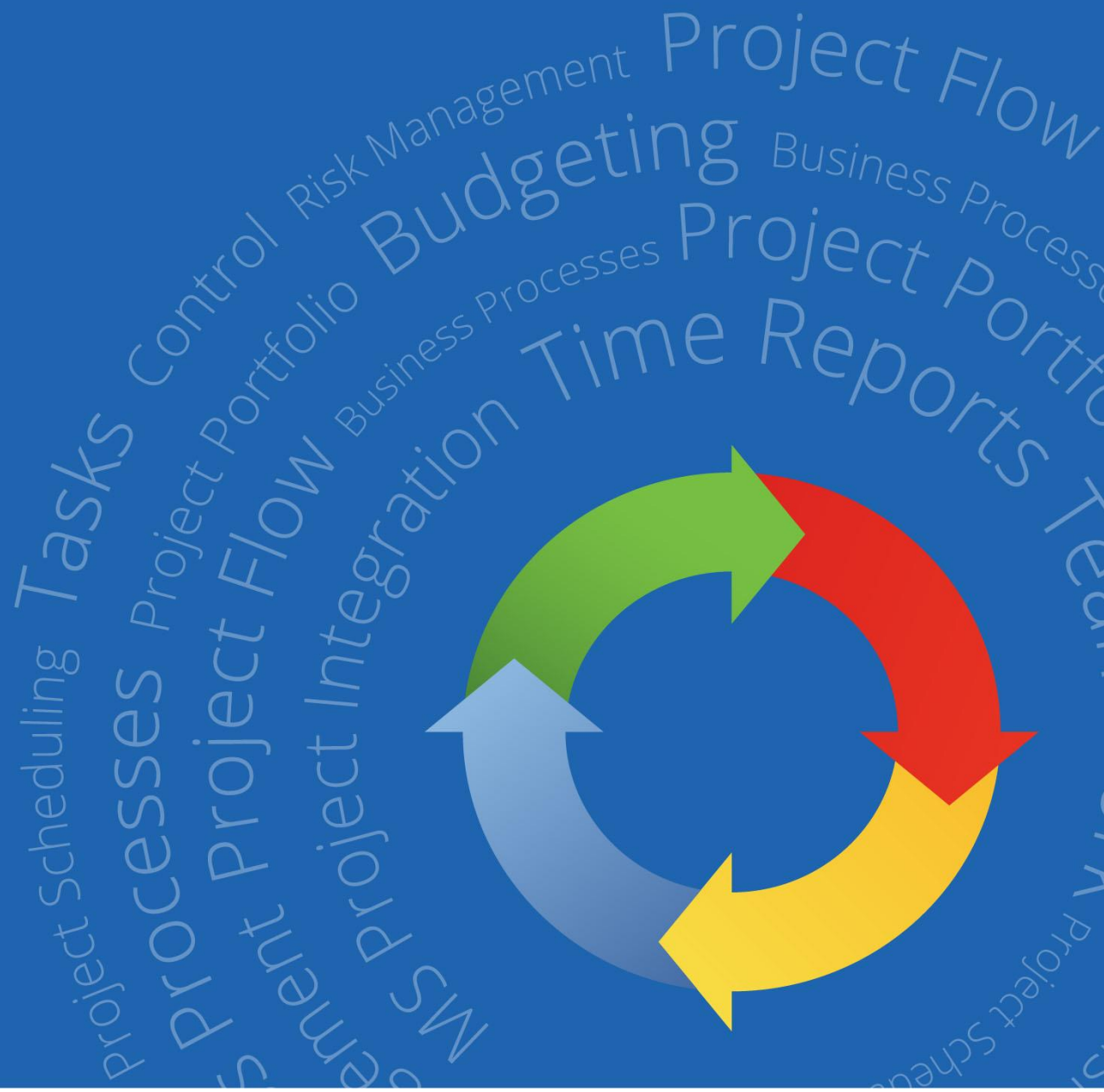
ELMA Projects+

User Manual



Business Process and Performance Management System

Contents

Introduction

This book is a quick-start manual on **ELMA Projects+**, based on **ELMA BPM Platform**. It is intended for those users who want to master **ELMA BPM** on their own and for those professionals who plan to implement this system.

This book is supposed to introduce the user to some basic functions of project management in **ELMA Projects+.**

This book expects the reader to be familiar with **ELMA** functions described in **ELMA BPM Platform** quick-start manual. **ELMA** is supposed to be configured for working with **ELMA Projects+ Application**: organizational structure and users are set (learn how to do that in **ELMA BPM Platform** quick-start manual).

Below is the full list of **ELMA** quick-start manuals:

- User Manual of **ELMA BPM Platform**
- User Manual of **ELMA Web Portal**
- User Manual of **ELMA ECM+**
- User Manual of **ELMA CRM+**
- User Manual of **ELMA Projects+**
- User Manual of **ELMA KPI**

ELMA Help provides a detailed description of system functions and settings.

This is a tutorial rather than a reference guide and it helps users to fully understand main **ELMA** settings and functions. This book introduces the users to **ELMA** step-by-step.

Chapter 1. ELMA Projects+

ELMA Projects+ provides tools for project progress monitoring, project resource management (human, time, material), establishing communications between team members, etc.

The following three components are most important for projects to progress:

- End product **quality**;
- **Due dates** for all the activities;
- **Project budget**, that is always limited.

When you **manage a project**, you set and achieve specific goals and to do so, you balance the amount of work, resources (such as money, labor, supplies, energy, space, etc.), time, quality and risks.

Generally, project management includes:

- Setting project requirements;
- Setting a specific, achievable goal;
- Balancing contradictory requirements on quality, contents, time and costs;
- Adjusting characteristics, plans and approaches to personal opinions and expectations of team members;
- Monitoring the project progress in accordance with a plan. Adjusting the project progress in accordance with possible deviations.

A project manager is the person responsible for achieving the project objectives; it is important for him to be experienced and skilled. No software can completely replace a good project manager; however, it can help him or her organize a shared information space in order to solve day-to-day tasks (e.g. draw a Gantt chart) and save time for the manager to solve nontrivial tasks.

ELMA Projects+ allows its users to cope with the following tasks:

- Managing project schedule;
- Organizing a shared information space on the project;
- Communication between the team members;
- Managing project budget;
- Informing the team members on the project progress;
- Managing project risks.

Chapter 2. Project Management

Project activities include many aspects, such as planning the project, the budget and the schedule; managing project resources and constraints; quality control, etc. These also apply to portfolio management (managing multiple projects simultaneously).

Companies that do not use project management software usually face following problems:

- The project information is scattered or not taken down at all: for example a project plan can be kept on track in a software; project documents are saved locally without versioning; telephone is used for communication and agreements results are not recorded;
- Project budget is maintained separately and is not attached to the project;
- Versioning of project plan and project budget is not maintained and it is difficult to track changes;
- Control of project progress and project activities schedule is not clearly defined;
- Resource management is not systematic, resource load is not controlled;
- Project management organizations have many similar, same-type projects, and you have to make a plan, a budget, risks, etc. from the ground up every time.

ELMA Projects+ helps solving those and many other problems.

As soon as the application is installed, your company receives a ready-to-use tool to manage project activities. It allows:

- **To create a project schedule**. The system provides you with all the tools you need to manage schedule and project completion rate with project scheduling. ELMA schedule is compatible with MS Project schedule. Learn more about planning projects in **Chapter 3.**
- **To organize a shared information space.** A project manager has all the project management tools in the same place: general project information, project schedule and project tasks, team member notes and task discussions, budget and project risks, project documents, etc.
- **To control project progress**. **ELMA** assigns tasks to the executors, according to the project plan. Project schedule is monitored in real-time mode, and you can see task completion rate in the project plan at any time. Learn more about project progress control and monitoring methods in **Chapter 4**.
- **Communication between project team members.** The system allows you to organize timely information exchange and protect confidential information.
- **To manage project budget. ELMA** allows you to manage project revenues and expenses item-by-item. Each project has its own set of items, positions and planned

values. Real values are accounted according to actual documents. Learn more about budget management in **Chapter 6**.

- **To restrict access to business information. ELMA** allows you to configure access to project information resources (general project information, documents, and budget data). You can grant access to those team members, who need it to carry out their responsibilities on the project.
- **To manage risks.** You can find the list of risks on the project page. You can set priority for each risk to underline its importance. Learn more about risk management in **Chapter 6**.
- **To manage resources.** The system allows you to monitor different types of resources (human, technical, material), plan their usage at different project stages in order to avoid lack or overload of resources. Learn more about resource management in **Chapter 6**.

These functions allow you to solve all the problems, mentioned above.

Think about a project management organization – a construction company. Construction of each object is a separate project. These projects vary greatly by types of construction. At the same time, you can break all the projects down into categories: commercial construction, civil construction, etc. Projects of a particular category have similar properties: project stages, risks, set of documents, etc. Templates help you avoid creating similar elements for every project of the same category.

ELMA takes this idea to the next level: it automatizes the work with typical projects by using business processes and the system unique functions. It is possible with the **Projects Conveyor**: projects conveyor settings are described with an example in **Chapter 6**.

Projects conveyor lowers expenses on typical projects, risks and integration of information and enhances interactions between team members.

Organizations distinct **external projects** (oriented towards external customer) and **internal projects** (oriented towards developments within the organization). With **ELMA,** you can manage external and internal projects in the same system, but by different rules. You can set up display of deadlines, budget and risks management on external projects for the project manager with the projects conveyor (para. **6.1. Configuring the projects conveyor**). Internal projects focus on the project plan execution and resources spent on project realization. Basic principles of projects conveyor setup for internal projects are described in **Chapter 7**.

To begin working with **ELMA Projects+ Application** we will create a project. You can manage untyped projects in the application as soon as it is installed. **Projects conveyor** is described in the following chapters.

Chapter 3. Creating a Project

To create a new project log in to the system as admin. Find and click **Projects** in the left menu – **ELMA Projects+** page opens (fig. 1). Note, that **Projects** section is available by default only to the administrator. Other users must be included to **Team members** groups in order to have access to the section.

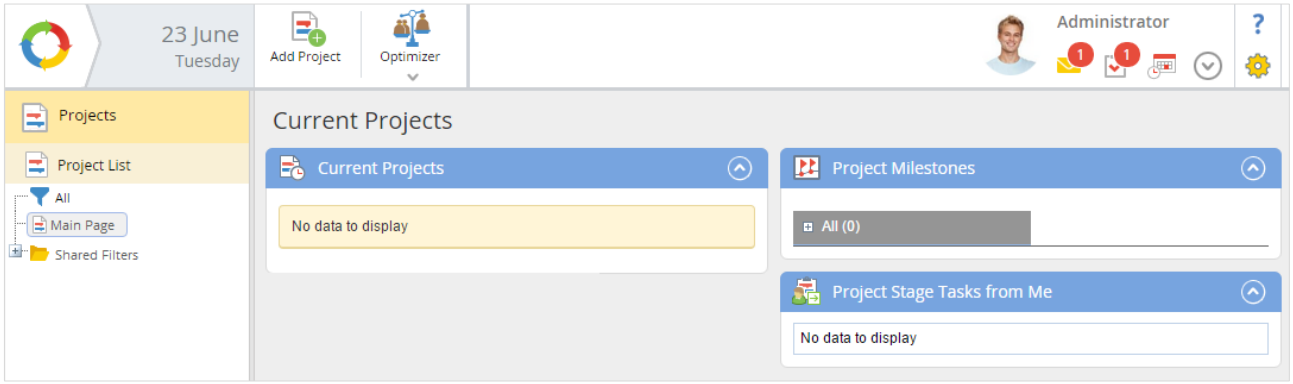


Fig. 1. Application page

After you click **Add Project** in the top menu, the project creation page opens. You need to enter the general information about the new project there (fig. 2).

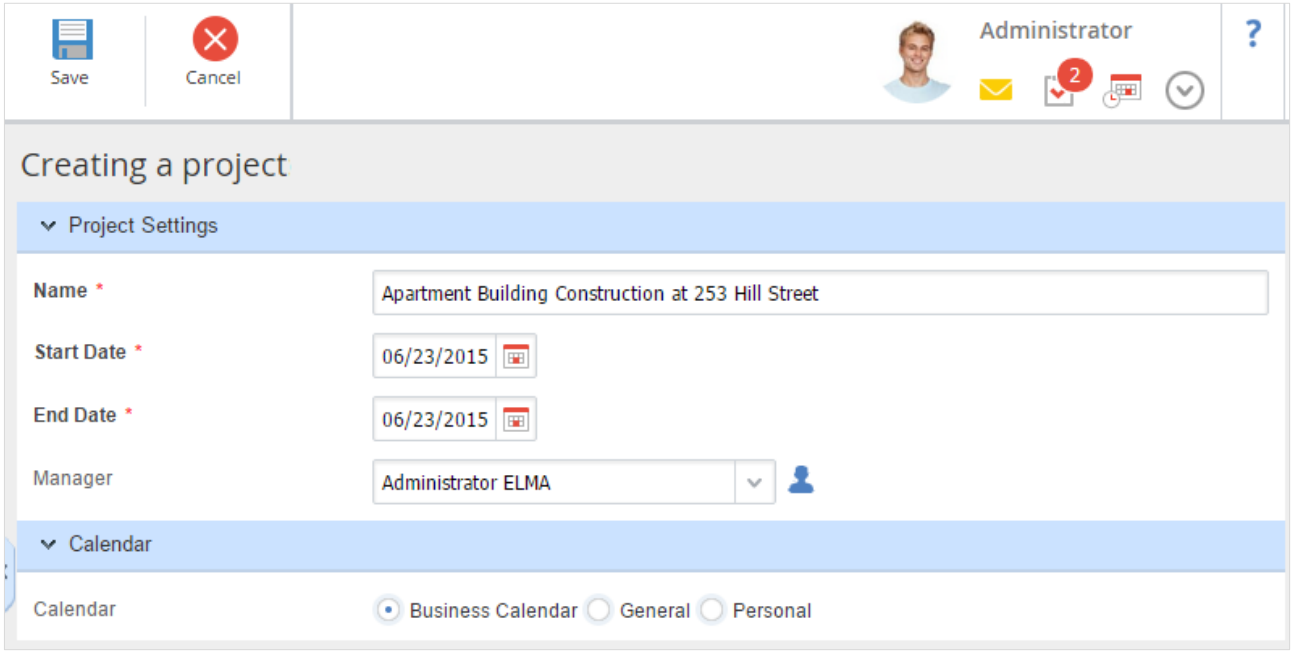


Fig. 2. Project creation page

Enter the name of the project, start and end dates. Leave the other fields unchanged.

If the project plan has already been created in **MS Project** and you need to import it to **ELMA** select **Save and import** button in the top menu (fig. 2).

3.1 Integration with MS Project

After you have selected **Save and import**, project import first step page opens. Click **Load File** button to select an MS Project file with a project plan. After you have selected the file, its name is displayed to the right of the button (fig. 3).

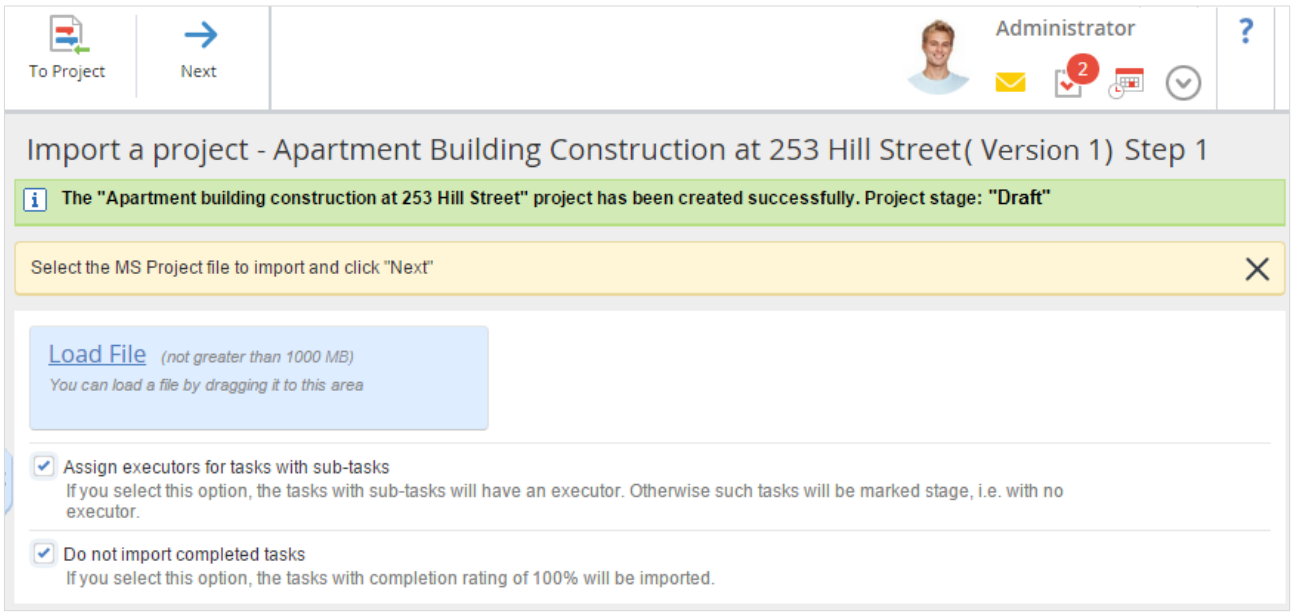


Fig. 3. Project import. Step 1

Click **Next** to continue project import.

The next step displays detailed information on the project import (fig. 4). You can find the tasks list of the MS Project plan in the **Tasks without Executor** tab. If a task executor was added to the **Resources** in MS Project, they will be displayed in the **Executor (MS Project)** column. At this step, you can assign task executors. We will do it later, when editing project plan. Press **Next**.

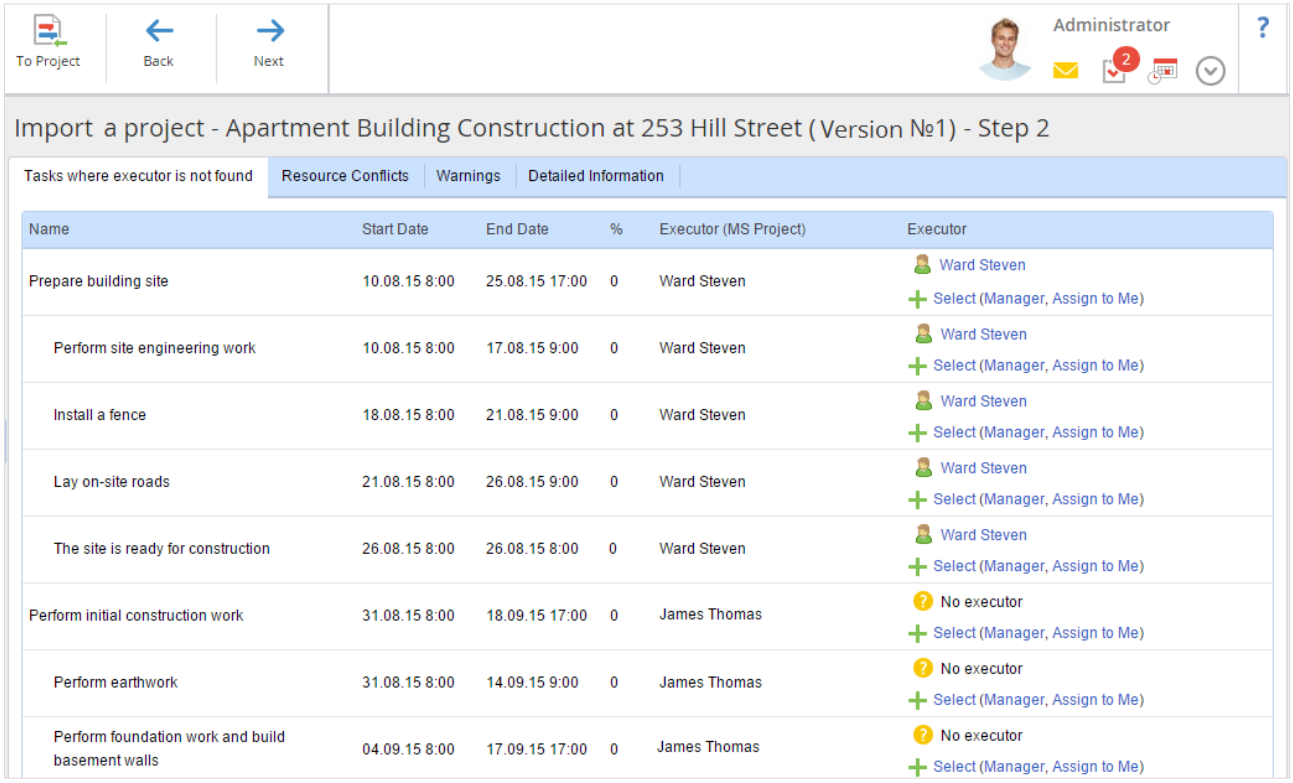


Fig. 4. Project import. Step 2

The next step is a plan preview. The plan will be created in **ELMA** (fig. 5).

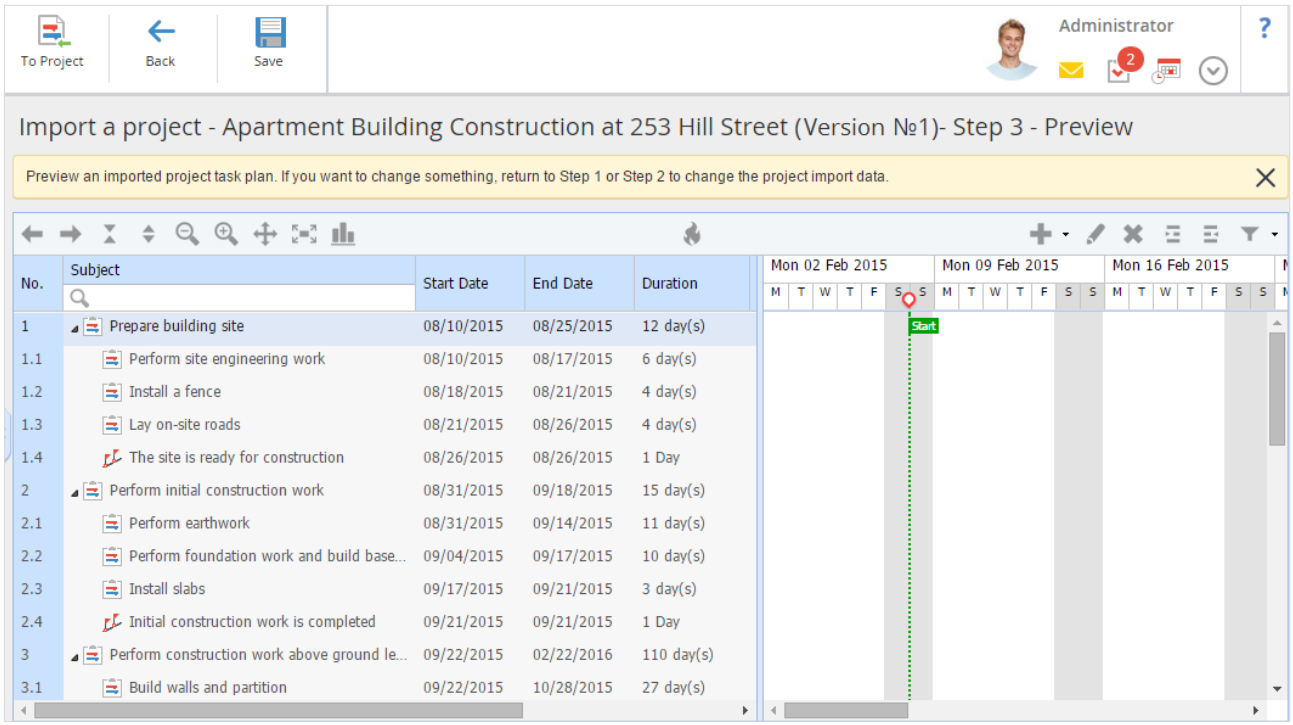


Fig. 5. Project import. Step 3

Click **Save** button to complete importing and creating the project. After you have done this, the imported project plan page opens (fig. 6).

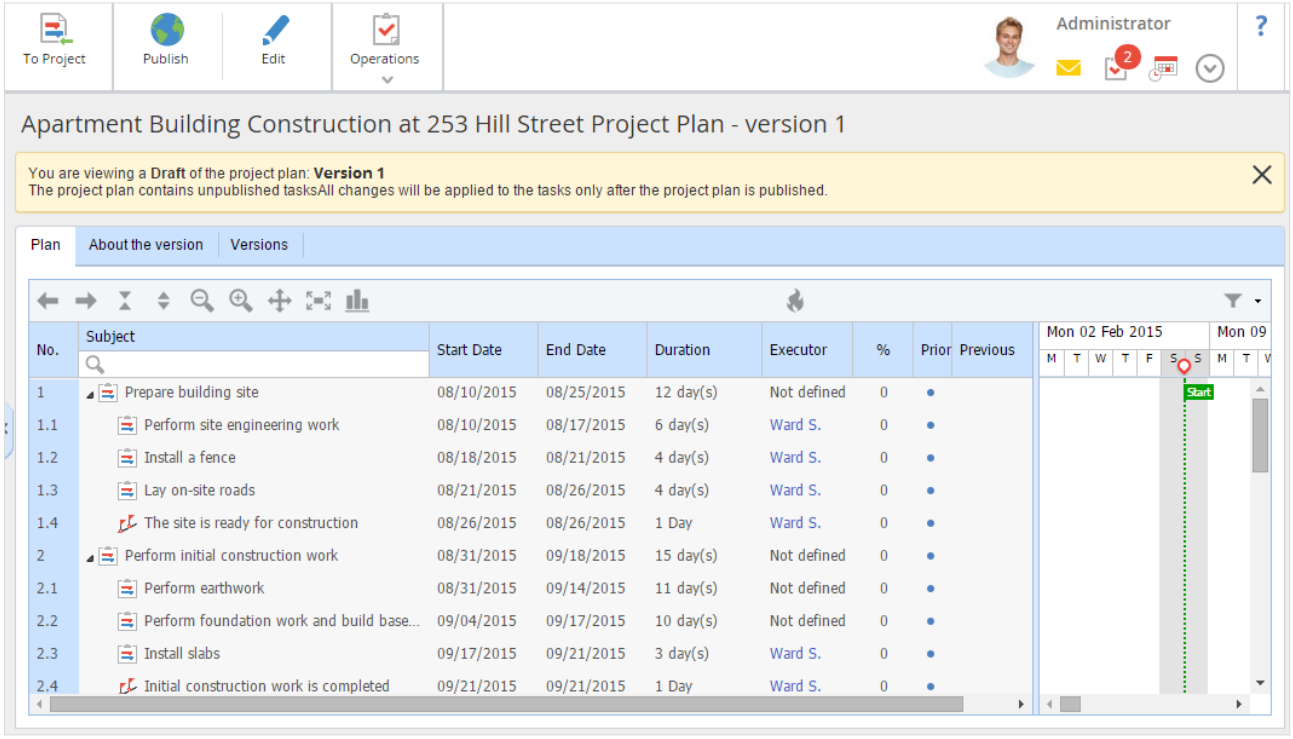


Fig. 6. Project plan page

Press **To Project** button to open the project page (fig. 6).

3.2 Project Page

All the important information on the project is displayed on the project page (fig. 7). It is a portlet page, with a set of default project portlets. Each portlet displays current information on a certain subject. These portlets provide you with latest updates, or with detailed information, if you click the project name.

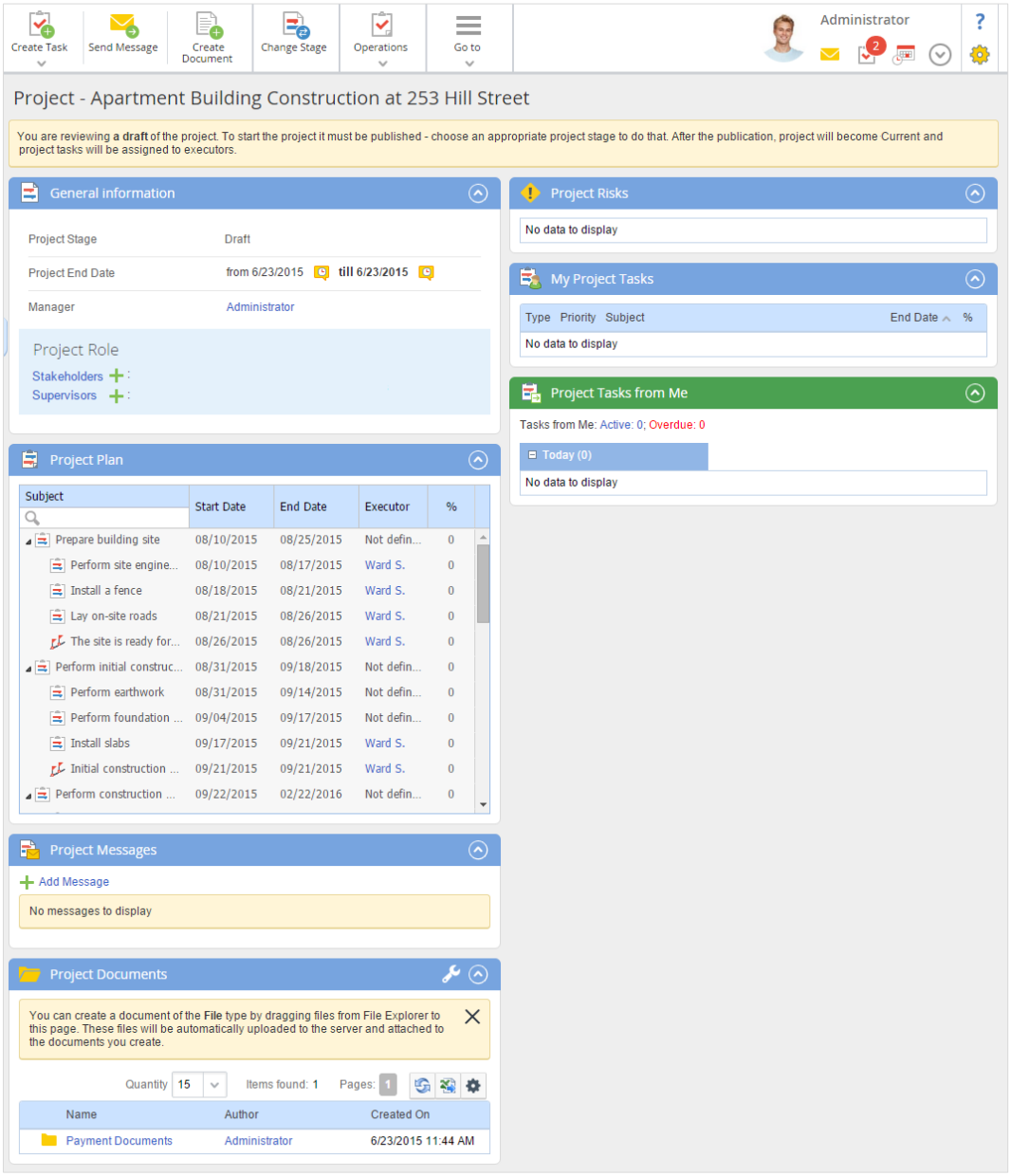


Fig. 7. Project page

The project page also provides you with other project management tools, which will be described later.

You can change the set of portlets, their position and settings. Learn more about portlets and pages in **ELMA BPM Platform** quick-start manual.

3.3 Project Plan

A **Project plan** is a totality of project tasks and a scheduled project plan. A project plan includes duration, executors, resources, etc. on every task.

Click **Project plan** on the project page to open the project plan page (fig.7).

The tasks list is to the left of the page and the Gantt chart is to the right (fig.8).

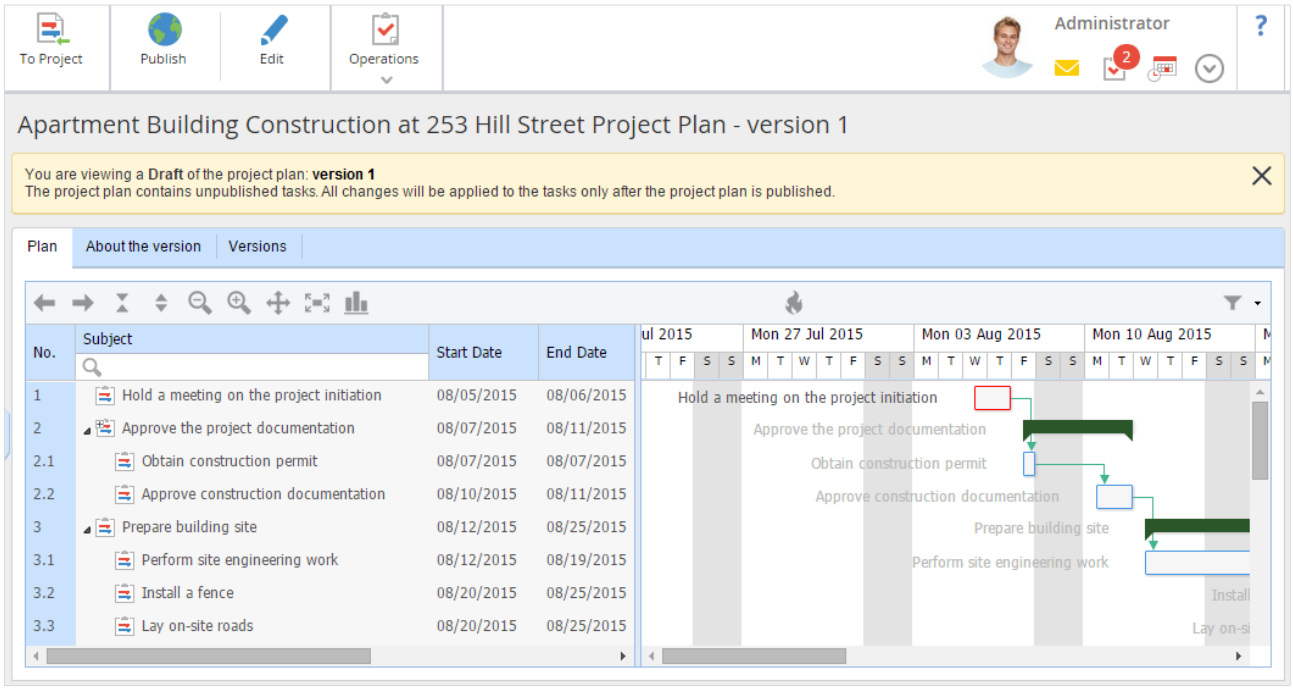


Fig. 8. Project plan page

Click **To Project** button in the top menu to go back to the project page. Click **Edit** button in the top menu to edit the project plan, imported from MS Project. Project plan editing page opens (fig. 9).

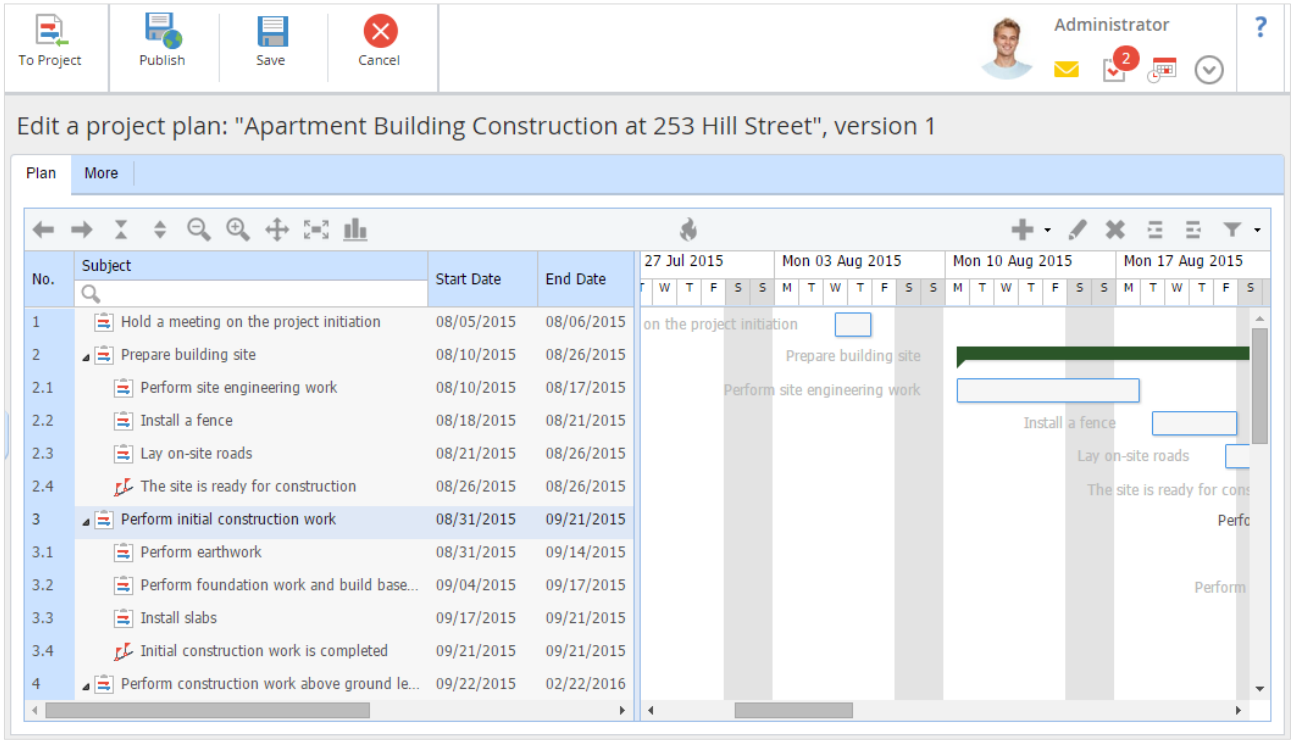


Fig. 9. Project plan editing page

Learn more about project plan editing in the following paragraphs.

3.3.1. Creating a Task

Click **plus icon** in the **toolbar** and select **Project Task** to add a new task to the project plan (fig. 10).

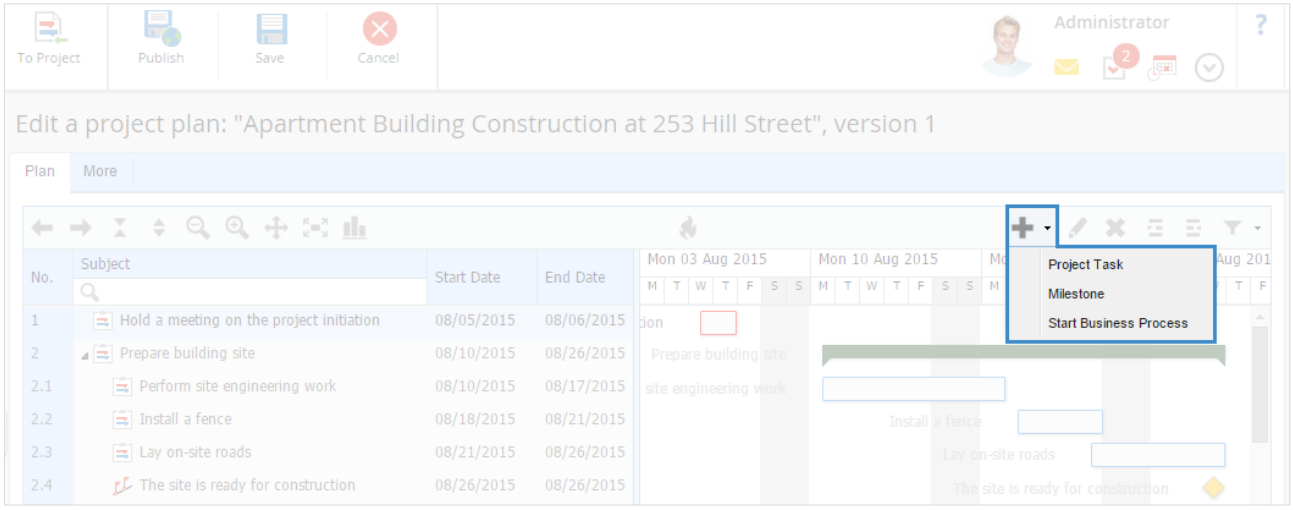


Fig. 10. Adding a project task

You have to enter subject, description, start date and duration in the task creation window (fig. 11). Select **Manager** in the **Executor** field (the manager was assigned at the project creation stage, fig. 2). Click **Create** to add the task to the list of project plan tasks; the task will appear the last in the list.

Move the task in the list, so that its position corresponded logically with the other tasks. It will improve readability. Mouse over the task name, press and hold the left mouse button. Move the cursor to the desired position in the tasks list. A green line will highlight the new position (fig. 12).

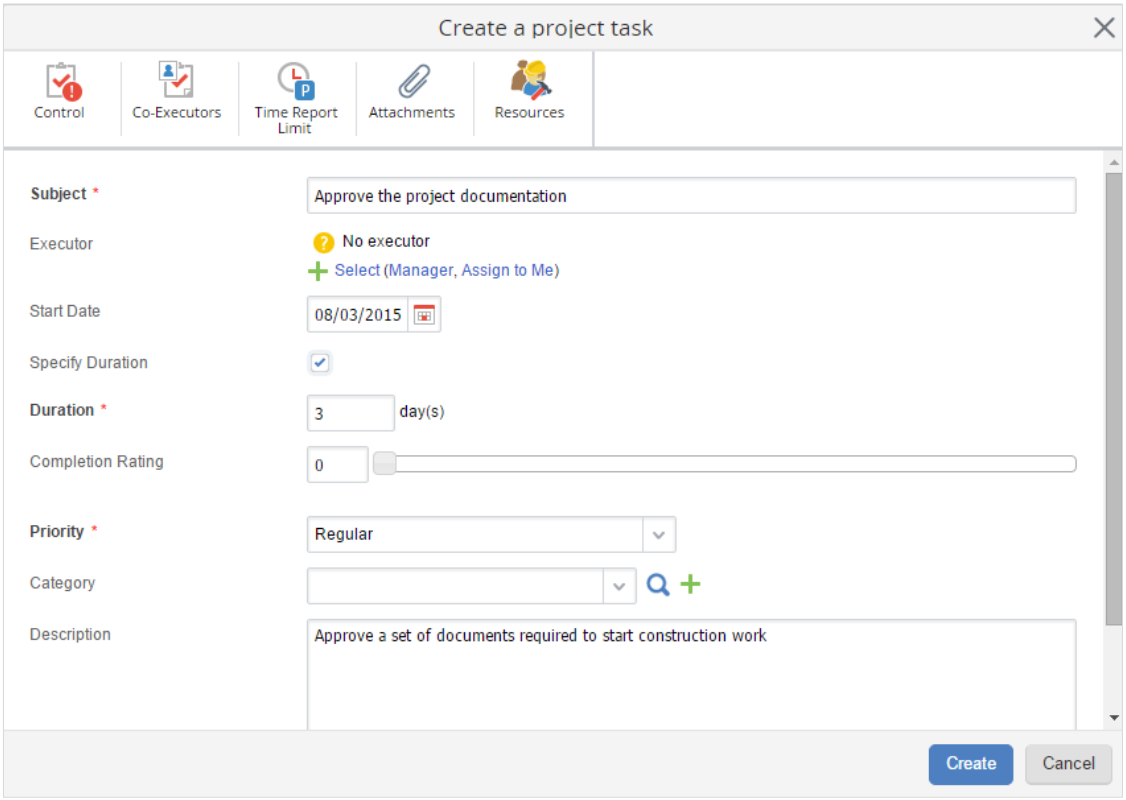


Fig. 11. Task creation window

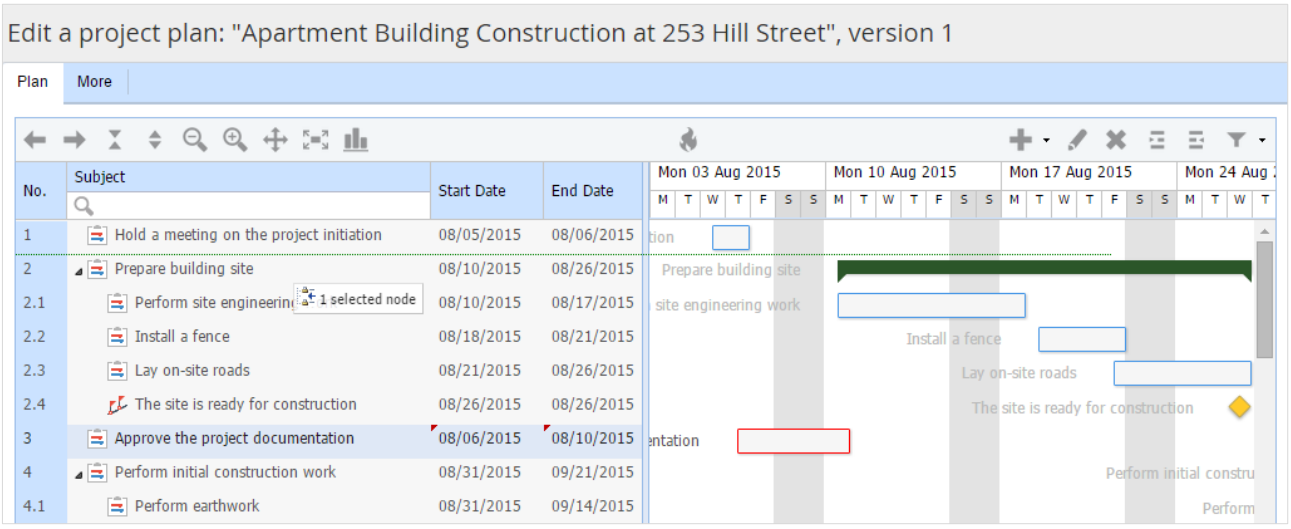


Fig. 12. Moving a task in the list

3.3.2. Stage Task

A **Stage task** is a parent task without an executor. It groups **sub-tasks**. A stage task is completed only if all of its sub-tasks are completed.

Create a sub-task. Click the right mouse button on the task we created earlier, select **Add → Sub-Task** (fig. 13). Creating a sub-task is mush as creating a project task (para. **3.3.1. Creating a Task**).

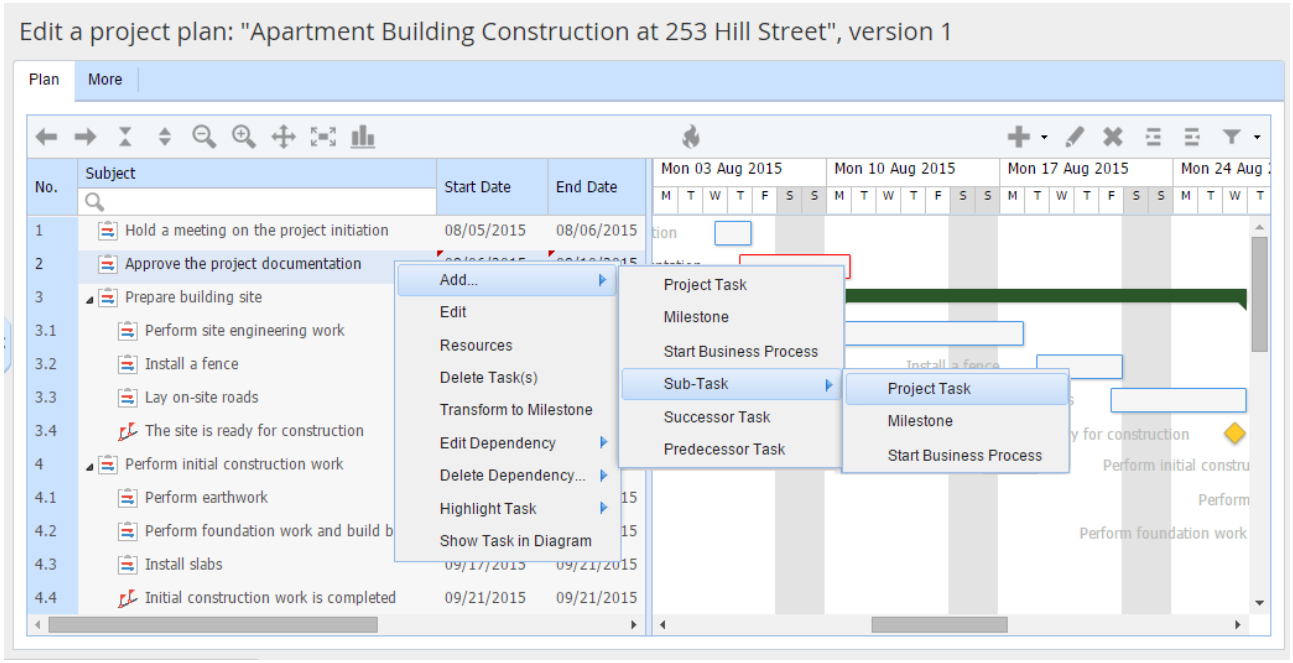


Fig. 13. Adding a sub-task

After you have clicked **Create** button, the system will let you select whether to leave the parent task unchanged or to make it a stage task (fig. 14).

If you select **No**, a sub-task is created. The parent task receives an executor and due dates. The task will have the same position, as **Perform initial construction work** task in fig. 12. Its sub-tasks will be indented.

If you select **Yes**, a sub-task is created. The parent task transforms into a stage task. A stage task does not have an executor and completes automatically after all of its sub-tasks are completed. Stage task duration and due dates depend on its sub-tasks due dates.

In the project plan, a stage task has icon, and a parent task has icon. Sub-tasks are indented.

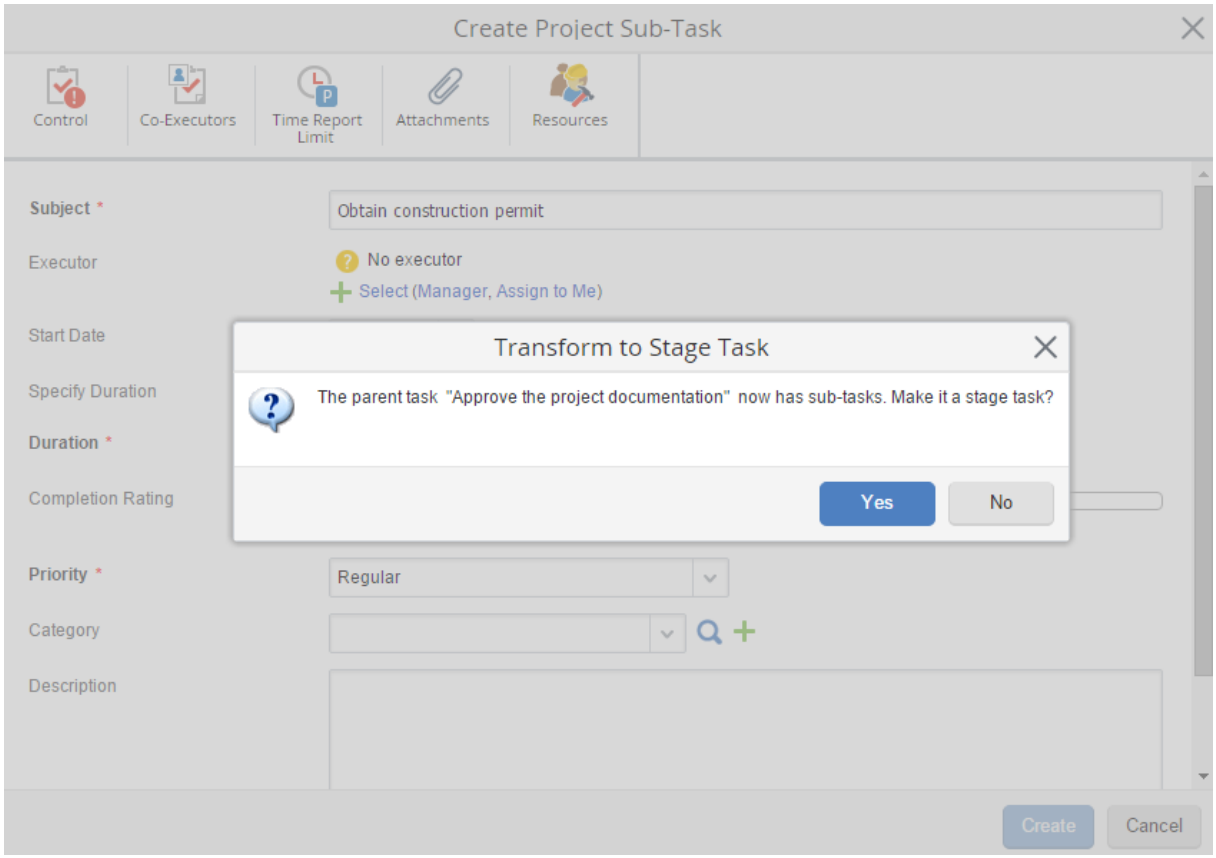


Fig. 14. Transform to stage task

You can transform a stage task to a regular task (fig. 16) and a parent task to a stage task (fig. 15) at any plan editing stage. To do so, click the task with the mouse right button and select the menu entry you need.

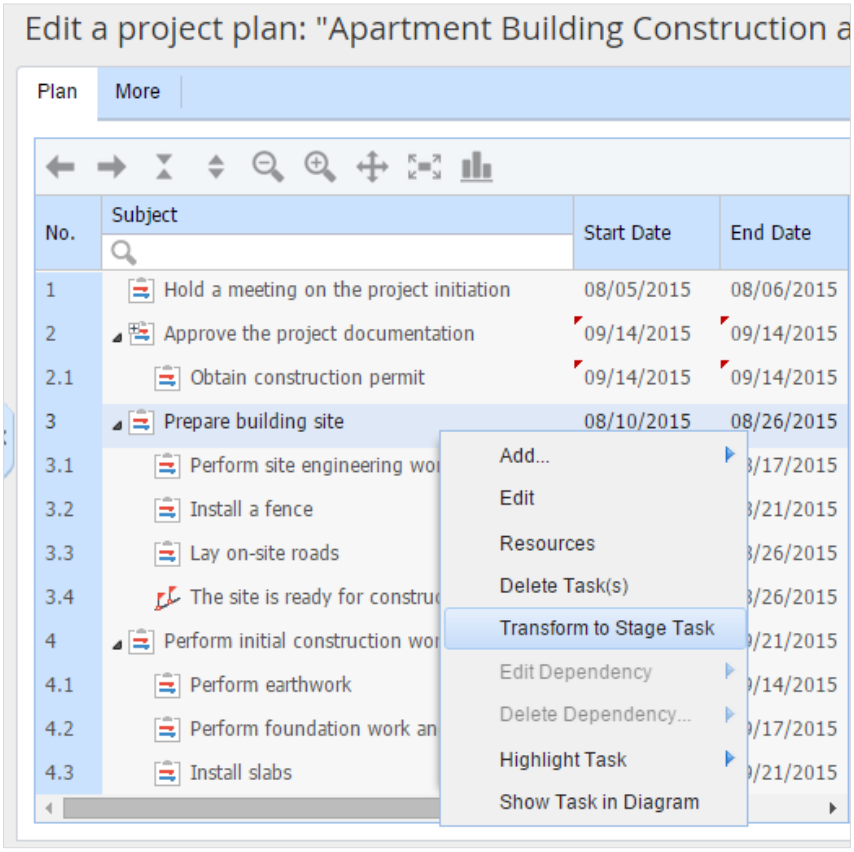


Fig. 15. Transform to stage task

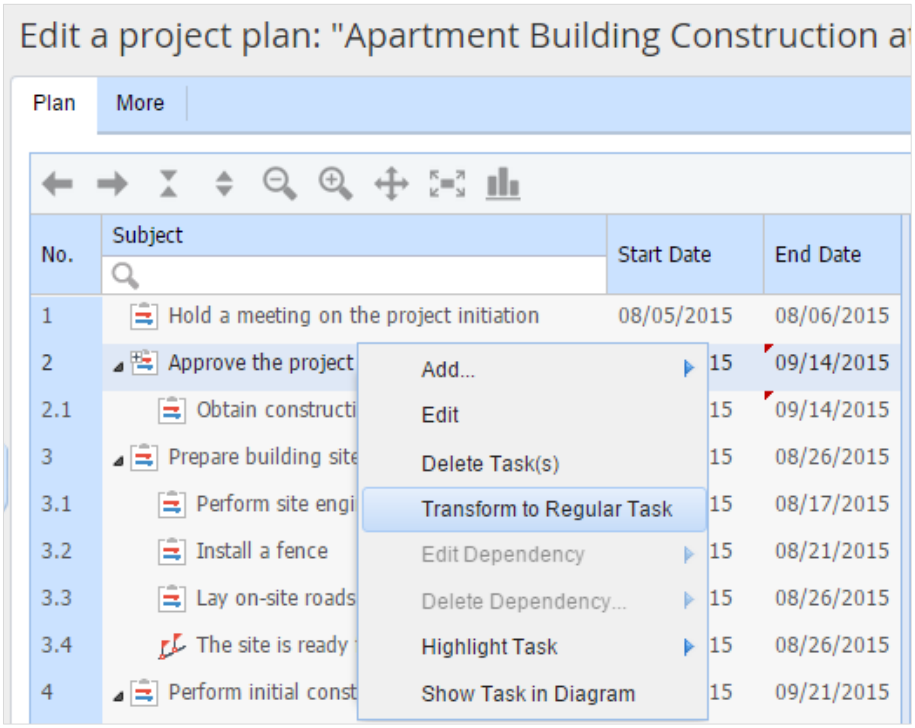


Fig. 16. Transform to regular task

3.3.3. Milestone

A **milestone** is a task with a specific date. Milestones help you control project progress within specified time. Milestones have  icon in the project plan.

Click plus icon in the toolbar and select **Milestone** to add it to the project plan (fig. 10).

Creating a milestone is much as creating a project task (para. **3.3.1. Creating a Task**), except a milestone has no duration (it always lasts 1 day and has only one due date). You cannot create sub-tasks for a milestone.

3.3.4. Creating Links

Links between project tasks show dependencies and precedence relations. For example, we need to approve the project documentation after obtaining construction permit. Add a **successor task** (fig. 17) after **Obtain construction permit** task. Click the task name with the right mouse button and select **Add** → **Successor Task** in the context menu.

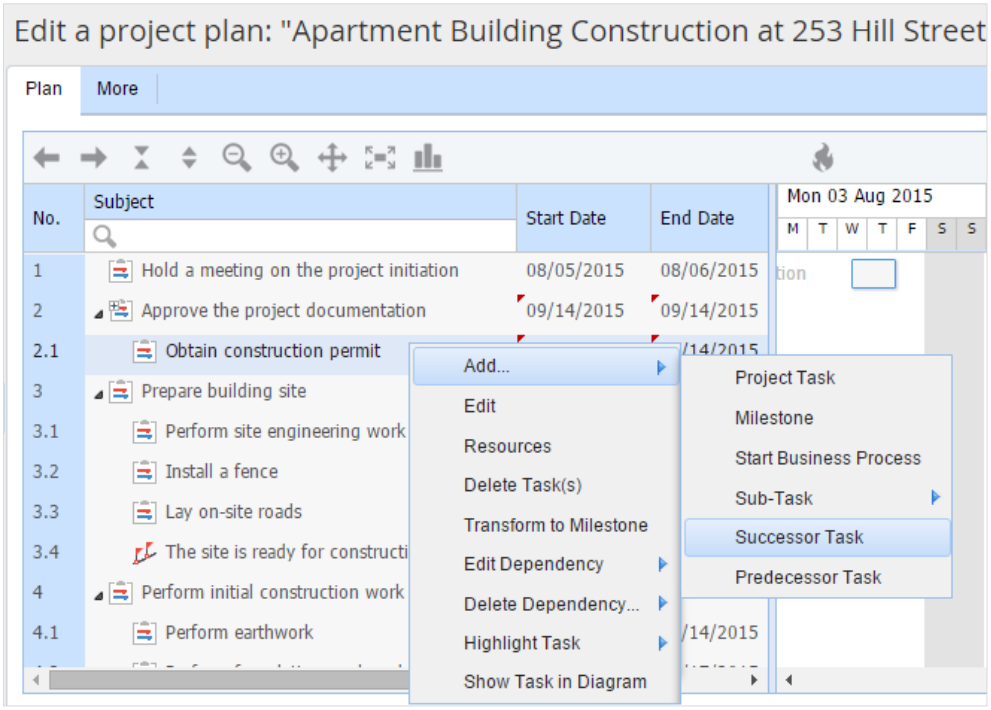


Fig. 17. Adding a successor task

After you have added a successor task, the tasks will be linked automatically. The link is displayed in the **Predecessor** column of the tasks list and on the Gantt chart as an arrow (fig. 18). If this column is not seen in the tasks list, mouse over the strip between the tasks list and Gantt chart, press and hold the left mouse button and drag to the right. The tasks list will widen and more columns will be visible (fig. 18).

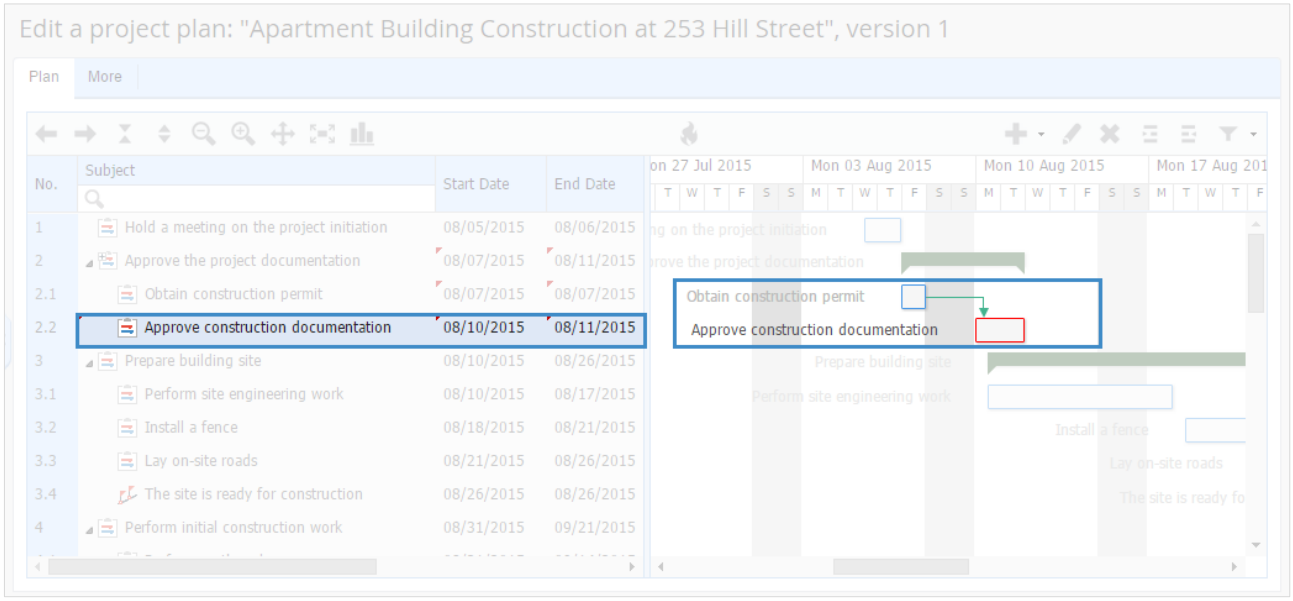


Fig. 18. Links between tasks

You can link created tasks with the Gantt chart. To do so, mouse over the task you need until ○ icon appears. Press and hold one of the icons with the left mouse button and drag it to the task you need to link (fig. 19).

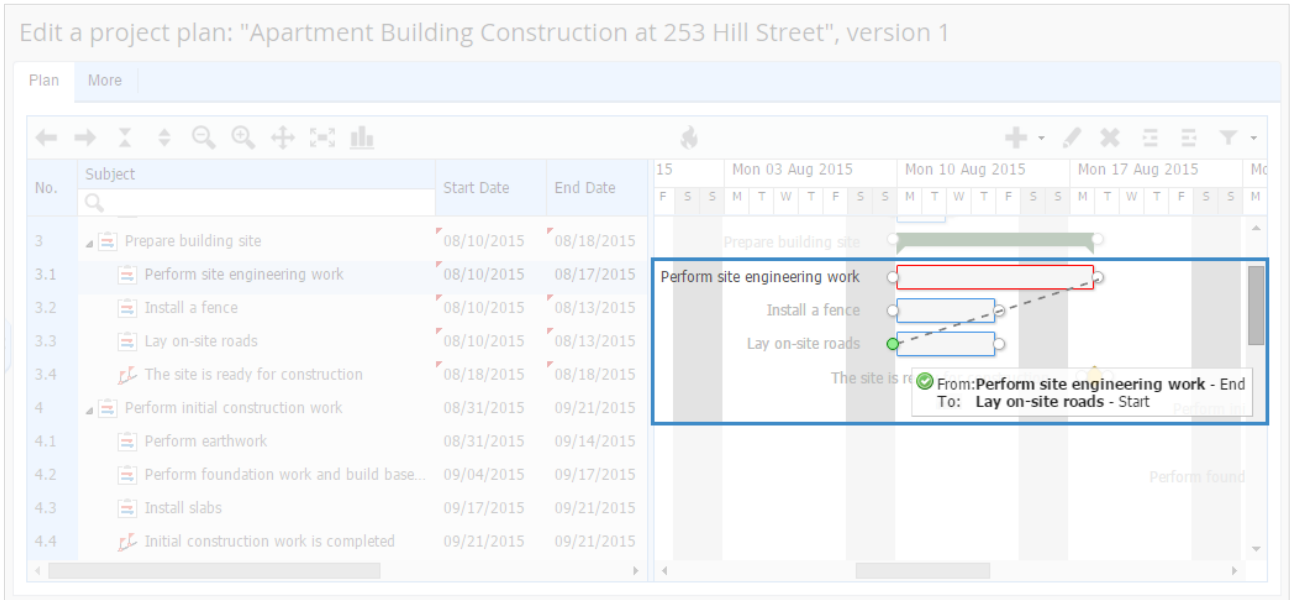


Fig. 19. Linking tasks

Thus, you can configure tasks precedence and dependencies.

Links can be deleted, if necessary. Click the right mouse button on the task name and select **Delete Dependency** in the context menu. Then select the name of the task you need to unlink (fig. 20).

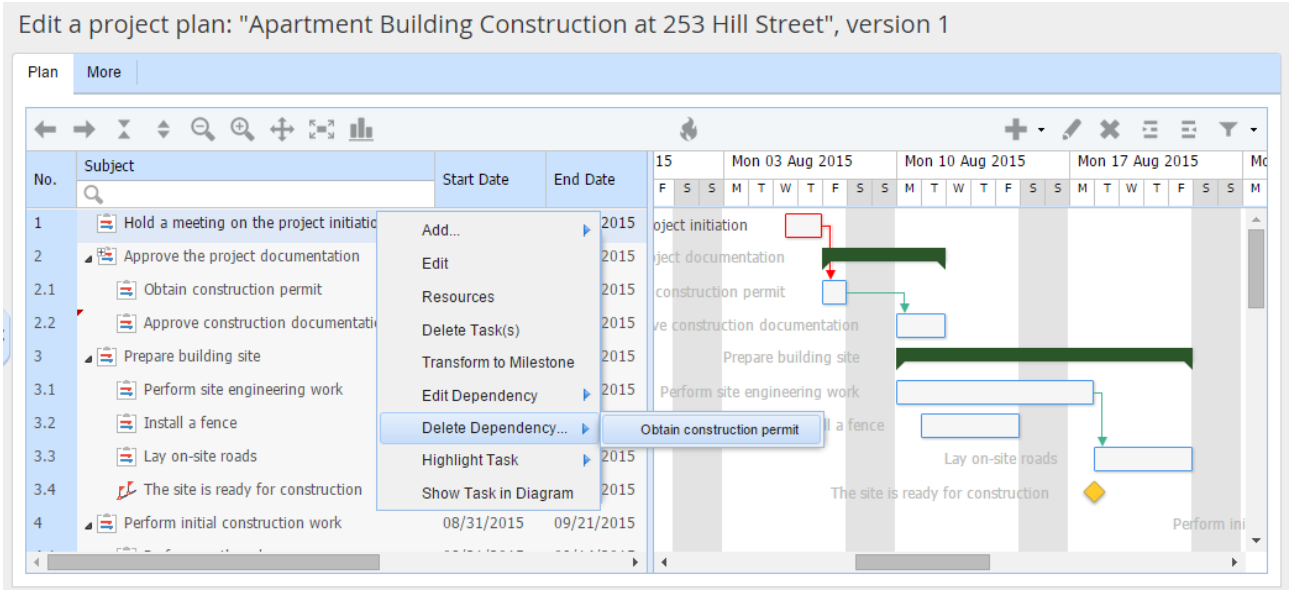


Fig. 20. Deleting dependencies

3.3.5. Gantt Chart

A **Gantt chart** is a graph of planned project activities. You can see segments along the time axis on the Gantt chart. Each segment represents a task or a sub-task. A segment length represents task duration. Segment endpoints represent start and end dates of the task.

The Gantt chart is separated from the tasks list with a strip by default (fig. 21). You can adjust the size of the two sections with the strip and hide and/or show tasks section contents.

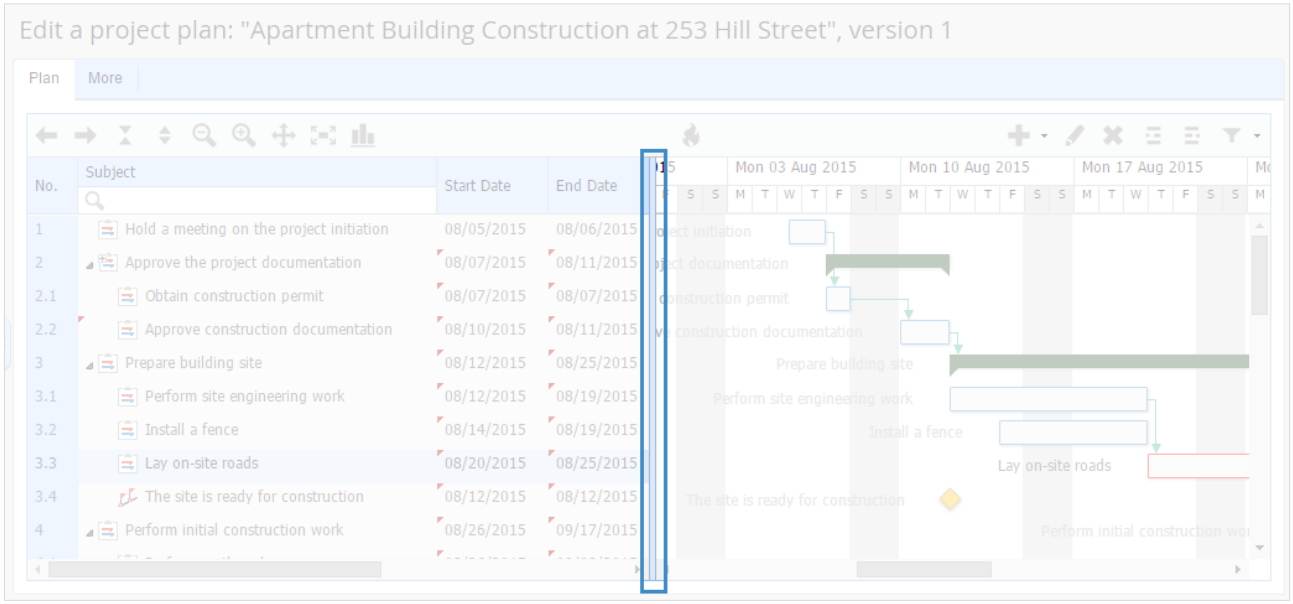


Fig. 21. The strip between tasks list and Gantt chart

To change the size of the sections press and hold the strip with the mouse and drag it left/right. Click twice on the strip to hide or show the tasks list. If you hide the tasks list, a bar with  icon is shown (fig. 22). If you click the icon the tasks list will be shown.

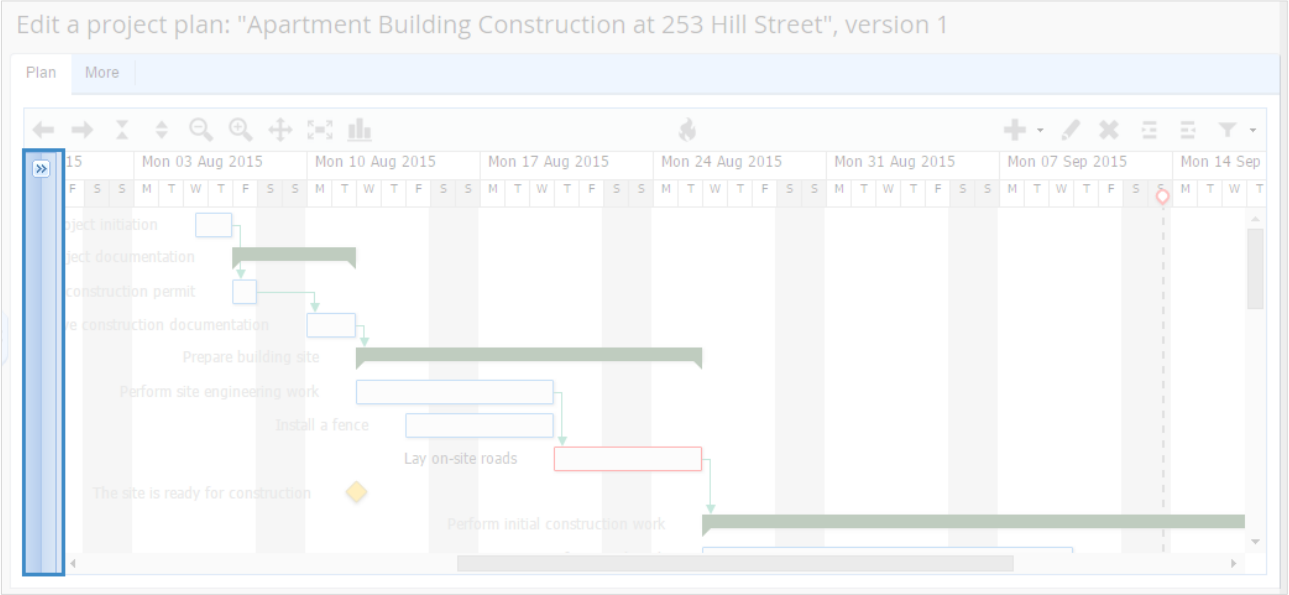


Fig. 22. The project plan with the tasks list hidden

You can use the toolbar when working with the Gantt chart (fig. 23).

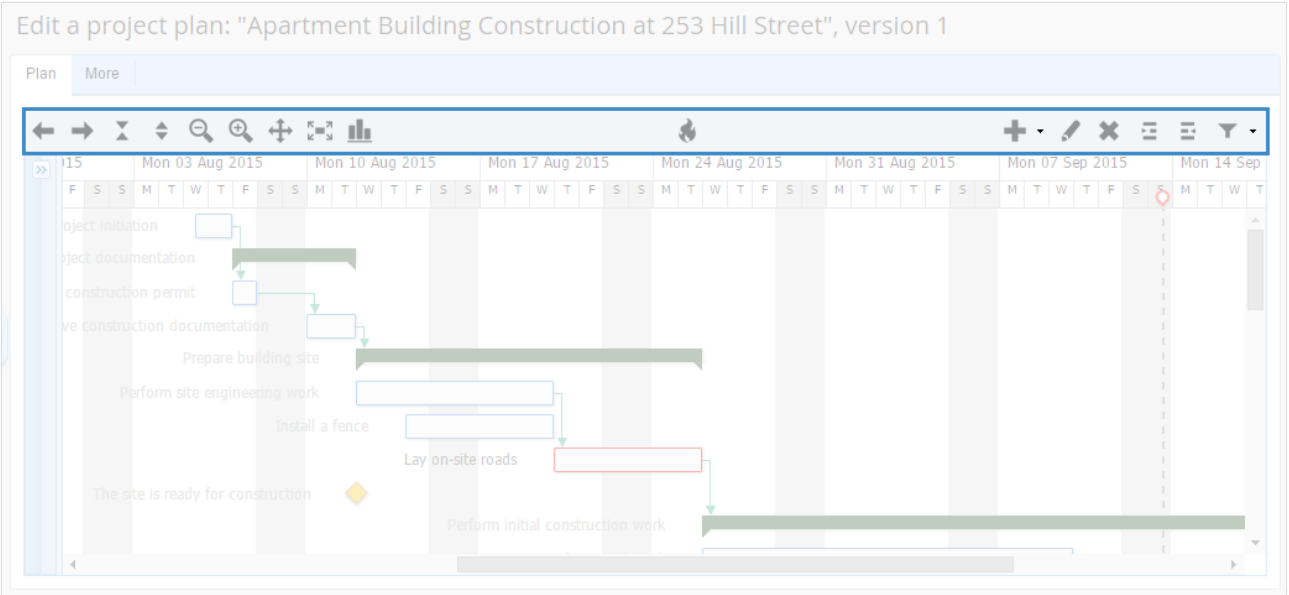


Fig. 23. Gantt chart toolbar

You can zoom in/out with and icons and switch to the full-screen mode with icon.

If you drag segments along on the chart, their start and end dates change, as well as all the related elements, if any. To change task duration on the chart, mouse over the right or the left segment endpoint (the mouse pointer should transform) and pull to the side you need. **ELMA** Gantt chart is much as **MS Project** Gantt chart.

Learn more about the available functions in **ELMA Projects+ Help**.

3.3.6. Critical Path

A **Critical Path** is the shortest sequence of project tasks. The project cannot be completed before the critical path tasks are completed.

The path is called **critical** because its tasks schedule affects the project finish date. If you need to shorten the project duration, you have to shorten the critical path.

With the critical path method, you can plan tasks schedule and project finish date. The point is to determine the longest tasks sequence, considering the tasks relations and dependencies. The critical path has a zero total float, so when you change their start and end dates, project due dates also change. You need to control the critical path problems and risks, because they affect the project due dates. While the project progresses the critical path may change – some tasks may become a part of it, when dates are changed. You should use the critical path method to estimate project finish date throughout the project when you edit the project plan.

To create a critical path in **ELMA** click  icon in the project plan toolbar (fig. 24). The critical path will be marked red on the Gantt chart (fig. 24).

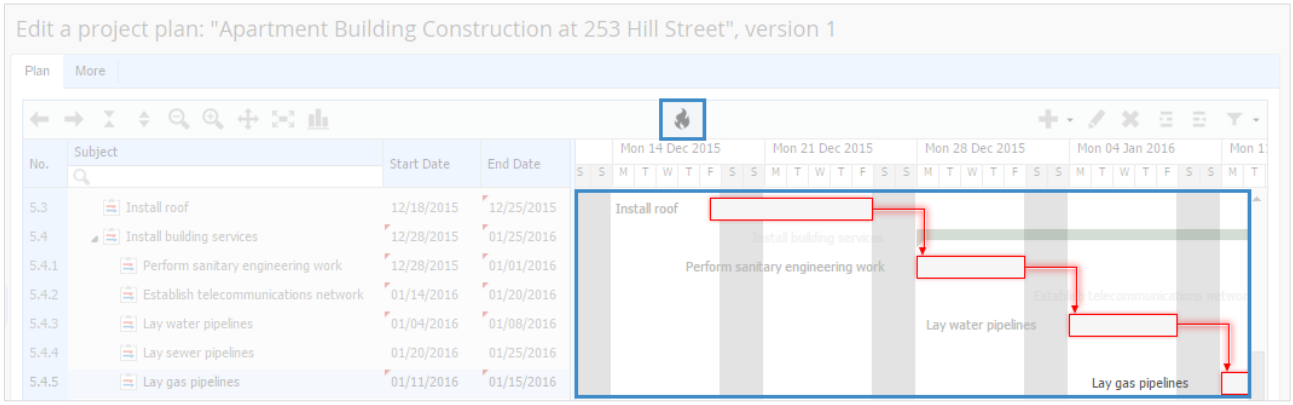


Fig. 24. Critical path

3.3.7. Project Plan Versioning

With **ELMA** you can edit and save several project plan **versions**. The current version is shown in the project plan title (fig. 8). Main project plan editing and saving functions are described in the previous paragraphs. Click **Save** button in the top menu of the project plan editing page to save changes (fig. 25).

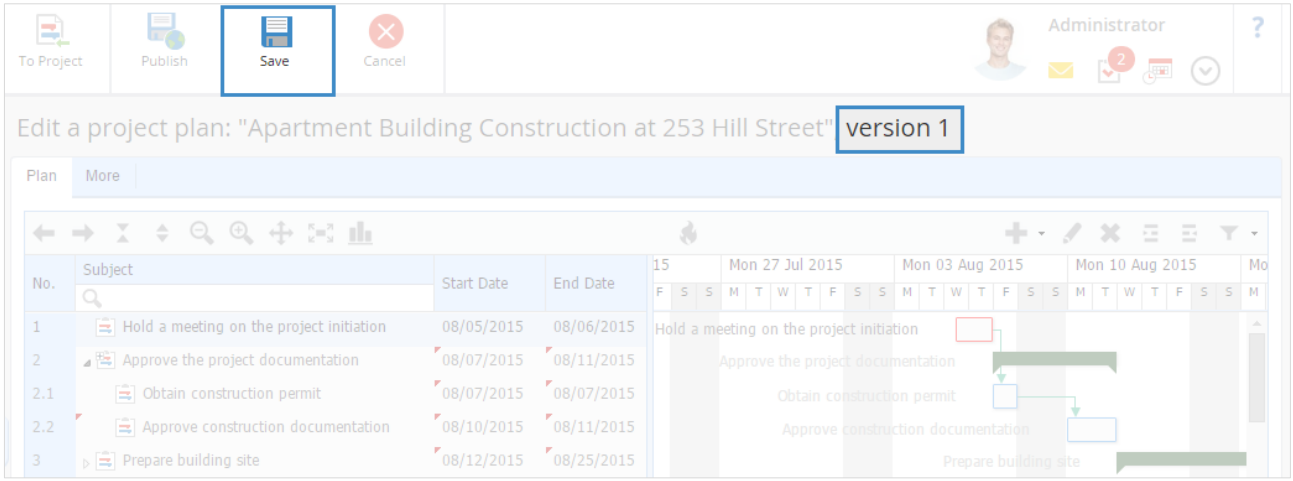


Fig. 25. Saving a project plan version

After you have done it, project plan page opens; the plan version receives **Draft** status. Plan versions information is available on **Versions** tab of the project plan page (fig. 26). Click a version name to proceed to editing of this version. You can publish it and use as the active one. Project plan publishing is described in para. **3.3.8. Publishing a Plan**.

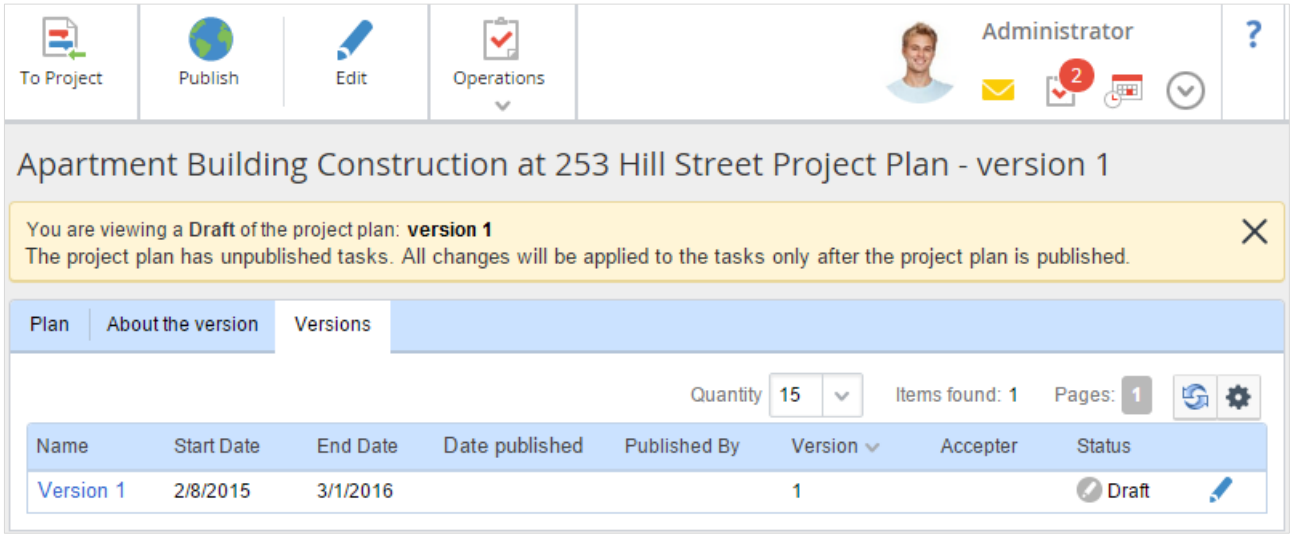


Fig. 26. Project plan page. Versions tab

If a project plan version has **Draft** status, the changes you made will be saved in the system but will not be put to work. A project plan can have many drafts, but only one

active version. An active version has **Current** status. To receive this status the version needs to be published (see the next paragraph). A plan version can also have **Outdated** status. It means that it was published, but then replaced with a newer published version.

3.3.8. Publishing a Plan

To save changes in a project plan, you need to publish the version you work with. Click **Publish** button on the project plan page (fig. 8). You can do it on the project plan editing page (fig. 9).

After you have published the plan, its version status will change from **Draft** to **Current**. The tasks will be assigned to the executors. A successful publication notification will be shown on the plan page.

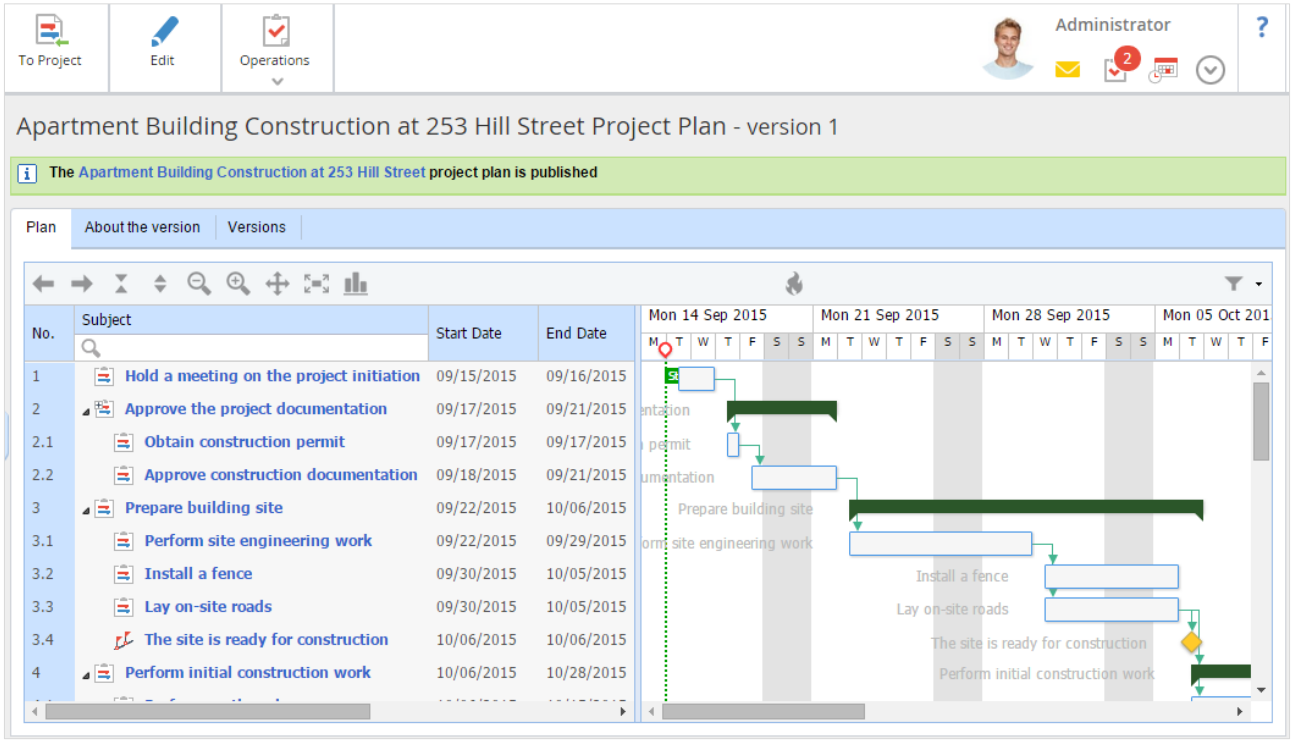


Fig. 27. A published project plan version

You cannot edit a published version. If you click **Edit**, the system will show you a notification: after saving, the new version of the project plan will be created with **Draft** status. To apply changes you need to publish this new version (fig. 28).

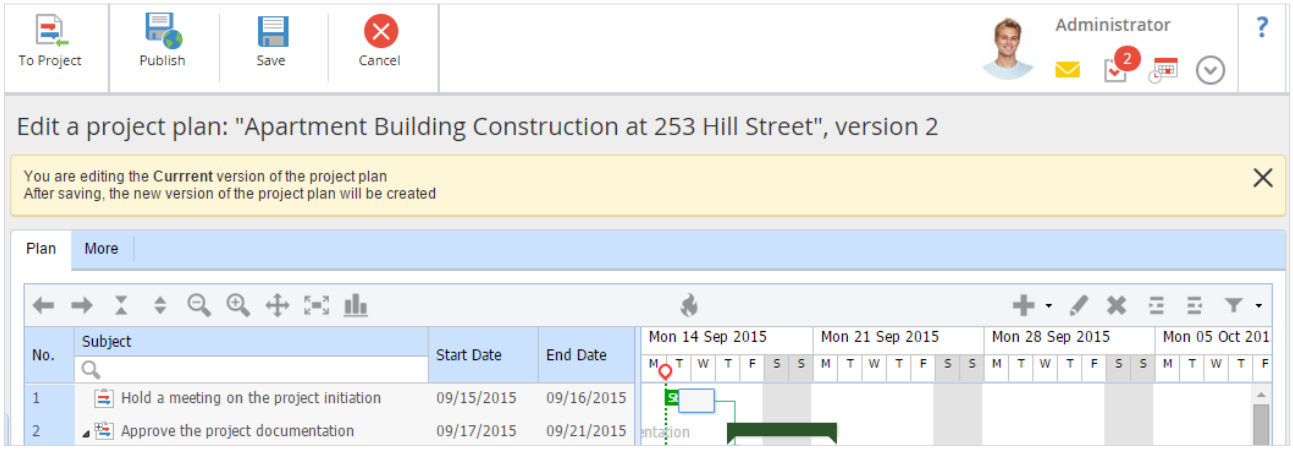


Fig. 28. Saving changes in a new version notification

3.4 Publishing a Project

Creating a project and shaping a plan was described in the previous paragraphs.

After a project is created it receives **Draft** status. It means that the project manager can configure the project main settings, tasks plan, etc. Team members will not be able to see these changes yet. A notification is shown on the project page (fig. 29).

Publish the project to put the changes into effect, assign tasks to the executors etc. To do so, click **Change Stage** button on the project page (fig. 29).

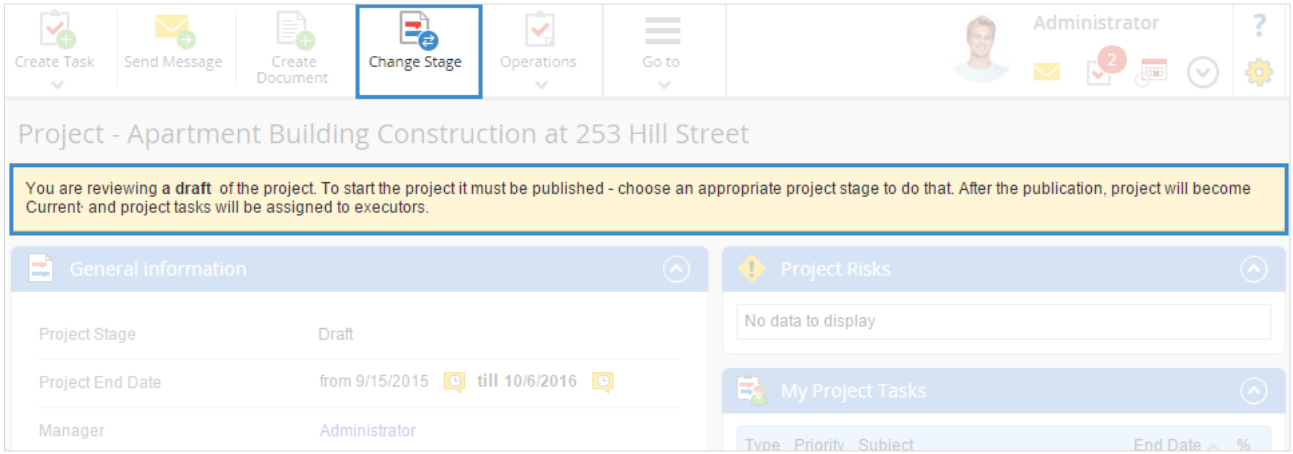


Fig. 29. Project page at the Draft stage

Select **Active** in the **New Stage** window, click **Change** (fig. 30).

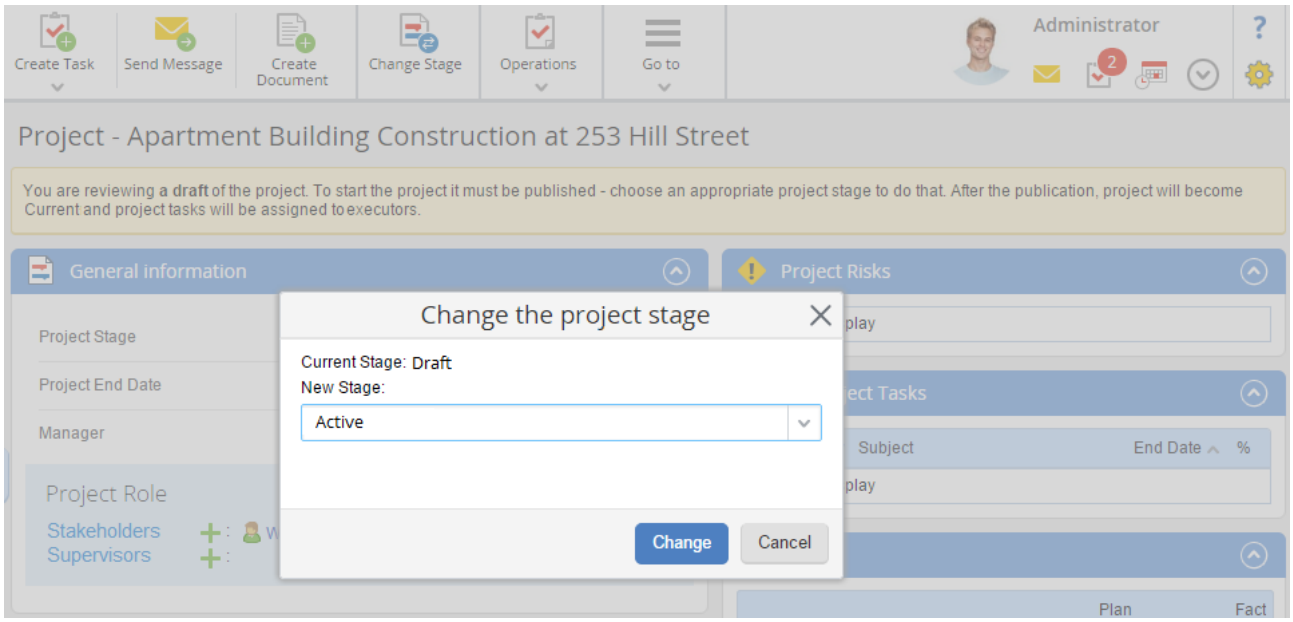


Fig. 30. Changing the project stage

After you have done it, the page will be refreshed. The project stage will be changed and a respective notification will be shown (fig. 31).

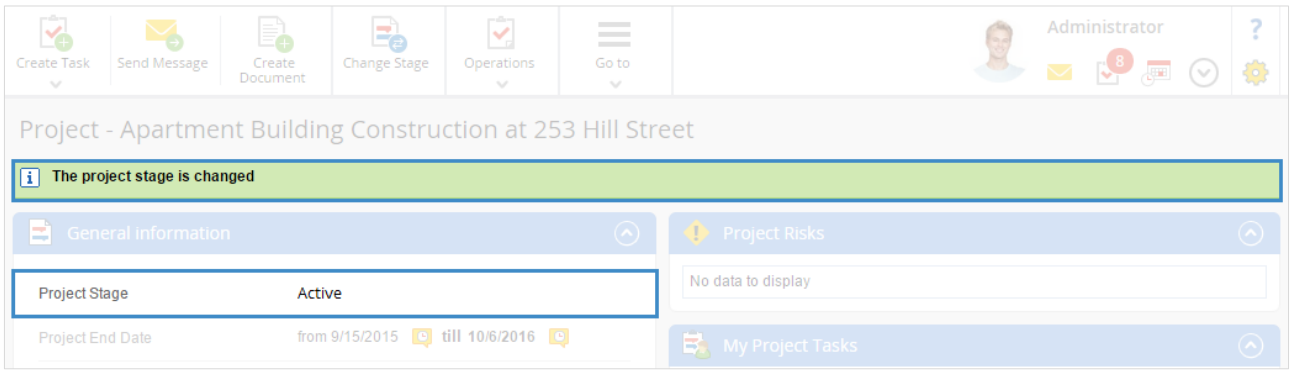


Fig. 31. Project page at the Active stage

Now you can start project activities, complete project plan tasks, etc. Project progress requires monitoring and controlling by project managers and supervisors (learn more about it in the next chapter).

Chapter 4. Monitoring and Controlling Project Progress

As the project progresses, you need to manage project constraints (such as budget control, project plan execution, tasks due dates, resources management, etc.)

One of the methods of project due dates control is the **critical path method** (para. **3.3.6. Critical Path**). **ELMA Projects+** project progress monitoring and controlling functions are described in the following paragraphs.

4.1 Projects Home Page.

Select **Projects** in the left menu to proceed to **ELMA Projects+ Application** home page (fig. 32).

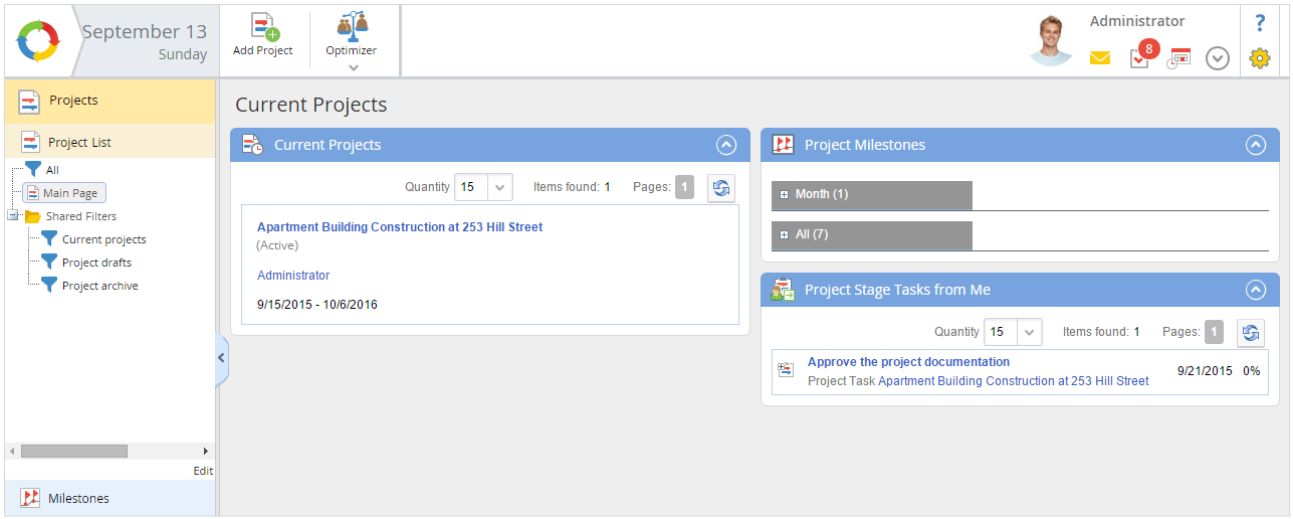


Fig. 32. ELMA Projects+ Application home page

Three portlets are displayed on this page by default:

- **Current Projects.** This portlet shows the list of projects at the **Active** stage and key project information (the manager and the end date).
- **Project Milestones.** This portlet shows the list of project milestones with **Active** status. To view the tasks list, click the plus icon .
- **Project Stage Tasks from Me.** This portlet shows the list of project stage tasks, controlled by the current user.

You can configure the contents of the home page and the portlet set. These configurations are described in **ELMA BPM Platform** quick-start manual.

4.2 Tasks Control

ELMA provides you with many task control tools. You can control task due dates on the project plan page (fig. 33):

- Half-completed tasks are highlighted yellow;
- Overdue tasks have red font color;
- New tasks have bold font type.

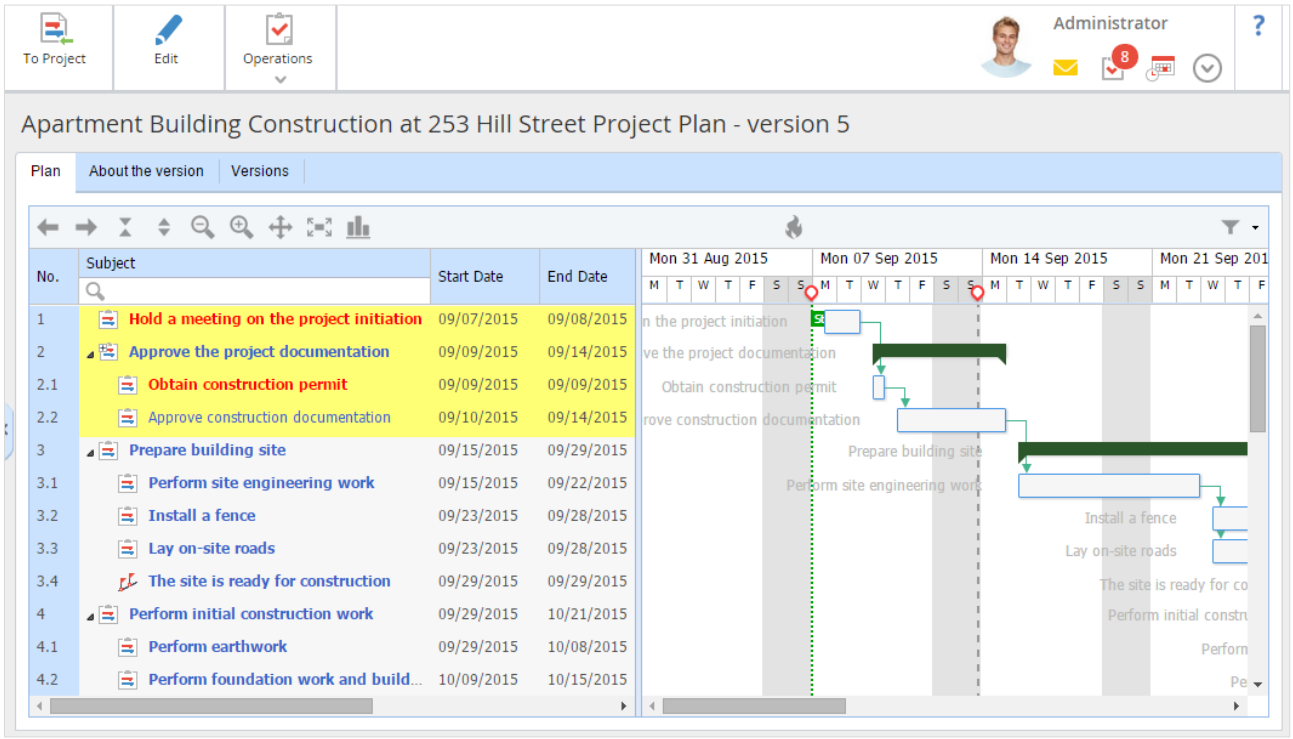


Fig. 33. Project plan markers

ELMA Projects+ provides you with standard **ELMA BPM** task control tools (completion check, task monitoring, notify when completed). Learn more about these functions in **ELMA Help**.

Milestones are an important project control tool. The list of project milestones is on the **ELMA Projects+** home page. You can find more information on these tasks if you select **Projects** → **Milestones** in the left menu. If a milestone is overdue, it has red font color (fig. 34).

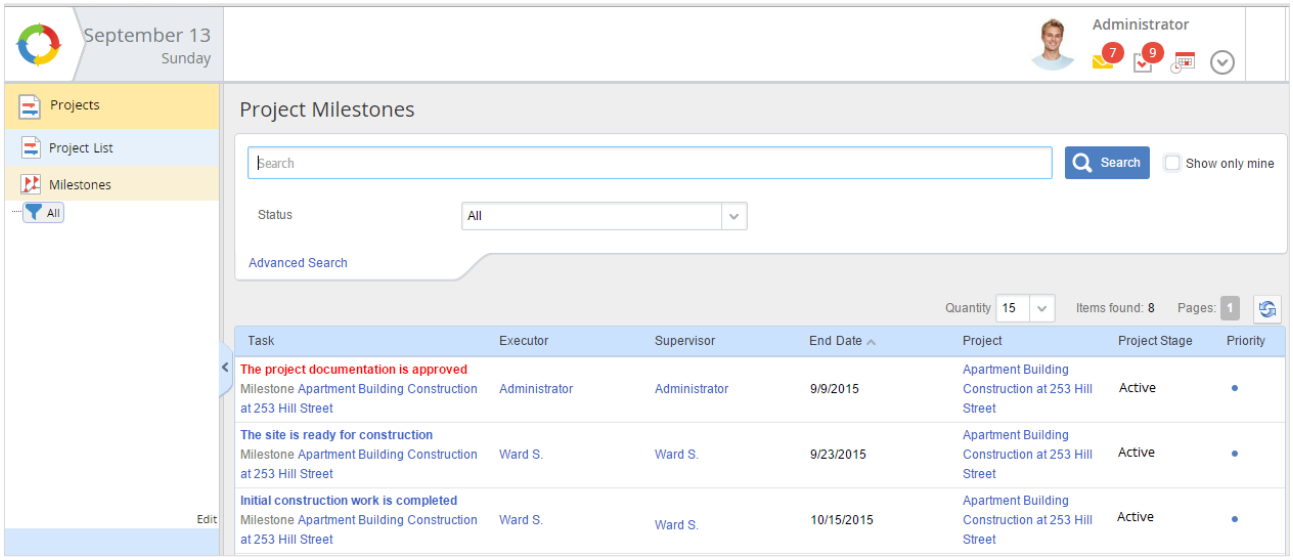


Fig. 34. Milestones

4.3 Resource Workload Bar Chart

Project resources are human, technical and/or material units, used to complete project tasks and achieve project goals.

These are the types of resources in **ELMA**:

- **Human resources** are ELMA users and other team members;
- **Technical resources** (machines, equipment, rooms), involved in the project;
- **Material resources** are supplies, involved in the project.

Project resources are described in **Chapter 6**.

In this paragraph, we concentrate on resource workload control. Each task has its executor, and sometimes some users may have to execute several tasks. It results in low work quality and missed deadlines.

To avoid such situations use the resource workload bar chart. Click the icon marked in fig. 35. The bar chart displays all the executors of the current project.

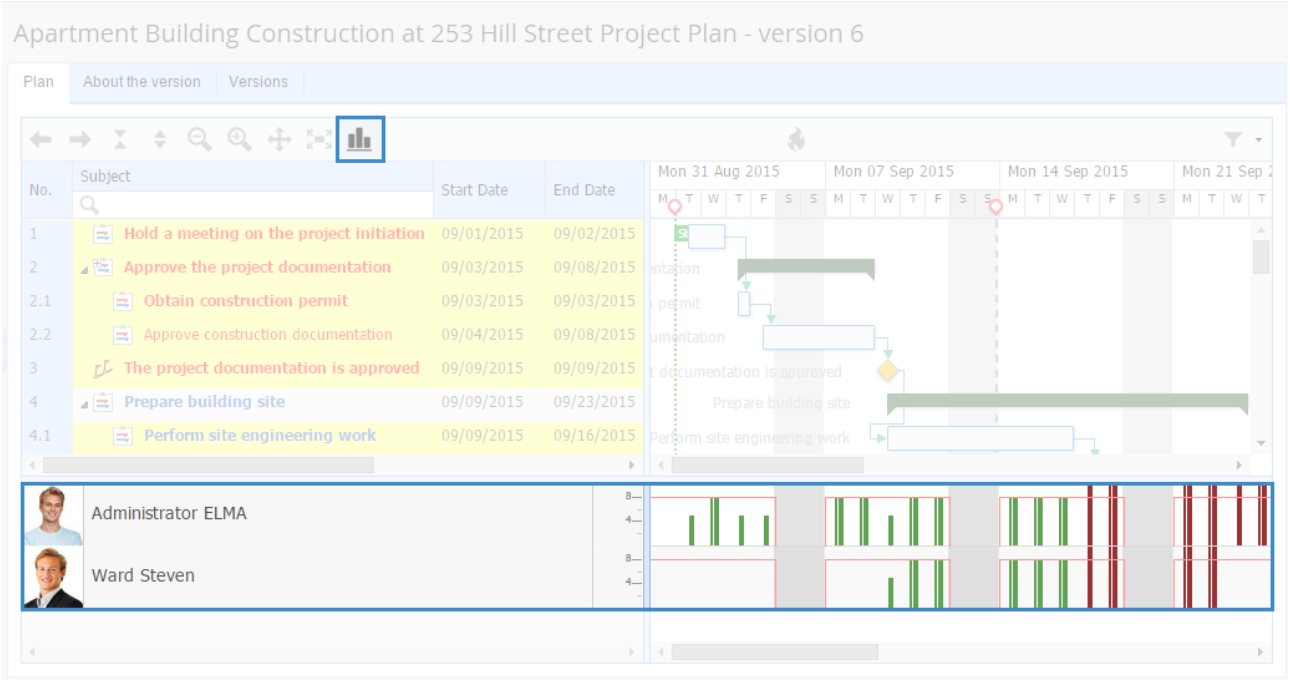


Fig. 35. Resource Workload Bar Chart

The area highlighted in fig. 35 consists of two parts: the users list and the bar chart. A time bar in the middle, adjacent to the strip, shows a resource workload in hours. Bar height on the bar chart is the workload of a respective resource on that day. Pink line marks an eight-hour workday. A bar is green, if the user workload is eight hours a day or less, otherwise the bar is red. Double click the bar to proceed to the current user resource load (fig. 36).

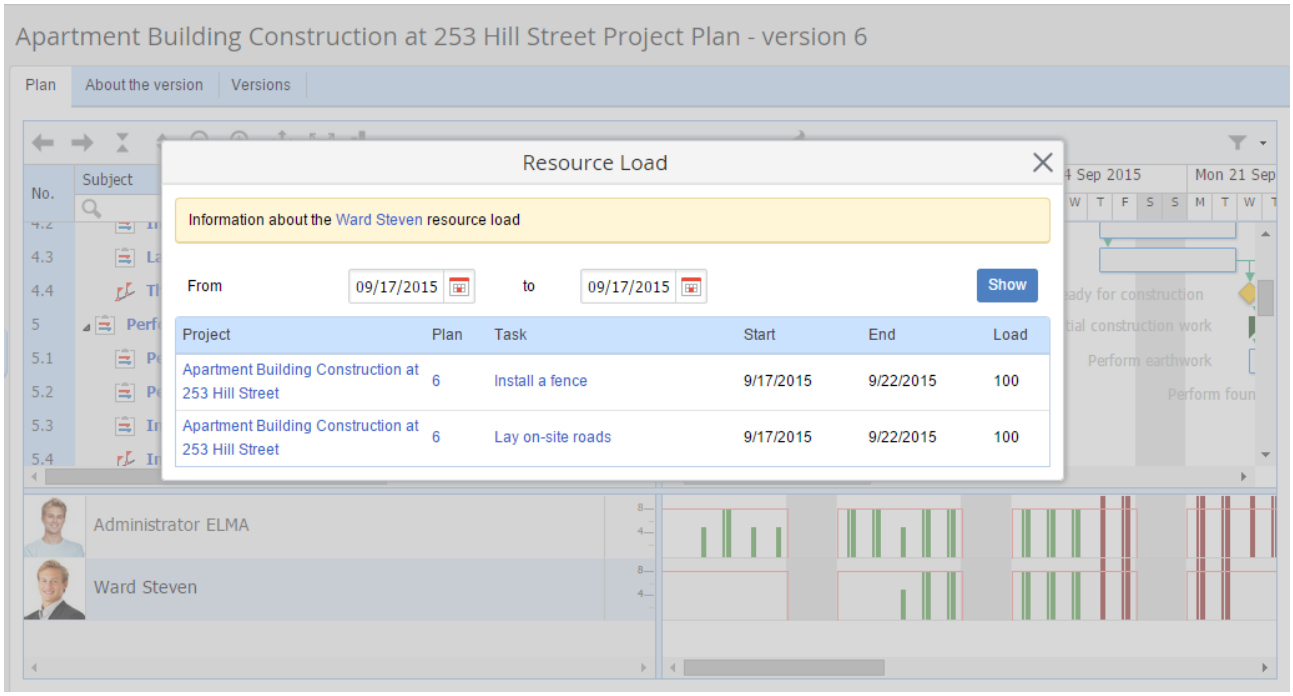


Fig. 36. Resource load

Thus you can control and monitor users workload. You can edit the project plan, reassign executors, etc. using these data. Learn more about planning workload in paragraph **6.2.3.2. Planning Workload**.

Chapter 5. Completing a Project

When you complete a project, you officially finish all the project activities. The manager analyses all project data to make sure the project is completed. Now you have to change the project stage to **Completed**.

Click **Change Stage** button (fig. 29). Select **Completed** in the field **New Stage** of the emerged window and click **Change** (fig. 37).

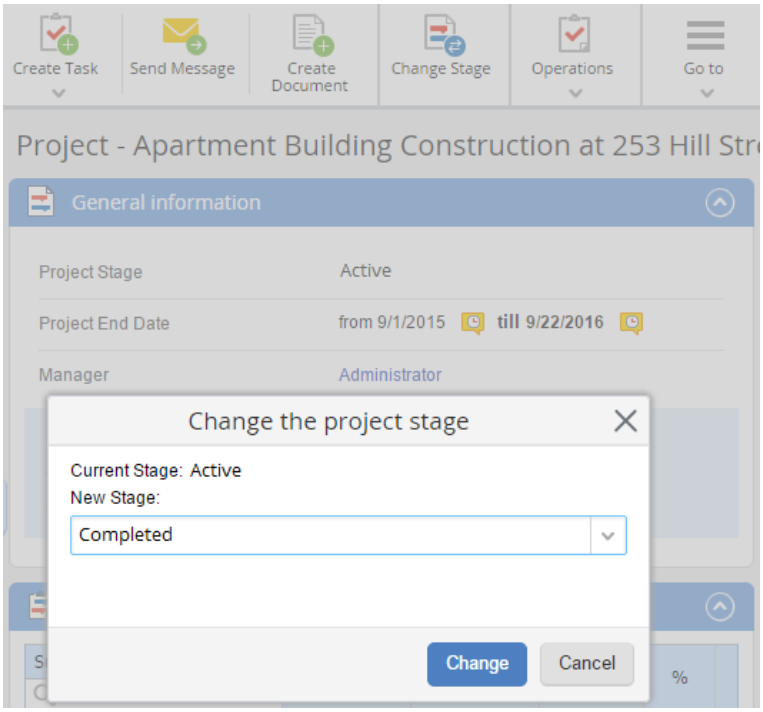


Fig. 37. Completing the project

The project stage will be changed and a notification will appear (fig. 38). All active tasks will be canceled.

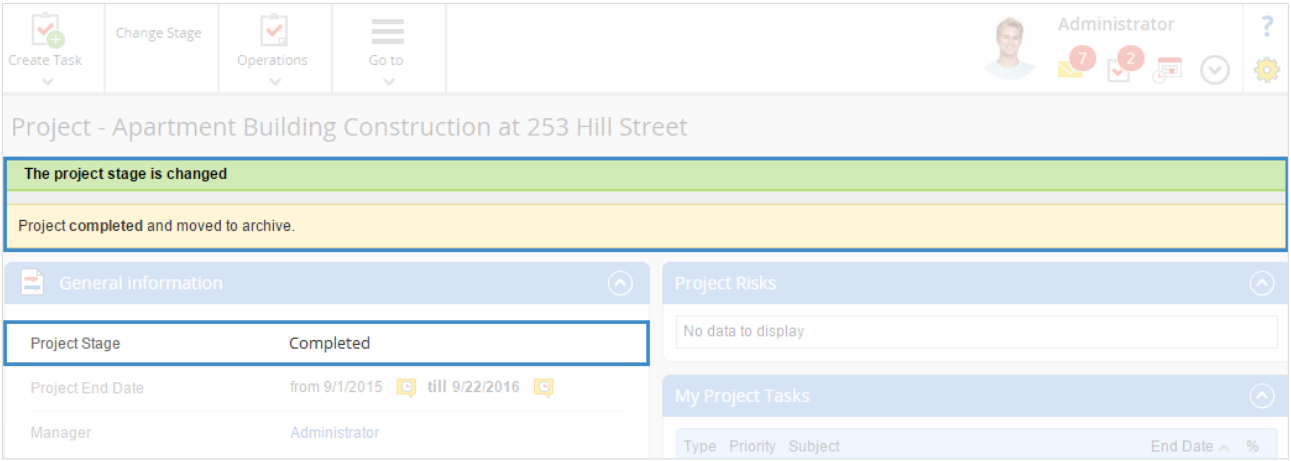


Fig. 38. Completed project page

Completed projects are not displayed on **ELMA Projects+** home page. You can find them in the **Project archive** (fig. 39).

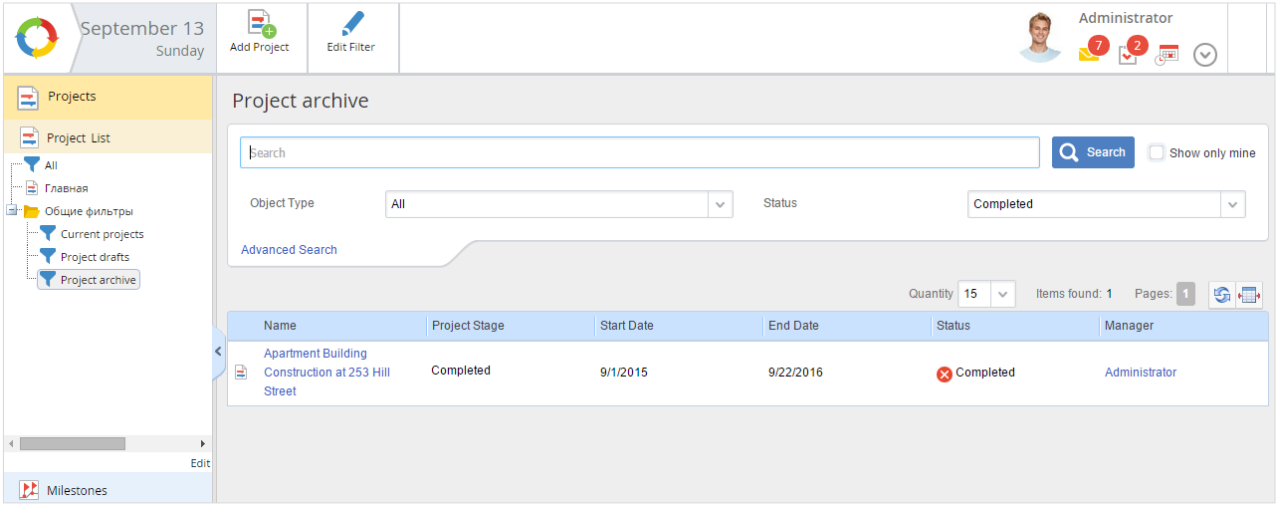


Fig. 39. Project archive

Chapter 6. Projects Conveyor

Projects Conveyor concept optimizes typical processes execution by using business processes and **ELMA Projects+** functions.

Project management organizations work with similar projects, and need to complete the same operations and stages.

ELMA Projects Conveyor concept applies business processes to improve typical project management. Business process management helps to organize typical processes and concentrate on unique tasks, and thus improve typical project execution.

You can avoid deviations in projects with **ELMA Projects+**. The system alerts you about all the negative changes. For example, if planned values cannot be reached.

You can control and monitor projects on different Projects Conveyor stages. Staging projects clarifies the organization in general.

Projects Conveyor is much as an actual conveyor. If there is too many projects at certain stages, it means some of the projects are flawed and you need to get the situation under control.

Business processes are most useful for improving typical operations completion.

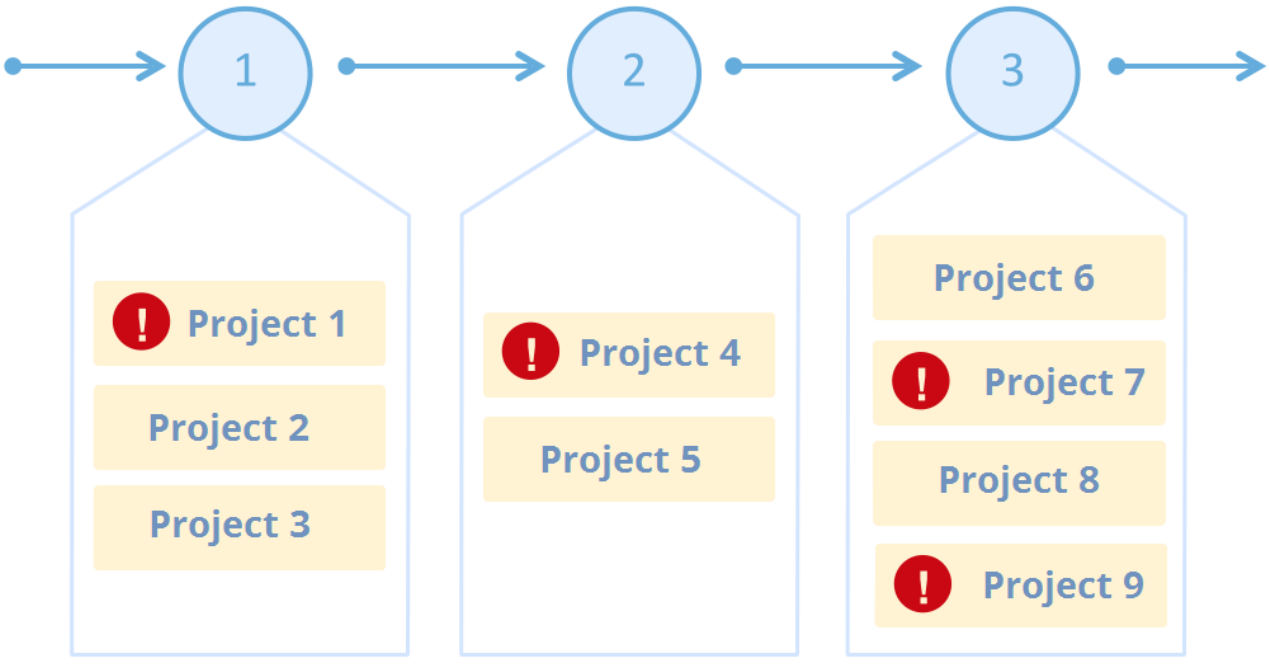


Fig. 40. Projects Conveyor

6.1 Configuring the Projects Conveyor

Projects Conveyor configuration includes these steps:

- Identify projects type in the organization's activity;
- Identify project life cycle and life cycle business processes for each project type;
- Identify project roles, project stages, typical risks, etc. for each project;
- Configure user interfaces for ELMA Projects+ pages.

A construction company is an example of a project management organization. In such a company, each external project is a construction project. There are different types of construction projects. Let us take Low-Rise construction as an example.

Low-Rise construction projects have common stages, typical tasks, documentation, risks, etc. Therefore, it is easy to configure the project conveyor for this type of projects. First, configure this project type in **ELMA Projects+**.

6.1.1. Configuring Project Type

6.1.1.1 Creating a Project Type

To configure the project conveyor, create and configure a project type with **ELMA**. Select **Projects** in ELMA Designer and click **Add** in the top menu (fig. 41).

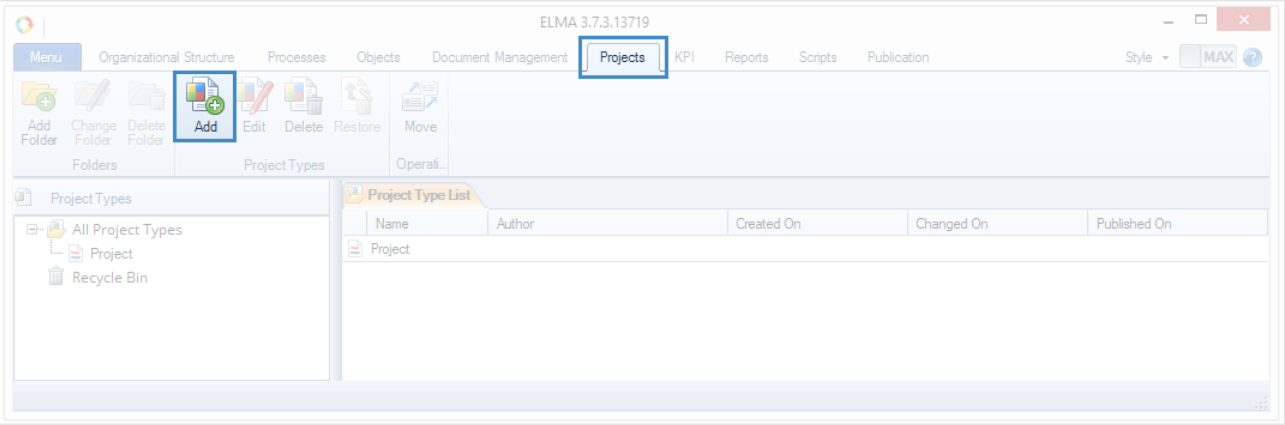


Fig. 41. Creating a project type in ELMA Designer

Enter the project type name in the emerged window and click **Next**.

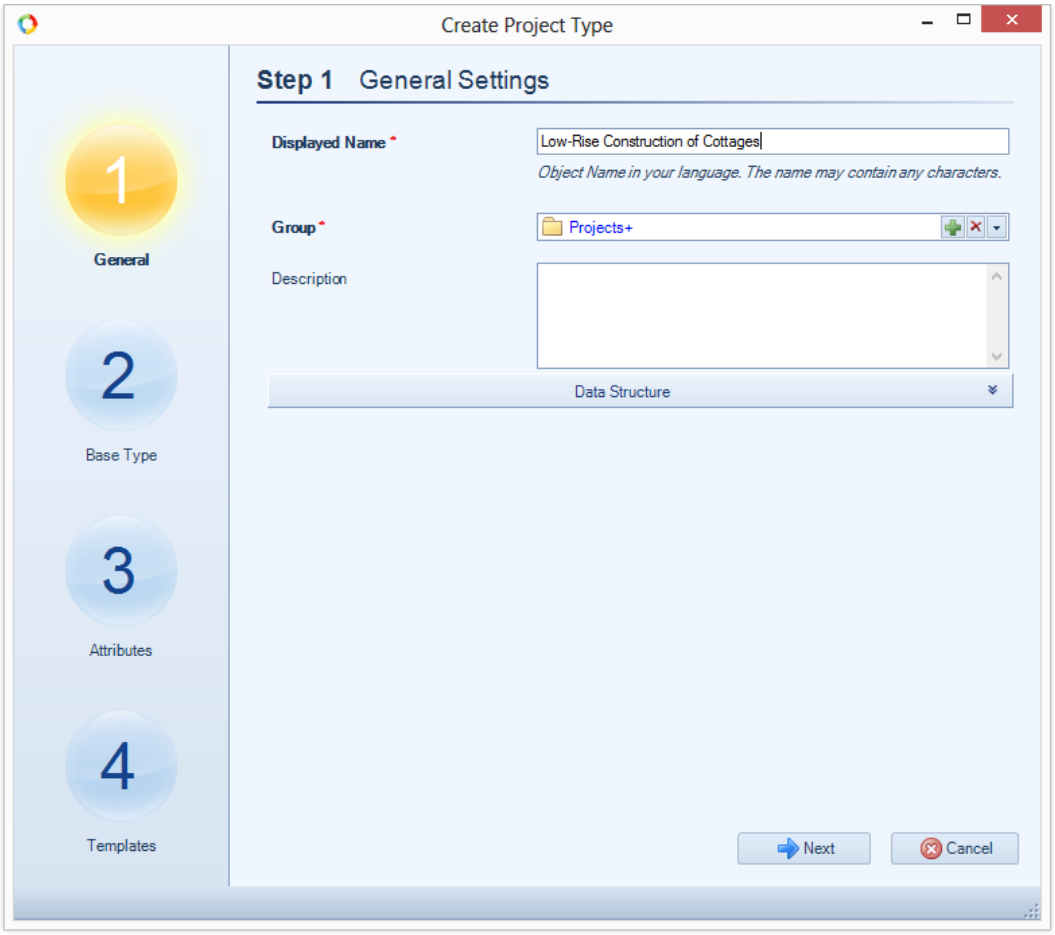


Fig. 42. Creating a project type. Step 1

Leave default settings at the second step and click **Next**.

At the third step, you can configure the project type attributes. For example, create a **Contractor** type attribute to store project customer data in the system.

System fields are marked blue and cannot be changed or deleted. You can add attributes at this stage. Click the right mouse button on the list and select **Add Property** (fig. 43).

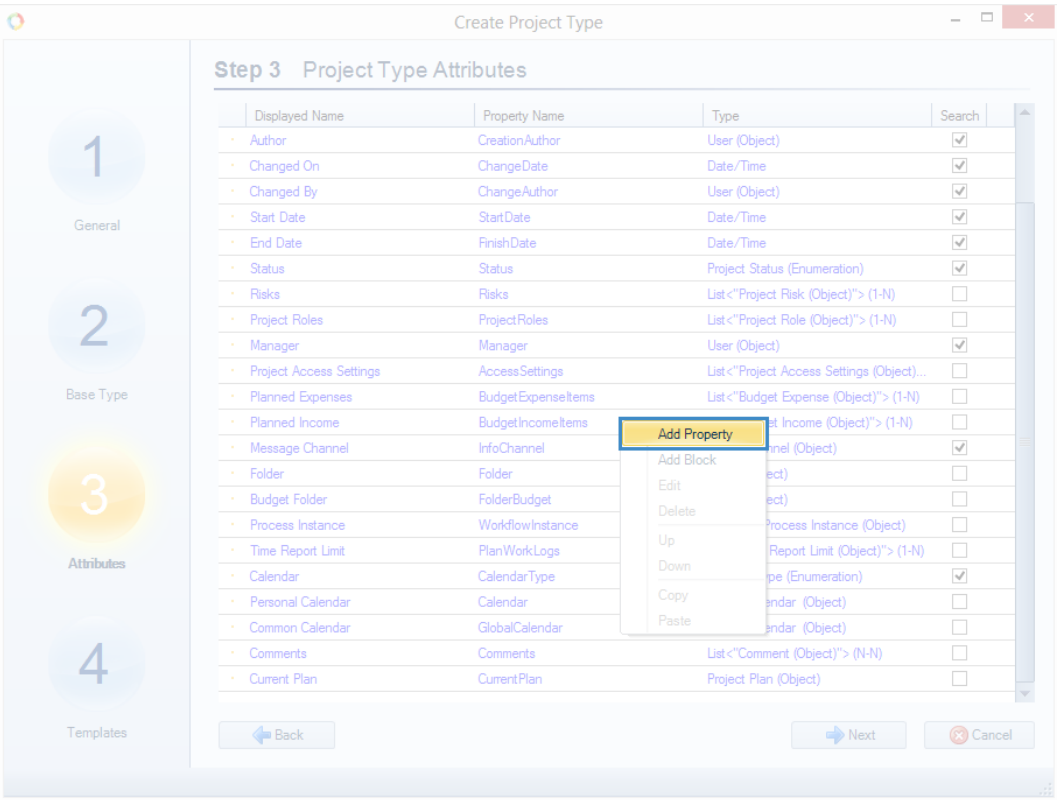


Fig. 43. Adding a project type attribute

Create **Customer** and **General Contractor** fields, select **Contractor** type for both (fig. 44).

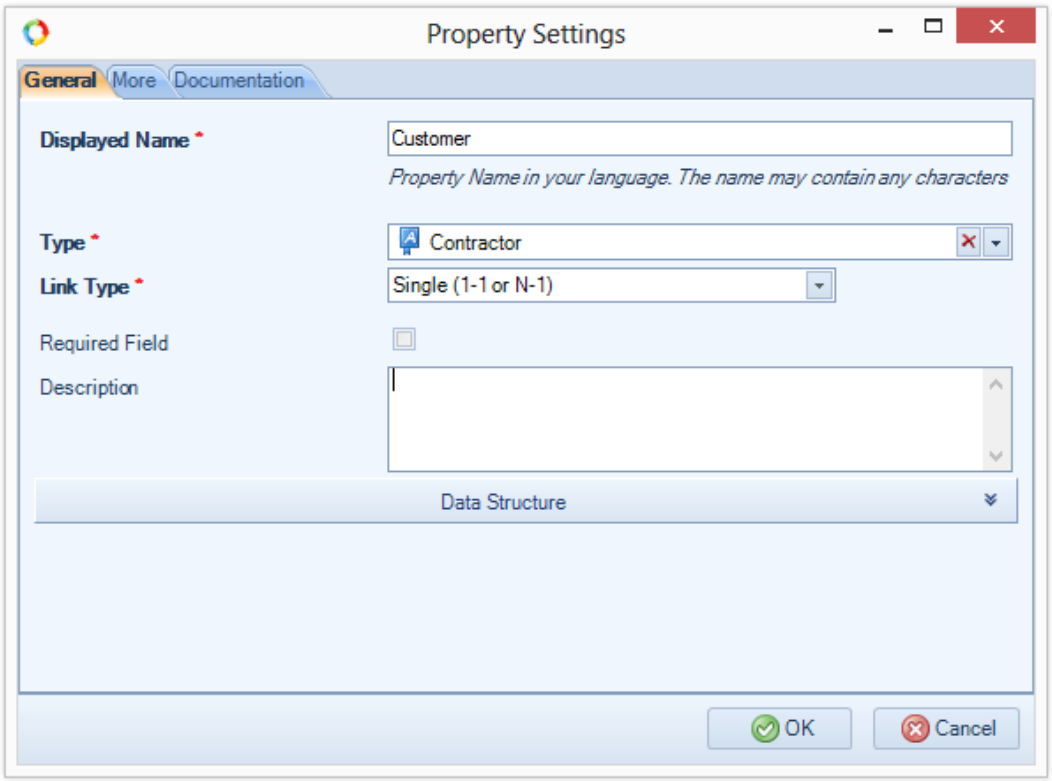


Fig. 44. Configuring project attribute type

After you have created the fields, they are added to the attributes list. Check the **Search** box for both, so that you could filter projects with these fields (fig. 45). Click next to proceed to the next step.

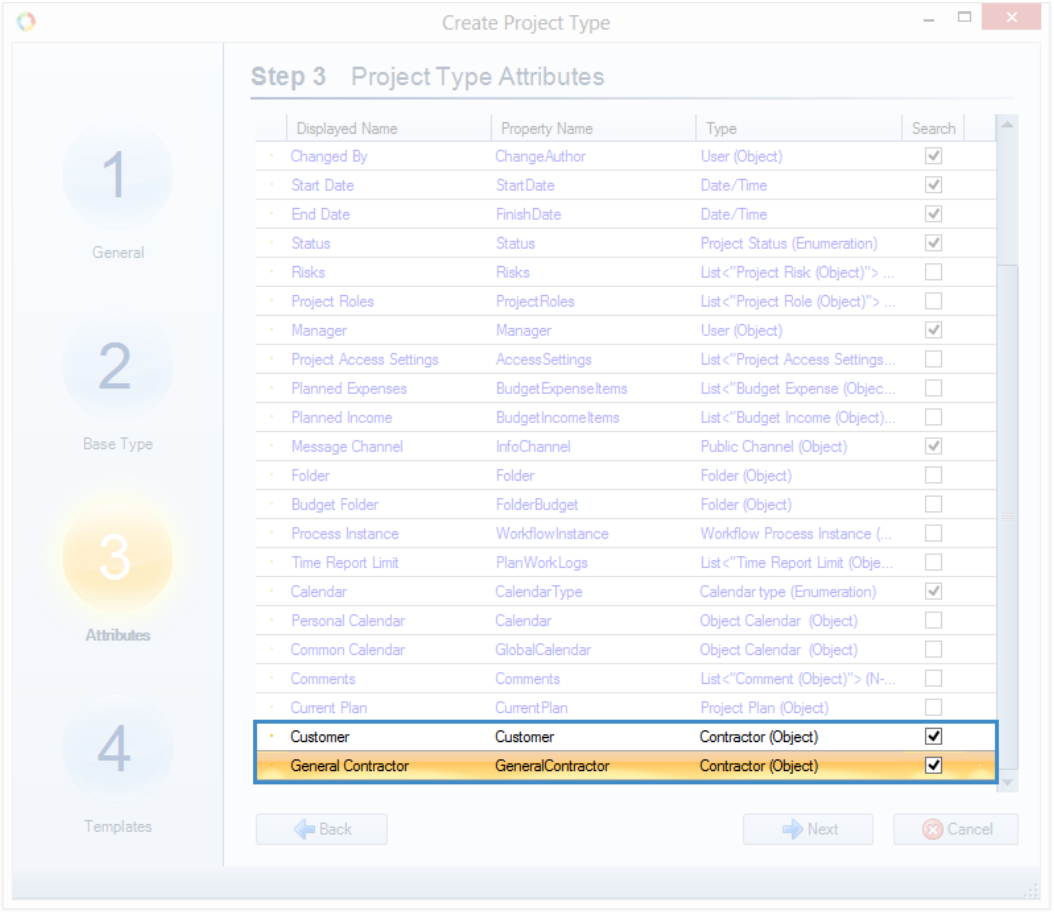


Fig. 45. Advanced list of project type attributes

At step four, you need to select a project name template. These templates name projects of this type in **ELMA Projects+**. For example, we name projects **Cottage Construction (Customer name)**. To do so, enter **Cottage Construction ()** in the **Project Name Template** field and set the cursor in the brackets. Then select **Insert project attribute → Customer → Name** (fig. 46).

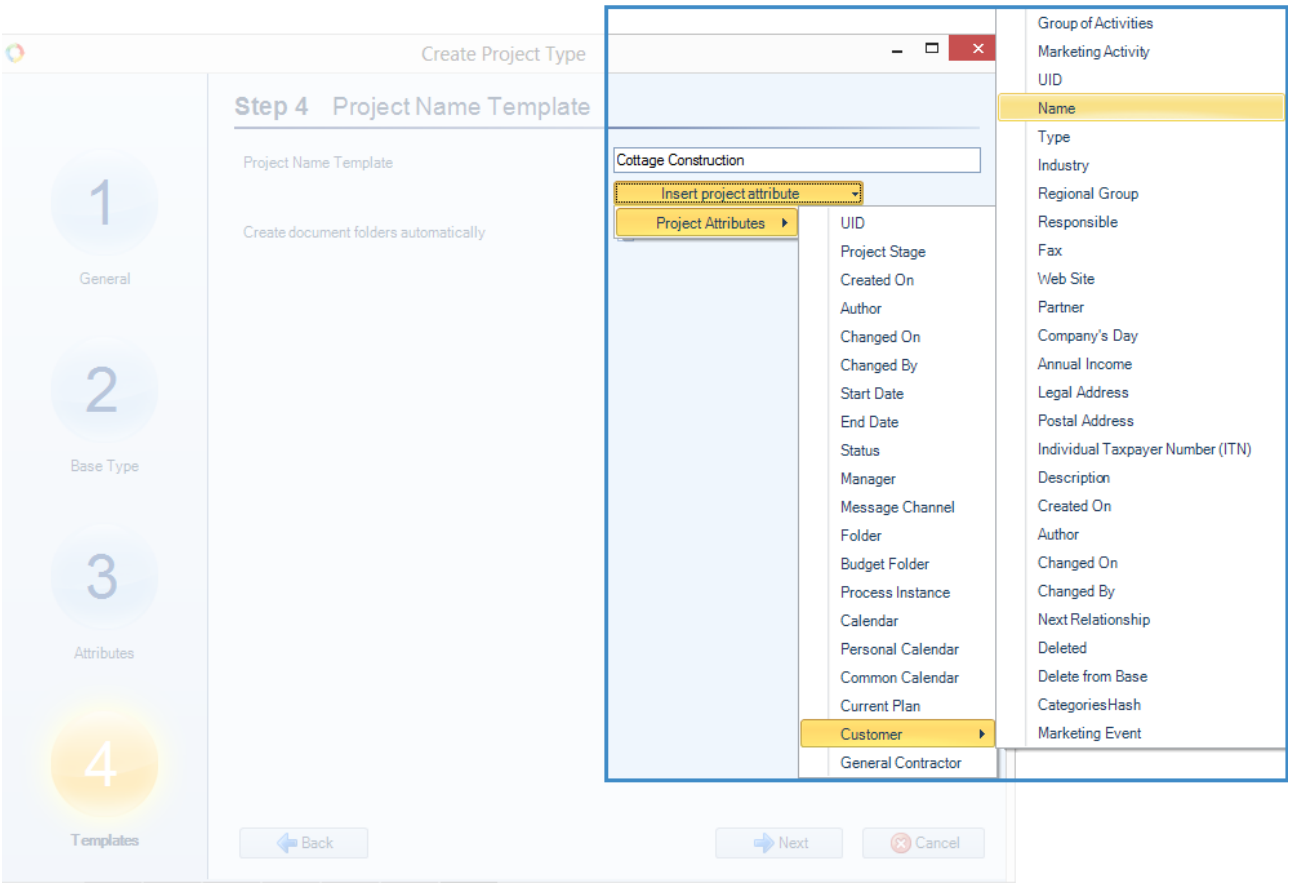


Fig. 46. Creating a project name template

You have created a template as in fig. 47.

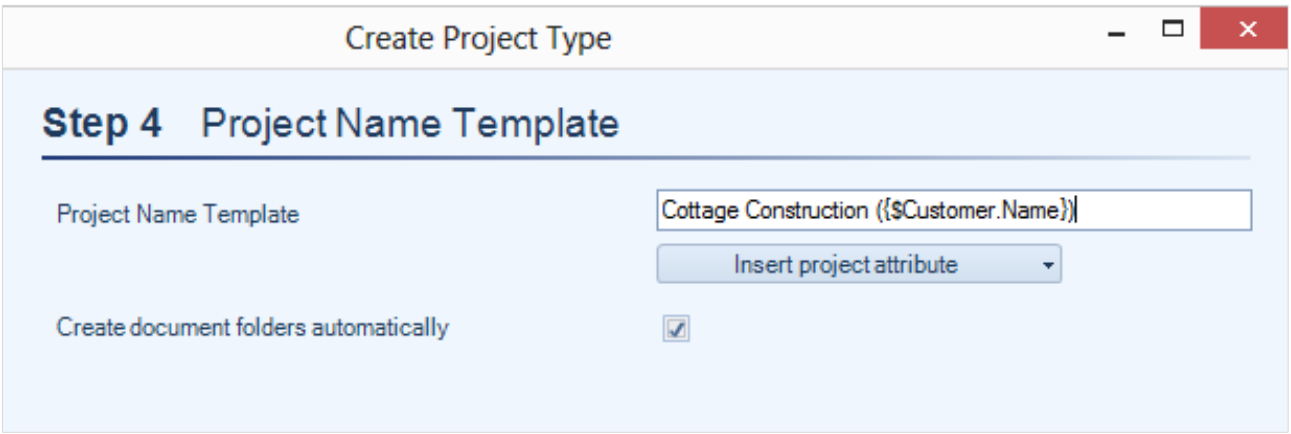


Fig. 47. Created project name template

Click **Next** to complete creating a project type. Project type page opens. Here you can fine-tune the type (fig. 48).

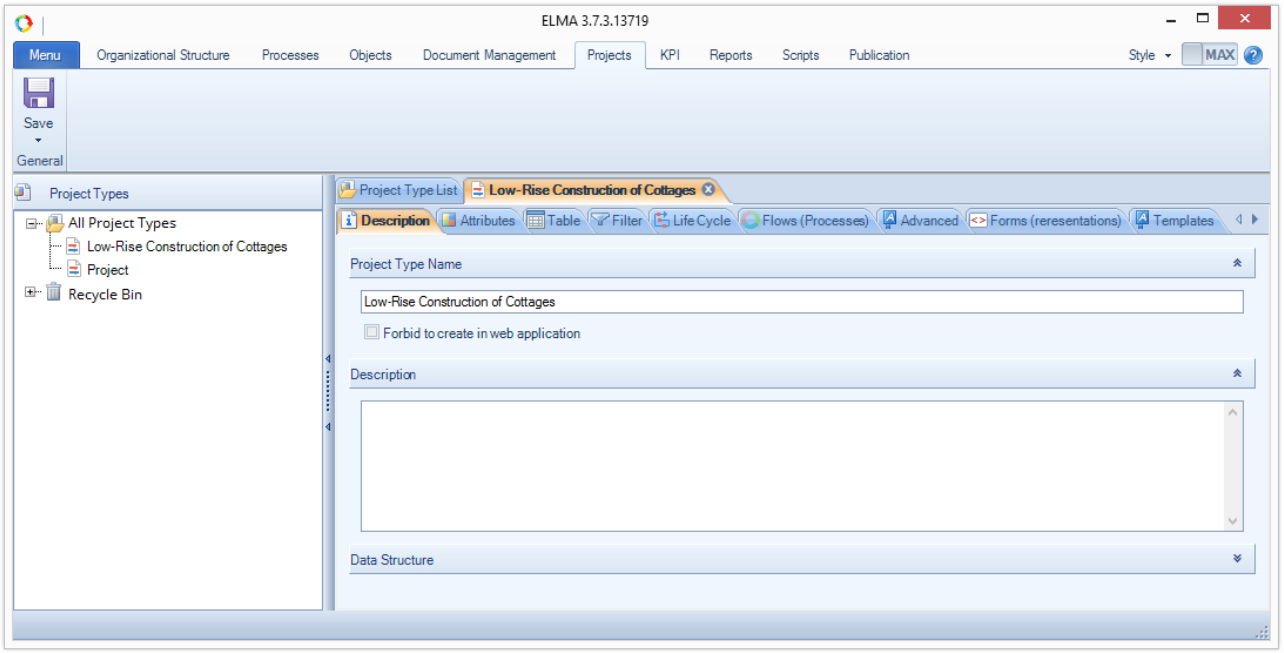


Fig. 48. Project type page

You can change the attributes list on the **Attributes** tab, as described at project type creation **Step 3**.

6.1.1.2 Configuring Life Cycle

A project life cycle is a set of project stages and transitions between them. You can configure it in the **Life Cycle** tab (fig. 49).

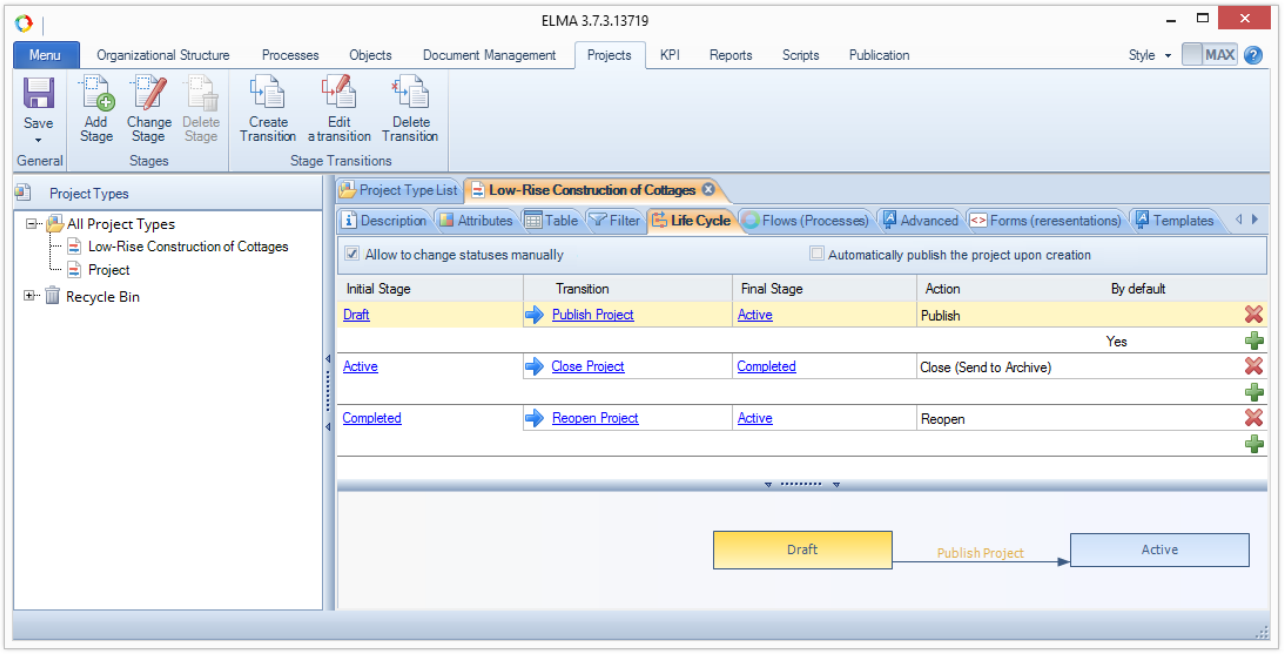


Fig. 49. Project type page. Life Cycle tab

6.1.1.2.1 Project Statuses and Stages

A **Project Status** shows the project general state and has three values: draft, active, completed. **Draft** status means that project activities has not been started (**Draft** is a default status for all projects in **ELMA**). **Active** status means that the project is started. **Completed** status means that the project is finished.

A **Project stage** is a life cycle stage. It shows the current project progress.

A project type has three default stages (**Draft**, **Active** and **Completed**) and default transitions between them.

These three stages are not detailed and informative enough for **Low-Rise construction of cottages**. We can use the stages below for this project type:

- Draft – project preparation stage;
- Obtaining Construction Permits;
- Performing Construction Works;
- Construction Completion and Commissioning
- Completed

Configure these stages in the system. Leave **Draft** and **Completed** stages. Delete **Active** stage. Select it and click **Delete Stage** in the top menu (fig. 50).

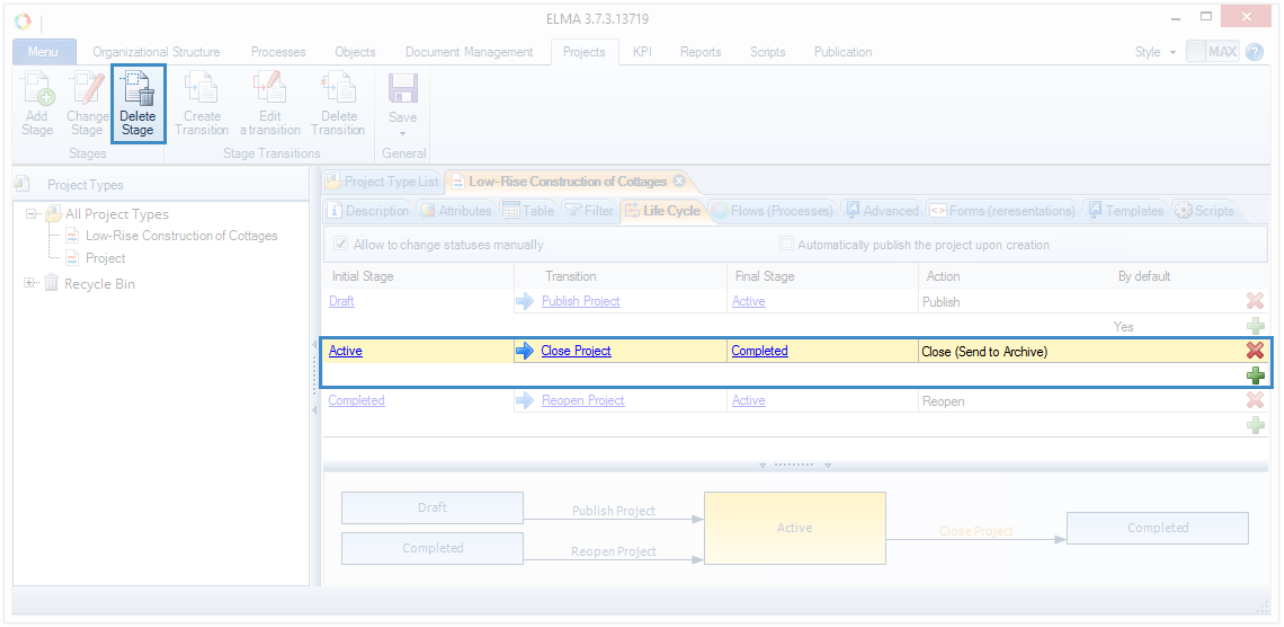


Fig. 50. Deleting a life cycle stage

Now click **Add Stage** in the top menu to add life cycle stages (fig. 49). Enter a name in the emerged window and click **OK**.

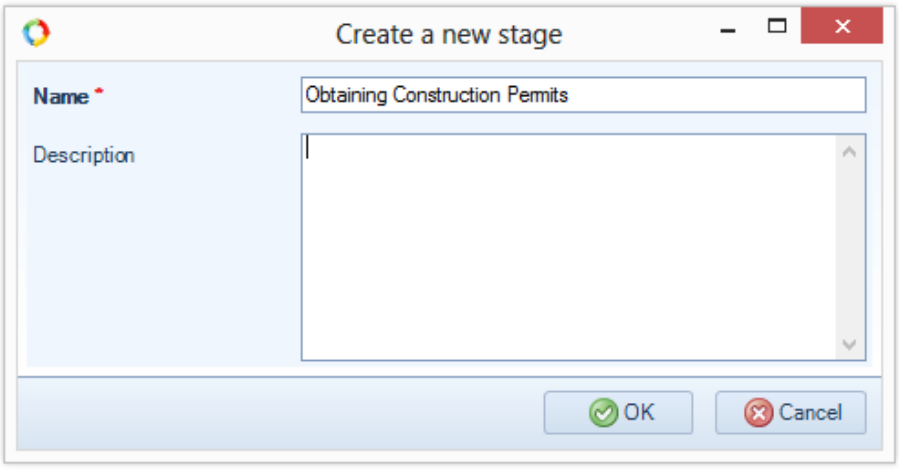


Fig. 51. Creating a life cycle stage

Add the other stages in the same way (fig. 52).

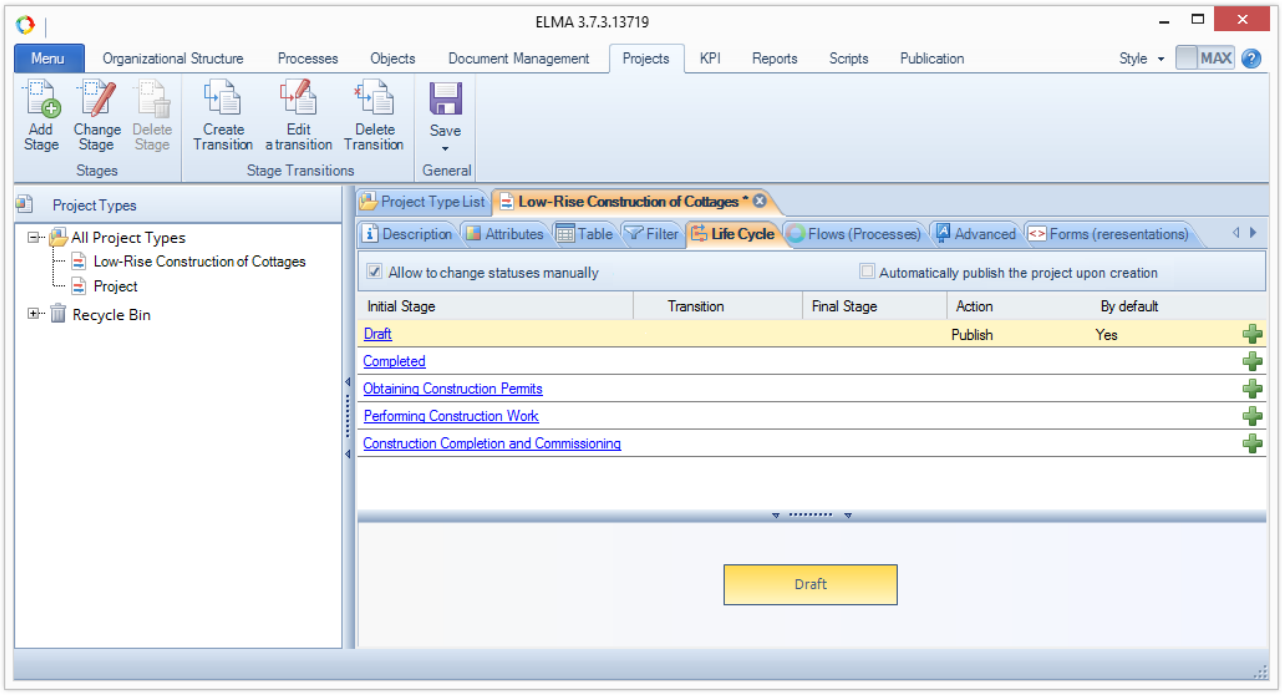


Fig. 52. Project type stages

Each transition between stages requires different conditions. Configure transitions.

First, configure the transition between **Draft** and **Obtaining Construction Permits** stages. The project must be published. Click **Create Transition** in the top menu (fig. 52) and fill in the data in the emerged window (fig. 53).

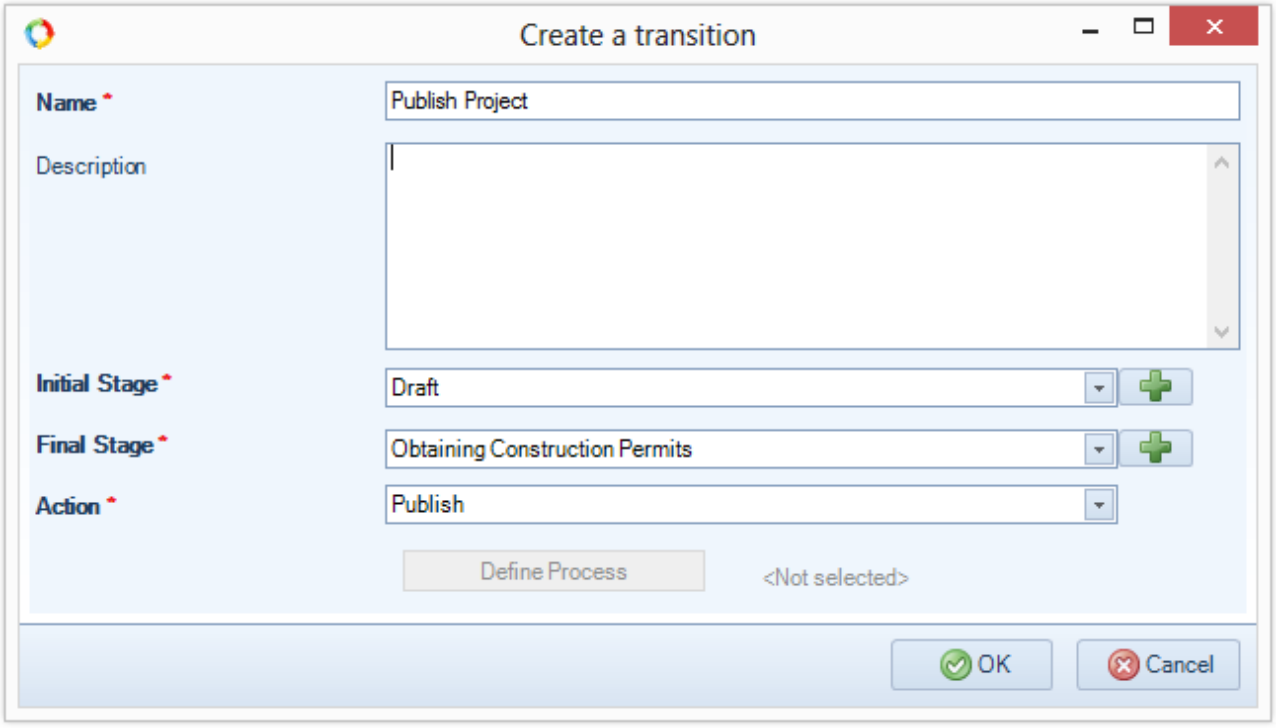


Fig. 53. Creating Publish Project transition

Create a completing transition in the same way (fig. 54).

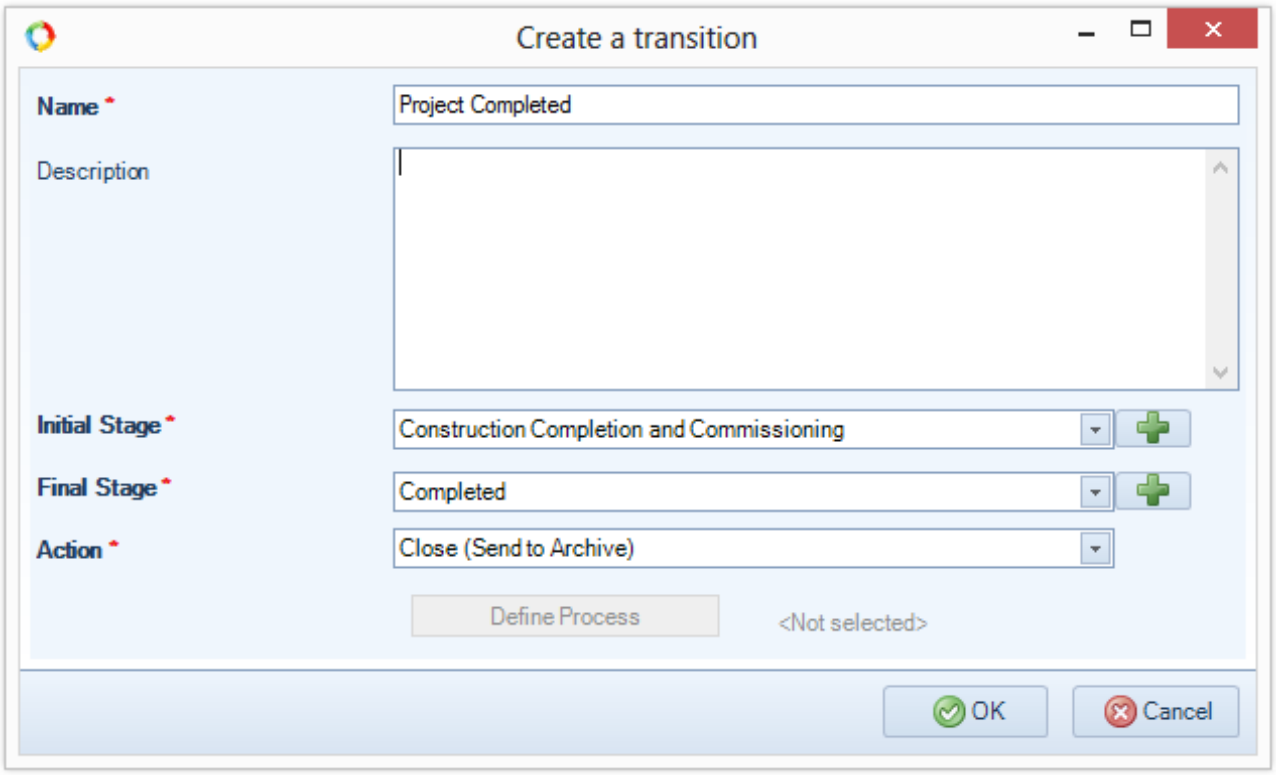


Fig. 54. Creating Project Completed transition

The main transition principle is that certain tasks must be completed to transit to the next stage. This principle applies to all transitions between **Obtaining Construction Permits** and **Construction Completion and Commissioning**. Add business processes to each transition. A transition to the next stage cannot be performed until the business process is completed.

Create all the transitions without defining business processes (not created yet). Creating processes and adding them to the life cycle are described below (para. **6.1.1.4 Modeling Project Processes**).

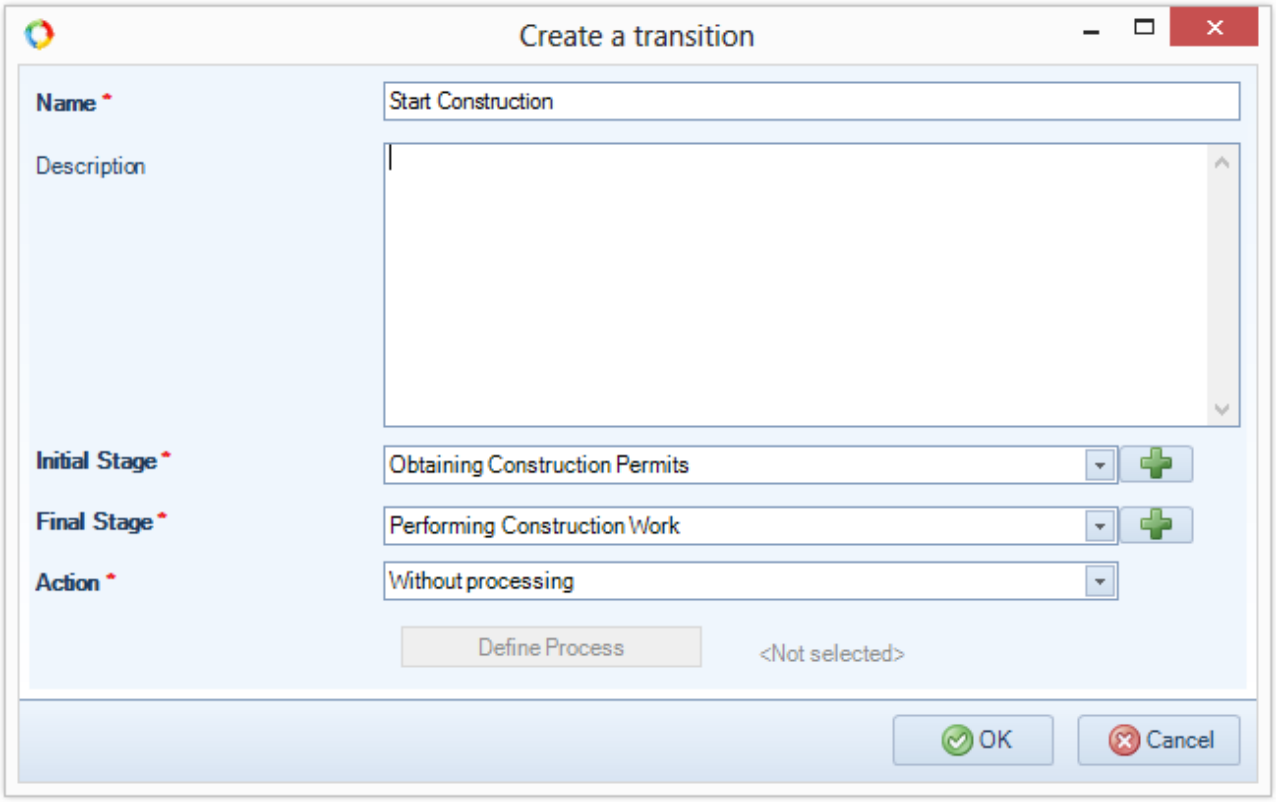


Fig. 55. Creating Start Construction transition

As the result, the project life cycle looks like in fig. 56.

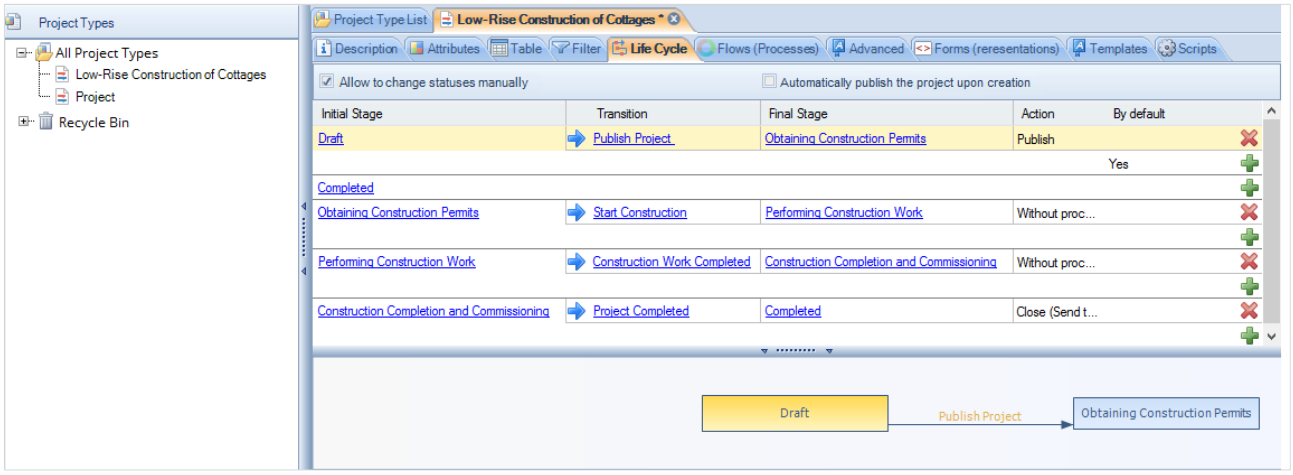


Fig. 56. Project life cycle transitions

6.1.1.3 Publishing a Project Type

Publish a project type to save changes and make it available for business processes modeling. Click **Save** in the top menu and select **Publish** (fig. 57).

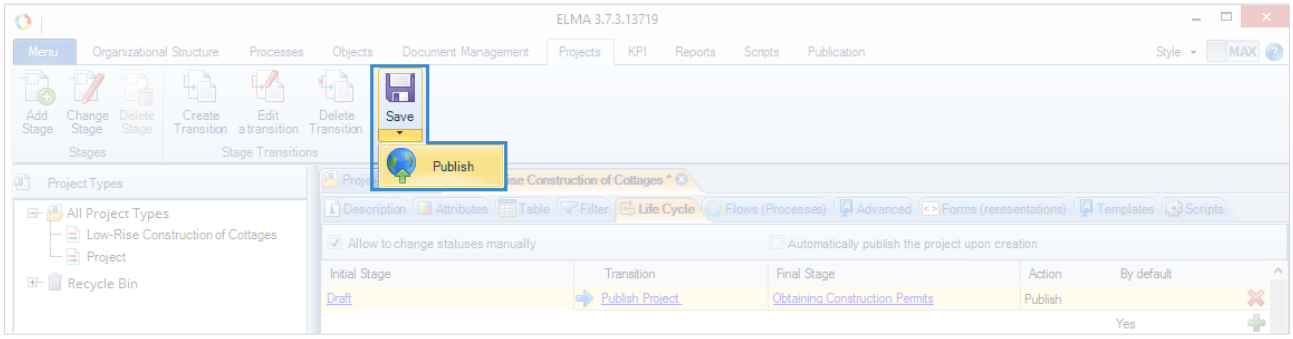


Fig. 57. Publishing a project type

Select **Publication** tab and restart **ELMA** server to apply changes (fig. 58).

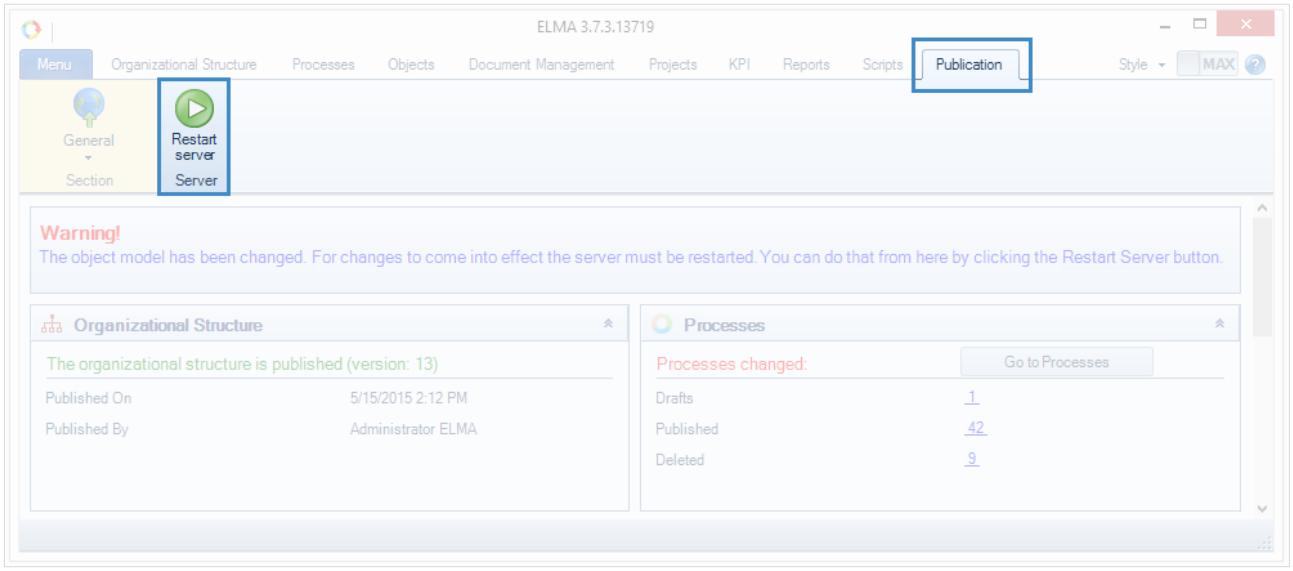


Fig. 58. Restarting ELMA server

The project type is available for modeling business processes in the web application. Now we can proceed to modeling business processes for each transition and add the processes to the transitions.

6.1.1.4 Modeling Project Processes

Model project processes in **ELMA Designer**, using **Processes** page. Project processes modeling is much as business process modeling. Learn more about business process modeling in **ELMA BPM Platform** quick-start manual and in **ELMA Help**. This section describes project processes distinct features.

Take **Start Construction** transition as an example (between **Obtaining Construction Permits** and **Performing Construction Work**). Consider the following logic. After obtaining construction permits, you need to hold a tender for general contractor, who will perform construction woks. In this case, you need to start a tendering business process in the project. Only after the business process is completed the project stage can change to **Performing Construction Work**. **ELMA Projects+** provides you with all the necessary tools.

6.1.1.4.1 Creating a Project Process

Assume that the tendering business process has this structure:

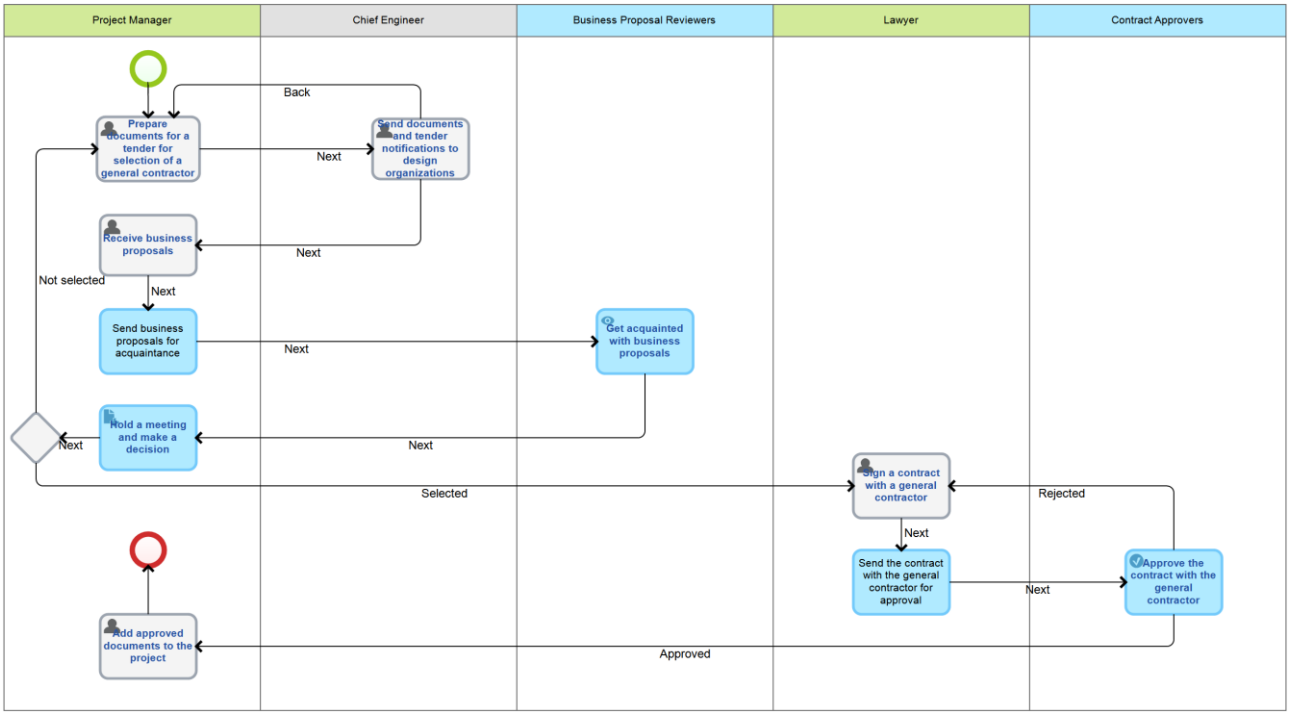


Fig. 59. General contractor tendering business process

Since you are going to use the process above for transitions, you need to store the project information in the process context. Create a context variable (name it **Project**) with **Basic Project Type** (All objects → Projects+) and check the **Input** box (process context is described in **ELMA BPM Platform** quick-start manual). In the same way, create a **Low-Rise Construction Project** input variable (set **Low-Rise Construction of Cottages** type).

Next, you need to select the process model step after which the project stage changes. The stage can change at any project process step, but in this case, it is best to change it after all tasks are completed.

In a business process map, use **Change Project Stage** activity in the **Plug-Ins** section to change the project stage.

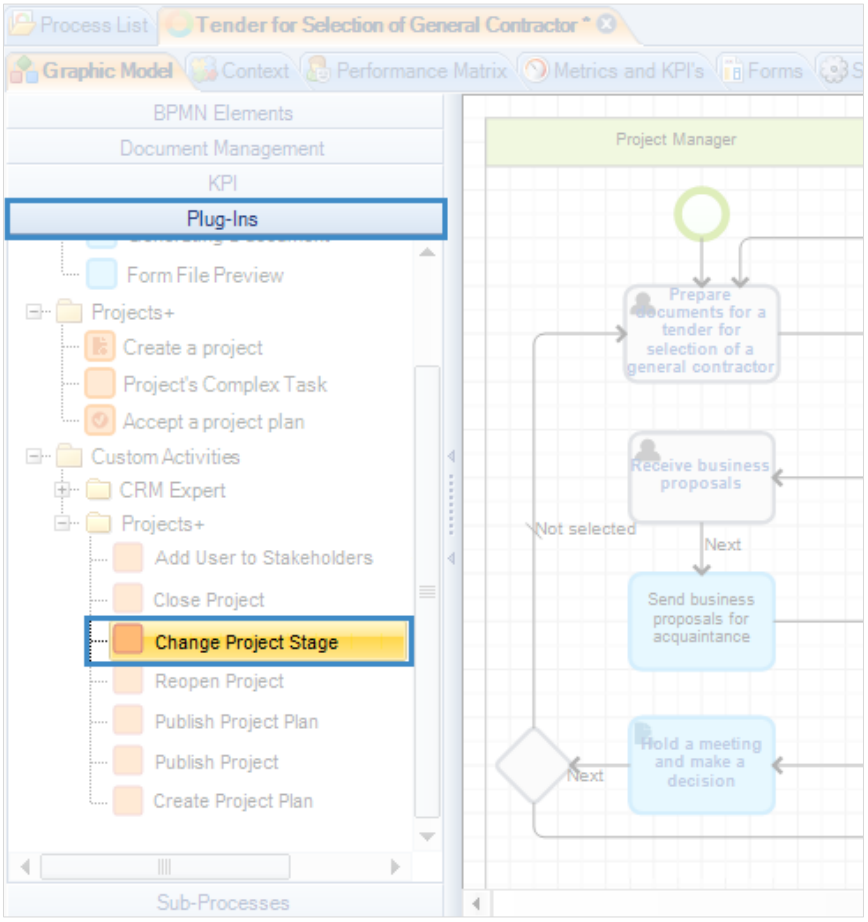


Fig. 60. Change Project Stage activity

Include the activity into the process map, identify its place and name and link it to other activities (fig. 61).

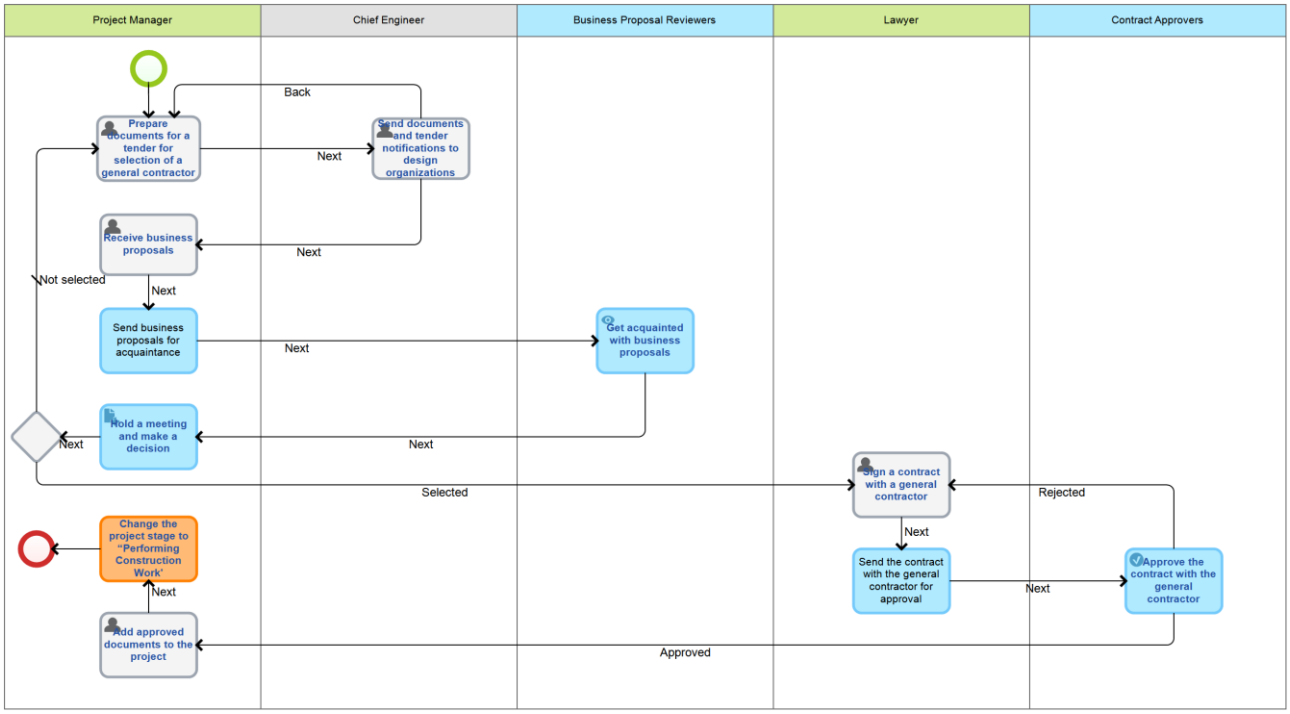


Fig. 61. Adding the activity to the process map

Double click the activity to open its configuration window (fig. 62). Select **Input/output Attributes** tab. In the field **Project**, specify the project, in which you need to change stage. In the field **Project Stage**, specify the life cycle stage you need to set.

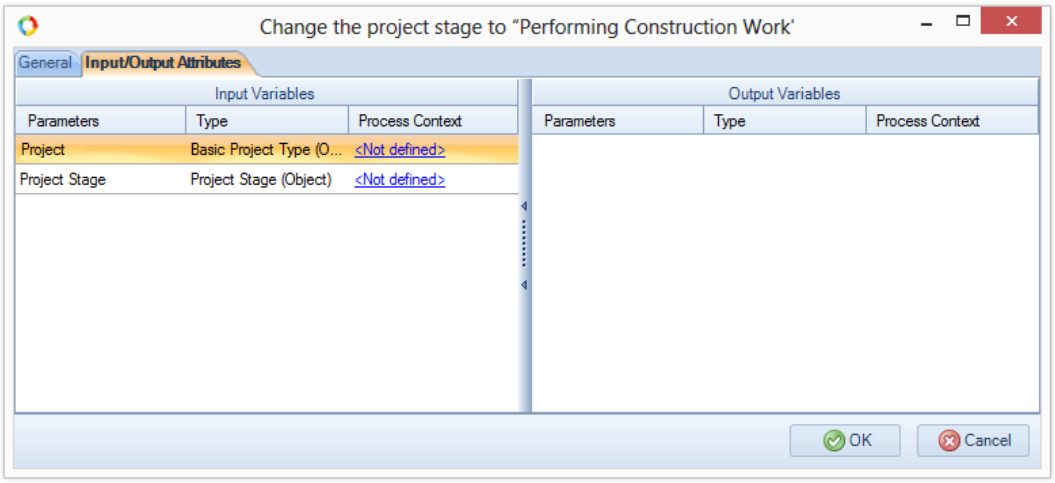


Fig. 62. Change project stage configuration

Click **<Not defined>** in the **Project** field and select **Project** in the context menu (that is the name of the variable we created earlier). The value of this variable will be selected automatically. It depends on the project you need to change stage in (para. **6.2.4. Changing Life Cycle Stages**).

Click **<Not defined>** in the **Project Stage** field. Select **Create Property** in the context menu (fig. 63).

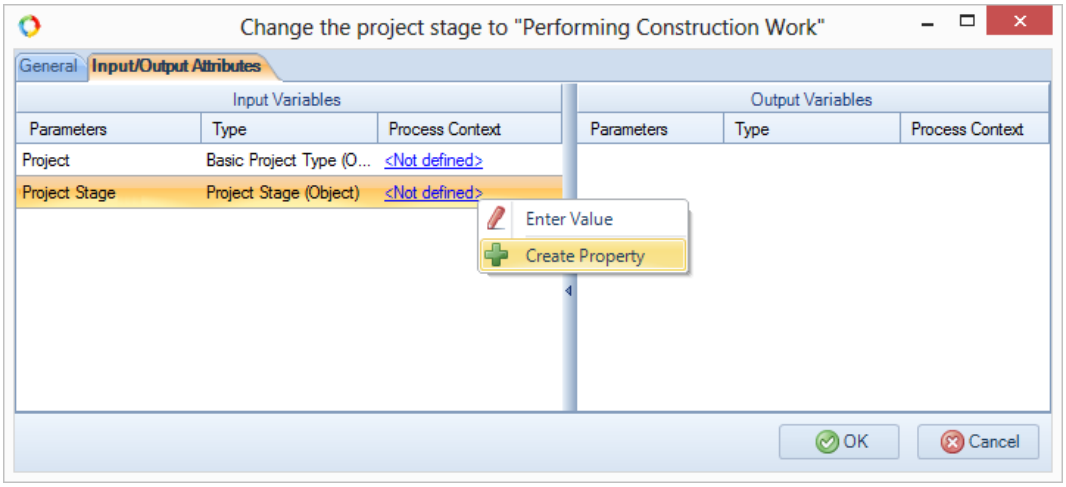


Fig. 63. Creating a context variable to store the project stage

After you have selected it, the settings window opens. Select **More** tab and check the **Input** box (fig. 64). Leave other settings unchanged and click **OK**.

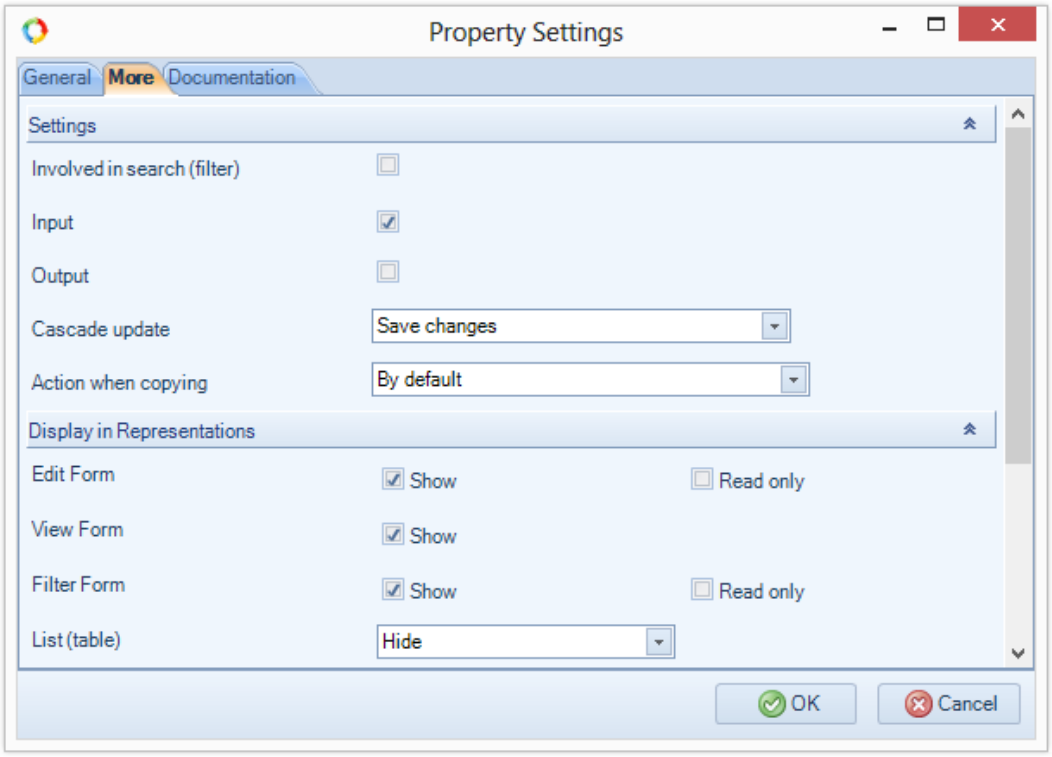


Fig. 64. Project Stage type variable settings

Change project stage settings window should look like in fig. 65.

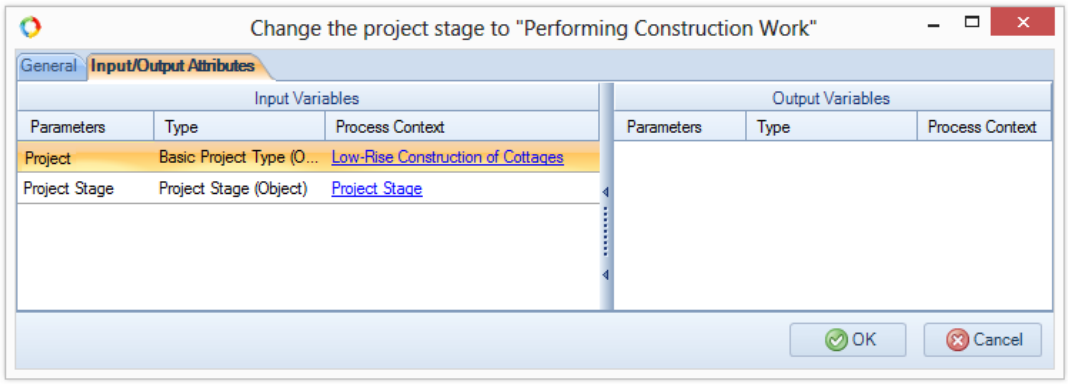


Fig. 65. Change project stage completed settings

Click **OK**. Publish the business process. Click **Save** button and select **Publish** (fig. 66). This operation is described in **ELMA BPM Platform** User Manual manual.

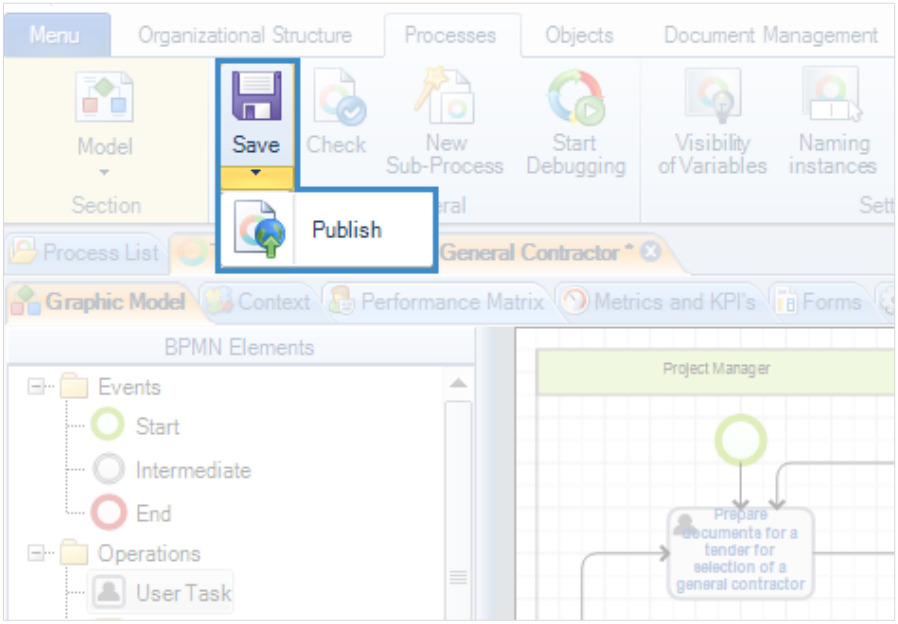


Fig. 66. Publishing a business process

Model business processes for other life cycle transitions in the same way. Their details depend on the project activities of a company.

6.1.1.4.1 Adding Processes to Project Life Cycle

Open the project type page and select **Life Cycle** tab (fig. 56). Click the **Start Construction** transition. Select **Start Process** in the **Action** field in the emerged window. Click **Add Process** and select **Tender for Selection of General Contractor**. **Project Variable** and **Final Stage Variable** fill in automatically. The settings window should look like in fig. 67.

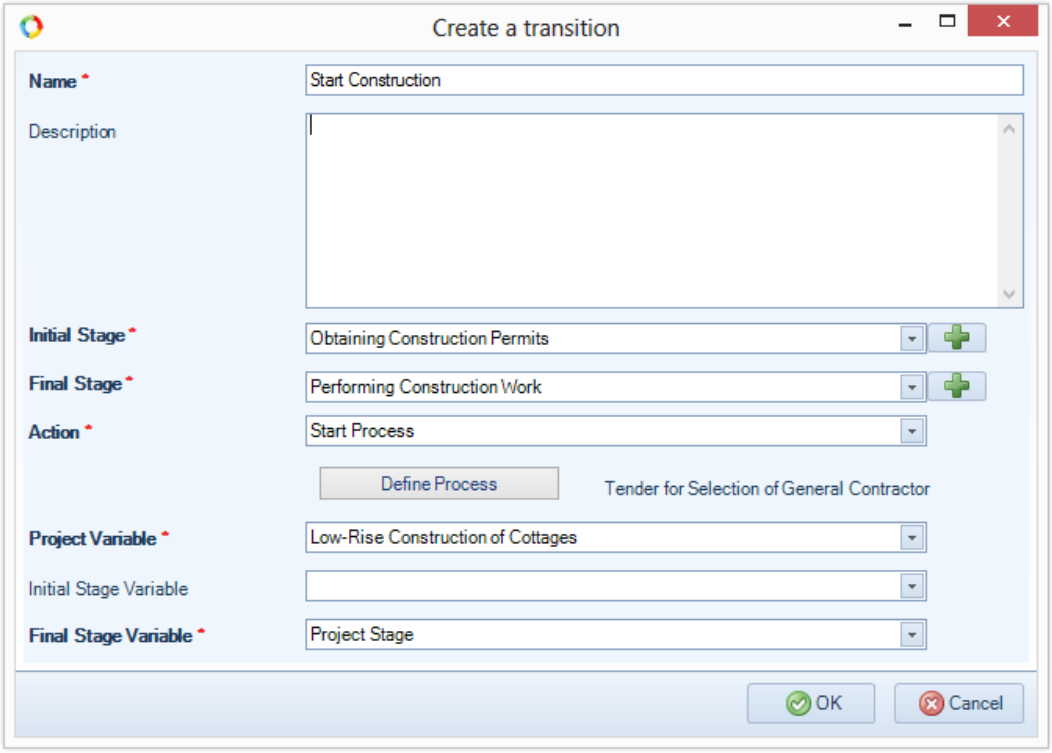


Fig. 67. Adding a process to a life cycle transition

If there are several one-type variables, you select the one you need in the fields. Click **OK** to save changes. The **Action** column will show a start process note in the **Life Cycle** tab (fig. 68).

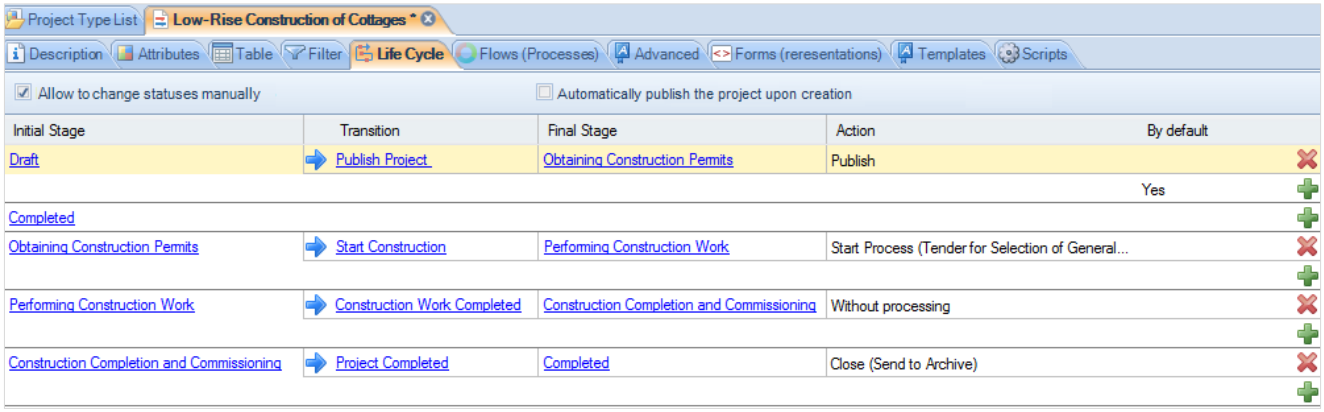


Fig. 68. Project life cycle. A transition with a business process start

Add business processes to the life cycle transitions in the same way.

6.1.1.5 Configuring Forms

Earlier we added **Customer** and **General Contractor** attributes (para. **6.1.1.1. Creating a Project Type**). To make these attributes available in the web application, configure their display.

Open **Forms (representations)** tab of the project type page (fig. 69).

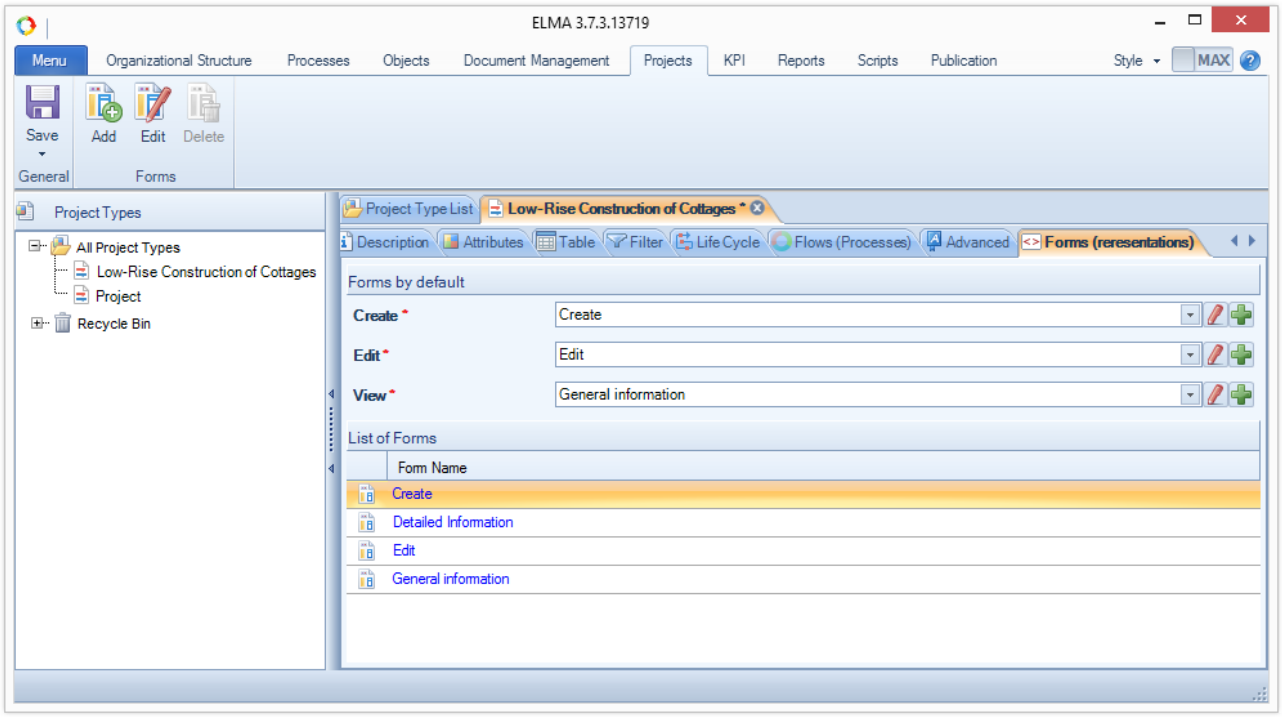


Fig. 69. Forms (representations) tab

You can see four default forms in the list of forms. Double click **Create** form to edit it. Form editing window opens in a new **Forms** tab in **ELMA Designer**. Form (in the design view) is to the right; the attributes list is to the left (fig. 70).

Learn more about form designer in **ELMA BPM Platform** quick-start manual. This section describes adding new attributes to the form.

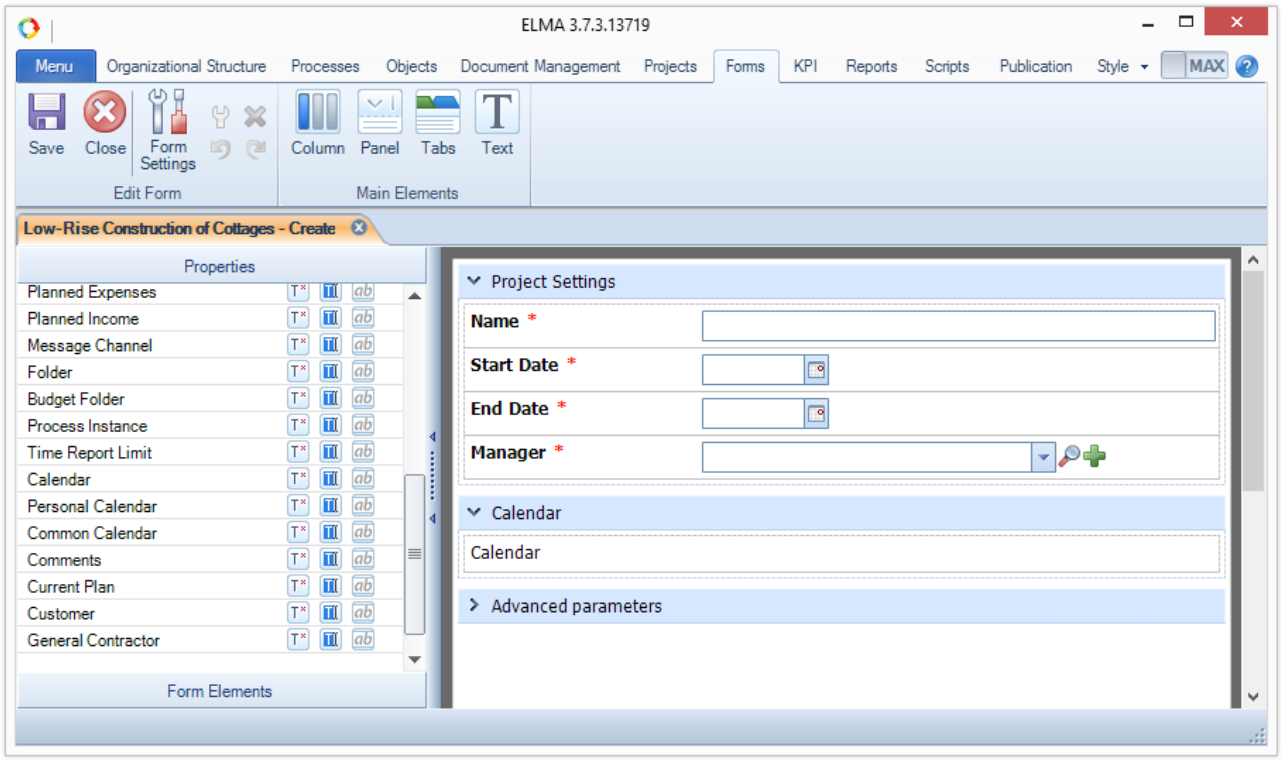


Fig. 70. Editing a form

You can add an attribute to the form by dragging it from the side panel to the form and placing them with the cursor. The forms, where you can add an attribute, are highlighted with light green. The suggested adding place is highlighted with dark green (fig. 71).

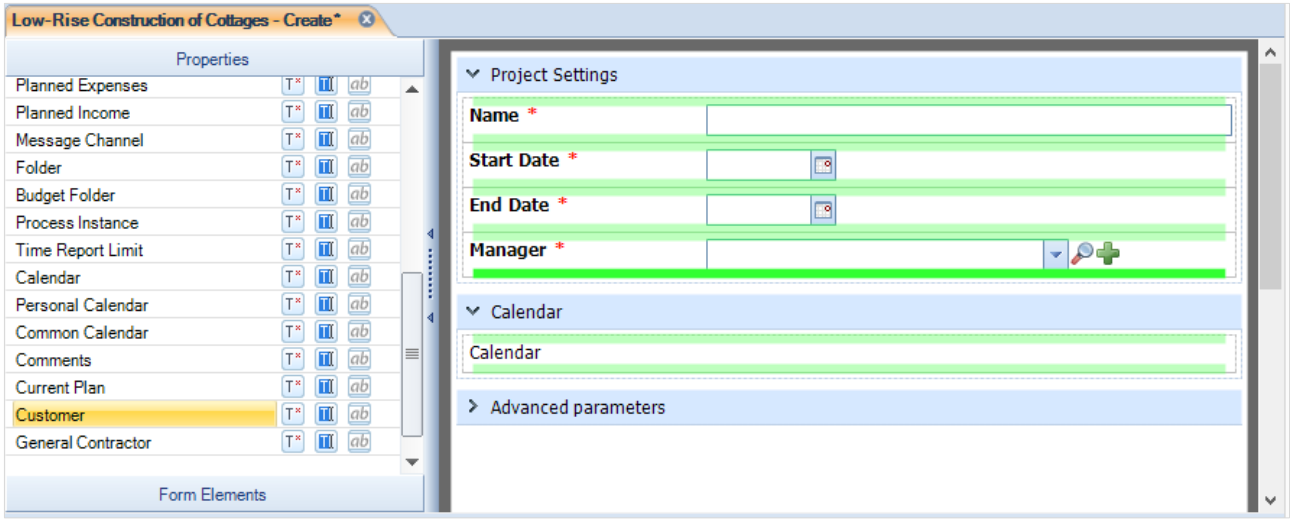


Fig. 71. Dragging an attribute from the list to the form

The added attribute is shown in the form with all the others (fig. 72).

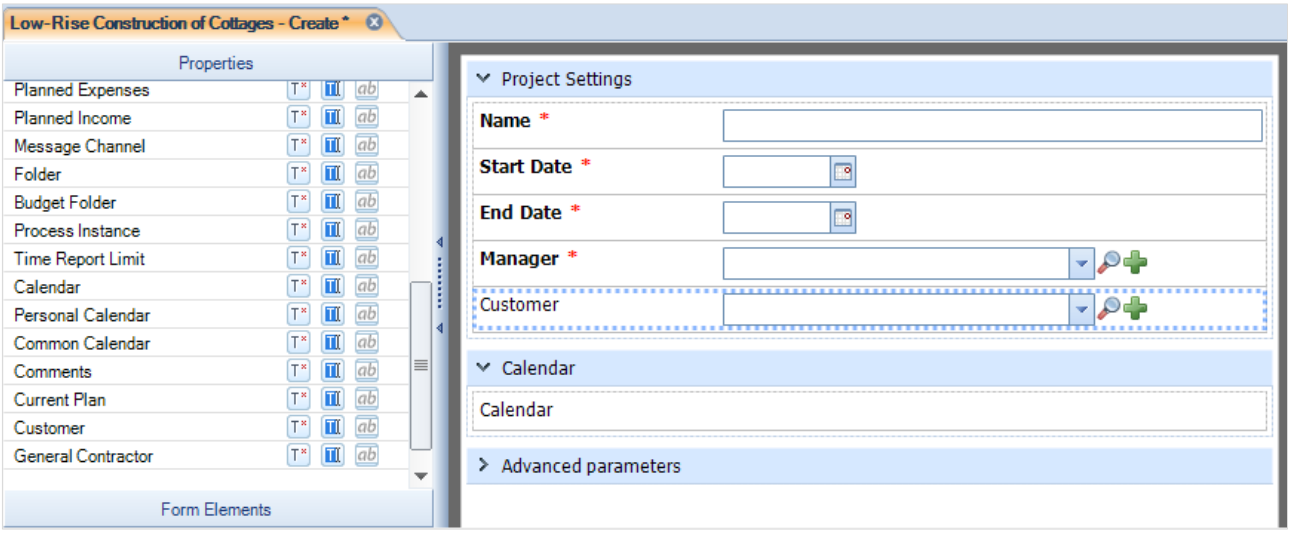


Fig. 72. An attribute added to the form

Double click the attribute in the form to open its display settings. Check the **Required field** box (means, that the users are unable to create a project, without specifying the customer). Leave the **Read only** box unchecked.

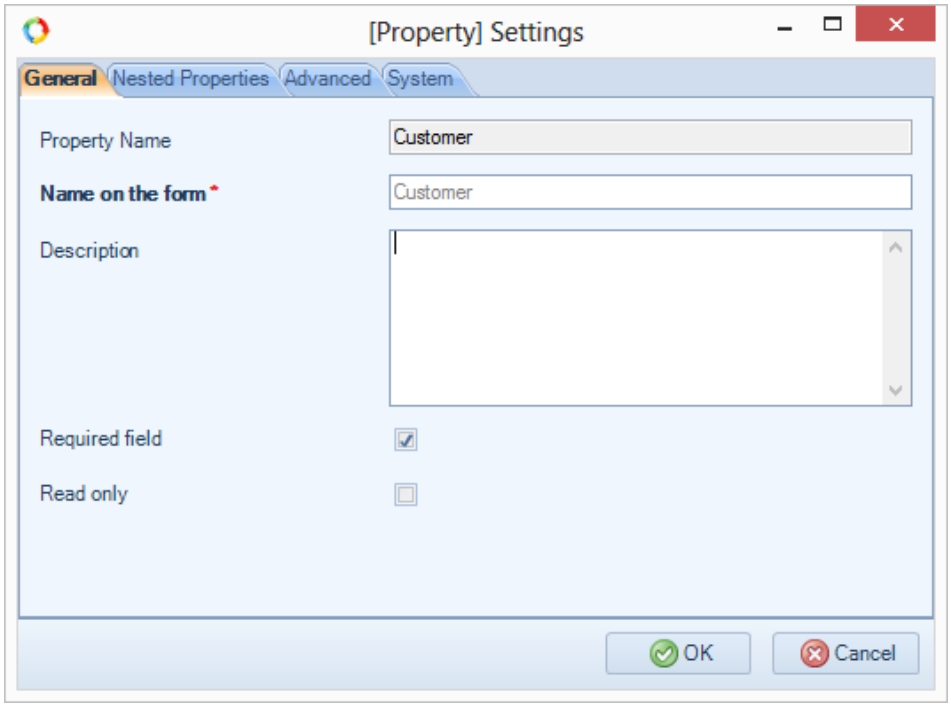


Fig. 73. Attribute display settings

Do not add the **General Contractor** field to the project creation form, because at this step the general contractor is not identified. Next, click **Save** button in the top menu and click **Close** button (fig. 74).

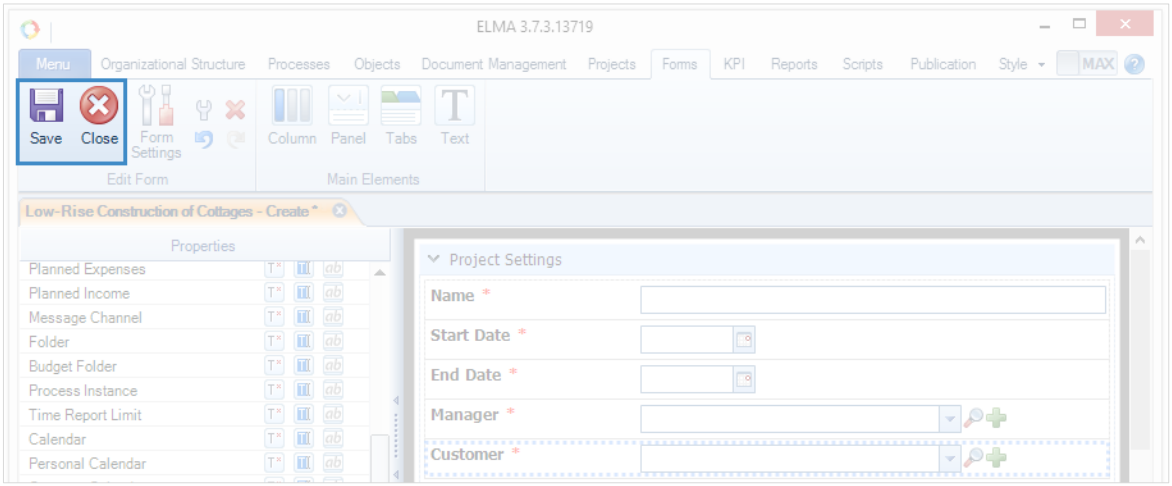


Fig. 74. Saving and closing the form

After you have closed the form, the **Forms (representations)** tab opens (fig. 69).

Configure the **Edit** form (add both attributes in editing mode) and the **View** form (add both attributes in reading mode).

Save forms to apply changes and then publish the project type (para. **6.1.1.3 Publishing a Project Type**).

6.1.2. Project Roles

User project roles are user groups, created to control their access to different components of **ELMA Projects+**. If you assign roles to users, you can avoid dealing with each user settings individually.

Log in to the web application as the administrator (login – admin, no password by default).

Configure roles in **Administration** → **Projects** → **Project Types** (fig. 75).

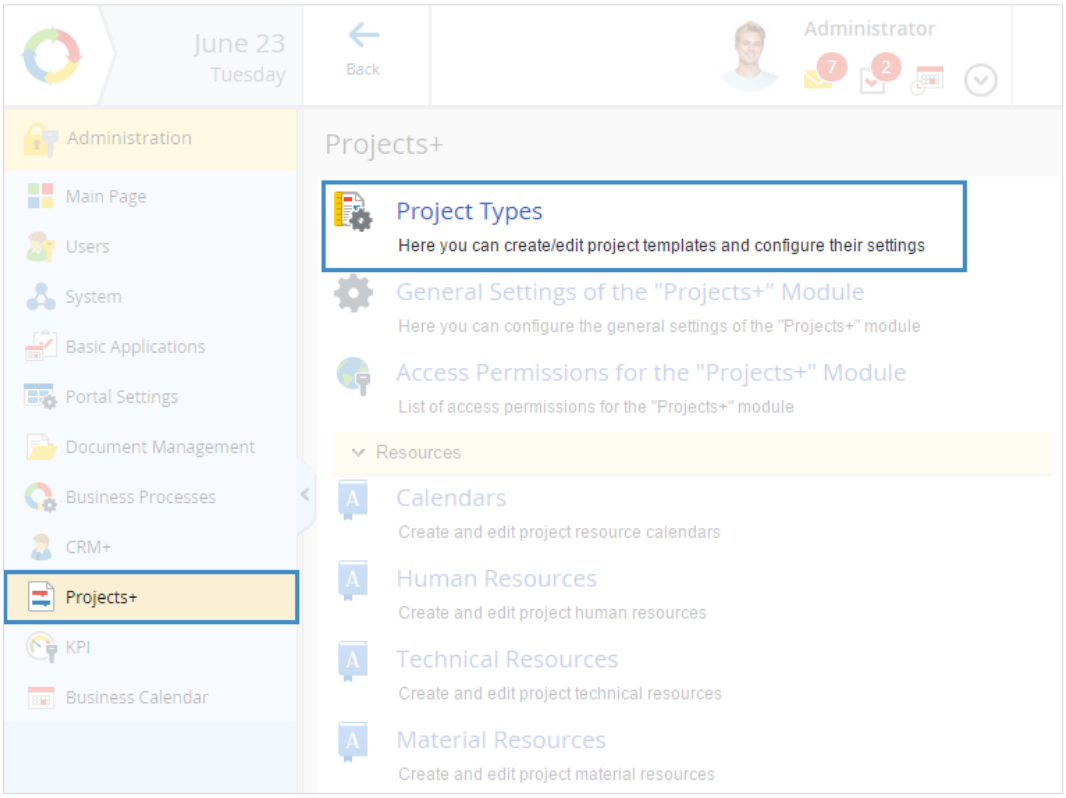


Fig. 75. Administration section - Projects

Select the **Low-Rise Construction of Cottages** project type and open **Roles** tab on the opened configuration page (fig. 76).

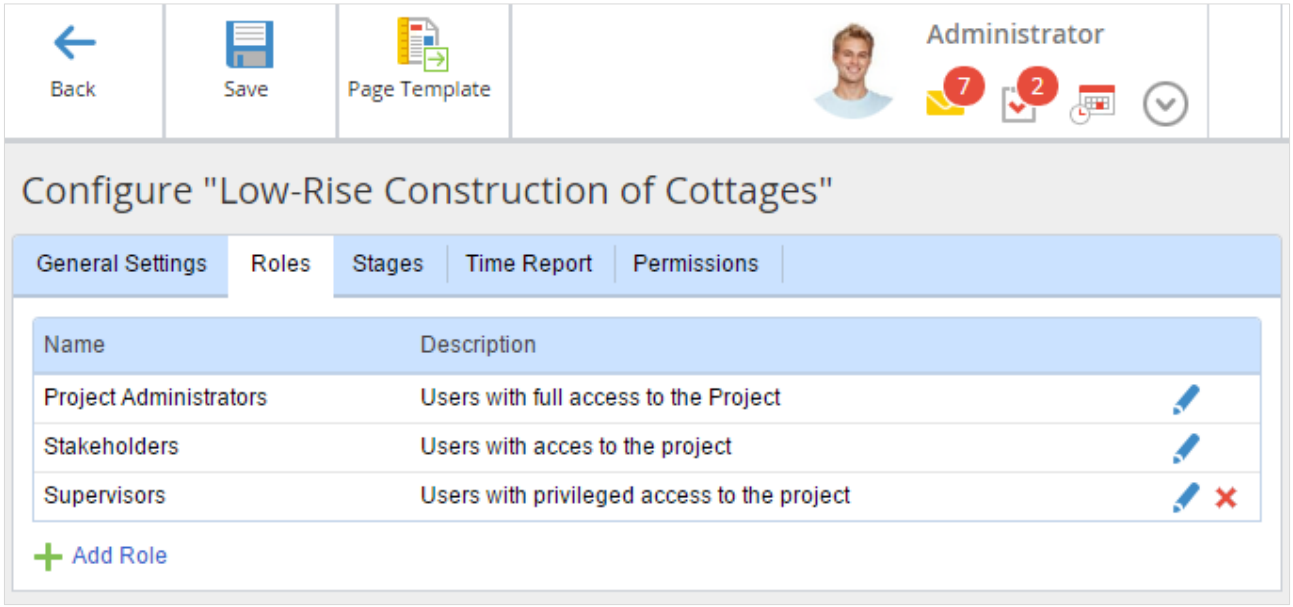


Fig. 76. Configuring a project type. Roles tab

Click **Add Role** to add user roles and enter the role name, mark the permissions available for this role (fig. 77). Click **Add**. Click **Save** button in the top menu.

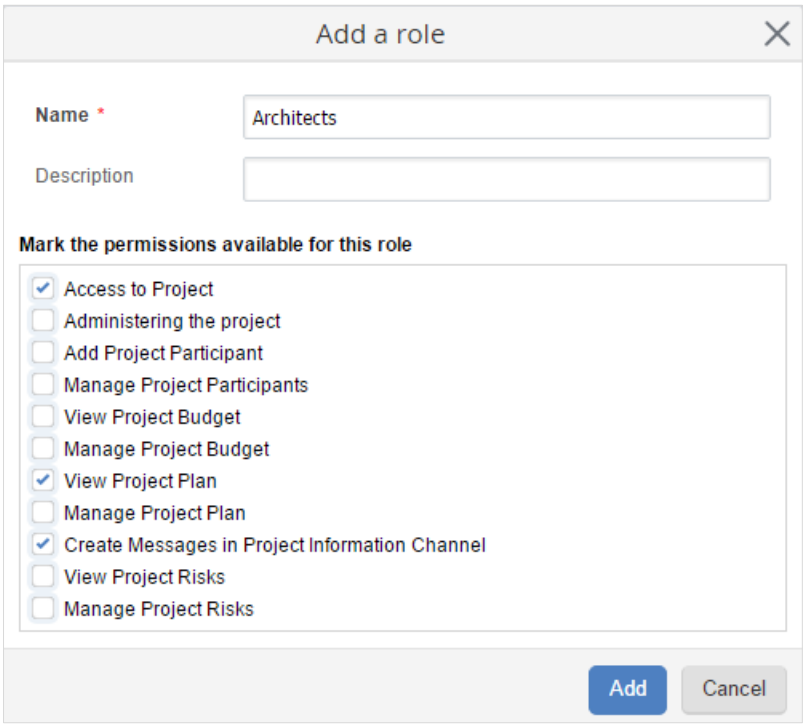


Fig. 77. Adding a role in the project type configuration

6.1.3. Configuring a Project Type Template

A project type template stores this type's general information (typical project tasks, documentation, risks, etc.). You can configure the project page display format: put important information on the foreground, hide secondary information.

All the projects of one type will be created with a configured template. Thus, they will contain a major part of necessary information.

Open **Administration** → **Projects** → **Project Types** to configure a project type template (fig. 75). Select **Low-Rise Construction of Cottages** project type and click **Page Template** in the top menu of the configuration page (fig. 76).

The project template page opens (fig. 78).

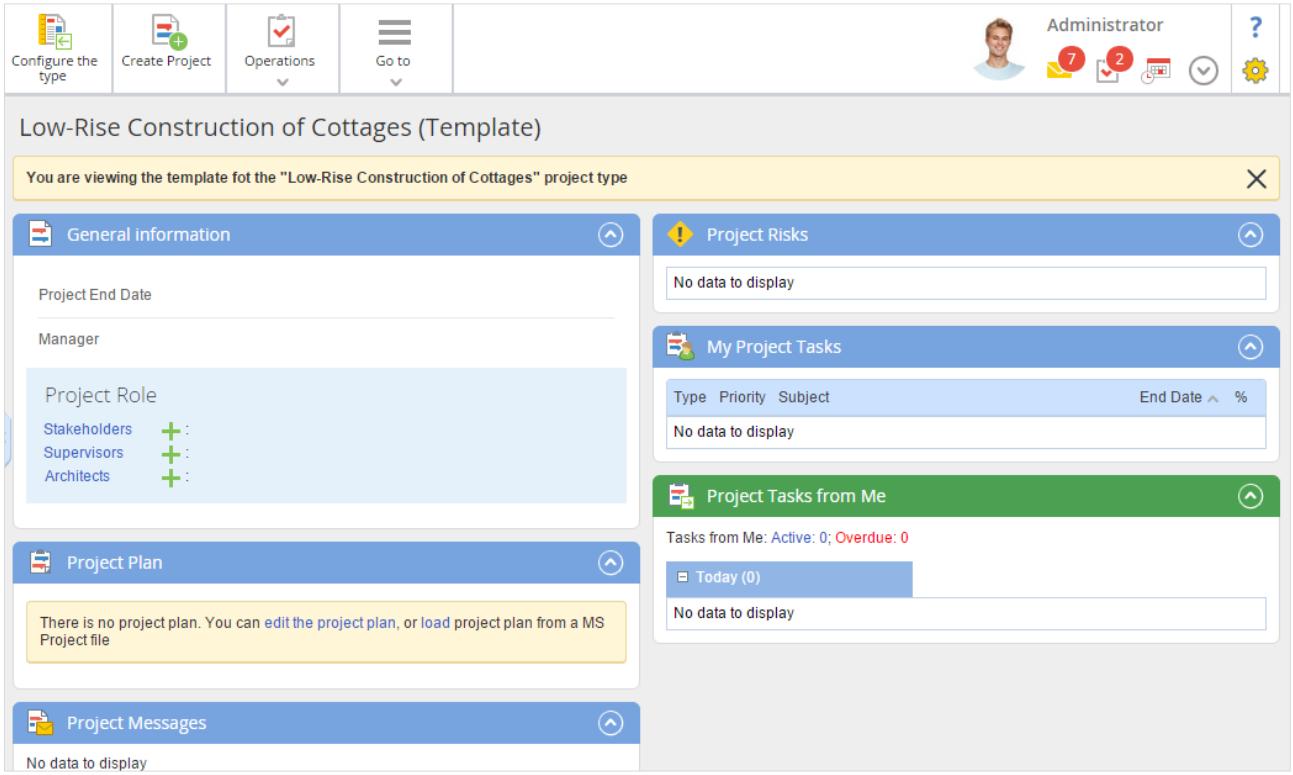


Fig. 78. Project template page

6.1.3.1 Configuring a Project Page

Click the gear icon on the project template page to configure the project page template (fig. 79).

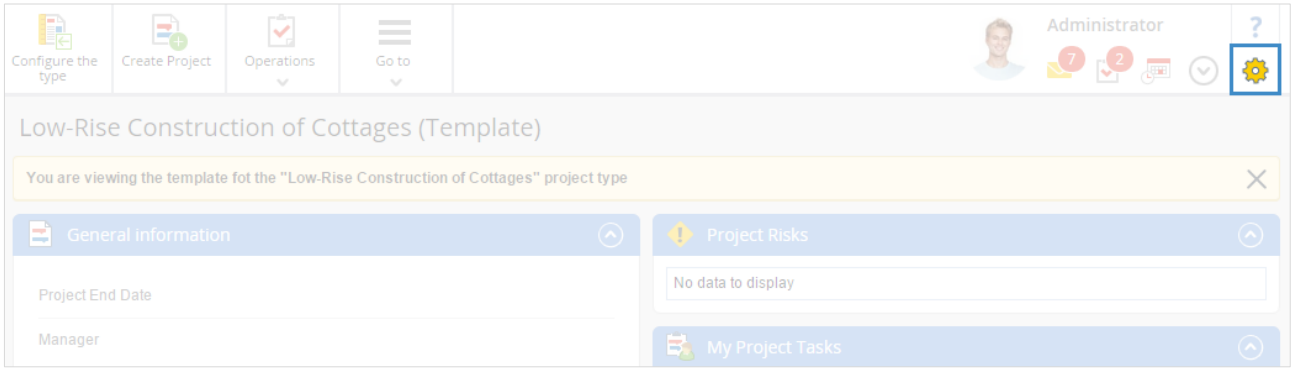


Fig. 79. Opening project page template configuration

To apply the changes to all the system users, follow the link to common settings editing (fig. 80).

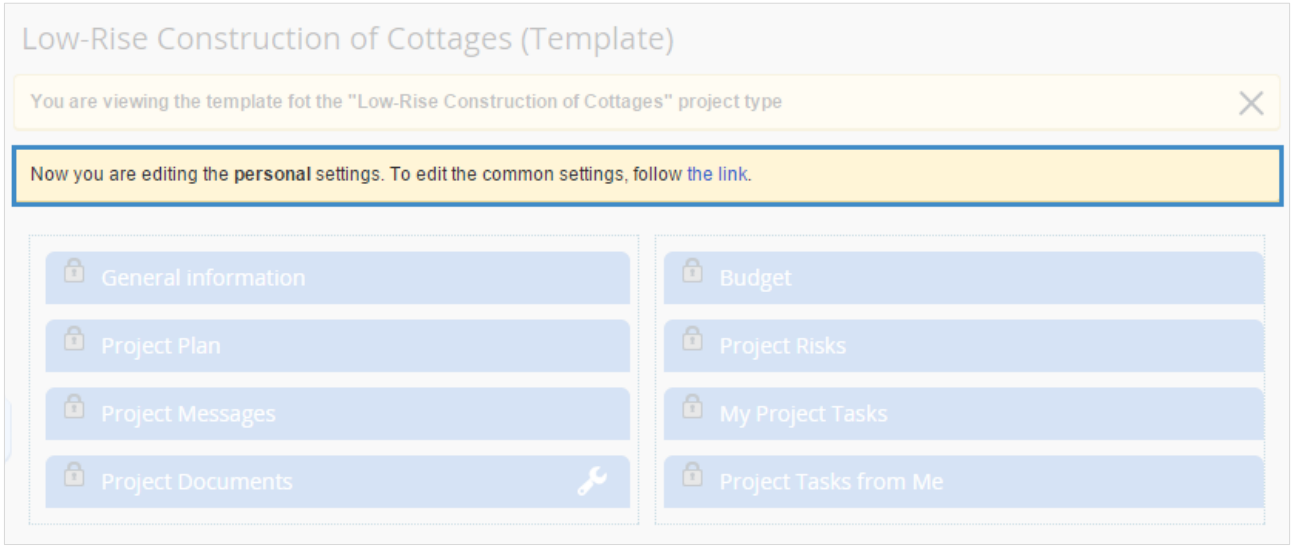


Fig. 80. Opening common settings editing

You can see the list of portlets on the opened page. You can edit the list and the portlets settings (fig. 81).

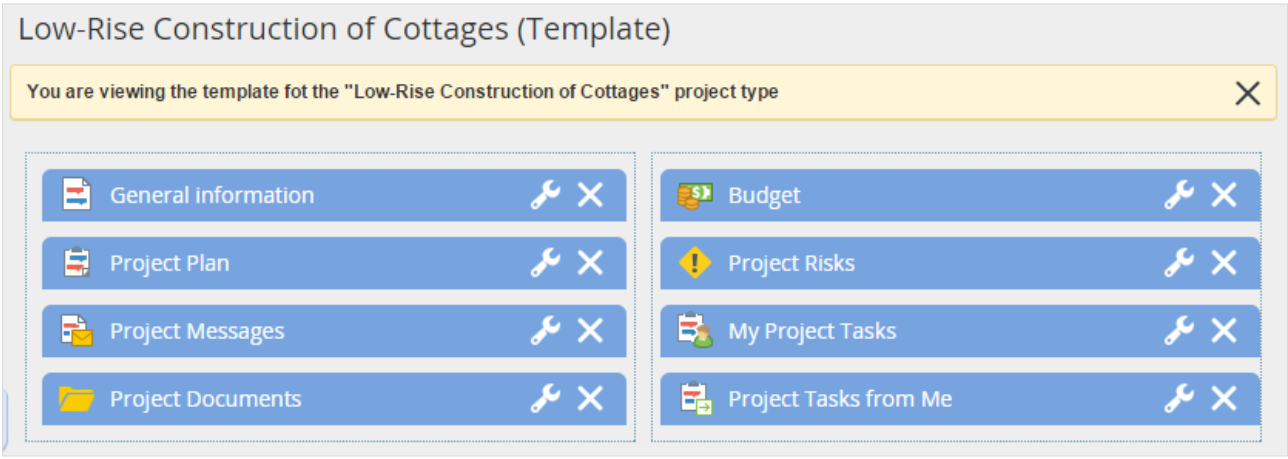


Fig. 81. Editing project page template

Project plan, budget and project documentation information is the most critical and actual when managing a project. You can rearrange the portlets if necessary (by dragging to the desired position), and add new portlets. To do so, click **Add Portlet** in the top menu. To configure portlets click the spanner icon in the portlet title. Portlet and page configurations are described in **ELMA Help**.

All the changes you make on this page save automatically. To return to the project type template, click **Back** button in the top menu.

6.1.3.2 Configuring the Schedule

Low-rise construction of cottages projects have common stages. Therefore, you can configure the project plan template. If you do so, all the key tasks and milestones will be stored in the plan, and you will only need to enter explicit data: executors, dates, etc.

You can find this setting on the project template page (fig. 78) (**Project Plan** portlet). You can create a project plan in the application (**3.3. Project Plan**) or import a plan from MS Project (**3.1. Integration with MS Project**).

Keep in mind the plan structure (stage tasks, task decomposition, milestones and links between tasks) when configuring a project schedule.

Create a project plan, as described in para. **3.3. Project Plan** and publish it. Click **To Project** button to return to project template editing page.

6.1.3.3 Configuring a Budget

Since “Low-rise construction of cottages” projects have similar stages, revenue/expense items and plan income and payment values, it would be reasonable to configure the project budget template. The template will include all of these elements, which are typical for the projects of this type. You will only need to add fact revenue/expense values.

Assume that the following stages are typical for low-rise construction of cottages:

- Develop and approve project documentation;
- Prepare the construction site;
- Perform construction works;
- Lay external network;
- Perform the site improvements;
- Commission the building.

Revenue/expense values may refer to different budget items on each construction stage. For example:

- Revenue items:
  - Sales revenue;
- Expense items:
  - Pre-project expenses;
  - Land expenses;
  - Project works;
  - Prepare the construction site;
  - Prepare for commissioning.

Before creating project stages, create the required revenue and expense items. Create the items in the **Budget Revenue Item** and **Budget Expense Item** entities.

Go to the **Entities** section in the web application and select **Projects+ → Budget Expense Item** (fig. 82). Click the **Create** button on the opened page. The expense item creation page will open (fig. 83). Enter the item name and click **Save** in the top menu. Create the other revenue and expense items in the same way.

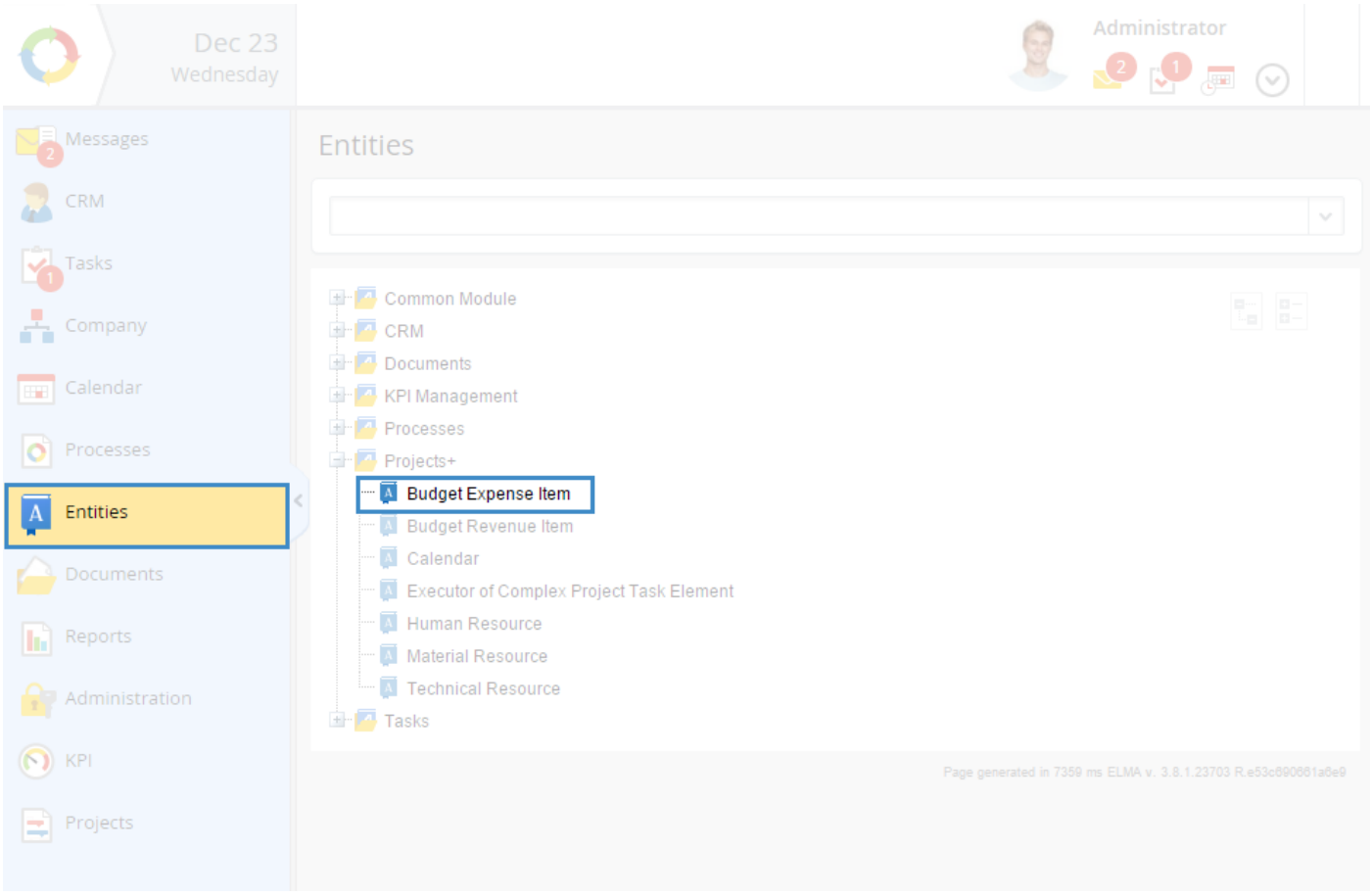


Fig. 82. Budget Expense Item entity

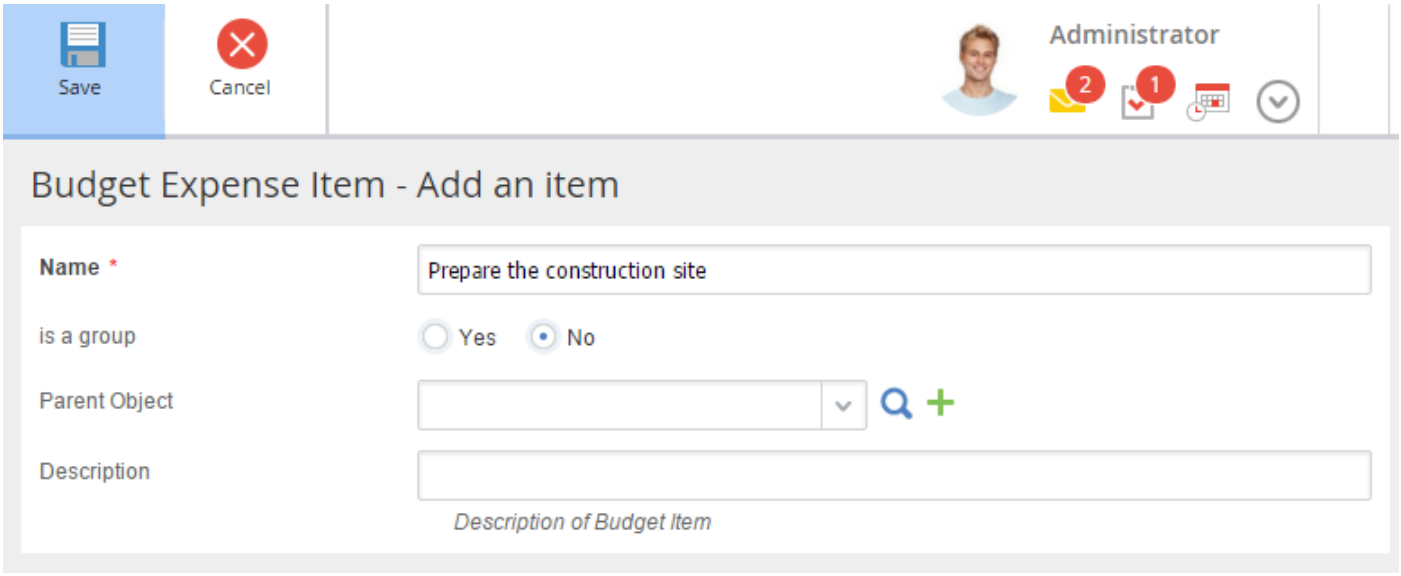


Fig. 83. Creating a budget expense item

Configure the project budget on the project template page (fig. 78). Click the **Budget** portlet name, and the project budget page will open (fig. 84). The page contains the budget diagram and the list of plan and fact revenue/expense values (now they are empty).

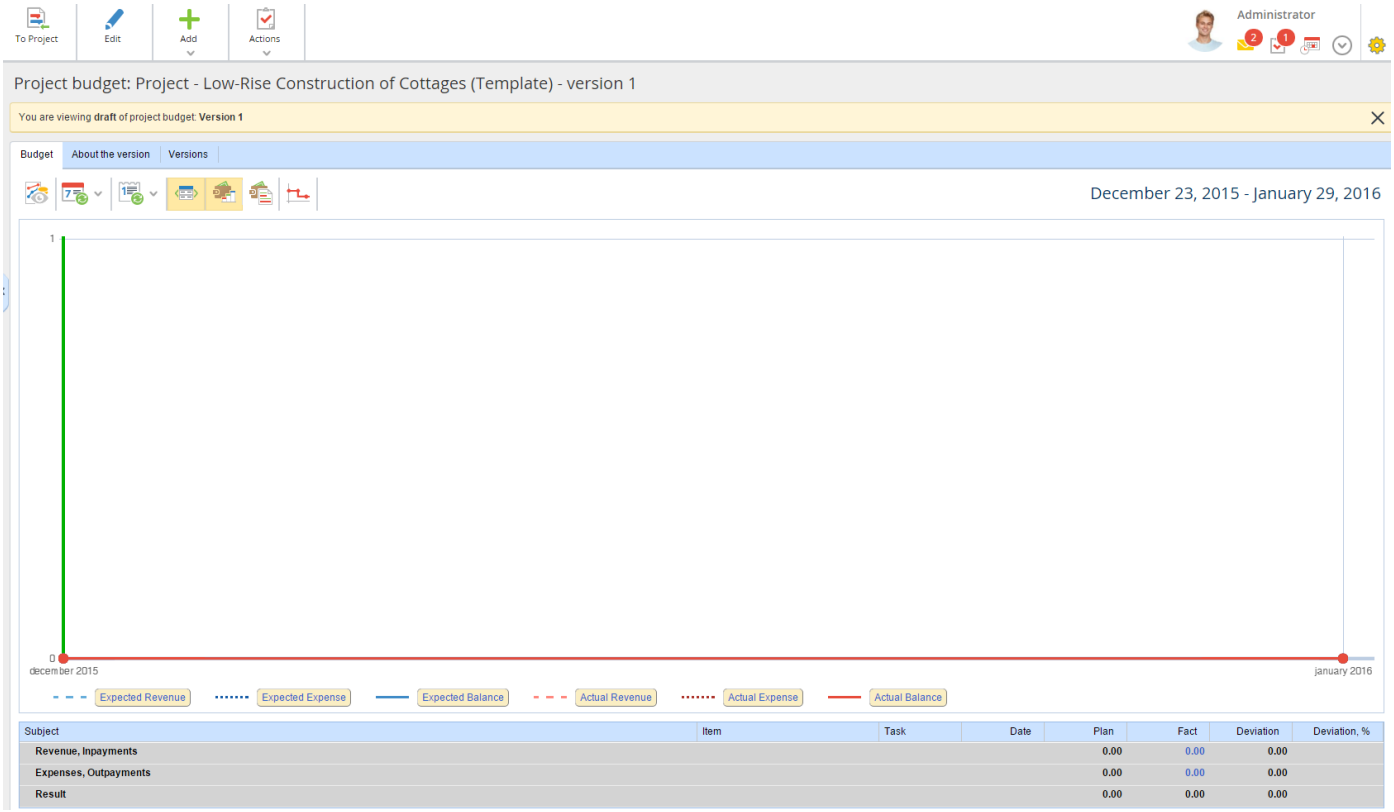


Fig. 84. Project budget page

To configure the project budget, add phases to it. Open the budget editing page (click the **Edit** button (fig. 84)) and then click **Add** → **Add Project Phase** in the top menu. A project stage creation window will open (fig. 85). Enter the phase name in the **Name** field and the additional information in the **Description** field. Click **Create** to save the phase and return to the list.

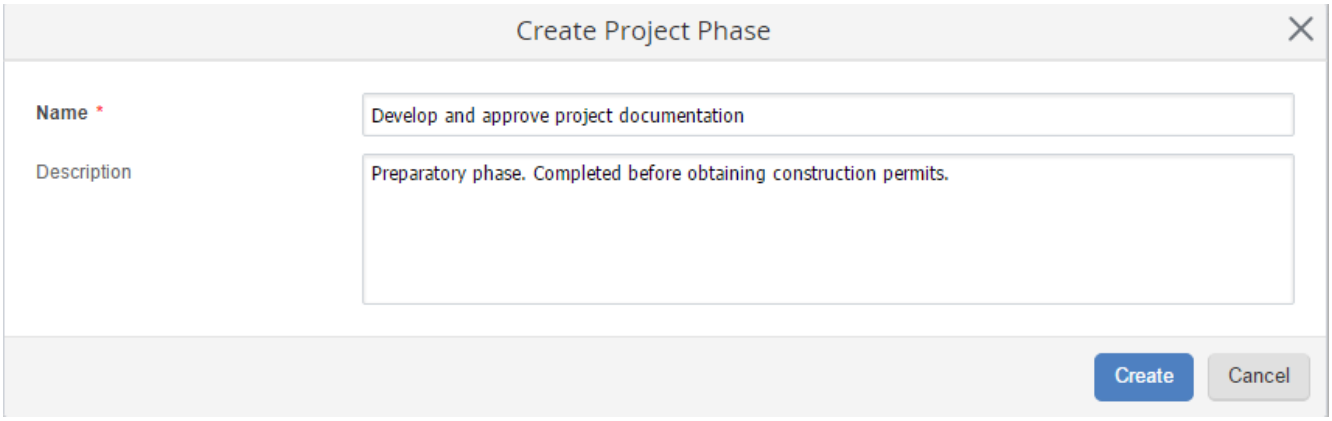


Fig. 85. Adding a project phase

The phase will be added to **Revenue, Inpayments** and **Expenses, Outpayments** (fig. 86).

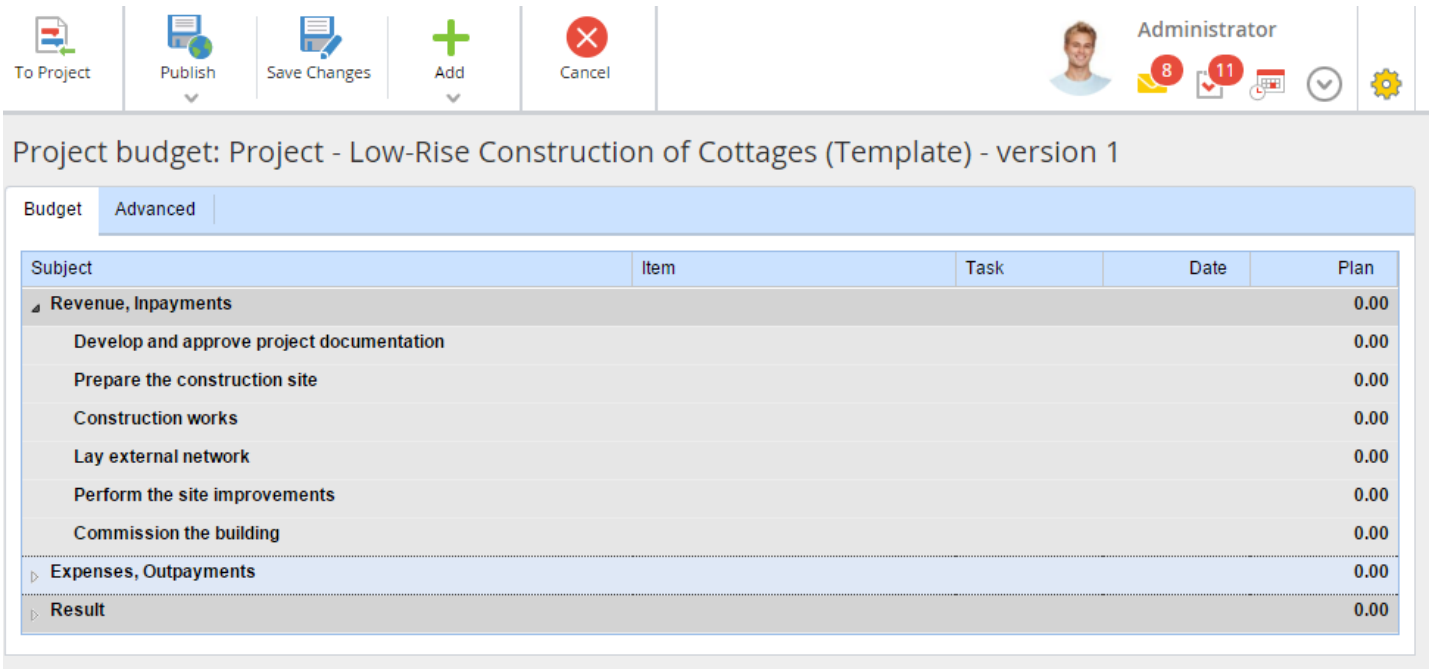


Fig. 86. List of phases

Now add plan values of revenues/expenses for one of the items. A plan value can belong to a particular project phase.

To create a plan value of revenue/expense click **Add** → **Add Planned Revenue/ Add Planned Expense** in the top menu of the budget editing page (fig. 86). A dialog box for creating a plan value will open (fig. 87). Select a revenue/expense item and phase (optional), enter the plan value name in the **Subject** field and add the required values in the **Totals** field. Click **Create** to save the plan value and return to the budget editing page.

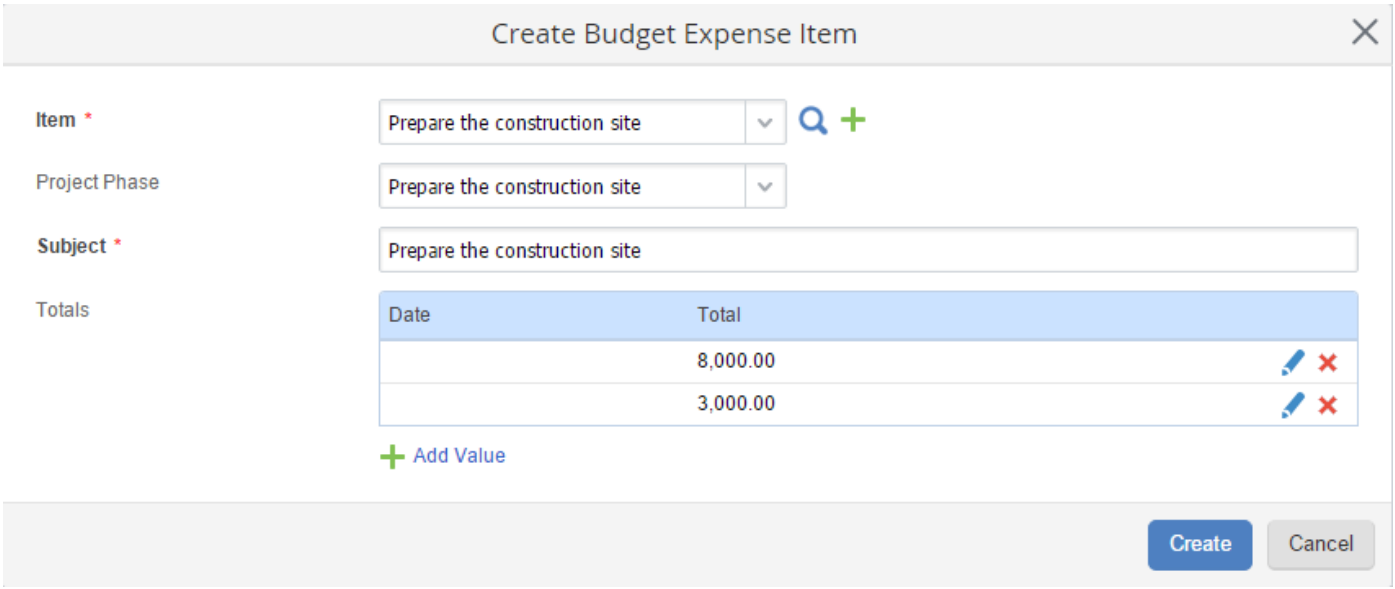


Fig. 87. Adding a plan expense

The plan value will be added to the budget (fig. 88). The dates are not specified in the template, so that it could be done for each project, created by this template.

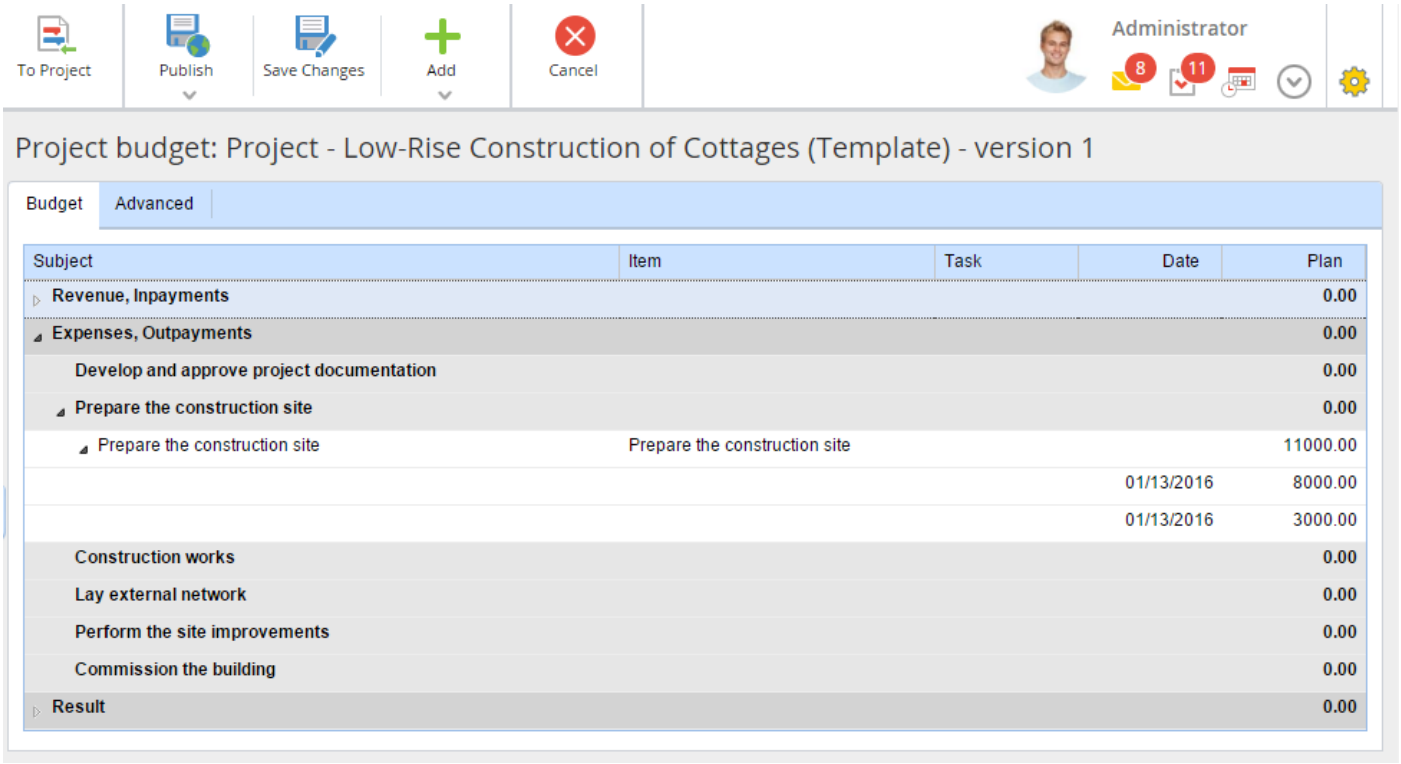


Fig. 88. The list of phases with a plan value

In terms of management, working with the project budget is similar to working with the project plan: both have the publishing and versioning mechanisms.

To save the changes, publish the budget version. Click the **Publish** button in the top menu of the budget editing page.

When you create a project by a template, all the created phases, items and plan values of revenue/expense will be added to the project, so that the project manager will be able to manage them. These budget settings can be changed in a particular project, if necessary.

6.1.3.4 Configuring Documents

You can store documents in **Documents** section of the web application. Create a folder for each project in **Shared Folders** → **Projects**. A **Project Documents** portlet is on the projects page. It shows the contents of this project folder.

You can configure the structure of project documents on the project template page (fig. 78). Find **Project Documents** portlet on this page and click its name. Create folders and documents, typical for this construction type in the opened window (fig.89). You can design the documents hierarchy, configure access rights to folders and documents, etc. Folders and documents are described in **ELMA ECM+ Application** quick-start manual.

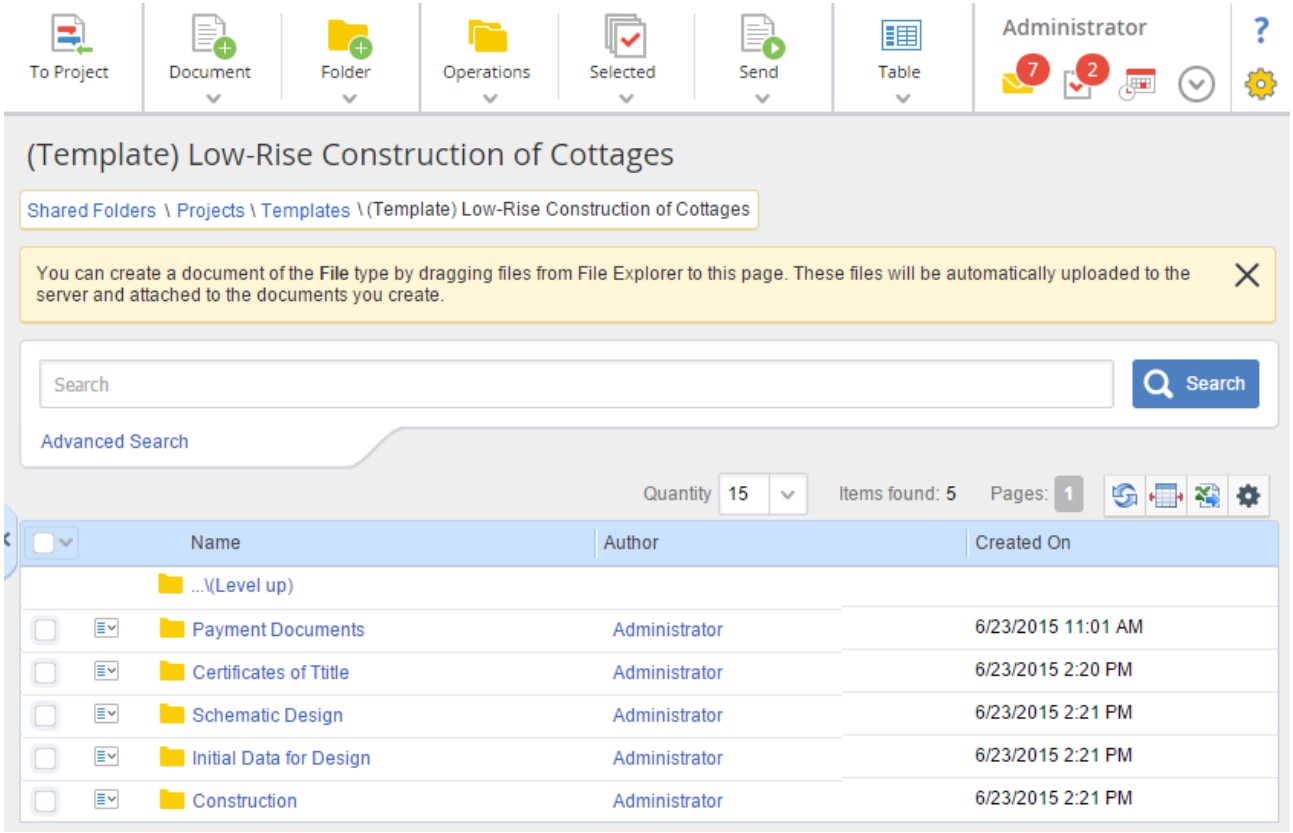


Fig. 89. Project documents configuration

After you have completed configurations, return to the project template page. Click **To Project** in the top menu.

6.1.3.5 Configuring Risks

ELMA Projects+ helps you to manage potential project problems and their solutions. Always consider project risks, so that if they occur you can mitigate their effect.

A project type has its most probable risks and risks mitigation.

You can configure risks on the project template page (fig. 78). Find **Project Risks** portlet there and click its name. The risks list will open (currently it is empty).

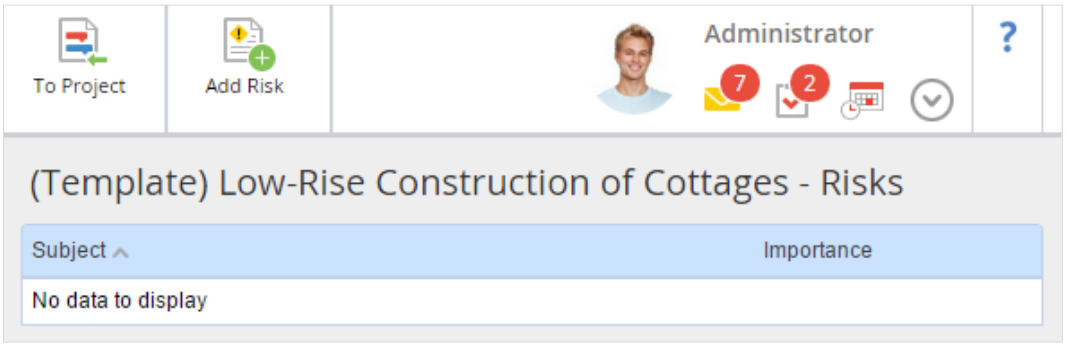


Fig. 90. Project risks configuration page

The following risks may be typical for Low-Rise construction of cottages:

- Ground condition (e.g. possible landslides)
- Late payments
- Currency rates and fluctuations
- Increase of project resources costs
- Uncomplete or inaccurate project documentation
- Lack of professional resources
- Late delivery of materials, etc.

To add a risk to the list, click **Add Risk** in the top menu of the risks list (fig. 90). A risk creation page opens (fig. 91). Enter the risk name in the **Subject** field; configure the **Importance** field. Enter risk information and mitigation in the **Description** field. Click **Save** to save the risk and return to the list.

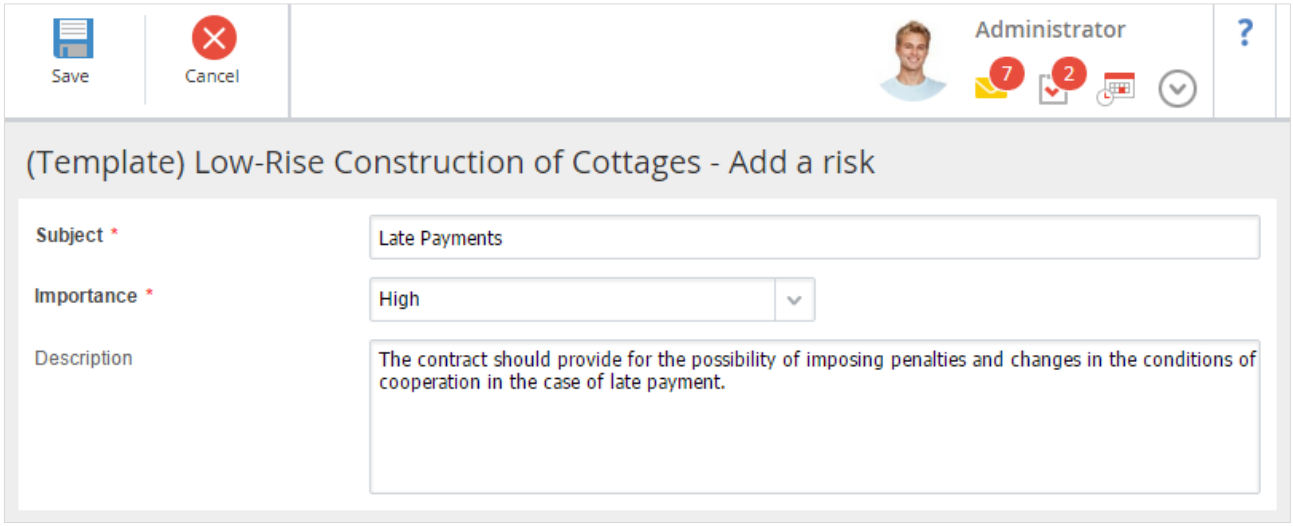


Fig. 91. Adding a risk

The risk will be added to the risks list (fig. 92). You can delete it, if necessary. To do so, click the cross icon.

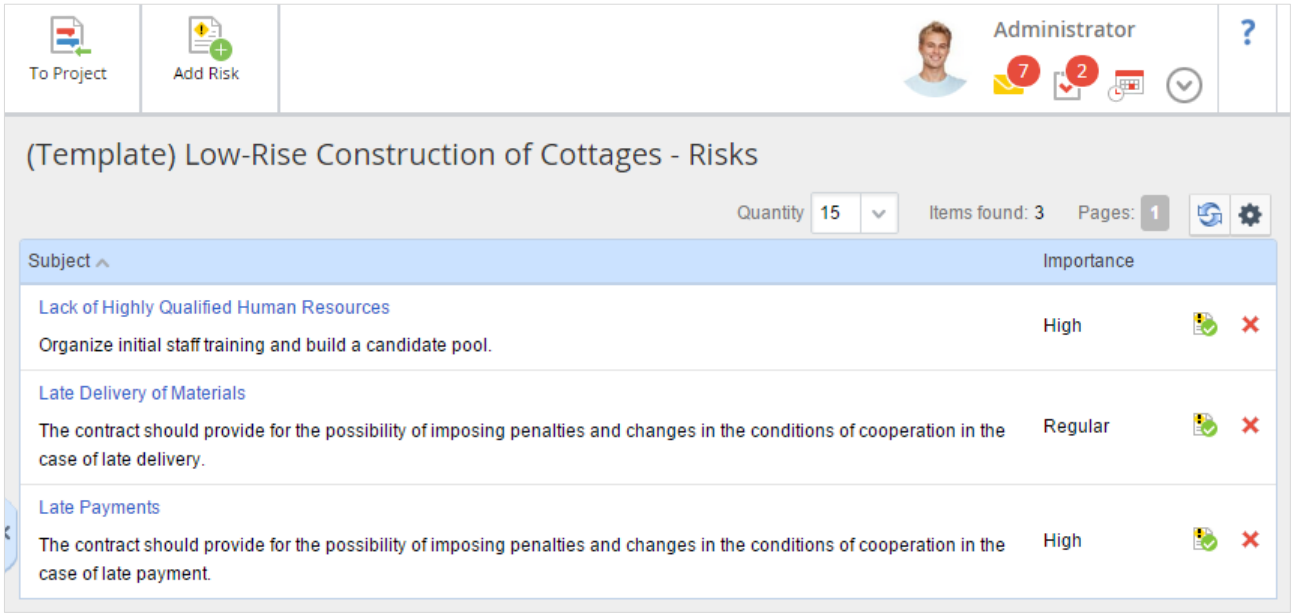


Fig. 92. Risks list

When you create a project with a template, all the risks are added to the project. You can add risks if necessary, while the project progresses.

6.2 Using the Project Conveyor

Earlier we have configured the project conveyor. Now we can use it.

Create a low-rise construction project and see as it moves along the project conveyor.

6.2.1. Creating a Project

Log in to **ELMA** as admin and proceed to **Projects** (fig. 93). Then click **Add Project** button in the top menu.

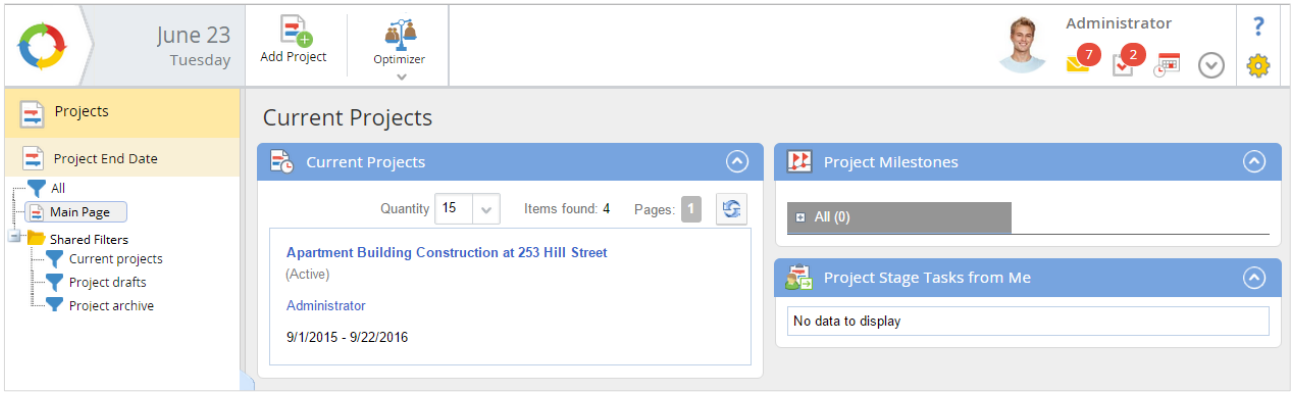


Fig. 93. The Projects Page

Select **Low-Rise Construction of Cottages** type in the dropdown list in the emerged window and click **Create**.

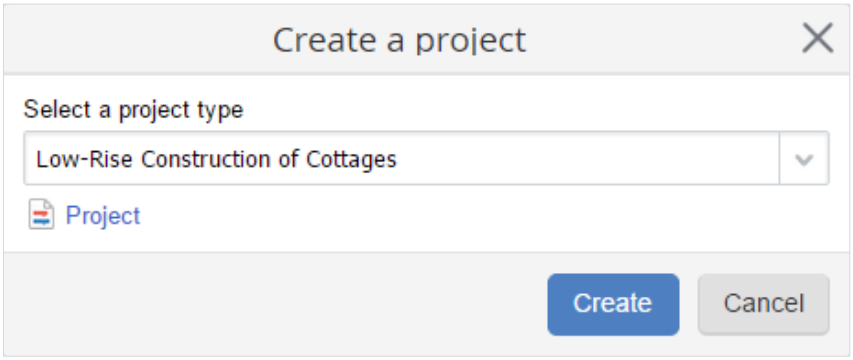


Fig. 94. Selecting a project type

Specify start and end dates in the opened window; leave the project name unchanged, it is generated automatically.

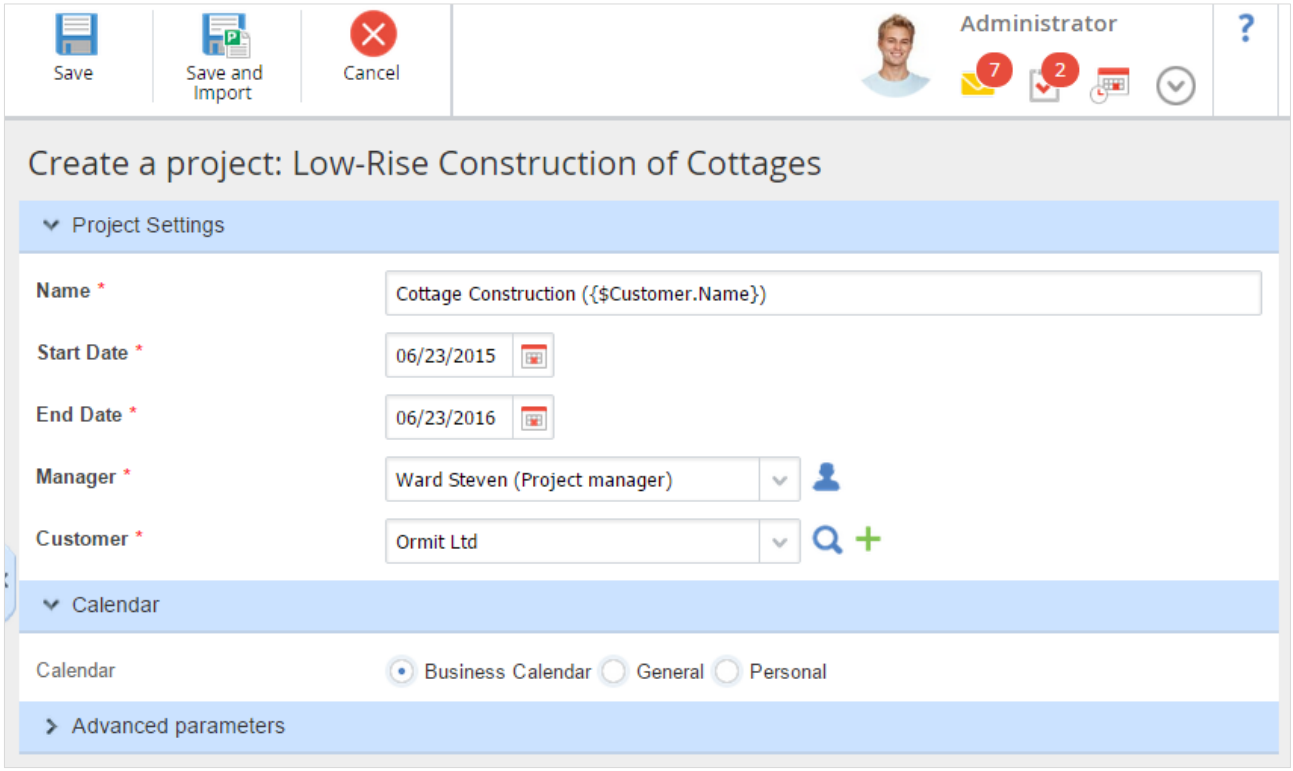


Fig. 95. Low-Rise Construction of Cottages project type creation page

Select the project manager in the **Manager** field. Only the users, included in the **Team members** group are shown in the dropdown list (learn more about user groups in **ELMA Help**).

We added the **Customer** field, which is absent on the project creation page (fig. 2) by default. This field type is **Contractor** (fig. 44), that is why the dropdown list will show contractors from **CRM** section. You can add the required contractor, if it is not in the list. To do so, click the green plus icon. Learn more about client management in **ELMA CRM+ Application** quick-start manual and in **ELMA Help**.

6.2.1.1 Project Calendar

You can select a project calendar in the **Calendar** section on the project creation page (fig. 95). Mark working and non-working days in the project plan schedule. Time intervals affect the working day duration and work breaks (lunch). Thus, executors can receive project tasks only on working days.

Business calendar is a calendar for a year, which includes holidays and non-working days. It is a default calendar for all tasks in **ELMA**.

General calendar considers company needs. You can configure it and use it for projects.

Personal calendar is project specific. When you select it in the project creation form, you can specify working time intervals and non-working days.

Select **Business calendar**. In this case, project activities are performed Monday through Friday, from nine to six (by default). This schedule applies to planning tasks, evaluating resource workload, etc.

Click **Save** on the project creation page. The project page opens (fig. 96). This project applies all project type and project template settings. The project has a generated name; **Project Plan**, **Project Risks** and **Project Documents** portlets contain initial information, **General Information** portlet shows the customer information, etc. The project is at the **Draft** stage, as configured in the life cycle.

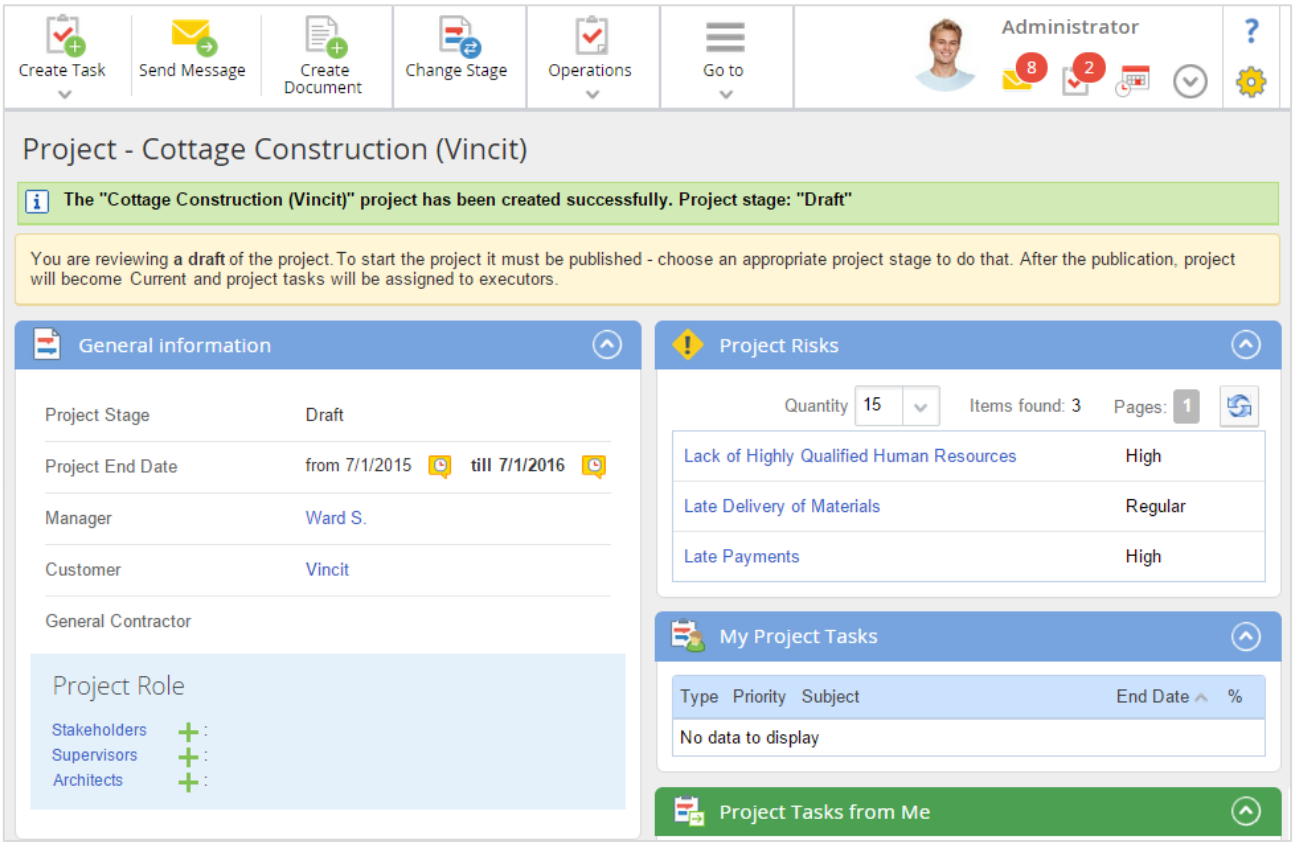


Fig. 96. Project page, created with a template

If you need to change calendar, select **Operations** → **Edit** in the top menu.

For example, project works must be performed Monday through Friday, from eight to five. Create a general calendar and switch the project to a new working time pattern.

To create the calendar select **Entities** → **Projects+** → **Object Calendar** in the web application (fig. 97). Click **Create** in the top menu on the opened page. Calendar configuration page opens (fig. 98). Enter the calendar name and working time intervals. Click **Save** in the top menu to complete configurations.

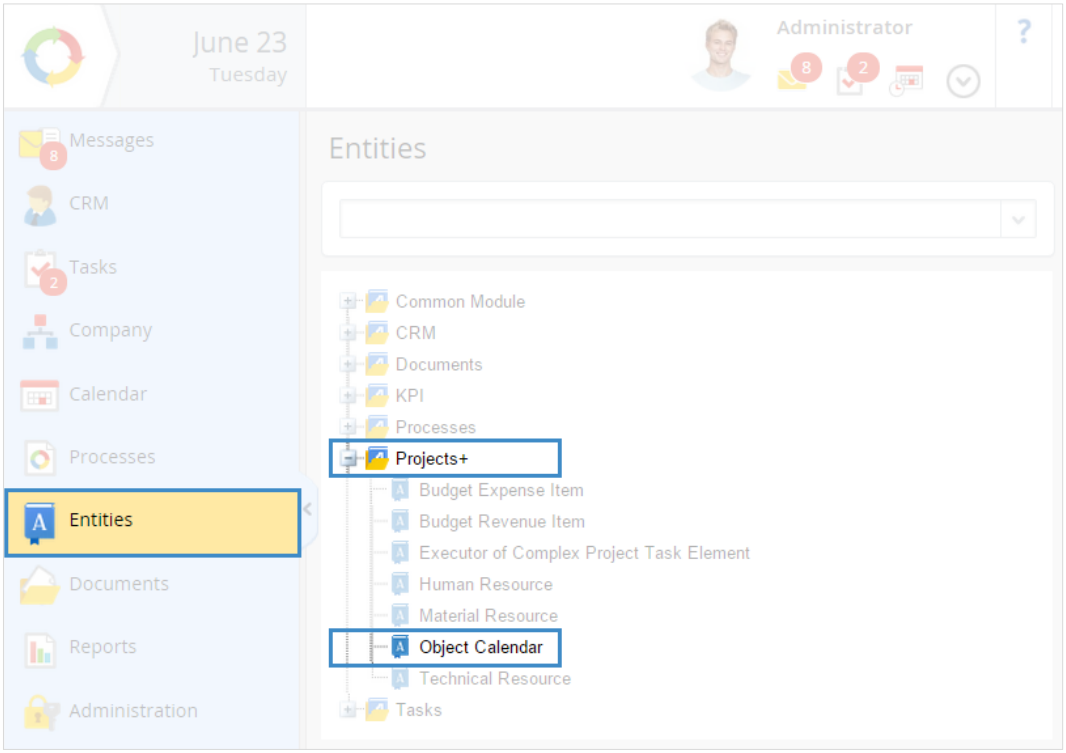


Fig. 97. Object calendar entity

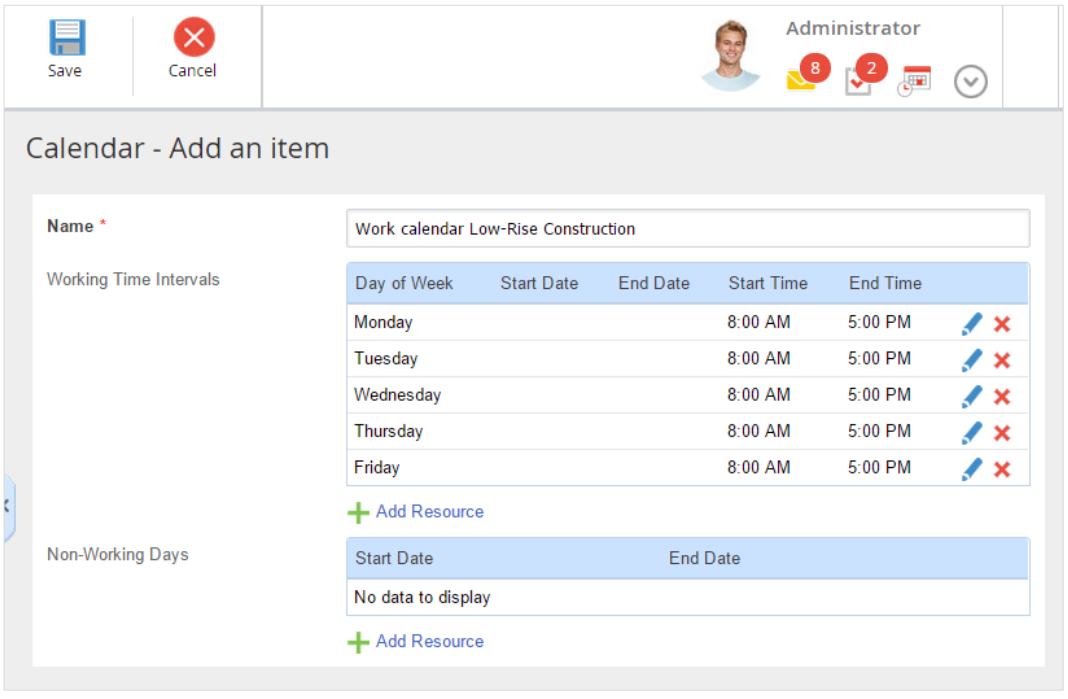


Fig. 98. General calendar configuration

Now return to the project (to change its calendar). Select **Projects** → **All** and click **Cottage Construction** in the list (fig. 99).

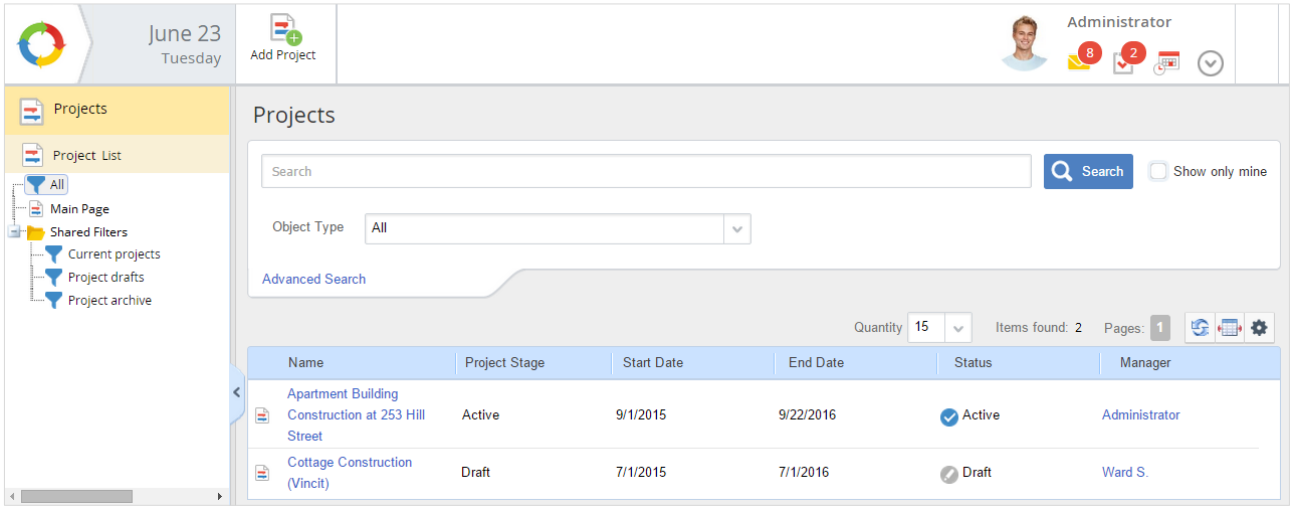


Fig. 99. The list of all projects in the system

Select **Operations** → **Edit** in the top menu of the opened project page (fig. 96). Select **General** in the **Calendar** section on the project editing page (fig. 100). Select the calendar, created earlier. Click **Save** in the top menu to return to the project page.

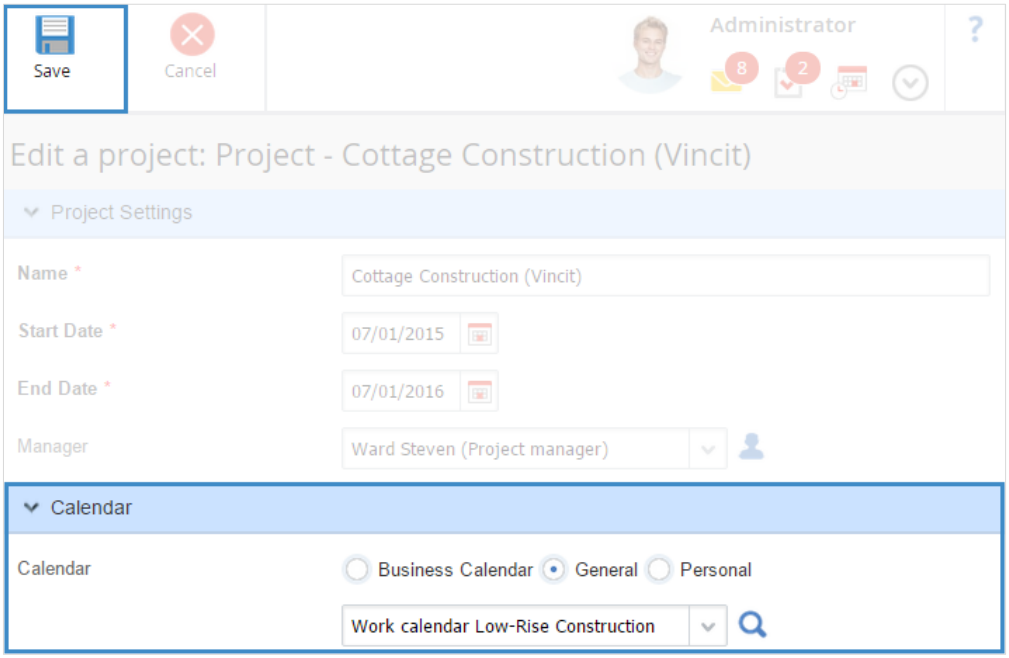


Fig. 100. Project editing page. Selecting a calendar

6.2.2. Managing Schedule

After you have created a project, develop a project plan. The plan structure is in the project template, so you can find it in the created project. However, each project has its peculiarities. You should consider them in the plan and pay attention to planning tasks due dates and duration, assigning executors, etc.

To open the project plan, click the **Project Plan** portlet name (fig. 96) or select **Go To** → **Project Plan**.

Project plan page, its editing and operations are much as in para. **3.3. Project Plan**.

6.2.2.1 Starting Business Processes in Project Plan

When designing a project plan you may need to include business processes in it. For example, you need to approve the budget after obtaining permits and designing. Budget approval procedure and stages are usually the same for all projects. A budget preparation business process (fig. 101) improves the procedure.

With **ELMA Projects+**, you can start a business process at a certain stage of project plan. To do so, you need to:

- Configure the business process;
- Add the business process start to a project plan stage.

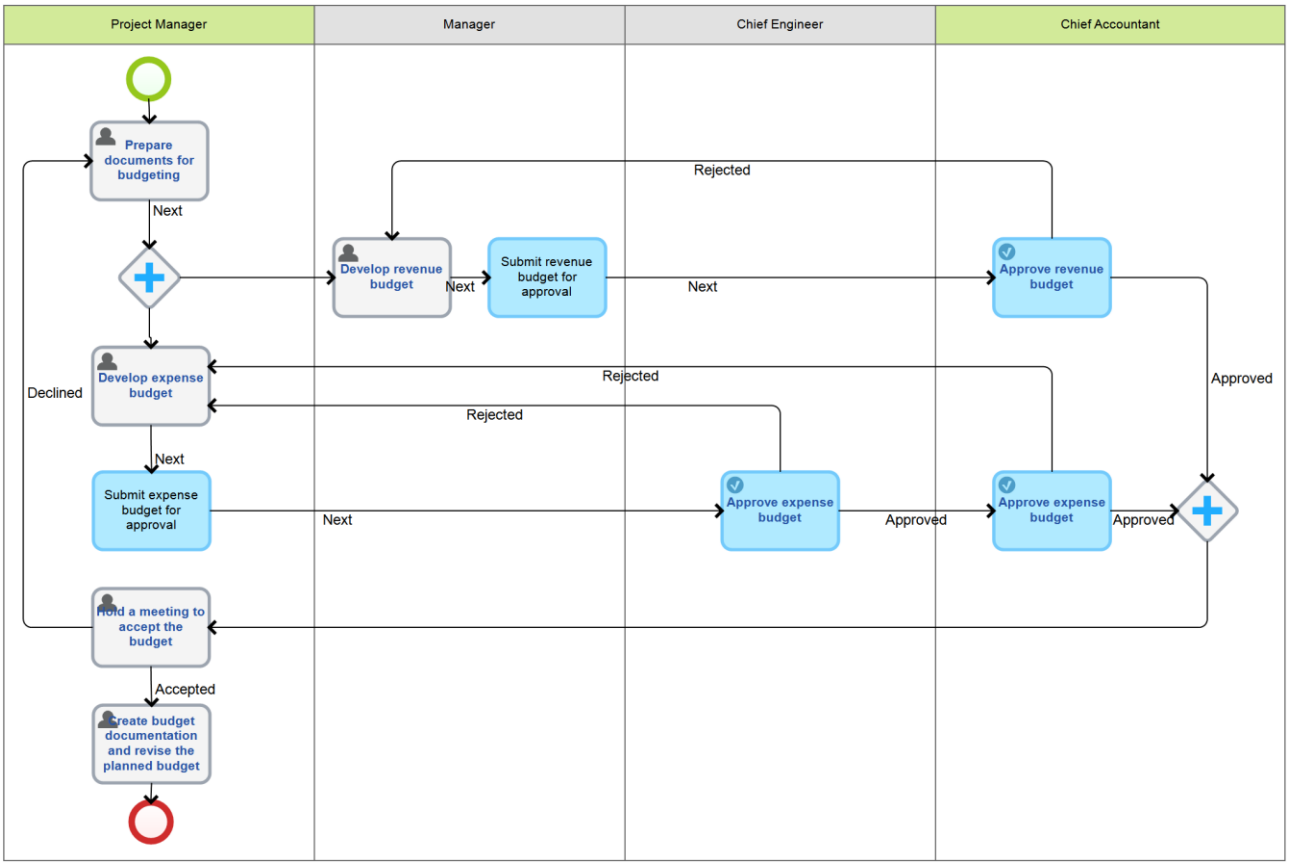


Fig. 101. Budget preparation business process

Business process modeling is described in **ELMA BPM Platform** quick-start manual. Configure the created business process. Add **Starting a Business Process** variable to the

list of context variables. Select type **All Objects → Projects+ → Starting a business process (Object)**. Check **Input** box for this variable.

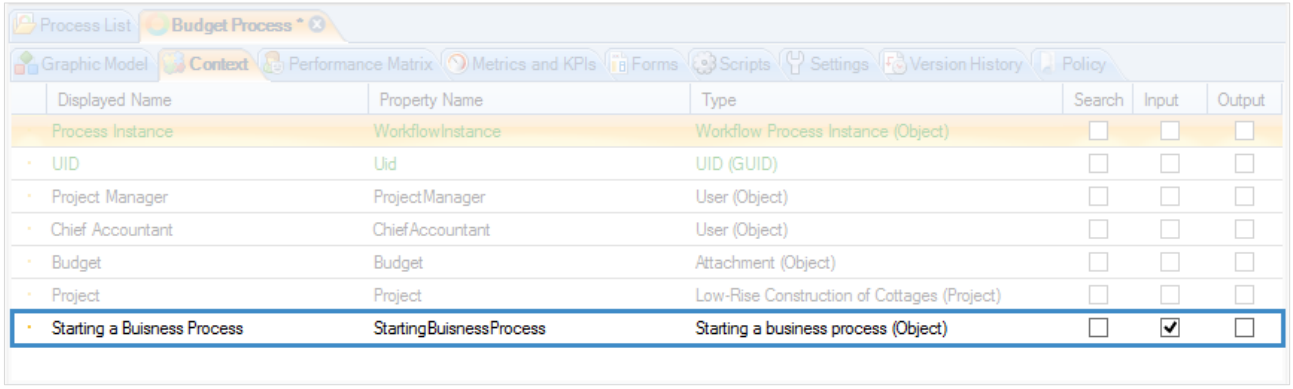


Fig. 102. Configuring a business process context variable

Publish the business process and open project plan editing in the web application. Create a start business process task on the project plan editing page (fig. 10).

In the emerged window, enter a task name in the **Subject** field. Specify the start date and select the business process in the **Process Title** dropdown list.

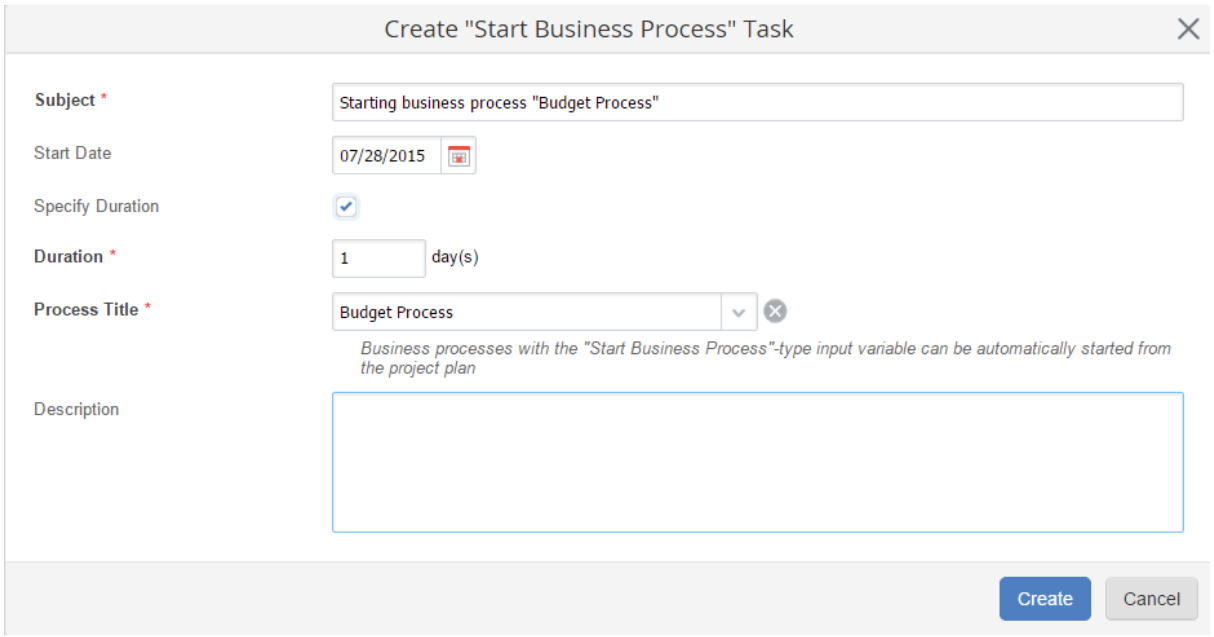


Fig. 103. Creating a start business process task

Click **Create** to add the task to the project plan.

You can configure links between this task and the preceding/following one in the project plan to set the start of business process (para. **3.3.4. Creating Links**). In this case, the start of the business process depends on the end date of the previous task (fig. 104).

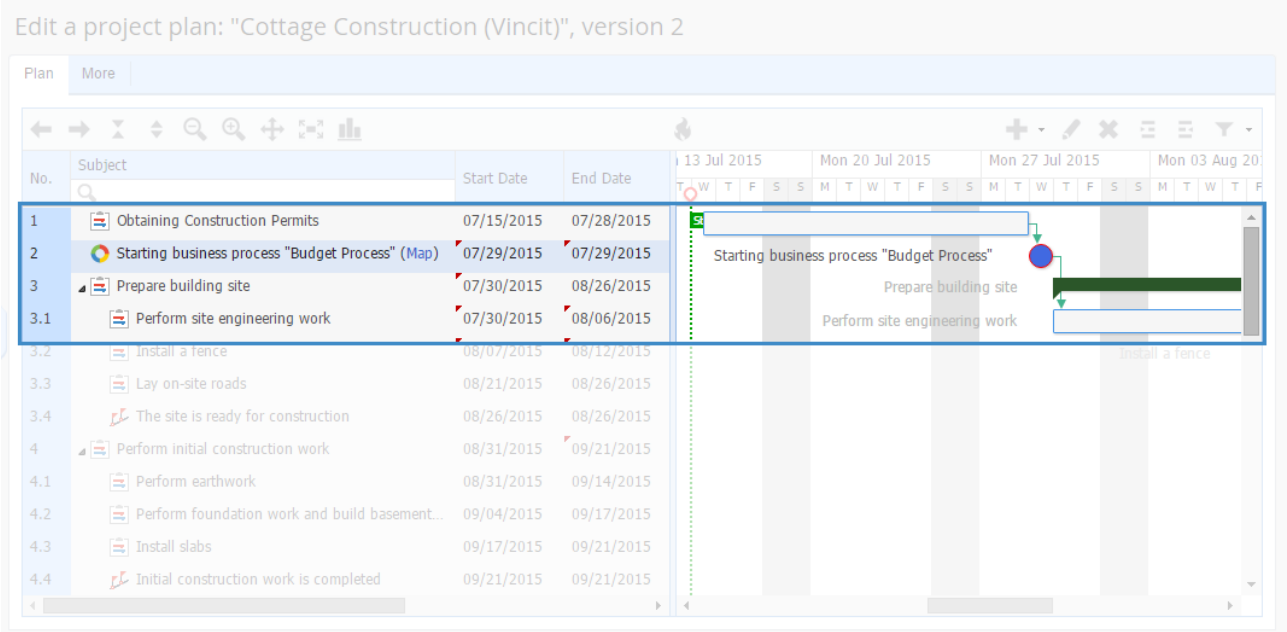


Fig. 104. Creating links between Start BP task and other project tasks

Publish the project plan to save changes (para. **3.3.8. Publishing a Plan**).

6.2.3. Planning Resources

Planning resources is a complicated task. The market does not offer any products to assist with this task. It is even more complicated in terms of a resource pool (for example, portfolio management). You need to combine resources on all the works, complete all tasks and optimize individual workloads.

ELMA Projects+ answers many questions about resource planning:

- Who does what and when?
- What is a workload of a team member?
- Are there project tasks without executors?
- Is the organization capable of taking another project without engaging a subcontractor?
- Is it necessary to employ more people?
- What is the best project sequence with the current capacities?

It is important that an executor is not overloaded when planning projects and due dates and assigning executors. A resource workload bar chart is a useful tool in this case (para. **4.3 Resource Workload Bar Chart**). You can monitor the resource workload on the bar chart and optimize it, by adjusting the project plan. Specify resources (human, material, technical) for each project task, so that the data on the bar chart was correct.

You can configure partial workload, if several people execute the same task. The system allows you to control each team member workload for each task.

You can also manage technical and material resources with **ELMA Projects+**.

Proceed to editing the project plan and open the resource workload bar chart (fig. 35).

Right now, it shows only the human resources (project task executors) (fig. 105).

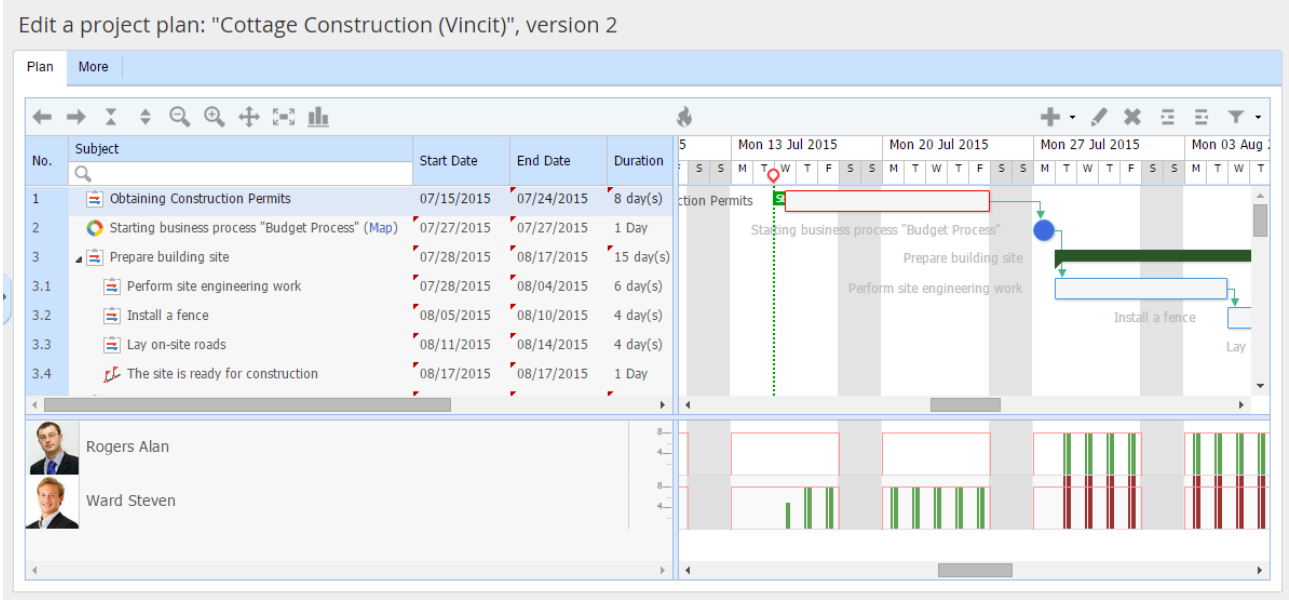


Fig. 105. Resource workload bar chart. Human resources

Configure technical resources control (material and human resources are configured in the same way; it is described in **ELMA Help**). To do so, specify technical resources in the system then involve them in the project plan tasks and optimize the load.

6.2.3.1 Adding a Resource

Select **Entities** → **Projects+** → **Technical Resource** to form the list of technical resources (fig. 106).

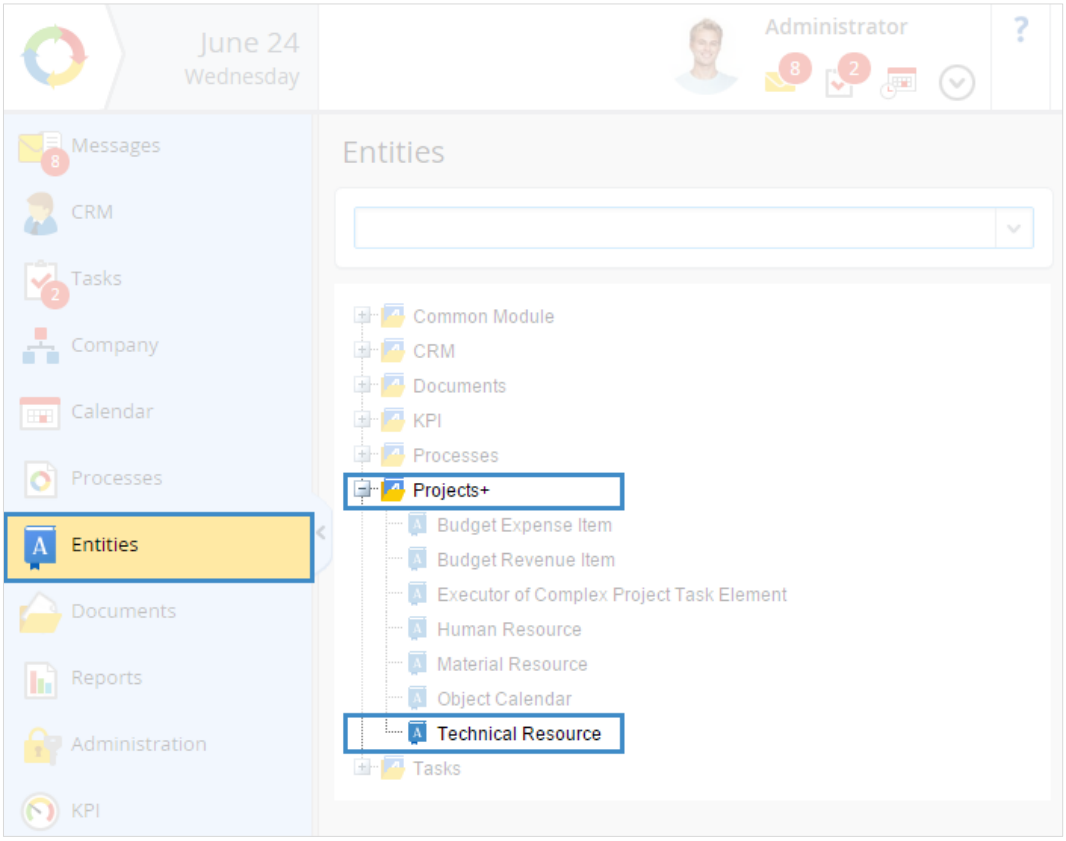


Fig. 106. Technical Resource entity

Click **Create** in the top menu of the opened page. Resource configuration page opens (fig. 107).

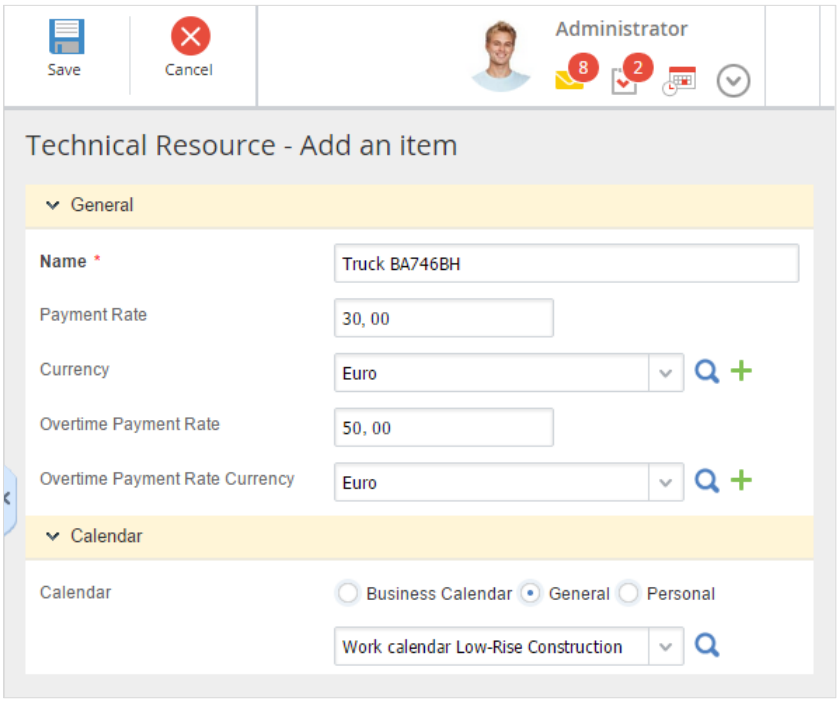


Fig. 107. Creating a technical resource

Enter the resource name in the **Name** field; specify the Payment Rate and the Overtime Payment Rate. You can select currency in the dropdown list. If the list is empty, click the green plus icon and add currency information.

Check **General** in the **Calendar** section and select **Work calendar Low-Rise Construction**.

Click **Save** to save changes and return to the list of technical resources (fig. 108).

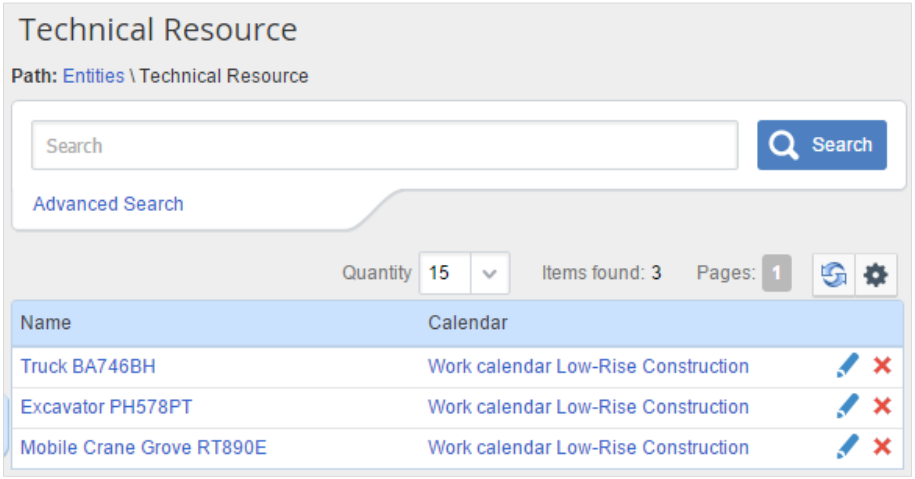


Fig. 82. Technical resources list

When the list is completed, return to editing of the project plan (fig. 105).

Open a project task editing and click **Resources** in the top menu (fig.109). Open **Technical resources** tab in the emerged window (fig. 110).

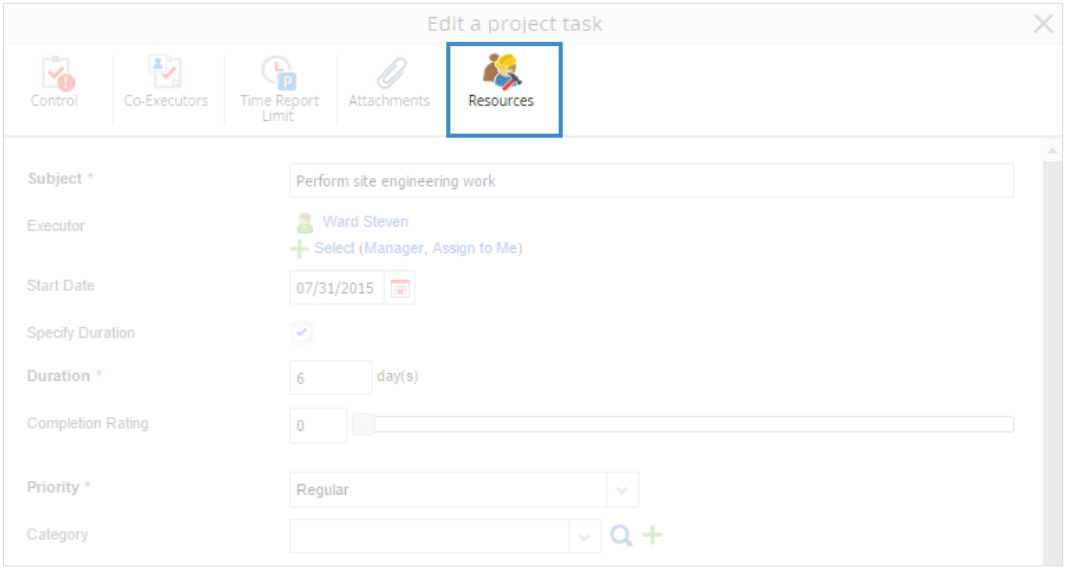


Fig. 109. Resources button

Fig. 110. Task technical resources

Click **Add Resource** to involve a resource in the task. Select a resource in the dropdown list of the emerged window (fig. 111). The list contains technical resources, added to a respective entity (fig. 108). Specify the resource load in the **Load Value, %** and click **Add**.

Fig. 111. Selecting a resource

Add all the necessary resources in the same way (fig. 112).

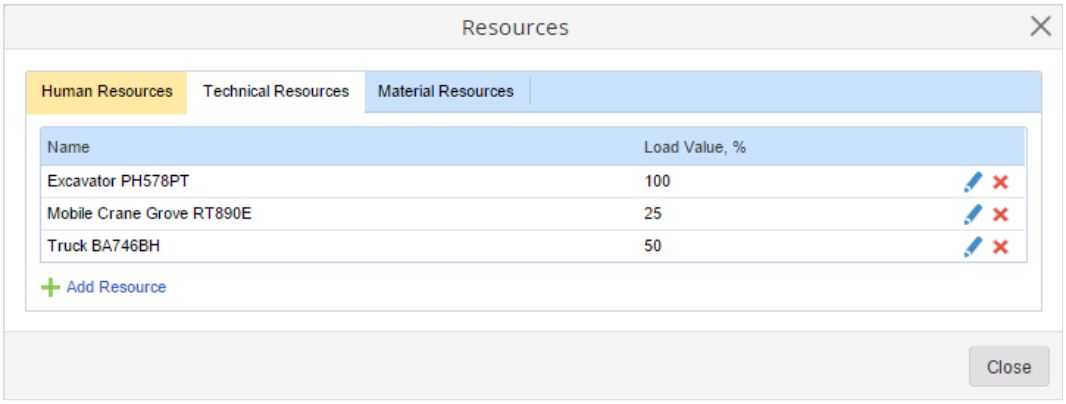


Fig. 112. Technical resources list

Click **Close** in the resources window and save changes.

Now the resource workload bar chart will show technical resources and tasks executors (fig. 113).

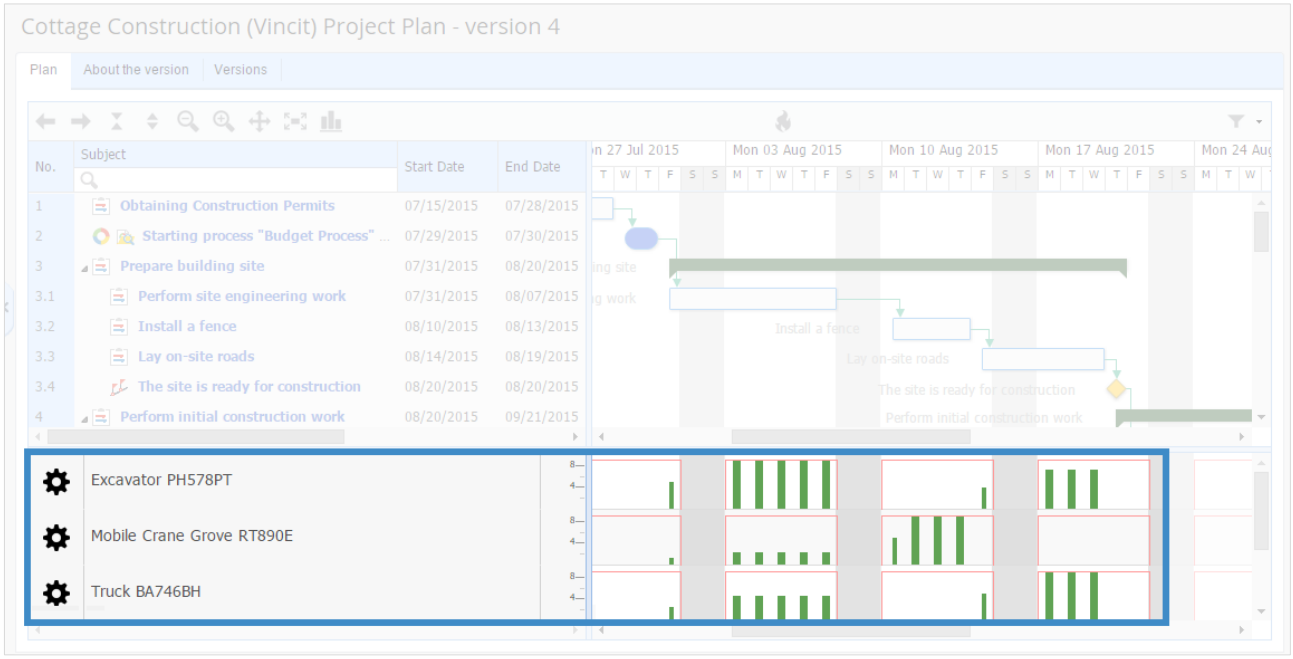


Fig. 113. Technical resources on the resource workload bar chart

6.2.3.2 Planning Workload

Plan resource workload with the workload bar chart (fig. 113). The bar chart interface is described in para. 4.3. **Resource workload bar chart**.

There are several ways to control a human resource workload. If the tasks are too many, you can reassign some of them to another executor or change the load value on some tasks. You can control technical resource load value in the same way or add new resources, if the load is too great.

See how to change a resource load value in fig. 109 – fig. 112.

Keep in mind, that tasks due dates directly affect the resource load. Sometimes it is better to extend a task period with the current resources, than add new resources.

With the resource workload bar chart, you can plan resource load within one project. However, in fact several projects may involve a resource. It can be involved in different tasks on different projects. To control such a resource you need to monitor all the projects where the resource is used. Use **ELMA Resource optimizer** to cope with this task.

6.2.3.3 Resource Optimizer

The Resource Optimizer is a tool for planning and optimizing human and technical resources workload. You can monitor:

- Human and/or technical resources on several projects;
- Presence/absence of project task executors;
- Presence/absence of active and/or overdue project tasks;
- Need to add new human or technical resources, etc.

Click **Optimizer** button in the top menu of **Projects** page to open the **Resource Optimizer** (fig.114).

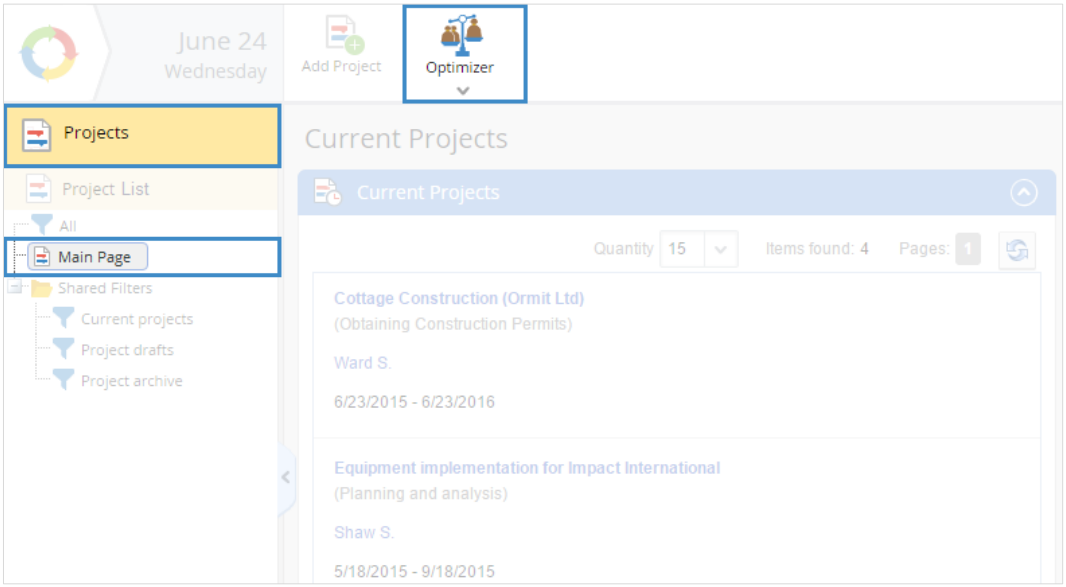


Fig. 114. Opening the resource optimizer

Click **Add Projects** on the opened page. Select the projects you need in the dropdown list of the emerged window (fig. 115).

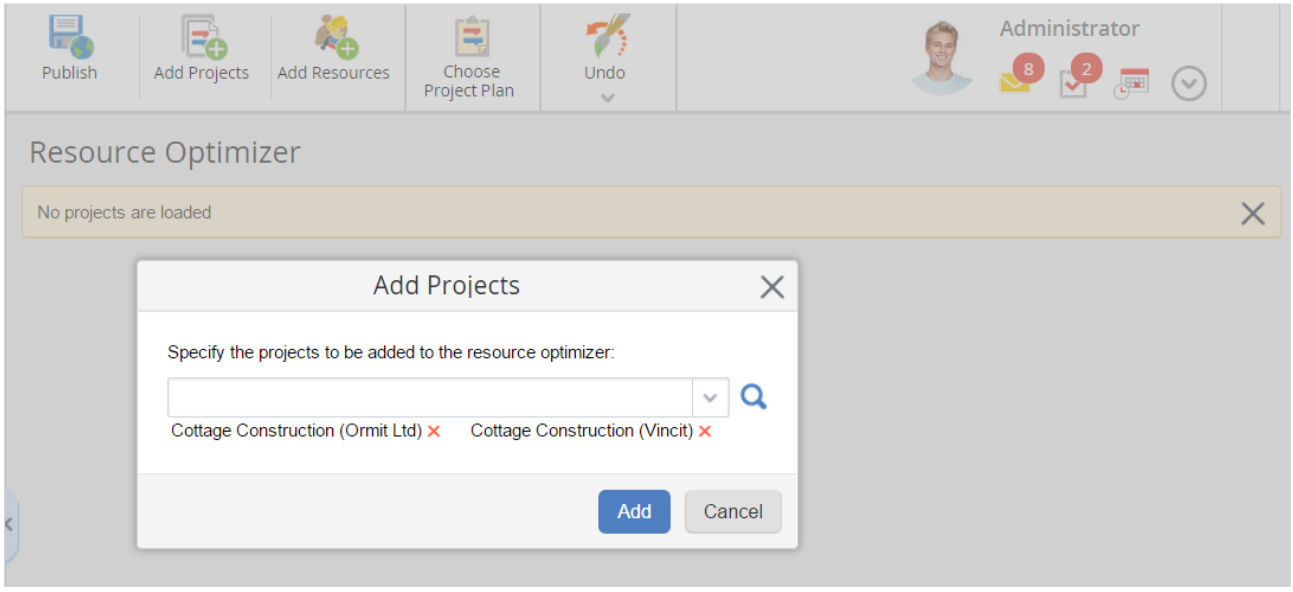


Fig. 115. Adding projects in the resource optimizer

The projects will be added to the **Resource optimizer**. Click one of them to open the project plan and the resource workload bar chart (fig. 116).

There is one significant difference between a workload bar chart in a project and a workload bar chart in the **Resource optimizer**. The latter bar chart shows all the technical and human resources related to the projects in the **Resource optimizer**.

You can monitor a recourse workload, switching between projects in the panel, above the project plan (fig. 116).

Workload control ways are the same, as in a project. A manager can control resource load values, add new resources (use **Add Resources** button in the top menu), change task due dates, etc.

In the optimizer, you can double click a column on the bar chart to open the resource load window. It shows the list of tasks on all selected projects.

If you change the project plans while working in the **Resource optimizer**, you can publish them. To do so, click **Publish** button in the top menu of the optimizer page (fig. 116).

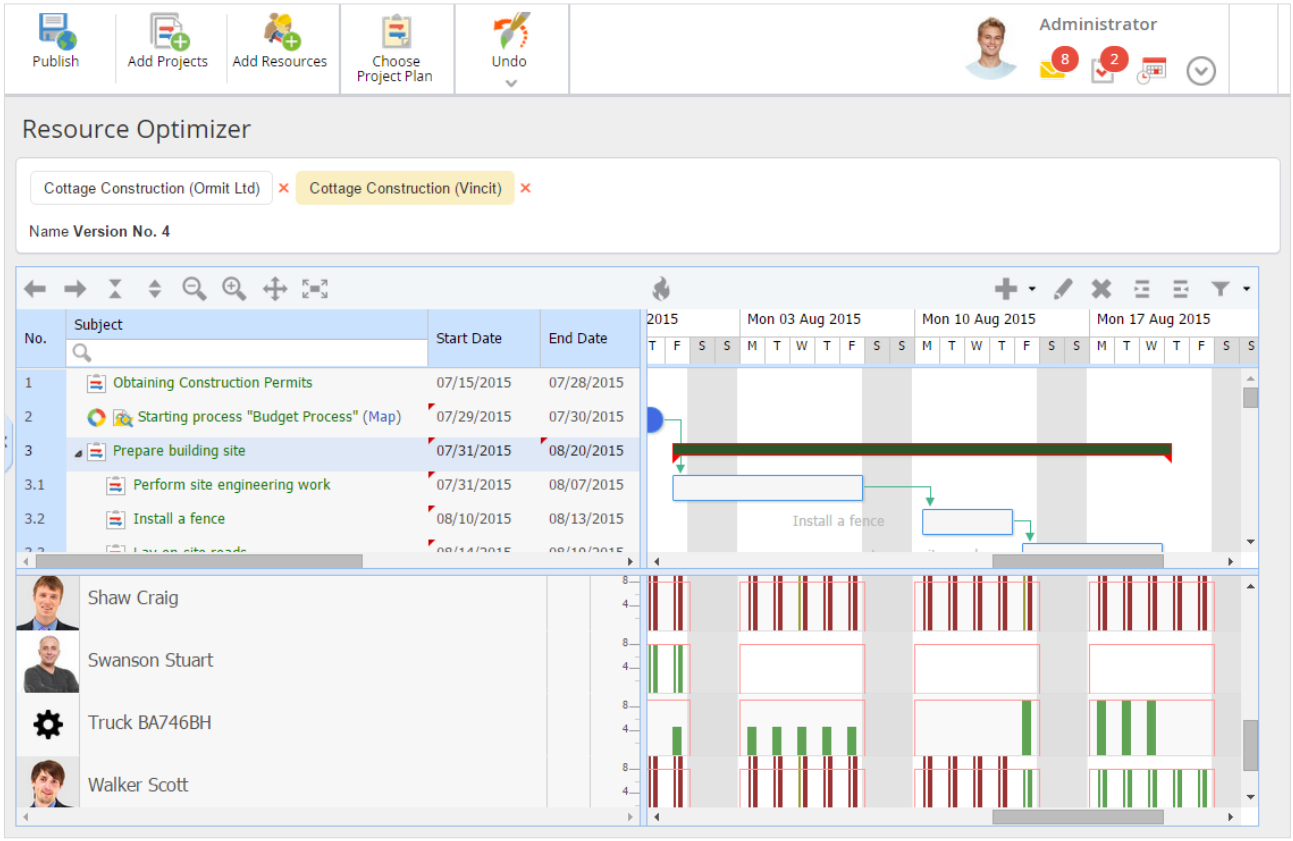


Fig. 116. Projects, displayed in the Resource optimizer

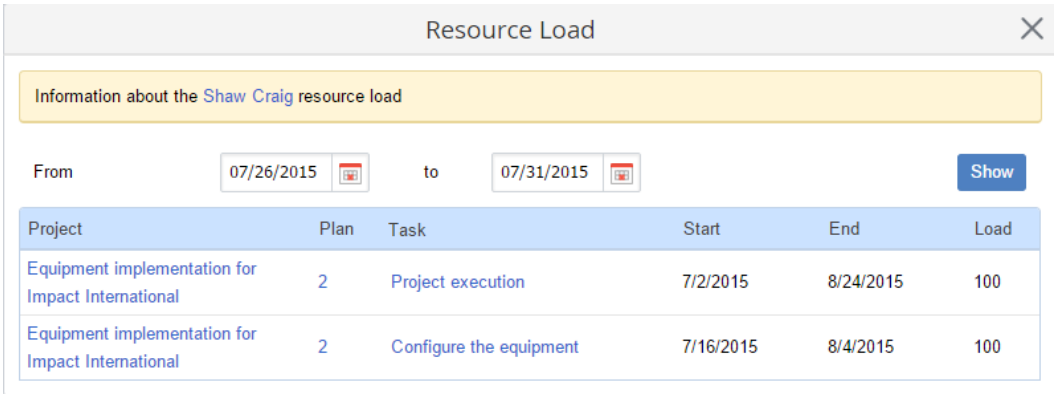


Fig. 117. The list of tasks, involving the resource

6.2.4. Changing Life Cycle Stages

Return to the project, created with a template (fig. 96). Select **Projects** → **All** (fig. 99). **General Information** portlet shows the current project stage. When created, the project has **Draft** stage, according to the life cycle of this project type (fig. 68).

Projects at the **Draft** stage are not active yet. They are not in the active projects list, project tasks are not assigned to executors, etc. A notification with this information is on the project page (fig. 118).

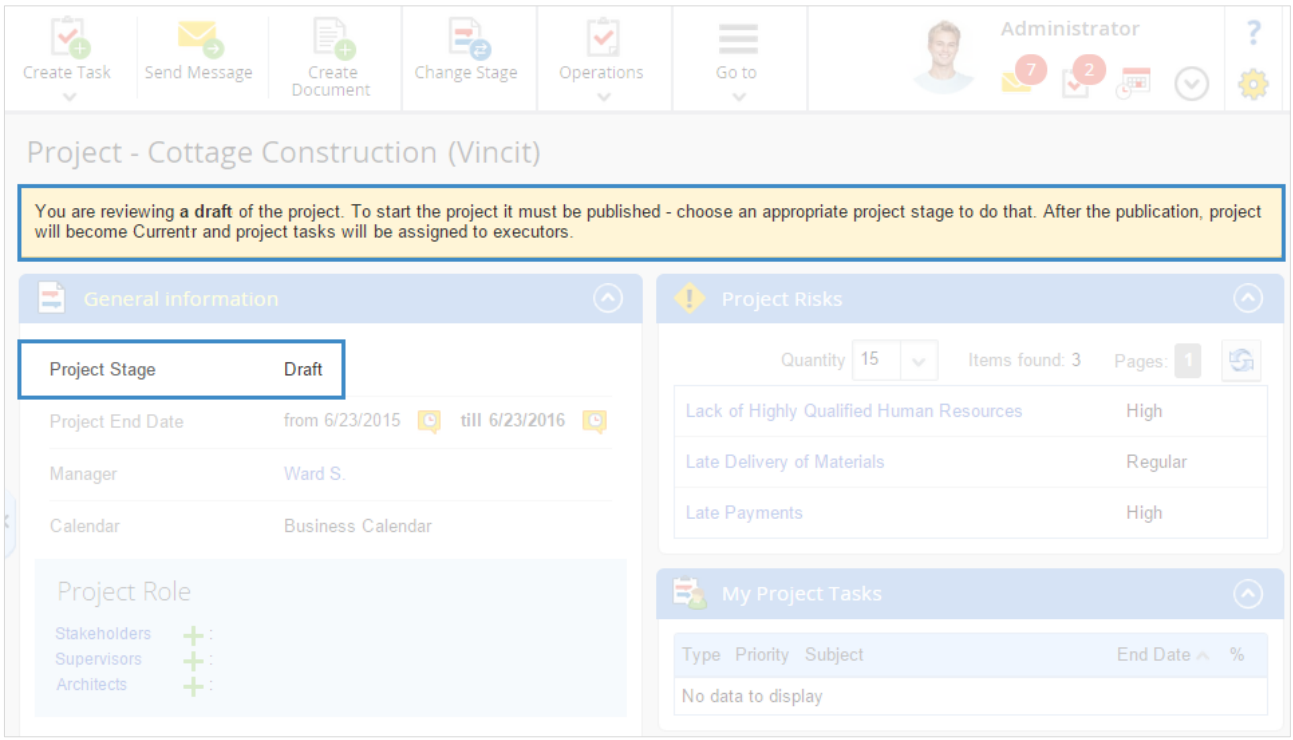


Fig. 118. Project draft notification

Select the stage that will publish the project to put it to work. For low-rise construction projects, select **Obtaining construction permits**. Click **Change Stage** on the project page (fig. 96) and select the stage in the emerged window (fig. 119). Click **Change**.

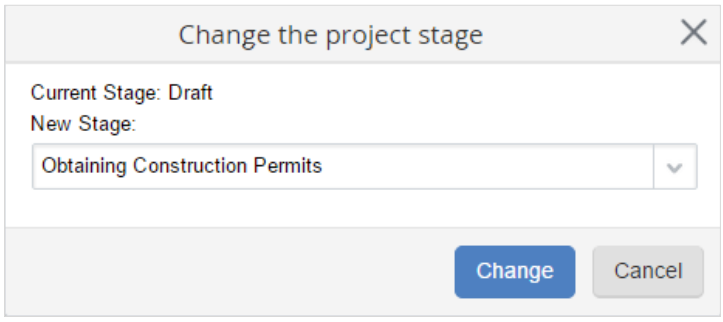


Fig. 119. Changing the project stage

Now the project is published (fig. 68) and the stage is changed. The new stage and the notification are shown on the project page (fig. 120).

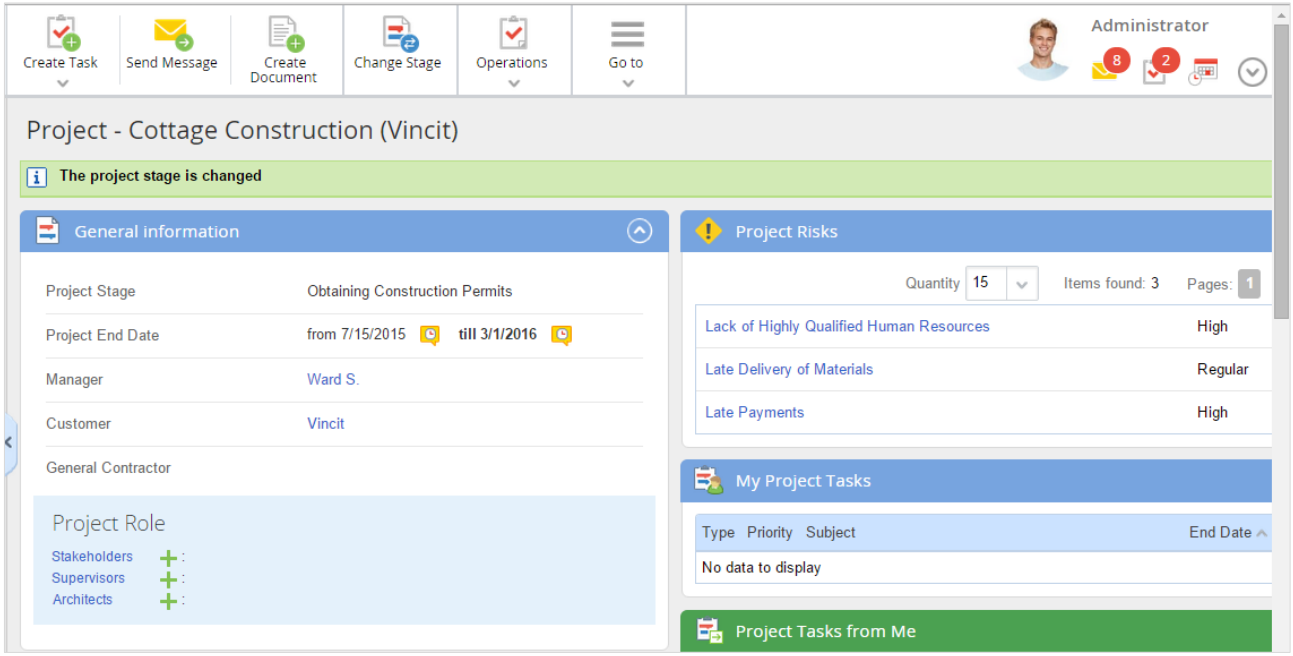


Fig. 120. The project at the Obtaining Construction Permits stage

The life cycle continues in the same way. If you need to change the project stage, use **Change Stage** button in the top menu. It will trigger the activity, linked to the life cycle transition.

6.2.5. Project Risks

When you manage a project, always foresee potential complications, which can negatively affect the project. **ELMA Projects+** provides you with a risks management tool.

The project risks are stored in a list on the project page. It is always available to the manager. Each risk has its priority.

Some of the low-rise construction projects risks are on the project page, since they were added to the project template. Select **Projects** → **All** and click the **Projects Risks** portlet name. Risk log page opens. You can also select **Operations** → **Project risks** to open the risk log page.

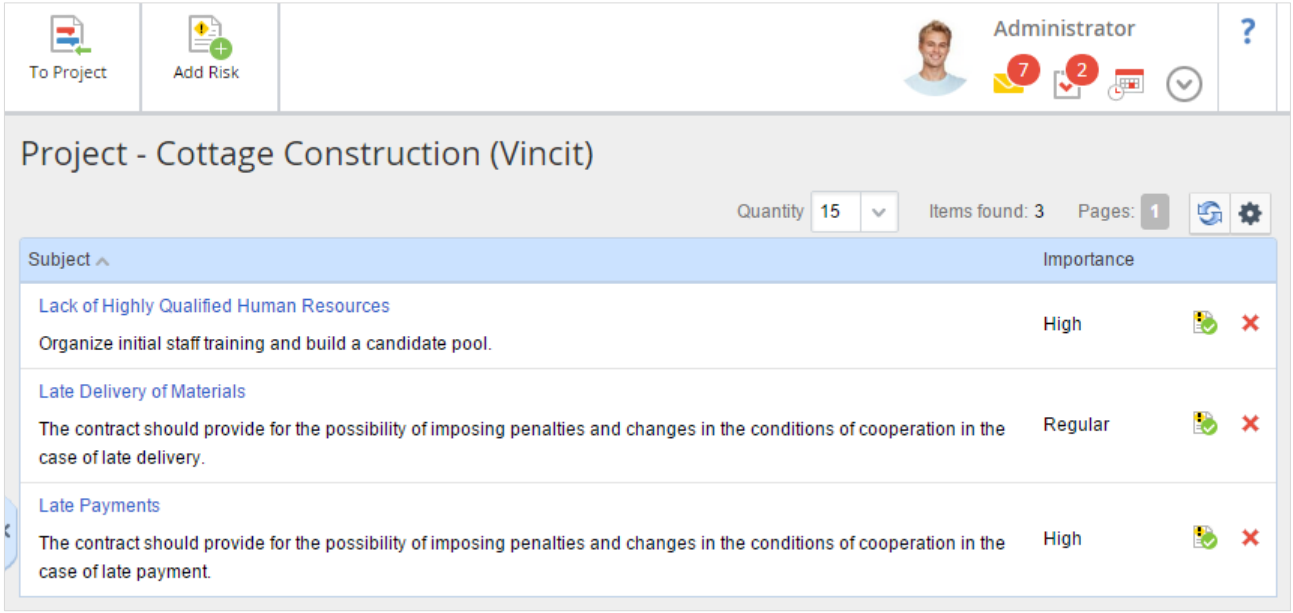


Fig. 121. Risk log page

Click **Add Risk** to add risks to the list. Adding risks is described in para. **6.1.3.5. Configuring Risks**.

Click a risk name to open the risk page, where you can edit its properties, if necessary (fig. 122).

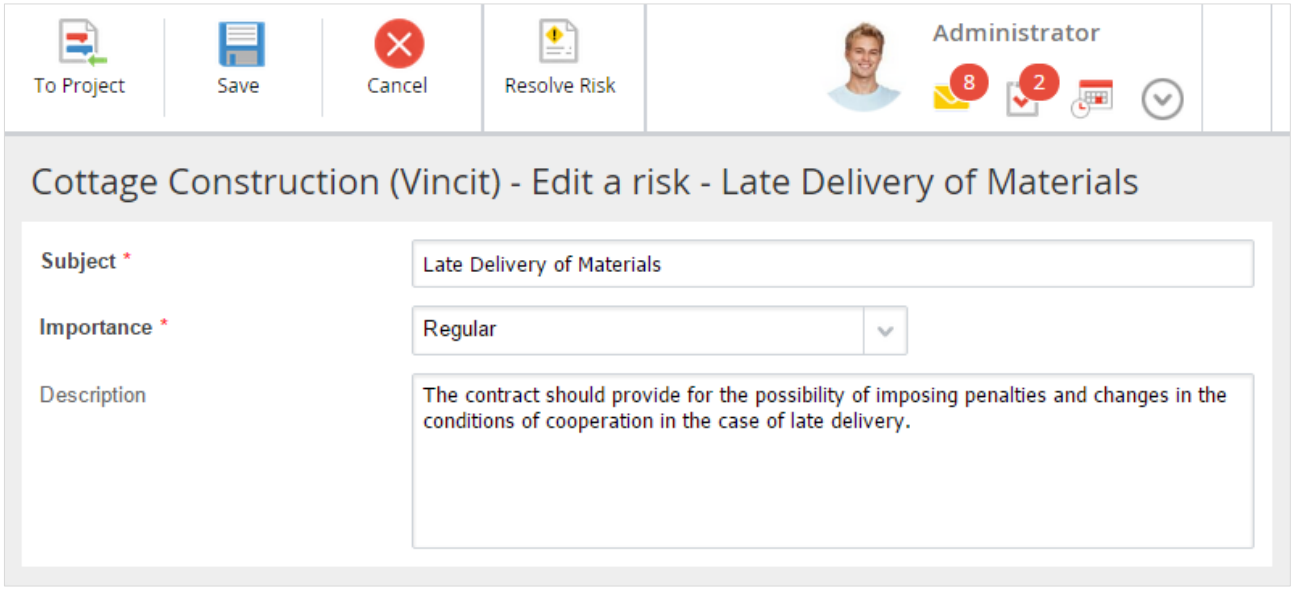


Fig. 122. Risk page

You can resolve risks while the project progresses, if you mitigate them with **ELMA Projects+** tools.

Click **Resolve Risk** on the risk page (fig. 122) to resolve a risk. Describe the actions and activities you employed to resolve the risk in the emerged window and click **Resolve**. You can also resolve risks on the risk log page. Click the icon to the right of the risk importance. When the risk is resolved, the risk log shows the resolving date and the added note (fig. 123). The risk page editing will be unavailable. You cannot edit resolved risks.

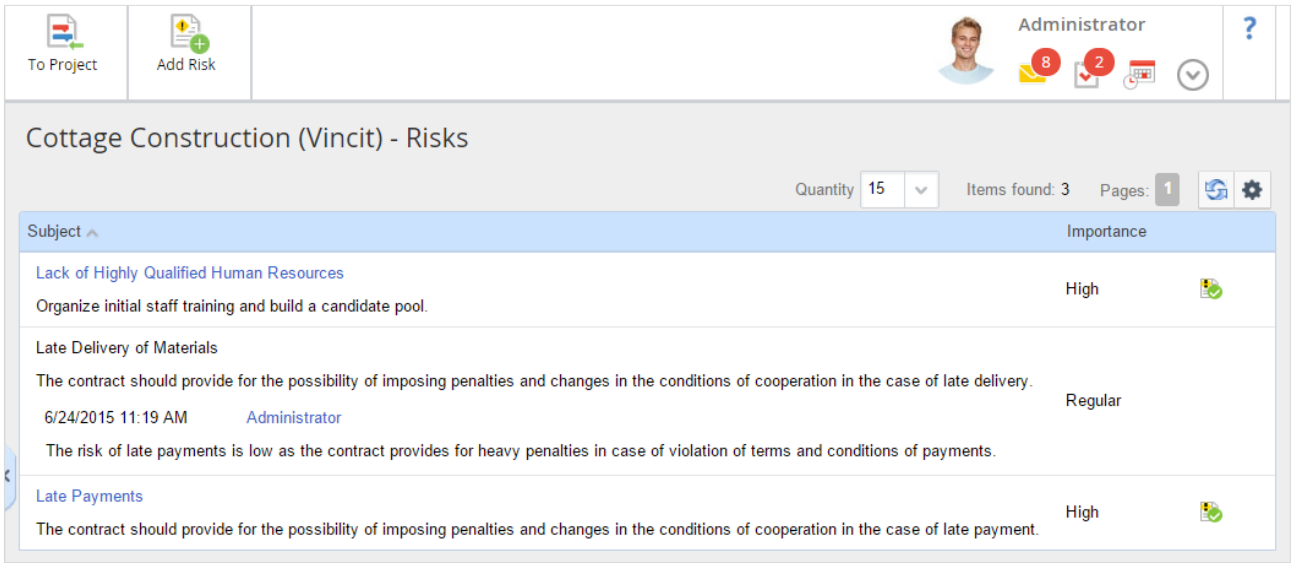


Fig. 123. Risk log with a resolved risk

6.2.6. Project Budget

ELMA Projects+ provides tools for managing the project budget and allows controlling the project revenues/expenses item-by-item. Each project requires a set of phases and items, plan values of revenues/expenses and accounting of fact values of revenues/expenses by fact documents.

When you create a low-rise construction of cottages project, it already has items and some plan values of revenues/expenses, since you have configured them in the project template. Go to the project, created by a template (fig. 96), by selecting it in the **Projects** → **All** (fig. 99), and click the **Budget** portlet name. The project budget page will open (fig. 124). You can also open the budget page by clicking **Go To** → **Budget**.

The page displays the project budget chart, which reflects changes in fact and plan values of project revenues/expenses over a period. Learn more about the chart in the paragraph **6.2.6.1. Project Budget Chart**.

Below the chart is the summary table with plan and fact values of revenues/expenses, and the automatically calculated financial result.

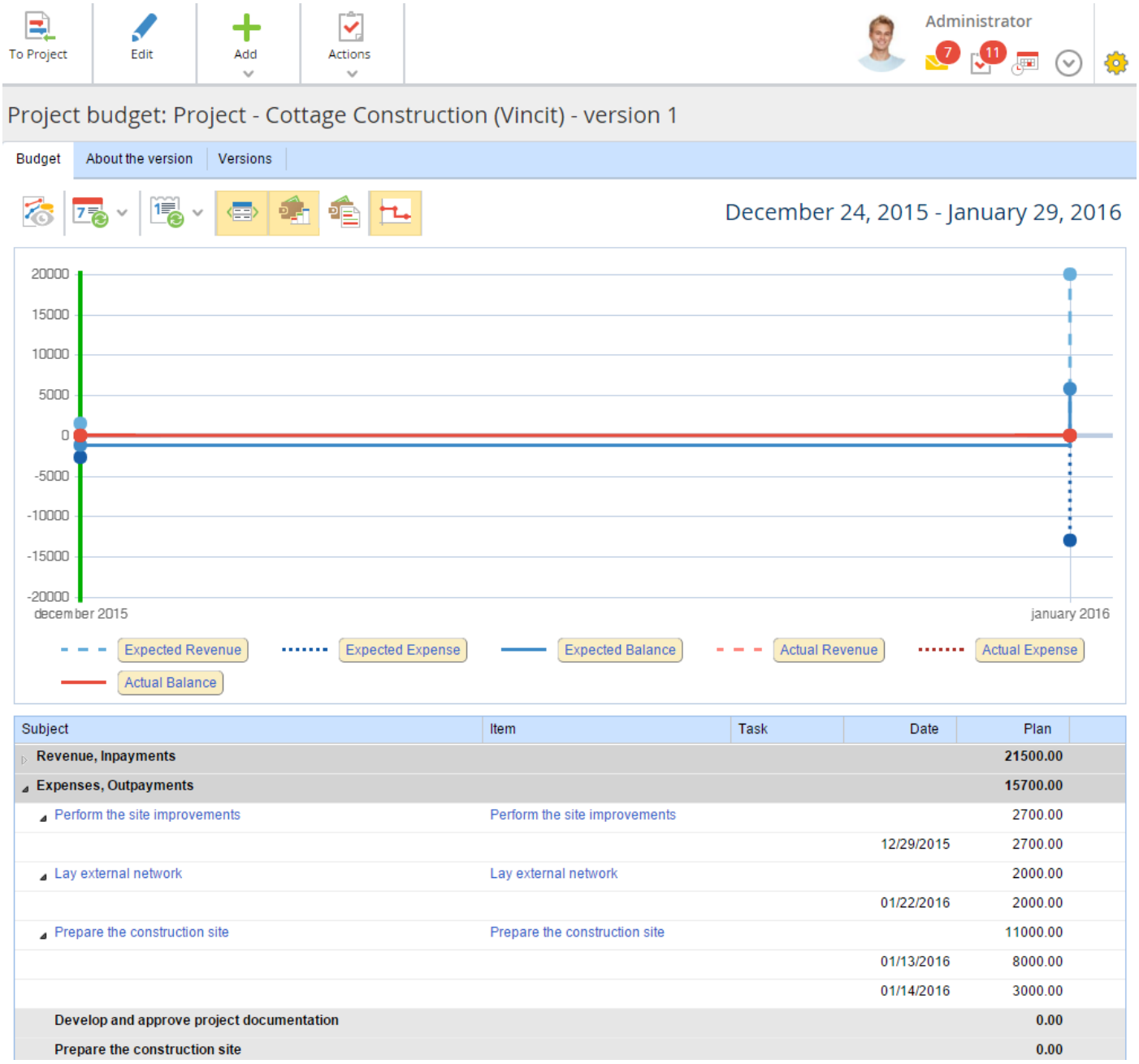


Fig. 124. Project budget page

When the project is created, you can edit the budget plan values, if you need to adjust the values to a particular project. To do so, click the **Edit** button in the top menu on the budget page (fig. 124). A budget version editing page will open (fig. 125).

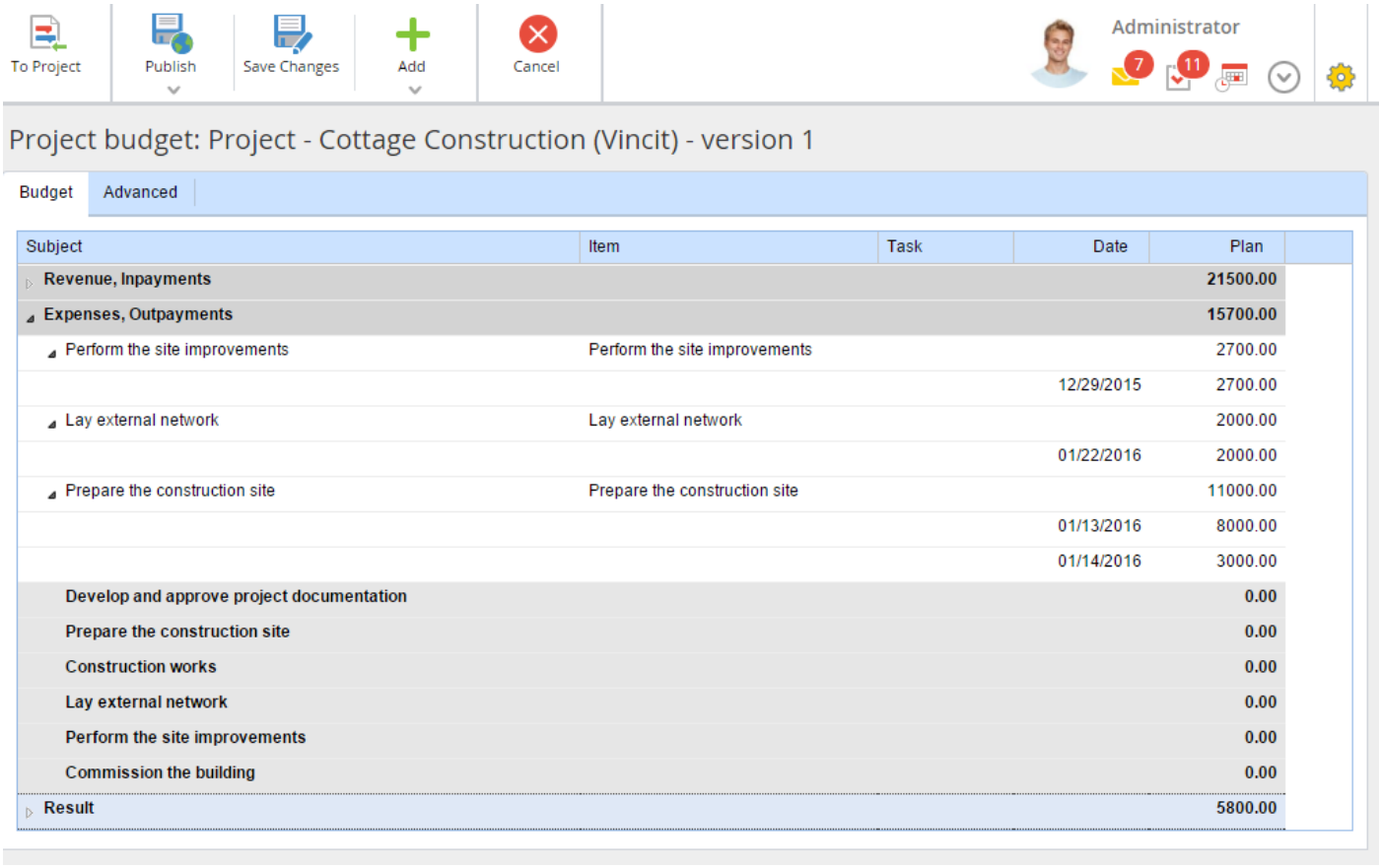


Fig. 125. Budget version editing page

To change a plan value, double click its name. A dialog box for editing this value will open (similar to the one in fig. 88). Edit a plan date of one of the values. To do so, click the button to the right of the required value in the dialog box (fig. 126), select the date in the Date field, and click the **Edit** button.

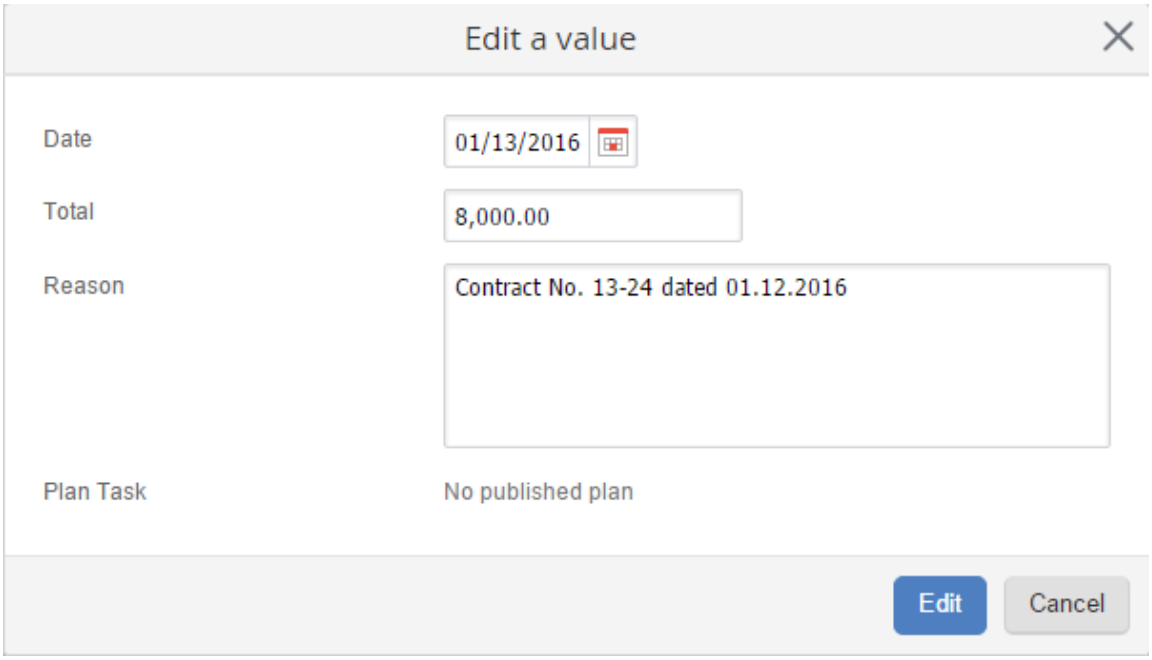


Fig. 126. Value editing dialog box

Click the **Save** button in the plan value editing box (fig. 88) to save the changes and return to the budget version editing page (fig. 125). The value date is displayed to the right of the value name in the **Date** column. To apply the changes, publish the current budget version. Click the **Publish** button in the top menu.

The budget is planned at the initial project phases, and the fact values are constantly updated in course of the project. To add fact values of revenues/expenses, click **Add** → **Add Actual Revenue/Add Actual Expense** in the top menu of the budget page (fig. 124).

The fact value creation box will open (fig. 127). Select an actual revenue/expense or an item, enter the fact value name in the **Subject** field and the required value in the **Total** field. Specify the revenue/inpayment date. Attach a document, confirming the actual revenue/inpayment. Click **Send** to save the fact value and return to the budget page.

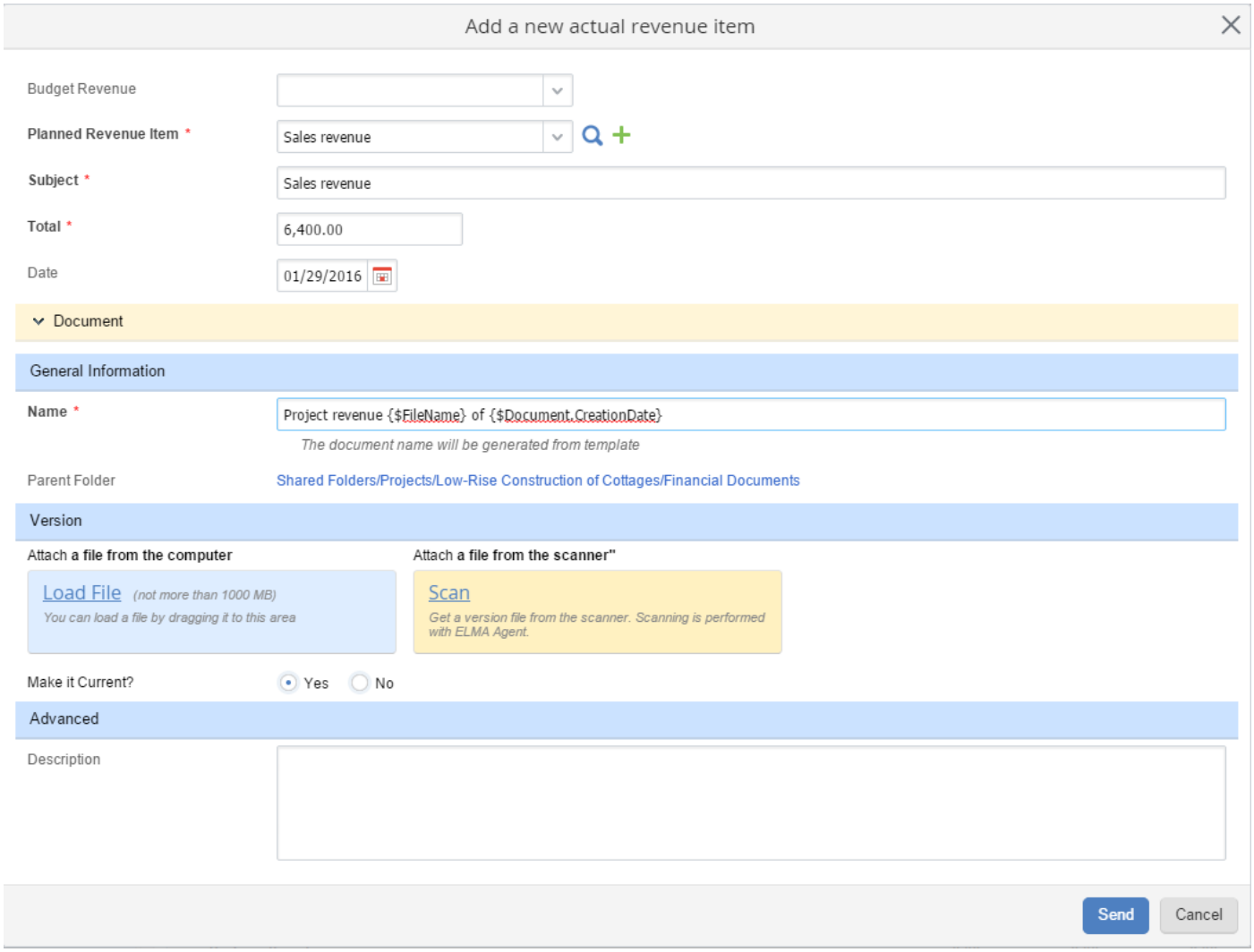


Fig. 127. Adding an actual revenue

The fact value will be added to the budget (fig. 128) and the chart will adjust to the new data. The document with the data will be created in the project folder.

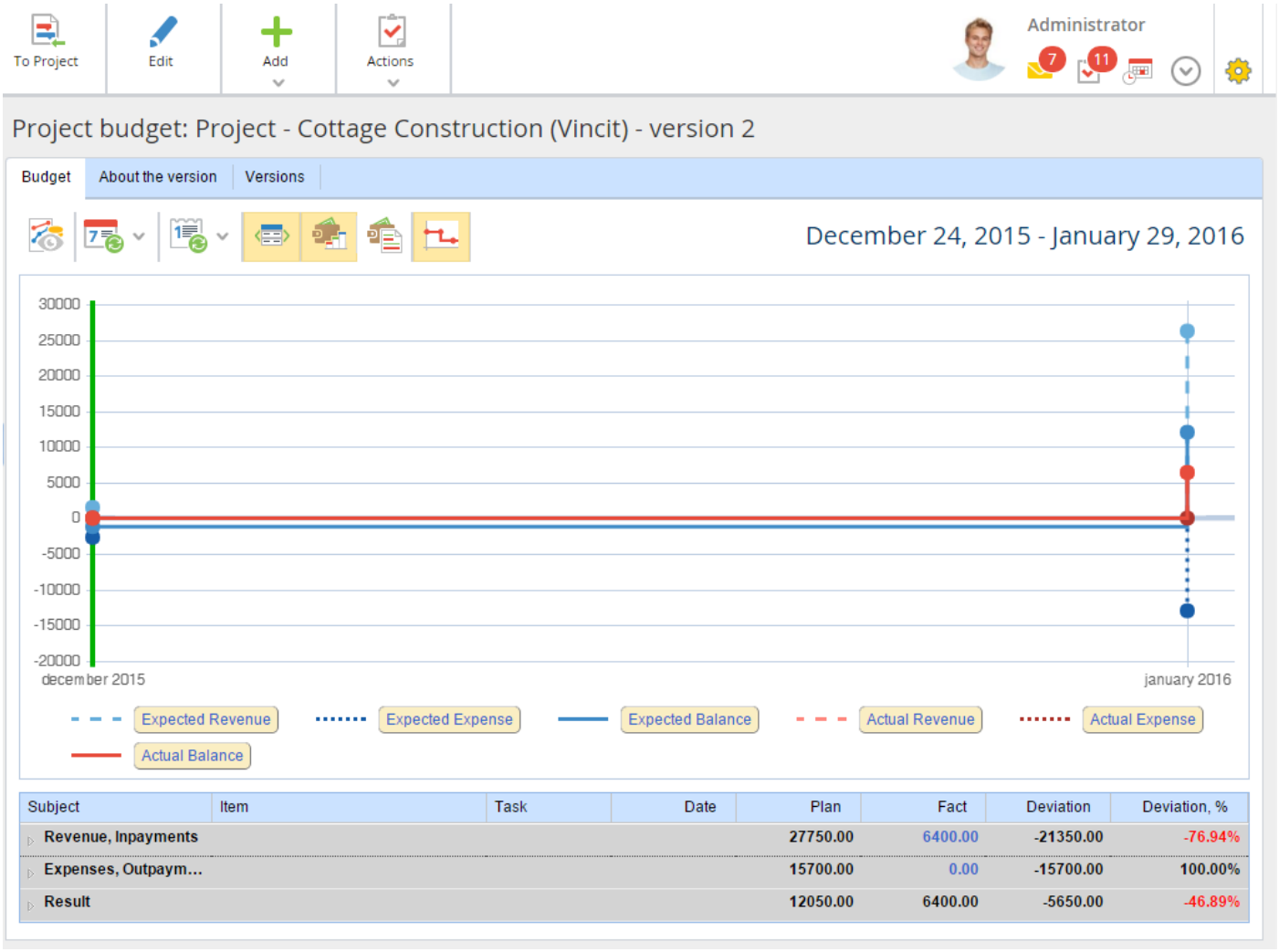


Fig. 128. Budget with fact and plan values

If you click a fact value in the table, a dialog box (fig. 129) with the information on this item will open. You can edit this item, if necessary.

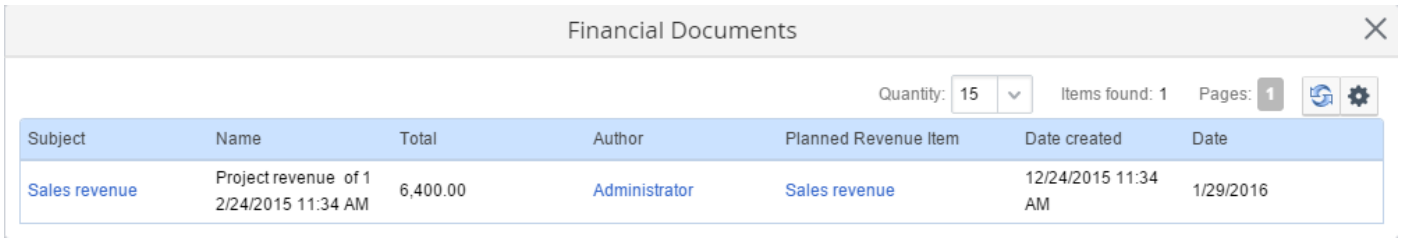


Fig. 129. Fact value information

By default, budget versions can be published and edited by all the users, who have the permissions to do so. ELMA Projects+ allows approving project budget versions. This function is similar to project plan approval, described in the paragraph **8.3 Approving a Project Plan**.

You can also create a report on the project budget, which would contain the list of all the items values (plan and/or fact) over a period. The report can display plan and fact values together or separately.

You can find more information on the ELMA Projects+ application in ELMA Help.

6.2.6.1 Project Budget Chart

Project budget chart is a graphical representation of fact/plan values of project revenues/expenses over the selected period.

The budget chart consists of points (table row values), which are placed along the time axis and connected to each other. The points can be above or below the zero line, depending on the value type (revenue/expense). The revenue values are above and the expense values are below. Each point represent a separate plan/fact value of the project revenue or expense at a given time.

Points from one table row are connected with a dashed or full line of a particular color. These lines reflect the value changes dynamics. The current time is marked on the chart with a green vertical line.

When you mouse over one of the points, a popup is displayed. It contains the information on plan/fact values of revenues/expenses on the selected date (fig. 130).

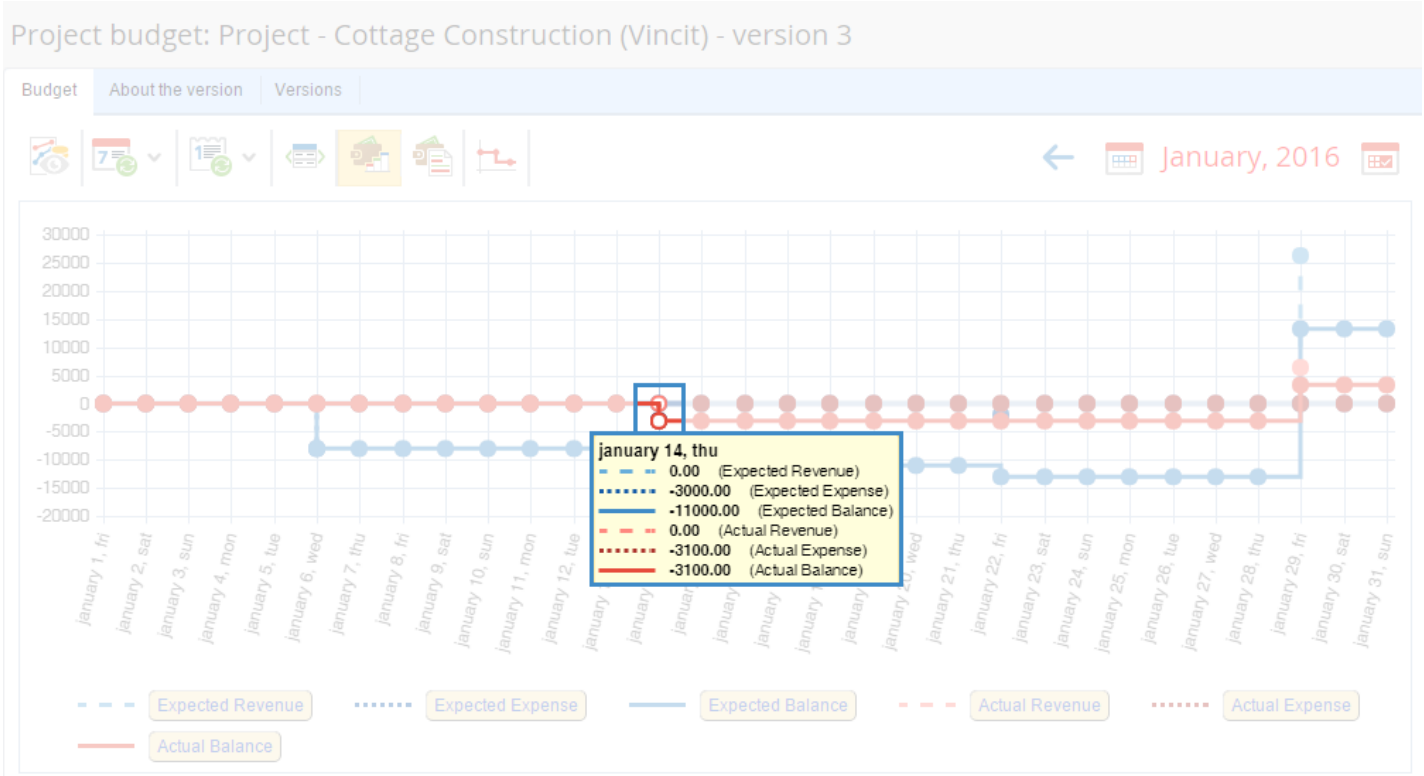
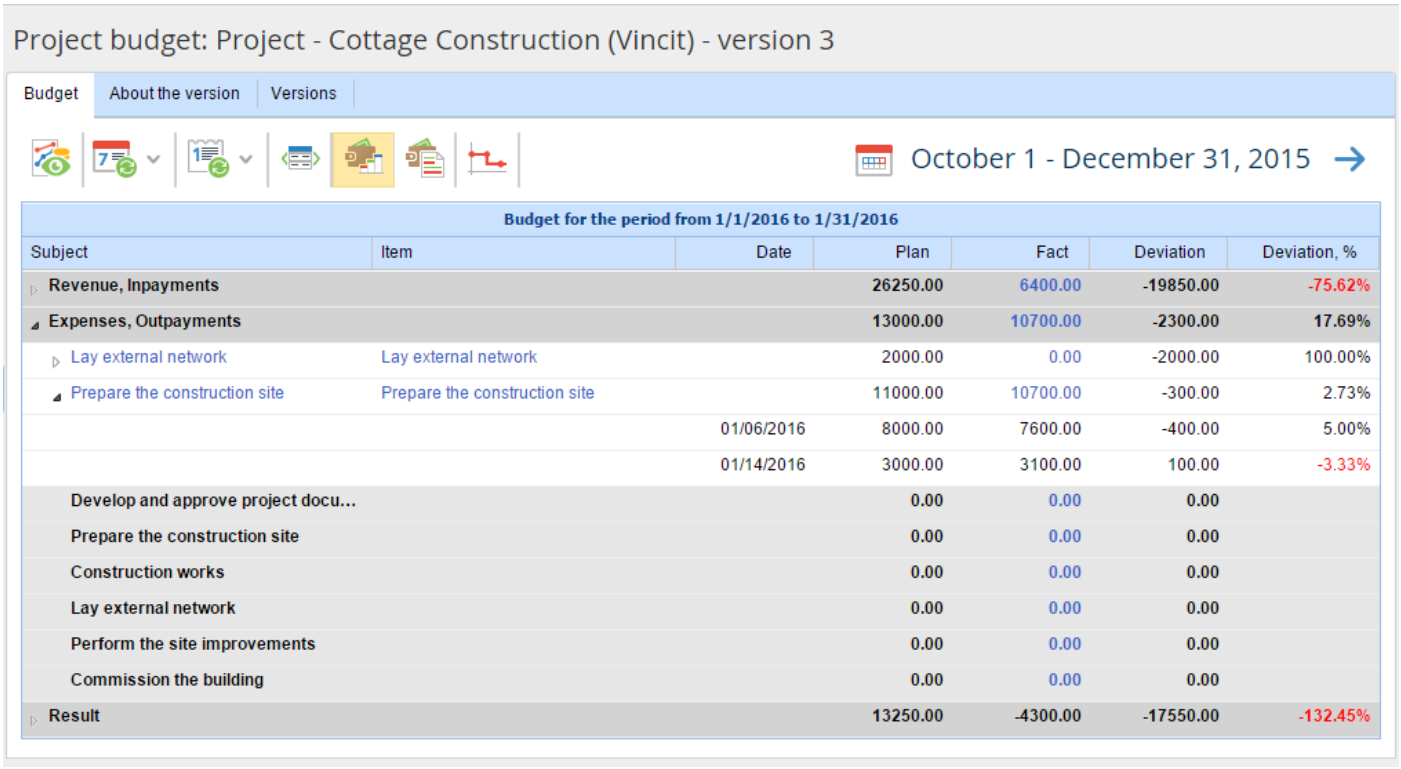


Fig. 130. A popup on the budget chart

When you click one of the points, the plan/fact value in the table below are filtered for this date (fig. 131).



Budget for the period from 1/1/2016 to 1/31/2016

Subject	Item	Date	Plan	Fact	Deviation	Deviation, %
Revenue, Inpayments			**26250.00**	6400.00	**-19850.00**	-75.62%
Expenses, Outpayments			**13000.00**	10700.00	**-2300.00**	**17.69%**
Lay external network	Lay external network		2000.00	0.00	-2000.00	100.00%
Prepare the construction site	Prepare the construction site		11000.00	10700.00	-300.00	2.73%
		01/06/2016	8000.00	7600.00	-400.00	5.00%
		01/14/2016	3000.00	3100.00	100.00	-3.33%
Develop and approve project docu...			**0.00**	0.00	**0.00**	
Prepare the construction site			**0.00**	0.00	**0.00**	
Construction works			**0.00**	0.00	**0.00**	
Lay external network			**0.00**	0.00	**0.00**	
Perform the site improvements			**0.00**	0.00	**0.00**	
Commission the building			**0.00**	0.00	**0.00**	
Result			**13250.00**	**-4300.00**	**-17550.00**	-132.45%

Fig. 131. Data table. Filtering by date

The **legend** is below the budget chart. It contains the rows headers and their graphic representation on the chart. The plan/fact balance is calculated by the formula "**Planned/Actual Revenue → Planned/Actual Expense**".

You can hide some of the rows on the chart, if necessary (fig. 133). To do so, click the name of the required row in the legend (the selected name will be highlighted grey).

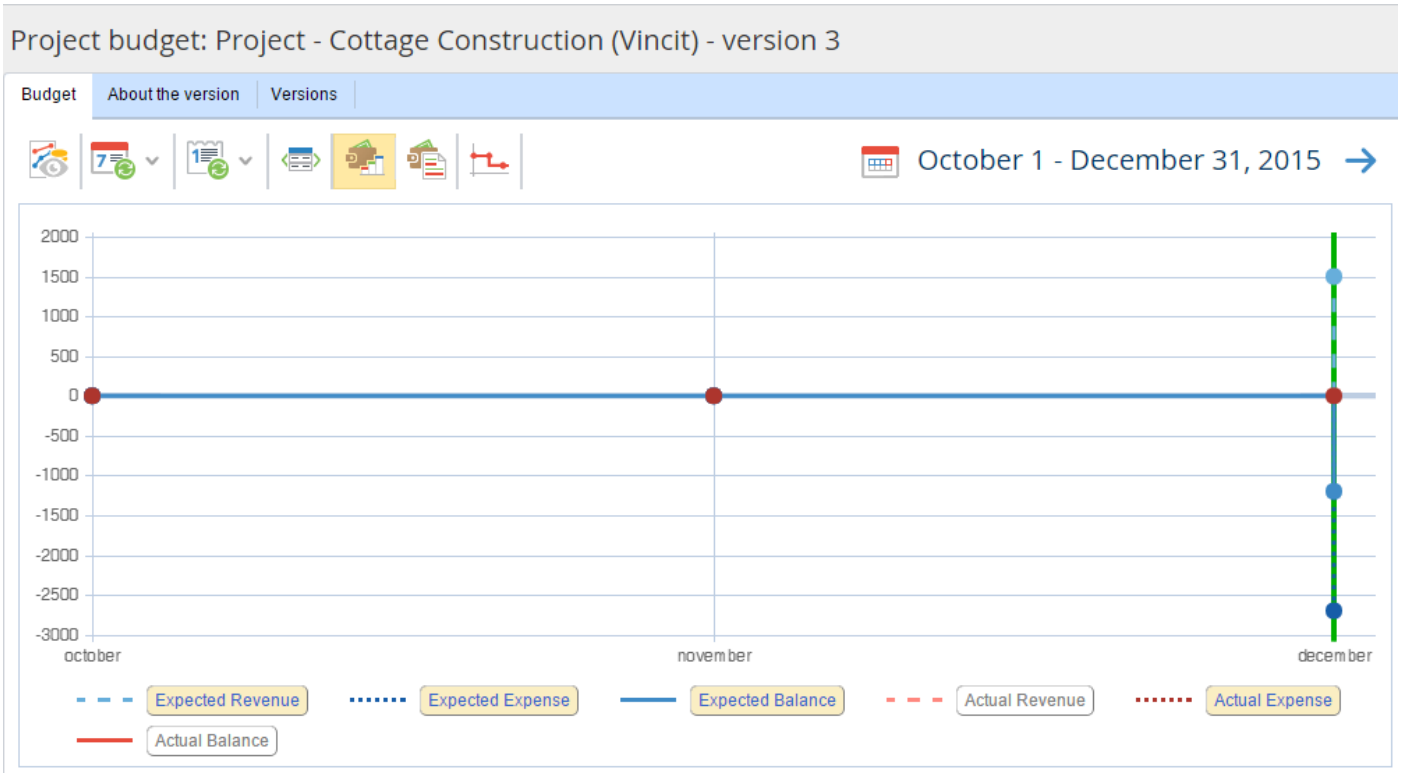


Fig. 132. Budget chart with hidden rows

When working with the budget chart, you can use the toolbar buttons (fig. 133).

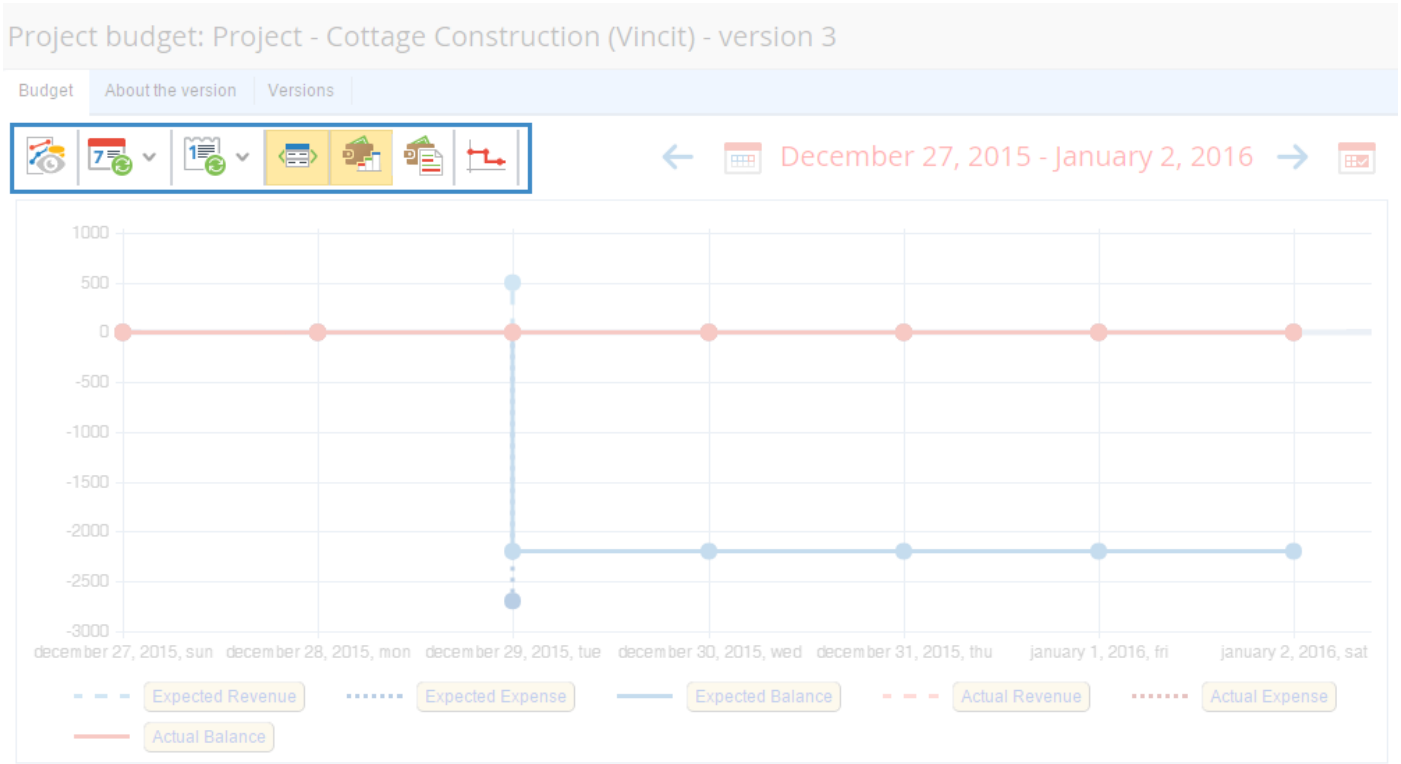


Fig. 133. Budget chart toolbar

Chapter 7. Managing Internal Projects

Projects are divided into two groups: **external projects** (oriented towards external customer) and **internal projects** (oriented towards developments within the organization).

Chapter 6 describes the project conveyor, using an example of external project. It focuses on project plan management, resource management, budget and risks management. Conveyor configurations are different in case of internal projects.

A company funds its internal projects, which develop the company itself. Project stages control is important for internal projects, but these stages can vary from project to project. That is why we do not recommend configuring life cycle as in para. **6.1.1.2. Configuring Life Cycle**. You can use the default life cycle.

You can put project documents, project plan and project time reports to the foreground in the project template (para. **6.1.3. Configuring a Project Type Template**). It is important, how many resources the company spends on the project. Section **8.1 Time Report Limit** describes managing the time report limit.

When you manage internal projects, you have to record the knowledge acquired while executing a development project. To do so, you can set up a business process start on the project page. It will start, when needed. Include an activity of information recording to information resources (e.g. Knowledge Base) in the process map. This function is described in section **8.2. Starting Business Processes on Project Page**. You can also configure the life cycle, so that the process started automatically, when the project is finished (para. **6.1.1.2. Configuring Life Cycle**).

In general, you manage internal project activities with the project conveyor, but the execution details are not the same, as in external projects.

Chapter 8. ELMA Projects+ Additional Features

Previous chapters describe **ELMA Projects+** project management functions and the **Projects conveyor** concept. However, apart from these functions, you often need to cope with specific, less important tasks. After you have completed the general project tasks, you can focus on small details. That is why a flexible solution is better for the end user. This chapter describes features that can improve the main function and make it more convenient to use.

8.1 Time Report Limit

When a project progresses you often need to record the time spent on the project execution as well as the financial expenses. Companies often estimate the execution value in time spent. Therefore, it is important to compare planned time spent (configured when planning the project) and factual time spent (becomes known after the project has been finished).

Each team member can submit task time reports. This process is much as submitting time reports on user tasks in **ELMA**. It is described in **ELMA Help** and **ELMA Web Portal** quick-start manual. You can use project time reports full functionality after you have configured objects of time reports and activities. These configurations are described in **ELMA Help** and **ELMA Web Portal** quick-start manual.

A project manager can control project time reports with a respective portlet. You can add the **Project Time Report** portlet to the project page (fig. 134).

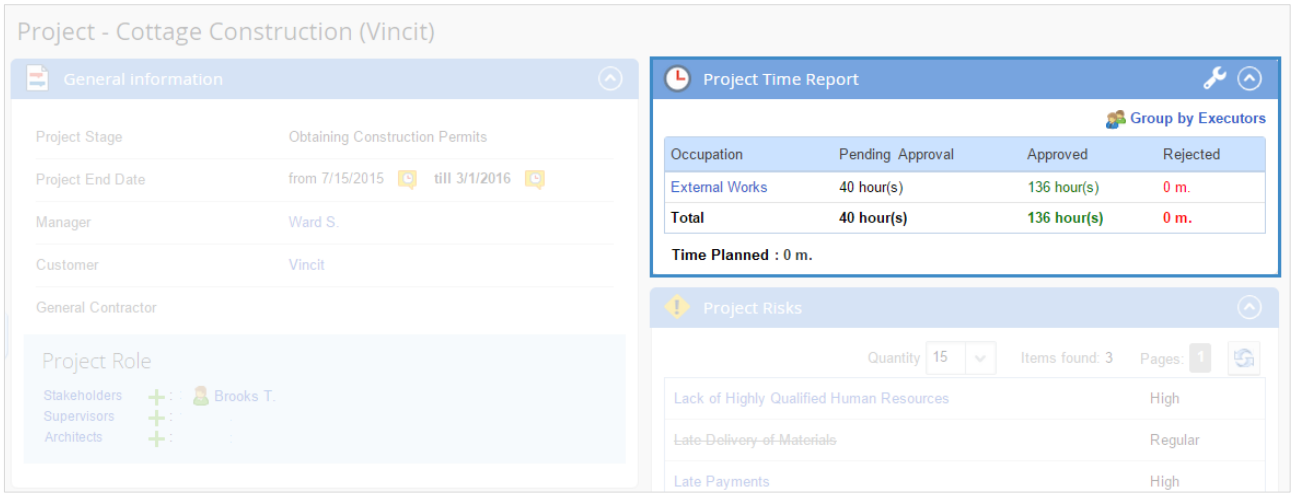


Fig. 134. Project Time Report portlet on the project page

You can limit time reports, i.e. the number of hours one can spend on project activities.

To do so, you need to allow limiting project time reports. Select **Administration** → **Projects+** → **Project Types** (fig. 75). Select **Low-Rise Construction of Cottages** type and open **Time Report** tab (fig. 135).

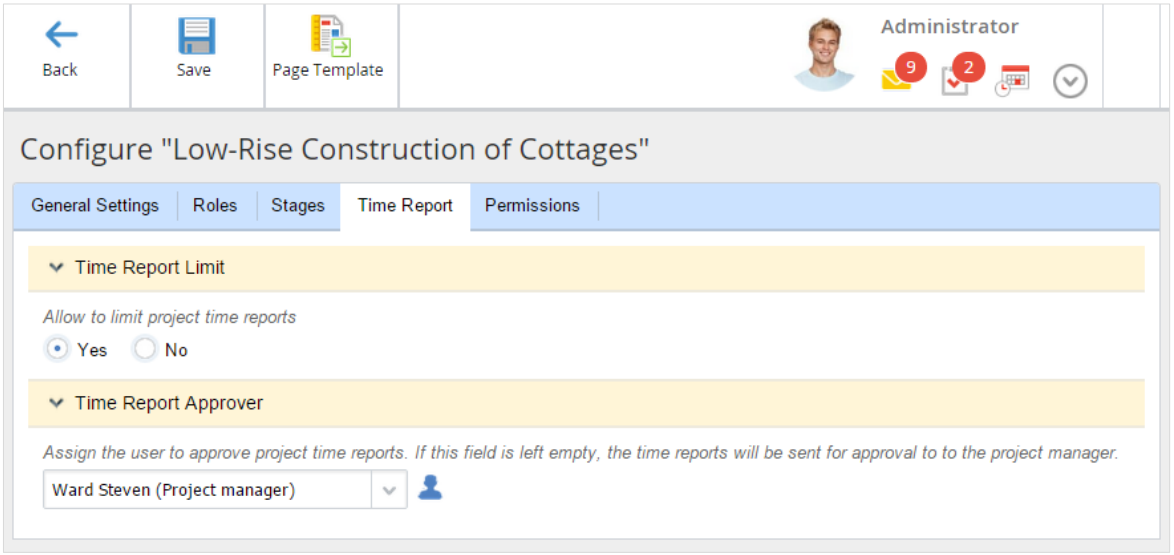


Fig. 135. Project type configurations. Time report tab

Select **Yes** in the **Time Report Limit** section. In the **Time Report Approver** section, you can also assign the user, who will approve time reports on this type of projects by default.

The project manager can set time report limit on the project page. To do so, select **Operations** → **Time Report Limit** in the top menu of the project page (fig. 136).

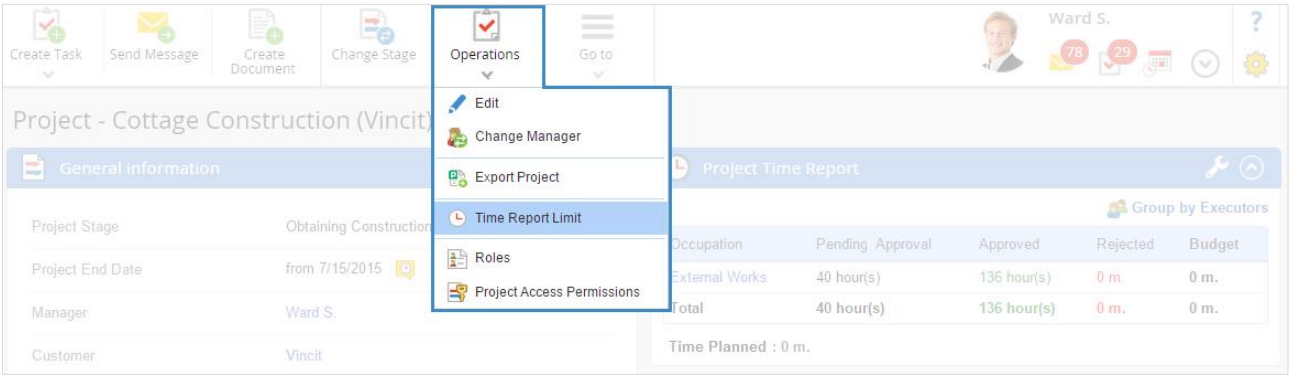


Fig. 136. Opening time report limit editing

Click **Add Time Report Limit** on the opened page (fig. 138). Specify the time limit and the occupation in the emerged window (fig. 137).

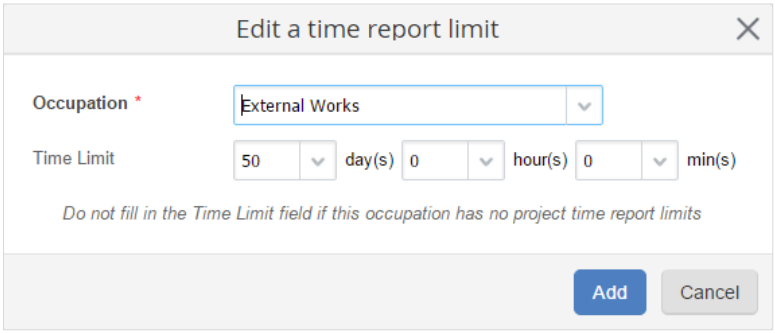


Fig. 137. Adding a time report limit

Click **Add** to add the limit to the list (fig. 138). Click **Save** in the top menu of the time report limit page to save changes.

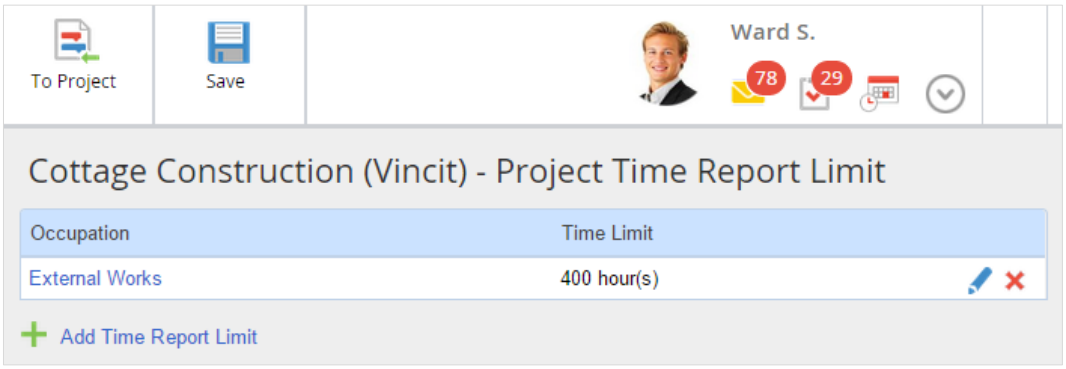


Fig. 138. Configuring a time report limit

The time report limit is now in the **Budget** column of the **Project Time Report** portlet. Tasks executor will not be able to exceed this limit.

Time limits are grouped according to their activity types in fig. 134. You often need to monitor time reports according to the executors. To do so, click **Group by executors** in the **Project Time Report** portlet. Now the portlet information looks like in fig. 139.

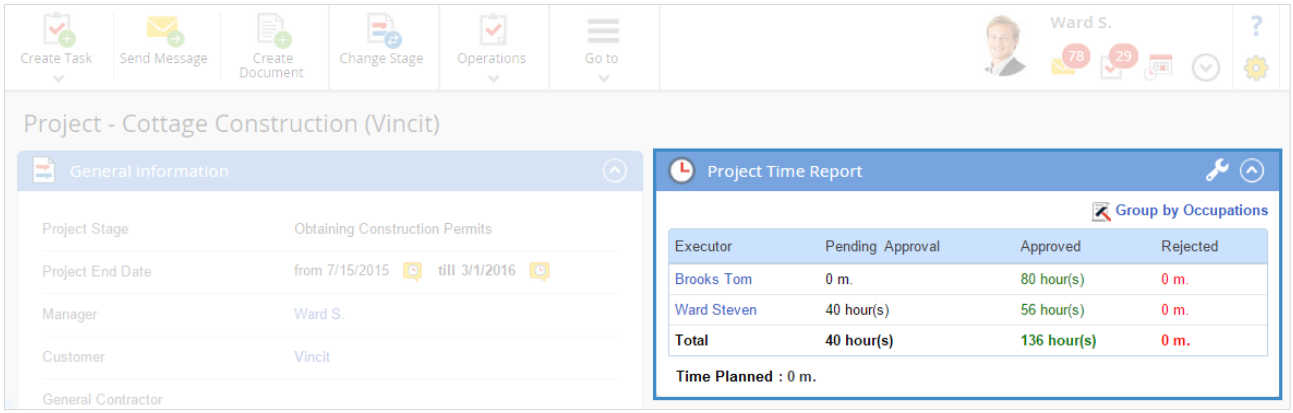


Fig. 139. Grouping time reports by executors

8.2 Starting Business Processes on Project Page

ELMA Projects+ executes typical project procedures as business process instances. This quick-start manual described the business processes that start when project stages change (para. **6.1.1.4 Modeling Project Processes**) and the business processes that start at a certain step of project progress (para. **6.2.2.1 Starting Business Processes in Project Plan**).

You cannot always predict when you are going to need to start a process (if at all) in a project. With **ELMA Projects+,** you can start a process manually on the project page if necessary. Configure the business process and the project type to add this function.

Suppose, that the project has a time report limit (configured, as in para. **8.1 Time Report Limit**). It is possible, that the project is still active, but it reached the time report limit. In this case, a company should make a decision: whether to continue the project and under what conditions; how many resources can the company spare on this project. Implement this logic: If the time report limit is reached, but the project is active, the project manager can start **Request for Overtime** business process.

A simplified map of this business process is in fig. 140. The initiator (project manager) forms a request; the CEO approves the overtime. If the overtime is approved, the initiator's manager, authorized to edit the time report limit, makes the changes.

The context of this process must have an input context variable with **Project** type (fig. 141).

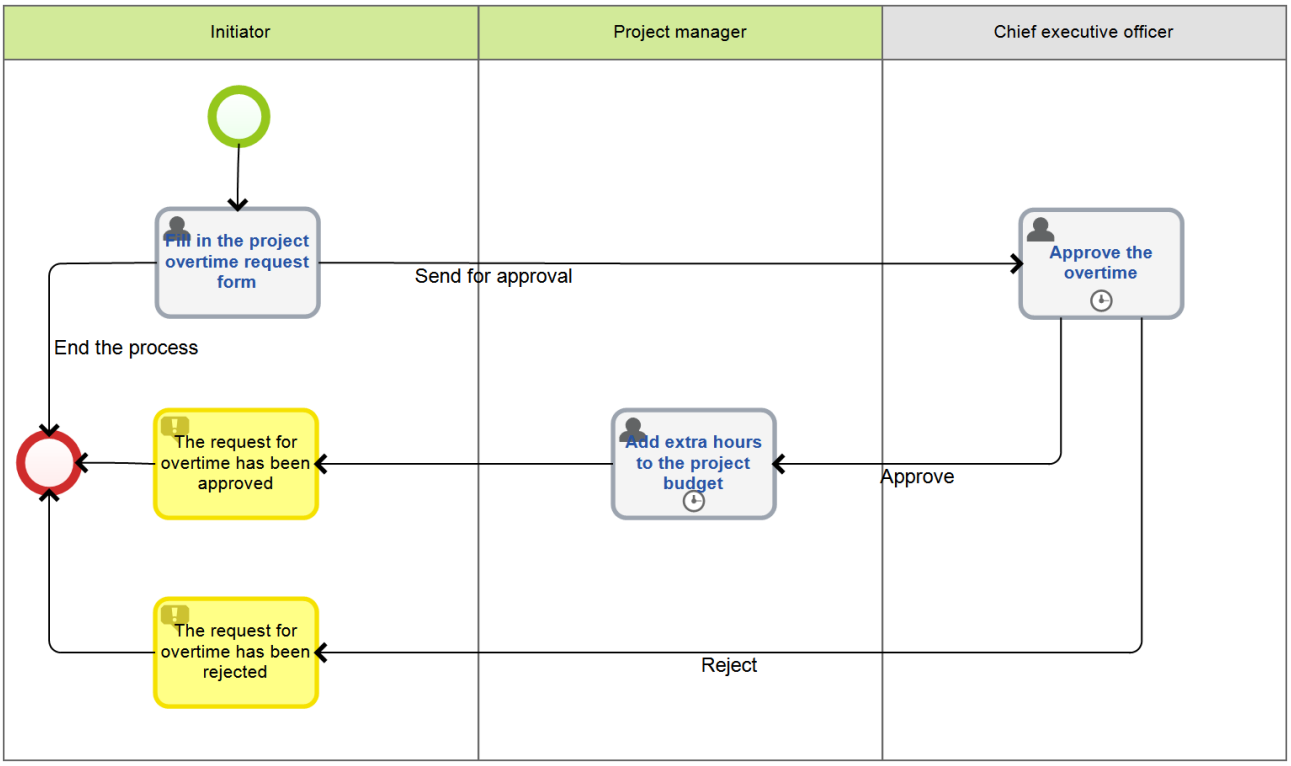


Fig. 140. Request for Overtime business process map

Process List | Request for Overtime*

Graphic Model | Context | Performance Matrix | Metrics and KPIs | Forms | Scripts | Settings | Version History | Policy

Displayed Name	Property Name	Type	Search	Input	Output
Process Instance	WorkflowInstance	Workflow Process Instance (Object)	☐	☐	☐
Unique Identifier	Uid	UID (GUID)	☐	☐	☐
Initiator	Initiator	User (Object)	☐	☐	☐
Extra Hours (Requested)	ExtraHoursRequested	Integer	☐	☐	☐
Extra Hours (Allocated)	ExtraHoursAllocated	Integer	☐	☐	☐
Reason	Reason	Text	☐	☐	☐
Comment	Comment	Text	☐	☐	☐
Project Manager	ProjectManager	User (Object)	☐	☐	☐
Project	Project	Base Project Type (Object)	☑	☑	☐

Fig. 141. Request for overtime process context

Select **Save** → **Publish** to publish this business process (fig. 66) (learn more about this operation in **ELMA BPM Platform** quick-start manual).

Next, add the business process to the Flows list of the project type. Open the **Flows (Processes)** tab on the project page and click **Add** in the top menu (fig. 142). Select the business process in the opened window and click **OK** (fig. 143).

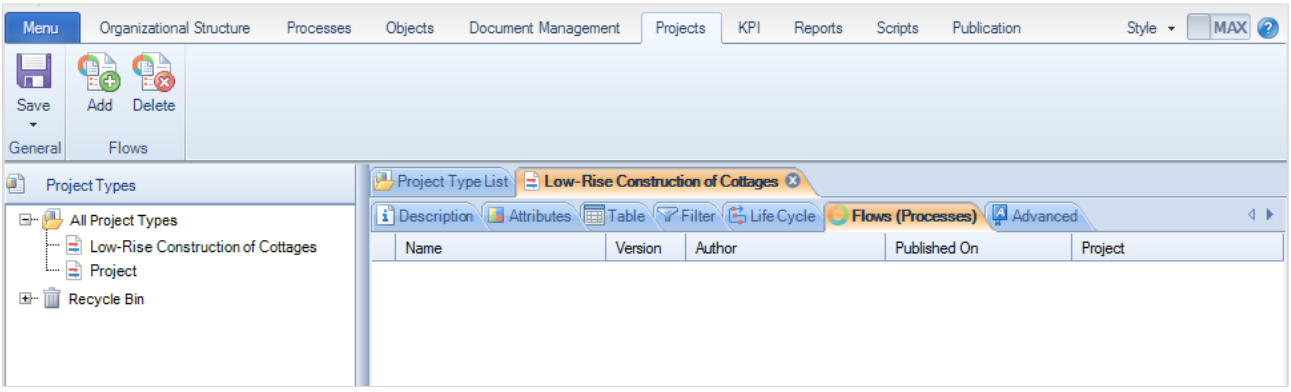


Fig. 142. Project type page. Flows (Processes) tab

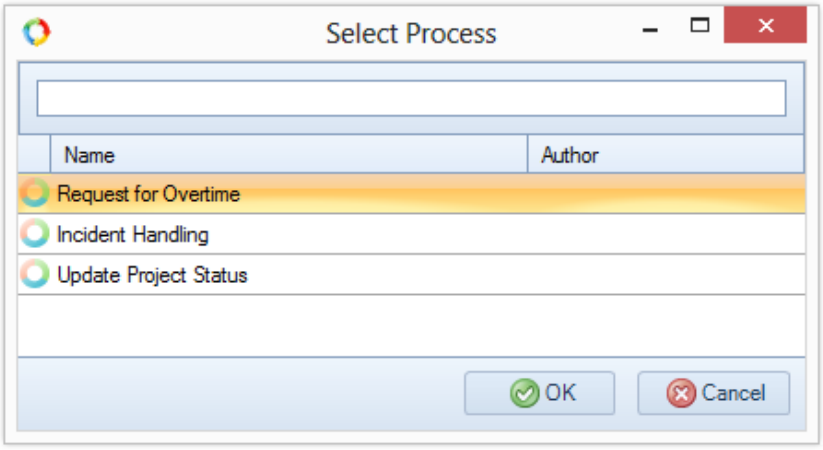


Fig. 143. Project type flow selection window

Publish the project type after you have made the changes (para. **6.1.1.3 Publishing a Project Type**).

Start Process button is now on the project page in the top menu (in web application) (fig. 144).

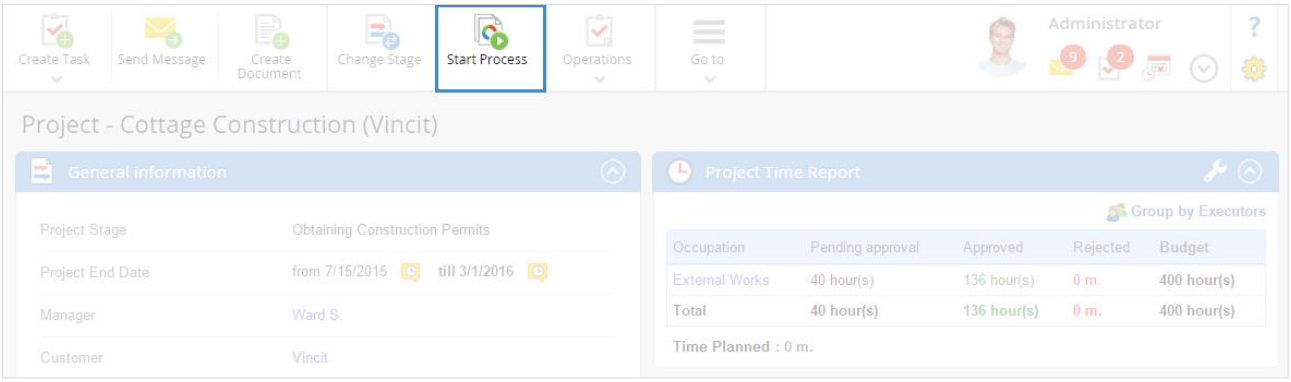


Fig. 144. Start Process button on the project page

Click the button and specify the process instance name and the process in the emerged window. Click **Send**. The process is started and the first task is assigned to its executor.

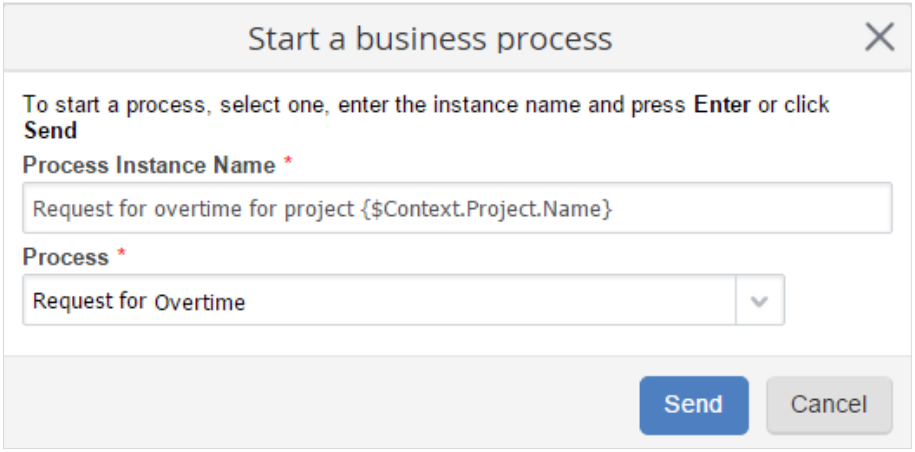


Fig. 145. Start a business process window

Using this process implies, that the process **Initiator** is not authorized to edit the time report limit, but the **Initiator's Manager** is. You can configure these permissions in the project type configurations (fig. 75) in **Permissions** tab (fig. 146). Click **Save** in the top menu to apply changes.

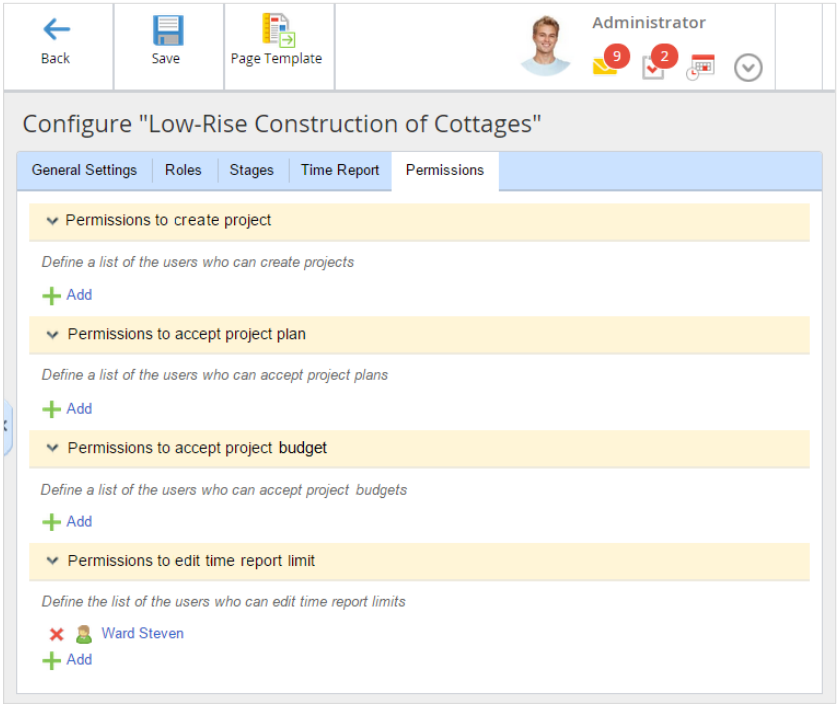


Fig. 146. Project type configuration. Permissions tab

8.3 Approving a Project Plan

All authorized users can publish and edit a project plan. With **ELMA Projects+** you can implement project plan approval. With ELMA Projects+, you can approve project plans.

Open **General Settings** tab (fig. 147) in the project type configuration (fig. 75) to configure project plan approval.

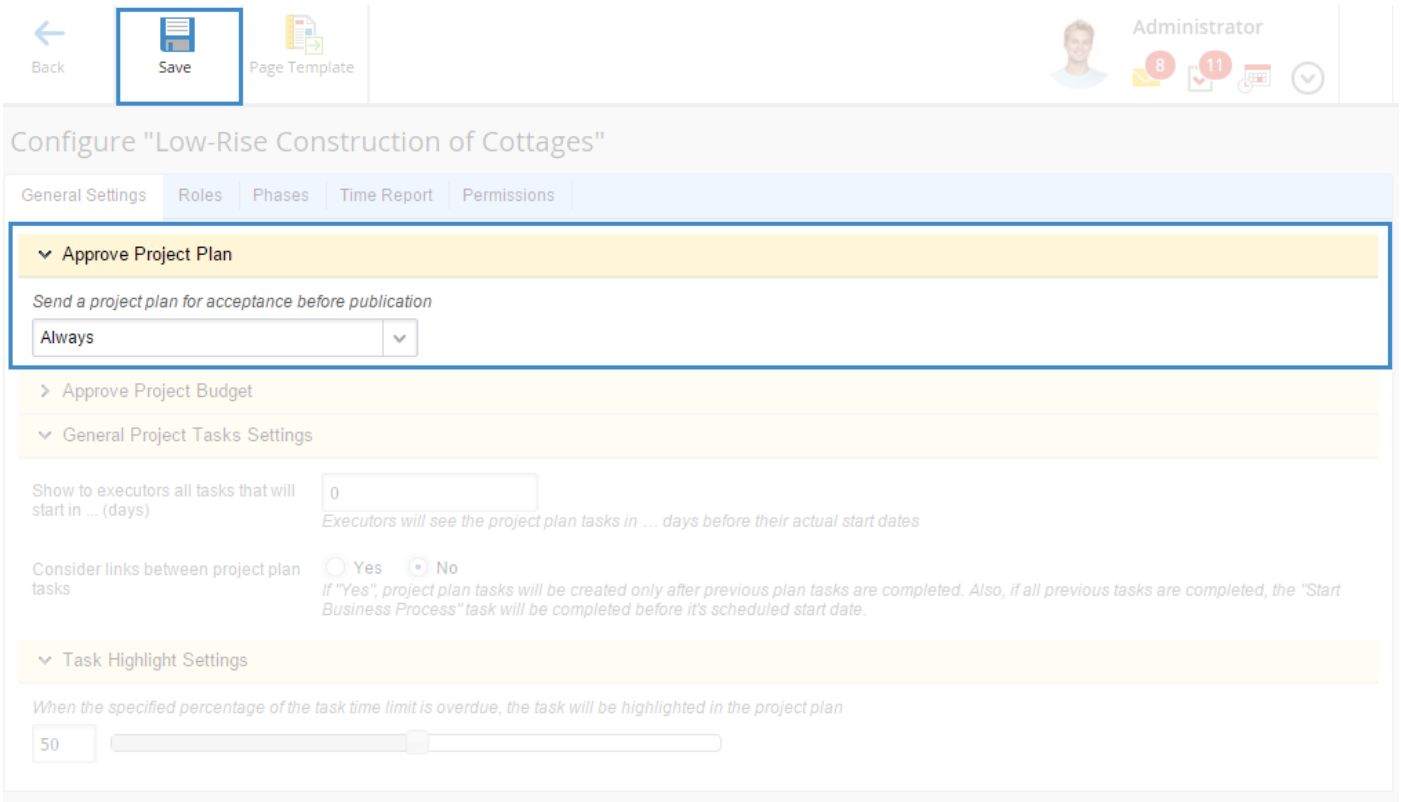


Fig. 147. Project type configuration. General Settings tab

Select **Always** in the dropdown list of the **Approve a project plan** section. It means that every time you publish a project, it needs to be approved.

Specify plan approval permissions in the **Permissions** tab of the project type configuration (fig. 146).

Click **Save** in the top menu after you have made the changes.

After these changes, publishing a plan will be unavailable on the project plan editing page. The top menu will display the **Send for Approval** button (fig. 148).

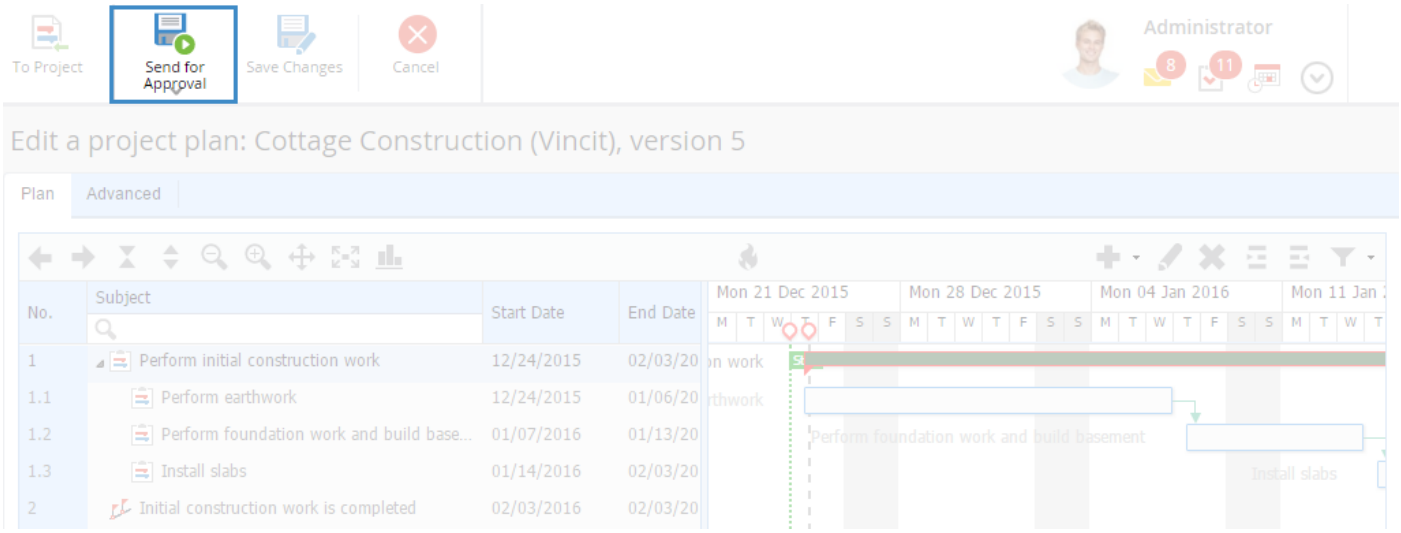


Fig. 148. Project plan editing page. Send for Approval button

Click this button and select the user, who will approve the plan, in the emerged window (fig. 149).

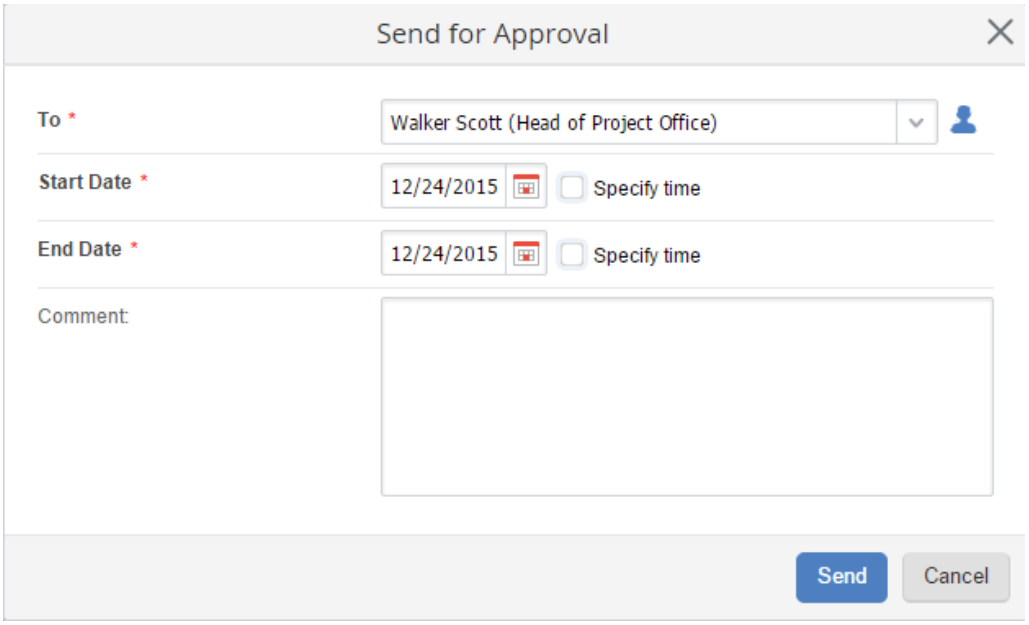


Fig. 149. Sending a project plan for approval

After you have clicked the **Send** button, the project plan page shows a new **Pending Approval** status (fig. 150).

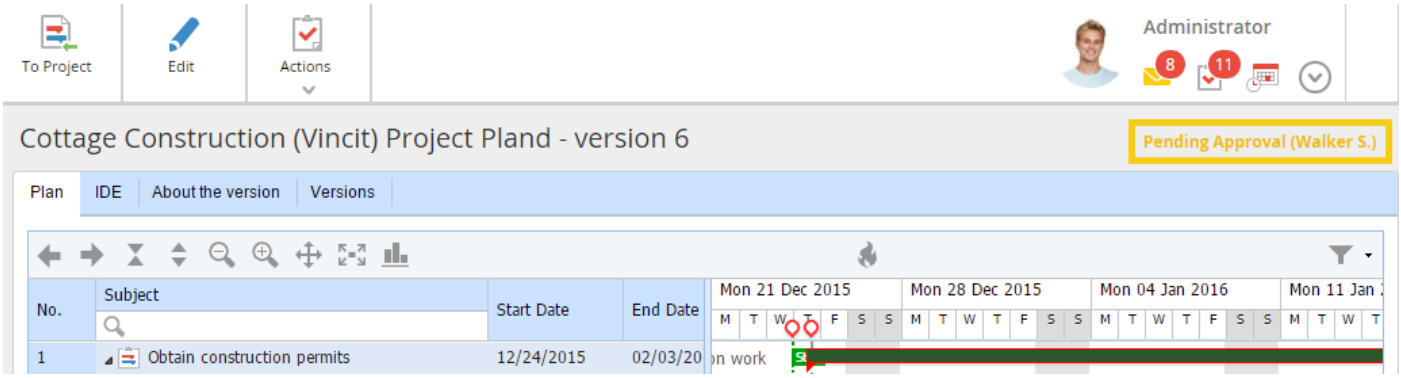


Fig. 150. Pending approval project plan page

The approver will receive a respective task (fig. 151). The task page contains all the necessary information. The approver makes a decision with **Approve** and **Reject** buttons in the top menu.

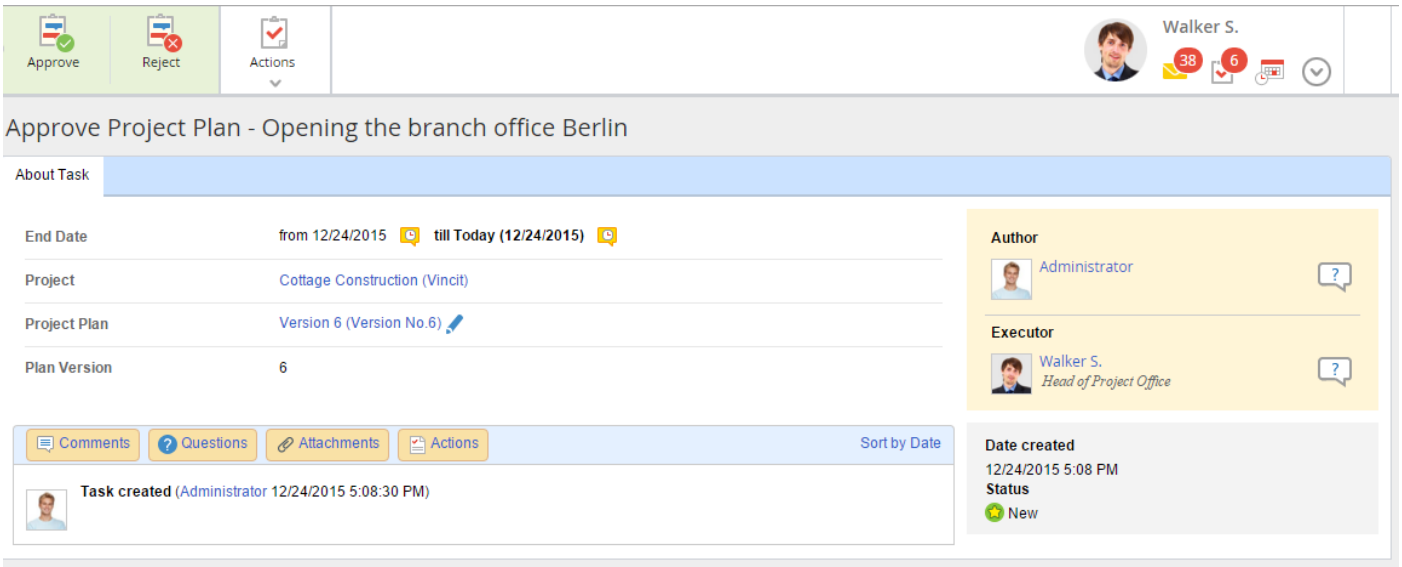


Fig. 151. Project plan approval task

If the project plan is rejected with the **Reject** button, the project plan page will display the **Send for Approval** button (fig. 148).

If the plan is approved with the **Approve** button, the project plan page will display the **Publish** button, so you can publish the plan (fig. 152).

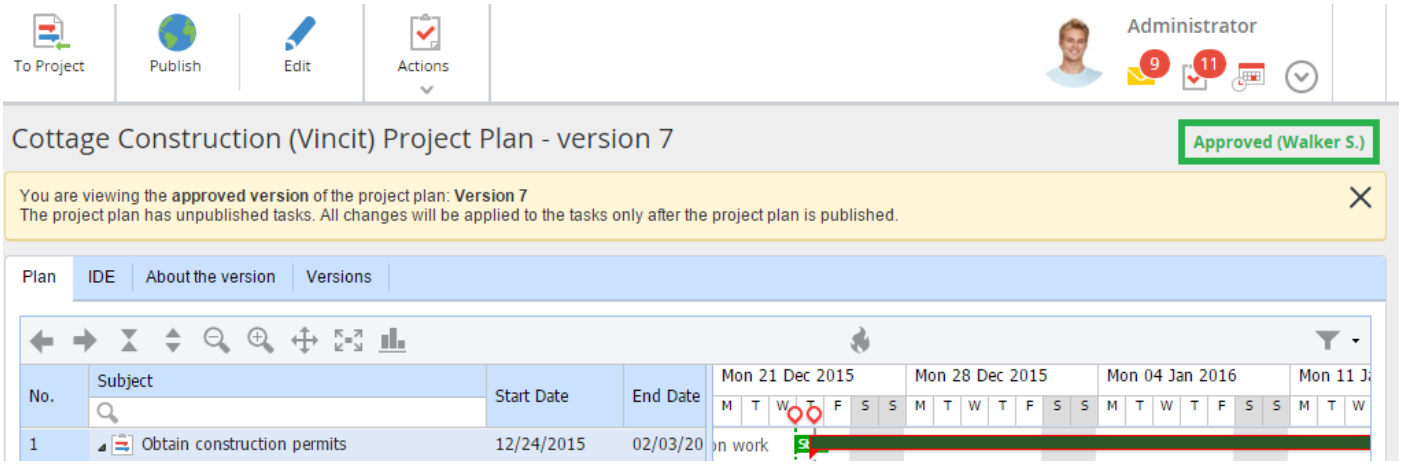


Fig. 152. Approved project plan page

Chapter 9. Useful References

Along with **ELMA Projects+** quick-start manual, the following sources describe the functions of **ELMA** applications:

- User Manual of **ELMA BPM Platform**
- User Manual of **ELMA Web Portal**
- User Manual of **ELMA ECM+**
- User Manual of **ELMA CRM+**
- User Manual of **ELMA KPI**

General description and purchase conditions of the applications are available at **ELMA website:** http://www.elma-bpm.com. You can also **Ask a question** on this website, using a respective link.

An **Online Demo** http://demo.elma-bpm.com/ demonstrates the main functions and utilization of the applications. If you want to learn more about any of the applications, download a demo with the same settings as in the online version using the same link.

We continuously develop **ELMA** system and Platform-based components for coping with more specific tasks. You can find the list of these components and their purchase conditions at **ELMA Store**: https://store.elma-bpm.com/.

If you are experiencing technical difficulties, please visit ELMA technical support website: http://support.elma-bpm.com.

If you need assistance with the system or have questions about partnership with ELMA Company, contact us:

- Luxemburg: + (352) 20-30-11-40
  http://www.elma-bpm.com/about-us/