings- Misc Accessories* cost code has been added.

Process Overview

To process the submittal in the system, you will create and open it on the *Submittals* (PJ306000) form. During the entry of the submittal, you will add a new contact for the submitter on the *Contacts* (CR302000) form. You will send the emails to the submitter and then the approver by using the *Email Activity* (CR306015) form, and will change the status of the corresponding rows on the **Submittal Workflow** tab to indicate that a response from the responsible person is pending. After the response is received, you will indicate this in the submittal document.

After the approver rejects the submittal, you will prepare a new submittal revision. You will again send the emails to the submitter and approver by using the *Email Activity* (CR306015) form, and track the workflow statuses of the submittal. Once the approver approves the submittal, you will send an email to the reviewer. Finally, when the response from the reviewer is received, you will close the submittal document revision with the *Approved* status.

System Preparation

Do the following:

1. As a prerequisite to this activity, complete the *Submittals: Implementation Activity*.
2. Launch the Acumatica ERP website, and sign in to a company with the *U100* dataset preloaded. You should sign in as Ellen Watson, the construction project manager, by using the *ewatson* username and the *123* password.
3. 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: Entering and Opening a Submittal

To enter a submittal for the carpet sample, including the employees with roles in the submittal, and then open the submittal, do the following (acting as Ellen Watson):

1. Open the *Submittals* (PJ306000) 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 in the Summary area:
   - **Project**: *ITALIAN*
   - **Project Task**: *12 - FURNISHINGS*
   - **Cost Code**: *12-460*
   - **Submittal Type**: *Product Samples*
   - **Summary**: `Carpet for the dining area`
   - **Owner**: *Ellen Watson* (inserted automatically)

   In the Summary area, notice that the status and the reason of the submittal are both set to *New*.
3. On the **Description** tab, type `Sample of the carpet to be laid in the dining area.`
4. On the form toolbar, click **Save**.
5. On the table toolbar of the **Submittal Workflow** tab, click **Add Row**. In this row, you will add Teresa Willis as the submitter, but you need to create a contact in the system for her.
6. In the added row, click in the **Contact** column, and then click the magnifier icon to open the lookup table with the list of existing contacts.
7. On the table toolbar of the lookup table, click **Add Row**. The system opens the *Contacts* (CR302000) form in a pop-up window.
8. In the Summary area, select *KADESIGN* as the **Business Account**.
9. On the **Details** tab of the form, specify the following settings:
   - **First Name**: `Teresa`
   - **Last Name**: `Willis`
   - **Job Title**: `Sales Manager`
   - **Email**: `twillis@kadesign.com`
   - **Business 1**: `+1 (212) 209-0982`
10. On the form toolbar, click **Save & Close** to save the record, close the window, and return to the **Submittal Workflow** tab of the *Submittals* form. The system has inserted the newly created contact in the **Contact** column of the row you added.

11. In the row, specify the following settings:
    - **Role**: *Submitter*
    - **Status**: *Planned*

      This is the status of this contact's work on the submittal.
    - **Days for Review**: `10`
12. To add the designer approving the submittal, on the table toolbar, click **Add Row**, and specify the following settings in the row:
    - **Contact**: *Jonathan Stone*
    - **Role**: *Approver*
    - **Status**: *Planned*
    - **Days for Review**: `3`
13. To add the purchase manager performing an informational review, on the table toolbar, click **Add Row**, and specify the following settings in the row:
    - **Contact**: *Larry Robinson*
    - **Role**: *Reviewer*
    - **Status**: *Planned*
    - **Days for Review**: `3`
14. On the form toolbar, click **Save**.
15. On the form toolbar, click **Open**.
16. In the **Details** dialog box, which is opened, leave *Issued* as the reason, and click **OK**.

    In the Summary area, notice that the system has changed the status of the submittal to *Open* and the reason to *Issued*.

Step 2: Sending an Email to the Submitter

In this step, you will continue managing the submittal, acting as Ellen Watson. To send an email to the sales manager of Karn Design Inc., proceed as follows:

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, select the **Email To** check box in the row with the *Teresa Willis* contact, and click **Email** on the form toolbar.

   The *Email Activity* (CR306015) form opens in a pop-up window with the email address of Teresa Willis inserted in the **To** box.
2. On the **Message** tab, type the following text:

   ```
   Dear Teresa,

   Please provide a sample of the carpet that you proposed for the dining
   area.

   Best regards,

   Ellen Watson
   ```

   In a production system, you would also attach any needed documents to the email. In this activity, for simplicity, you are skipping this step for all emails you sent.
3. On the form toolbar, click **Send** to send the email. The system sends the email, closes the window, and return to the *Submittals* form.
4. On the **Activities** tab of the *Submittals* form, make sure that the email you sent is listed.

5. On the **Submittal Workflow** tab, in the **Status** column of the row for Teresa Willis, select *Pending* to indicate that you are waiting on a response from the submitter.
6. Click **Save** on the form toolbar.

   In the **Ball in Court** box in the Summary area, notice that the system has specified *Teresa Willis* to reflect the person who currently has to perform an action for the submittal. Also, on the **Submittal Workflow** tab, in the row for Teresa Willis, the system has set the **Start Date** to the current business date and calculated the **Due Date** based on the start date and the days for review that you specified earlier in this row.

Step 3: Receiving an Answer from the Submitter

In this step, you will prepare and send an email response from the submitter (which the submitter would instead do in a production environment) and indicate that the requested sample has been provided. Do the following:

1. In the info area, in the upper-right corner of the top pane, change the business date to eight days after the previously specified date.
2. While you are still viewing the submittal on the *Submittals* (PJ306000), on the **Activities** tab, click the link in the **Summary** column to open the sent email on the *Email Activity* (CR306015) form.
3. On the form toolbar, click **Reply**. The system prepares the *Email Activity* form for a reply email.
4. In the **From** box, enter `twillis@kadesign.com`.
5. In the **To** box, make sure *Ellen Watson* is specified.
6. On the **Message** tab, type the following text:

   ```
   Dear Ellen,

   The sample of the carpet has been sent to you by delivery service.

   Best regards,

   Teresa Willis
   ```
7. On the form toolbar, click **Send** to send the email and close the form.

   On the **Activities** tab of the *Submittals* form, notice that the email from Teresa is listed. Suppose that the sample from the delivery service has arrived.
8. On the **Submittal Workflow** tab, in the **Status** column of the row for Teresa Willis, select *Completed* to indicate that she has submitted the needed sample. Notice that in the **Completion Date** column, the system inserts the current business date (that is, the date you specified at the beginning of this step).
9. Click **Save** on the form toolbar to save your changes.

   In the Summary area, notice that the system has changed the name in the **Ball in Court** box to Ellen Watson because currently there are no rows with the *Pending* status on the **Submittal Workflow** tab.

Step 4: Requesting the Approval of the Submitted Sample

To request approval from the designer for the documents, do the following (acting as Ellen Watson):

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, select the **Email To** check box in the row with the *Jonathan Stone* contact, and on the form toolbar, click **Email**.

   The *Email Activity* (CR306015) form opens in a pop-up window with the email address of Jonathan Stone automatically specified in the **To** box.
2. On the **Message** tab, type the following text:

   ```
   Dear Jonathan,
   ```

```
I have sent you the sample of the carpet that Karn Design Inc. provided
us. Please let me know if this is what you want to see in the dining area
of the restaurant.

Best regards,

Ellen Watson
```

3. On the form toolbar, click **Send** to send the email and close the form. On the **Activities** tab of the *Submittals* form, notice that the email to Jonathan is listed.
4. On the **Submittal Workflow** tab, in the **Status** box of the row for Jonathan Stone, select *Pending* to indicate that you are waiting on a response from the approver.
5. Click **Save** on the form toolbar. In the Summary area, notice that the system has changed the name in the **Ball in Court** box to *Jonathan Stone* because you changed the status in his row. Also, on the **Submittal Workflow** tab, the system has set the **Start Date** to the current business date (which you set in Step 3) and calculated the **Due Date** accordingly.

Step 5: Rejecting the Submitted Documents

To prepare and send an email from the designer (which Jonathan Stone himself would do in a production environment) and indicate that the provided sample has been rejected, do the following:

For simplicity, in this step, you will perform the actions while remaining signed in as Ellen Watson. In a production system, all actions would be performed by the responsible persons.

1. In the info area, in the upper-right corner of the top pane, change the business date to three days after the previously specified date.
2. While you are still viewing the submittal on the *Submittals* (PJ306000), on the **Activities** tab, click the link in the **Summary** column of the first row to open the email that you sent earlier to *Jonathan Stone* on the *Email Activity* (CR306015) form.
3. On the form toolbar, click **Reply**. The system prepares the *Email Activity* form for a reply email.
4. In the **From** box, specify `jstone@italian.com`.
5. In the **To** box, make sure *Ellen Watson* is specified.
6. On the **Message** tab, type the following text:

```
Dear Ellen,

I like the color and material. But the sample is too small, and part of
the pattern was cut off from the sample. Could you please provide a larger
sample?

Best regards,

Jonathan Stone
```

7. On the form toolbar, click **Send** to send the email and close the form. On the **Activities** tab of the *Submittals* form, notice that the email from Jonathan is listed.
8. On the **Submittal Workflow** tab, in the **Status** box of the row for *Jonathan Stone*, select *Rejected* to indicate the that approver rejected the submittal.

Step 6: Creating and Opening a New Revision of the Submittal

To close the submittal and prepare a new submittal revision, do the following (acting as Ellen Watson):

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, in the **Status** column of the row for *Larry Robinson*, select *Canceled*.

2. Click **Save** on the form toolbar, and then click **Close**.
3. In the **Details** dialog box, select *Revise and Resubmit* in the **Reason** box, and click **OK**.

   In the Summary area, notice that the system has changed the status of the submittal to *Closed* and the reason to *Revise and Resubmit*, as shown in the following screenshot.

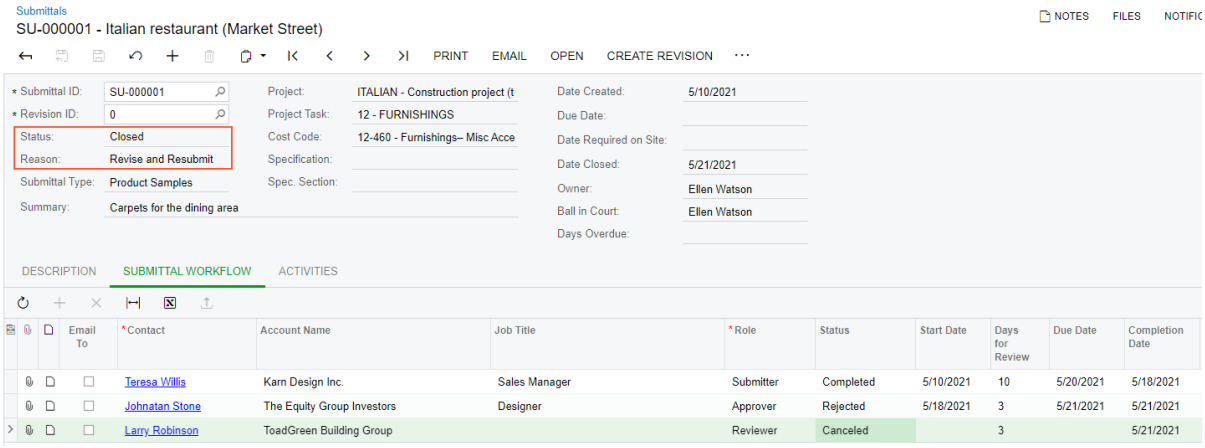


Figure: Closed submittal revision

4. On the form toolbar, click **Create Revision**.

   The system creates a new revision of the submittal with the same ID, a new revision ID (*1*), and the *New* status. Other settings in the Summary area have been copied from the previous submittal revision.
5. Review the **Submittal Workflow** tab, and make sure that the new revision contains all the rows from the original submittal.
6. On the form toolbar, click **Open**.
7. In the **Details** dialog box, which is opened, leave *Issued* as the reason, and click **OK**.

Step 7: Sending an Email to the Submitter

To again request a sample from the submitter based on the feedback from Jonathan Stone, do the following (acting as Ellen Watson):

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, select the **Email To** check box in the row for *Teresa Willis*.
2. On the form toolbar, click **Email**. The *Email Activity* (CR306015) form opens in a pop-up window with the email address specified in the **To** box.
3. On the **Message** tab, type the following text:

   ```
   Dear Teresa,

   The first sample was too small, and part of the pattern was cut off. Could
   you provide a larger sample please?

   Best regards,

   Ellen Watson
   ```
4. On the form toolbar, click **Send** to send the email and close the form.
5. On the **Activities** tab of the *Submittals* form, make sure that the email you just sent to Teresa has is listed.
6. On the **Submittal Workflow** tab, in the **Status** column of the row for *Teresa Willis*, select *Pending* to indicate that you are waiting on a response from the submitter.

7. Click **Save** on the form toolbar.

Step 8: Receiving an Answer from the Submitter

To enter and send the an email response from the submitter, do the following:

> ⚠ For simplicity, in this activity you will perform the actions while remaining signed in as Ellen Watson. In production system, all actions would be performed by responsible persons.

1. In the info area, in the upper-right corner of the top pane, change the business date to five days after the previously specified date.
2. While you are still viewing the submittal on the *Submittals* (PJ306000), on the **Activities** tab, click the link in the **Summary** column of the first row to open the sent email on the *Email Activity* (CR306015) form.
3. On the form toolbar, click **Reply**. The system opens the *Email Activity* form for a reply email.
4. In the **From** box, specify `twillis@kadesign.com`, and make sure *Ellen Watson* is specified in the **To** box.
5. On the **Message** tab, type the following text:

   ```
   Dear Ellen,

   The larger sample of the carpet has been sent by delivery service.

   Best regards,

   Teresa Willis
   ```
6. On the form toolbar, click **Send** to send the email and close the form. On the **Activities** tab of the *Submittals* form, make sure that the email Teresa just sent to Ellen is listed. Suppose that the sample from the delivery service has arrived.
7. On the **Submittal Workflow** tab, in the **Status** box of the row for Teresa Willis, select *Completed* to indicate that the submitter has provided the requested sample.
8. Click **Save** on the form toolbar.

Step 9: Requesting the Approval

Suppose that you (Ellen Watson) have sent the larger carpet sample to the approver, Jonathan Stone. To send him an email requesting the approval of the submitted carpet sample, do the following:

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, select the **Email To** check box in the row for *Jonathan Stone*.
2. On the form toolbar, click **Email**. The *Email Activity* (CR306015) form opens in a pop-up window with the email address of Jonathan Stone in the **To** box.
3. On the **Message** tab, type the following text:

   ```
   Dear Jonathan,

   I have sent you a new sample. Please let me know what you think.

   Best regards,

   Ellen Watson
   ```
4. On the form toolbar, click **Send** to send the email and close the form. On the **Activities** tab of the *Submittals* form, make sure that the email sent to Jonathan about the new sample is listed.
5. On the **Submittal Workflow** tab, in the **Status** box of the row for Jonathan Stone, select *Pending* to indicate that you are waiting on a response from the submitter.
6. Click **Save** on the form toolbar.

Step 10: Approving the Submitted Sample

To enter and send the email response from the designer (which he would do in a production environment) and indicate that the provided sample have been approved, do the following:

> ⚠ For simplicity, in this step, you will perform the actions while remaining signed in as Ellen Watson. In a production system, all actions would be performed by the responsible persons.

1. In the info area, in the upper-right corner of the top pane, change the business date to three days after the date you previously specified.
2. While you are still viewing the submittal on the *Submittals* (PJ306000), on the **Activities** tab, click the link in the **Summary** column of the first row to open the sent email on the *Email Activity* (CR306015) form.
3. On the form toolbar, click **Reply**. The system prepares the *Email Activity* form for a reply email.
4. In the **From** box, enter `jstone@equitygrp.com`, and make sure *Ellen Watson* is specified in the **To** box.
5. On the **Message** tab, type the following text:

   ```
   Dear Ellen,

   Yes, let's lay this carpet.

   Best regards,

   Jonathan Stone
   ```
6. On the form toolbar, click **Send** to send the email.

   The system closes the window. On the **Activities** tab of the *Submittals* form, notice that Jonathan's approval email is listed.
7. Select the **Final Answer** check box for the last email from Jonathan to indicate that the email contains the final decision from the responsible party.
8. On the **Submittal Workflow** tab, in the **Status** box of the row for *Jonathan Stone*, select *Approved*. The system inserts the current business date as the **Completion Date**.
9. Click **Save** on the form toolbar.

   In the Summary area, notice that the system has changed the name in the **Ball in Court** box to Ellen Watson because there are no rows with the *Pending* status on the **Submittal Workflow** tab.

Step 11: Sending an Email to the Reviewer

To ask the purchase manager to review the carpet sample, do the following (acting as Ellen Watson):

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the **Submittal Workflow** tab, select the **Email To** check box in the row for *Larry Robinson*.
2. On the form toolbar, click **Email**.

   The *Email Activity* (CR306015) form opens in a pop-up window with the email address of *Larry Robinson* in the **To** box.
3. On the **Message** tab, type the following text:

   ```
   Dear Larry,

   Please review the sample of the carpet for the dining area.

   Best regards,

   Ellen Watson
   ```

4. On the form toolbar, click **Send** to send the email and close the form. On the **Activities** tab of the *Submittals* form, notice that the email to Larry is listed.
5. On the **Submittal Workflow** tab, in the **Status** column of the row for *Larry Robinson*, select *Pending*.
6. Click **Save** on the form toolbar.

   In the Summary area, notice that the system has changed the name in the **Ball in Court** box to *Larry Robinson* because you changed the status in his row. Also, on the **Submittal Workflow** tab, the system has set the **Start Date** to the current business date and calculated the **Due Date**.

Step 12: Receiving an Answer from the Reviewer

To enter and send the email response from the reviewer (which he would instead do in a production environment, do the following:

> ⚠ For simplicity, in this step, you will perform the actions while remaining signed in as Ellen Watson. In a production system, all actions would be performed by the responsible persons.

1. In the info area, in the upper-right corner of the top pane, change the business date to three days after the date you previously specified.
2. While you are still viewing the submittal on the *Submittals* (PJ306000), on the **Activities** tab, click the link in the **Summary** box of the first row to open the sent email on the *Email Activity* (CR306015) form.
3. On the More menu, click **Reply**. The system opens the *Email Activity* form with a reply email.
4. In the **From** box, specify `lrobinson@toadgreen.com`, and make sure *Ellen Watson* is specified in the **To** box.
5. On the **Message** tab, type the following text:

   ```
   Dear Ellen,

   Thank you for the information. I have reviewed the materials.

   Best regards,

   Larry Robinson
   ```
6. On the form toolbar, click **Send** to send the email. On the **Activities** tab of the *Submittals* form, notice that the email from Larry is listed.
7. On the **Submittal Workflow** tab, in the **Status** box of the row for *Larry Robinson*, select *Completed*. The system inserts the current business date as the **Completion Date**.
8. Click **Save** on the form toolbar.

Step 13: Closing the Submittal

To close the submittal, do the following (acting as Ellen Watson):

1. While you are still viewing the submittal on the *Submittals* (PJ306000) form, on the form toolbar, click **Close**.
2. In the **Details** dialog box, which opens, select *Approved* in the **Reason** box, and click **OK**.

   In the Summary area, notice that the system has changed the status of the submittal to *Closed* and the reason to *Approved*.

You have finished working with the submittal.

Additional Information

Appendix A: Subcontracts and Accounts Payable

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.

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.

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.

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.

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.

Purchases with a Sales Tax: Related Report and Inquiry Forms

The following sections describes reports, inquiries, and forms you may review to gather information about AP bills.

> ⚠ 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 Details of an Unreleased Bill

If a bill has not yet been released, you can review the details of the bill by running the *AP Edit Detailed* (AP610500) report. When you run this report from the *Bills and Adjustments* (AP301000) form by clicking **AP Edit Detailed** (under **Reports**) on the More menu, the report shows the details of the bill opened on this form. You can review what GL batch the system will create when you release the bill, which accounts will be updated by the transaction, and how the vendor's balance will be affected.

Reviewing the Details of a Released Bill

Once you have released a bill, you can review the details of the bill by running a report on the *AP Register Detailed* (AP622000) form. When you run this report from the *Bills and Adjustments* (AP301000) form by clicking **AP Register Detailed** (under **Reports**) on the More menu, the report shows the details of the bill opened on this form. You can review the GL batch the system created when releasing the bill and the accounts that have been updated by the transaction.

Reviewing Vendor Information

You can review the balances of a specific vendor on the *Vendor Details* (AP402000) form. When you open this inquiry from the *Bills and Adjustments* (AP301000) form by clicking **Vendor Details** (under **Inquiries**) on the More menu, the *Vendor Details* form is opened, showing the outstanding balances of the selected vendor and a list of documents of this vendor that have the *Open* status. You can select the **Show All Documents** and **Include Unreleased Documents** check boxes in the Selection area of the form to include all documents and unreleased documents, respectively, in the inquiry.

Reviewing the Vendor's Balance

After a bill has been released, you can review the vendor's balance on the *AP Balance by Vendor* (AP632500) form. On this form, you select *Open Documents* in the **Report Format** box and specify the needed financial period.

In the report, you can review open documents and vendor balances at the end of the period, grouped by vendor and by AP account. When you release a bill or an adjustment, the system updates the vendor balance. **Vendor Documents Total** is the total amount of all open documents of the vendor.

Appendix B: Change Management

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.

Appendix C: Projects with Retainage

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: 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.

Appendix D: Project Documentation Management

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.

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.

Photo Logs: Mass-Processing of Documents

The following sections explain how to download photos from multiple photo logs at once and how to send them by email.

Mass-Downloading Photos and Files from Photo Logs

On the *Photo Logs* (PJ405000) form, you can mass-download the files of multiple photo logs. To do this, select the Included check box for the photo logs whose files you want to download, and click **Export Photo Logs** on the form toolbar.

You can also download all the files of a particular photo log by clicking the **Export Photo Logs** button on the More menu of the *Photo Log* (PJ305000) form.

Mass-Sending Photos and Files from Photo Logs

On the *Photo Logs* (PJ405000) form, you can send the files of multiple photo logs by email. To do this, select the Included check box for the photo logs whose files you want to send, and click **Email Photo Logs** on the form toolbar. The system opens the *Email Activity* (CR306015) form with a single ZIP file attached that contains all the photos and files associated with the selected photo log.

You can also send all the files of a particular photo log by clicking **Email Photo Logs** on the More menu of the *Photo Log* (PJ305000) form.

Drawing Logs: Related Report

In the following section, you can find details about a report you may want to review to gather information about drawing logs.

> 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.

Printing Reports

To prepare a report with details on drawing logs, you use the *Drawing Log Details* (PJ653000) report. On this report, you can view the details of all drawing logs or filter them by project, project manager, and discipline. You can also select the **Current Only** check box on the **Report Parameters** tab of the report form to display only up-to-date drawing logs in the report.

Drawing Logs: Mass Processing

This topic explains how to download files from multiple drawing logs at once.

Mass-Downloading Files from Drawing Logs

On the *Drawing Logs* (PJ403000) form, you can mass-download the files of multiple drawing logs. To do this, select the Included check box for the drawing logs whose files you want to download, and click **Download ZIP** on the form toolbar.

You can also download all the files of a particular drawing log by clicking **Export Drawing Log** on the form toolbar of the *Drawing Log* (PJ303000) form.

Submittals: Related Report

In the following section, you can find details about a report about a particular submittal process; you may want to print this report or send it in an email.

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.

Generating a Print-Friendly Submittal

To prepare a printable submittal as part of its processing, you use the *Submittal Form* (PJ663000) report. On the **Report Parameters** tab, you select the identifier of the necessary submittal in the **Submittal ID** box. (If you are generating a print-friendly form of a revision of the submittal, you should also select the identifier of the necessary revision in the **Revision ID** box.) You then click **Run Report** on the report form toolbar. You can then print the generated submittal or send it via email.