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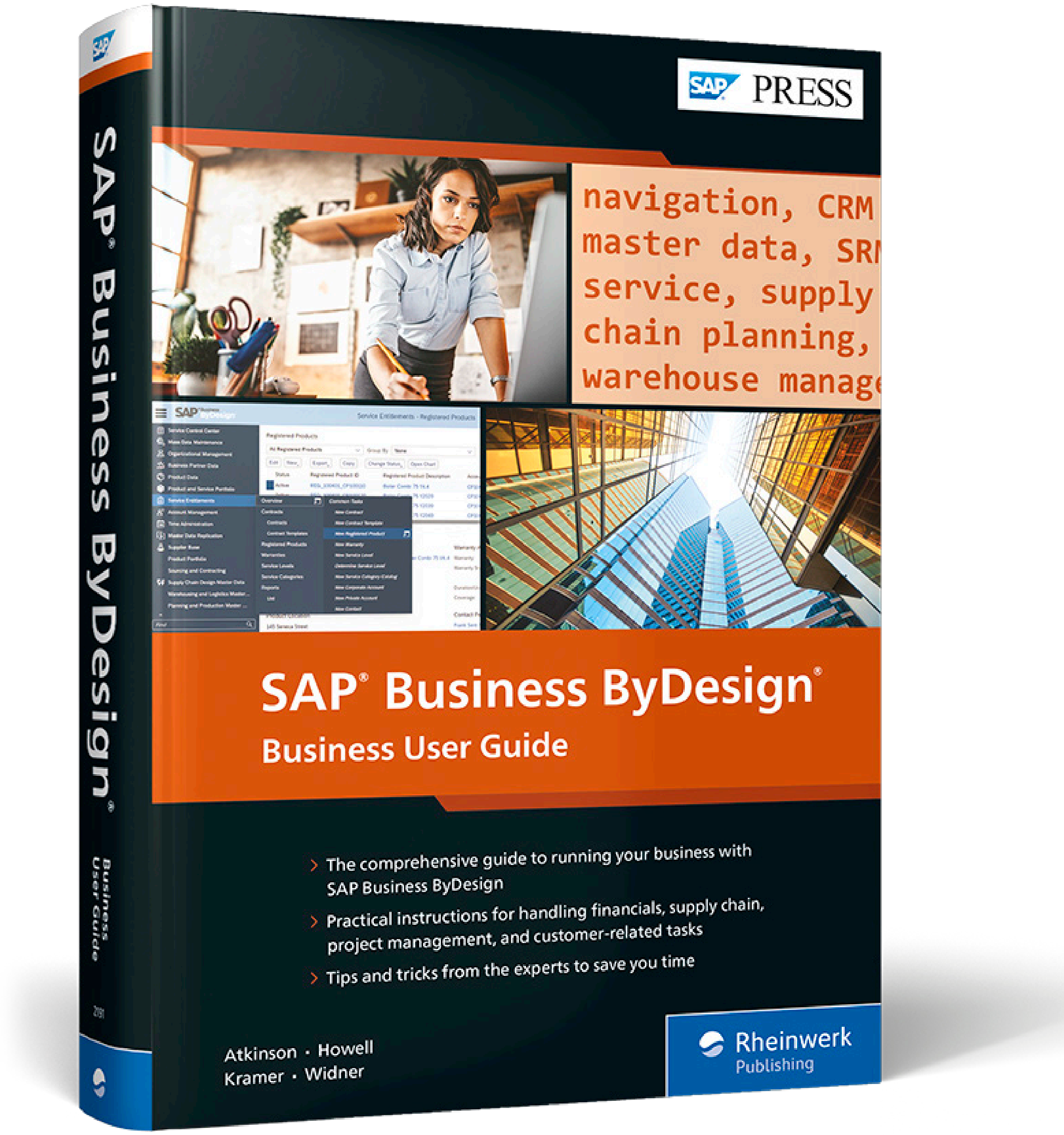

Browse the Book

This sample chapter contains comprehensive coverage of project management functionality in SAP Business ByDesign. It walks through the first steps for a project, starting with project creation, and offers guidance on the different ways project management can be used. The chapter details how to plan and calculate projects with regard to work, materials, expenses, and revenues. For project execution, it takes a thorough look into time recording, material consumption, and availability planning for internal and external resources. Finally, the chapter concludes with some options for customer invoicing.

"Project Management"

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Chapter 8
Project Management

Project management is a major key strength of SAP Business ByDesign. With tight integration into other functional areas of the solution, such as sales, purchasing, and financials, SAP Business ByDesign provides comprehensive functionality for both customer-facing and internal project-based service execution. Along with time recording, materials management, expense accounting, and resource management, project management in SAP Business ByDesign is a perfect tool for professional service providers or other companies that need thorough insights into project management-related costs and revenues.

SAP Business ByDesign provides a comprehensive project management functionality for a wide range of use cases from simple to complex. Projects are business objects with a deep end-to-end integration into many different areas of the solution, such as purchasing, sales, human resource (HR) management, and financials. You can use projects as simple cost collection objects or use them to handle big customer projects with highly integrated customer invoicing. For companies active in the professional service industry, the project management area will a central part of their system for managing their customer projects effectively. But not only can professional service providers benefit from these functions; customer projects can be used by, for example, companies in the industrial machinery and components industry to produce their products, or can be used for internal product development. Most companies will use the project management functionality even if just for cost collection.

The system allows you to plan work, materials, and expenses, including detailed financial reporting before, during, and after project realization. In this chapter, you'll learn how to staff projects with internal or external resources; how to track actual project progress and how to eventually source materials internally or externally. In addition, we'll show how to plan a project graphically with Gantt charts or work breakdown structures.

Project management is a wide area with much functionality and flexibility to handle use cases. Covering all areas in detail could easily fill up its own book. For our purposes, we'll cover the areas used most frequently in detail, while some other areas, we might just briefly touch upon. Nevertheless, our goal is that, by the end of this chapter, you'll have a firm understanding of how project management can help you manage projects efficiently and to achieve financial transparency about them.

8.1 Projects

Throughout the following sections, you'll learn that projects are complex and flexible business objects. We'll first look at the concept of projects through its various elements such as the project plan, the team and staffing, and products and services. In addition, we'll discuss project management's integration with other processes like purchasing or sales. Finally, this section closes with a look at reporting and how to leverage project templates.

8.1.1 Projects Overview

For our first steps in project management, enter the **Projects** view from the **Project Management** work center. The system will provide an overview of existing projects depending on the filters selected. By standard, the system will show **My Active Projects** as the default selection, as shown in Figure 8.1. This project worklist in the project overview screen is the main entry point for most activities involving projects. The fields shown in Figure 8.1 are described in Table 8.1 and discussed in subsequent sections in more detail.

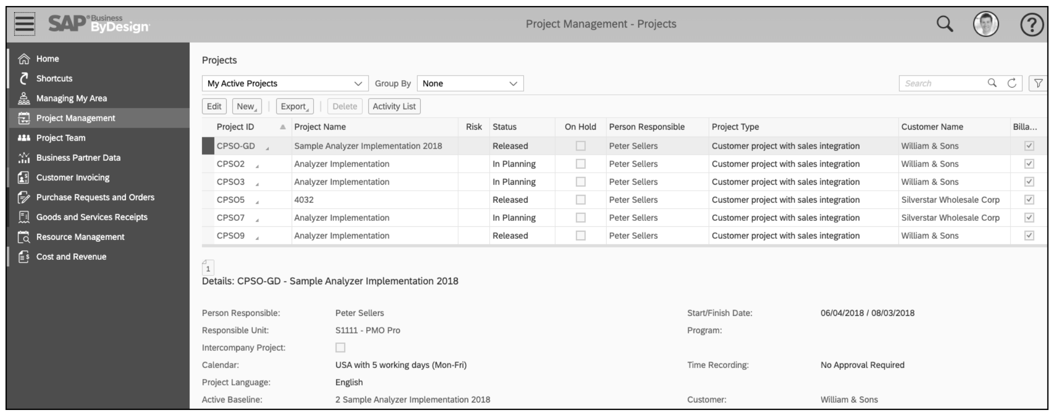


Figure 8.1 Project Management Work Center: Project Overview

Let's now discuss some basic concepts, such as project types and project statuses, before we dive into creating a project from scratch.

Project Types

As shown in Figure 8.1, each project has a project type assigned. *Project types* are defined in business configuration and define the main features and settings that apply to the corresponding projects. The system provides five different process variant types that can serve as the basis for different project types, as described in Table 8.1. These preconfigured process variant types serve as the basis for project types, but additional ones can be created within business configuration.

Process Variant Type	Project Types	Description
Customer project	■ Customer project with sales integration	This type executes projects for your customers, including tracking work, materials, and expenses and invoicing these items to customers. Project invoicing is always based on one or more linked sales orders.
Multi-customer project	■ Multi-customer project	This type executes projects for specific cases with multiple customers, such as events or concerts (e.g., for ticket sales). This type is not suitable for rendering project-based services.
Overhead cost project	■ Cost collecting project	This type executes internal projects that allow for the tracking and management of overhead costs. All costs recorded to the project are posted back to the requesting cost center automatically.
Direct cost project	■ Direct cost project ■ Marketing project ■ Research and development project ■ Strategic sourcing project	This type executes internal projects that allow for the management of direct costs, where costs remain on the project. Typically, direct cost projects do not have revenues.
Intercompany project	■ Intercompany project	Intercompany projects allow companies that belong to a corporate group and that are working technically in the same SAP Business ByDesign system to collaborate on projects efficiently.

Table 8.1 Project Types within SAP Business ByDesign

8

All project types allow you to receive costs from different sources, in the following ways:

- *Service costs* from actual work are recorded to the project from internal or external resources.
- Planned or unplanned *material costs* are recorded from internal stock or external suppliers.
- *Expenses and other direct costs* are recorded from employees, service agents, suppliers, and others.

All costs and revenues can be planned as plan values, and you can always track and compare actuals against the plan, as you'll learn in Section 8.1.2 and Section 8.1.5.

Project Statuses

Projects can each have different statuses. Not only does the project header have a lifecycle status; each subordinate element of the project structure (phases, tasks, milestones) can have individual statuses. The initial status **In Planning** allows you to set up the project. In this status, all fields can be changed until the project is changed into another status—the project even can be deleted. As soon as the project is **Started** or **Released**, integration with other business areas is established. Thus, the project is opened for accounting, and the recording of actuals is possible. Table 8.2 introduces you to the different statuses and their meanings.

Status	Description/Use
In Planning	This initial status of a project allows you to change all its details and to delete the project. In this status, a project cannot be used for the recording of actuals.
Started	The project will be started on the header level and allows the recording of actuals in accounting. This status only affects the project header, and all subordinate elements must be released manually once needed. When a project has been started, this status cannot be reversed to **In Planning**.
Released	The project and all its subordinate elements will be released. The status **Released** cannot be revoked, and for released elements, many changes no longer possible (e.g., changing the project task ID, deleting an element, etc.)
Completed	The project, and its subordinate elements, are finished from an operational perspective, and no more recording of actuals (i.e., time entries, materials, or expenses) is possible. Only customer invoicing and supplier invoicing can still occur. In addition, you cannot change any field of the project or project task.
Closed	Similar to the status **Completed**; however, usage in supplier and customer invoicing is also no longer possible. In addition, you cannot change any field of the project or project task.
Stopped	In this status, the project is also closed, but the status description indicates that a small chance remains of the project being opened again.

Table 8.2 Project Status Lifecycle

Creating Projects

The following two ways are available to create new projects:

- The most common way is to create a project from the project worklist (shown in Figure 8.1) by clicking **New** and then selecting **Project**. The creation process follows a guided activity of six steps, as shown in Figure 8.2.

  Projects can be created from scratch, or you can copy over selected project data from various sources, such as an existing project, a template, or Microsoft Project files. Creating new projects with the guided activity is available for all project types.

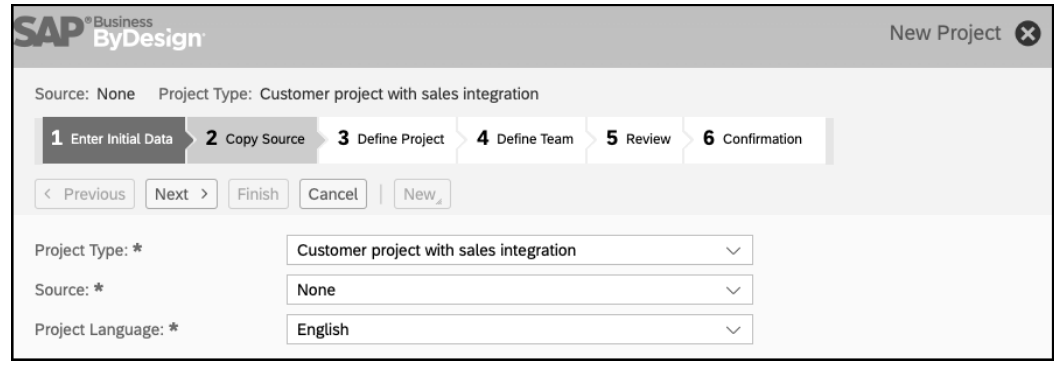


Figure 8.2 Creating a New Project

- Another option for creating projects is available for customer projects with sales integration. To allow project invoicing, the system requires a linked sales order representing the commercial agreement with the customer. Projects can thus be created directly from sales quotes or sales orders, if desired. More details about this functionality is provided in Chapter 3, Section 3.4.1. This approach is recommended if the structure of the project matches the structure of the sales document more or less identically. To use different structures, the first option of creating the project from scratch might be more suitable.

In the following sections, we'll walk you through various aspects of projects. The guided activity for project creation is a subset of the fields that we'll cover, so we won't describe those steps now. Section 8.1.2 will start with the **Project Plan**.

8.1.2 Project Plans

The first important aspect of a project is its project plan. A project plan allows you to create the structure of the project and to define all its necessary settings. You find the project plan by selecting a project in the project overview screen (shown earlier in Figure 8.1) and opening it in **Edit** mode. The system will open the project with its **Project Plan** tab displayed, as shown in Figure 8.3.

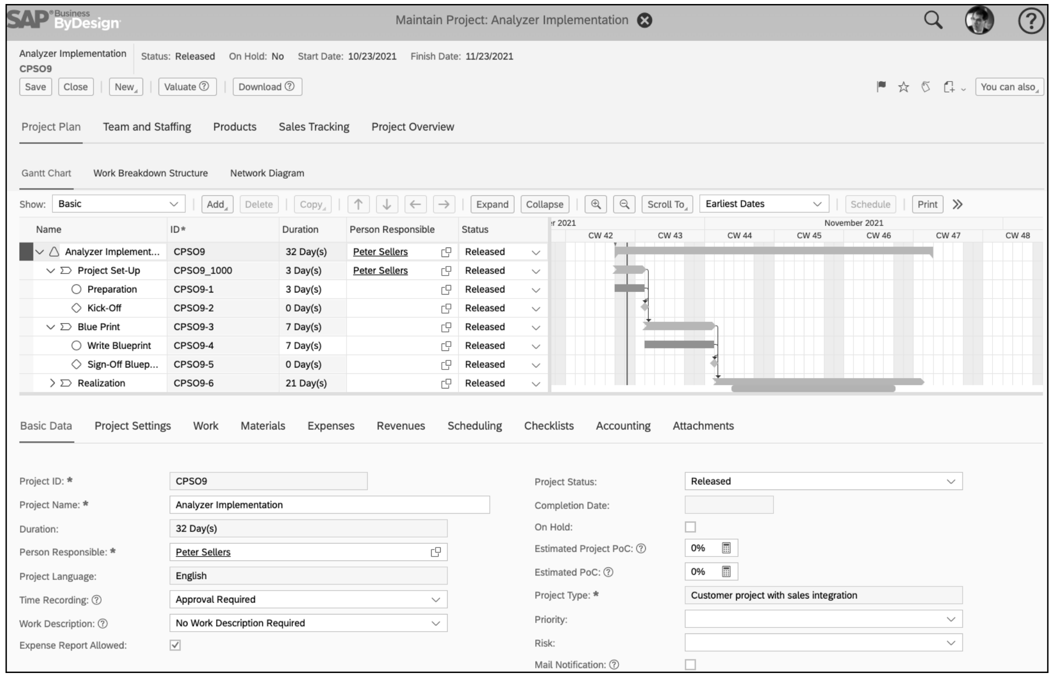


Figure 8.3 A Typical Project Plan in the Gantt Chart View

The screen is divided in two parts. The upper part allows you to plan and visualize the project in a graphical view. The lower part features several tabs with various settings for the selected project task element. Depending on the project task type of the selected element, the system will display different sets of tabs, since not all tabs are relevant for all project task types. In this section, we'll gradually go through the different tabs, starting with the three tabs on the upper part of the screen and then moving on to the main tabs in the bottom half.

Project Structure

In our example shown in Figure 8.3, our project is displayed in a **Gantt Chart** view. The system offers three different ways to visualize the project plan according to your needs. You can open the different visualizations by selecting the corresponding tab:

- **Gantt Chart**: The Gantt chart visualizes the project plan and shows its various project tasks as a timeline. The Gantt chart indicates project tasks that are on the critical path in red. Milestones are displayed with yellow diamonds.
- **Work Breakdown Structure**: The work breakdown structure shows the project plan with an emphasis on the defined hierarchical structure of its elements, as shown in Figure 8.4. You can rearrange the structure by dragging and dropping the elements.

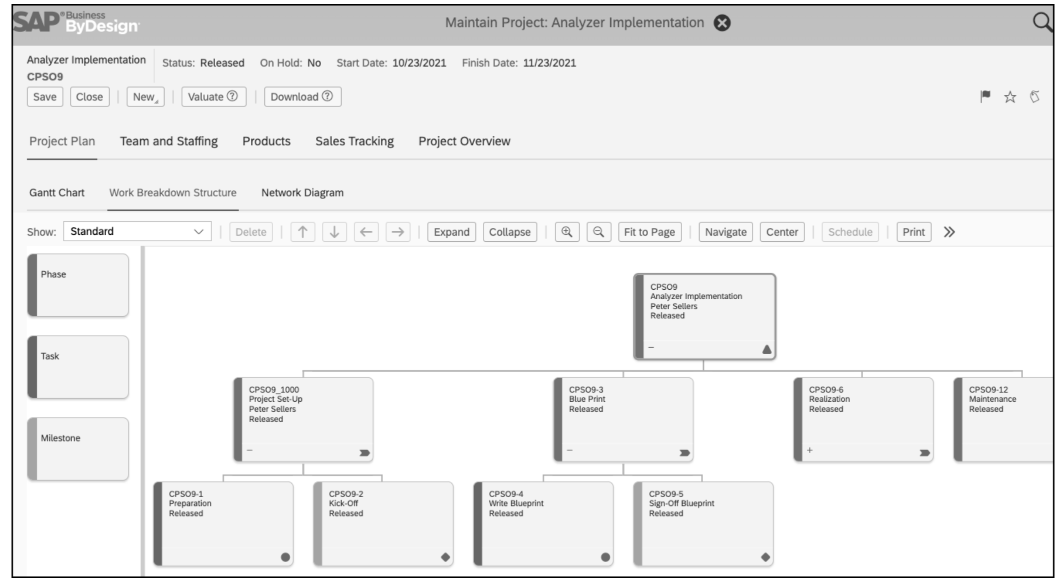


Figure 8.4 Work Breakdown Structure for a Project

- **Network Diagram**: The network diagram is focused on planning the project along the project flow, as shown in Figure 8.5. You can add dependencies between tasks and link them accordingly.

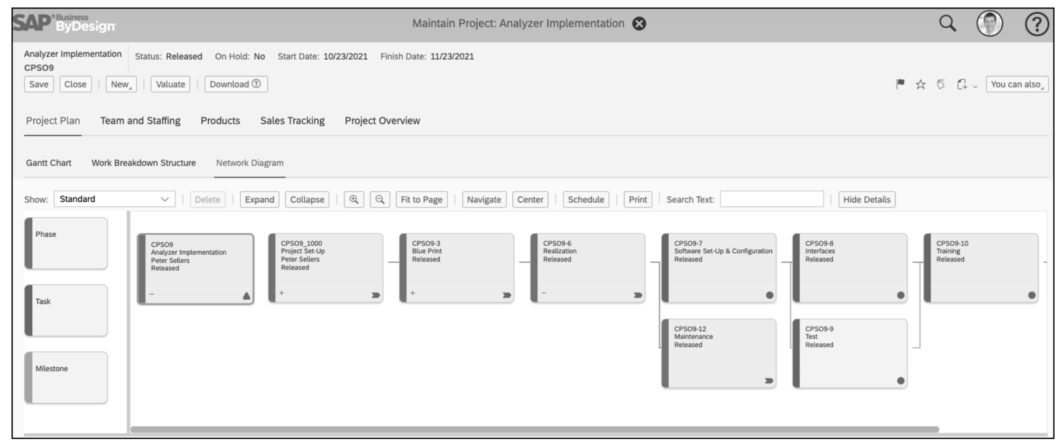


Figure 8.5 Network Diagram Structure for a Project

The project structure of the various tasks can be established in the **Gantt Chart** view by clicking on the **Add** button above the graphical view. The system allows you to work with different project task types, namely, **Task**, **Phase**, and **Milestone**. You can also create hierarchies and structures over multiple levels. The **Copy** function helps you easily create new tasks from other tasks; in addition, you may click the **Move Up**, **Move Down**,

Outdent, and **Indent** arrow icons to change the sequence of the structure. Table 8.3 describes the icons used for the project task types in the Gantt chart view.

Project Task Type	Icon
Task	
Phase	
Milestone	

Table 8.3 Project Task Types and Their Icons

Table 8.4 describes some important actions available for the project plan via the menu bars.

Action	Description/Use
Show	The **Show** action allows you to select a different set of information to be displayed along on the left side of the Gantt chart for a quick overview over different aspects of a project. The following options are available: ▪ **All** ▪ **Basic** ▪ **Cost** ▪ **Cost (agg.)** ▪ **Scheduling** ▪ **Standard** ▪ **Work** ▪ **Work (agg.)**
Valuate	This action will initiate the cost calculation for the whole project. After initiating the calculation once, the system will continue calculations automatically. The calculated amounts are visible across numerous project reports. In some cases, valuation must be triggered manually again by clicking this button, especially when cost rates or list prices/contract prices have changed or if general ledger account settings have been corrected.
Download	This action allows you to download the project plan in an XML file compatible with Microsoft Project. Only project structure and timeline information are available in the download; accounting information is not downloaded.
Expand/ Collapse	Use these buttons to expand or collapse subordinate levels of the project structure.

Table 8.4 Project Plan View: Actions

Action	Description/Use
Schedule	If the project is in status **In Planning**, scheduling takes place automatically if relevant information is changed (i.e., dates, durations, and dependencies). Once the project has been **Started** or **Released**, the scheduling of dependent tasks takes only place when the schedule is triggered manually with this action.
Print	This action allows you to print out the project plan in the selected view (i.e., **Gantt Chart**, **Work Breakdown Structure**, or **Network Diagram**).

Table 8.4 Project Plan View: Actions (Cont.)

Project Settings Tab

The **Project Settings** tab allows you to define the time recording settings valid for the whole project. You may define the circumstances under which time recordings must be approved and by whom. Figure 8.6 shows settings available on project header level. Project elements do not have a **Project Settings** tab, and thus, you must select the header line to edit these settings.

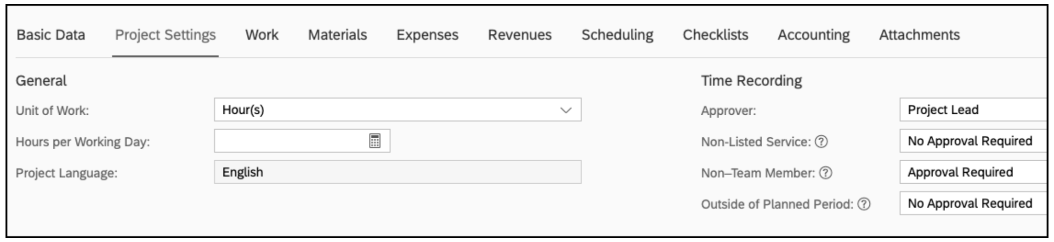


Figure 8.6 Project Settings Tab on the Project Header Level

Table 8.5 describes the fields under the **Project Settings** tab, as shown in Figure 8.6.

Field	Description/Use
Unit of Work	This field defines the unit of work for project planning. Possible values include **Hours** or **Working days**. Work is planned with this unit across the project.
Hours per Working Day	If that planning is conducted in **Working Days** (as selected in the **Unit of Work** dropdown list), you must specify the **Hours per Working Day** (e.g., one working day equals 8 hours).
Approver	This field defines to whom the system will direct time approvals. This person can be the project lead or the task owner (the person responsible defined on the corresponding task level, if available).

Table 8.5 Project Settings Tab Fields

Field	Description/Use
Non-Listed Service	This value defines the system behavior if time recordings are recorded for a service not listed under **Products**. The following options are available: ■ **Approval Required**: Time entries are possible but must be approved. ■ **No Approval Required**: Time entries are possible without approval. ■ **Not Allowed**: Time recording is not possible.
Non-Team Member	This value defines the system behavior if time recordings are made by team members not specified under the **Team and Staffing** tab. The following options are available: ■ **Approval Required**: Time entries are possible but must be approved. ■ **No Approval Required**: Time entries are possible without approval. ■ **Not Allowed**: Time recording is not possible.
Outside of Planned Period	This value defines the system behavior if time recordings are made outside of the planned period (as defined by the **Start Date** and **End Date** fields) in the relevant work package. The following options are available: ■ **Approval Required**: Time entries are possible but must be approved. ■ **No Approval Required**: Time entries are possible without approval. ■ **Not Allowed**: Time recording is not possible.

Table 8.5 Project Settings Tab Fields (Cont.)

Basic Data Tab

The **Basic Data** tab is available for the project header and for all project task types. Under this tab, you'll define the basic settings for the selected project element. Depending on the selected project task type (i.e., the header or a phase, task, or milestone), different fields will be visible, and others, hidden. Figure 8.7 shows the set of fields for type **Task**, whereas Table 8.6 describes fields from other types which, you may not appear in the screenshot.

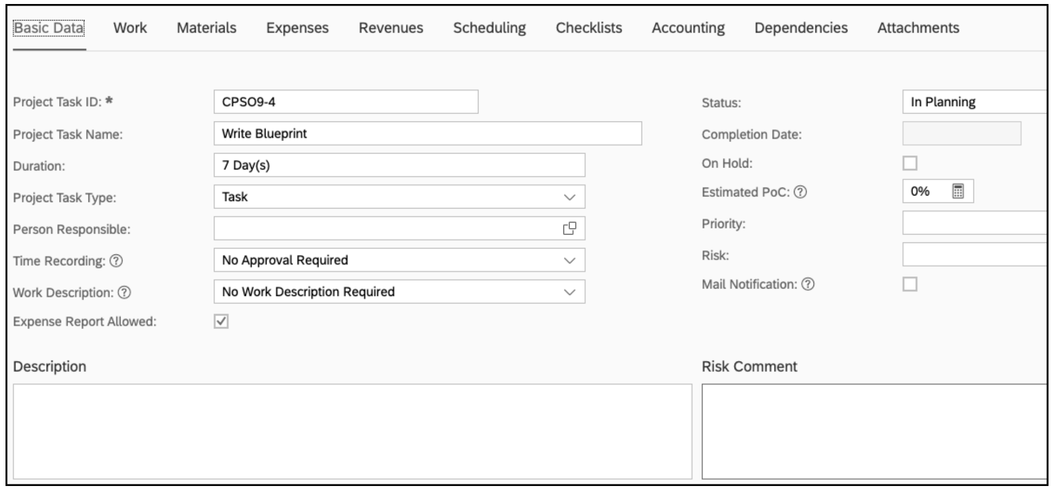


Figure 8.7 Basic Data Tab

Field	Description/Use
Project Task ID	The **Project Task ID** field identifies each row of the project plan with an individual number based on the project ID. Project task IDs can only be changed as long they are in status **In Planning**. Project task IDs are used in other functional areas when costs or revenues are assigned.
Project Task Name	This field allows you to define a name for each project plan row. The project task name will occur across the system in value help, in reports, and (potentially) on project invoices.
Duration	This field defines the duration of individual project tasks. The duration will be used for scheduling the project in the Gantt view.
Project Task Type	This field allows to choose the project task type of the selected row in the Gantt chart (**Phase**, **Task**, or **Milestone**).
Person Responsible	On project header level, this field is the project manager responsible for project planning, execution, and approvals. On the task level, the **Person Responsible** field can represent the responsible person for certain areas of the project. Depending on the time approval settings in the project header or in the project task, approvals are sent to the project manager or person responsible of the corresponding task, as defined in this field.

Table 8.6 Basic Data Tab Fields

Field	Description/Use
Time Recording	Specify if time recording for the selected project header or project task is allowed. The following options are available: ■ **Approval Required**: Time recording is possible, and approval is needed from the project manager or person responsible, depending on the settings described in Table 8.5. ■ **No Approval Required**: Time recording is possible, but no approval is needed for the selected row. The settings described in Table 8.5 may override this setting. ■ **Not Allowed**: Time recording is not possible for the selected row.
Work Description	Specify if a work description is required for time recording on this level. If work descriptions are required, time entries can only be recorded if a work description is maintained. This information is available during invoicing for the itemized list.
Expense Report Allowed	If enabled, the system allows you to assign costs from expense reports. This setting might be useful if recording expense costs should only take place on specific project tasks, and you want to restrict expenses from being recorded for other tasks.
Status	This field indicates the **Status** of the selected project row. The status can be set and changed manually.
Completion Date	When the project or project task status is changed to **Complete**, the system keeps track of the completion date in this field.
Invoice Relevant	This field is only available for milestones in customer projects and indicates if the completion of the milestone will trigger an invoice from the invoice schedule. Milestone-based billing can be defined in the invoice schedule of the assigned sales order (see Chapter 3, Section 3.4.1, for more details).
On Hold	Selecting this checkbox suspends the project and all project tasks temporarily, and no actuals can be recorded until the status is revoked.
Estimated PoC	In this field, the estimated percentage of completion (POC) can be defined on the project level or the task level for usage in earned value analysis.
Priority	With this field, the priority of the project can be set for reporting or program management purposes.
Risk	This field allows you to manually set a risk status for reporting (i.e., **On Track**, **Minor Issues**, or **Critical**).
Mail Notification	If this checkbox is selected, the system will send a notification to the person responsible for the task or the project manager when a work package is assigned to a team member.

Table 8.6 Basic Data Tab Fields (Cont.)

Work Tab

Under the **Work** tab, you can plan the work effort required for project execution. Work effort can be defined for the project header, for phases, and for tasks. On the screen shown in Figure 8.8, you can create multiple lines for each project task, each representing an individual work package stating what needs to be done in the **Service** field and who is doing it in the **Team Member** field. In case a team member has not been defined yet, you can only plan the service for planning and calculation purposes. A team member can still be assigned later.

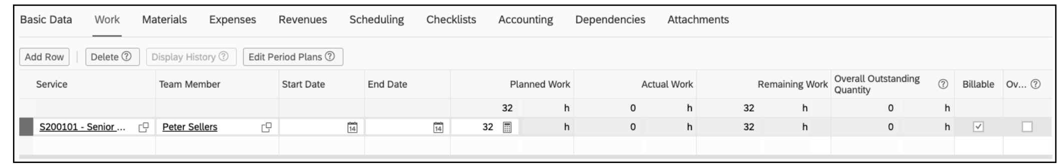


Figure 8.8 Work Tab

Table 8.7 describes the fields available for each work package under the **Work** tab.

Field	Description/Use
Service	This field defines the service that should be performed. The selected service has implications on the applied cost rate and is the proposed service for time recording. For customer projects, assigned sales orders might use different rates for different services.
Team Member	This field defines the team member who should perform the work. Work in individual work packages can be split across multiple team members if desired. Team members can be internal employees or external service agents.
Start Date and **End Date**	A start date and end date can be defined optionally, which allows the system to distribute planned work costs on individual periods in project calculations. If no dates are maintained in these fields, the system will use the task's start and end date to evenly distribute costs and availability.
Planned Work	This field defines the work planned to complete the corresponding work package. **Planned Work** is defined in the unit of work as defined on the **Project Settings** tab as explained above.
Actual Work	This field shows the amount of **Actual Work** recorded to the corresponding work package. The value is calculated based on individual time recordings and cannot be changed manually. Time entries **In Approval** are not shown in this field.
Remaining Work	This field shows difference between the **Planned Work** and **Actual Work** fields. The **Remaining Work** field can, however, be adjusted if you believe the initial **Planned Work** is not sufficient to complete the work package.

Table 8.7 Work Tab Fields

Field	Description/Use
Overall Outstanding Quantity	This field shows the quantity that is expected to be provided from external providers (but not ordered or not delivered yet).
Billable	The indicator defines whether the actuals to be recorded to work package should be billable and thus included in project invoicing for customer projects. For billable projects, the indicator is selected by default.
Over-Delivery Allowed	For work packages assigned to external service agents, you can allow for overdeliveries of planned hours. If this indicator is not selected, the system will not allow the recording of more hours than planned.

Table 8.7 Work Tab Fields (Cont.)

If work packages are entered with an assignment to a team member, the system will push this information also forward to the resource calendar introduced in Section 8.4.4. The planned hours are distributed evenly across the task's duration. If you want to plan work more granularly, click on **Edit Period Plans**, shown in Figure 8.8, which will open the **Period Plan** view, as shown in Figure 8.9. This view allows you to see all the work packages for the selected task, and you can define how they are distributed to individual time frames (i.e., days, weeks, months, etc.).

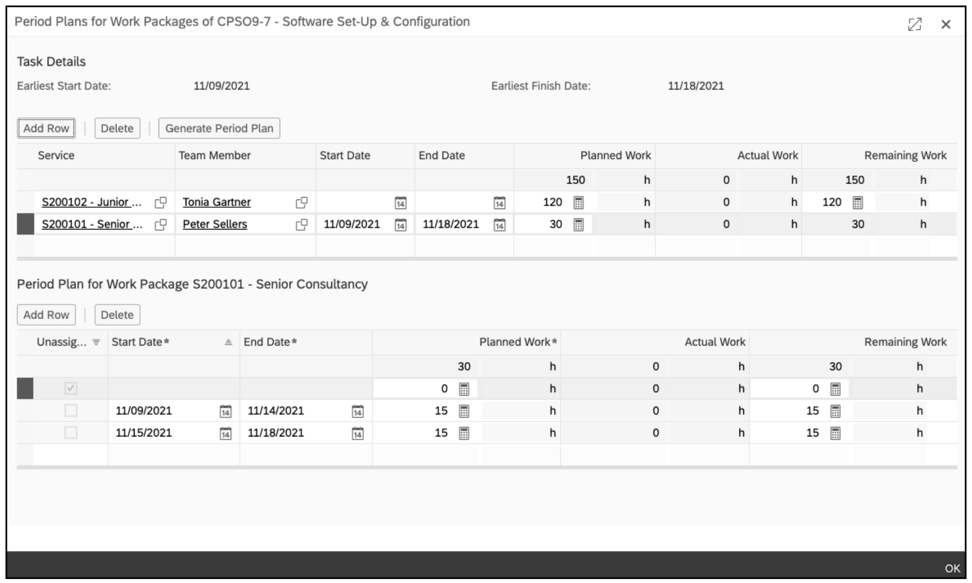


Figure 8.9 Period Plan for Work Packages

In our example, we selected the work package for **Peter Sellers** and manually created a period plan in the table below by clicking **Add Row**. As shown in Figure 8.9, we distributed the planned hours into two individual weeks. Splitting planned work makes sense

if you can foresee that some time frames will require high resources and others will require low resources and use this information for availability and cost planning. The impact of planning period plans is described in more detail in Section 8.4.4.

Planned work packages allow project managers to analyze planned versus actual time recordings and track progress and POC. In addition, the system will use work package information as a basis to calculate the project from a cost perspective. All planned hours are valuated with a cost rate and added to the project calculation accordingly.

For work packages planned for *internal employees*, the system will valuate with the **Labor Resource Cost Rate** (set up by an administrator from the **Resource Cost Rates** view in the **Cost and Revenue** work center). If no labor resource is maintained, the system will use the value from the **Service Cost Rate** field maintained in the service master data (see Chapter 2, Section 2.4.2).

For work packages assigned to *external employees*, the system will valuate according to a valuation strategy in which system picks the first applicable cost rate it can find in the following sequence:

1. The price of the purchase order if a purchase order exists
2. The price from a purchasing contract
3. The price from a purchasing list price
4. The service cost rate defined in the service master data

These valuation strategies apply for the planned values in project calculations. For the cost rate of actual recorded hours, a purchase order must exist for actual time recording by external employees.

You can always verify and check the costs planned in the system based on project information. One way is via the Project Plan Values report, which we'll introduce in Section 8.1.6. The **Work** tab also allows you to verify planned details right while entering your details: You can add additional fields, for example, for the applied cost rate and total cost via the personalization mode, as shown in Figure 8.10.

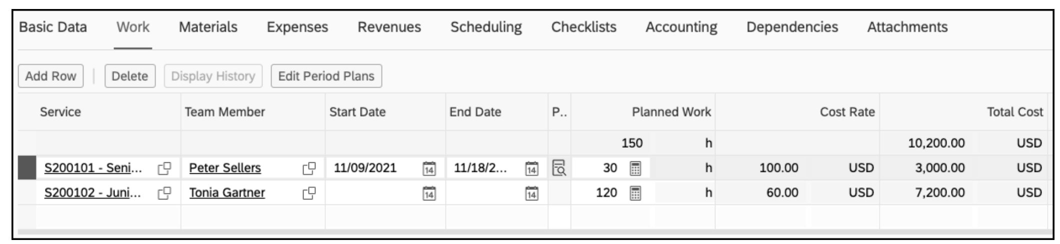


Figure 8.10 Work Tab Extended with Cost Rate and Total Costs

Materials Tab

In addition to work packages, you can plan the materials required to fulfill the project. Materials can be planned on project headers and on task, milestones, and phases in the required quantities. In general, you'll source materials for project execution in one of two ways:

- **Sourcing from stock**
  Materials can be sourced internally from stock by creating a project stock order from the **Products** tab. Based on the project stock order, the system will create a customer demand for the specified material for planning. If the material is available on stock, the system may reserve the relevant quantity, and consumption is possible right away. If no material is available from stock, depending on your configuration, the planning run will create planning proposals to source the material externally or to create an internal production proposal (depending on your business model). In every case, the material first must be booked into the logistics warehouse before usage.
- **Sourcing from external suppliers**
  Alternatively, materials can be sourced from external suppliers directly. This approach means that materials will be purchased right away from external suppliers and will not touch any internal warehouse. For this approach, you would simply create project purchase requests from within the **Products** tab. Once the purchasing request has been released as a purchase order, a subsequent goods and service confirmation will post delivered materials, and their costs, straight to the project.

To add materials to a project, select the corresponding project task and go to the **Materials** tab. The system allows you to add multiple materials by clicking **Add Row**; you can also delete materials. Table 8.8 describes the fields under the **Materials** tab, as shown in Figure 8.11.

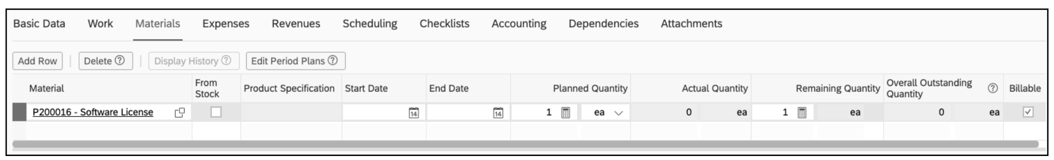


Figure 8.11 Materials Tabs

Field	Description/Use
Material	For this field, select the relevant material ID from product master data.
From Stock	This checkbox indicates whether the material should be taken from stock through logistics processes and warehousing. If the indicator is not selected, the material will be purchased, with a purchase request, directly from the project, and no logistics processes will be involved.

Table 8.8 Materials Tab Fields

Field	Description/Use
Product Specification	If required for the material, select a product specification for this field.
Start Date and **End Date**	Optional start and end dates can be defined. However, in contrast to other cost items, material costs will only be distributed to the assigned start date period in project calculations.
Planned Quantity	This field shows the planned quantity for the specified material and project task.
Actual Quantity	This field shows the actual quantity of the material already consumed for this project task via purchase orders or project stock orders. The value cannot be changed manually.
Remaining Quantity	This field shows the difference between the planned quantity and the actual quantity. The value can be changed manually.
Overall Outstanding Quantity	This field shows the quantity that is expected from external suppliers or expected internally from stock (but is not ordered or not delivered yet).
Billable	The indicator defines whether actuals recorded to the project task are proposed to be billable in project invoicing. For billable projects, the indicator is ticket by default.

Table 8.8 Materials Tab Fields (Cont.)

Also, in the case of planned materials, the system will calculate costs and add it to the project plan values. For *materials sourced from stock*, the system will take the material valuation price from the material master data (see Chapter 2, Section 2.4.1). The system has a defined sequence on which valuation price is picked if there are multiple ones defined for different business residences (on which we won't elaborate further in this book).

For *materials sourced from external suppliers*, like the valuation strategy for pricing work, the system will search for a price in the following sequence:

1. The price from the last purchase order, with reference to the project
2. The price from the last purchase order, without reference to the project
3. The price from a fixed source of supply
4. The price from a contract
5. The price from a purchasing list price

Again, in this view, you can add additional fields to the list via personalization mode to help you verify the applied cost rate during project planning.

Unplanned Consumption for Project

In addition to planned materials, you can also consume unplanned materials. Unplanned material consumption is possible in different areas, for example, in the **Project Management** work center and the **Consumption for Project** common task, as shown in Figure 8.12. Quantities consumed in this way will also be appear with the project task as actual quantities.

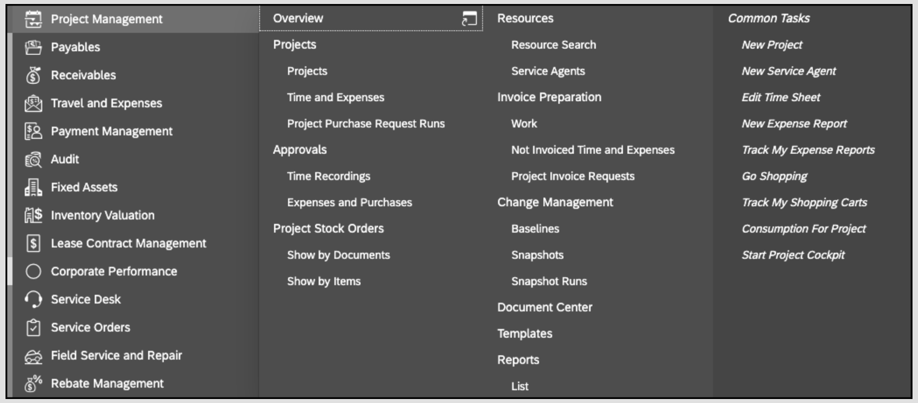


Figure 8.12 Unplanned Consumption for a Project

Expenses Tab

Estimated expenses can be planned based on different expense types (**Expense Groups**) on different levels of the project. Example expenses include hotel or transportation costs.

Figure 8.13 shows an overview of the **Expenses** tab. The tab allows you to enter planned values; actual values are only available via project cost reports from analytics.

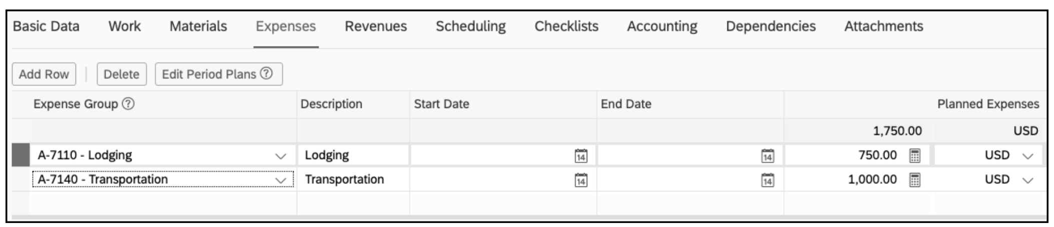


Figure 8.13 Expenses Tab

Table 8.9 describes the fields under the **Expenses** tab, as shown in Figure 8.13.

Actual values for expenses, for example, from expense reimbursement claims or from external supplier invoices, are booked to the project.

Field	Description/Use
Expense Group	The planning of project expenses is based on the expense groups defined in the account determination groups in business configuration. The selection of an expense group triggers the identification of the correct general ledger accounts.
Description	You can add a description to explain the planned expense line item.
Start Date and **End Date**	A **Start Date** and **End Date** can be defined optional, which allows the system to distribute the expenses on individual periods in project calculation.
Planned Expenses	This field is the amount of the planned expenses in the specified expense group.

Table 8.9 Expenses Tab Fields

Revenues Tab

The **Revenues** tab allows you to plan revenues with different revenue types (**Income Group**), which works like an expense group.

If the project was created directly from a sales order, you can let the system transfer planned revenue values directly from the sales order's net values. In other cases, planned revenues can be planned manually, which would also apply to all modifications that might be necessary over time.

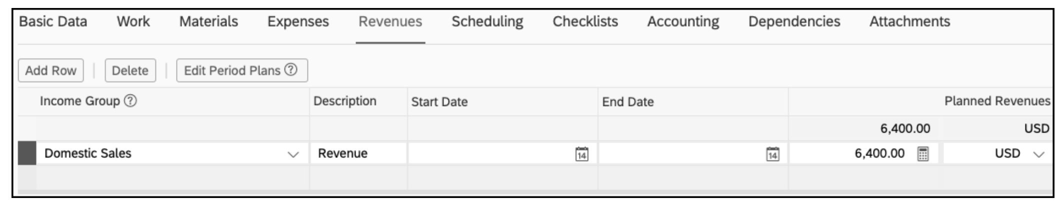


Figure 8.14 Revenues Tab

Table 8.10 describes the values from the **Revenues** tab, as shown in Figure 8.14.

Field	Description/Use
Income Group	The planning of project revenues is based on **Income Groups** defined in the account determination groups in business configuration.
Description	The **Description** can be used to add an explanation to the planned revenue line item.

Table 8.10 Revenues Tab Fields

Field	Description/Use
Start Date/End Date	A **Start Date** and **End Date** can be defined optional, which allows the system to distribute the expenses on individual periods in project calculation.
Planned Revenues	Amount of the **Planned Revenues** in the mentioned **Income Group (such as Domestic Sales or International Sales)**.

Table 8.10 Revenues Tab Fields (Cont.)

Scheduling Tab

The system supports project planning using dates and durations under the **Scheduling** tab. As long as the project is in the **In Planning** status, the system will automatically reschedule tasks, phases, and milestones after every relevant change in dates, durations, or scheduling. When a project's status has change to **Started** or **Released**, you'll need to trigger scheduling manually by click the **Schedule** action. Figure 8.15 shows the fields available under the **Scheduling** tab, which are described further in Table 8.11.

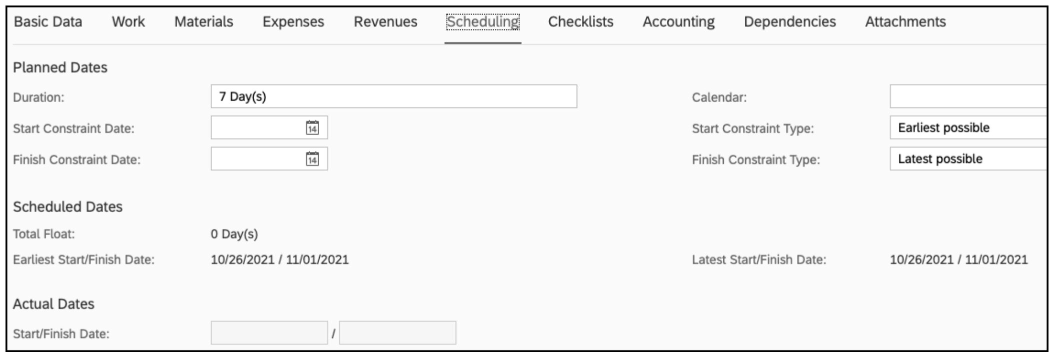


Figure 8.15 Scheduling Tab

Field	Description/Use
Duration	In this field, specify the planned duration of the selected project task, for example, in days or weeks.
Start Constraint Date	This field defines a date constraint; system-proposed scheduling will not pick an earlier date than the date specified in this field.
Finish Constraint Date	This field defines a date constraint; system-proposed scheduling will not pick a later date than the date specified in this field.
Total Float	The total float is calculated by the system based on durations, date constraints, and dependencies on the **Dependencies** tab.

Table 8.11 Scheduling Tab Fields

Field	Description/Use
Actual Dates	The **Actual Dates** are derived by the system. The start date is the date with the earliest time confirmation whereas the finish date is the completion date of the task.
Calendar	You can specify which calendar should be used for scheduling. The selected calendar contains information about working days and public holidays.

Table 8.11 Scheduling Tab Fields (Cont.)

Checklists Tab

Under the **Checklists** tab, simple checklists can be created and modified, as shown in Figure 8.16. Checklists can be added to the project header and to all kinds of project task types. The system allows you to manage checklist items along with statuses (i.e., **Open**, **OK**, **Not OK**, or **Not Relevant**).

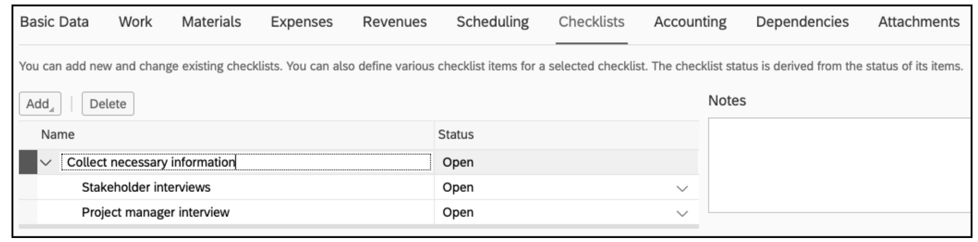


Figure 8.16 Checklists Tab

Accounting Tab

The **Accounting** tab allows you to define some values as especially relevant for accounting and controlling purposes. Some of the fields shown in Figure 8.17 are only available for the project header and only for certain specific project types (e.g., customer project with sales integration).

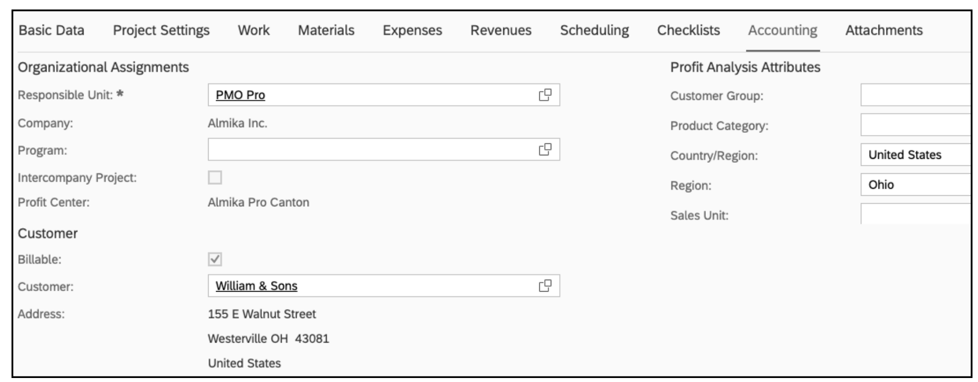


Figure 8.17 Accounting Tab

Most of these fields, described in Table 8.12, can't be changed after starting the project.

Field	Description/Use
Responsible Unit	The **Responsible Unit** is the department responsible for executing the project. The system will derive values such as responsible **Profit Center** from this. Once a project has been released, the value cannot be changed anymore.
Program	A **Program** assignment can be used to group several projects together for an aggregated view in reporting. To assign a program, the program needs to be created from within **Organizational Management** work center first.
Intercompany Project	If the indicator is active, the project is an **Intercompany Project** used to bill times and expenses between two companies managed technically in the same SAP Business ByDesign system.
Billable	Defines if the project is available for project invoicing. The value of the **Billable** field is used as default value for all work packages and material items planned in the project. Customer projects are billable by default.
Customer	Defines the **Customer account** for which the project is carried out. For customer projects with sales integration, the Customer must be the same between project and connected sales order(s). Once a project has been released, the value cannot be changed anymore.
Profit Analysis Attributes	These values can be used within profit analysis reporting and are available only for certain project types.

Table 8.12 Accounting Tab Fields

Dependencies Tab

The system allows to create dependencies between different project tasks in the **Dependencies** tab. You can select predecessor and successor tasks and choose the applicable **Dependency Type** (such as **Finish-to-Start** or **Start-to-Start**). In addition, you may include a **Lag** for the selected **Dependency Type**.

Dependencies can also be created graphically on the **Gantt Chart** view. Based on dependencies created via drag-and-drop, the system will add them to the table shown in Figure 8.18 automatically.

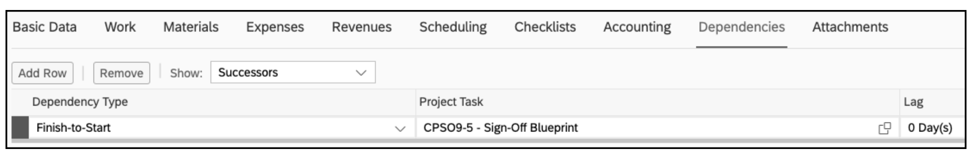


Figure 8.18 Dependencies Tab

Attachments Tab

Finally, the system allows you to store attachments for all different levels of the project as well. The attachments stored with a project are meant to remain there, which contrasts with other objects (like the sales order). Documents stored here will not be output to customers or suppliers and are only for internal usage.

8.1.3 Team and Staffing Tab

The **Team and Staffing** tab shows an overview of all team members assigned to the project. Team members added on the **Work** tab of a project task will automatically be added to this list. Nevertheless, in this view you can add new team members or remove already assigned ones. Team members consist out of different categories:

- Internal employees from the own company
- Employees from other companies managed in the same SAP Business ByDesign tenant (this especially is the case for intercompany projects)
- Service agents from external suppliers

The system provides the huge benefit, that regardless from which of the three categories the team member is, there is no difference in planning within the project. This allows you to plan the project and to gradually assign work to different team members regardless of their legal assignment. Figure 8.19 shows an overview of the mentioned tab with each internal employees and an external service agent. Table 8.13 elaborates on the different fields available in this view.

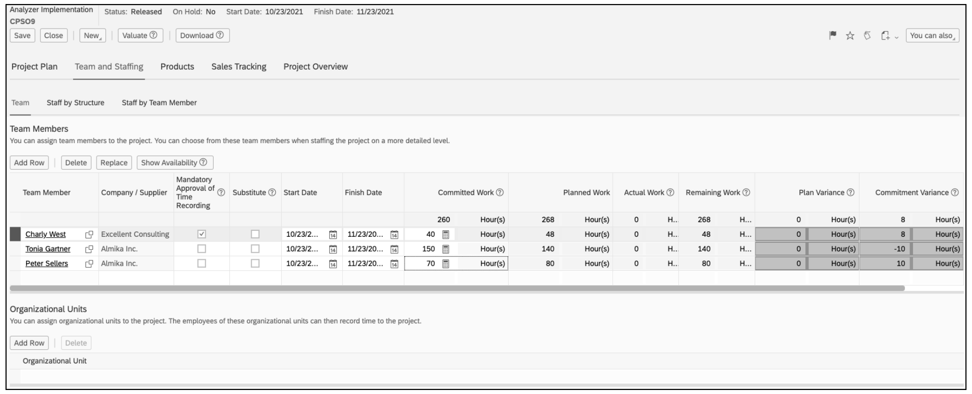


Figure 8.19 Team and Staffing Tab

Field	Description/Use
Mandatory Approval of Time Recording	If selected, the system will send all time entries to approval regardless of any other approval setting in the project. This is useful e.g., for time records from external staff in case those should be always approved.

Table 8.13 Team and Staffing Tab Fields

Field	Description/Use
Team Member	Select internal (employees) or external (service agents) team members for this project.
Company / Supplier	This value is derived automatically from the company assignment of the team member and displayed for information.
Substitute	Allows you to assign certain team members as substitutes for the **Project Responsible**. **Substitutes** have the same authority as projects leads to receive and approve time recordings and expenses.
Start Date/Finish Date	These dates are used to note down in what time period the team member is needed.
Committed Work	Work commitment confirmed for a team member by their line or resource manager for the selected project.
Planned Work	Sum of **Planned Work** across all work packages of the different project levels.
Actual Work	Sum of **Actual Work** recorded by the corresponding team member on work packages on all individual project levels (only approved time entries are shown here).
Remaining Work	Sum of **Remaining Work** for the corresponding team member on all individual project levels.

Table 8.13 Team and Staffing Tab Fields (Cont.)

To understand the availability of assigned resources in more detail, select one or more team members and click on **Show Availability** to open the resource calendar (which is described in more detail in Section 8.4.4).

Under special circumstances, assigning not just individual team members, but a complete team might be useful for time recording purposes. The **Organizational Units** area allows you to simply add teams as well, which might make sense, for example, for internal projects where employees record times only sporadically.

Two other views are available in the **Team and Staffing** view: the **Staffing by Structure** tab, as shown in Figure 8.20, and the **Staff by Team Member** tab, which shows the same staffing information from a different point of view.

Intercompany Project Time and Expenses

For professional service companies, sometimes, several companies from the same corporate group uses the same technical SAP Business ByDesign system. The functionality of intercompany project time and expenses allows them to collaborate closely together for projects.

This scenario would occur, for example, if a professional service company delivers a customer project but does not have enough staff available to deliver the project on their own. A company from the corporate group potentially has resources available, and those resources are included in the project along with internal staff.

In this case, the company hosting the customer project (the company buying intercompany services) purchases services from the selling company for intercompany services by sending a normal purchase order. If set up correctly, the system will then automate the following steps and create a sales order with an intercompany project in the selling company automatically. The employees of the selling company, however, are directly staffed to the customer project of the buying company, to which they report their times and expenses. In the background, the system will assign these times and expenses as well to the intercompany project and conducts invoicing between both companies of the corporate group automatically.

The big benefit with this process is that the customer project's time and expenses reporting is always up to date, regardless of whether the resources are internal or from other corporate entities. In reporting and invoicing, this approach hides company boundaries, and the project manager can concentrate on project fulfillment rather than the formalisms of intercompany invoicing. This process also works, of course, with more than two entities working on a project together at a time.

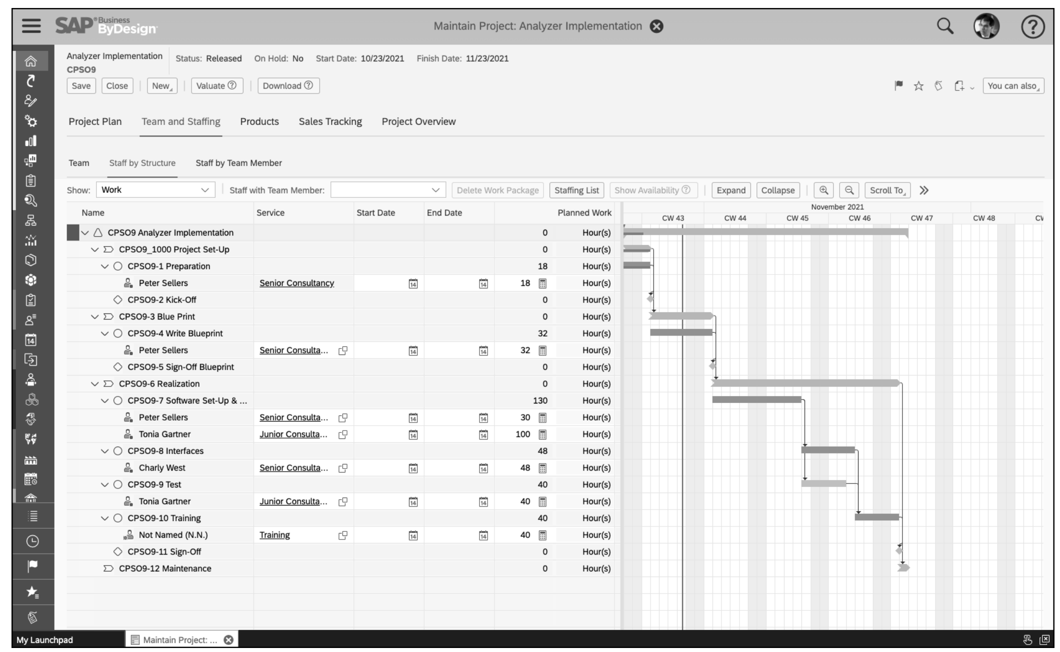


Figure 8.20 Staff by Structure View

8.1.4 Products and External Resourcing

In the previous sections, you learned how to plan your project and to define what services and materials are needed for project fulfillment. If you cannot staff your project fully with internal staff or stock, you can choose to source work or material externally.

The **Products** tab within a project give you full control and visibility over external sourcing for the project. You can create new purchase requests; in addition, you have full transparency about already existing purchase requests and purchase orders, each with their individual statuses.

We'll walk through these numerous tabs in the following sections.

Product Overview Tab

As shown in Figure 8.21, the **Product Overview** tab shows all services and materials planned in the project. You can easily find out for which products purchasing has already been triggered and for which products purchasing is pending.

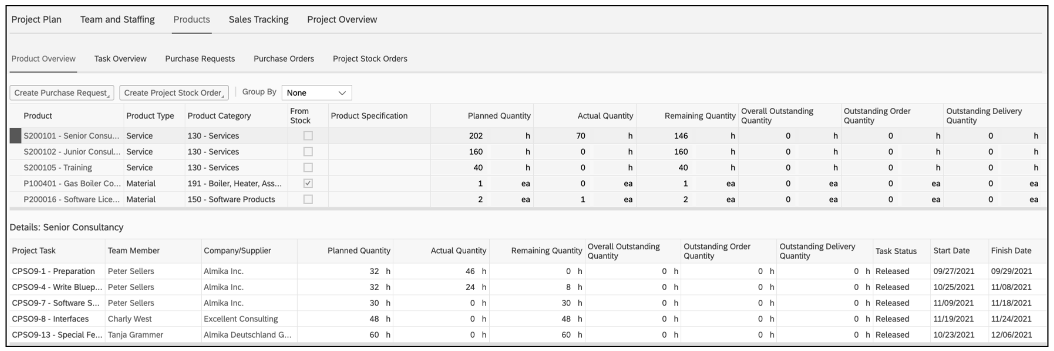


Figure 8.21 Product Overview Tab within the Products Tab

As shown in Figure 8.21, some key figures are available for the purchasing status, which are described in Table 8.14.

Field	Description/Use
Product	This field shows the planned service or material with its ID and description.
Product Type	This field shows if the planned product is of type **Service** or **Material**.
Product Category	This field shows the product category assignment from the corresponding service or material master data.

Table 8.14 Product Overview Tab within the Products Tab Fields

Field	Description/Use
From Stock	This checkbox indicates whether the material should be consumed from stock through internal warehouses. If the indicator is not set, the material will be purchased through a purchase request directly from the project, and no logistics process via warehouse will be involved. For services, this value is not relevant.
Product Specification	For materials, you can enter a specific product specification if relevant. For services, this value is not relevant.
Planned Quantity	This field shows the planned quantity for the specified product across all project tasks of the project.
Actual Quantity	This field shows the actual quantity of services or materials already confirmed for this project.
Overall Outstanding Quantity	This field shows the quantity that is expected to be provided from external suppliers (that are not ordered or not delivered yet).
Outstanding Order Quantity	This field shows the quantity requested externally, where the purchasing request has not been converted to a purchase order yet.
Outstanding Delivery Quantity	This field shows the quantity ordered externally but has not yet been delivered or confirmed.

Table 8.14 Product Overview Tab within the Products Tab Fields (Cont.)

As shown in Figure 8.21, each selected product line has the same key information broken down into the individual project tasks in the table below. From this view (and with the relevant products selected), you can simply start a purchasing request for services or materials. In the following sections, we'll look at the two key buttons, **Create Purchase Request** and **Create Project Stock Order**, on this tab.

Creating a Purchase Request

By clicking on **Create Purchase Request**, you can select from three different options for purchase requests:

- **For Whole Project**: The purchase request contains the service or material to be purchased as whole quantity with reference to the project header.
- **For Released Project Tasks**: The purchase request contains individual lines for each of the released project tasks.
- **For Service/Supplier**: The quantity of the service material to be requested is displayed for each supplier.

After selecting one of the options, the system will request additional details for the purchase request from you. Figure 8.22 shows an example of a purchase request for external services. Most values are already proposed from the planned values, such as the **Product**, **Project Task**, **Quantity**, and **Net Price** fields, among others. You can add further information, such as a delivery address, recipient, notes, and attachments, which will be sent along with the purchase order to the supplier if needed.

If you expect that the confirmed quantity might be more than the quantity requested in the purchase request, you can select the **Over-Delivery Allowed** indicator (relevant for services). This ensures that the external supplier will still be allowed to record more time to the project, even if the number of planned hours is already exceeded.

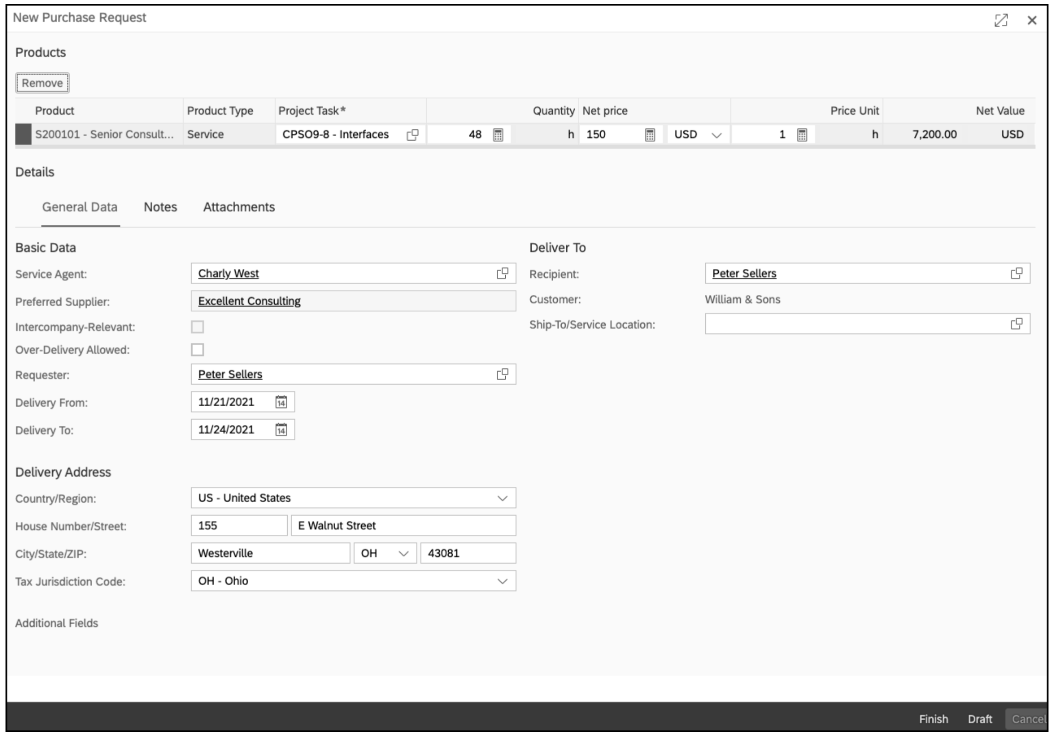


Figure 8.22 Creating a New Purchase Request

If all required entries have been made, simply click on **Finish** to save the purchasing request. In case you only want to prepare the purchase request and finalize it later, you can choose **Draft** as well. It is important to note that the purchasing request only is released if the related project task has been released as well. Only from this point in time the request is visible from purchasing side. If approvals are active for purchase requests, the request will be sent into approval workflow automatically.

Creating a Project Stock Order

For materials which are to be sourced via internal stock, you can initiate this process as well from the **Product Overview** tab by creating a project stock order. Again, you must

select the relevant material and click on **Create Project Stock Order** from the view shown in Figure 8.21.

The project stock order will create a customer demand in supply planning (for more details, see Chapter 6, Section 6.1.2) which will result in a reservation of available stock—or even in a purchase proposal if no stock is available.

Figure 8.23 shows what details are necessary for a project stock order to be created. Again, most details are prepopulated but still, you must verify all details for correctness. Make sure to pick the right **Item Type** for delivery, as follows:

- **Consumption at Site**: Material will be consumed at the project site directly.
- **Pre-Delivery**: Material will be predelivered to the site with normal outbound logistics processing.
- **Pick-Up**: Material will be picked-up and transported to the site by the **Person Responsible**.
- In addition, the **Ship From Location** is an important (and mandatory) value, as this will define which site is the right one in terms of material requirements planning (MRP) and delivering. The **Delivery Date** will serve as basis for the system's material planning procedure.

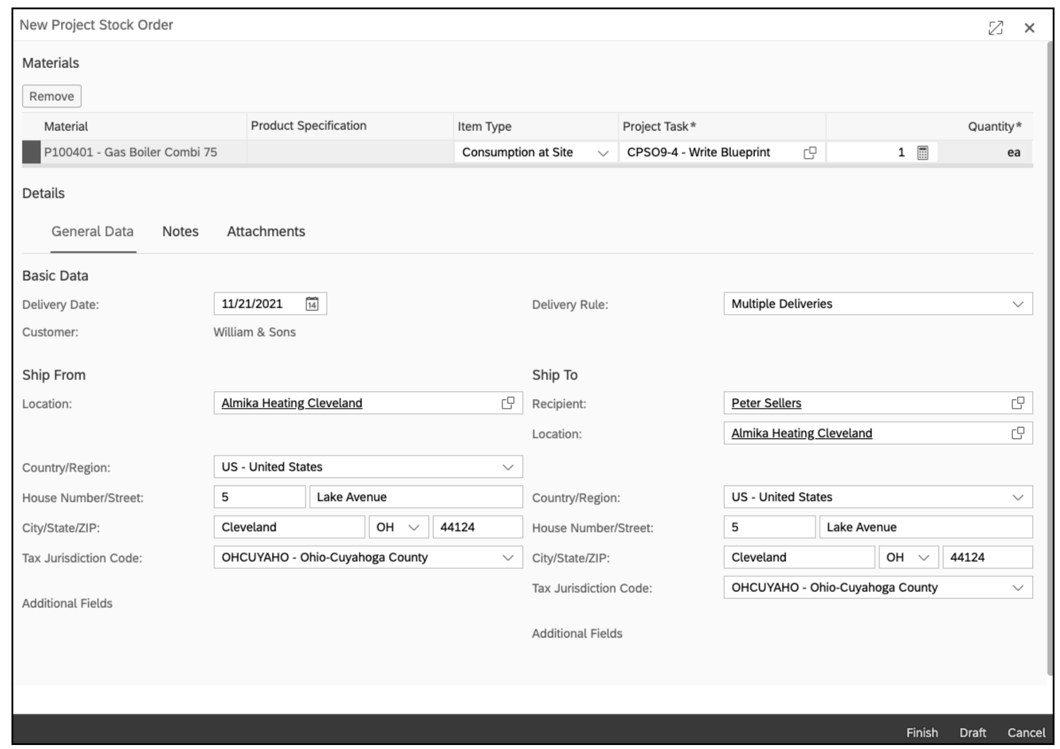


Figure 8.23 Creating a New Project Stock Order

You can finish the project stock order with a click on **Finish**. The project stock order will then be visible from the **Project Stock Orders** tab, from where you can process it further.

Task Overview Tab

In the previous section, you learned about the **Product Overview** tab, where all details are summarized and aggregated on a product level. Another view is available to look at the requirements for external fulfillment: the **Task Overview** tab, as shown in Figure 8.24.

This tab contains the same information but everything is centered around project tasks. Once you select a project task, you're can see its planned services and materials in the table below. Also, the **Create Purchase Request** and **Create Project Stock Order** actions behave the same.

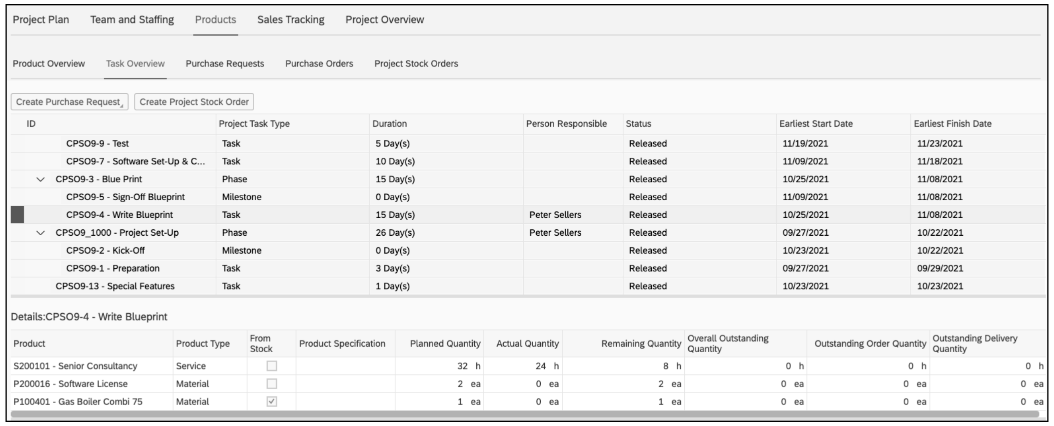


Figure 8.24 Task Overview Tab within the Products Tab

Purchase Requests and Purchase Orders Tab

Once purchase requests have been created, you can view them in a central overview. Both the **Purchase Requests** and **Purchase Orders** tabs show documents with relation to the project and their individual status. Since these tabs are so similar, we've only included a screenshot of the **Purchase Requests** tab, shown in Figure 8.25.

- From this screen, you can verify the details from your purchase requests and check their corresponding status. You can see the **Quantity** as requested quantity from the purchase request and check if the request has already been transferred to a purchase order with the **Ordered Quantity**. How a purchase request is transferred to a purchase order is described in detail Chapter 5, Section 5.2.1 and Section 5.2.2.
- The **Purchase Orders** tab shows the same information, but for cases where a purchase order has been created from the purchase request already (or if a purchase order has been created directly without any preceding purchase request).

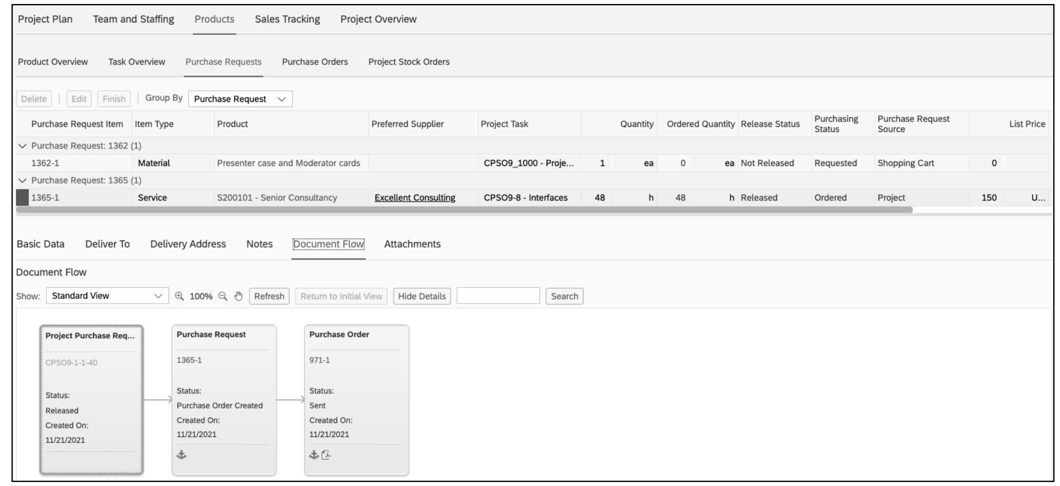


Figure 8.25 Purchase Requests Tab within the Products Tab

Project Stock Orders Tab

For existing project stock orders, you can find their corresponding details on the **Project Stock Orders** tab, as shown in Figure 8.26. You'll see all project stock orders for the opened project in their individual status under this tab.

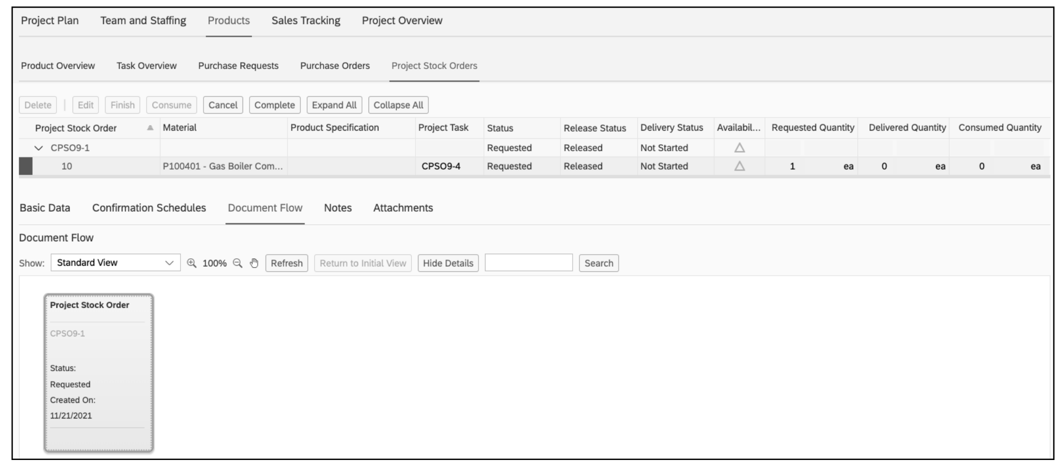


Figure 8.26 Project Stock Orders Tab within the Products Tab

Released project stock orders are visible in the **Customer Demand** view of **Outbound Logistics Control** work center, from which you can trigger the logistics processing depending on the selected item type.

For **Consumption at Site**, the stock will be allocated from the warehouse to the project, which will tie the stock to the project and store it in a special project stock warehouse area (this stock is delivered but not yet consumed) until you perform the **Consume** action. This step will then consume the allocated stock, book it to the project, and move it out of the warehouse.

For the **Pre-Delivery** and **Pick-Up** item types, you'll undertake regular logistics steps, from delivery proposal to outbound delivery, as discussed in Chapter 7, Section 7.4.1.

The actions shown in Figure 8.26 are described in Table 8.15.

Action	Description/Use
Delete	With this action, a project stock order can be deleted as long it is in draft mode. Once **Released**, you can only cancel a project stock order.
Edit	With this action, a project stock order can be edited as long it is in draft mode.
Finish	If the project stock order is still in draft mode, you can finish and release it with this action.
Consume	For project stock orders with item type **Consumption at Site**, you can consume the stock after allocation to the project.
Cancel	You can cancel a project stock order if no longer needed.
Complete	A project stock order is completed once all the requested quantity has been consumed. If only a partial quantity is needed, you can manually complete the project stock order after the partial delivery of materials.

Table 8.15 Project Stock Orders Actions

Instead of only checking open project stock orders for an individual project, you can also use the **Project Stock Orders** view in the **Project Management** work center. This view provides the same functionality; however, you can manage project stock orders for multiple projects at once.

8.1.5 Sales Tracking

As already mentioned, customer projects have tight integration with sales documents such as sales orders. The **Sales Tracking** tab provides an overview of the commercial agreement side of a project. This tab is not available (and not needed) for project types that are not customer projects.

The **Sales Order Assignment** tab within the **Sales Tracking** tab provides an overview of all linked sales order items and their key data (such as **Status**, **Ordered Quantity**, **Ordered Net Value**, and **Invoicing Method**), as shown in Figure 8.27.

The **Sales Quote Assignment** tab provides the same information, but for sales quote information. The **Invoice Schedule Assignments** tab shows all the invoice schedule items that are assigned to milestones for milestone-based billing. Finally, the **Document Flow** shows all linked documents and allows for easy navigation among them, as shown in Figure 8.28.

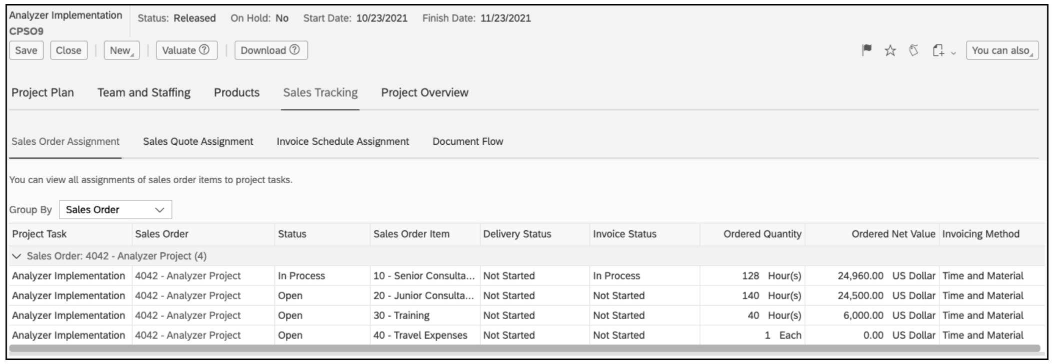


Figure 8.27 Sales Order Assignment Tab within the Sales Tracking Tab

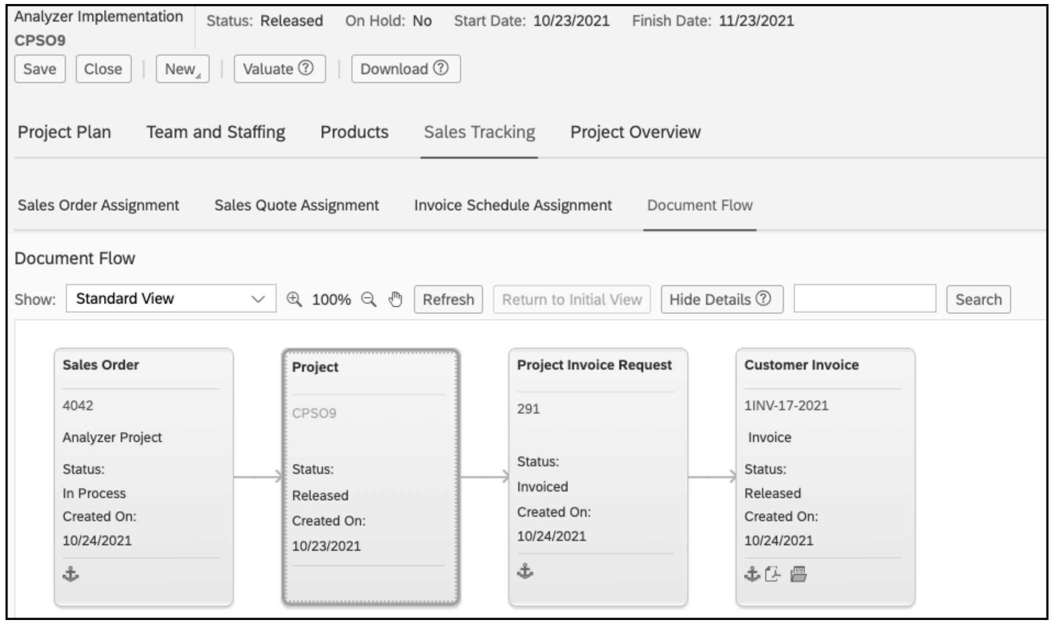


Figure 8.28 Document Flow of a Project

8.1.6 Project Overview

In previous sections, we took a broad view on how to plan the project structure, work, materials, and expenses. Based on these details, the system offers powerful reports to analyze both planned and actual costs and quantities. The **Project Overview** tab is the starting point for project reporting, where some important and popular reports are placed. In addition to reports, we'll cover how the system tracks changes to project data.

Reports

The **Reports** tab is the entry point into numerous reporting topics based on the selected opened project. In the upper part of the screen shown in Figure 8.29, the system provides two charts for a quick analysis of **Planned/Incurred Cost and Revenue** from a financial perspective (on the left side) but also **Planned/Actual Work** from a work perspective (to the right). From these two charts, you can dig more deeply into their values. Clicking on the gear icon and selecting **Analyze Data** opens the detailed report, with all available reporting capabilities including drilldown into different dimensions (you'll learn more about these features in Chapter 11).

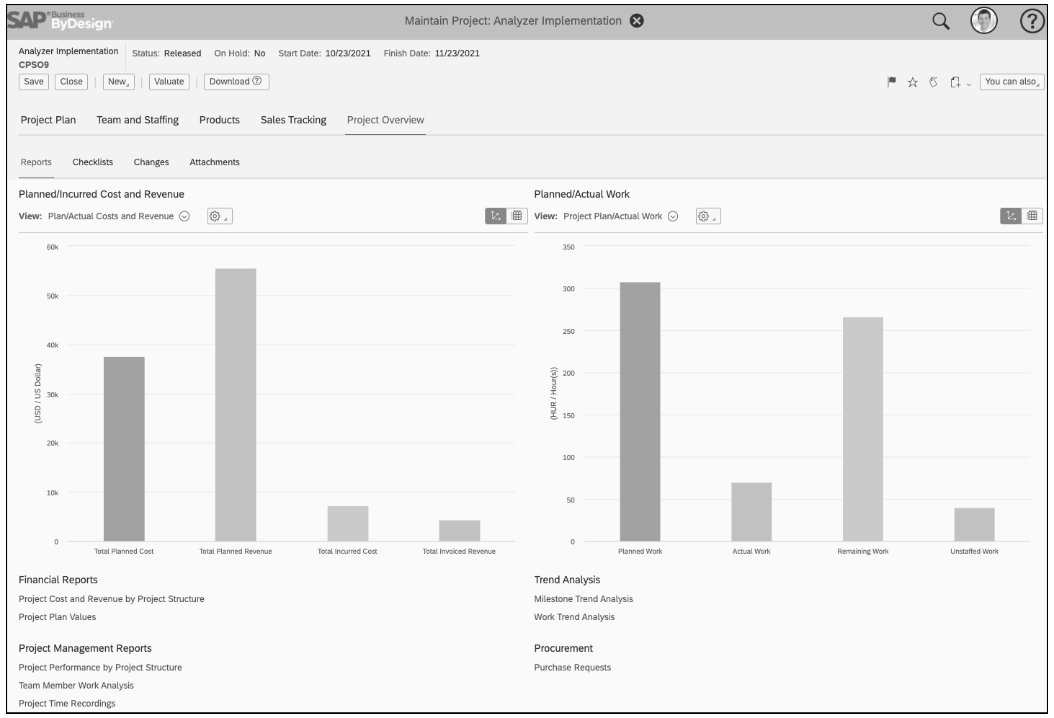


Figure 8.29 Reports Tab within the Project Overview Tab

In the lower part of the screen, more reports are available via links grouped by reporting topic, such as **Financial Reports**, **Trend Analysis**, or **Project Management Reports**. In addition to these linked reports, the system provides more than 30 other reports in the system standard, which are available within the **Reports** view in the **Project Management** work center.

We want to highlight two more important reports within project management. The first report is the Project Plan Values report, which allows you to analyze the planning side of the project with a detailed overview of all cost and revenue items planned in the project. Figure 8.30 shows an example of this report, which includes detail on how the **Total Planned Cost** is calculated and what **Cost Rates** are applied by the system.

Report: Project Plan Values

Selection: Initial (modified) View: Project Plan Values (modified)

Project Ta		Project Estimate It	Product		Expense/Income G	G/L Account (Origi		Cost Rate	Total Planned Quan	Total Planned Cost	Total Planned Reve
CPSO9	Analyzer Implementatic	Revenue Item	#	Not assigned	Domestic Sales	408000	Other Income		0.00		55,460.00 USD
		Result							0.00		55,460.00 USD
CPSO9-1	Preparation	Service Item	S200101	Senior Consultancy	Not assigned	518100	Service Expenses (Inter	100.00 USD	18.00 h	1,800.00 USD	
		Result						100.00 USD	18.00 h	1,800.00 USD	
CPSO9-10	Training	Service Item	S200105	Training	Not assigned	518100	Service Expenses (Inter	100.00 USD	40.00 h	4,000.00 USD	
		Result						100.00 USD	40.00 h	4,000.00 USD	
CPSO9-4	Write Blueprint	Material Item	P100401	Gas Boiler Combi 75	Not assigned	#	ZUS1	266.00 USD	1.00 ea	266.00 USD	
			P200016	Software License	Not assigned	#	ZUS1	0.00	2.00 ea	0.00	
		Service Item	S200101	Senior Consultancy	Not assigned	518100	Service Expenses (Inter	100.00 USD	32.00 h	3,200.00 USD	
		Expense Item	#	Not assigned	Lodging	500300	Travel Expense		0.00	4,750.00 USD	
					Transportation	500300	Travel Expense		0.00	5,000.00 USD	
		Result						266.00 USD	*	13,216.00 USD	
CPSO9-7	Software Set-Up & Con	Service Item	S200101	Senior Consultancy	Not assigned	518100	Service Expenses (Inter	100.00 USD	30.00 h	3,000.00 USD	
			S200102	Junior Consultancy	Not assigned	518100	Service Expenses (Inter	60.00 USD	100.00 h	6,000.00 USD	
		Result						100.00 USD	130.00 h	9,000.00 USD	
CPSO9-8	Interfaces	Service Item	S200101	Senior Consultancy	Not assigned	518000	Service Expenses (Exte	150.00 USD	48.00 h	7,200.00 USD	
		Result						150.00 USD	48.00 h	7,200.00 USD	
CPSO9-9	Test	Service Item	S200102	Junior Consultancy	Not assigned	518100	Service Expenses (Inter	60.00 USD	40.00 h	2,400.00 USD	
		Result						60.00 USD	40.00 h	2,400.00 USD	
Result								266.00 USD	*	37,616.00 USD	55,460.00 USD

Figure 8.30 Project Plan Values Report

The second report we want to introduce is the Customer Project Overview report. This report helps you analyze the project along with relevant sales order information. For customer projects, this report is an extremely helpful overview to see ordered and invoiced values for net value and quantity. But other information can also be included, such as the entered **Work PoC (%)** field or the **Quantity – Not Yet Invoiced** field. This report is quite robust, and the screenshot shown in Figure 8.31 hides more than 20 additional key figures that are available.

Report: Customer Project Overview

Selection: Initial (modified) View: Net Values from Sales Orders and Project Invoices (modi...

Project		Sales Order Item		Net Value - Ordered	Net Value - Invoiced	Quantity - Ordered	Quantity - Invoiced	Work PoC (%)	Quantity - Not Yet Invoic	voic
CPSO9	Analyzer Implementation	10	Senior Consultancy	24,960.00 USD	4,290.00 USD	128.00 h	22.00 h		48.00 h	3.00 h
		20	Junior Consultancy	24,500.00 USD	0.00	140.00 h	0.00		0.00	0.00
		30	Training	6,000.00 USD	0.00	40.00 h	0.00		0.00	0.00
		40	Travel Expenses	0.00 USD	0.00	1.00 ea	0.00		0.00	0.00

Figure 8.31 Customer Project Overview Report

Changes

Finally, the **Changes** tab, although not as prominently placed as for other business objects, is still available. You can find all changes made to the project in terms of settings or planned values in the area shown in Figure 8.32.

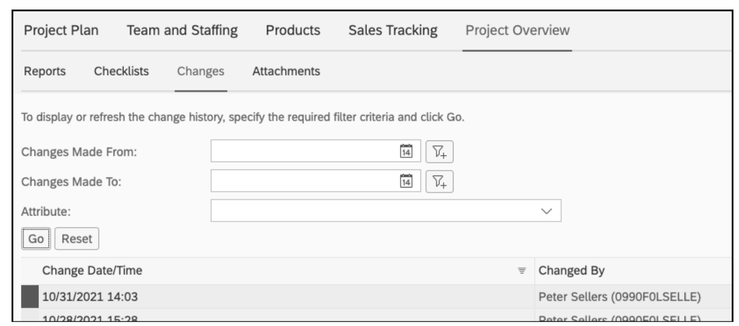


Figure 8.32 Analyzing Changes Made to the Project

8.1.7 Templates

The system allows you to create project templates that you can use for creating new projects. This feature allows you to standardize project structures and to speed up project creation.

Templates can be created from the **Templates** view in the **Project Management** work center, as shown in Figure 8.33. You can create a template from an already existing project or create a template from scratch.

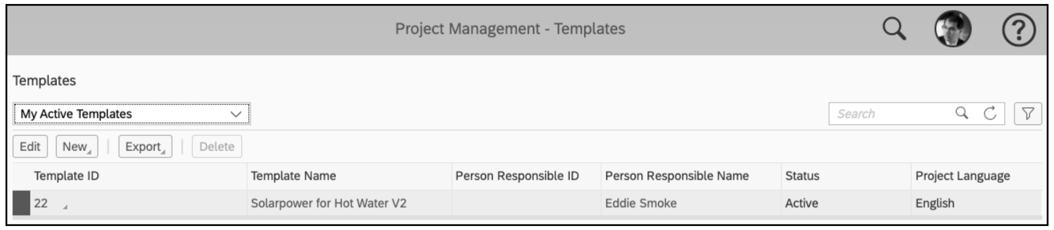


Figure 8.33 Worklist for Project Templates

Creating a template works pretty much like creating a project plan itself, so we won't dwell on this topic further. The main difference is that the template does not contain any information about dedicated assigned resources. Additionally, no sales integration exists, and of course tracking actuals is not possible. Figure 8.34 shows the reduced screen for creating a project plan template.

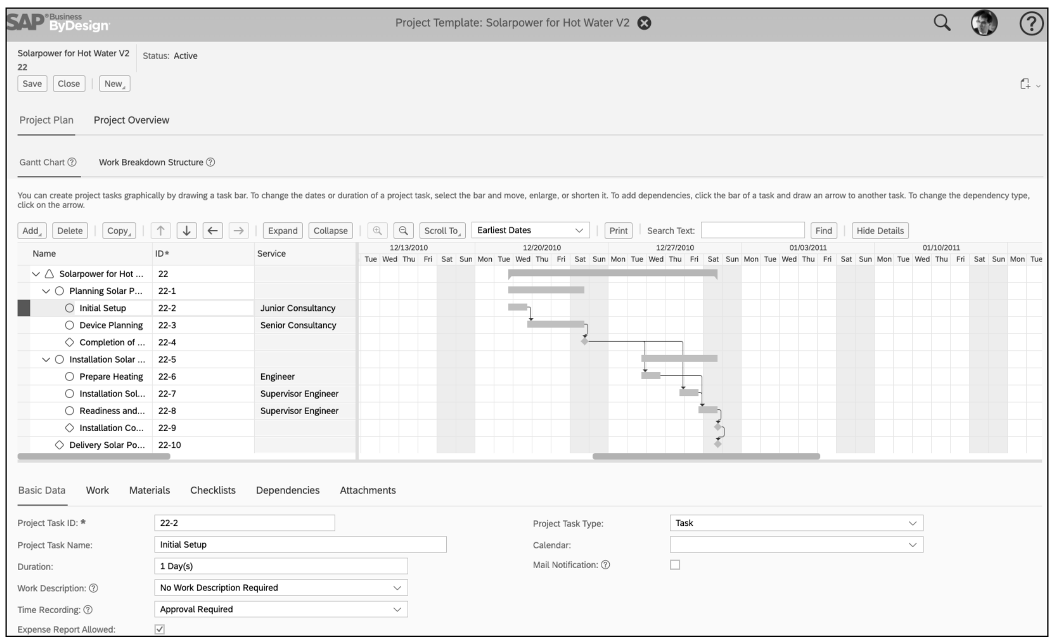


Figure 8.34 Example Project Template

8.2 Time Sheets

Time entries play an important role in project execution for most companies and are perfectly integrated into project management. Managing time entries for your project results in the following two benefits:

- Plan how much time your internal and external employees are supposed to spend on a project, which allows you to calculate costs properly. Time recording books actuals to the project enabling a perfect project controlling. In addition, the planned times are used in resource availability planning.
- Recorded times serve as perfect basis for upcoming project invoicing. For time and material projects, the time entries are the baseline for invoice creation. For fixed price projects, you're able to verify the actuals with planned values to see if the project was profitable.

The main way to record time entries to a project is by using the time sheet functionality. Internal and external employees have the possibility to record time entries that way.

Now let's have a look at how you can record your time in SAP Business ByDesign. As a project team member, you probably have the **Project Team** work center assigned to you, in which you can easily view all the project tasks assigned to you. The time recording functionality can be accessed in a number of ways in SAP Business ByDesign. One way is by accessing the **Self-Services** view under the **Home** work center and then selecting **Edit Time Sheet**.

> **Note**
> Other functionalities contained within the **Self-Services** view are covered in more detail in Chapter 1.

In this example, to access the time recording functionality, select the **Project Team** work center and then under **Common Tasks** select **Edit Time Sheet**, as shown in Figure 8.35.

The system will open the **Edit Time Sheet** screen, as shown in Figure 8.36, where you can record your time for each project. Figure 8.36 shows you a worklist view that allows you to record all your activities for the week on one screen.

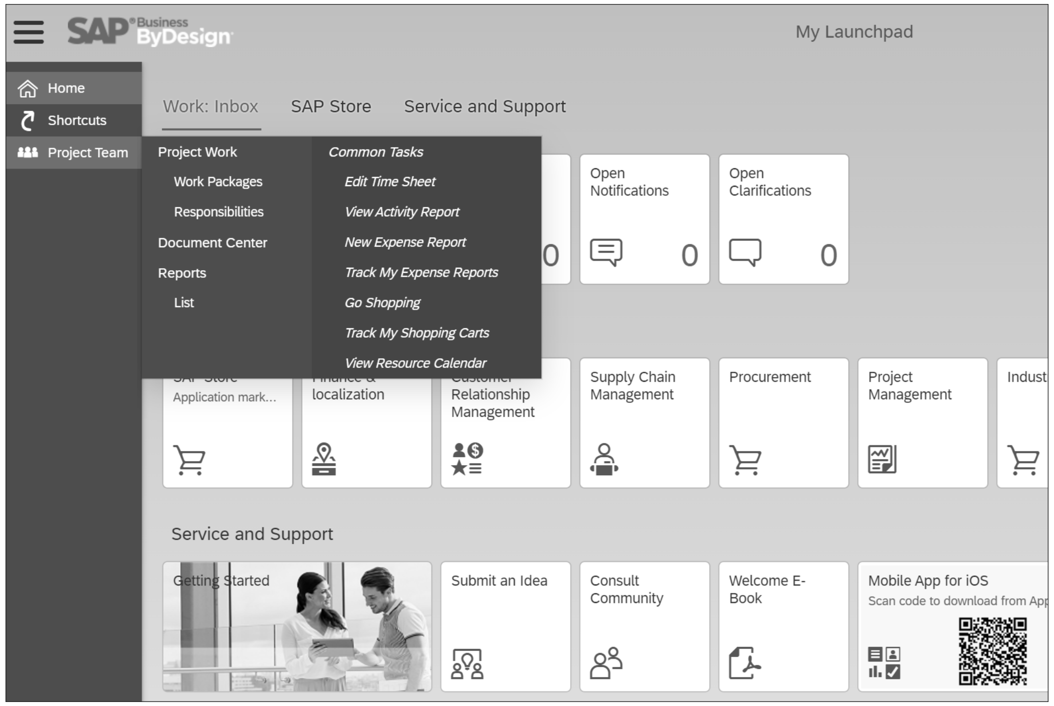


Figure 8.35 Edit Time Sheet: Example Menu Path

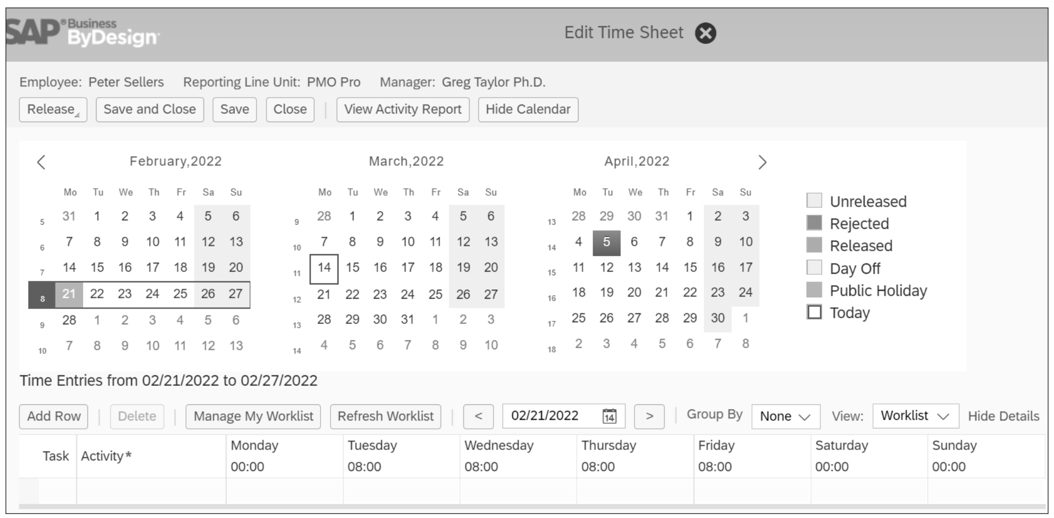


Figure 8.36 Worklist Time Sheet View

If you are already assigned to some project tasks, the system will prepopulate the time entries list with recent project task assignments, allowing for quick time recording. However, this is not the case for our example, which is why we will record times for project tasks that are not prepopulated in the list. To do so, select the week you wish to

record time for from the calendar view and then select **Add Row.** You will then see the screen shown in Figure 8.37.

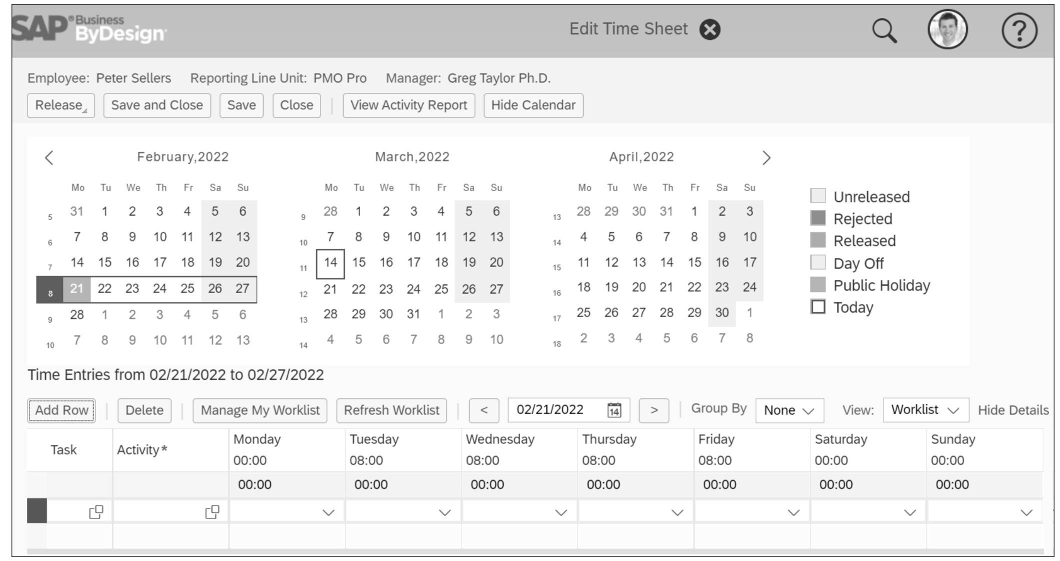


Figure 8.37 New Time Sheet Row

To select a project task, click on the object value selector icon in the **Task** column; you can select all project task assignments that are related to the period for which your time is being recorded. An example of multiple project task assignments can be seen in Figure 8.38.

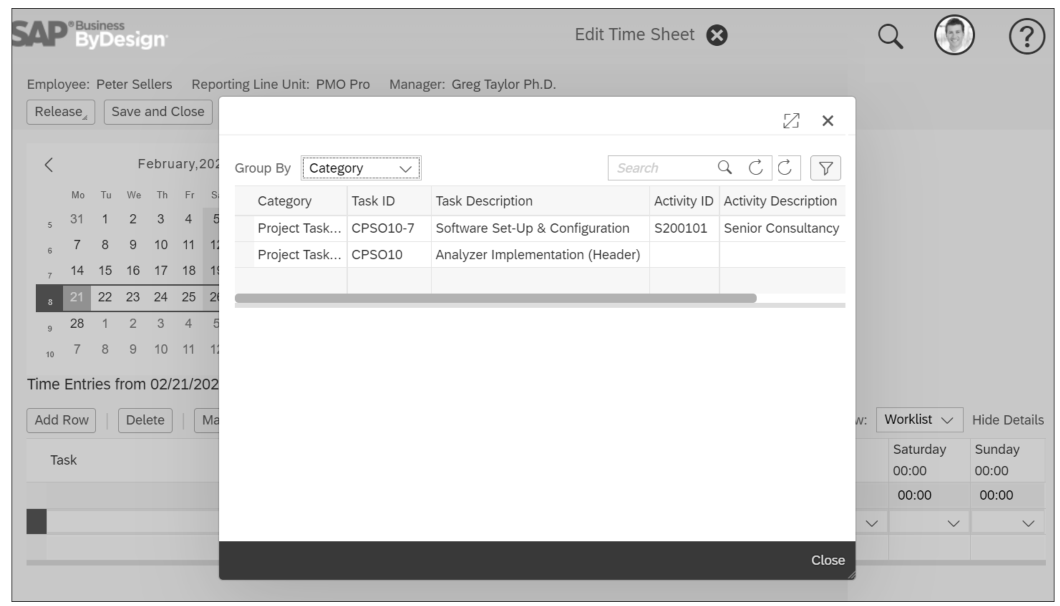


Figure 8.38 List of Assigned Project Tasks

Please note if you are not allocated to a project, you will not see that project task listed. If you wish to record time for such a project task, you need to contact the relevant project manager who can then assign you to the project from within the **Project Management** work center.

Once you have selected your project tasks, you can then input the **Activity** that you have performed for the project. Usually, the value is copied from the service defined in your project task assignment in the project (as discussed in Section 8.1.2). Sometimes you might want to change the service, so you can overwrite the value with another service if required. Different services can be used, for example, to bill activities with different rates (e.g., different rates for consultancy or travel times).

After entering the project task and activity, input the number of hours you need to record in the the task line, as shown in Figure 8.39.

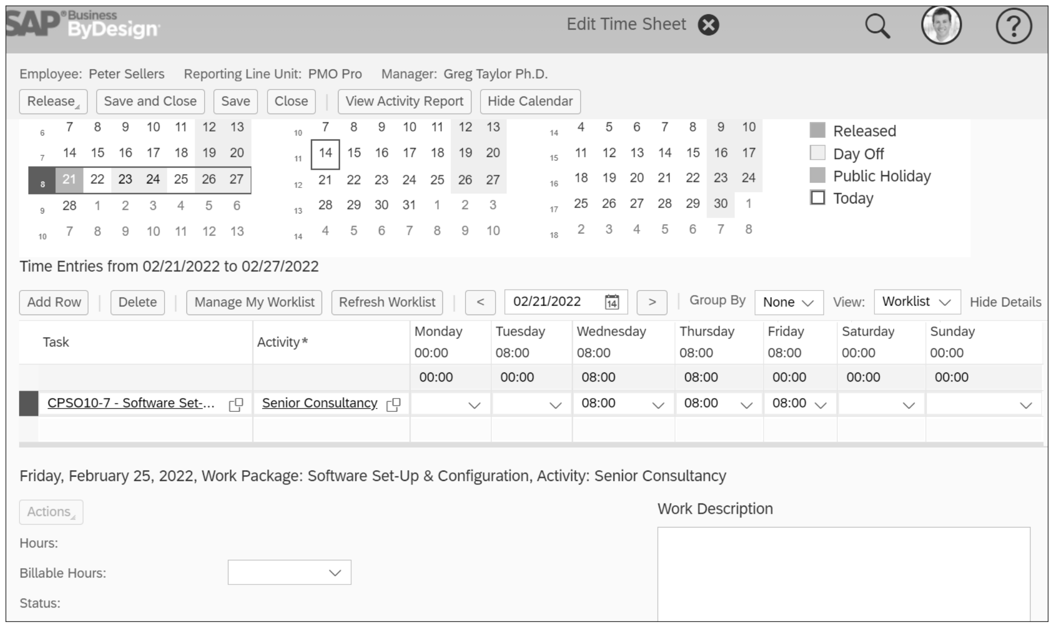


Figure 8.39 Record Times View

Additional, optional information can also be recorded for each task in the lower area of the screen. Table 8.16 describes most common additional information recorded.

Field	Description/Use
Billable Hours	If only a certain number of recorded hours can be billed, you can enter a value for the billable hours here (which will be the proposed number of hours during customer invoice creation).

Table 8.16 Optional Time Recording Fields

Field	Description/Use
Work Description	This is where you record the activities and tasks you have performed in detail. This field can be made mandatory by your project manager and may be part of the customer invoice.
Start Time/End Time	If you are working on projects for specific times during the day, you can record the start and end times rather than just a number of hours for the day.
Internal Comments	You may wish to record comments that can be viewed by your team members and project managers in this field.

Table 8.16 Optional Time Recording Fields

Once you have recorded all the information within the time sheet, you can then save the time entries. Be aware that, if you only press **Save**, the time entries are saved in a draft mode and are visible to you, but are not yet submitted to the project. By selecting **Release** and then either **All** or **Selected Week**, the time entries are fully submitted to the project. Depending on the project settings, submitting time entries to a project might need project manager approval before they fully post. If this is the case, the project manager must approve them as described in Section 8.5.1.

You will then see the days for which you have released time highlighted in green, as show in Figure 8.40. The calendar view will also indicate if there are time entries that are **Unreleased** (not released yet) in yellow or **Rejected** (approval has been declined by the project responsible) in red. Once all time has been entered and released, you can then select **Save and Close**.

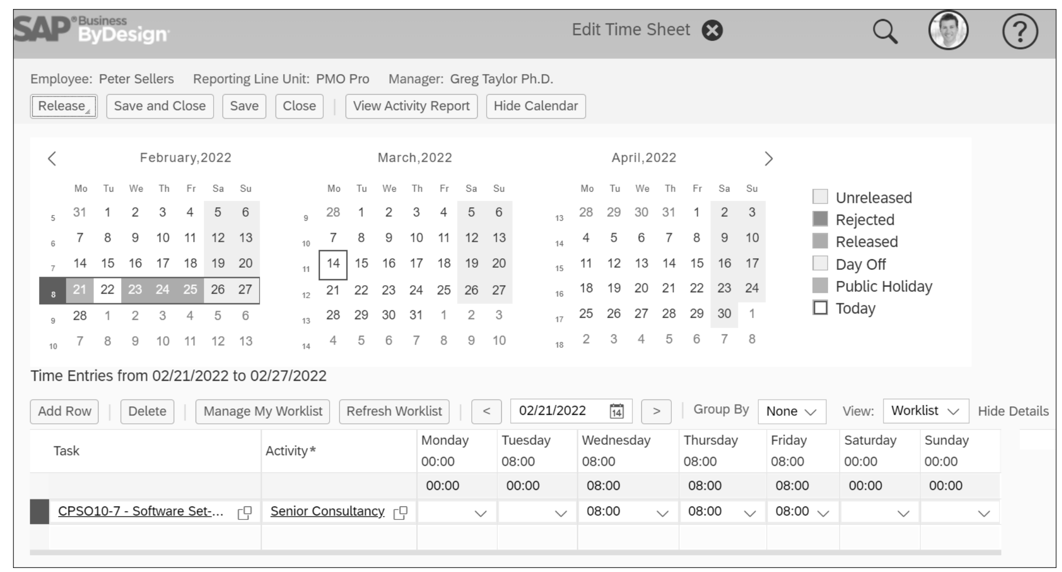


Figure 8.40 Released Timesheet View

In addition to recording times from the standard user interface, you can record them with the SAP Business ByDesign mobile app. You can find the app from your mobile devices' app store for different smartphone platforms.

Another option to record times is by using a Microsoft Excel-based file upload. This approach might be relevant for team members without access to the system or if many entries must be imported to the system. Nevertheless, manual entry by the user should always be the first choice. Two different templates for Microsoft Excel are available for this upload feature:

- The template for internal employees is available from the **Time Administration** work center in the **Time Recording - Time Sheet** view. The template is available by selecting **Actions • Upload Project Confirmations from Microsoft Excel**.

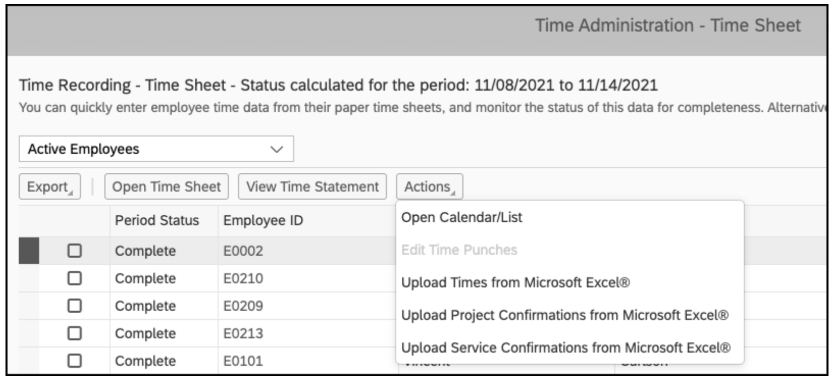


Figure 8.41 Opening the Recording Template for Internal Project Members

- The template for external employees is available from the **Project Management** work center, in the **Service Agents** view. You find the template under **Actions • Record Times from Microsoft Excel**.

The template looks similar for both variants; however, some slight differences exist among the available columns. Figure 8.42 shows the template for external service agents as example. Once the relevant time entries have been entered properly, the file can be uploaded to the system. As a prerequisite, you must have the SAP Business ByDesign Add-in for Microsoft Excel installed. You can find this from the self-services overview screen (via the **Home** work center), under **Install Additional Software**. If the software is installed to your machine, an additional SAP Business ByDesign ribbon will be available in Microsoft Excel, from which you can upload times to SAP Business ByDesign.

As a user, you can always verify the time entries you recorded for certain projects (regardless of whether you entered them manually or via upload). From the **Time Sheet**, simply click on **Activity Report**, which will open the screen shown in Figure 8.43. This screen allows you to query all times you've recorded for a specific project within a certain time frame (via the **Period Selection** dropdown list).

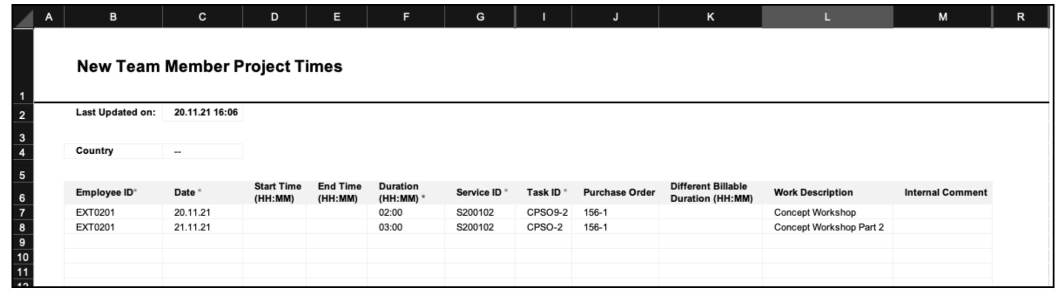


Figure 8.42 Microsoft Excel Template for Service Agents

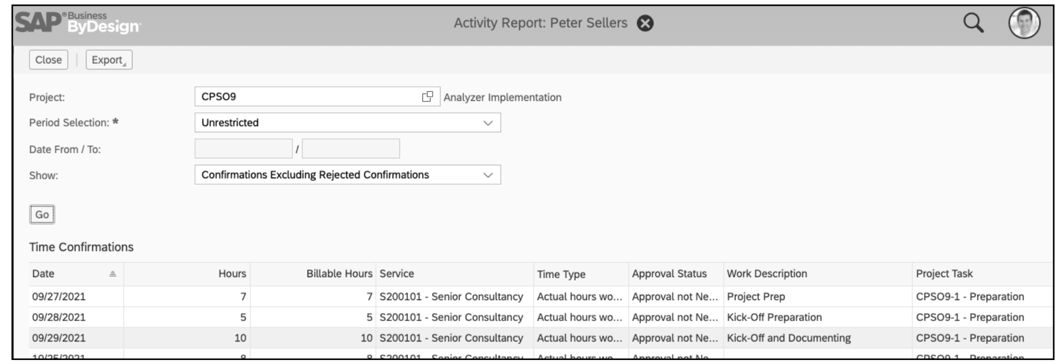


Figure 8.43 Activity Report for All Times of the Employee for a Project

Project managers have a similar functionality for their projects, which we'll explore in the next section.

8.3 Time and Expenses

The **Time and Expenses** view in the **Project Management** work center provides an overview across all individual time entries, expenses, or supplier invoices for projects. This view can be used to check times and expenses on the level of the individual entry. However, to verify sums and compare plan values with actuals, you should look into reporting instead.

You can select different filters from the **Show** dropdown list, such as the **Items for My Active Projects – This Month**, **Items for My Active Projects – Last Week** filters, and many more. Depending on access rights, the view might be restricted to only show data of your own projects.

Figure 8.44 shows the **Time and Expenses** view for your own projects. The individual fields on this screen should be self-explanatory based on the descriptions from previous sections. Instead, we'll focus on the available actions, which are described in Table 8.17.

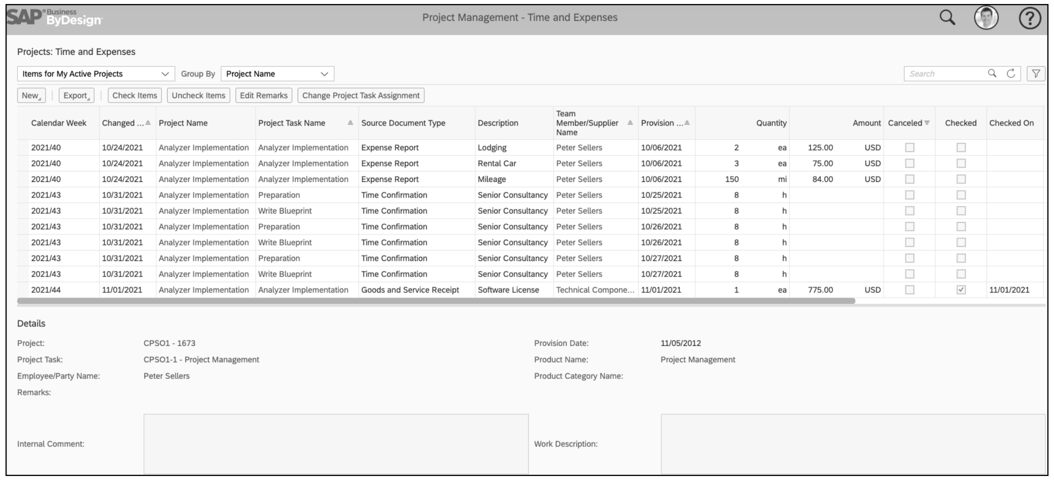


Figure 8.44 Time and Expenses View

Action	Description/Use
Check Items	In some cases, project tasks may not be configured for approvals. If you nevertheless want to verify individual entries manually, you can click **Check Items**, which will activate the **Checked** checkbox and update the **Checked On** date for the entry (for example, in the last item of the list shown in Figure 8.44). This approach allows you to see which entries have (or have not yet) been checked by you.
Uncheck Items	Based on checked items from above, this button will uncheck an item.
Edit Remarks	This action allows you to enter own internal remarks for entries, which are available during project invoicing, or you can personalize the **Time and Expenses** view and add this field to the table view directly.
Change Project Task Assignment	This action allows you to reassign booked time entries or expenses to a different project task. See the following text box for more details.

Table 8.17 Time and Expenses View Actions

Tips and Tricks: Change Project Task Assignment

When time entries and expense items are assigned to a project, the relevant task ID must always to be selected to ensure that costs are booked to the correct place in the project structure. Approval mechanisms help ensure that costs are booked to the correct project tasks.

If nevertheless some (potentially approved) time entries or expense items need to be assigned to a different project task, click the **Change Project Task Assignment** button from the **Time and Expenses** screen, as shown in Figure 8.45.

You may either select only one entry, or multiple at once, and the system will request the new **Project Task ID** after you clicked on the button.

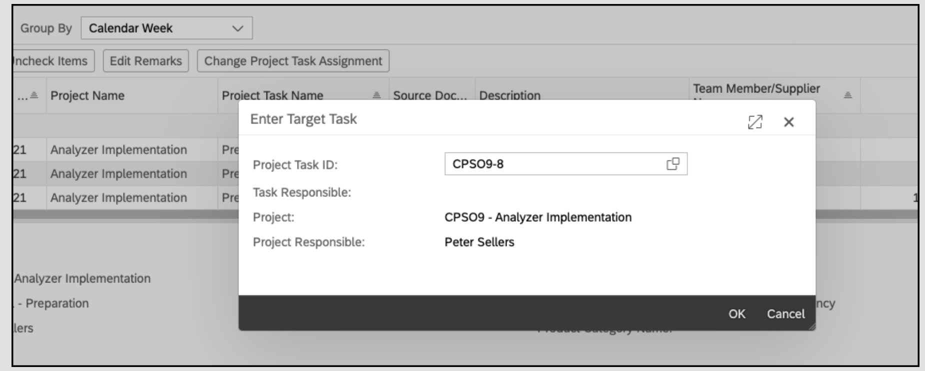


Figure 8.45 Reassigning Time Entries or Expenses to Different Project Tasks

After initiating the reassignment, the system will start a reassignment run in the background. Some minutes may be required until the selected entries have been verified. To check if reassignments have been finalized, check the **Reassignment Status** field (by scrolling right on the screen shown earlier in Figure 8.44) to see if the action was successful. In some circumstances, reassignment is not possible (e.g., due to the status of the source project or because entries have already been invoiced). In this case, you're able to retrieve the corresponding error message as well. Reassigned entries also undergo approval if this is set up for the new project task assignment.

The screen shown earlier in Figure 8.44 contains the most common fields. Personalization allows you to add even more fields so you can have all the required information at hand.

8.4 Resource Management

One of the most important factors for a successful project is to have the right resources in place to execute your project. Let's move our focus from how projects are structured and planned towards who is executing project and how you can staff the team correctly.

In this section, you'll learn how to identify the suitable resources, through their skills as captured in resource profiles, and you'll learn how to manage resource utilization from the resource calendar. The resource calendar allows you to verify the availability of your key resources and their existing project commitments. In addition, you'll learn more about how to involve external resources with service agents.

8.4.1 Service Agents

Before we look at the management of resource profiles and resource availability, let's first focus on external resourcing. The system provides the great advantage of being able to manage external project resources as easily as internal ones.

As a project manager dealing with external resources, you'll need to manage them effectively from a central place. Therefore, the system allows you to create external resources as service agents. Service agents are external employees who work for your suppliers and provide services for your projects. You might provide them a system user to record their times to projects properly. Note that a service agent is always a dedicated person that is working for a company, which is always created as a supplier within the system.

Service agents can be created and maintained in different areas of the system. As a project manager, you'll most likely access service agents from the **Service Agent** view in the **Project Management** work center, as shown in Figure 8.46. Other areas to access service agents include the **Business Partner Data** work center and the **Supplier Base** work center.

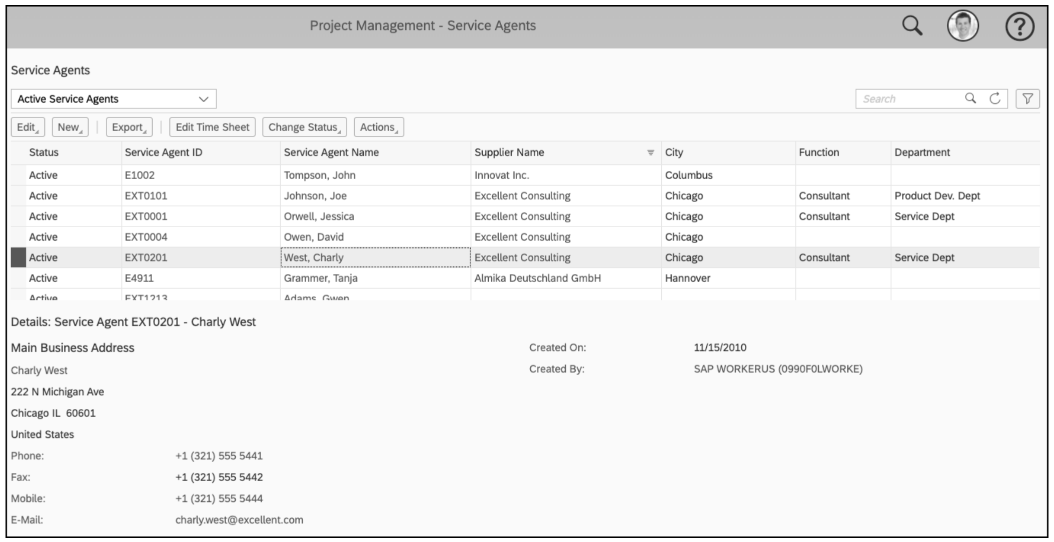


Figure 8.46 Overview of the Service Agent View

The business partner data for service agents contain some basic information you might already know from other business partner types from Chapter 2, Section 2.1 and Section 2.2. Figure 8.47 shows the most important parts.

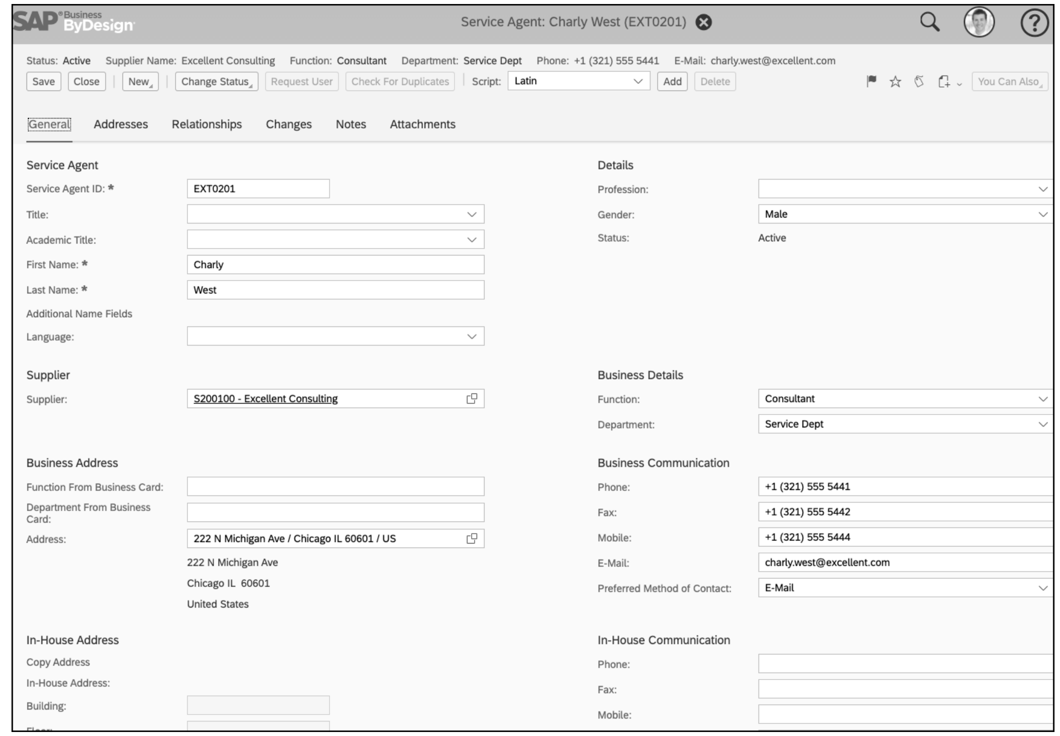


Figure 8.47 Data for a Service Agent

Let's look at some of the important fields on this screen:

- Some basic information like first name, last name, and a service agent ID (if assigned manually in your system) are mandatory.
- For service agents, you can maintain other details such as **Business Address** and **Business Communication** as optional data.
- Important for service agents is their assignment to a supplier from your supplier master data. This link is needed since supplier invoices for project work will be sent from the service agent's company (the supplier), and the system must be able to reconcile recorded times from the service agent with invoices from the supplier.

When working with service agents, a common way to include them in your project execution is to provide them with a system user. Doing so enables them to record their own times on their time sheets easily. Service agent hours undergo project manager approval in standard configuration. The big benefit to having service agent reporting their times in the system regularly with a system user allows you to always report on very recent data. In addition, invoice reconciliation is much easier since the system can verify invoiced hours against the hours recorded by the service agent and approved by the project manager.

8.4.2 Resource Profiles

Within the **Resource Profiles** view in work center **Resource Management**, you can view and edit the list of all internal and external project resources maintained in the system. The view allows you to navigate to dedicated profiles from individual resources in the worklist, as shown in Figure 8.48. This list shows both internal employees and external service agents side by side.

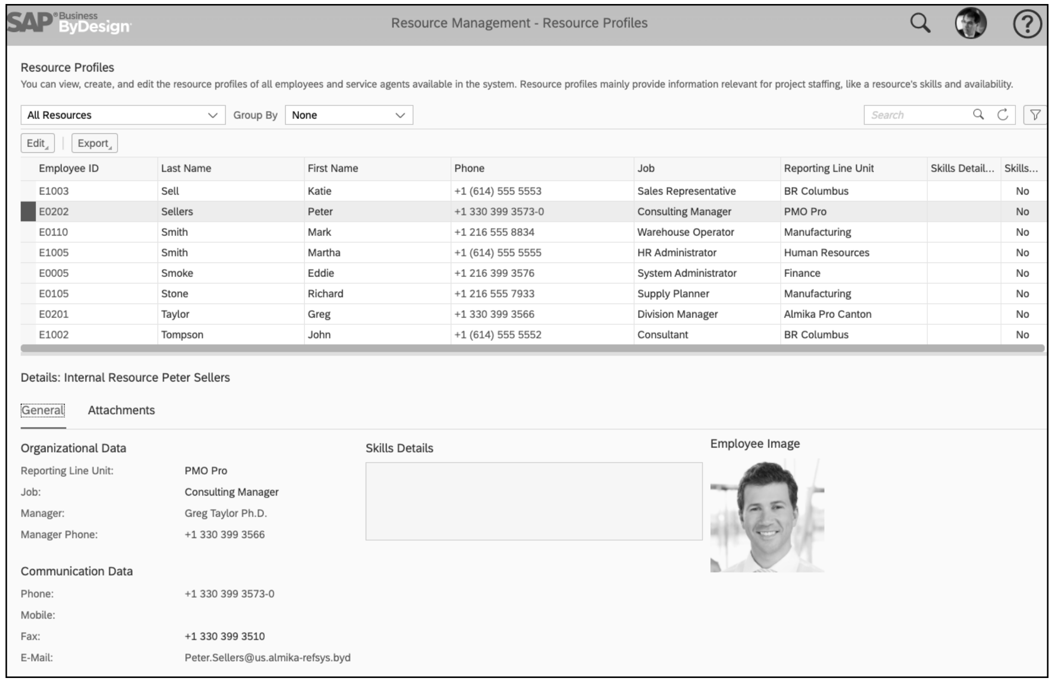


Figure 8.48 Resource Profiles View

The following sections will guide you through the different tabs available for resource profiles.

General Tab

Resource profiles are created automatically when an internal employee is hired or if an external employee is created as service agent in the corresponding work center. As a result, resource profiles are created with basic employment information, and details can be added later. To maintain a resource profile, select the corresponding internal or external employee and click **Edit**, as shown in Figure 8.48. The resource profile will open and show generic information on the **General** tab, shown in Figure 8.49, as follows:

- The **Communication Data** and **Office Location** sections come from the employee/service agent master data and can be entered by employees themselves via the self-service functionality.
- The **Organizational Data** and **Work Agreement Classification** section for internal employees come from the employee master data entered in the **Personnel Administration** work center.
- The **Availability Period for Work Assignment** section shows employment information, such as hire and termination dates.
- The **Cost Rate** is derived from the data for the labor resource maintained in the **Cost and Revenue** work center, in the **Resource Cost Rate** view.

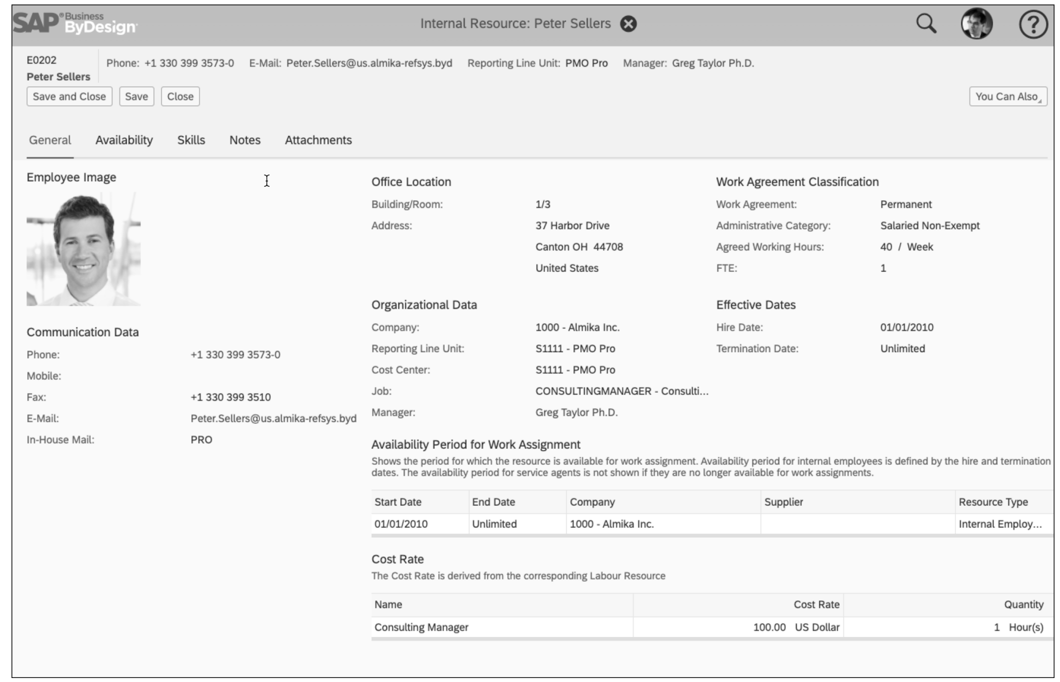


Figure 8.49 Resource Profile: General Tab

Availability Tab

The next tab, the **Availability** tab, shows aggregated information about the resource availability of the selected internal or external employee. In the lower part of the screen shown in Figure 8.50, you'll see a graphical illustration of how the resource is planned for certain projects. Details about how this view works in detail and what information it shows are available in Section 8.4.4.

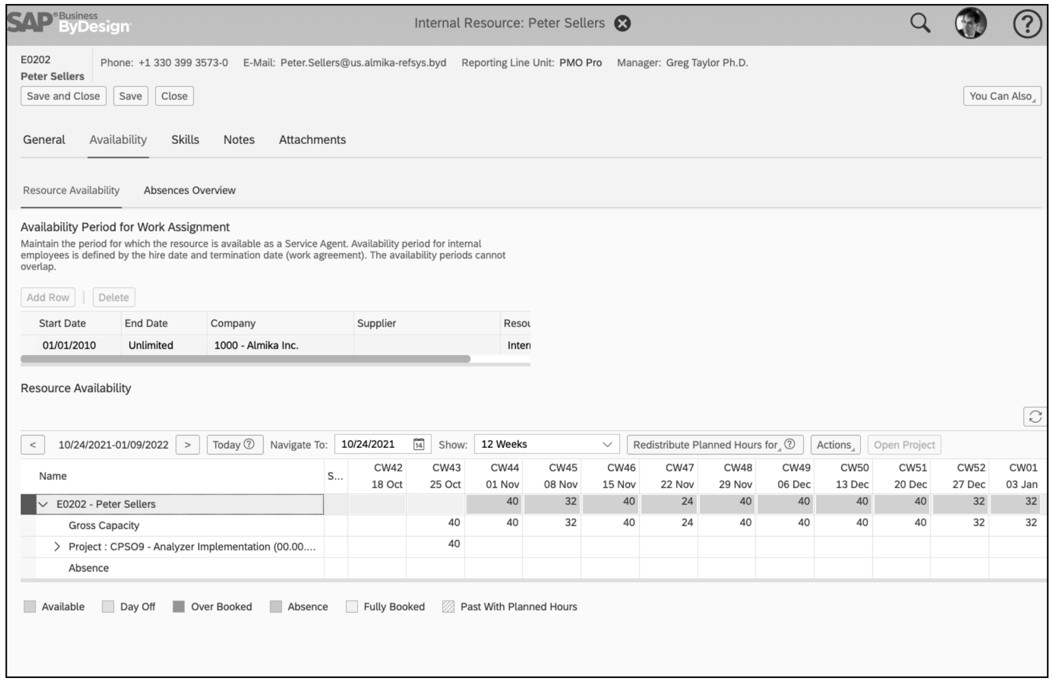


Figure 8.50 Resource Profile: Availability Tab

Skills Tab

The resource profile also contains information about relevant skills of the resource, under the **Skills** tab shown in Figure 8.51. This information will be available for the resource search described later in Section 8.4.4. Three ways are available to store skill information:

- The **Skills Details** field allows you to enter unstructured text with information about available skills. The text may, for example, contain information about soft skills, technical skills, or certifications. Using this field enables much flexibility; however, some kind of (manually enforced) standardization will be needed to make the resource search feature effective.
- Within the **Additional Fields** section, you can define own extension fields for the different skill types you may require via key-user tools. The system allows you to create fields with different data types, such as dropdown lists, text fields, numbers, and so on. Figure 8.51 shows an example created by selecting **Project Management Skills** from the dropdown list.
- Finally, the system allows you to upload files to the **Attachments** tab. You may upload files such as CVs or certificates, which the system may include as full text into the resource search.

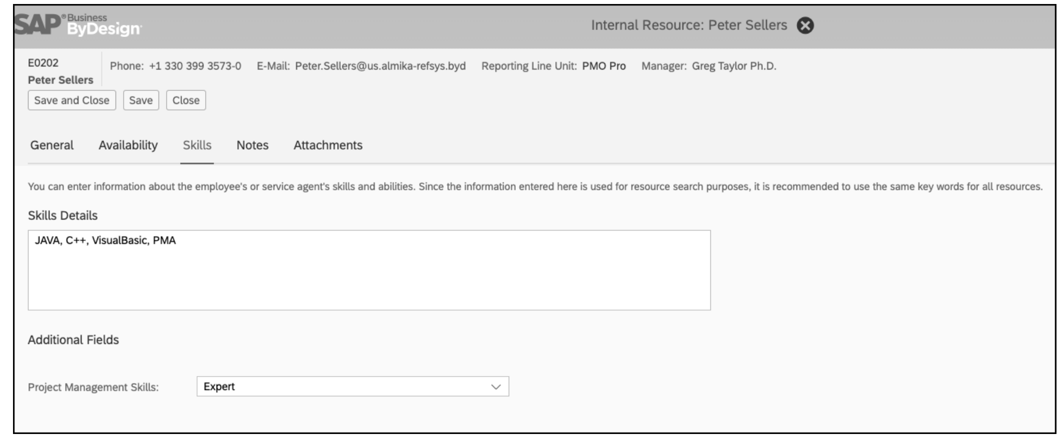


Figure 8.51 Resource Profile: Skills Tab

Now that our resource profiles have been maintained with the necessary information, let's explore how to search for the right resources.

8.4.3 Resource Search

Based on the resource profiles from the last section, you have a great starting point to identify resources which might fit to the resourcing needs of your project. The challenge is now to find the suited resources with the needed skills and given availability according to your project schedule.

Inside the **Project Management** work center, the **Resource Search** view helps you to find the appropriate resources. As shown in Figure 8.52, the system provides many filter criteria to identify resources based on skills, availability, and other information. The resource search allows you to search based on the following criteria, with the flexibility to combine criteria:

- Search based on availability: You can search based on your availability requirements, for example, by maintaining the **Availability (hrs)** and the **Period** fields. Only resources with availability for these parameters will be shown.
- Search based on organizational assignment: You can search using the **Reporting Line Unit ID**, **Job ID**, or **Supplier ID** fields.
- Search based on prior project assignments: You can search by entering a **Service ID** or **Project ID** for which the employee has already worked in past projects.
- Search based on skills details, based on the different options from the **Skills** tab, described in Section 8.4.2.

Figure 8.52 shows the results when we searched for an employee with "Java" skills and an availability of "20" hours in the requested week. The **Availability in Required Period**

(Hrs) field shows the number of available hours in the requested period for each individual resource.

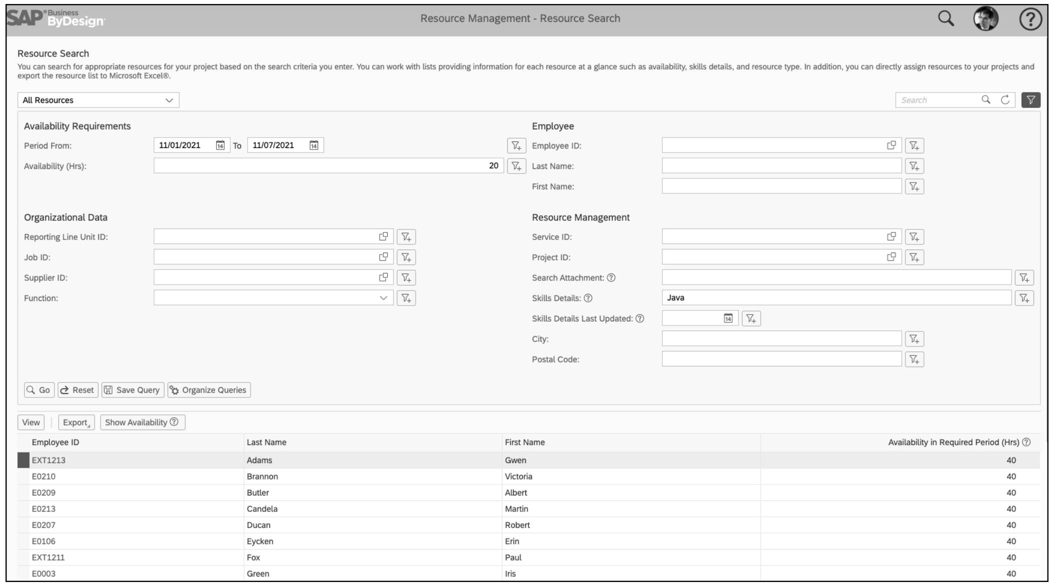


Figure 8.52 Resource Search Based on Availability and Skills

To learn more about the availability of identified resources, as shown in Figure 8.52, select one or more employees and click on **Show Availability** to open the resource calendar.

8.4.4 Resource Calendar and Resource Availability

The integrated resource calendar helps you to identify resource availability and better utilize internal and external employees. The system allows you to manage key resources and determine their availability for projects or if they are overbooked or absent.

The calendar can be used by different users, in different perspectives, and therefore, multiple areas in the system have access to the calendar:

- Project managers can use the tool to staff their own projects and to verify and maintain resource utilization for the project team, from their project under the **Team and Staffing** tab (as described in Section 8.1.3).
- Line or resource managers can verify the resources for which they are responsible and manage their commitments. The **Management Resource** work center allows this use of the resource calendar in the **Resource Search** view.
- Employees can verify their own resource utilization and their assigned projects in **Project Team** work center through the **Resource Calendar** common task.

As shown in Figure 8.53, the resource calendar includes multiple resources. The availability view is displayed the same way as the **Availability** tab described in Figure 8.50. When opened, the resource utilization for each resource is shown on the project level; however, the system allows you to drill down to project task level by clicking on the arrow icon to the left of the project name. The resource calendar shows the information for only one resource or, depending on how you opened it, multiple resources. The view shows the same block of information for each selected resource.

The first line shows the disposable availability of the employee for additional projects and indicates, with different colors, if he or she is available for additional commitments (green), over booked (red), or fully booked (yellow) or has a day off (blue), such as a public holiday or an absence (orange). The numbers in the colored boxes show the remaining (free) availability for additional assignments in positive values. If an employee is overbooked, how many hours over is indicated in negative values.

The **Gross Capacity** line shows the amount of all working hours in the corresponding period. This value indicates how much time is available to be distributed to projects overall. The following lines indicate to which projects a resource already has been assigned and how the assignments distribute to the different periods. As shown in Figure 8.53, one project has been assigned to Peter Sellers in calendar week 43 (40 hours to project CPSO9).

In the last line, the **Absence** line, notice that no entries have been requested, which means that the employee can still be assigned to another project assignment in calendar week 44 and in the following weeks.

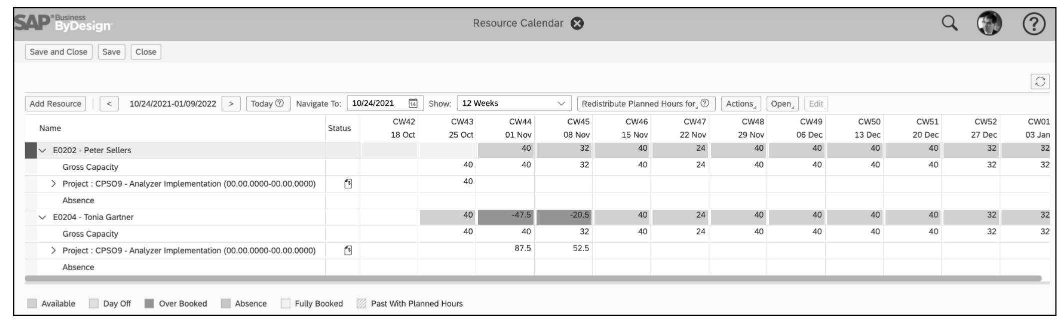


Figure 8.53 Resource Calendar for Two Employees

Information about project assignments and their distribution across the different calendar weeks is based on information found under the **Work** tab within the project plan. Changing the distribution of the hours across different calendar weeks can be performed via the **Work** tab of the project plan or by clicking **Edit**, as shown in Figure 8.53, from the resource calendar (you must select a project line first before the **Edit** button is made active). This step will lead you to the **Manage Work Package Assignment** screen, shown in Figure 8.54, where you can distribute hours across different time frames, thus allowing you to plan more in detail.

If you changed the distribution of hours manually and want to revert these changes, you can reset the values and redistribute the planned hours evenly again with the **Redistribute Planned Hours** action, as shown in Figure 8.53.

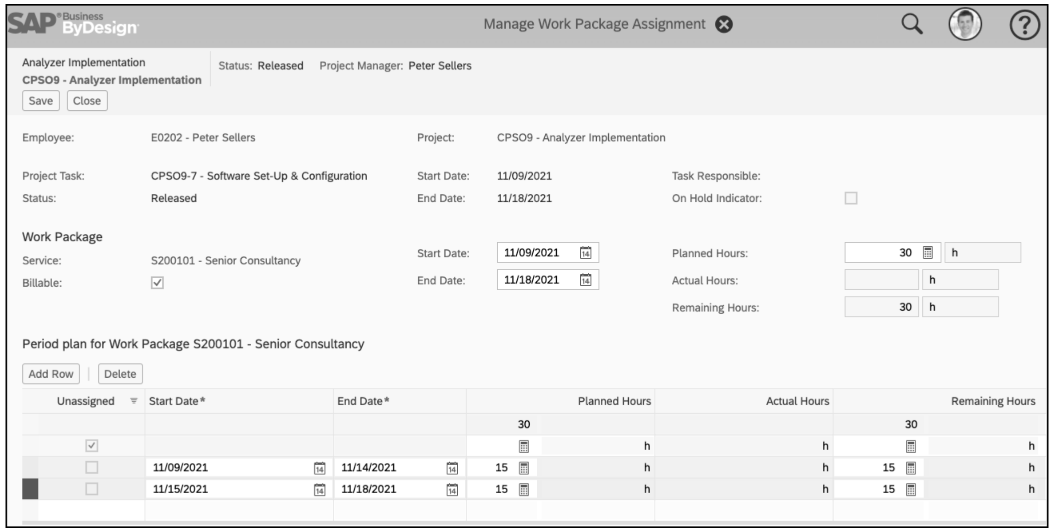


Figure 8.54 Manage Work Package Assignment

Changing the details on the screen shown in Figure 8.54 updates the period plans on the **Work** tab of the project plan. The logic is the same as described in Section 8.1.2.

8.5 Approvals

As a project manager or person responsible for a task, you have the responsibility over the costs booked to your project. With approvals, you can monitor and verify if assigned costs from reported hours, expense reports, and more are justified and belong to your project.

If approval is required for certain time entries or expenses, the related cost bookings are only posted in accounting (and to the project) once they've been approved. Before approval, these elements will not be visible on project reports. To always report the latest data, make sure to approve expenses regularly. Slight differences exist between approving requests from time records, approving expense claims, and approving purchase processes. The following sections will guide you through these characteristics.

8.5.1 Time Recordings

Within the **Project Management** work center, in the **Approvals** view and **Time Recordings** view, you can view time records recorded to your projects and project tasks. You

can approve or reject time recordings by sending entries back to the corresponding internal or external employee. When an internal or external employee records time entries, the system will check, in the defined project settings (Section 8.1.2), if approval is needed for the time entry.

Depending on the approval settings, time entries are sent for approval to the project responsible or the task responsible. In addition, if one or more substitutes have been assigned on the **Team and Staffing** tab, these individuals will get the time entries for approval as well.

Figure 8.55 shows the approval screen for time recordings, which is described in Table 8.18. The screen allows you to approve or reject selected time entries (you can select multiple ones at once). If you decide to reject a time entry, you can enter a reason for rejection, which the relevant team members will be able to see on their time sheets.

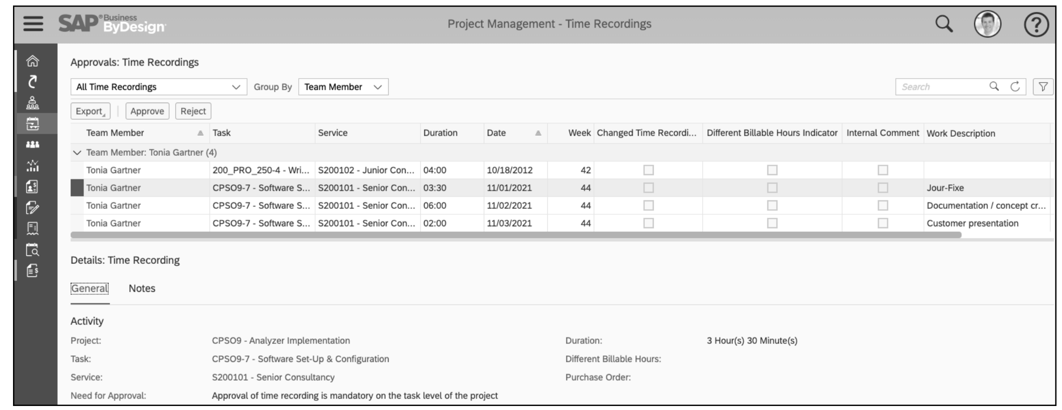


Figure 8.55 Approval View for Time Recordings

Field	Description/Use
Team Member	This field is the name of the internal or external employee reporting the time record.
Task	This field is the referenced task ID of the time record.
Service	This field is the service ID used within the time record.
Duration	This field is duration maintained by the team member for the time record. This duration will be used for booking and valuating internal costs to the project.
Date	This field is the date on which the time recording was made.
Week	This field represents the calendar week of the reported time record.

Table 8.18 Approval View for Time Recordings Fields

Field	Description/Use
Changed Time Recording	This checkbox indicates whether the time record has been recorded as a fresh entry or if this time recording might have been recorded (and approved) earlier but was changed afterwards.
Different Billable Hours Indicator	This checkbox indicates if the team member has maintained a different duration as billable hours.
Internal Comment	This checkbox indicates if an internal comment has been maintained by the team member. You'll find the comment under the **Notes** tab on the screen.
Work Description	This field contains the work description maintained by the team member; for customer projects, this description will be printed on customer invoices within the itemized list.
Need for Approval	This field explains why the time record has been sent into approval.
Different Billable Hours	This field is the duration set by the team member as different billable hours. This duration will be used in the invoicing proposal.
Purchase Order	In the case of external employees, the field will identify to which purchase order time recordings have been assigned.

Table 8.18 Approval View for Time Recordings Fields (Cont.)

8.5.2 Expenses and Purchases

In addition to time entries, expenses and purchases made for the project can also be relevant for approval, depending on business configuration and approval workflows for your system. In the **Expenses and Purchases** view in the **Approvals** view, the following elements can be approved:

- **Travel and expenses**
  Expense reports created by employees will show up for approval if their costs are assigned to a project task.
- **Shopping cart approvals**
  Shopping carts can be accessed via the self-services overview screen as described in Chapter 1, Section 1.2.3 and are created by internal employees. Shopping carts can be assigned to a project task and are sent to the project manager if approvals are activated and the configured thresholds are exceeded.
- **Purchase order approvals**
  Purchase orders created by internal employees and assigned to a project task are sent to the project manager if approvals are activated and the configured thresholds are exceeded.

- **Goods and service receipt approvals**
  If the quantities received/confirmed exceed the ordered quantities from the purchase order, an approval task is created for the goods and services receipt.

Figure 8.56 shows the **Expense and Purchases** view with all open approval tasks for the user. More details are available by clicking the **Subject** line of the corresponding approval task. You can use the **Approve** or **Reject** buttons or the **Send Back for Revision** buttons, for example, if requests have been assigned to the wrong project task) from the overview screen or from the approval task detail screen.

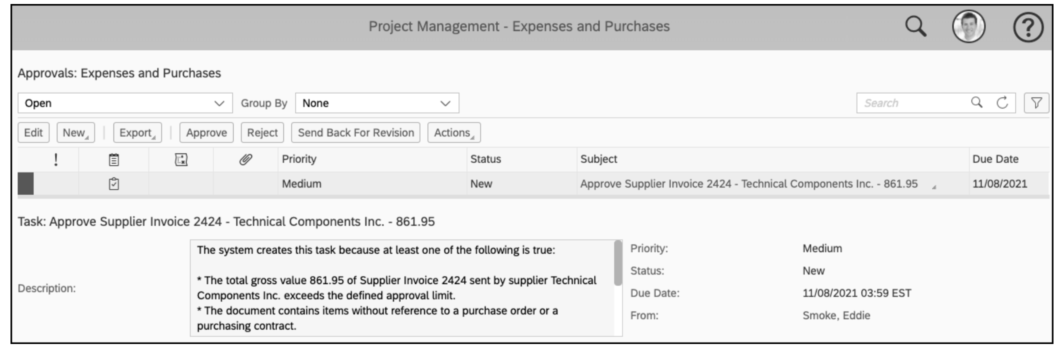


Figure 8.56 Approval Overview for Expenses and Purchases

Figure 8.57 shows an approval task detail screen for a supplier invoice. This screen includes the most important details that are necessary to determine an approval. Approval screens will look slightly different for each type of expenses and purchases described earlier.

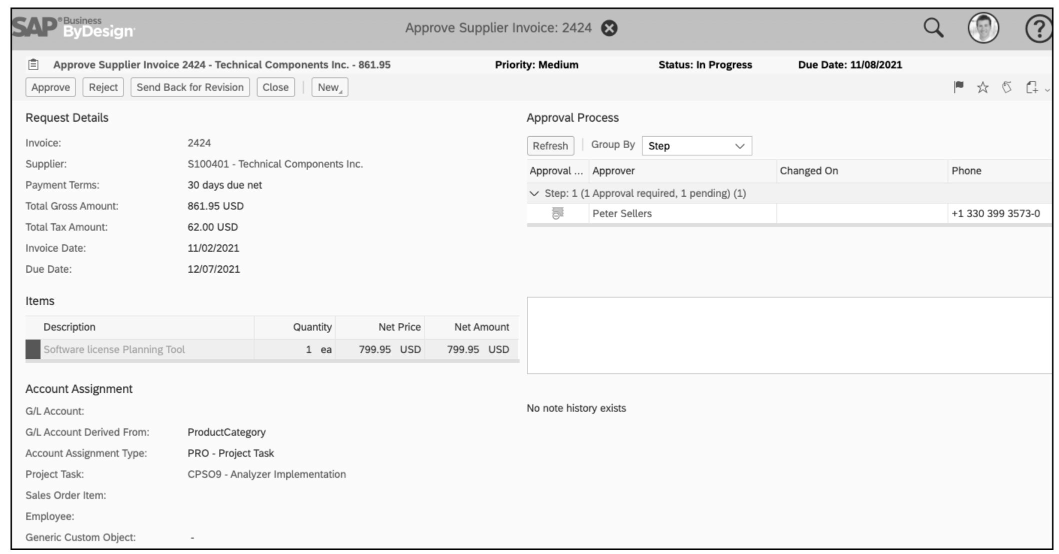


Figure 8.57 Supplier Invoice: Approvals

Approving times, expenses, and purchases within the system is one possibility. In addition, approvals can be handled also using one of the SAP Business ByDesign mobile apps, available from the common app stores. Using the app allows you to keep approvals up to date on the go.

8.6 Change Management

In reality, project plans are not static and always change over time. The system allows you to track changes in planning over time through baseline plans and projects snapshots. Both elements are available from the **Change Management** view in the **Project Management** work center. The next two sections explain these functionalities more in detail.

8.6.1 Baselines

During project execution, unforeseen circumstances and sometimes just even having more information can lead to necessary adaptations in project planning. Additional work packages or materials may be necessary, or additional tasks might need to be added to the project scope over time. Baseline plans allow you to maintain the first planning point during project setup as a reference point. This reference point can serve as a basis for future comparisons and the analysis of deviations via reporting.

New baselines can be created from within the project screen shown in Figure 8.58 by clicking on **New • Baseline from Project**. Depending on your settings in business configuration, the baseline will be created automatically with project start, or you may need to create baselines manually. Baselines can be sent for approval if required by your company. You can create multiple baselines for one project, as different versions; however, only one version can be active at any given point in time.

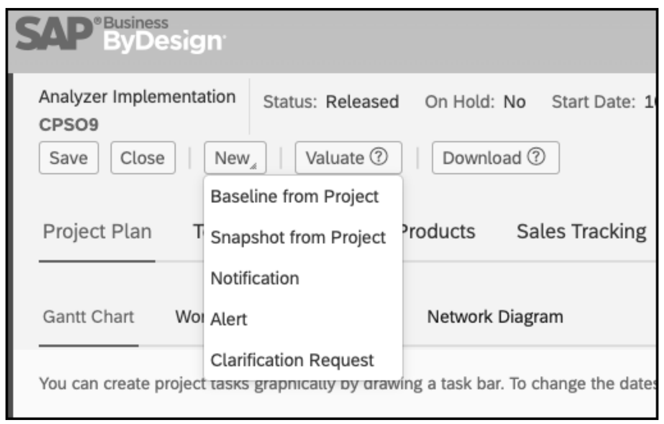


Figure 8.58 Creating a New Baseline from Project

Created baselines can be found in the **Baseline** view in the **Project Management** work center. Figure 8.59 shows the created baseline, where you can see many similarities to the underlying project plan.

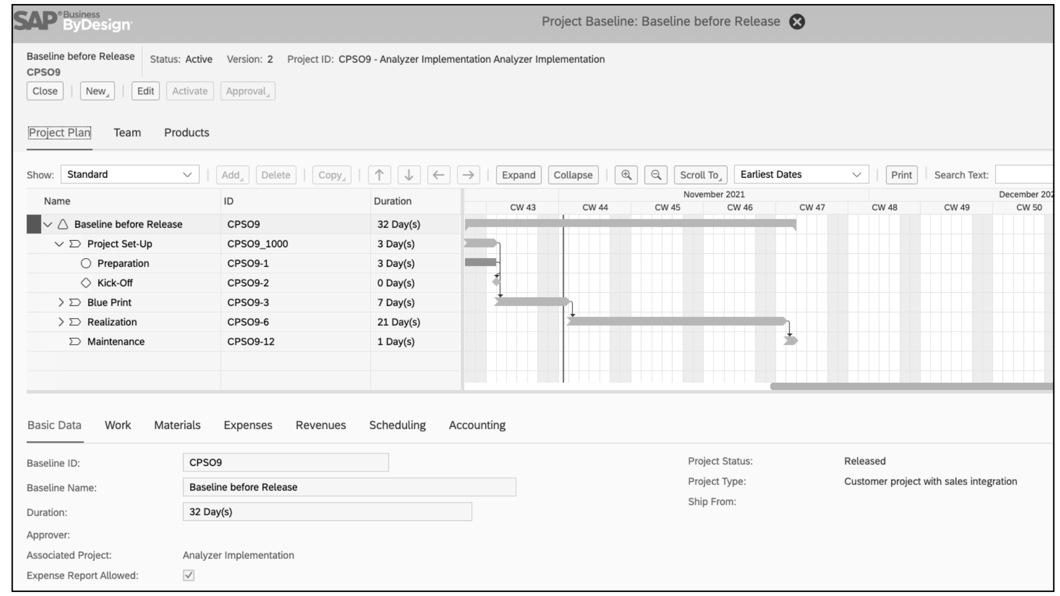


Figure 8.59 Project Baseline for Our Project

The active baseline can be used in reporting and to analyze deviations in planning between the baseline and the current project plan of the project. As shown in Figure 8.60, the Project Variance report displays an updated project plan highlighting occurring deviations.

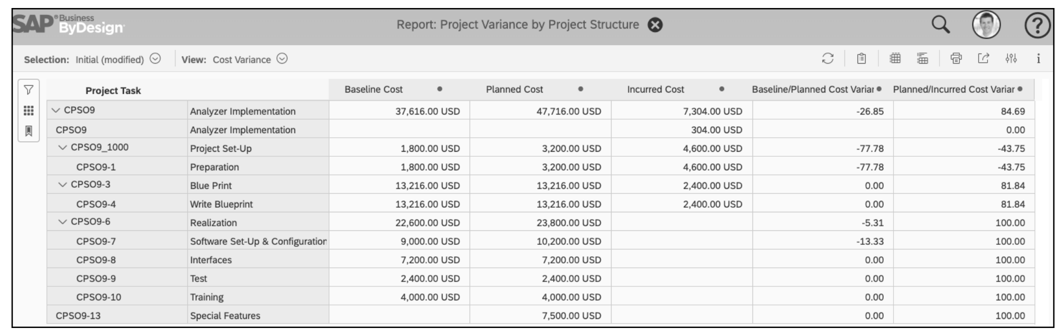


Figure 8.60 Project Variance Report Based on Baseline Data

8.6.2 Snapshots

While baselines are created to have reference points of the initial project plan, snapshots can be used to continuously freeze a project at a certain point in time, for instance, for documentation purposes. Snapshots can be created manually by clicking **Snapshot from Project** (shown earlier in Figure 8.58) or automatically from the system with snapshot runs.

Figure 8.61 shows an example project snapshot in the **Snapshots** view in the **Project Management** work center. While baselines only save data from the planning side (e.g., the project structure and planned values), snapshots also freeze other data such as actuals, attachments, and more.

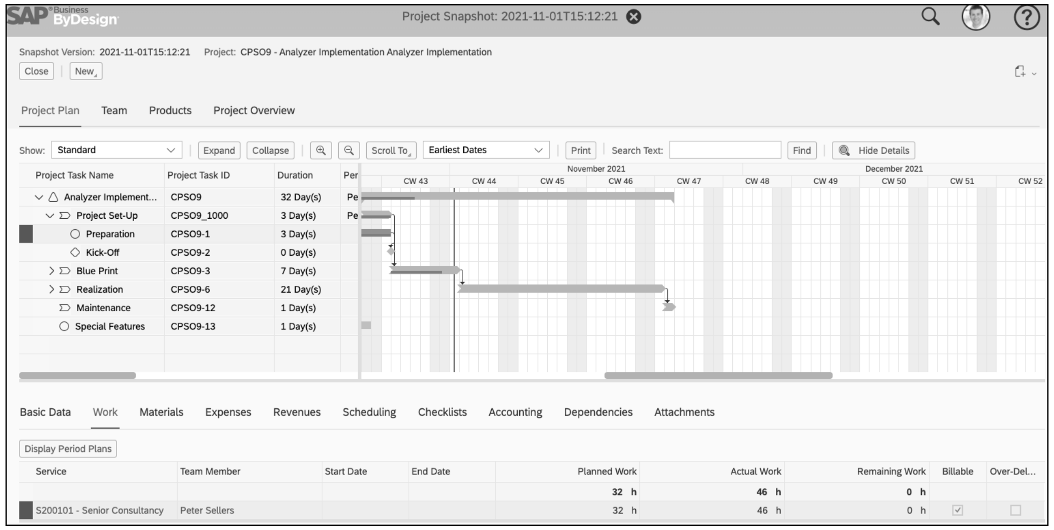


Figure 8.61 Example Project Snapshot

The system allows you to schedule snapshot runs, which will create snapshots automatically based on the settings defined in the run. Snapshot runs can be scheduled for single projects or even for whole project types with your own recurrence schedule. You'll find these settings in the **Project Management** work center, in the **Snapshot Runs** view.

8.7 Invoice Preparation

For customer projects, the system provides comprehensive functionalities for project invoicing in different ways. The project invoicing process explained in this section is only valid for a customer project with sales integration since this project type includes thorough integration with sales orders as the commercial agreement side of the project. Other project types (including multicustomer projects) allow you to sporadically generate revenues by creating manual customer invoices from the **Customer Invoicing** work center, which is a completely different process to the subject of this section.

In this section, you'll learn how to verify not-invoiced time and expense entries and how to prepare them for project invoicing. We'll show you how project invoice requests are created and how to ensure proper and complete project invoices. In addition, we'll look at how automatic project invoicing occurs and how it works with milestone-based billing and for recurring automated project invoicing.

8.7.1 Not-Invoiced Time and Expenses

The starting point for project invoicing is the **Not Invoiced Time and Expenses** view in the **Project Management** work center. This overview screen provides a summary of time and expense items that have not been invoiced to customer projects yet. Only customer projects with linked sales orders are shown in this overview.

The view shown in Figure 8.62 allows you to create new customer invoice requests and to verify all time and expense items that are not invoiced. Depending on your selection criteria, you'll find the corresponding projects and two key figures:

- **Time and Expenses Not Assigned**: To invoice time and expense items, they must be assigned to a sales order item line (so that the system is able to derive pricing and invoicing method). If the sales order is properly linked, the system will derive this assignment automatically where possible. When not possible, you must process assignment manually, and the number of relevant items is visible with this key figure. The correction of the assignment must be performed before customer invoicing, which we'll show you how to do later in this section.
- **Time and Expenses Not Invoiced**: This value is the number of time and expense items that have not been invoiced yet and are ready to be processed during customer invoicing.

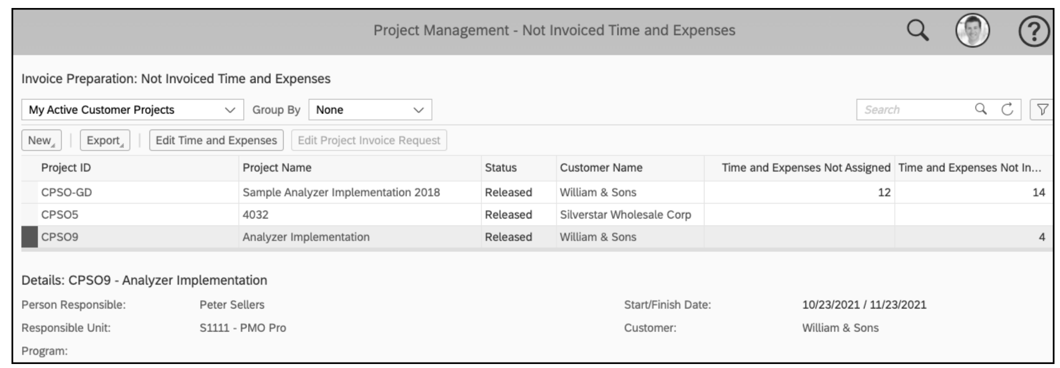


Figure 8.62 Time and Expenses Not Invoiced

Before we dive into creating a customer invoice, let's look into all the time and expense items that have been recorded so far. View the entries shown in Figure 8.62 by clicking on **Edit Time and Expenses**.

Figure 8.63 shows the **Edit Time and Expenses** view, and its fields are described in more detail in Table 8.19. In this area, you can prepare customer invoicing properly and verify details before invoicing.

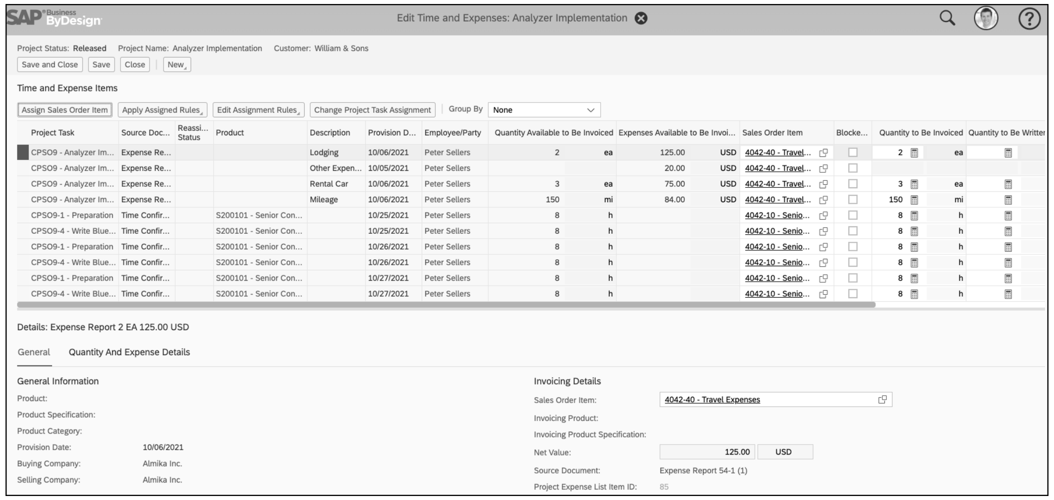


Figure 8.63 Edit Time and Expenses View

Field	Description/Use
Project Task	This field shows the project task for which the entry has been recorded. If time or expense entries are recorded against the wrong project tasks, you can use the **Change Project Task Assignment** function described in Section 8.3.
Source Document	This field shows the source document of the corresponding entry, which might be a time confirmation, expense report, supplier invoice, credit memo, goods and service receipt, or goods issue and goods return.
Product	This field represents the product for which the service is performed.
Description	Especially for expense items, the system shows the expense type in the **Description** field.
Provision Date	This date is the date of service execution or the date of the expense.

Table 8.19 Edit Time and Expenses View Fields

Field	Description/Use
Quantity Available to Be Invoiced	This field shows the quantity available to be invoiced, which is available from the source document. For time confirmations and some other expense types, this quantity is a quantity of billable hours.
Expenses Available to Be Invoiced	This field shows the expenses available to be invoiced, which is available from the source document. This is mostly the case where external amounts have been recorded such as expense items or external supplier invoices.
Sales Order Item	This field represents the assigned sales order item line. As explained earlier, if correctly set up, the system will have the correct sales order item line assigned automatically. If not correct, the assignment can be selected in this field.
Blocked	If individual entries must be clarified before they can be invoiced, you may block them with this field. They will be excluded from invoicing and remain open until the block is removed, at which point they can be invoiced or written off.
Quantity Available to Be Invoiced	The system will propose the quantity available to be invoiced for this field, which can be changed manually, however, as needed.
Quantity to Be Written Off	Time or expense items that cannot be invoiced fully or partially can be written off. Enter the quantity or amount to be written off in this field to get such entries off the list.

Table 8.19 Edit Time and Expenses View Fields (Cont.)

As the project is being executed, time entries and expenses are recorded to the system, which result in costs being booked to the different project tasks. For those costs to be properly invoiced to customers, they must be assigned to the correct sales order item so that the system can derive the right product (for revenue accounting) and pricing (for price amounts and invoicing method). Regardless of whether cost items need to be invoiced or not, a sales order item assignment is always needed. The system will also use this assignment for posting cost deferrals on the correct general ledger accounts.

The system will always try to suggest the correct sales order item of a linked sales order automatically. This assignment can be changed if the assignment was incorrect or if no sales order item could be determined. To trigger such an assignment manually, go back to the screen shown earlier in Figure 8.63 and click the **Assign Sales Order Item** button. This step can also be automated via the function to **Edit Assignment Rules**. Figure 8.64 shows an example how assignment rules can be created and how the system may derive such assignments automatically. Completely explaining the functional principle of these assignments would go far beyond the scope of this section, so we won't go into further detail at this point.

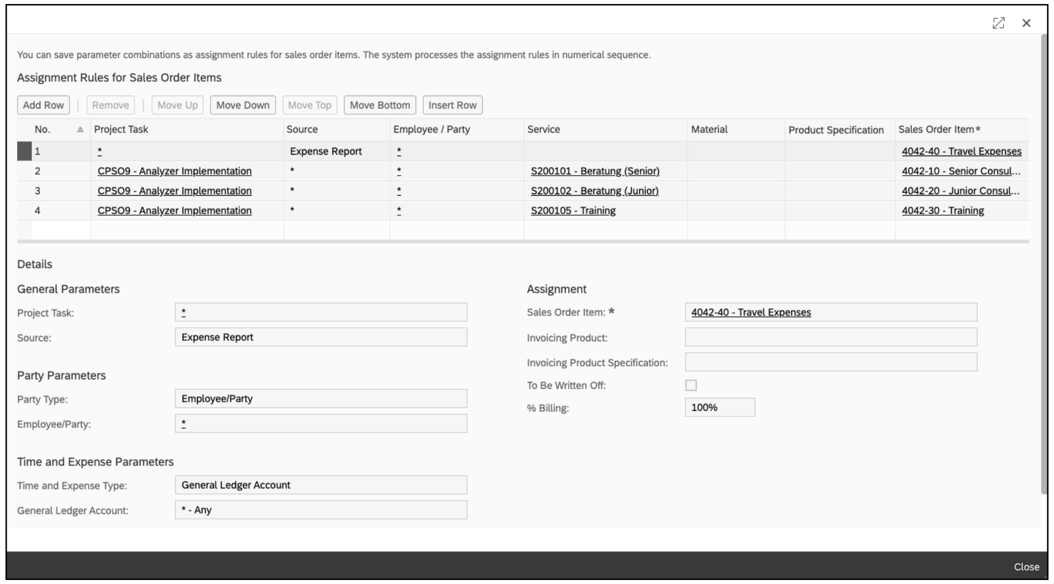


Figure 8.64 Assignment Rules for Sales Order Items

If you change assignments manually and want to reverse back to the assignments proposed by the system, you can select the relevant item lines and click on **Apply Assignment Rules** (as shown earlier in Figure 8.63).

8.7.2 Project Invoice Requests

Project invoicing is started by creating a project invoice request, which is a document containing project-related invoice items in a defined structure that is then forwarded to the customer invoicing team for final customer invoice creation. Typically, the creation of a project invoice request is done by the project manager who can decide the time and expense items that can be invoiced. Project managers can also verify if the entries recorded belong to the project or if anything belongs to a different project.

A good starting point to create project invoice requests is the **Not Invoiced Time and Expenses** view in the **Project Management** work center. As shown earlier in Figure 8.62, select the project to be invoiced, click on **New**, and then select **Automatic Project Invoice Request**.

The system will create a project invoice request proposal for the selected project, which we'll guide you through in the following sections.

General Tab

The **General** tab of the **Project Invoice Request** contains the most basic information necessary for invoice creation. The most important value is the **Sales Order** field, under **Reference Information**, in case you have multiple sales orders assigned to one project.

Based on this value, the system will propose most other information, like business partners or payment information. In addition, you must maintain the **Invoice Date** field and choose an option from the **Restrict Time and Expenses** dropdown list to define certain time frame (e.g., for the last month) or to invoice all open entries. Figure 8.65 shows the entries made for our example invoice, with the most important fields described in Table 8.20.

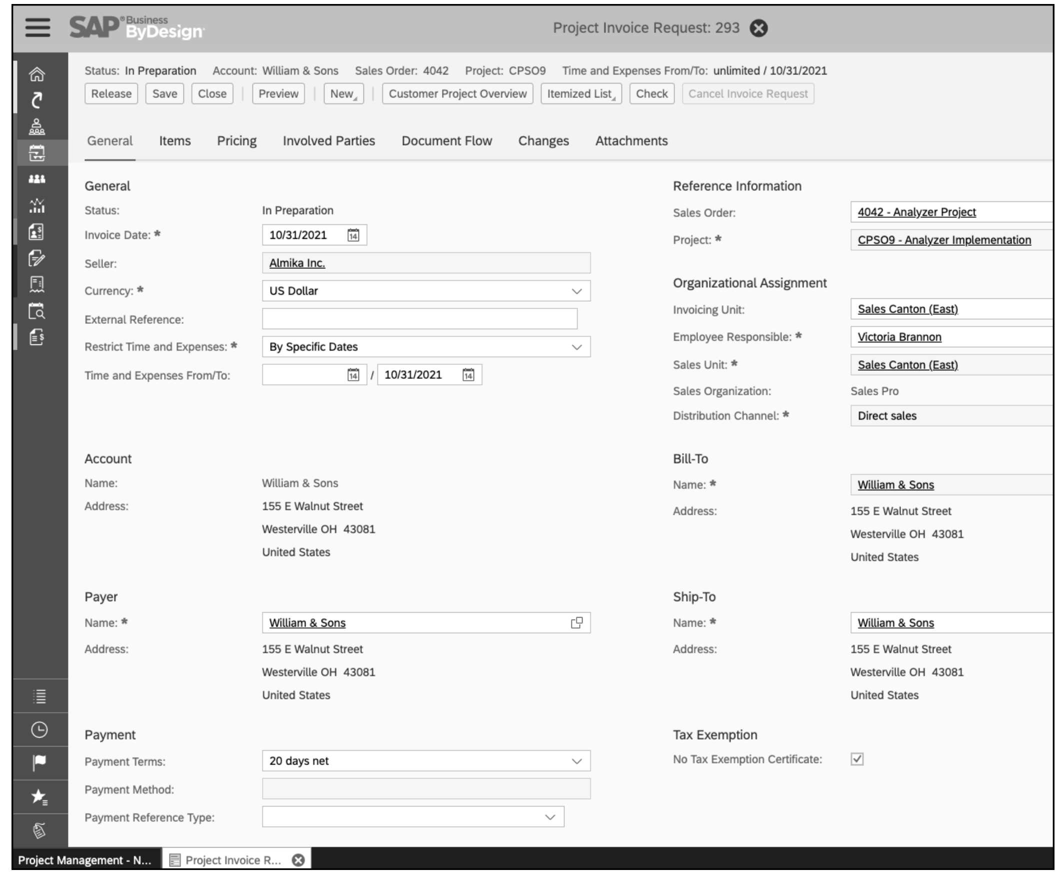


Figure 8.65 Project Invoice Request: General Tab

Field	Description/Use
Invoice Date	The proposed invoice date will be today's date. Make sure you maintain the correct value, which defines the accounting period into which revenues are booked.
Currency	The currency will be carried over from the referenced sales order document, but you can change this field.

Table 8.20 Project Invoice Request: General Tab Fields

Field	Description/Use
External Reference	This field contains the external reference from the referenced sales order. You still can change the external reference for this individual project invoice request.
Restrict Time and Expenses	You can define the period for which non invoiced time and expense items should be selected for invoicing. The following choices are available: ■ **By Specific Dates** ■ **For Last Week** ■ **Until End of Last Week** ■ **For Last Month** ■ **Until End of Last Month** ■ **No Restriction**
Time and Expenses From/To	If you selected the **By Specific Dates** option from the **Restrict Time and Expenses** dropdown list, you can define the period during which the system will select the time and expense items for invoicing.
Sales Order	If a project is linked to multiple sales orders, you can select the relevant sales orders in this field. If only one sales order is linked, the system will automatically propose the right sales order ID.

Table 8.20 Project Invoice Request: General Tab Fields (Cont.)

On the **Project Invoice Request** screen, you can use the action buttons described in Table 8.21.

Action	Description/Use
Release	If all necessary changes are made to the project invoice request, you can **Release** the document to accounting where the project invoice request will be transferred to a final customer invoice.
Preview	This action shows a preview of the resulting customer invoice form.
Customer Project Overview	The **Customer Project Overview** button will open the report customer project overview, described in Section 8.1.6.
Itemized List	This action allows you to create an itemized list containing detailed information about all time and expense entries assigned to this customer invoice request. The list can be created as a new PDF or CSV file and may be sent to the customer along with the resulting customer invoice.
Check	This action allows you to let the system check the project invoice request. If something is wrong, the system will show warnings or error messages at the bottom of the screen.

Table 8.21 Project Invoice Request: Actions

Action	Description/Use
Cancel Invoice Request	If a project invoice request has been released but you need to change it, you can still cancel it by clicking **Cancel Invoice Request**. The time and expense entries will show up again, as not-invoiced items, and you may create a project invoice request with correct values from scratch.

Table 8.21 Project Invoice Request: Actions (Cont.)

Based on your entries, the system will automatically select the time and expense items not invoiced yet suited to the date restriction. To verify these entries, switch to the next tab: the **Items** tab.

Items Tab: Invoice Items

When the **Items** tab is open, as shown in Figure 8.66, the system will show the proposed invoice item lines for the later project invoice.

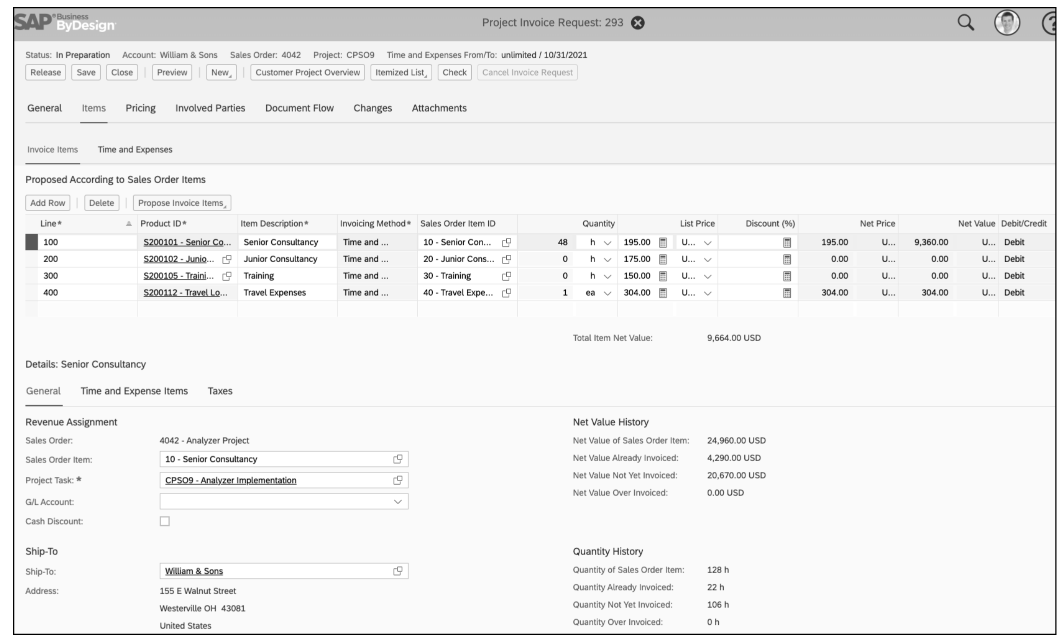


Figure 8.66 Project Invoice Request: Invoice Items Tab

The structure of invoice items is created based on the settings from the sales order header by standard you'll find the items **Proposed According to Sales Order Items**. This standard variant allows you to predefine the invoice structure during sales order creation. Each invoice item relates to a **Sales Order Item ID**, from which it will derive values such as the **Product ID**, **List Price**, or **Discount (%)** fields. Some values can be changed for this individual project invoice request if needed.

In some cases, your customers might want to have invoice items structured differently. By clicking on **Propose Invoice Items** above the line-item list, you can choose one of the variants shown in Figure 8.67. The invoice item structure will then be created once again based on your selection. We recommend changing as little as possible in the item structure to ensure proper invoice creation and revenue accounting.

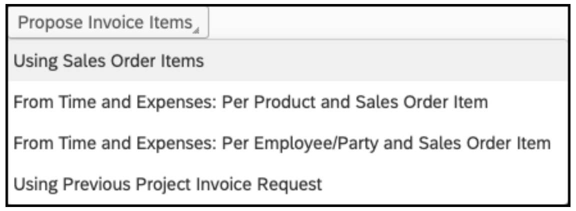


Figure 8.67 Options for Creating the Invoice Structure Automatically

In special cases, you might want to add an additional items manually by clicking **Add Row**; however, you'll need to manually and correctly fill in the different values for the **Product ID** and **Sales Order Item ID** fields, among others.

Table 8.22 will walk you through the different fields available on the **General** tab within the **Items** tab, shown in Figure 8.66.

Field	Description/Use
Sales Order Item	This field repeats the assigned sales order item ID repeated from the table view above.
Project Task	This field shows the project task assigned to the sales order item in the referenced sales order. To this project task, the system will post the resulting revenues for the corresponding amounts.
G/L Account	This field is the general ledger account for booking revenues as defined in configuration. Only if a different general ledger account should be booked would you overwrite the value of this field.
Cash Discount	This field indicates if the customer should get a cash discount on the related amount. This value is copied over from the sales order item from the sales order but can be overwritten.
Net Value of Sales Order Item	This amount shows the initially agreed net value amount from the referenced sales order item. This value is the reference point to see what amount may be potentially invoiced.

Table 8.22 Project Invoice Request: Items Tab Fields

Field	Description/Use
Net Value Already Invoiced	This amount shows the sum of past invoices with reference to this sales order item.
Net Value Not Yet Invoiced	This value shows the remaining net value as the difference between the **Net Value of the Sales Order Item** and the **Net Value Already Invoiced** fields.
Net Value Over Invoiced	If a sales order item has been invoiced for more than agreed, the system will show the net value that has been over-invoiced until now.
Quantity of Sales Order Item	This number shows the initially agreed-upon quantity (e.g., number of hours) from the referenced sales order item. This value is the reference point to see what quantity may be potentially invoiced.
Quantity Already Invoiced	This quantity shows the sum of past invoices with reference to this sales order item.
Quantity Not Yet Invoiced	This quantity shows the remaining quantity as the difference between the **Quantity of the Sales Order Item** field and the **Quantity Already Invoiced** field.
Quantity Over Invoiced	If a sales order item has been invoiced for more than agreed, the system will show the quantity that has been over-invoiced until now.

Table 8.22 Project Invoice Request: Items Tab Fields (Cont.)

As shown in Figure 8.65, we restricted the time frame of selected time and expense items for this project invoice request. As a result, the system assigned the relevant entries to the various item lines, as shown in Figure 8.66, in the **Quantity** field. The system distinguishes two main cases: invoicing based on time and material and invoicing based on fixed prices, which we'll discuss in the following sections.

Invoicing Based on Time and Material

As shown earlier in Figure 8.66, the field **Quantity** is grayed out and cannot be changed manually by a user. The reason for this block is that the **Invoicing Method** for those invoice items is set to **Time and Material** (which is derived from the item type of each sales order item, as described in Chapter 3, Section 3.4.2). In this case, the system will aggregate individual time and expense items for each invoice item and propose the summed quantity to be invoiced. You can verify the details of those entries and change which items should be invoiced and which should not under the **Time and Expense Items** tab, as shown in Figure 8.68.

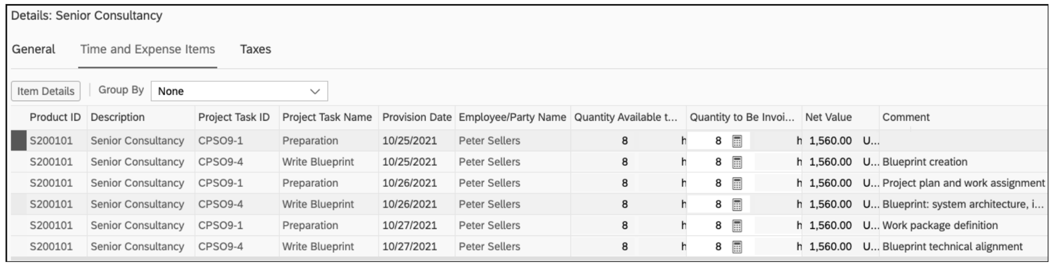


Figure 8.68 Time and Expense Items Tab, Project Invoice Request Items

For each time and expense item, you can verify where the entry is derived with all relevant details. Many additional fields can be viewed in the table view of the **Time and Expense Items** tab, which you can add in personalization mode easily. A detailed view with all information at a glance for an individual entry can be opened by selecting the desired entry and clicking on the **Item Details** button, which will open the detailed information window, as shown in Figure 8.69.

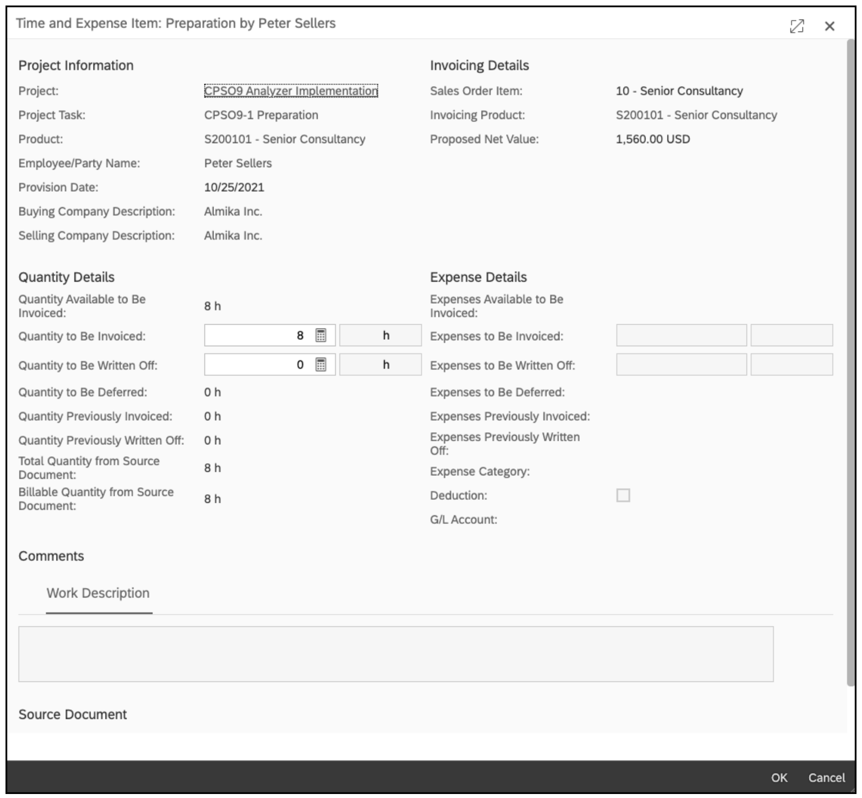


Figure 8.69 Time and Expense Item Details

You should already be familiar with most of the fields on the **Time and Expense Item Details** screen, as shown in Figure 8.69. Note their similarity to **Not invoiced Time and

Expenses** view from Section 8.7.1. Changes made earlier in the **Not invoiced Time and Expenses** view will be applied for the creation of project invoice requests automatically. Still, you're can change **the Quantity/Expenses to be Invoiced or Quantity/Expenses to Be Written Off** values to meet your needs. Values that are not invoiced and not written off will be deferred, which means that they will remain open as **Not Invoiced Time and Expenses** and will be proposed during the creation of the next project invoice request.

Invoicing Based on Fixed Price

For items with the **Invoicing Method** field set to **Fixed Price**, the system will allow you to set the quantity manually instead (as shown earlier in Figure 8.66). Thus, you need to take care of setting the quantity right to the value you want to invoice with the individual project invoice each time manually. The system will propose available fixed price items automatically in the project invoice request, and you must delete item row that are irrelevant to this invoice request.

For cases where the sales order item quantity is not 1, the quantity is relevant for calculation of the net value of the invoice item. The system will multiply the entered quantity with the value in the **Net Price** field. You can change the quantity to what you want to invoice; you can even use negative values to credit the customer for this item.

For cases where the sales order item quantity is equal to 1, the quantity cannot be changed, and the **Net Price** is considered a lump sum. You can invoice the whole amount or partial amounts by overwriting the proposed **Net Price** amount. The item will show up again in following project invoice requests until the **Net Value** has been reached or the sales order item's invoicing status is set to **Finished** manually.

Don't worry that the **Time and Expense Items** tab is also filled with entries for fixed price items. To fulfill fixed price items, usually, some kind of project execution (with time and expense entries) is necessary. These entries should be recorded properly in the system to allow transparent project controlling at the end of the project, thus allowing you to compare incurred costs with invoiced fixed price amounts.

Items Tab: Time and Expenses

Verifying the project invoice request based on the later invoice items provides a good overview on the quantities and amounts being invoiced. If the invoice structure contains many items, a good overview of the individual time and expense items might be difficult to obtain.

The **Items** tab allows you to view the time and expense entries from a different angle: the **Time and Expenses** tab, as shown in Figure 8.70. Under this tab, you can, for example, verify all time and expense entries from a specific person across all invoice item lines. You can change the view to different perspectives by clicking on **Summarize By** and selecting one of following options: **Invoice Item**, **Sales Order Item**, **Product**, **Employee/Party**, **Project Task**, **Calendar Week**, or **Source**.

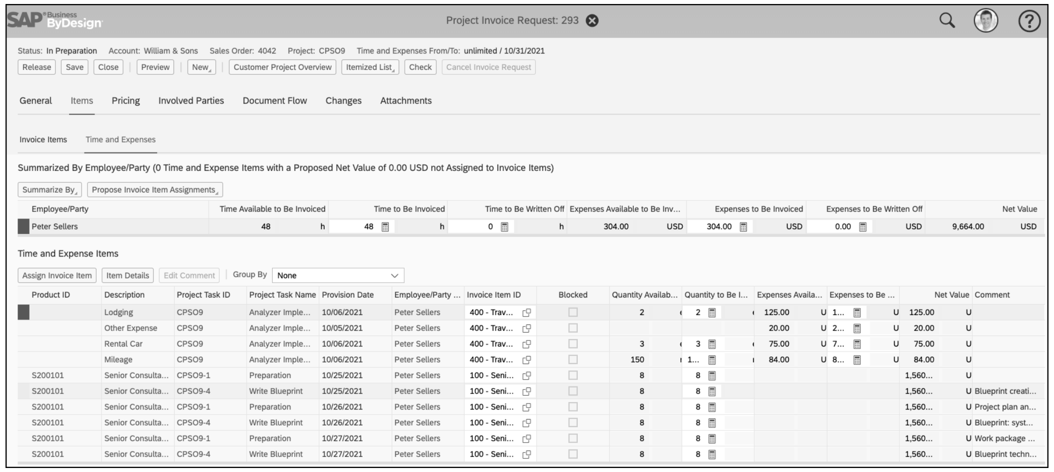


Figure 8.70 Time and Expenses Tab within the Items Tab

On this view, you can also identify whether relevant time and expense entries have not been assigned to an invoice item yet, for example, as shown in Figure 8.71. As outlined earlier, entries must be assigned to an invoice item—without this assignment, the time and expense item cannot be invoiced and will remain open for the next project invoice request created for this project.

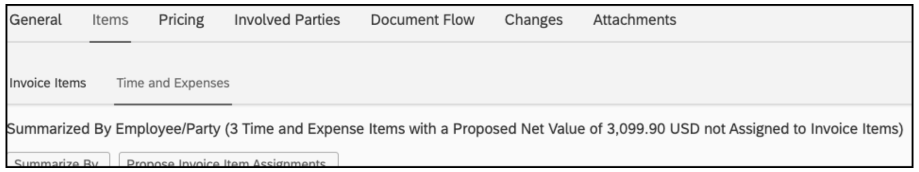


Figure 8.71 Indication That Some Items Are Not Assigned to Invoice Items

To assign a missing invoice item, select the relevant entry from the **Time and Expense Items** list, click on **Assign Invoice Item**, and select the correct invoice item from the list.

Pricing Tab

The **Pricing** tab provides the same functionality described for other sales documents, especially sales orders in Chapter 3, Section 3.4.1, and Section 3.5.

Attachments Tab

Sometimes, you must send documents along with your customer invoices, which you can do under the **Attachments** tab. You can upload documents manually by clicking the **Add** button, or you can let the system create an **Itemized List** (as described in Table 8.21). Documents may be used internally, or you can send them to out to customers along with the invoice document. For this approach, make sure you select the **Include in Output** checkbox for the individual attachment, as shown in Figure 8.72.

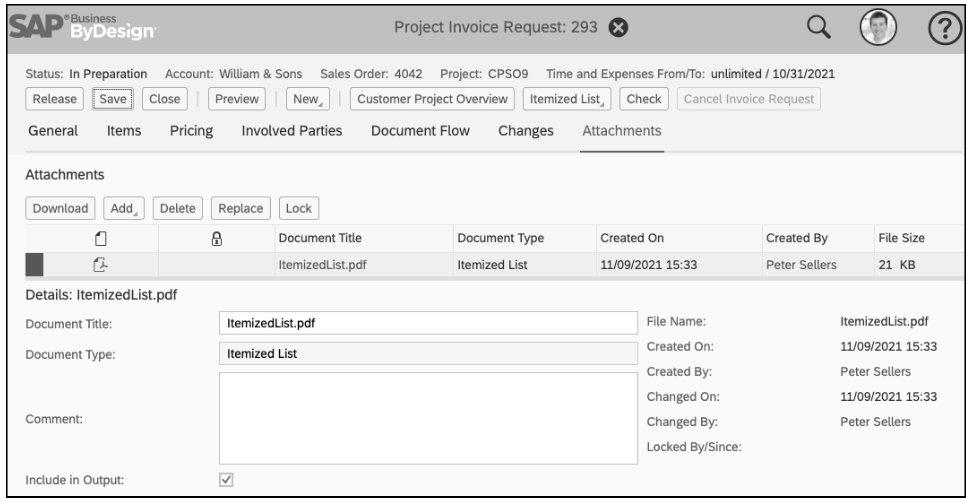


Figure 8.72 Manage Attachments for Project Invoice Requests

Once the **Project Invoice Request** is ready and all details have been adjusted, you can finalize the project invoice request and transfer it to customer invoice creation in the next step.

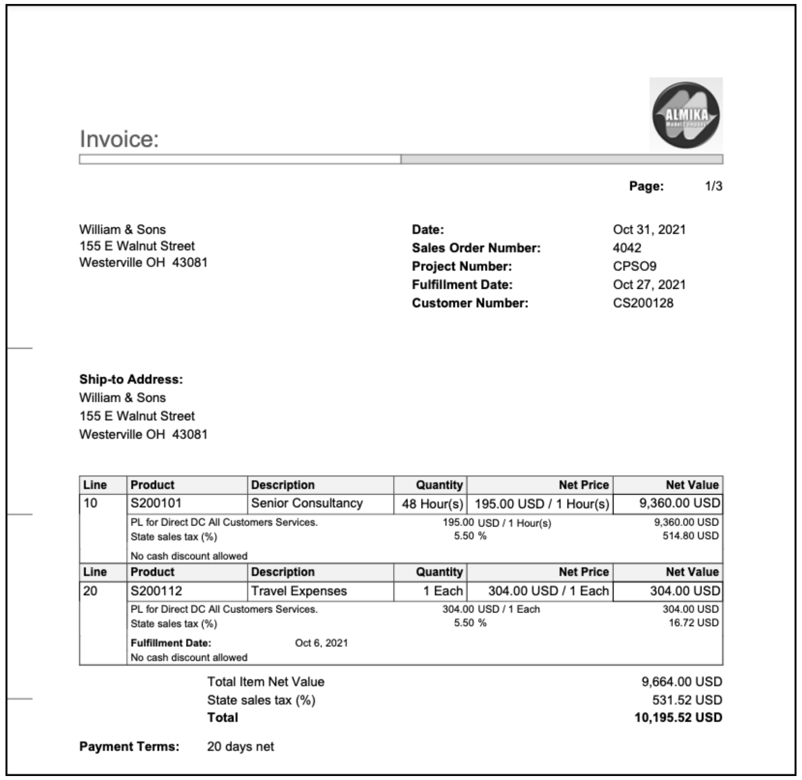


Figure 8.73 Invoice Preview for a Project Invoice Request

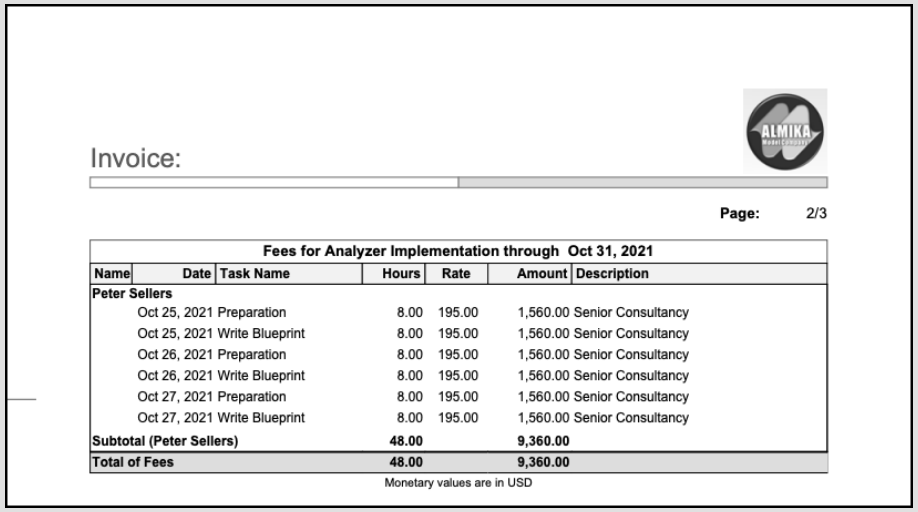
8

First, however, let's look at a preview of the invoice document by clicking on **Preview**. If the project invoice request contains invoice items with a quantity of zero, you must delete those rows from the **Items** tab before calling the preview. As long as items exist with the quantity zero, the system cannot generate the preview document. Figure 8.73 shows an example customer invoice based on a project invoice request.

Tips and Tricks: Handling Itemized Lists

Two ways exist to provide a detailed itemized list along with your customer invoice for projects. The first way was introduced earlier: by creating itemized lists as attachments (see Table 8.21). Another way can be activated in business configuration.

Instead of sending two documents to the customer—the customer invoice document and the itemized list as an attachment, the system allows you to send both in one document. In the **Business Configuration** work center, as an administrator of the solution, you can activate an additional customer invoice form template, which contains the itemized list on subsequent pages of the same invoice document, as shown in Figure 8.74.



Invoice:

Page: 2/3

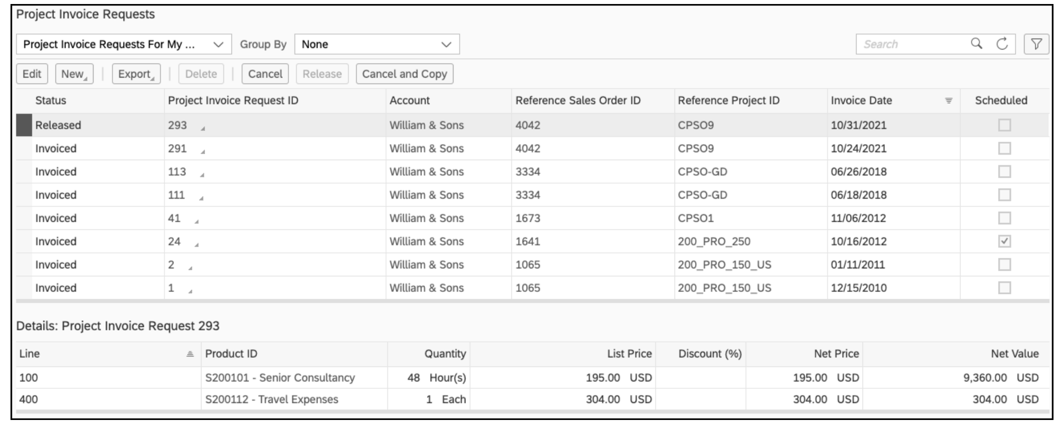
Fees for Analyzer Implementation through Oct 31, 2021						
Name	Date	Task Name	Hours	Rate	Amount	Description
Peter Sellers						
	Oct 25, 2021	Preparation	8.00	195.00	1,560.00	Senior Consultancy
	Oct 25, 2021	Write Blueprint	8.00	195.00	1,560.00	Senior Consultancy
	Oct 26, 2021	Preparation	8.00	195.00	1,560.00	Senior Consultancy
	Oct 26, 2021	Write Blueprint	8.00	195.00	1,560.00	Senior Consultancy
	Oct 27, 2021	Preparation	8.00	195.00	1,560.00	Senior Consultancy
	Oct 27, 2021	Write Blueprint	8.00	195.00	1,560.00	Senior Consultancy
Subtotal (Peter Sellers)			48.00		9,360.00	
Total of Fees			48.00		9,360.00	

Monetary values are in USD

Figure 8.74 Itemized List as Part of the Customer Invoice Document

Once you've verified the customer invoice preview, you can release the project invoice request by clicking **Release**. The project invoice request will be processed further within the **Customer Invoicing** work center, as described in detail in Chapter 9, Section 9.3.1.

You can always check created project invoice requests from the **Project Invoice Requests** view in **Project Management** work center, as shown in Figure 8.75. This overview allows you to verify the status of numerous project invoice requests. As soon as accounting creates a corresponding customer invoice, the status changes to **Invoiced**.



Project Invoice Requests

Project Invoice Requests For My ... Group By None

Edit New Export Delete Cancel Release Cancel and Copy

Status	Project Invoice Request ID	Account	Reference Sales Order ID	Reference Project ID	Invoice Date	Scheduled
Released	293	William & Sons	4042	CPSO9	10/31/2021	☐
Invoiced	291	William & Sons	4042	CPSO9	10/24/2021	☐
Invoiced	113	William & Sons	3334	CPSO-GD	06/26/2018	☐
Invoiced	111	William & Sons	3334	CPSO-GD	06/18/2018	☐
Invoiced	41	William & Sons	1673	CPSO1	11/06/2012	☐
Invoiced	24	William & Sons	1641	200_PRO_250	10/16/2012	☑
Invoiced	2	William & Sons	1065	200_PRO_150_US	01/11/2011	☐
Invoiced	1	William & Sons	1065	200_PRO_150_US	12/15/2010	☐

Details: Project Invoice Request 293

Line	Product ID	Quantity	List Price	Discount (%)	Net Price	Net Value
100	S200101 - Senior Consultancy	48 Hour(s)	195.00 USD		195.00 USD	9,360.00 USD
400	S200112 - Travel Expenses	1 Each	304.00 USD		304.00 USD	304.00 USD

Figure 8.75 Overview of Project Invoice Requests

8.7.3 Work

In the previous section, we described in detail how to create a project invoice request manually. As you learned in Chapter 3, Section 3.4.1, for sales orders, the system allows you to set up invoice schedules to automate the invoicing process. The basis for automated invoicing is built by the same document type—the project invoicing request from the previous section. The only difference for automated invoicing is that the system will create invoice proposals automatically, depending on one of the following cases:

- To schedule the creation of project invoice requests, simply set up an invoice schedule in the underlying sales order document. In Chapter 3, Section 3.4.1, you learned that you can either define specific dates for invoice or set up a recurrence pattern, which might, for example creates project invoice requests regularly at the end of each month.
- Instead of tying invoicing to a specific date, we also described milestone-based billing. If a milestone has been assigned to an invoicing date, the system will automatically create a project invoice request when the project manager completed the assigned milestone.

If invoice schedules have been maintained, project invoice requests are created from a scheduled background run by the system. Depending on your system configuration, the resulting project invoice request may be created some days before the invoicing date (the standard setting is 3 days before).

Project invoice requests created by the system in the background will show up in the **Work** view in **Invoice Preparation** view of the **Project Management** work center. Under **Work**, tasks are generated for each project invoice request. From this screen, you can open a task for verification. Changes are possible, and when all details are correct, you can release them accordingly.

Sometimes, a manual check and release might not be wanted. To avoid this case, the system allows you to set the **Automatic Release** flag in a sales order, within the **Project Invoicing** section of the **General** tab. If this flag is set to active, the created project invoice request will be sent to customer invoicing immediately.

8.8 Summary

In this chapter, you learned a lot about the comprehensive project management functionality in SAP Business ByDesign for internal and customer-facing projects. We guided you through the first steps for a project, starting with project creation, and offered guidance in the different ways project management can be used.

You learned how to plan and calculate projects with regard to work, materials, expenses, and revenues. For project execution, we had a thorough look into time recording, material consumption, and availability planning for internal and external resources.

Finally, we introduced some options for customer invoicing as an integral part of covering the full lifecycle of customer projects.

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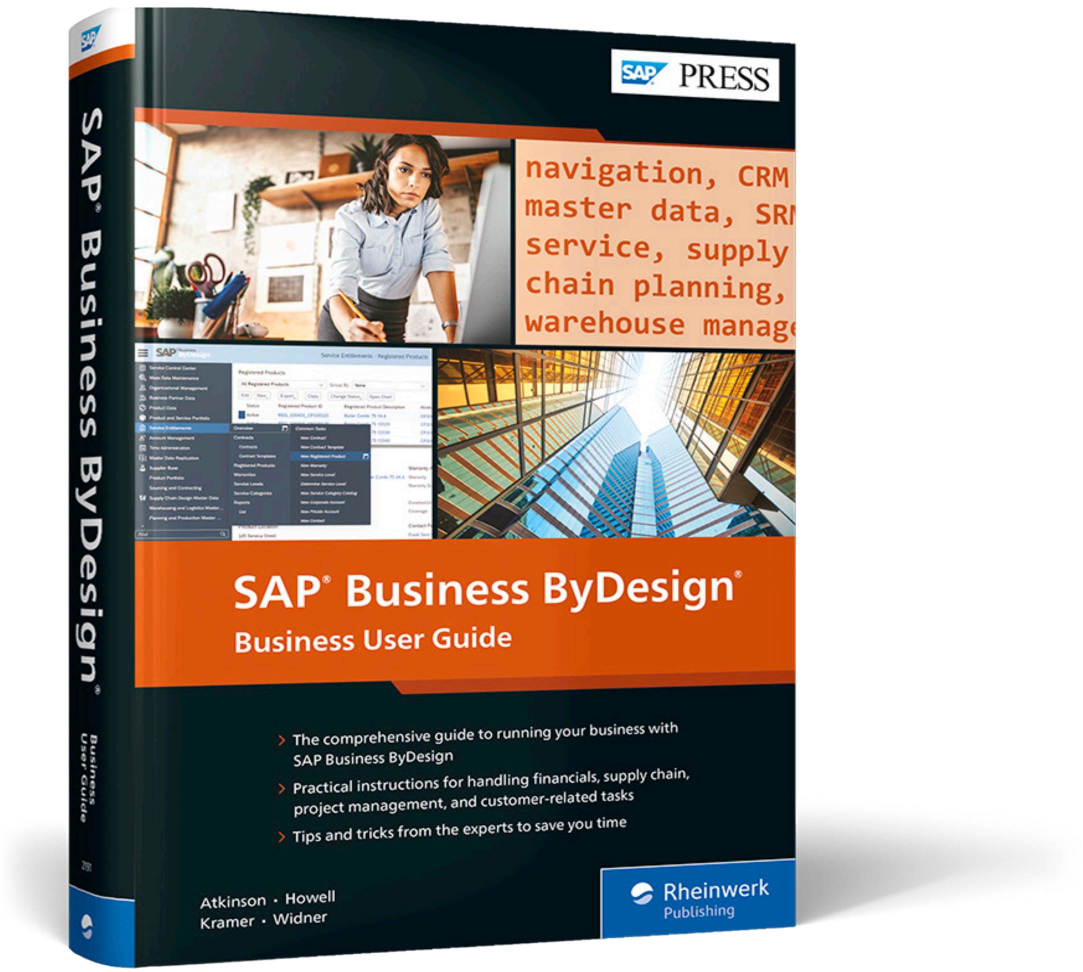

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