

Intellisys Project Desktop/Enterprise User Guide

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Chapter 1. Introduction

Welcome to the user guide for **Project Desktop** and **Project Enterprise**. Unless otherwise mentioned, all information applies to both the products. If a feature is specific to **Project Desktop** or **Project Enterprise** only, this is stated in the text or help topic heading.

If you are viewing this via the built-in help menu in the software, then you may navigate through the guide by using the tabs in the window to the left.

- Click the **Table of Contents** tab to browse chapter by chapter
- Click the **Index** tab to look for help on a specific topic. The **Find** box in the **Index** pane enables searching through the index. Type in the word you are looking for into the **Find** box and hit the **ENTER** key. The first topic matching the word is highlighted. Typing **ENTER** again highlights the next topic, and so on. To view the highlighted topic, click on it.
- Click the **Search** tab to search for a keyword or phrase. The **Find** box in the **Search** tab enables searching through the full text of the help. Type in the word or phrase you are looking for and hit **ENTER**. A list of topics matching the entered word is displayed. To view a topic, click on it.

1.1. The software

Intellisys project management software allows the user(s) to plan and track projects. It provides a structured and visual environment for creating hierarchical projects, resources, assigning resources to projects and creating timelines. Once the timeline, or schedule is created, it allows users to collaboratively enter information on the progress of tasks, enabling a project manager to track project progress. It provides multiple views including Gantt charts, PERT charts, resource allocation views, and critical path visualization. While the software does not require much more than common-sense to use, users should be familiar with the basic concepts of project management, or be willing to learn these concepts.

The most frequently used aspect of the software is its ability to create schedules automatically, that respect dependencies, constraints and resource availability. Correctly used, this feature is very powerful. In order to get the best use of this feature, the user should ensure that the information entered into the program matches the real-world situation as closely as possible.

1.2. Before you start

1.2.1. Taking backups

It is recommended that the user take regular backups of the data in the program, in case of accidental data loss.

Project Desktop: Backups are made using the menu option **File** → **Create a backup**. The user is required to select the file that the backup will be written to.

This backup can be restored by using the menu option **File** → **Restore from backup**.

As a further precaution, the user may wish to manually back up the data. The data is stored in a folder called **PMDData** in the user's home folder. The entire folder can be copied to act as a backup. To restore from a manual backup, stop the Project Desktop application, then replace the **PMDData** folder with the backed up folder.

Project Enterprise: The data is stored in a folder called **tomcat/webapps/IPEData/data** in the folder where Project Enterprise was installed. Please take regular backups of this folder. It is advisable to stop the Project Enterprise server before taking the backup.

To restore from a backup, stop the Project Enterprise server, then replace the **tomcat/webapps/IPEData/data** folder with the backed up folder.



Note

For both applications, backups made using one version of the software should not be restored in a different version.

1.2.2. Converting from a trial version

When initially installed, the software has a trial licence valid for 30 days. The trial version is fully functional, except that exporting is not allowed. To convert your trial version into a fully licenced version, purchase a licence from the Intellisys [<http://www.webintellisys.com>] web site. Once you have received a licence key from us, follow the instructions [in this section](#) to install it.

1.3. Conventions used in this manual

A keyboard operation, such as pressing the CONTROL and **S** keys simultaneously is shown as

Ctrl-S.

A menu choice such as selecting the **File** menu and then selecting the **Save** submenu is shown as

File → Save (Ctrl-S).

The part in parentheses shows the keyboard shortcut (if any) for the action.

A GUI button with the text **CANCEL** is displayed as

CANCEL.

Chapter 2. Quick start

This introduction is intended to enable the user to get started with the basic procedures in Intellisys Project Management without going into all the capabilities of the software. We assume that the user has successfully installed the software, set it up, and is now able to log in as a user.

The following sections are intended to be read in sequence, and follow a very simple project through some of the steps of project planning and tracking.

2.1. Introduction to the main window

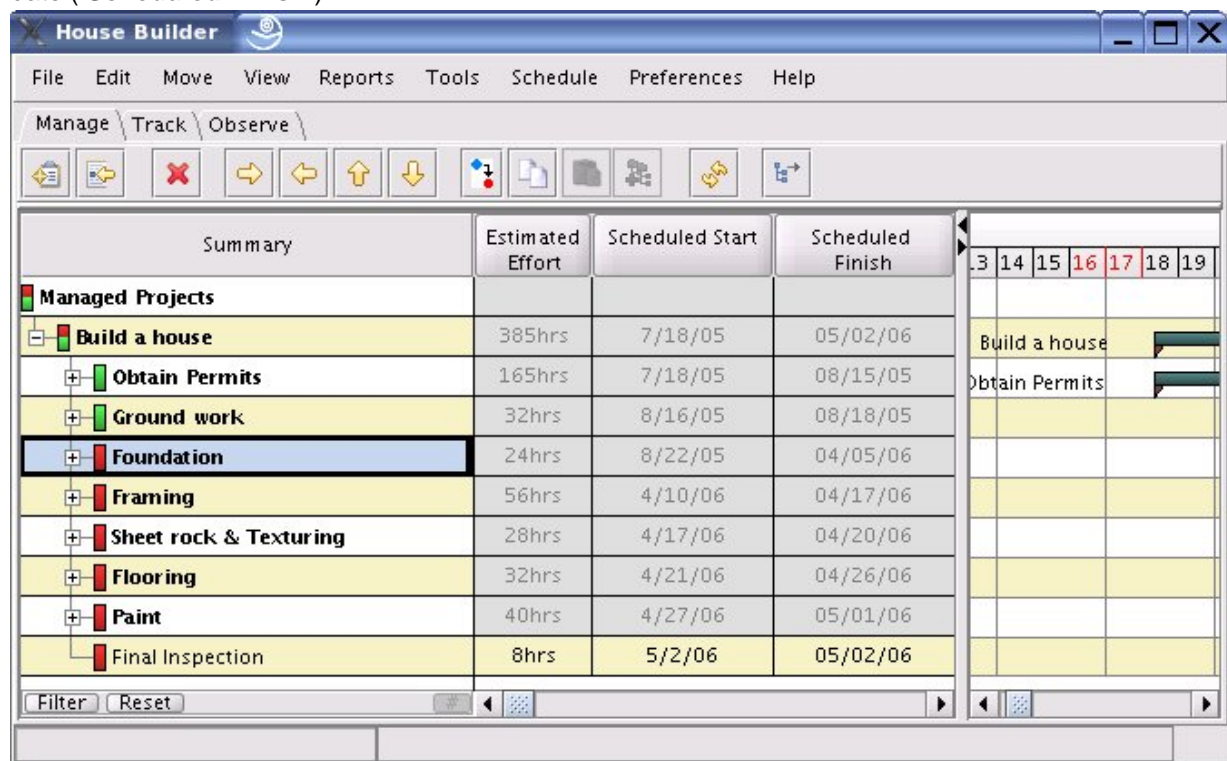
[...next section...](#)

The first screen you see when the application comes up is the one you will likely spend the most time with (see figure). Besides a menu and a toolbar, the screen has three tabs on it **Manage**, **Track**, and **Observe**.

The three main windows are the **Summary View** (sometimes called the **Work Breakdown Structure**) on the left, the **Attribute table** view in the middle, and the **Gantt chart** on the right. (You can reposition any column in the Attribute table view by dragging and dropping the column headers in the desired place).

Initially, the **Manage** tab is selected. The **Manage**, **Track** and **Observe** tabs refer to levels of access that you have to various projects, i.e., in the **Manage** tab you will see projects that you have manage access to, and so on. For the moment, we focus on the **Manage** tab.

The columns of the **Attribute table** view display attributes of a project like the estimated time that a task will take to complete (**Estimated Effort**), the estimated start date (**Scheduled Start**) and finish date (**Scheduled Finish**).



2.2. A sample project

[...previous section...](#)

[...next section...](#)

The rest of this tutorial will use the following project to illustrate the usage of the software.

Mr. Bob Dylan wishes to throw a party. To start with he needs to decide on a location for the party. He plans to visit 3 to 4 places that his friends have told him about, to see which of them will suit his requirements. This, he assumes, will take him 2 days. He then needs to prepare a guest list which will take a day. Once the guest list is prepared, he wants the invitation cards to be prepared by his good friend Santana, who is an excellent painter. It will take Santana one day to prepare the cards, once he has the guest list.

The next sections show how to set up this project in Intellisys.

2.3. Create users

[...previous section...](#)

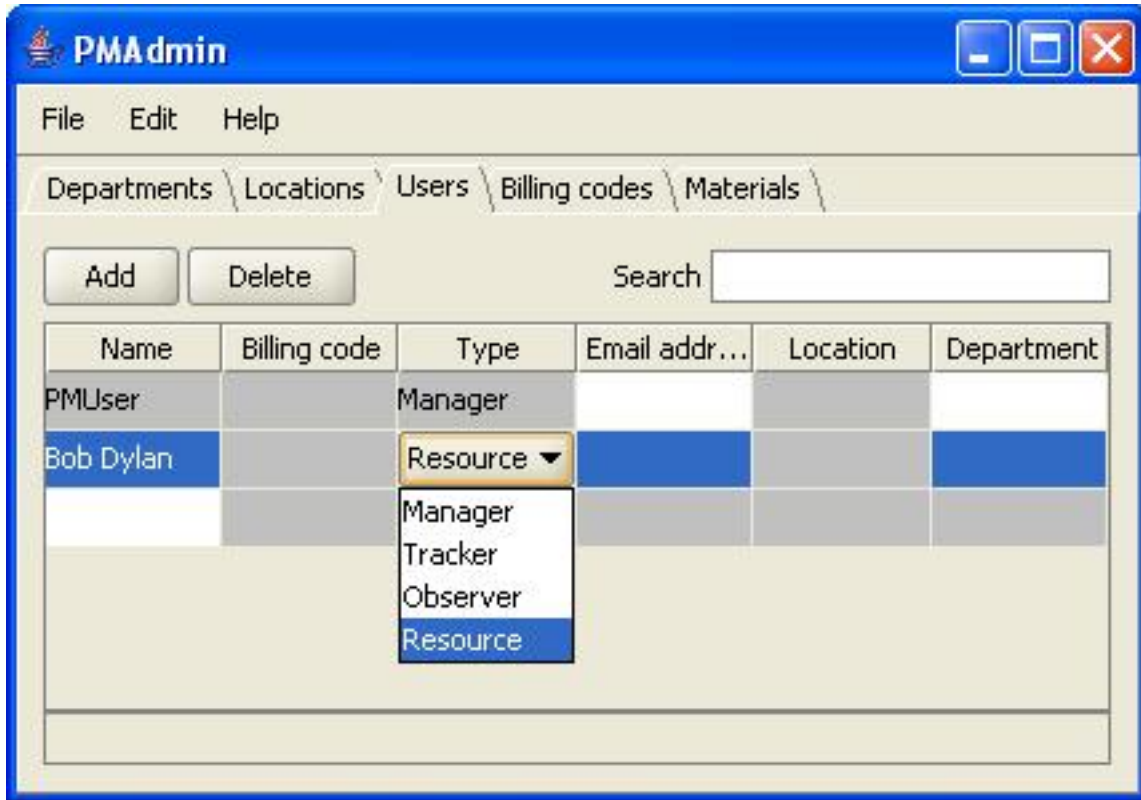
[...next section...](#)

The first thing we will do is to create entities for the people who will be performing the tasks in the project described before.

For Project Desktop users only, on installation of the application, a default user called **PMUser** is created as a manager and you automatically get logged in as this user when you first start the application.

For Project Desktop users, click on the menu option **File** → **Administrative tasks** . This brings up the **PMAAdmin Console** .

For Project Enterprise users, start the **Admin Console** , and log in as the admin user (**PMAAdmin**). The default password for the admin user is the same as the user name.



In this new window, click on the **Users** tab. The Users table is displayed. The last row of the table will be blank. Click on the **Name** column, and type **Bob Dylan**, and hit the **TAB** key. This creates the user. Notice that the **Type** column of the user says **Resource**. This is the default type. Clicking this cell brings up a drop-down list with the different user types. Select **Manager** to change the type of the user. This creates the user Bob Dylan with manager privileges. For the moment, you can leave all the other columns at their default values.

Create a resource in a similar manner with the name **Santana**. In this case you do not need to change the type of the resource from the default type.

You now have the two resources you need for the project. We have opted to make Bob Dylan a **Manager** and Santana a **Resource**.

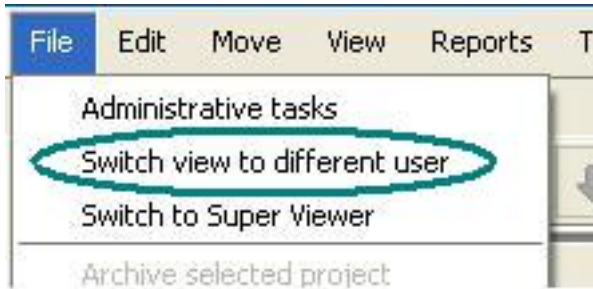
Close the **Admin Console**.

2.4. Create a project hierarchy

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[...next section...](#)

Now we will create the project hierarchy, or the *Work Breakdown Structure* for the project. To do this, we will need to log in as the user Bob Dylan.



If you are using Project Desktop, switch to user Bob Dylan by clicking on the menu option **File** → **Switch view to different user**. Select user Bob Dylan in the following dialog and click button **OK**. This logs you in as user **Bob Dylan**.

If you are using Project Enterprise, start the application and log using Bob Dylan as the user name. The default password is the same as the user name.

At this point you should have the main application window open. In the main window, click on the line that says **Managed Projects**. The border changes, indicating it has been selected. Now click **Edit** → **Add Subproject**. A new project with a blank summary is added, as a subproject of **Managed Projects**, and the cursor is positioned to enter a summary for the project. Enter *Planning a Party* and hit the TAB key. The project is saved.

If you hit the **RETURN** key after entering *Planning a Party* a new project is added below it and the cursor is positioned to enter the new project's summary. This process allows the user to quickly enter summaries for a number of projects. To stop adding new projects, instead of hitting the RETURN key at the last project entered, press the TAB key or use the mouse to click on any other row.

Now click on **Planning a Party** to select it.

Add a subproject to it by following the same procedure as before. Name the subproject *Decide the location*. Continue adding two more subprojects, namely, *Decide the guest list* and *Make the invitation cards*.

Your project hierarchy should now look like this.

Summary	Estimated Effort	Scheduled Start	Scheduled Finish
Managed Projects			
Planning a Party	24hrs	4/10/06	04/12/06
Decide the location	8hrs	4/10/06	04/10/06
Decide the guest list	8hrs	4/11/06	04/11/06
Make the invitation cards	8hrs	4/12/06	04/12/06

2.5. Assign the resources

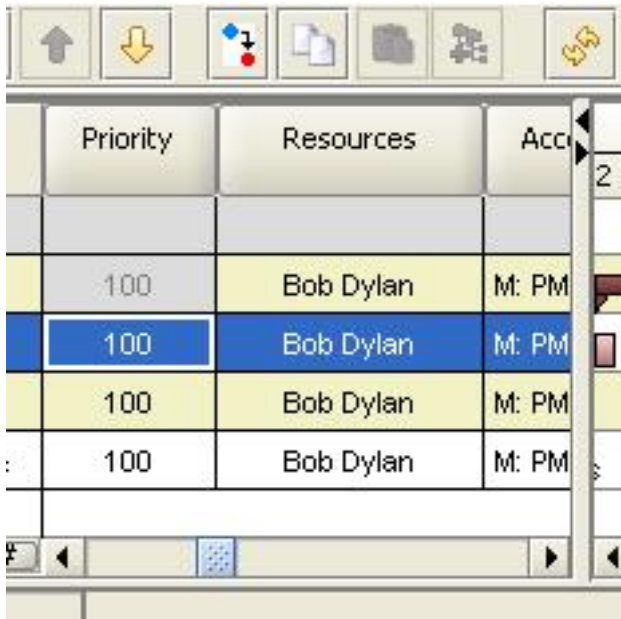
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The next step is to assign each of the subprojects to the person who will be doing the work.

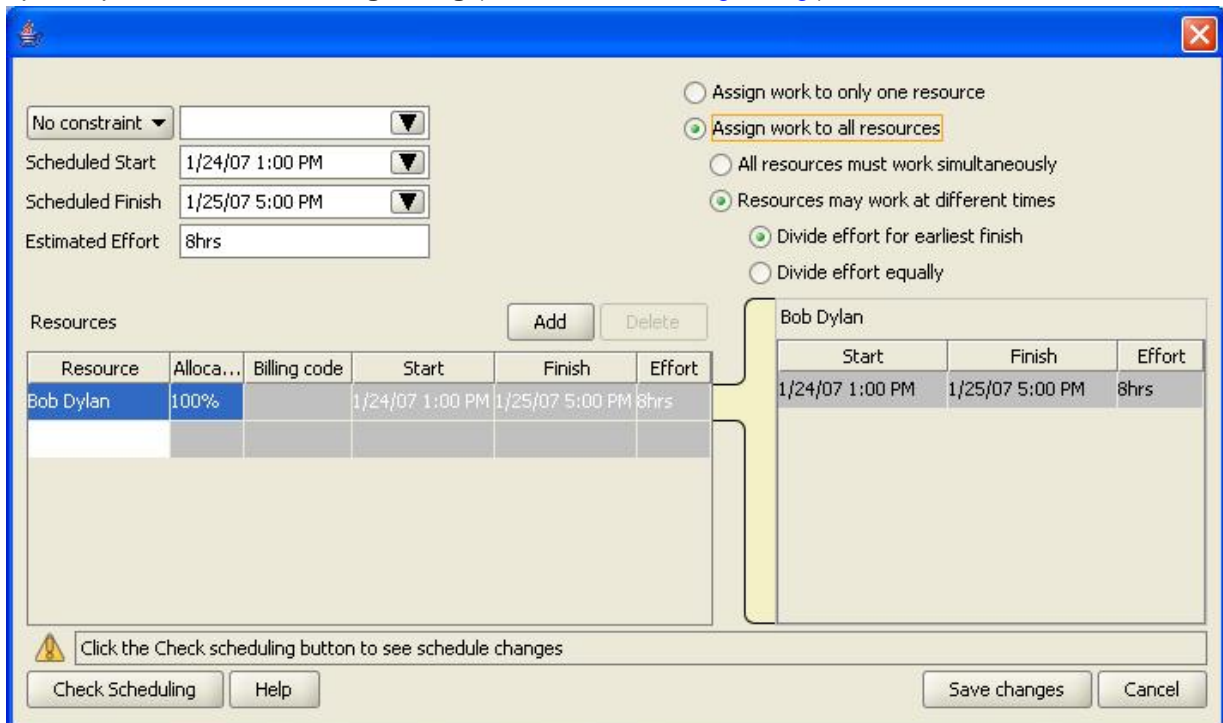
Since the subproject *Make the invitation cards* is to be done by Santana, we will now assign it to Santana.

To do this, scroll to the **Resources** column in the **Attribute table** pane.



Priority	Resources	Acc
100	Bob Dylan	M: PM
100	Bob Dylan	M: PM
100	Bob Dylan	M: PM
100	Bob Dylan	M: PM

Double click on the **Resources** column in the row corresponding to *Make the invitation cards* . This opens up the **Schedule editing dialog** (see [Schedule editing dialog](#)).



☐ Assign work to only one resource
☒ Assign work to all resources
☐ All resources must work simultaneously
☒ Resources may work at different times
☒ Divide effort for earliest finish
☐ Divide effort equally

Resource	Alloca...	Billing code	Start	Finish	Effort
Bob Dylan	100%		1/24/07 1:00 PM	1/25/07 5:00 PM	8hrs

Click the Check scheduling button to see schedule changes

In the resources table, you will see Bob Dylan. This is because the default resource assigned to a project is the person who created it. Click on the name Bob Dylan. The **Resources** dialog below opens

up.



Uncheck the name **Bob Dylan** and check the name **Santana** , and click the **OK** button. Click the **Save changes** button.

The edit is completed and you will see that the resource has been set to Santana.

2.6. Change estimated effort

[...previous section...](#)

[...next section...](#)

At this point all three subprojects have 8 hrs (1 working day) as the Estimated effort. This is the default value assigned to new projects. The minimum non-zero effort for a task is fifteen minutes. For our specific projects, the default value is correct except for *Decide the location* , which takes 2 days.

Now we will change the estimated effort for *Decide the location* . To do this, double-click on the **Estimated Effort** column in the row corresponding to *Decide the location* . The field becomes editable. Using the keyboard, the selected field can be edited by either typing-in the effort hours or using the F2 key to start editing.

Enter 16 (for 2 working days). Hit RETURN. This saves the new value, causing the subproject to get rescheduled and you can see that the bar in the Gantt chart corresponding to *Decide the location* becomes longer.

As in the previous two sections, editing a project attribute is typically done by double-clicking or using the **F2** key in the corresponding column.

2.7. Add a dependency

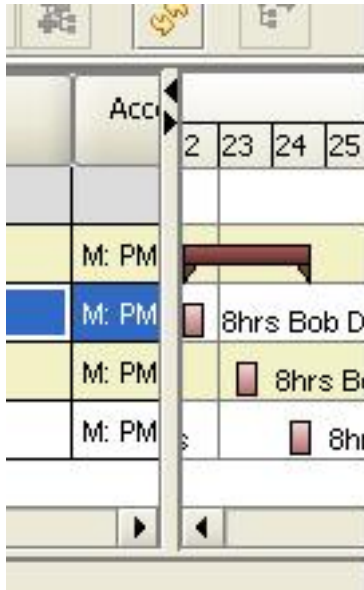
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Since the invitation cards cannot be made until a guest list has been prepared, and the location decided, we would like to ensure that the subproject *Make the invitation cards* does not begin before both the other subprojects are finished.

This is done by defining **dependencies** between the subprojects.

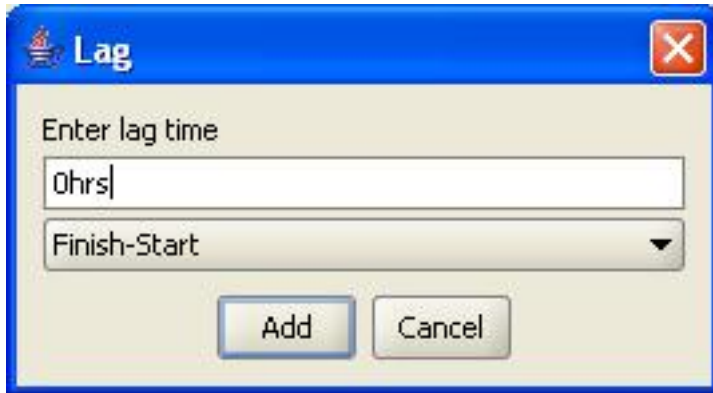
To do this, adjust the Gantt chart so that the bars for all the subprojects are visible. You can drag the divider separating the Attribute table view from the Gantt chart to make the Gantt chart wider.



Now, with the mouse, drag the bar for *Decide the guest list* to the bar for *Make the invitation cards* and drop it there.

Planning a party	
Decide the location	8hrs Bob Dylan
Decide the guest list	8hrs Bob Dylan
Make the invitation cards	8hrs Bob Dylan

A window appears that displays a drop down list of different types of dependencies for selection and a **Lag** value.



Keep the default values and click the **Add** button. (The default values are interpreted as saying that *Make the invitation cards* should not start until *Decide the guest list* is finished.) A blue arrow also appears on the Gantt chart showing the dependency.

Similarly, make *Make the invitation cards* dependent on *Decide the location*. The projects are rescheduled and you can see that now, *Make the invitation cards* is scheduled after both *Decide the location* and *Decide the guest list*.

Another method of creating dependencies is by editing the **Dependencies** column (see [Editing dependencies](#))

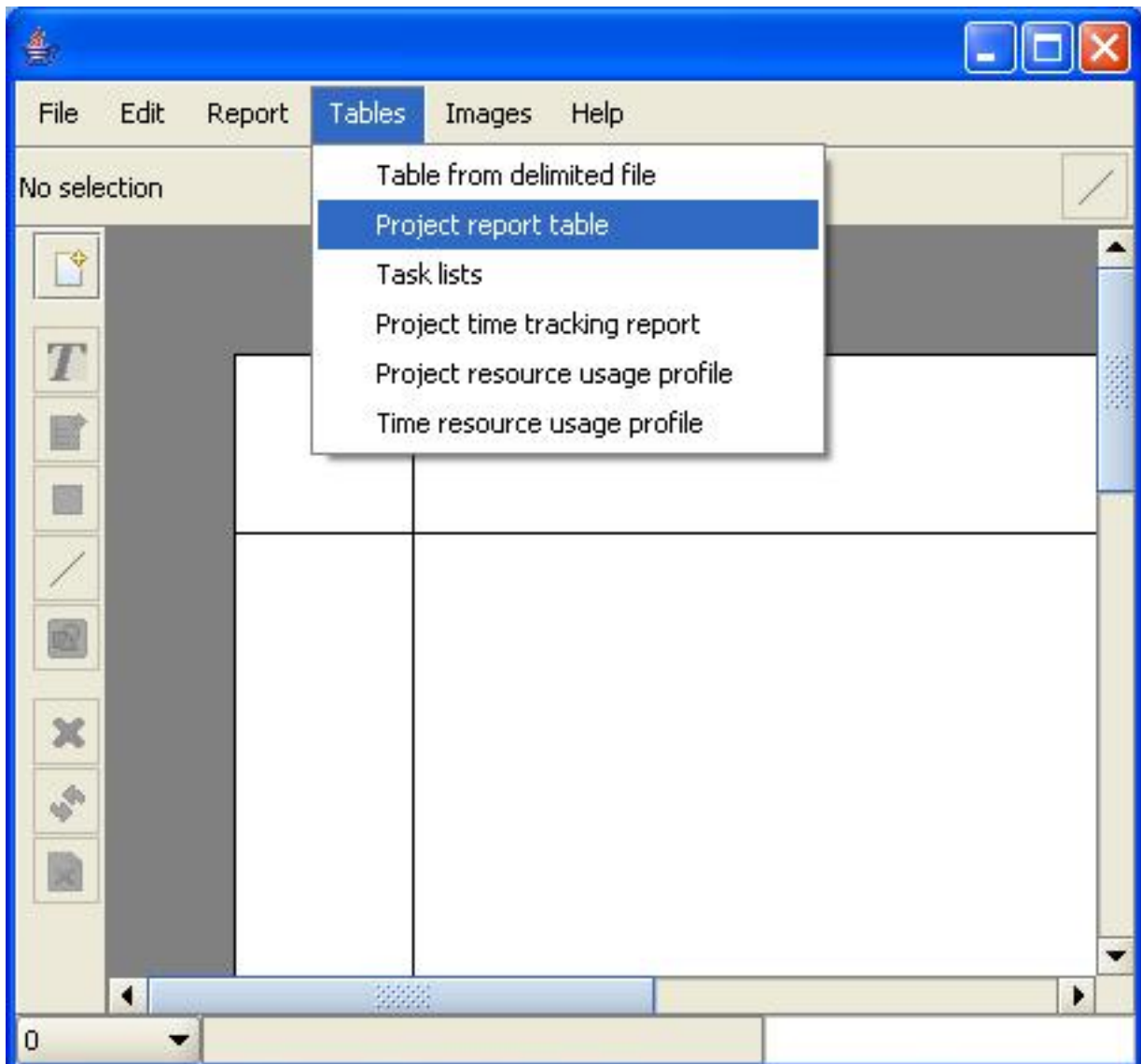
2.8. Print a report

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[...next section...](#)

To generate a report, click on **Planning a Party** , to select it. Then click on the menu **Reports** → **Create a report** .

This brings up the **Report designer window**.



In this window, select **Tables** → **Project report table**. The cursor changes to indicate that a table will be added. Click on the location on the page where you want the table to be added. A window comes up, where you can choose the parameters of the table.

Load

☒ Custom ☐ Private ☐ Shared

Predefined: Current week's activities

Save

Name: Save as private Save as shared Edit

Configure

Fields Filters Layout

All Fields

- Budgeted Effort
- Scheduled Start
- Scheduled Finish
- Estimated Effort
- Actual Start
- Actual Finish
- Actual Effort
- Baseline Start
- Baseline Finish
- Assigned To
- Dependencies
- Milestone
- Constraint
- Priority
- Level Resources
- Splittable
- Squeezable
- Resources
- Materials
- Percent Complete
- Access Control

Visible Fields

Order by: ☐ Include parents in summary ☐ Show totals

OK Cancel

Select the **Fields** tab. There are 2 columns displayed, **All Fields** and **Visible Fields**. The **All Fields** column displays all the fields that the current user can use to create a report. The **Visible Fields** column displays only those fields that the current report will contain. To transfer fields from the **All Fields** to the **Visible Fields** column, select a field in the **All Fields** column and among the buttons dis-

played in the middle of the two columns, click on the right arrow button. In this way, fields can be moved from left to right. It is essential to first select a field or a group of fields, by holding down the shift button and clicking, before using the arrow buttons.

Add **Scheduled Start** and **Scheduled Finish** to the **Visible Fields** .

Click the **OK** button. The table is added to the report. You can print (**File** → **Print**), or save the report to PDF (**File** → **Save as PDF**) from this window.

Reports are described in detail in [Generating and printing reports](#).

2.9. Adjust and print the Gantt chart

[...previous section...](#)

Select the topmost project by clicking on it in the **Summary view**. Choose the menu option **Reports** → **Print Gantt Chart**.

Options

Start date
1/22/07 8:00 AM

End date
1/24/07 5:00 PM

☐ Show project schedule columns

Title

Adjust width of summary display by adjusting dialog width

Summary
All Projects
Planning a party
Decide the location
Decide the guest list
Make the invitation cards

OK Cancel

In the **Options** window that comes up enter the start and end dates of the Gantt chart to be printed, and adjust the width of the summary column to your liking. Click on the **OK** button and a print preview of the Gantt chart is displayed with buttons to print or save it to a PDF file.

2.10. More Information

In the first section of the quick tutorial we introduced the main window of the application and talked about the **Manage**, **Track** and **Observe** tabs that provide a user access to projects for which the user has the corresponding type of access. Intellisys supports multiple user types. Details about the user types are given in the section [User types](#). Also, learn more about the kinds of access to a project in the section on [access control](#).

Details about the columns of the **Attribute table** view are discussed in the section on [project attributes](#).

In the **Add a dependency** section when we drag the mouse from one task bar to another to create a dependency, a window appears displaying the **types of dependencies** for selection and a **Lag** value. More details about this are discussed in the section on [Types of dependencies and Lags](#) .

Also, we created the dependencies by using the Gantt chart. Dependencies can also be added and removed by double-clicking on the **Dependencies** column.

More information about printing reports is available in the [Generating and printing reports](#) section.

For a general methodology for using the software, see [see here](#).

Chapter 3. A methodology for using the software

In this section we outline common methodologies for creating a project schedule in Intellisys. These guidelines should help the new user to effectively use the tool. Bear in mind that these are general guidelines and individuals may have other methodologies that work better for them.

The process of creating a project schedule can be broken up into the following steps:

- **Creating resources**
- **Building the project hierarchy**
- **Filling in effort estimates**
- **Assigning resources and levelling values**
- **Adding dependencies**
- **Adding constraints**
- **Understanding and correcting your schedule**

3.1. Creating resources

Each [project](#) must be assigned to one or more [resources](#). Before building the project hierarchy, consider what resources you will need in order to accomplish the [tasks](#) involved. Resources may have varied working times and costs. Create the resources you need and set up their working times and other parameters before you start to build a project hierarchy.

See the section [Manipulating resources](#) for information on how to create resources.

3.2. Building the Project Hierarchy

The first step is to create the [projects](#) and [subprojects](#) in a hierarchy that will reflect your overall goal. At this stage it's better not to worry about schedule dates and [resources](#) - you can adjust those later.

First create a project (under **Managed Projects**) with a summary that reflects your overall objective. Then, think about the main things that must be accomplished along the way, and fill these in as subprojects of your overall project.

Now, for each subproject, think of what must be accomplished, and add these on as further subprojects of that subproject. Do this for each subproject. Depending on the level of granularity that you wish to have you may stop, or continue to break up the subprojects into further subprojects. A good guideline for when to stop breaking up subprojects is - when the time that a particular subproject will take can be accurately estimated, there's no need to further break up that subproject.

See the section [Working with projects](#) to see how to build up a hierarchy.

As a general rule, it is best to create an umbrella project and fill in subprojects of this project, rather than adding subprojects directly to **Managed Projects**.

3.3. Filling in Effort Estimates

Once your [project](#) hierarchy is created, you can start assigning effort estimates. Since superprojects (projects that contain subprojects) are merely placeholders for the collection of their subprojects, effort estimates are assigned only to [task](#) (bottom level projects, that contain no subprojects). The effort estimates of superprojects is just the sum of the effort estimates of their subprojects.

If you have broken up the projects in your hierarchy till the right level, it will be easy for you to estimate the effort each task will take. You can enter this value into the [Estimated Effort](#) column for that task by double-clicking the cell.

3.4. Assigning Resources and Levelling values

This section assumes that you have already created the [resources](#) you need through the [Admin console](#).

For each [task](#), you can now decide which resource(s) to allocate for the task by double-clicking the **Resources** column. In the dialog that comes up you may choose the resources to allocate, and whether the task uses multiple resources or whether the task is to be assigned to only one of the assigned resources.

This is also a good time to decide whether the task is to contribute to the resource's workload or whether it should not be counted when calculating the resource's workload. Tasks that contribute to a resource's workload are handled differently by the [scheduler](#), in that it attempts to ensure that the resource's maximum workload (100 percent) is not exceeded by the schedule of these tasks.

You can set a task to contribute to the workload by selecting the checkbox in the [Level Resources](#) column.

Modifying resources and the levelling property will alter the schedule, but it's best not to try to fine-tune the schedule until dependencies have been added.

3.5. Adding Dependencies and Constraints

There may be some tasks in your hierarchy that depend on others, for instance some tasks cannot start until some others have finished. Now you can add in these dependencies for your tasks. See [this section](#) for more information on dependencies.

Adding dependencies will alter the schedule.

At this stage, the schedule should look somewhat like the final result you desire. However, there may be some aspects that you wish to modify. If you wish to force the schedule dates of a particular task to a particular value, or to a particular range of values, you may add the appropriate constraint to the task. See [Constraints](#) for more information on constraints.

Constraints can be added by double-clicking on the cell in the **Constraint** column.

3.6. Understanding and Correcting your schedule

In the process of planning a complex schedule, with multiple resources, dependencies and constraints, it is almost inevitable that one is going to encounter inconsistencies in the schedule. The inconsistencies fall into two categories, **resource overallocations** and **violated dependencies**.

Intellisys provides means to locate such inconsistencies. Use the **Schedule → Show schedule conflicts** option or click the button directly to the left of the attributes table's horizontal scroll bar. This button will be flashing if there are any schedule conflicts. A window pops up which displays all the dependency and resource conflicts that exist in your schedule. Click on one such conflict. The project/task row (in the hierarchical view) that contains the conflicting task gets highlighted.

Resource overallocations: If it is a resource conflict, use the **Tools → Task lists/Resource Utilization view** to see all the tasks the concerned resource is assigned to during the period of the overallocating task. The **Histogram** in this view will show a red bar indicating that the resource is overallocated. The tooltip that comes up when you place your mouse on the overallocated day will show all the tasks that are allocated to the resource on that day.

Typically, a resource overallocation occurs because two or more tasks have been constrained to overlap. Once you have identified the tasks, you can modify the constraints as you desire to remove the overallocation. It may also happen that multiple tasks have been allocated for the same time period because they have not been set to **Level Resources**. Clicking on the **Level Resources** column against all such tasks will cause such tasks to be rescheduled.

Violated dependencies: If it is a dependency conflict, double click on the line showing the dependency violation (or on the violated dependency arrow in the Gantt chart). A window will be displayed with detailed information on the dependency and the reason for the dependency being violated.

Again, typically, dependencies are violated because of tasks that are constrained to start or finish too soon. You may change the constraints as you wish to correct the dependency.

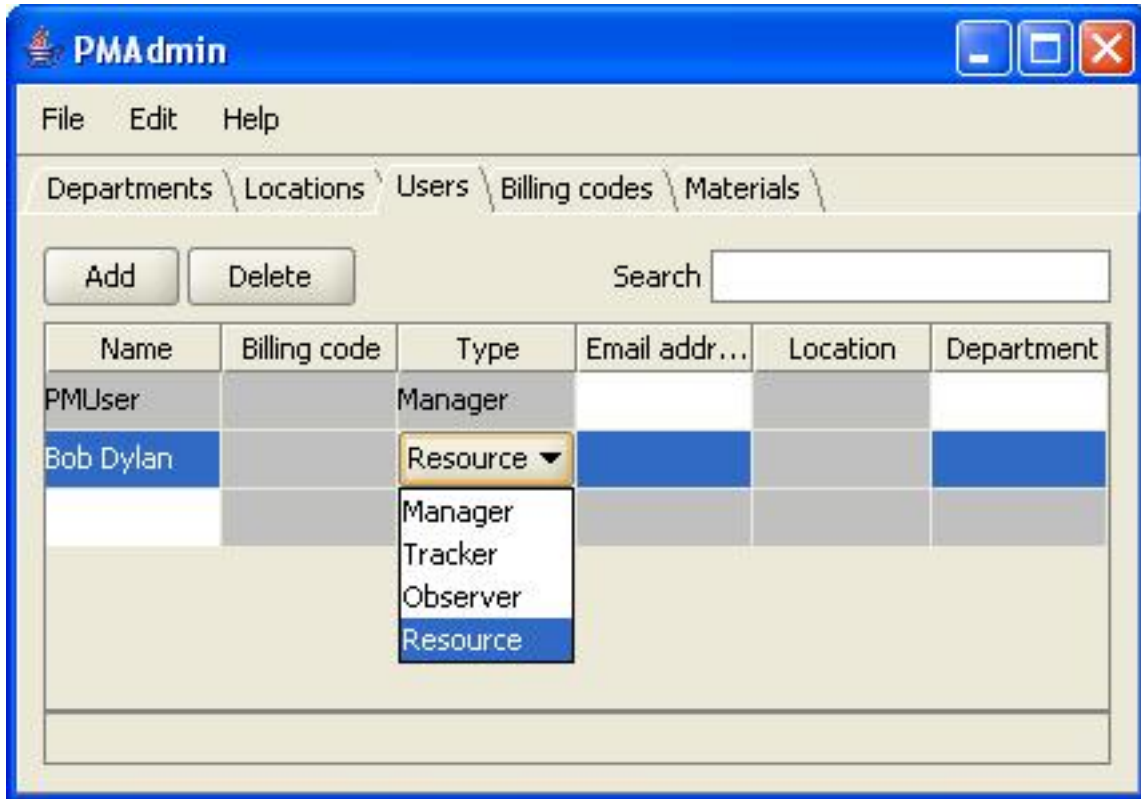
In this way, each conflict can be studied and corrected. Once you are satisfied with the schedule of certain projects, and you don't wish them to change, use the **Schedule → Freeze selected project schedules** option.

Once you are at a satisfactory state of your schedule and henceforth want to record this as the original schedule dates, when changes are incorporated at a later date, use the **Schedule → Set selected project schedule as baseline** option. This will create shadow images of each task bar in the Gantt chart for the current schedule. When a task's schedule is changed at a later date, its shadow image will remain fixed, showing the difference between the original schedule and the current scheule.

Chapter 4. Working with Resources (Admin)

4.1. Creating and editing resources

In the [Admin console](#), click on the **Users** tab. A table of the current resources becomes visible. The table has columns corresponding to the various resource properties.



The screenshot shows the PMAadmin application window with the 'Users' tab selected. The interface includes a menu bar (File, Edit, Help), a tab bar (Departments, Locations, Users, Billing codes, Materials), and buttons for 'Add' and 'Delete'. A search field is also present. Below these is a table with columns: Name, Billing code, Type, Email addr..., Location, and Department. The table contains three rows: 'PMUser' (Manager), 'Bob Dylan' (Resource), and an empty row. A dropdown menu is open for the 'Type' column of the 'Bob Dylan' row, showing options: Manager, Tracker, Observer, and Resource (highlighted).

Name	Billing code	Type	Email addr...	Location	Department
PMUser		Manager			
Bob Dylan		Resource			
		Manager			
		Tracker			
		Observer			
		Resource			

To add a new resource:

- click on the **Add** button, or just type the user ID in the bottom row of the **Name** column
- Hit the **TAB** key, and the resource is created.

Each user should have a unique ID. The properties may now be edited by changing the entries of the different columns of the table. Of particular importance is the **Type** column, which determines whether the user is a [Manager](#), [Tracker](#), [Observer](#) or [Resource](#).

The columns that have no legal values that can be entered remain grayed out, and cannot be edited. For example, if there are no Locations defined, then the **Locations** column cannot be edited.

The rest of this section describes aspects specific to Project Enterprise

Entering an **Email address** enables the user to receive automatic alert emails. These emails remind

the user of assigned tasks that are approaching their start or finish dates or that have been delayed. It also enables users to receive email messages sent using the [Messages](#) column in the main application. See also the [Email server](#) section.

Each user has a **case-sensitive** password. A newly created user's password is the same as the ID. Once a user has been created, he may log in with his ID and password.

4.2. Deleting a resource

In the [Admin console](#)

- select the resource(s) and press the **Delete** button



Note

The system allows a resource to be deleted only if there are no existing or [archived projects](#) that use the selected resource.



Note

In Project Enterprise a resource can only be deleted if no users are logged in to the server.

4.3. Changing a resource's working hours, vacation etc

By default, a resource's working hours are set to be from 8:00AM to 12:00PM and 1:00AM to 5:00 PM. If this is satisfactory for you, then you can skip this section in an initial reading. If you wish to change the working hours for a resource, in the [Admin console](#)

- click on the **Users** tab, and highlight the resource for whom you wish to make a change.
- if you wish to make the same change for multiple resources, select them all by using **CTRL-Click** on each user's row.
- select the **Edit** → **User working time** menu item. The user time editing dialog appears.

Select working hours

Current Base Template (Organizational): Default

Change base template

Change organizational template Use custom template

☐ Set vacation days

Double-click on a day to edit

<< 2007 >>

<< January >>

7:45 PM Today

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Change base template

Copy selected day Paste to selected day

Copy selected week Paste to selected week

OK Cancel

4.3.1. Setting vacation days

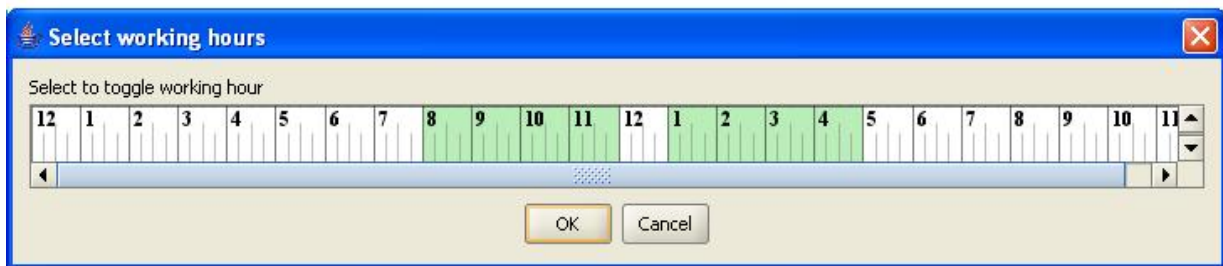
If you want to set some day as a non-working day, in the [user time editing dialog](#)

- select the **Set vacation days** checkbox
- double-click the day in the calendar
- the color of the day changes to red, indicating that it has been set to a non-working day.

4.3.2. Setting special working hours

If you only wish to make changes to a few days, you can simply edit the days one by one in the [user time editing dialog](#). To edit a particular day's working hours:

- unselect the **Set vacation days** checkbox
- double-click the day in the calendar.
- The day-editing dialog (below) comes up. This dialog represents the time in a day on a horizontal axis. Working hours are highlighted in green.



To set a range of time to be working:

- If the start of the range is green, click on it. It will toggle to white.
- click on the start of the range and drag the mouse to the end of the range. Now the entire range will be green.

To set a range of time to be non-working, do as above, except, ensure that the start of the range is green. In other words, a drag always sets its range to be the opposite of the current state of the start of the range.

4.3.3. Copying changed working hours

Once you have made changes in a day's working times, either by setting a vacation day or by setting special working hours, in the calendar, the color of the day changes, indicating that it has been changed. You may wish to copy this day's working hours to some other days as well. To do this, in the user time editing dialog:

Select working hours

Current Base Template (Organizational): Default

Change base template

☐ Set vacation days

Double-click on a day to edit

<< 2007 >>

<< January >>

7:45 PM Today

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Change base template

- Click the **Copy selected day** button
- Click on a different day to select it
- Click on the **Paste to selected day** button. The copied day's working hours are copied to the new

day.

- In an analogous fashion you can use the **Copy selected week** and **Paste to selected week** buttons (the selected week is the week that the selected day belongs to).

4.3.4. Applying a template

Sometimes a resource's working hours change on a long-term basis. For example a full-time employee may become part-time, working only in the mornings. In these cases, it is best to use a [time template](#) to implement these changes. You can use a predefined **Organizational time template** (see [Creating organizational time templates](#)) or you can define a **Custom time template** on the fly.

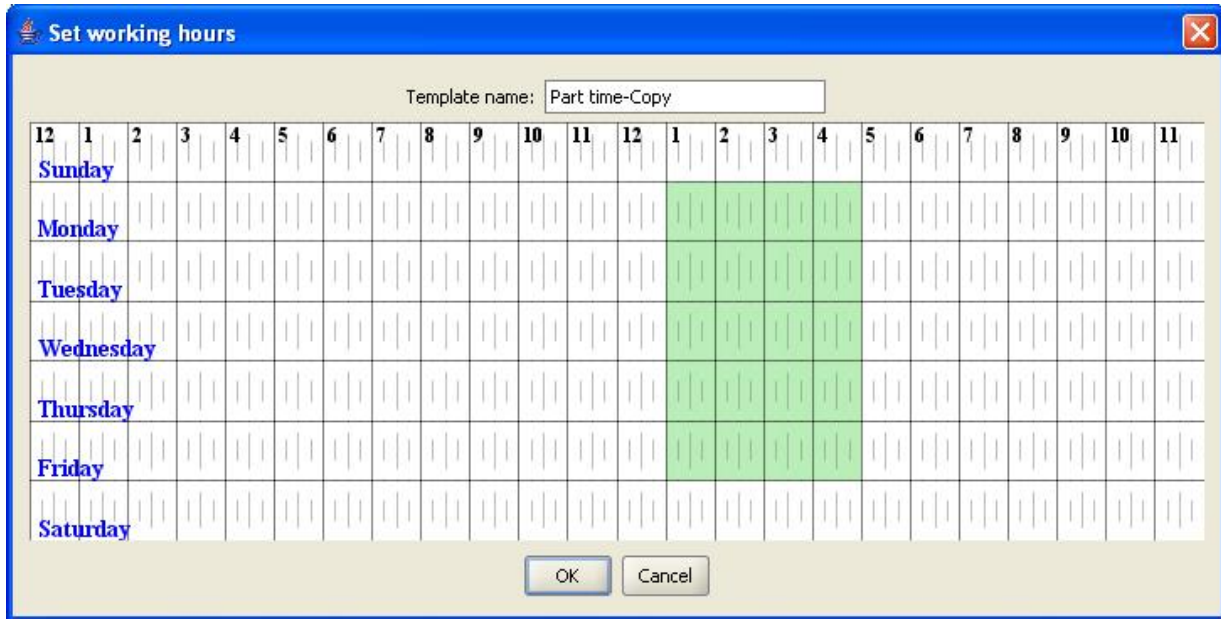
In either case in the [user time editing dialog](#),

- select the day in the calendar that you want the template to be applied from. The template you choose (whether it's organizational time template or a custom time template) will be applied to the selected resource(s) from the selected day onwards.
- now select one of the buttons shown below.



- If you select **Use organizational template** , then you can select the time template you want from a list.
- If you select **Edit custom template** then the 7 day week view below will open up.

This dialog represents the working hours in a week. Green indicates working hours.



To set a range of time to be working:

- If the start of the range is green, click on it. It will toggle to white.
- click on the start of the range and drag the mouse to the end of the range. Now the entire range will be green.

To set a range of time to be non-working, do as above, except, ensure that the start of the range is green. In other words, a drag always sets its range to be the opposite of the current state of the start of the range.

In this manner, you can quickly set the working hours for the week. To apply this template, click **OK** and the users' working time will be changed.



Note

The template is applied forwards from the selected date in the calendar. So if a template "A" is chosen for 1 April, 2007 and formatted, and another template "B" is chosen for 23 August, 2007 and formatted, the User will follow template A's time schedule for April 1 to August 22, 2007 and Template B from August 22, 2007 onwards.

4.4. Resetting user passwords (Enterprise)

A user's password can be changed only by the user. The admin can only reset the password. To reset a user's password, in the [Admin console](#)

- select the user whose password you wish to reset
- if you wish to make the same change for multiple resources, select them all by using **CTRL-Click** on each user's row.
- select **Edit** → **Reset user password**



Note

After resetting the password, the user's password is the same as his user ID.

Chapter 5. Working with projects

5.1. Adding subprojects to the selected project

A **subproject** can be added to an existing **project** (or to **Managed Projects** by selecting the project to which you want to add a subproject, and

- use the menu option **Edit** → **Add Subproject** or
- click the **Add Subproject** button in the toolbar



Note

New subprojects are always added at the end of the list of currently existing subprojects.

Quick-Add: When editing values in the **Summary** column, hitting the **ENTER** key causes a new project to be inserted below the project being edited, and starts editing the new project's summary. Repeating this process allows the user to quickly enter a list of project summaries. To end the process, instead of hitting the **ENTER** key after entering the summary, use the **TAB** key, or click on another row.

5.2. Inserting projects between other projects

If you wish to insert a **project** between two other projects at the same level, you should select the project **BELOW** which you want to insert a project, and

- use the menu option **Edit** → **Insert Project** or
- click the **Insert Project** button in the toolbar

Quick-Add: When editing values in the **Summary** column, hitting the **ENTER** key causes a new project to be inserted below the project being edited, and starts editing the new project's summary. Repeating this process allows the user to quickly enter a list of project summaries. To end the process, instead of hitting the **ENTER** key after entering the summary, use the **TAB** key, or click on another row.

5.3. Deleting

To delete a project:

- select it and use the menu **Edit** → **Delete**

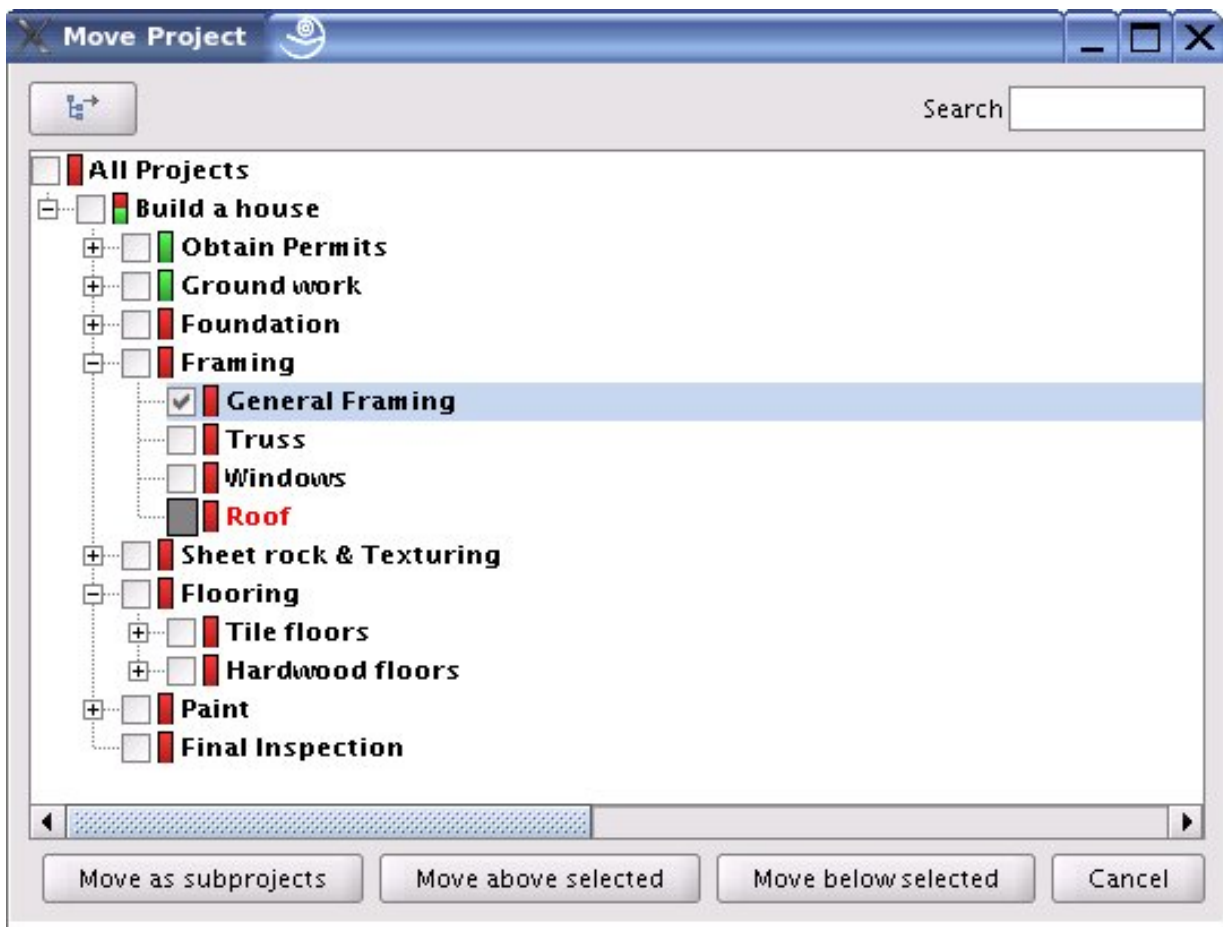
A confirmation dialog will appear. The project will be deleted if the user confirms.

5.4. Moving projects around

5.4.1. Moving to a new spot

To move a [project](#) and its [subprojects](#) from one place to another in the hierarchy:

- select the project you wish to move and select **Edit → Move project**.
- a project selection dialog as shown below appears asking you to select the location to move to
- When the target project is checked, the 3 buttons at the bottom become enabled.
- The first button, **Move as subproject** will move the project in question to be a subproject of the selected project
- The second and third buttons, **Move above selected** and **Move below selected** will move the project in question above and below the selected project, respectively.



5.4.2. Moving up and down

Sometimes one just wishes to change the order of two adjacent [projects](#) at the same level of indentation. To do this

- select the project you wish to move
- use **Move → Move Project up** or **Move → Move Project down**

By selecting multiple projects, many projects may be moved at once, however, the selected projects must be contiguous and at the same level of indentation.

5.4.3. Changing Indentation

While, for the most part, the behavior of the commands **Move** → **Indent left** and **Move** → **Indent right** is intuitive, there are some instances, especially with multiple projects selected, where the effect of using Indent-Left or Right may not be clear.

For reference, we give a precise description of what happens during these operations. Note that for both these commands, the selected projects must be contiguous and at the same level of indentation.

- **Indent left:** The selected projects are moved to the same level of indentation as their parent. They appear in sequence just after their parent at that level.
- **Indent right:** The selected projects are made the last subprojects of the project that appears just above them at the same level.

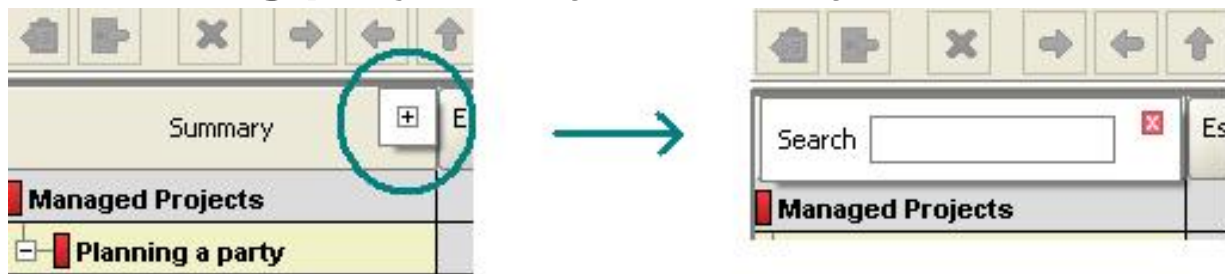
5.5. Project Templates via copy-paste

In an organization, the same structure may repeatedly arise in many [projects](#). It would be convenient to have a project template which one could insert into the hierarchy. While IntelliJ does not support templates explicitly, it provides an equally easy method of achieving the goal. Once a project structure has been created it can be copied and pasted to form a new project.

To do this,

- select the project you wish to replicate in the [Summary View](#)
- select the menu **Edit** → **Copy** (or use the toolbar)
- select the line where you would like the new project to be inserted
- select **Edit** → **Paste** to insert the copy at the same level of indentation as the selected line
- select **Edit** → **Paste as subproject** to insert the copy at one level of indentation lower

5.6. Finding projects by summary



With many [projects](#) in the system, sometimes it is difficult to locate a project. To search for a project by summary:

- hover the mouse over the Summary heading in the [Summary view](#). This brings up an icon with a plus symbol.
- clicking this icon brings up a **Search** textfield, where you can enter all or part of the summary you are looking for.
- hit the **ENTER** key. The first project matching the text will be highlighted.
- hit the **ENTER** key again. The next project matching the text will be highlighted, and so on.

5.7. Adding and removing a constraint

To add a [constraint](#) to a task, double-click in the Constraints column of the task in the [Attribute table view](#):

- the dialog shown below pops up
- select the type of the constraint from the upper left hand box.
- select the date associated with the constraint from the upper right hand box.
- click **Save changes** .



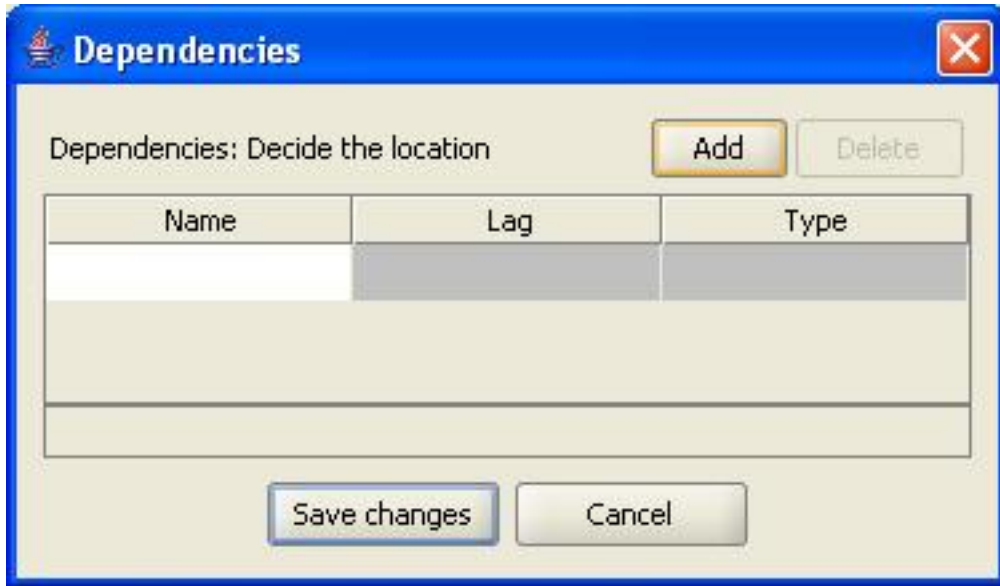
To remove a constraint, bring up the same dialog, and select **No constraint** in the upper left hand box. Click on **Save changes**.

5.8. Adding and removing dependencies

5.8.1. Adding a dependency - Attribute table

To add a [dependency](#) from project A to project B:

- double-click on the cell for B in the **Dependencies** column of the [Attribute table](#) view
- the dependency selection dialog below appears




Dependencies: Decide the location

Add Delete

Name	Lag	Type

Save changes Cancel

- click on the empty cell in the **Name** column
- the project selection dialog below appears



Dependencies

Search dec

- ☒ All Projects
 - ☒ Planning a party
 - ☒ Decide the location
 - ☐ Decide the guest list
 - ☐ Make the invitation cards

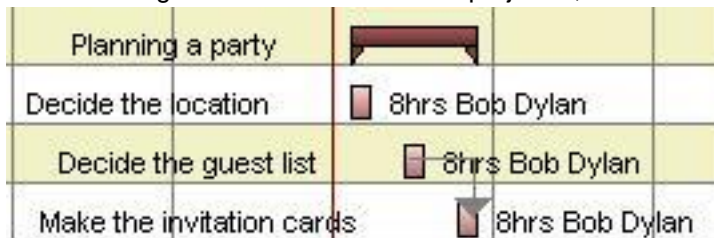
OK Cancel

- check off project A in this dialog and click the **OK** button. You are returned to the previous dialog.
- enter a **lag** and a **type** into the table if you wish
- click the OK button to close the previous dialog.

5.8.2. Adding a dependency - Gantt chart

To add a [dependency](#) from project A to project B :

- in the Gantt chart, position your mouse over the bar for project A
- the cursor changes, indicating readiness for a drag
- click and drag the mouse to the bar for project B, as shown in the figure below



- on releasing the mouse, the dependency properties dialog below appears

A dialog box titled 'Lag' with a close button (X) in the top right corner. It contains a text field labeled 'Enter lag time' with '0hrs' entered. Below the text field is a dropdown menu showing 'Finish-Start'. At the bottom are two buttons: 'Add' and 'Cancel'.

- select a lag value and the type of dependency and click the **OK** button.

5.8.3. Deleting or changing a dependency

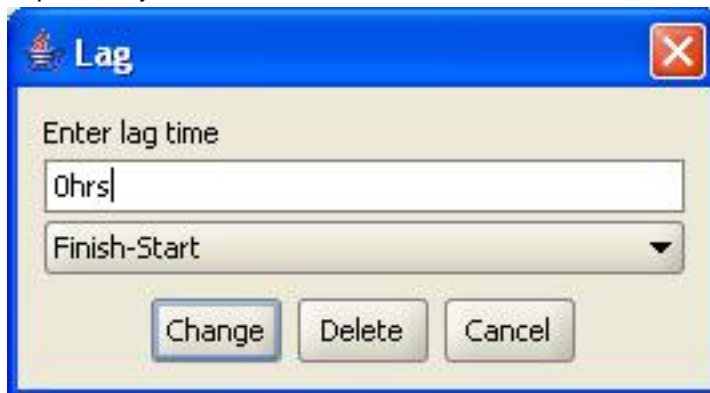
To delete or change a [dependency](#) using the [Gantt chart](#):

- right-click on the dependency arrow in the Gantt chart (on MacOS X, CTRL-click)
- the popup shown below appears



- select the **Edit** option. The edit dependency dialog shown below appears.

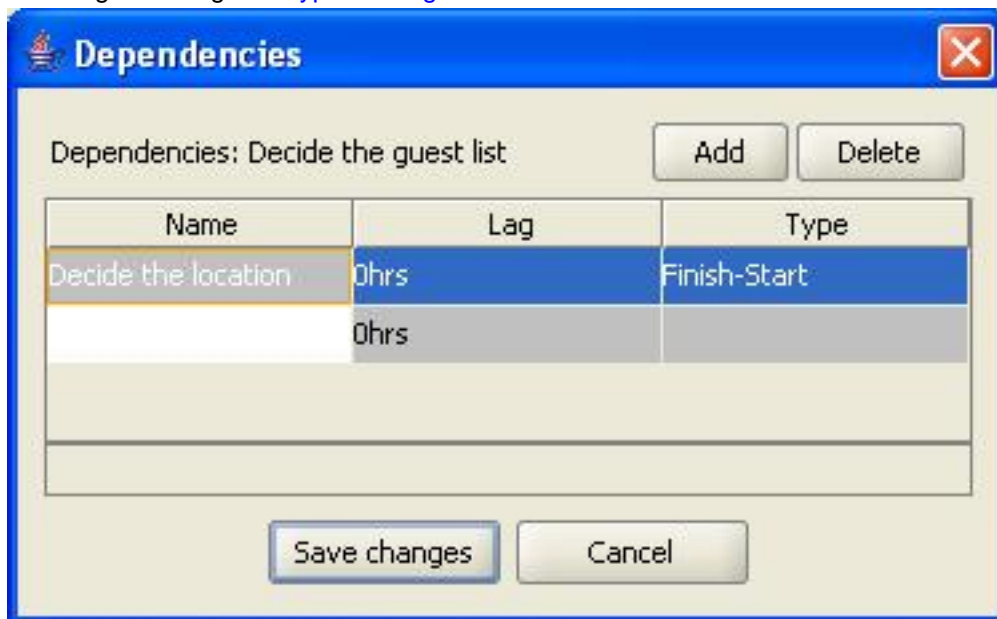
- click the **Delete** button to delete, or set the desired values and click the **Change** button to change the dependency



The 'Lag' dialog box has a blue title bar with a red 'X' button. It contains a text input field labeled 'Enter lag time' with '0hrs' entered. Below it is a dropdown menu showing 'Finish-Start'. At the bottom are three buttons: 'Change', 'Delete', and 'Cancel'.

To delete a dependency using the [Attribute table](#):

- double-click on the [successor](#) project's cell in the Dependencies column
- the dependency dialog shown below appears.
- select the desired dependency from the table
- to delete it, click the **Delete** button
- to change it change the [type](#) and [lag](#) values in the table.



The 'Dependencies' dialog box has a blue title bar with a red 'X' button. It contains a text input field labeled 'Dependencies: Decide the guest list'. To the right are 'Add' and 'Delete' buttons. Below is a table with three columns: 'Name', 'Lag', and 'Type'.

Name	Lag	Type
Decide the location	0hrs	Finish-Start
	0hrs	

At the bottom are 'Save changes' and 'Cancel' buttons.

5.8.4. Errors in dependencies

Circular dependencies: One error condition that may be encountered in a complex project hierarchy is that of a circular dependency. This is a situation where a project depends on itself through a chain of dependencies. For example if A depends on B which depends on C, and C depends on A, then we

have a circular dependency. Scheduling cannot be done in the presence of a circular dependency. The system detects such dependencies at creation and issues an error message.

Ancestor dependencies: Another error condition that may be encountered is an ancestor dependency. This is a situation when a project depends on a project that is a subproject or superproject. The system detects such dependencies at creation and issues an error message.

5.9. Finding dependencies of a project

To find the [dependency](#) predecessors or successors of a project, select the project in the [Summary view](#) and use the menu option Tools Show dependencies of selected project

5.10. Adding estimated material usage to a project

To add materials that a task will use, double click on the [Materials](#) column:

- the Materials editing dialog shown below comes up.
- double-click the last row in the Materials column. A popup appears with the names of all materials.
- select the desired material and press the **TAB** key to finish the edit.
- the **Estimated cost/unit** value is filled in automatically. You can edit this value by double clicking it if required.
- double click the **Estimated units** column to enter the number of units required.

Materials: Decide the location

Materials	Estimated cost...	Actual cost/unit	Estimated units	Actual units	Estimated cost	Actual cost
Gasoline	3.00	3.10	6	5	18.00	15.50
Total :					18.00	15.50

Buttons: Delete, Save changes, Cancel

- click the **Save changes** button to save your edits.

5.11. Editing an entire subtree

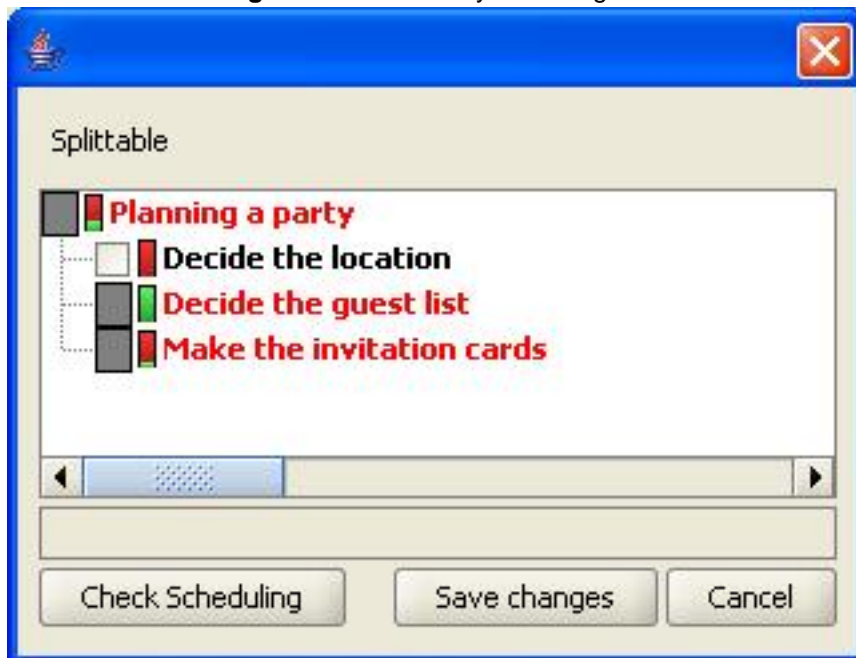
For most attributes of a project, the attribute is relevant only to a [task](#), and not to a [superproject](#). Therefore, the corresponding cell in the [Attribute table](#) is not editable for a superproject. For some attributes, however, a mechanism is provided, by which the user can edit the attribute for the superproject as a convenient way of changing the attribute for its entire subtree of tasks. The attributes for which this feature is available are [Assigned To](#), [Percent Complete](#), [Level Resources](#), [Splittable](#) and [Squeezable](#).

Editing the Assigned To value is discussed [in this section](#).

Editing the Percent Complete value is discussed [in this section](#).

Editing the remaining three attributes is quite similar and we discuss only Splittable here, as an example. To edit the splittable value for an entire subtree of tasks, double click the Splittable column for the superproject at the root of the subtree:

- the editing dialog shown below appears. Click the checkboxes of the projects for which you want to set the value.
- projects for which the value cannot be changed (for example, [started projects](#)) are grayed out, as shown.
- clicking the **Check Scheduling** button after making changes brings up a visual display of the changes to the start and finish dates that your current changes will effect.
- click the **Save Changes** button to save your changes.



5.12. Editing in the Attribute table

To edit the attributes of a project, double-click on the project in the appropriate column or use the **F2** key. This starts editing the corresponding value. **ENTER** ends the edit and **TAB** selects the next column. The details of project attributes available are described in the section [Project attributes](#).

5.13. Project attributes

This section lists, for convenience, all the attributes of a project. Follow the links to see the definitions.

- [Summary](#)
- [Budgeted Effort](#)
- [Budgeted Cost](#)
- [Estimated Effort](#)
- [Estimated Duration](#)
- [Fixed Cost](#)
- [Estimated Material Cost](#)
- [Estimated Resource Cost](#)
- [Estimated Cost](#)
- [Level Resources](#)
- [Splittable](#)
- [Squeezable](#)
- [Scheduled Start](#)
- [Scheduled Finish](#)
- [Priority](#)
- [Milestone](#)
- [Assigned To](#)
- [Actual Start](#)
- [Actual Finish](#)
- [Actual Effort](#)
- [Actual Duration](#)
- [Actual Cost](#)
- [Percentage Complete](#)
- [Constraint](#)
- [Dependencies](#)
- [Resources](#)
- [Materials](#)

- [Access Control](#)
- [Owner](#)
- [Baseline Start](#)
- [Baseline Finish](#)
- [Cost variance](#)
- [Effort variance](#)
- [Duration variance](#)
- [Start variance](#)
- [End variance](#)
- [EV Planned Value](#)
- [EV Earned Value](#)
- [EV Cost Variance](#)
- [EV Cost Efficiency](#)
- [EV Schedule Variance](#)
- [EV Schedule Efficiency](#)
- [Notes](#)
- [String 1-3](#)
- [Messages](#)
- [Documents](#)
- [Time tracking](#)

5.14. Recurrent projects

The system supports creating recurrent projects with varying recurrence periods and number. To create a recurrent project:

- in the [Summary view](#), select the project that you want to add the recurrent project to. If you want the recurrent project as a top-level project, then select the top row (**Managed Projects**).
- use the menu **Edit Add recurrent project**. The configuration dialog shown below comes up.
- configure the parameters as desired. Add the resources required for the task by clicking in the **Resources** column.
- Click the **OK** button. The project is added as a subproject of the selected project.
- The structure of a recurrent project is that it has a project with the given name, and the repeating

tasks are all subprojects of this project, with their names distinguished by 1, 2, etc.

Add recurrent project

Summary: Weekly task - mail letters Effort: 1hr

☒ Weekly Every 1 Weeks
☐ Monthly ☐ Sun ☒ Mon ☐ Tue ☐ Wed
☐ Yearly ☐ Thu ☐ Fri ☐ Sat

Start date: 2/14/07 11:00 AM
☒ End after: 5 occurrences
☐ End date: 3/19/07 11:00 AM

Resources: Add Delete

Resource	Allocation	Billing code
PMUser	100%	

OK Cancel

5.15. Letting others see your project (Enterprise)

By default, when a project is created, it is visible only to the user that created it. To allow others to see it, the access control on the project must be modified. See [this section](#).

Chapter 6. Allocating Resources to Tasks

6.1. Single and Multiple Resource tasks

The system supports two kinds of tasks, **Single-resource** tasks and **Multiple-resource** tasks.

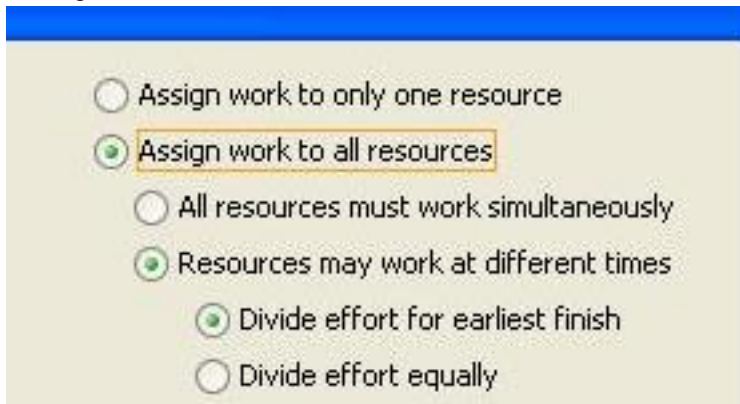
Single-resource tasks are assigned to exactly one of the set of resources allocated to it. The resources are known as **candidate resources**. If the task has more than one resource in the resource table of the [schedule editing dialog](#), the scheduler selects the best candidate to assign the work to ([more information](#)).

For **Multiple-resource** tasks, the scheduler divides the work among all the resources assigned to the task. The user may specify how the work is to be divided ([more information](#)).

6.2. Setting a task to use multiple resources

By default, tasks are set to use a single resource. To set a task to use [multiple resources](#):

- open up the [schedule editing dialog](#) for the task
- in the multiple resource setting area, shown below, select **Assign work to all resources**
- select the sub-setting described in the following sections, to determine how the work is divided among the resources



6.2.1. All resources must work simultaneously

This option, in the [multiple-resource setting area](#) of the schedule editing dialog, causes the scheduler to find a period of time when all the resources are available, and schedules all the resources to work simultaneously on the task. This setting is useful for tasks which physically require the simultaneous involvement of more than one resource. For example, a task to be done on a piece of machinery that requires two people to operate.

6.2.2. Resources may work at different times

This option, in the [multiple-resource setting area](#) of the schedule editing dialog, will result in the different resources being scheduled at different times, if the scheduler determines that doing so ensures that the task can be finished sooner. How the [estimated effort](#) for the task is divided among the resources is determined by the sub-options:

- **Divide effort for earliest finish** - selecting this option will cause the scheduler to find the division of work that yields the earliest finish time for the task. For example, consider a task whose estimated effort is 3 days, with two resources A and B. Assume that the task should start today, and that B is already assigned to a different task for today, but is available tomorrow, and that A is available both today and tomorrow. Then the scheduler will assign 2 days of effort to A, scheduled today and tomorrow, and one day of effort to B, scheduled for tomorrow.
- **Divide effort equally** - selecting this option will cause the scheduler to assign equal portions of the estimated effort for the task to all the resources. In the example above, each of A and B would be assigned 1.5 days of work, and in A's case the work would be scheduled for today and half of tomorrow; in B's case, the work would be scheduled for tomorrow and half of the day after.

6.3. Changing the assigned resources

6.3.1. Single-resource task - changing assignment

To change the assigned resource for a [task](#) that is [single-resource](#) :

- double-click in the project's cell in the [Assigned To](#) column of the [Attribute table](#) view
- a drop-down appears with a list of resources. Select the desired resource from the list.

6.3.2. Multiple-resource task - changing resources

To change assigned resources for a [task](#) that is [multiple-resource](#) :

- open the [Schedule editing dialog](#) for the task. Resources may be added and removed from the Resources table on the lower left, shown below
- to add a new resource click on the empty cell in the first column of the table.
- a resource selection dialog appears where you can select the resources you wish to add.
- click **OK** to close the dialog and the selected resources are added to the table.
- to delete a resource from the table, select the resource's row and click the **Delete** button.

Ensure that the **Assign work to all resources** button on the upper right is selected, otherwise the task will be interpreted as a [single-resource](#) task.

Resource	Alloca...	Billing code	Start	Finish	Effort
Bob Dylan	100%		1/24/07 1:00 PM	1/25/07 5:00 PM	8hrs

6.3.3. Subtree of single-resource tasks

To change the assigned resource for an entire subtree of [single-resource](#) tasks

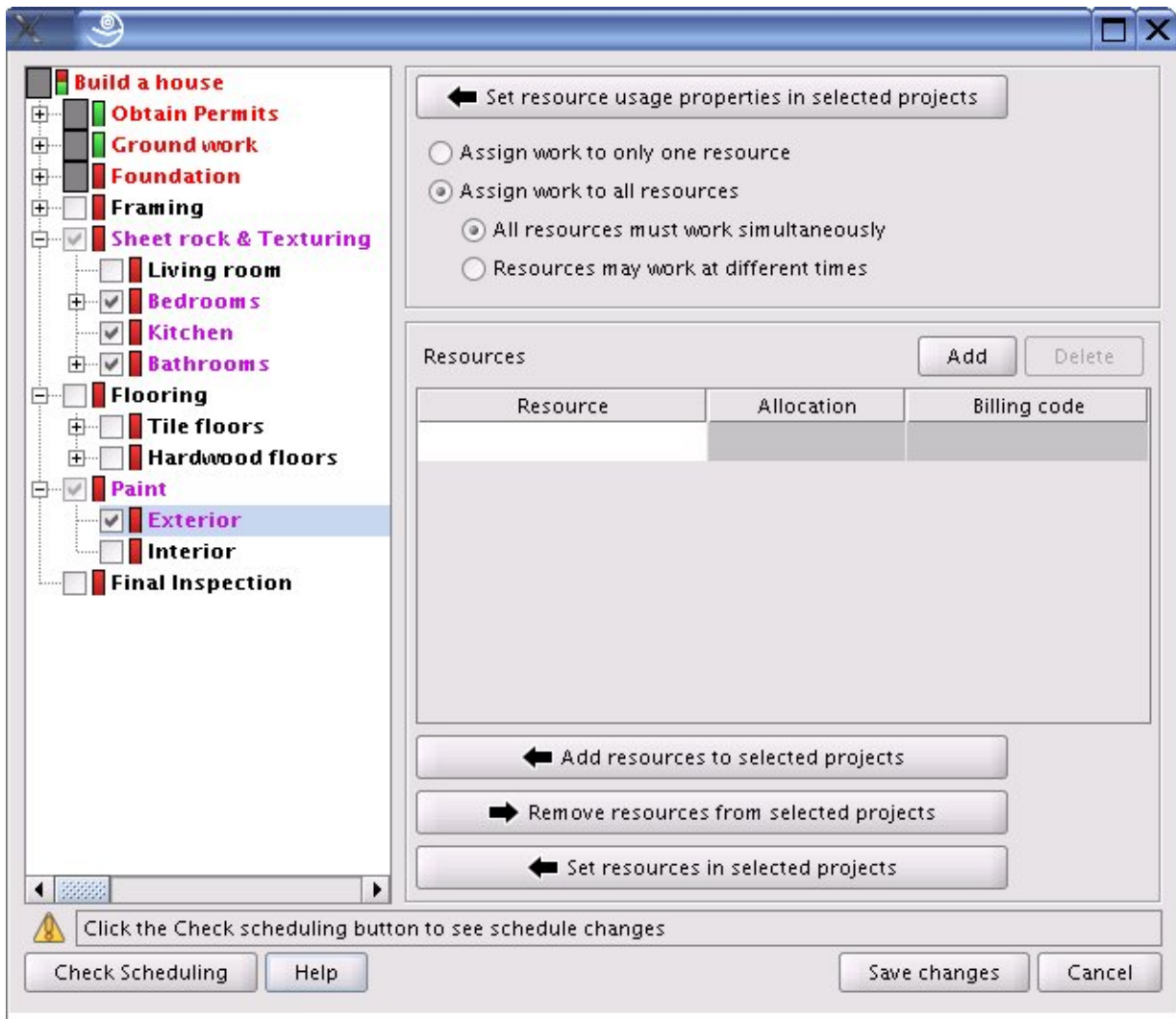
- select the parent project of the subtree, and double-click in the parent project's cell in the [Assigned To](#) column of the [Attribute table](#) view
- the assignment dialog below appears
- select the resource you want from the drop-down list
- check the projects that you want the resource assigned to
- click the **Set property for selected projects** button to assign the resource to the checked projects
- click **OK** to save the changes.



6.3.4. Subtree of multiple-resource tasks

To change the assigned resource for an entire subtree of [multiple-resource](#) tasks:

- select the parent project of the subtree, and double-click in the parent project's cell in the [Resources](#) column of the [Attribute table](#) view
- the resources dialog below appears.
- select the projects you wish to change by checking them off.
- Select the resources you want in the Resources table on the right.
- click one of the three buttons on the lower right.
 - **Add resources to selected projects** causes the resources to be added to the already existing resources of the selected projects.
 - **Remove resources from selected projects** causes the resources (if present) to be removed from the selected projects.
 - **Set resource to selected projects** causes the current resources of the selected projects to be replaced with the selected resource configuration.
- select the resource usage properties in the upper right panel
- click the **Set resource usage properties in selected projects** button to change the resource usage properties of the checked projects.
- click the OK button to save the changes to the projects



6.4. Getting the system to choose a resource

In the case where there are a pool of [resources](#) to be allocated to a set of [tasks](#), and it doesn't matter which of the resources performs which of the tasks, then it is often convenient to let the system choose the specific resource for each task. To do this,

- add each resource in the pool to each task (see [this section](#) for how to do this)
- set each task to be a [single-resource](#) task (see [this section](#) for how to do this)

The system will choose, for each task, a resource, such that the task is finished as early as possible.

6.5. Resources working on multiple tasks simultaneously

By default, the system assigns all [resources](#) at 100% [allocation](#). In reality, a resource often works on a

number of different tasks in an interleaved manner. For example, suppose that, for the coming week, a resource should spend half his time on Task A and half his time on Task B. To model this situation in the software, one sets the resource at 50% allocation for each of the tasks. To do this:

- open the [schedule editing dialog](#) for Task A
- click on the first entry in the **Resource** column of the resource table in the lower left of the dialog, shown below.

Resource	Alloca...	Billing code	Start	Finish	Effort
Bob Dylan	100%		1/24/07 1:00 PM	1/25/07 5:00 PM	8hrs

- a resource selection dialog opens up. Select the desired resource in this dialog and click OK. The resource name is entered into the table.
- double-click the **Allocation** column entry for the resource in the table, and enter 50. Hit the **TAB** key to finish the edit.
- click the **Save changes** button to close the dialog.
- repeat the above steps for Task B. Now the resource is allocated at 50% to both Task A and Task B.
- the schedule changes, and if the resource is not assigned to other tasks, the [Gantt chart](#) will show the resource working simultaneously on Task A and Task B, as shown in the figure below.

Task A		8hrs PMUser[50%]
Task B		8hrs PMUser[50%]

Chapter 7. Adjusting the schedule

7.1. Automatic scheduling considerations

Scheduling a hierarchy of projects is one of the most important tasks of project management. The software is equipped with an automatic scheduler, which, when used properly is a great asset to planning your projects.

This section contains some tips to help you use the automatic scheduler effectively, and configure it to your requirements.

7.1.1. Default scheduling policy

The scheduler tries to schedule each task to start as soon as possible, given the properties of the [task](#) and the [resource\(s\)](#) to which it is to be assigned. The properties of a task that affect its schedule are [dependencies](#) , [constraint](#), [priority](#) and, if the task is a [resource levelling](#) task, the workload of the resource it is assigned to.

If the task has a constraint , it is scheduled to satisfy the constraint , at the cost of violating all other properties.

In the absence of a constraint , the task is scheduled to satisfy any dependencies it has, as well as resource workload restrictions, at the cost of violating priority.

Resource levelling tasks are scheduled in such a way that at any given time, the total allocation of the resource to resource levelling tasks is at most 100 percent.

When all other things are equal, the scheduler will use priority to determine the order of tasks.

7.1.2. Which projects are scheduled

Since only bottom-level projects represent real [tasks](#), and [superprojects](#) only represent collections of tasks, only the bottom-level subprojects, or tasks, are scheduled. (Superprojects affect scheduling through their dependencies, which imply dependencies on their subprojects.)

Tasks that have already [started](#) are not rescheduled.

Tasks in the past are not rescheduled, except in special circumstances. See the section on the [scheduling timeframe](#) .

7.1.3. The Scheduling timeframe, and past projects

The scheduler has an implicit timeframe within which it schedules projects. This timeframe starts at the beginning of the current day and extends indefinitely into the future. Tasks are always scheduled within this timeframe. In particular this means that projects with start dates in the past will not have their schedules changed.

The scheduler will allow the user to manually schedule tasks in the past by using constraints, however, no tasks will be automatically scheduled in the past. Thus it is possible to retroactively manually build a schedule for a project that has actually started. It is not possible to let the scheduler automatically construct a schedule in the past. (Even if the scheduler were to construct such a schedule, it would be fictional, as the scheduler cannot know what has transpired in the past.)

When an explicit change is made to a task scheduled in the past, the task will be rescheduled to start after the start of the current day (constraint permitting). This happens if the change is to an attribute that affects the schedule, for instance, [Constraint](#) , [Dependencies](#) , [Scheduled Start](#), [Scheduled Finish](#), [Estimated Effort](#), [Squeezable](#), [Splittable](#) or [Priority](#).

The schedule of a project in the past is changed in only one other instance. That is when the project is selected and **Reschedule selected project(s) from today** is used. When this happens, the schedules of all the selected projects are erased and they are all rescheduled. Again, they will be scheduled to start after the start of the current day. (See [this section](#) for more information)

7.1.4. Resource levelling

The [Level Resources](#) property of each task may be on or off. This property determines whether the task is considered when computing the resource's workload.

If a task does not level resources, then the scheduler will start the task as soon as dependency and constraint values allow, regardless of how many other tasks the resource may be working on at the time.

Tasks that level resources are handled differently. The scheduler will schedule these tasks at the earliest time when the resource is not working on other resource levelling tasks, and, of course dependency and constraint values allow. (If the percentage allocation of the resource is less than 100 percent, the task is scheduled at the earliest time that the resource has sufficient availability to accomodate the task.)

Since the level resources property may be set on or off individually for each task, one may freely mix tasks that level resources with tasks that do not.

7.2. Effort, allocation, start and finish

In Intellisys, all tasks are *effort-driven* , that is, given a start date, an effort, and resource allocations, the end date is uniquely determined. The effort, allocation, and start and end dates are, therefore, always interdependent. This can cause some unintuitive things to happen while working with the program. For example, consider a task that starts on Jan 1 at 8:00 am and ends on Jan 1 at 5:00 pm, with an estimated effort of 8 hours, and one resource allocated at 100 percent. Suppose the user changes the end date to be Jan 2 at 5:00 pm, then the effort is inconsistent with the start and end dates. When scheduling occurs, the end date will be set back to Jan 1 at 5:00 pm, because, if a resource is starts on an 8 hour task on Jan 1, 8:00 am, and works at 100 percent allocation, he should be done by Jan 1, 5:00 pm.

In the example above, changing the end date to be Jan 2 at 5:00 pm makes the relationship between start, end effort and allocation inconsistent. There are three ways to correct the inconsistency:

1. **change the end date:** This is what the system does by default, when no other choice is specified.
2. **change the effort:** For our example, increasing the effort to 16 hrs would make the values consistent.
3. **change the allocation:** For our example, reducing the allocation to 50% would make the values consistent.

Changing the effort and allocation is discussed further [here](#).

7.3. The schedule editing dialog

Most adjustments to the schedule-related attributes of a [task](#) can be made through the schedule editing dialog, shown below. This dialog comes up when the user double-clicks in the [Scheduled Start](#), [Scheduled Finish](#) or [Resources](#) columns of a task in the [Attribute table view](#).

No constraint ▼

Scheduled Start: 1/24/07 1:00 PM ▼

Scheduled Finish: 1/25/07 5:00 PM ▼

Estimated Effort: 8hrs

Resources: Add Delete

Resource	Alloca...	Billing code	Start	Finish	Effort
Bob Dylan	100%		1/24/07 1:00 PM	1/25/07 5:00 PM	8hrs

Bob Dylan

Start	Finish	Effort
1/24/07 1:00 PM	1/25/07 5:00 PM	8hrs

Click the Check scheduling button to see schedule changes

Check Scheduling Help Save changes Cancel

7.3.. Changing dates, effort and allocation

7.3..1. The adjustment panel

In the [schedule editing dialog](#), whenever the **Scheduled Start** or **Scheduled Finish** dates are changed, a new panel appears to the right of these dates, as shown below. This is the adjustment panel.

The adjustment panel is an indication that after changing the dates, the relationship between start, end and effort that is prescribed for [effort driven](#) tasks may no longer be valid.

Start after ▼ 2/14/07 8:00 AM ▼

Scheduled Start: 2/14/07 8:00 AM ▼

Scheduled Finish: 2/15/07 5:00 PM ▼

Estimated Effort: 8hrs

The project duration may not match the effort and allocation values

Details

7.3..2. Changing the start or end date

In the [schedule editing dialog](#), to change the start date:

- click on the down-arrow button in the **Scheduled Start** box. A date selection dialog comes up.
- select the desired date and click the OK button to close the dialog.
- the new date appears in the box, and the [adjustment panel](#) appears to the right.
- depending on the change, an appropriate [constraint](#) appears in the constraint box above the **Scheduled Start** box.

To change the end date, use the **Scheduled Finish** box in the same way as described above.

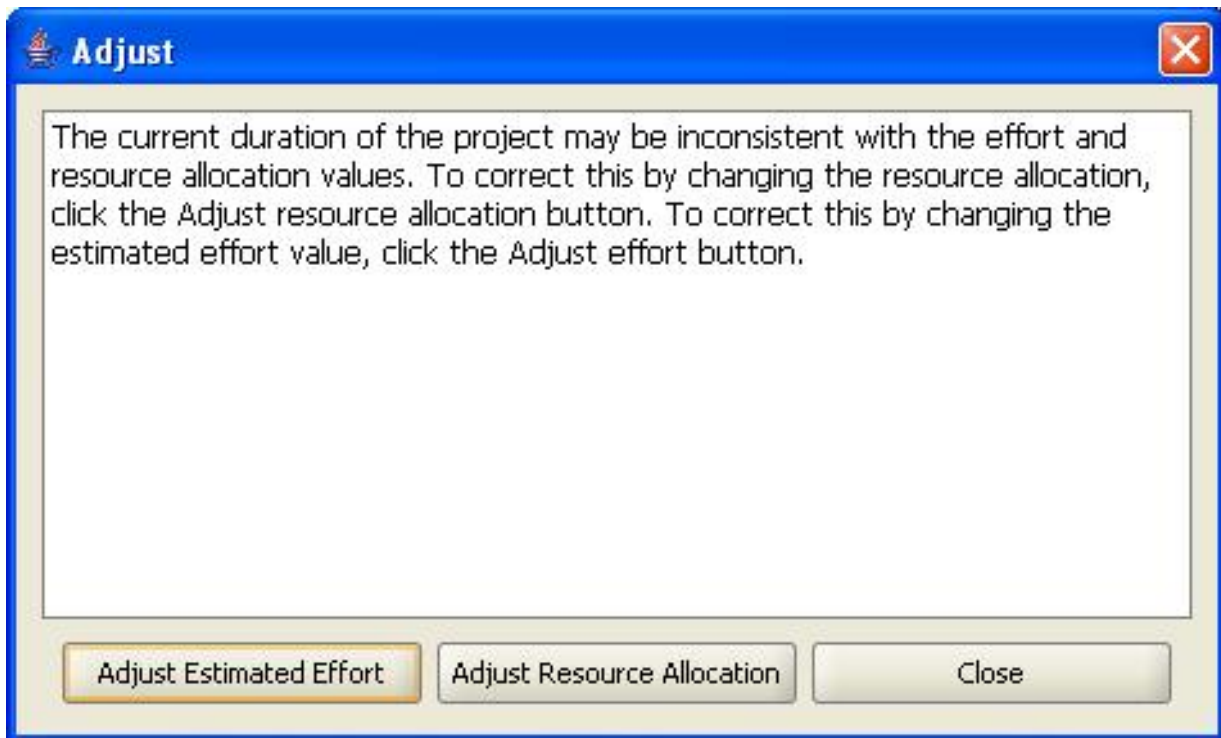
If the changes made to the dates require changes to effort or allocation to maintain the [effort driven](#) relationship, follow the directions [here](#).

7.3..3. Auto-calculating effort or allocation

Clicking the **Details** button in the [adjustment panel](#) causes the dialog shown below to pop up. Clicking the **Adjust Estimated Effort** button changes the Estimated Effort of the task to be changed to be consistent with the start and end dates and allocation. Clicking the **Adjust Resource Allocation** will change the allocation to be consistent with the start and end dates and Estimated Effort.

These two correspond to two common real-world situations when planning projects:

- **You know when the task should start and when it should finish, but not the effort:** In this case, adjust the start and end dates, then click the **Details** button on the adjustment panel and choose **Adjust Estimated Effort**.
- **You know when the task should start and finish and how much time the resource should spend on it, but don't know the allocation:** In this case, set the start and end dates, and the estimated effort, then click the **Details** button on the adjustment panel and choose **Adjust Resource Allocation**.



7.3..4. Checking the schedule before saving changes

In the [schedule editing dialog](#), the **Check Scheduling** button at the lower left corner allows the user to visualize the effects, on the schedule, of the changes made so far. To utilize this feature:

- make the desired changes in the schedule editing dialog
- click the **Check Scheduling** button. A dialog pops up, showing the project hierarchy and the changes in start and finish dates of the affected projects.
- if the result is satisfactory, click the **OK** button to save the changes.

7.4. Moving a project hierarchy into the future

By default, each project is scheduled as soon as possible. Sometimes, however, a project may be postponed, or it may be necessary to plan a project that is due to start sometime in the future. We assume in this section that you have a project hierarchy already entered and that you wish to schedule it on a date in the future, say Jan 1 2010. The root project of the hierarchy is called *Future Project* in our example

While there is more than one way of doing this, we recommend the following method for its flexibility:

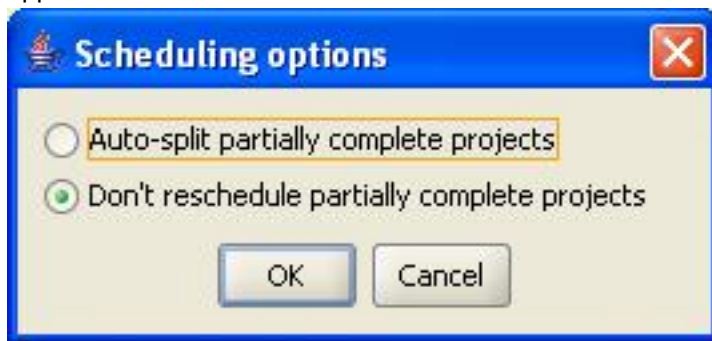
- create a [milestone](#) called *Future Project start milestone*. The milestone should be outside the *Future Project* hierarchy, and preferably just above it.
- create a [dependency](#) from the milestone to *Future Project*
- set a [constraint](#) on the milestone to start on Jan 1, 2010.

7.5. Changing a project plan midway through execution

Often, a project's execution does not adhere to the original planned schedule. In such instances there is a need to reschedule projects to re-evaluate timelines, costs etc.

When you wish to reschedule a project, or projects:

- in the [Summary view](#), select all the projects you wish to reschedule
- use the menu option **Schedule** → **Reschedule selected project(s) from today**
- if there are any partially completed tasks among the selected projects, the dialog shown below will appear



- selecting **Auto-split partially complete projects** will cause partially completed projects to be split into two parts, one of which represents the completed part of the original project and the other, the remaining part. These two parts are made subprojects of the original partially completed project, and their names are derived from the original project's name by appending **(1)** and **(2)** respectively.
- **Don't reschedule partially complete projects** : Selecting this option will cause the schedules of partially completed projects to remain as is.

7.6. Freezing and unfreezing schedules

The menu option **Schedule** → **Freeze selected project schedules** places [Start-On constraints](#) on each of the currently selected projects and their subprojects. The constraints are matched to the current schedules, and once placed, ensure that the schedules will not change.

The menu option **Schedule** → **Unfreeze selected project schedules** removes the constraints added by the freeze operation.

7.7. Viewing schedule conflicts

Conflicts in a schedule are of two types - violated dependencies, or resource overallocations. Whenever there are conflicts in a schedule, the **# button** at the bottom of the [Summary view](#) starts flashing red. Clicking on this button brings up a dialog that shows the conflicts in the schedule, if any. If there are no conflicts, then the dialog does not appear.

The menu option **Schedule** → **Show schedule conflicts** brings up the same dialog.

7.8. Viewing schedule restrictions

The menu option **Schedule** → **Show schedule restrictions** brings up a dialog that shows what the schedule restrictions on the selected task are. This information is often useful in understanding why some tasks are scheduled the way they are.

7.9. Setting a baseline schedule

To set the current schedule as a baseline for a project, select it and use the menu option **Schedule** → **Set selected project schedule as baseline**. The current schedule for each project in the hierarchy is saved as a baseline. The baseline is drawn in gray in the Gantt chart. Of course, the baseline is only visible when the schedule has changed to be different from the baseline schedule.

7.10. Using priorities

Priorities influence the order in which projects are scheduled for execution. All other things being equal, a project with a higher priority (5 is higher than 1) will be scheduled for earlier execution than one with a lower priority. Note, however, that priorities are overridden by dependencies, and constraints. For instance if B depends on A, then A will be scheduled for earlier execution regardless of the priorities of A and B.

7.11. Splittable and Squeezable tasks

Normally the scheduler will schedule all the work that a resource does on a task in a single contiguous block of time. For splittable tasks, however, the work may be split into noncontiguous blocks. Making some tasks splittable can sometimes decrease the overall time required to complete a project. However, it results in more complex schedules, and should be used with care.

Similarly, normally, the scheduler will only allocate work to a resource at the full level of allocation of the resource to the task. However, for squeezable tasks, the scheduler may allocate work at less than the full level of allocation. Again, this sometimes results in shortened schedules.

A squeezable task that is not splittable will always have the work allocated in a contiguous block, however, the level of allocation may vary over time.

Chapter 8. Tracking project progress

8.1. Entering actual time spent

Actual time spent working on a project can be entered by a [manager](#) or a [tracker](#). A tracker may only enter times for himself. A manager may enter times for anyone. To enter actual time spent:

- in the [Attribute table view](#), double click in the [Actual Start](#) or [Actual Finish](#) column of the task
- the actuals editing dialog shown below comes up.
- select the resource for which time is to be entered in the **Resources** table on the left.
- the table on the right changes to be labeled with the selected resource.
- double click on the first empty cell in the **Start** column, and enter the start time
- double click on the corresponding cell in the **Finish** column and enter the end time
- if both Start and Finish are entered, the corresponding **Calculate** button becomes enabled
- click the Calculate button to fill in the **Effort** column automatically, or enter the effort value manually into the **Effort** column.

Summary	Start	Finish	Effort
dummy project	2/5/07 1:00 PM	2/7/07 5:00 PM	4hrs

Resources			
Resource	Start	Finish	Effort
Bob Dylan[50%]	2/5/07 1:00 PM	2/7/07 5:00 PM	4hrs

Start	Finish	Effort	Calculate
2/5/07 1:00 PM	2/5/07 5:00 PM	2hrs	Calculate
2/7/07 1:00 PM	2/7/07 5:00 PM	2hrs	Calculate
		0hrs	

Save changes Cancel

8.2. Entering percent complete for a task

[Percent complete](#) can be entered by a [manager](#) or a [tracker](#). Percent complete can be entered independently of [actual times](#).

To enter a percent complete value for a task, double click on the Percent Complete column for that

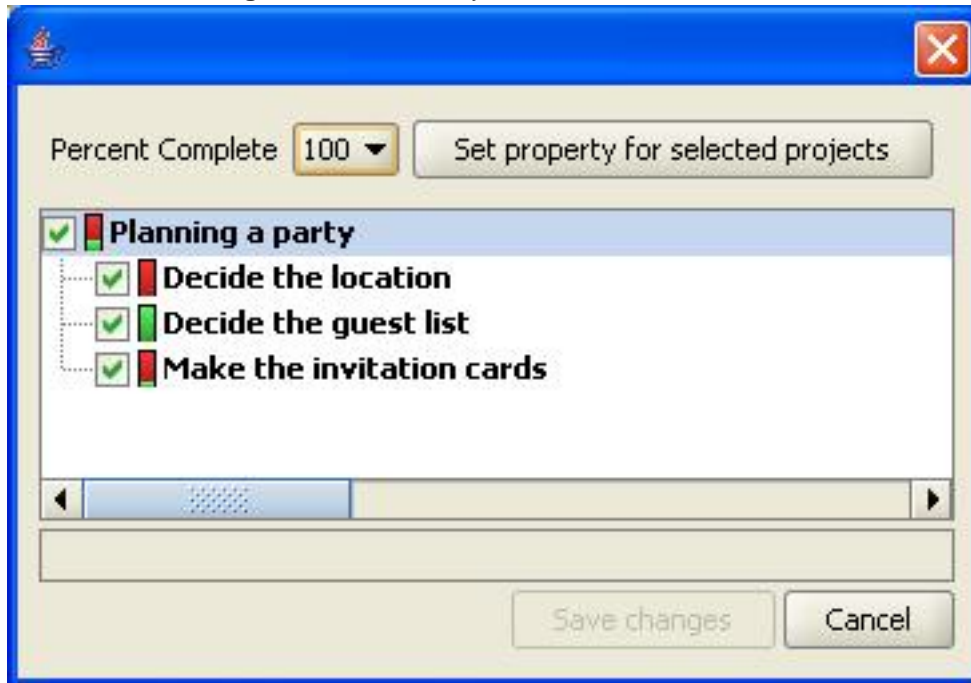
task, and select the desired value from the drop down list.

8.3. Entering percent complete for a subtree

Percent complete can be entered by a **manager** or a **tracker**. Percent complete can be entered independently of **actual times**.

To enter a percent complete value for an entire subtree, double click on the Percent Complete column for the project at the root of the subtree:

- the selection dialog shown below appears.
- click the checkboxes of the projects you wish to change
- select the desired value from the **Percent Complete** drop-down list and click on the **Set property for selected projects** button
- click the **Save changes** button to save your edits.



8.4. Marking projects as completed

To mark a project as completed, edit the **Percent Complete** column (by double clicking it) and set the value to be 100.

When a project is set to be complete, the **Adjust finish dates dialog** appears asking the user to enter the actual finish dates of the projects that are being set to be complete. The purpose of this dialog is to give users an easy way of modifying the schedule of the projects to match the actual dates on which they were finished.

Adjust finish dates

For tasks set as 100% complete, you can adjust the Scheduled Finish to match the Actual Finish date you enter below. Click 'Adjust' to change the Scheduled Finish and click 'Ignore' to make no adjustments. Press the 'Help' button for more information.

Projects	Adjust	Actual Finish
Projects	<input checked="" type="checkbox"/>	1/25/07 9:45 PM ▼
Decide the guest list	<input checked="" type="checkbox"/>	1/26/07 5:00 PM ▼

Help Adjust Ignore

In the date entry box for each completed project, the user may enter the actual finish date of the project. To set the same finish date for several projects, select the checkboxes of those projects for which the finish date applies, and then change the date box at the top of the column to the desired date. This date is now applied to all the checked projects.

The schedule of the project is modified based on the finish date entered. If the finish date entered is before the scheduled finish, then the project's schedule is truncated, and the effort adjusted accordingly. If the finish date is after the scheduled finish date, then the schedule is extended and the effort modified accordingly.

In this dialog, the user may opt to adjust the schedule of the completed projects by clicking the **Adjust** button or ignore the finish dates and leave the schedule unmodified by clicking the **Ignore** button.

8.5. Entering materials actually used

Materials used on a project can be entered by a [manager](#) or a [tracker](#). A tracker may only enter **Actual cost/unit** and **Actual units**. To enter materials used follow the same procedure as [entering estimated material usage](#), and fill in the values in the two columns relating to actual values.

Chapter 9. Project costing

9.1. Estimated cost for a project

During the planning of a project, the system provides a way of estimating the cost of the project. This cost estimate produced by the system is displayed in the Estimated cost column of the [Attribute table view](#). The [Estimated cost](#) is the sum of the [Fixed cost](#), the [Estimated resource cost](#) and the [Estimated material cost](#).

In order for the system to calculate Resource estimated cost, it needs [billing codes to be defined](#). If a resource has an associated billing code, then each assignment for that resource uses that billing code by default. Billing codes can be associated with users [at creation](#), or later, through the [Admin console](#). Even if a resource has an associated billing code, or no billing code, a different billing code may be applied for that resource in any particular task by [editing the resources](#) for the task, and filling in the appropriate billing code. The cost per hour of a resource for a task is determined by the billing code applied to the resource for that task.

In order to calculate Materials estimated cost, of course [materials need to be defined](#). Also, the usage of materials by specific tasks [needs to be input](#).

9.2. Actual cost for a project

Analogous to the [estimated cost](#), the [Actual cost](#) for a project is the sum of the [Fixed cost](#), the [Actual resource cost](#) and the [Actual material cost](#).

In order to compute meaningful values, [quantities needed for computation of the estimated cost](#) should be defined, and also, the [actual times](#) need to be entered for each resource, and similarly, the [actual material usage](#).

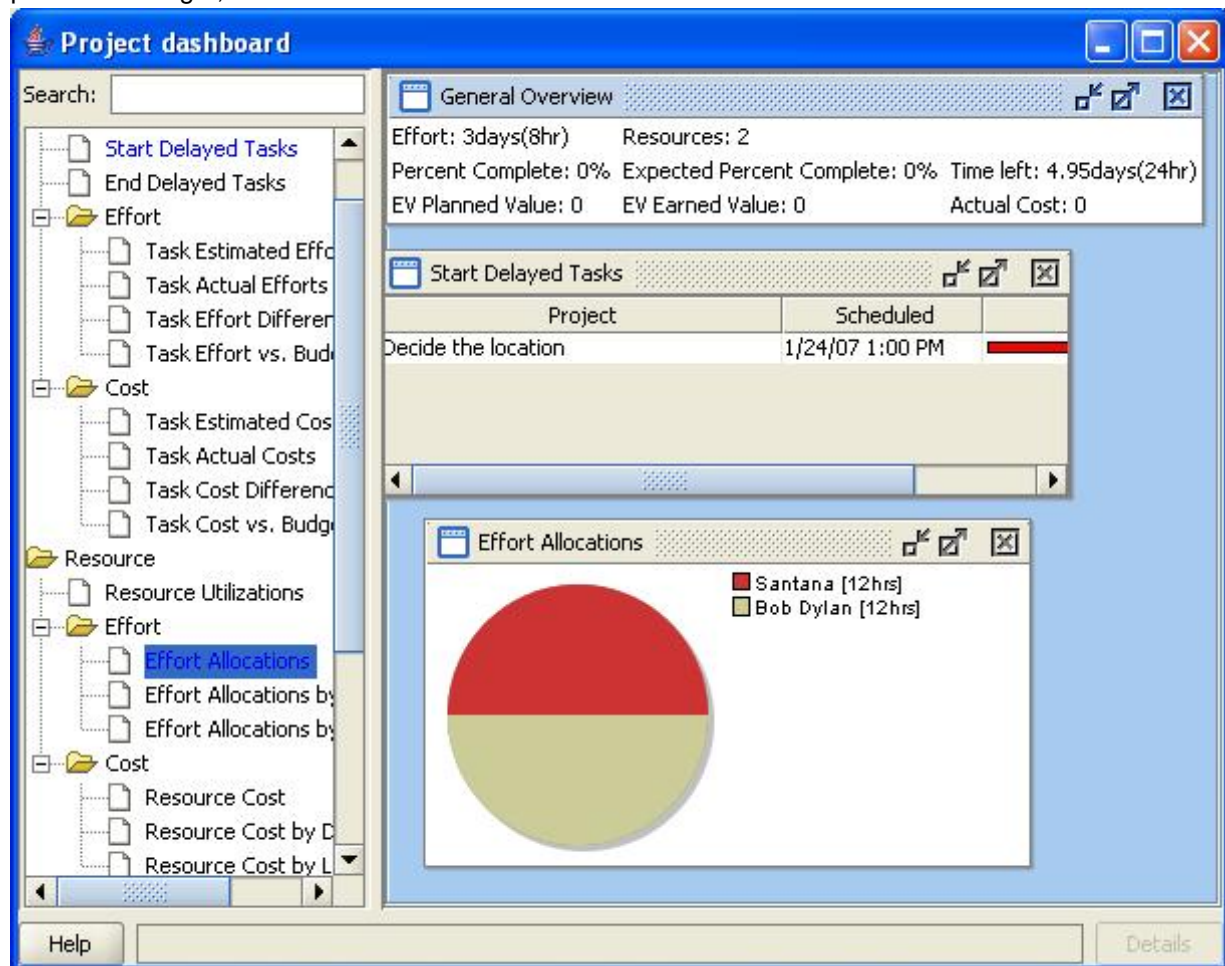
Chapter 10. Getting an overview

10.1. Using the dashboard

10.2. Using the Project Dashboard

The Project Dashboard is a user configurable way of visualizing the status of a project. It consists of a number of different displays, which are described below. The user may choose which of the displays is visible. The displays may be generally categorized as tables or as charts. Each table may be sorted on a given column by clicking the column heading. The charts display a tooltip showing details when the mouse is hovered over the chart.

The Project Dashboard may be invoked by **Tools** → **Project dashboard**. To open any display in the panel on the right, double-click on the item in the tree on the left.



The displays are as follows.

- **General Overview:** Shows the general status and properties of the selected project. The overview includes information such as the effort, number of resources involved, percentage complete, time left

until end date.

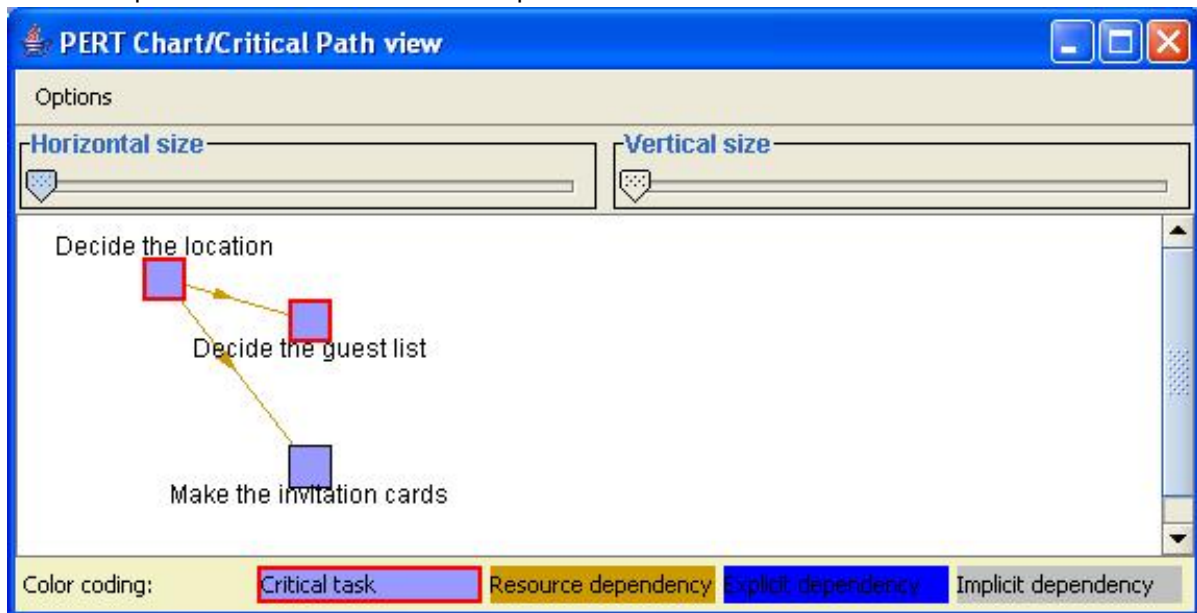
- **Start Delayed Tasks:** A table of tasks whose scheduled start dates have passed and which have not been started. The period elapsed since the scheduled start date is also displayed.
- **End Delayed Tasks:** A table of tasks whose schedule end dates have passed and which have not been ended. The period elapsed since the scheduled end date is also displayed.
- **Task Estimated Efforts:** This table shows each task's estimated effort values, allowing a sort which will let you to find out which task is estimated to be the most time consuming.
- **Task Actual Efforts:** This table shows the actual effort values recorded for each task, showing which task actually consumed the most time.
- **Task Effort Differences:** Shows the difference between the estimated effort and the actual effort recorded. This comparison shows which tasks are using more than the planned effort.
- **Task Effort vs. Budget:** Shows the difference between the estimated effort and the budgeted effort. This comparison shows which tasks are estimated to require more effort than was budgeted.
- **Task Estimated Costs:** This table shows each task's estimated cost values, allowing a sort which will let you find out which task is estimated to cost the most.
- **Task Actual Costs:** This table shows the actual costs calculated for each task, showing the tasks that actually cost the most.
- **Task Cost Differences:** Shows the difference between the estimated cost and the actual cost recorded. This comparison shows which tasks are overspending or underspending.
- **Task Cost vs. Budget:** Shows the difference between the estimated cost and the budgeted cost. This comparison shows which tasks are estimated to require more than what the budget allowed for.
- **Resource Utilizations:** Shows a chart grouped by the allocation percentage for the resource across the entire timespan of the selected project. Details are available which shows the allocation for each resource and the time that has been allocated to them.
- **Effort Allocations:** This chart shows the portion each resource is responsible for in the selected project, calculated by the time allocated to each resource.
- **Effort Allocations by Department:** This chart shows the portion each department is responsible for in the selected project, calculated by the time allocated to resources in each department.
- **Effort Allocation by Location:** This chart shows the portion of effort responsible by each geographical location. This is calculated by adding the times allocated to resources in each location.
- **Resource Cost:** This chart shows the cost of each resource for the selected project, allowing a visual representation of which resource is the most costly.
- **Resource Cost by Department:** This chart shows the cost for each department for the selected project, allowing a visual representation of which department is the most costly.
- **Resource Cost by Location:** This chart shows the cost for each geographical location for the selected project, also allowing a visual representation that shows which location is the most costly.
- **Material Planned Usage Chart:** This chart shows the amount of material expected to be used for this project, showing which material is expected to be used the most. Details are also available showing a breakdown of material expected to be used by individual tasks.

- **Material Planned Usage List:** This table shows the material expected to be used and the amount expected to be used. Details are available showing a breakdown of material expected to be used by individual tasks.
- **Material Actual Usage Chart:** This chart shows the amount of material actually used for this project, showing which material was used the most. Details are available showing a breakdown of material used by individual tasks.
- **Material Actual Usage List:** This table shows the material and the number of each material this project actually used. Details are available showing a breakdown of material used by each individual tasks.
- **Material Planned Cost:** This chart shows the cost estimated for the each material that is expected to be used by the selected project.
- **Material Actual Cost:** This chart shows the actual cost for each material that have been used during the course of the selected project.

10.3. The Critical Path and PERT view

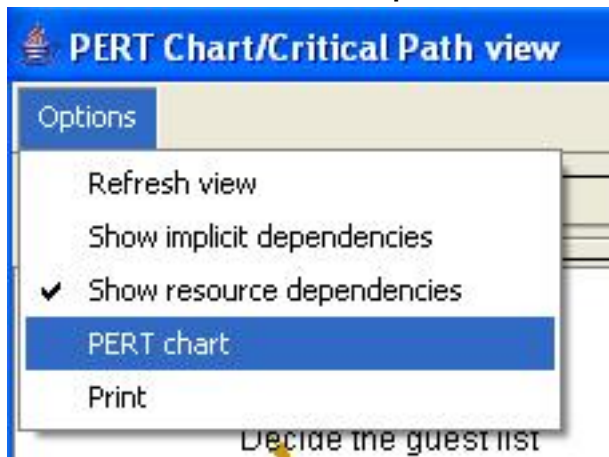
To view the [critical path](#) of a project and its subprojects:

- select the project in the [Summary view](#)
- select the menu option **Tools** → **Pert chart/Critical path view**
- the critical path view shown below comes up



- the tasks on the critical path are framed in red
- the link color shows the type of link
- the view can be printed from the **Options** menu

- to view the PERT chart, select **Options** → **Pert Chart** , as shown below



10.4. Task lists and Resource Utilization view

This view is available in the menu option **Tools** → **Task lists/Resource Utilization view** . Clicking it brings up the Select resources window. Select the users whose tasks you wish to see and a specific period.

The **Task lists/Resource Utilization view** provides a histogram and a gantt view of the tasks assigned to a user. There is also a table listing of all the tasks of the selected users.

The histogram helps in giving a quick visual overview of the allocated and free time of a user.

The Resource gantt helps in giving a quick visual overview of the way tasks are laid out for a given user.

10.5. WBS Chart view

A **Work Breakdown Structure(WBS)** is an exhaustive, hierarchical tree structure of tasks that need to be performed to complete a project. One representation of a WBS is the Summary View available in the main application window. The **WBS Chart** provides an alternate view of the same structure. It allows the user to view and print a convenient graphical representation of the WBS. To view the **WBS Chart** , select the project whose breakdown you wish to see and use the menu option **Tools** → **WBS Chart** . The **Options** menu provides customization, print and save to PDF options.

10.6. Calendar view

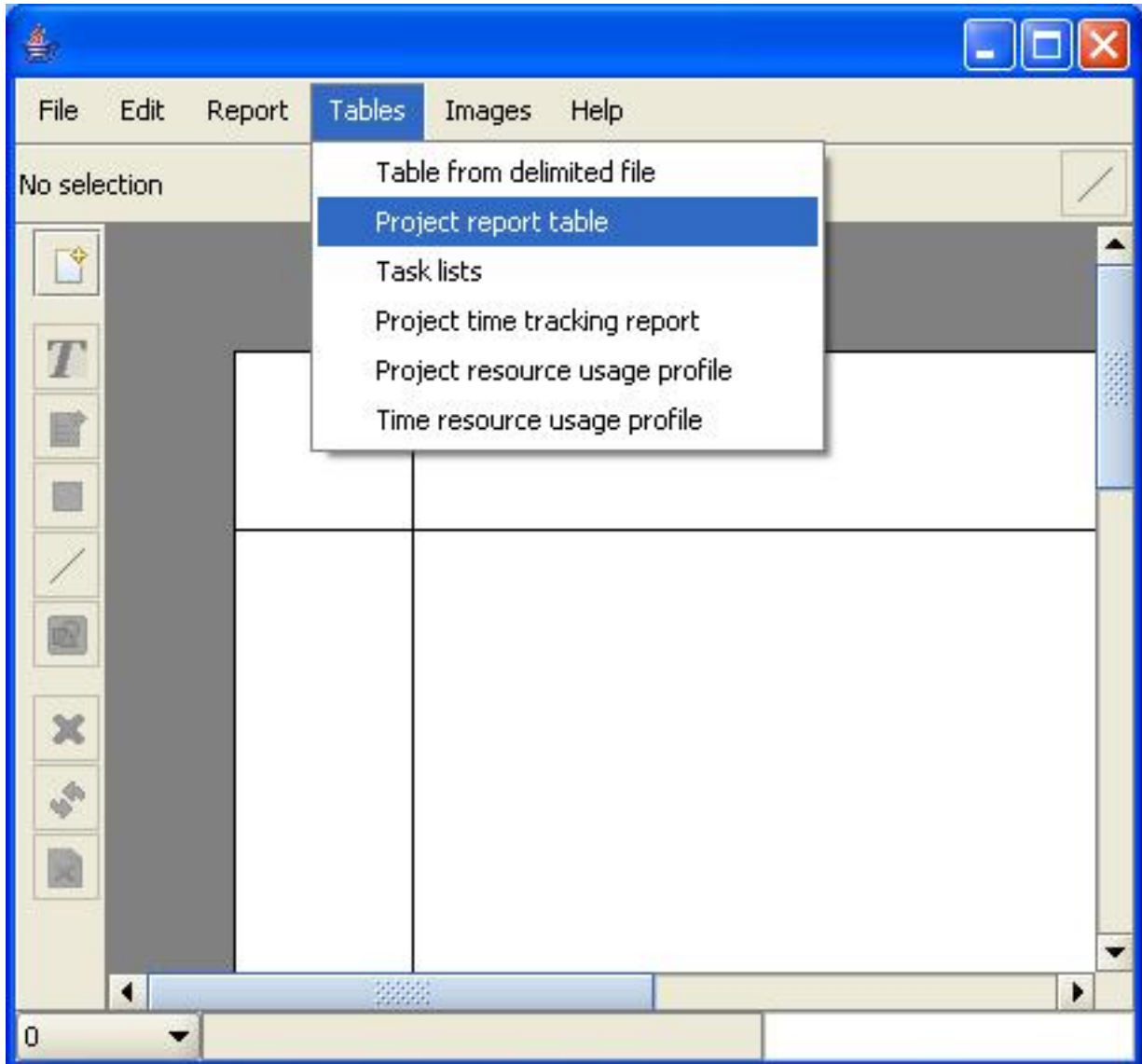
The calendar displays the tasks monthwise of the selected set of users for the specified period. The calendar view is opened by using the menu option **Tools** → **Calendar view** .The tasks are displayed by a box from the start to the end date, colour coded by user. Hovering the mouse over any task displays a tooltip with detailed information about the task.

Double clicking a day cell, opens a window displaying the ongoing tasks for that day. The **Print** button opens a **Print** window that allows the user to print the calendar. The **Export as iCal file** button allows the user to export the displayed events as icalendar files (see [Integration with iCal and Outlook](#)).

Chapter 11. Generating reports and charts

11.1. The Report designer

The Report designer allows the user to create sophisticated reports with images, plots, text and formatted tables. To open the Report designer, select the menu option **Reports** → **Create a report** . The Report designer window opens up.



11.2. The Report properties dialog

In the [Report designer](#), select the menu option **Report** → **Properties** . The properties dialog comes up. In this dialog you can customize several features of the report. The figure below shows some customiz-

ations.

Report name : My Sample Report

Paper

LETTER Portrait

Layout

☐ Coverpage ☒ Header ☒ Footer

Title : This is a custom title

Author : Custom Author

Note1 : My first note

Note2 : My second note

Page number display

Location : Bottom Center Style : None

SansSerif 10

OK Cancel

11.3. Adding tables

11.3.1. A simple one-table report

The steps to create a simple report containing a table are described in the [quick start](#) section. the following sections will build on this to create more polished reports.

11.3.2. Table properties toolbar

In the [Report designer](#) , when a table is selected by clicking on it, the toolbar in changes to show the table properties that can be adjusted.



11.3.2.1. Data

Clicking on the **Data** button in the [Table properties toolbar](#) brings up a data editing dialog. Some parts of this dialog vary depending on the [type of table](#), but some are common to most tables. We describe the common parts here. The dialog is divided into three parts, **Load**, **Save** and **Configure**. Load and Save is functionality related to saving and restoring of templates and is described [in this section](#). The Configure section has tabs such as the ones shown below.

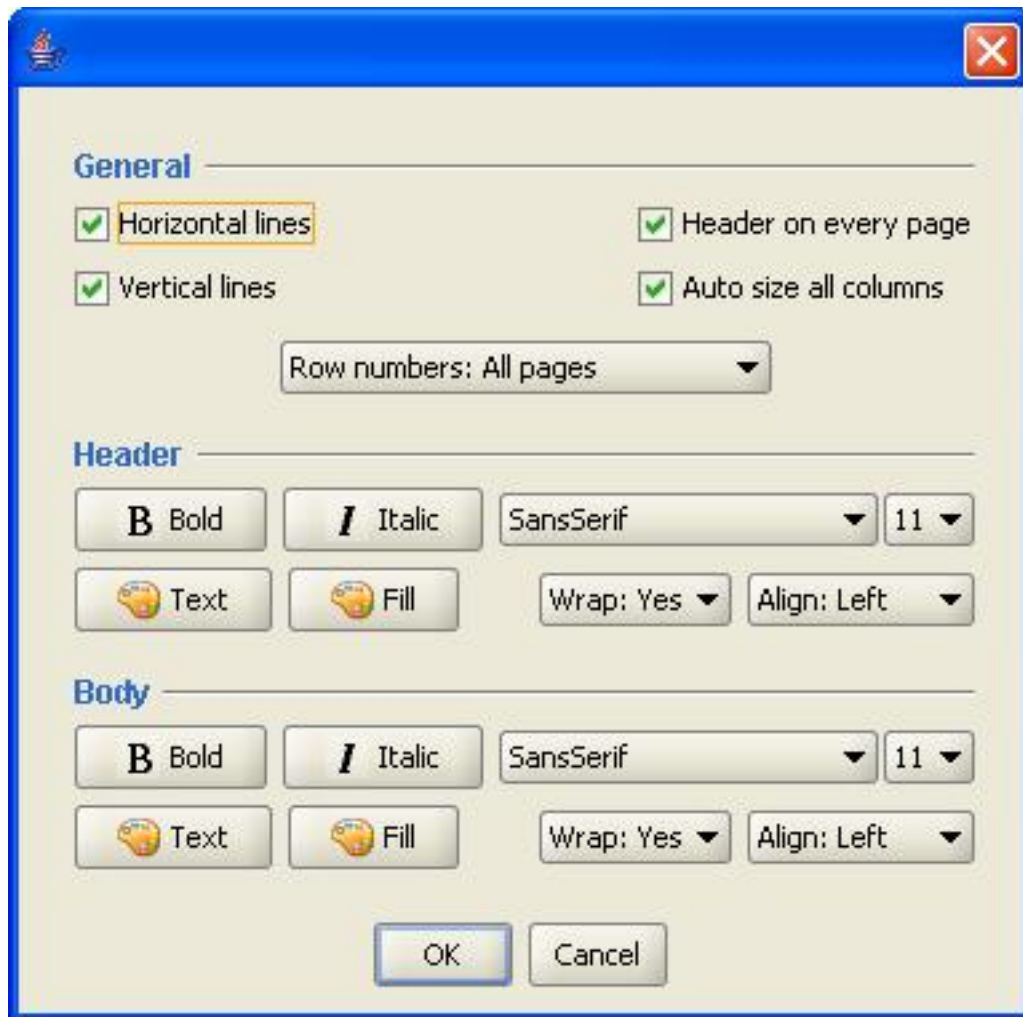


The **Layout** tab is common to most tables and presents controls identical to the ones discussed in the [layout section](#). The other tabs are specific to the type of table and are discussed in more detail in the section on [table types](#).

11.3.2.2. Layout

Clicking the **Layout** button in the [Table properties toolbar](#) brings up the Table layout properties dialog. From this dialog one can customize the font, background, alignment and wrapping behaviour of header and body cells. Select the desired options and click the **OK** button to apply the modifications to the table. Most options are self-explanatory; we explain the ones that are not obvious.

- **Header on every page** - this option determines whether the header is printed on each page of the table when the table is [paginated](#). If not selected, the behaviour is to print the header only above the first row of the table.
- **Auto size all columns** - if this option is selected, then the table will try to size each column so that the contents of all rows in the column fit in one line.
- **Row numbers** - this option has three choices **none**, **All pages**, and **Before first column**. The option controls whether and where a row number column is printed when the table is [paginated](#). If All pages is selected, then the row number is printed along with each piece of the table. If Before first column is selected, then it is only printed to the left of the first column.



11.3.2.3. Export

Clicking the **Export** button in the [Table properties toolbar](#) brings up the table in a separate window. Parts of the table may be selected in this window and copied and pasted to spreadsheet applications, such as Excel or OpenOffice.

11.3.3. Resizing and autosizing table columns

Table columns may be resized by dragging their margins. To resize a table column in the [Report designer](#):

- select the table, by clicking on it
- hover the mouse over the column margin that you wish to move. The cursor changes showing the direction of the drag.
- drag the margin in the desired direction. A shadow is drawn over the column being resized, as shown.

Summary	Scheduled Start	Scheduled Finish
Planning a party	1/24/07 1:00 PM	1/26/07 5:00 PM
Decide the location	1/24/07 1:00 PM	1/25/07 5:00 PM
Decide the guest list	1/26/07 1:00 PM	1/26/07 5:00 PM
Make the invitation cards	1/25/07 1:00 PM	1/26/07 5:00 PM

To autosize a column, i.e. to make it the minimum width necessary to be able to print all rows (including the header) without wrapping:

- double click in the column that you wish to autosize. The width of the column changes appropriately.

11.3.4. Table pagination and repositioning

If a table is too big to fit on one page, it is paginated, i.e. it is split up into chunks each of which fit into a page. The chunks are placed on consecutive pages. Each chunk has its top left corner at the same position on its page as every other chunk of the same table, on their pages. Only the first chunk of a table can be repositioned, and repositioning it causes every other chunk of the table to be repositioned on their pages. Also, repositioning the table may cause more or less of the table to fit on the page, so, after repositioning, a column previously in this chunk may move to the next chunk, or vice versa.

To reposition a table on the page, in the [Report designer](#):

- click on the first chunk of the table to select it. The top and left margins turn blue, as shown.
- to move the table up and down, drag the top margin
- to move the table left and right, drag the left margin

Summary	Scheduled Start	Scheduled Finish
Planning a party	1/24/07 1:00 PM	1/26/07 5:00 PM
Decide the location	1/24/07 1:00 PM	1/25/07 5:00 PM
Decide the guest list	1/26/07 1:00 PM	1/26/07 5:00 PM
Make the invitation cards	1/25/07 1:00 PM	1/26/07 5:00 PM



Note

No content can be added to the report in between chunks of a table.

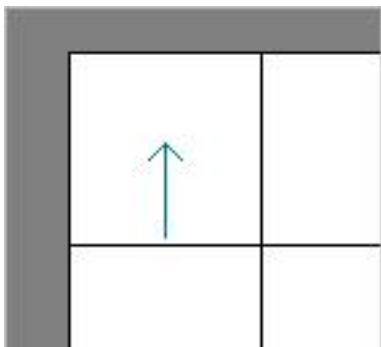
11.3.5. What data gets displayed

The data displayed in a table for those [table types](#) that depend on it, is always for the currently selected project in the [Summary view](#). Before opening the [Report designer](#), select the project that you wish to generate tables for.

11.4. Adjusting the margins

In the [Report designer](#), to adjust the margins of the page:

- drag the margin lines in any of the corners of the page. The figure below shows the drag in the top left corner.



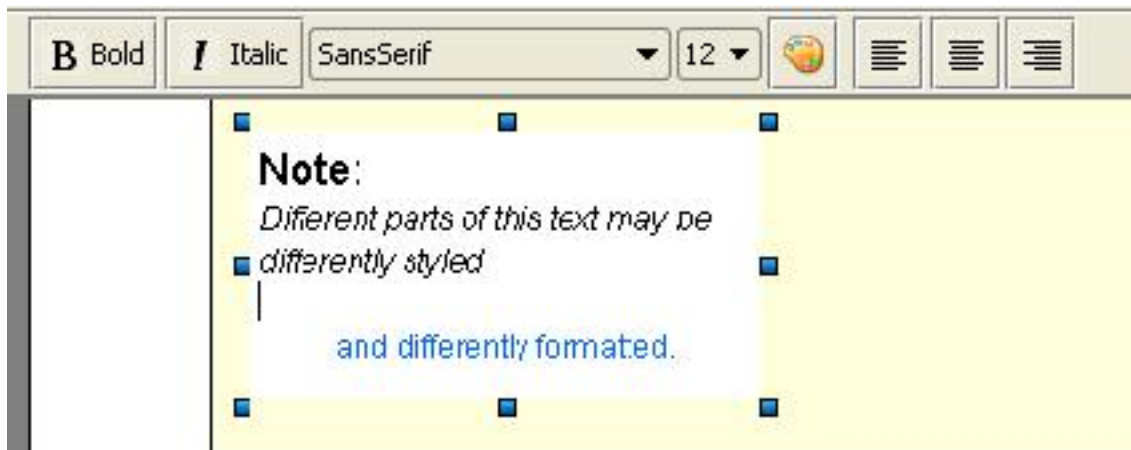
11.5. Adding text

In the [Report designer](#),

- select the menu option **File+New** → **New text**
- click the report where you want the new text box located. A text box is added, with blue tabs indicating it is selected

To change the properties of the text:

- the toolbar changes, with buttons relevant to modifying the text properties.
- select the text in the box and click the **Bold** button. The text is displayed in bold font.
- the box can be resized using the blue tabs around it. Hover your mouse over the blue tabs and the cursor changes, indicating the direction of the drag.
- to move the box, hover the mouse over the border of the box, but not over the tabs. The cursor will change, showing that a drag will move the whole box.

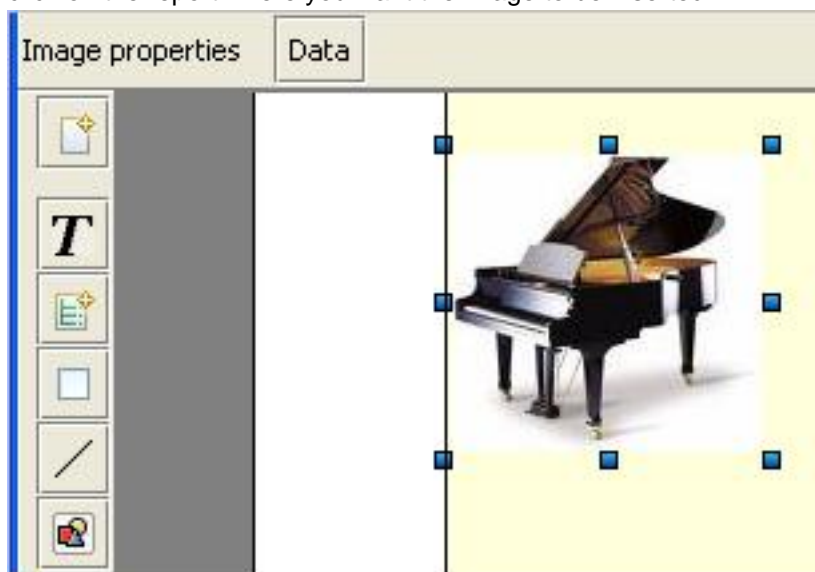


11.6. Adding images and charts

The menu option **Images** has options for adding a number of images and charts to a report. The charts are very similar to the [standalone charts](#) and we do not discuss them here. We describe the option **Images** → **Image from file**, which adds any generic image to the report.

In the [Report designer](#),

- select the menu option **Images** → **Image from file**
- a file selection dialog opens up
- select an image file. Most popular image formats are supported.
- click on the report where you want the image to be inserted



- the image is added. The image can be moved and resized in the same way as a [text box](#).
- the **Data** button in the toolbar allows you to choose a different image



Note

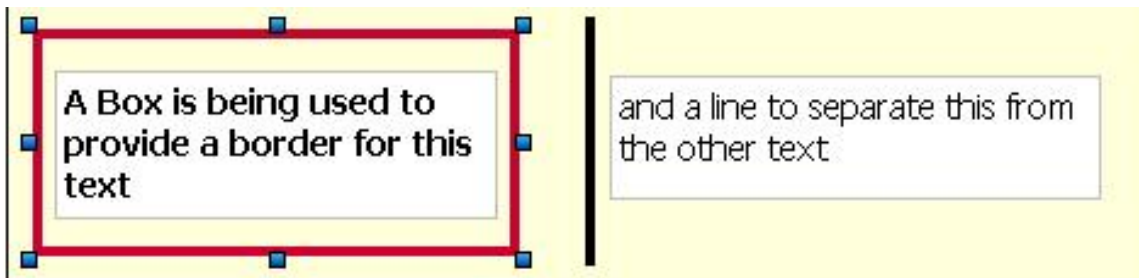
If possible the original size of the image will be preserved. If it is not possible to add the image at its original size, then it will be scaled. If the space available does not match the original aspect ratio, then the aspect ratio of the image may be changed.

11.7. Adding boxes and lines

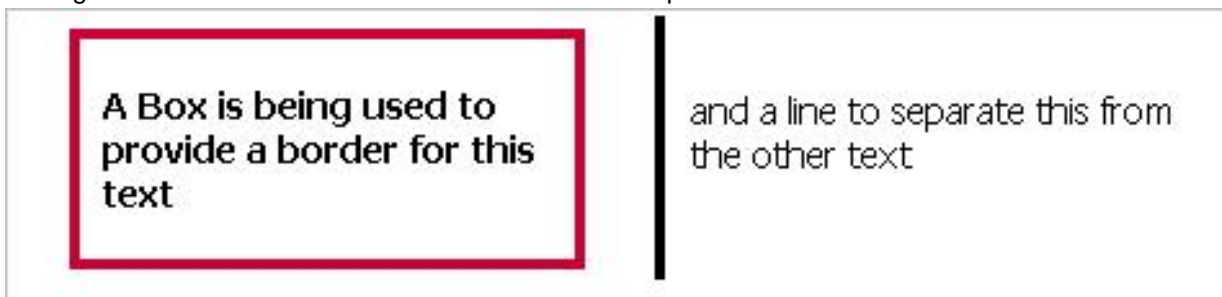
In the [Report designer](#),

- to add a box, select the menu option **File+New** → **New box**
- to add a line, select the menu option **File+New** → **New line**

Boxes and lines can be moved and resized in the same way as a [text box](#). Their width and color can be adjusted using the toolbar buttons. that appear when they are selected. The following figure shows a box and a line being used. Since normal editing highlights are present, the structure and position of the elements can be seen.



The figure below shows what this looks like in an actual printout.



11.8. Custom header and footer

Headers and footers are reproduced on every page of a report, except the cover page.

In the [Report properties dialog](#),

- select the **Header** and **Footer** checkboxes, and make other changes as desired.
- click the OK button to close the dialog

The report now shows the presence of the header and footer boxes with dashed lines, as in the figure below. Adjust the height of the header and footer by dragging the dotted lines in the margin, similar to the way [margins are changed](#). Now we can add some features to the header and footer.

- click the header region between the margins to select it. The color changes, indicating it is selected.
- select **File+New** → **Title box** and click the header where you want the title box located. A title box with the text entered in the properties dialog appears, as shown below. The text properties can be changed as [described here](#) [65]. Note that the text cannot be modified, but its appearance can.
- add a logo, if you wish. The procedure is similar to [adding an image](#).
- you can add other elements, for example, [author](#), [date](#), [notes](#), [text](#), [boxes and lines](#).
- below is an example of a custom header.



11.9. Saving and using a template

Once the layout of a report has been done, it can be saved as a template. In future, to generate another report with the same layout, one can simply load the saved template and one has the same layout as before. Templates can be stored in two ways, to a file, or as a named private or shared template in the system.



Note

When restoring a report, remember that the data displayed in any tables or charts that [depend on the currently selected project](#) will be determined by the projects that are selected in the main view at the time that the template is restored. For instance, if you select project A, add a table, then select project B and add another table, the two tables in your report display data about two separate projects. If this report is now saved as a template, and later restored, both tables will display data about the the same project, namely, the project that was selected at the time the template was restored.

11.9.1. Saving to a file

To save the current layout of the report as a template

- select **File** → **Save template**. A file selection dialog opens where you can select the file to save as.

All the elements of the report are saved in the template, including all tables, charts and images, and any customization of their appearance that has been done.

To restore a saved report layout

- select **File** → **Open template**. A file selection dialog opens where you can select a previously saved template file to restore.

11.9.2. Saving as private or shared

For many reports and charts in the system, the following appears as part of the [data dialog](#). We discuss the common functionality here. These elements provide the functionality of saving the current data and layout configurations as a template in the system. A private template is visible only to the creator, whereas a shared template is visible to everyone.

To load a previously saved template:

- click on either the **Private** or **Shared** radio button. the corresponding drop-down list becomes enabled.
- select the desired template from the drop-down list. The current configuration becomes a replica of the saved template.

To save the current configuration:

- type in a name into the **Name** textbox. The **Save as private** and **Save as shared** buttons become enabled.
- the next time this dialog is opened, the saved name will be available for loading from the **Private** or **Shared** drop-down lists.

Selecting a template from the **Predefined** drop-down list will cause the current configuration to become a replica of the predefined template.

The screenshot shows a dialog box with a blue title bar and a close button in the top right. It is divided into two main sections: 'Load' and 'Save'.
 In the 'Load' section, there are three radio buttons: 'Custom' (which is selected and highlighted with a yellow box), 'Private', and 'Shared'. Each radio button is followed by a drop-down menu. Below these is a 'Predefined' label followed by a drop-down menu showing 'Current week's activities'.
 In the 'Save' section, there is a 'Name' text box. To the right of the text box are three buttons: 'Save as private', 'Save as shared', and 'Edit'.

11.10. Report preferences

The menu option **Edit** → **Preferences** brings up the preferences dialog. The preference dialog allows the setting of default values for a multitude of properties. For example, if you set your default paper size to be A4, then in future, when you open a new report, the paper size is automatically set to be A4. The figure below shows the categories of the parameters available.



11.11. Title, author, date and notes

The option **File** → **New** includes options for adding predefined textboxes to the report. These are the **Title**, **Author**, **Date** and **Notes** boxes. The text for these boxes can be set in the [Report properties dialog](#). The text in these predefined boxes is not editable directly in the report. When used with [report templates](#), these textboxes provide a convenient way to reproduce consistent reports.

11.12. Table types in reports

11.12.1. Project report table

The Project report table is a customizable report presenting projects in rows and their attributes in columns.

Selecting the menu option **Tables** → **Project report table** brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are [discussed here](#). The **Configure** portion has three tabs, **Fields**, **Filters** and **Layout**. The **Layout** tab is [discussed here](#).

The Fields tab has two lists, **All Fields** and **Visible Fields**. The **All Fields** column displays all the fields that the current user can use to create a report. The **Visible Fields** column displays the columns that the report will contain. To include a column in the report:

- select a field in the **All Fields** list by clicking on it and click the right-arrow button in the center panel.
- the field name is added to the **Visible Fields** list
- to change the column order in the report, click the column name in the **Visible Fields** list and click the up-arrow or down-arrow buttons to move the selected column up or down in the list.

The other controls on the Fields tab are described below:

- **Include parents in summary**: The name of the parent project of each task in the table will get prefixed to task name.

- **Show totals:** The totals of number fields will get displayed at the end of the table.
- **Order by:** Displays the list of fields one can choose to sort the report on.

The Filters tab provides a list of filters one can use in a manner similar to [filtering in the view](#).

11.12.2. Task list table

The Task list table presents tasks in the specified time period in rows and their assigned resources.

The menu option **Tables** → **Task lists** brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).

The **Data** tab shows a resource selection dialog. To select a set of users for the report:

- click to select the checkboxes against the desired names
- if there are many names, one can filter the list by typing in the first few letters of the user ID into the **Name** textbox. The list then shows only the resources matching the typed letters. Similarly, one can filter the list by [Location](#), [Department](#) and user type.
- select the desired **Starting date** and **End date**. Or select a predefined time window from the **Select period** drop-down list.
- click the **OK** button to create the table.

11.12.3. Project time tracking report

The Project Time tracking table shows resources and the time they have tracked against tasks, forming a basis for issuing billing reports to customers.

The menu option **Tables** → **Project time tracking report** brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).

The **Data** tab shows some further tabs, **Fields**, **Filters**, **Order** and **Subtotals**. To configure the report:

- enter the desired dates in the **Start date** and the **End date fields**. **These determine the period for which the data is calculated.**
- in the **Fields** tab, to select the columns displayed in the report
 - select a field in the **All Fields** list by clicking on it and click the right-arrow button in the center panel.
 - the field name is added to the **Visible Fields** list
 - to change the column order in the report, click the column name in the **Visible Fields** list and click the up-arrow or down-arrow buttons to move the selected column up or down in the list.
- in the Filters tab, you can choose which times are reported

- **Billable and non-billable:** When selected, the report will display tracked time regardless of whether a [billing code](#) has been entered for it.
- **Only billable:** When selected, the report will display only tracked time for which billing codes have been entered.
- **Only non-billable:** When selected, the report will display only time for which billing codes have not been entered
- the **Exclude billing codes** list omits the checked billing codes from the report. If you have not defined any billing code, this list will be empty.
- the **Exclude users** list omits the checked users from the report.
- in the **Order** tab, you can choose fields to order the report by.
- in the **Subtotals** tab you can select which columns you want subtotals for.

11.12.4. Project resource usage profile

Project resource usage profiles show projects in rows, and users in columns and each entry in the table shows how much effort is being expended by each user on each project.

The menu option **Reports** → **Project resource usage profile** brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).

The **Data** tab allows the choice of units for the reported time.



Note

This report prints one line for each project selected, which includes the figures for all its subprojects. If you wish to get figures for a number of projects, select them all in the [Summary view](#) and then create the table. For example if project A has subprojects B, C and D, and you wish to get separate figures for B, C and D, then select B, C and D without selecting A. If A is selected, none of B, C or D will appear in the report.

11.12.5. Time resource usage profile

Time resource usage profiles show the work planned for resources over a given period of time for the selected projects.

The menu option **Reports** → **Time resource usage profile** brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).

The **Data** tab shows a resource selection dialog. To select a set of users for the report:

- click to select the checkboxes against the desired names
- if there are many names, one can filter the list by typing in the first few letters of the user ID into the **Name** textbox. The list then shows only the resources matching the typed letters. Similarly, one can

filter the list by [Location](#), [Department](#) and user type.

- select the frequency of the columns using the **Select frequency** drop-down list.
- select the units for time period display using the **Display** drop-down list
- select the desired **Starting date** and **End date**.
- click the **OK** button to create the table.

11.13. Standalone charts and plots

The system provides a rich set of customizable plots that can provide invaluable insight into the progress of a project. For example, one can plot the deviation of a project's progress from the schedule as time progresses. Another example is a plot of planned effort over time, which will clearly identify any changes in resource needs.

11.13.1. Quantity versus time plots

In the main application window, the menu option **Reports** → **Create a Graph/Plot** creates a customizable plot of quantities against time. To create such a plot:

- select the desired project in the [Summary view](#)
- select the menu option **Reports** → **Create a Graph/Plot** . This brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are very similar to the corresponding dialogs for tables, [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).
- in the **Data** tab, click the **Add** button. A list of all the columns with numerical values is shown. Select the desired columns and click the OK button to close the list. The selected columns are added to the **Data** tab.
- select the desired option in the remaining three columns of the table:
 - **Accrual method**: this determines exactly when and how the value is added to the plot. **Accrue over task period**: The value is contributed linearly over the duration of the task. \item **Accrue at start of task**: The entire value is contributed when the task starts. \item **Accrue at end of task**: The entire value is contributed when the task ends.
 - **Cumulative**: the value contributed by each task under consideration adds into the overall value being plotted, i.e. the plot only increases with time. As an example, if plotting total cost against time, then it makes sense to use this setting, because the cost expended for earlier projects does not vanish when considering the total cost during the execution of a later project
 - **Use % complete**: the total value contributed is prorated by the percent complete value of the project. This is useful if you wish to get a view of the situation as it stands today.
- click the **OK** button to bring up the plot.

The user may plot any project attribute that has a numerical value (this includes time periods) against time, including [custom defined columns](#). The plot is generated from the data of all the subprojects of the selected project. Each attribute selected contributes the appropriate value to the plot in the time frame

when the corresponding subproject is being executed. Exactly when and how the value is contributed is determined by the **Accrual method**.

11.13.2. Project histogram

In the main application window, the menu option **Reports** → **Project histogram** creates a customizable histogram:

- select the desired project in the [Summary view](#)
- select the menu option **Reports** → **Create a Graph/Plot** . This brings up a configuration dialog. This dialog has three parts - **Load**, **Save** and **Configure**. The **Load** and **Save** portions are very similar to the corresponding dialogs for tables, [discussed here](#). The **Configure** portion has two tabs, **Data** and **Layout**. The **Layout** tab is [discussed here](#).
- in the **Data** tab, check off the items you wish to include, and set the number of bins you want in the histogram.
- click the **OK** button to create the histogram.

11.13.3. Project pie chart

In the main application window, the menu option **Reports** → **Project pie chart** creates a customizable pie chart.

- select the desired project in the [Summary view](#)
- select the menu option **Reports** → **Create a Graph/Plot** . This brings up a configuration dialog.



Choosing different options in the drop-down lists creates different pie charts. We describe a few here.

- **Resources, Effort, Planned, Group:None** - shows which resources will devote how much time to the selected project.
- **Resources, Effort, Planned, Group:Department** - shows which resources will devote how much time to the selected project.

- **Resources, Utilization** - shows the number of resources that will be used at different levels of utilization for this project. Utilization is calculated as the percentage of the resource's time that is spent on this project, over the duration of the project.
- **Materials, Utilization, Planned** - shows the numerical quantity of the different materials that will be used in this project. For different materials with differing units, this may not make much sense. A better option would be **Materials, Cost, Planned**, which would compare the cost of all the materials used in the project.

11.13.4. The layout dialog for plots

Plots and histograms have a common layout dialog which is described here. The dialog is simple, and allows the user to customize various aspects of the plot. The figure below shows the available options.

The screenshot shows a 'Configure' dialog box with a 'Layout' tab selected. The dialog is divided into several sections for customizing the plot layout:

- Title**: A text input field containing 'Title', a font style dropdown set to 'SansSerif', a font size dropdown set to '16', and buttons for 'B Bold' and 'I Italic'. A color picker icon is also present.
- X-Axis**: A text input field containing 'X-Axis', a font style dropdown set to 'SansSerif', a font size dropdown set to '10', and buttons for 'B Bold' and 'I Italic'. A color picker icon is also present.
- Y-Axis**: A text input field containing 'Y-Axis', a font style dropdown set to 'SansSerif', a font size dropdown set to '10', and buttons for 'B Bold' and 'I Italic'. A color picker icon is also present.
- Legend position**: A dropdown menu set to 'Left'.
- Background color**: A color picker icon.

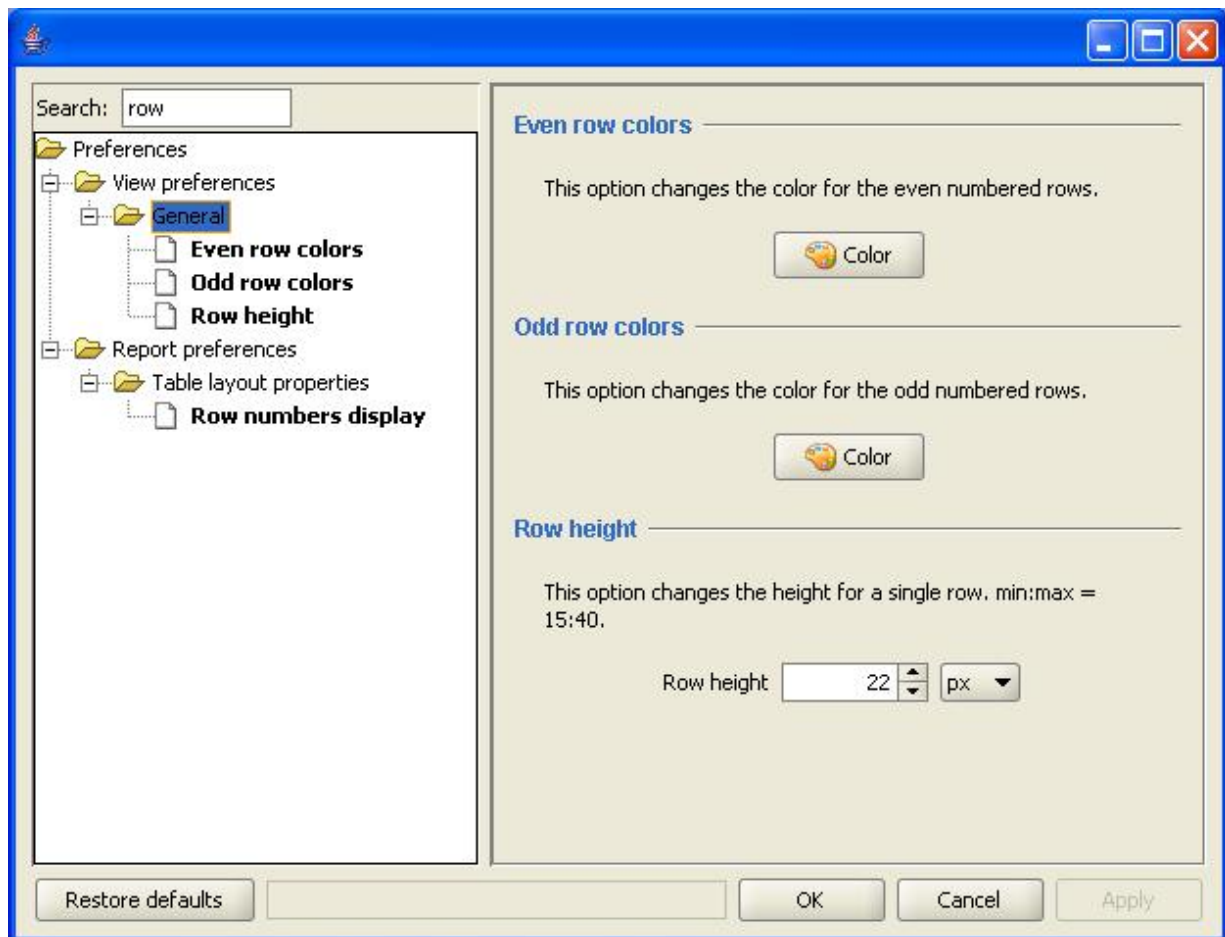
Chapter 12. Customizing the views

12.1. Preferences

The user preferences are available in **Edit** → **Edit preferences** and also under **Preferences** → **Edit preferences**. The preferences dialog shown below comes up. To change an option, select it in the tree on the left. The panel on the right changes, bringing up controls that allow the user to make the change. After making changes, click on **OK** or **Apply** to save the changes.

The **Search** box on the upper left helps to quickly find a particular preference. As the user types in letters, the tree is reduced so that only the items matching the typed letters remain, as shown in the figure.

The **Restore Defaults** button on the lower left resets all the values to their defaults.



12.1.1. Displaying in hours or days

The default display mode for time periods is in hours. Other possible modes are **8-hour days** and **24-hour days**. The value 48 hours will show up as **6 days** if 8-hour days is selected and as **2 days** if 24 hour days is selected. To change the general visual display of time periods:

- in the [preferences dialog](#), in the tree, expand the **Time/Date display** item and select the **Hours/Days display** item
- in the right hand side panel, select your mode.

Note that this will change the setting in all columns, tooltips and reports. You can override this setting for a specific column as described [here](#).

12.1.2. Changing the date display format

The default format for dates is chosen based on your locale. To change this format:

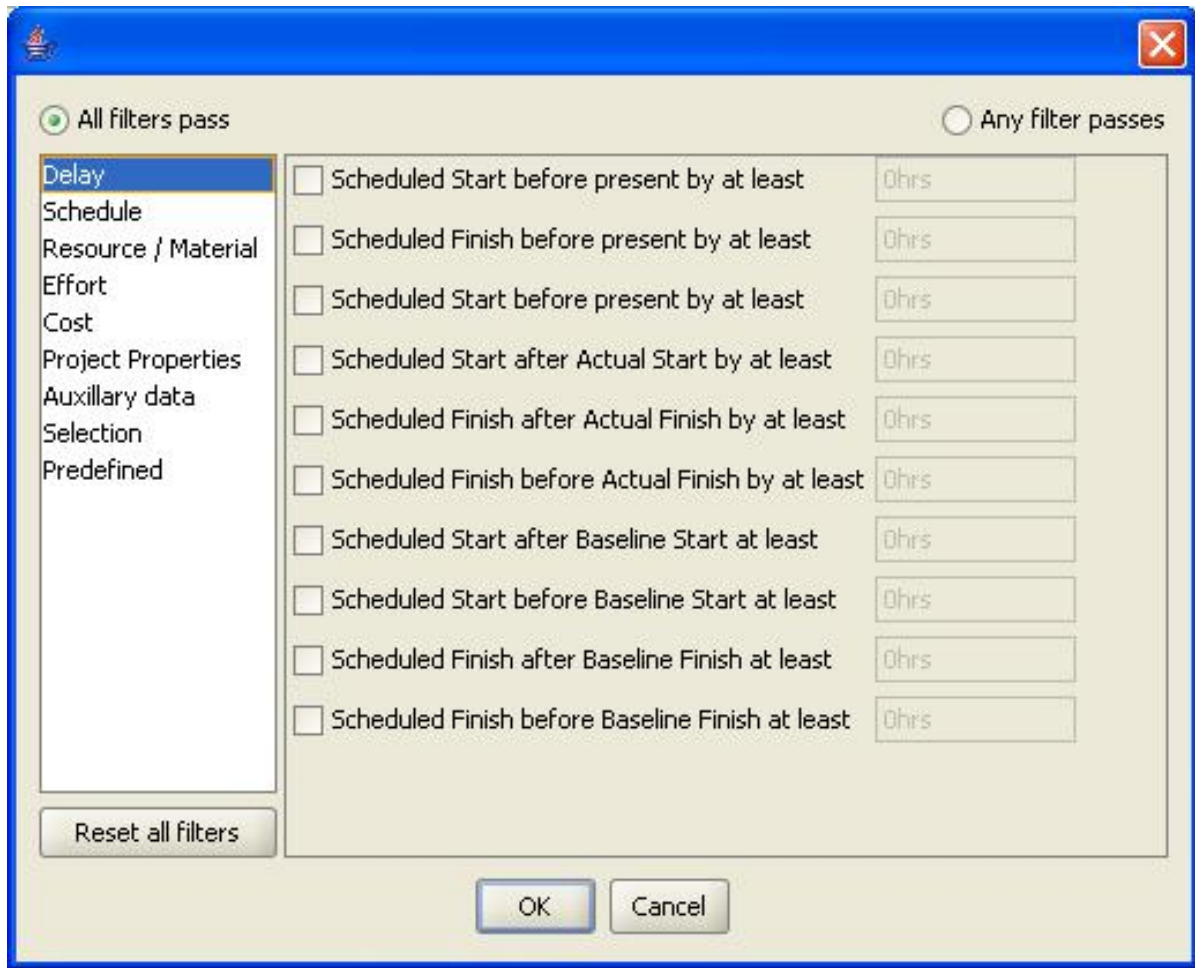
- in the [preferences dialog](#), in the tree, expand **View preferences**, and **General**, and select **Date format**.
- in the right hand panel, select your format.

Note that this will change the setting in all columns, tooltips and reports. You can override this setting for a specific column as described [here](#). You can also create custom date formats using this option. Date input will be based on the format chosen here.

12.2. Filtering in the Summary view

If the number of projects in the system is large, it is sometimes useful to be able to filter the view so that only projects satisfying some criteria are visible. The system has an extensive set of filters that the user can use. To filter the view:

- click on the **Filter** button at the bottom of the [Summary view](#)
- the filter dialog shown below comes up. The filters are grouped by category in the list on the left.



- click on a category. The available filters appear in the panel on the right.
- to activate a filter, select the check box to its left.
- the **All filters pass** and **Any filter passes** buttons determine whether the filters are applied in an "and" fashion or in an "or" fashion.
- the **Reset all filters** button clears all user settings in the dialog.
- click the OK button to save your choices
- the view will now only show projects that match the filters that have been set.

An active filter is indicated by the different color of the **Filter** button. To cancel filtering, click the **Reset** button next to the filter button in the Summary view.

12.3. Adjusting the Gantt chart

Hover your mouse over the header of the Gantt chart. This brings up an icon with a plus symbol. Click on the plus symbol. A popup appears with controls using which you can choose the upper and lower scales for the Gantt chart, as well as the level of zoom for the horizontal width.

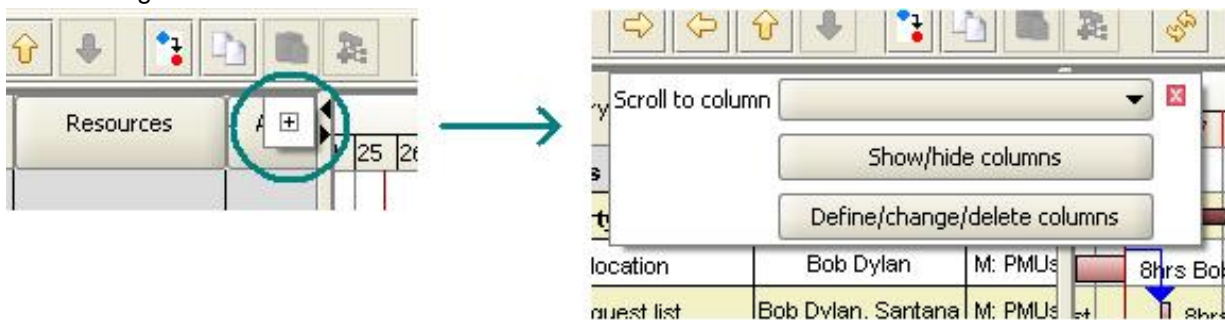
12.4. Re-arranging Columns in the Attribute table view

To rearrange the columns in the [Attribute table](#) view, simply drag the column header to where you would like it to be positioned. Release it there and you have re-arranged the order in which the columns are displayed. None of the data changes in this re-arrangement of the columns.

12.5. The Attribute table header popup

Hover your mouse over the header of any column of the Attribute table. This brings up an icon with a plus symbol.

Clicking on the plus symbol brings up the Attribute header popup, as shown below. This popup allows one to navigate to a column and to customize the view.



12.6. Scrolling to a column

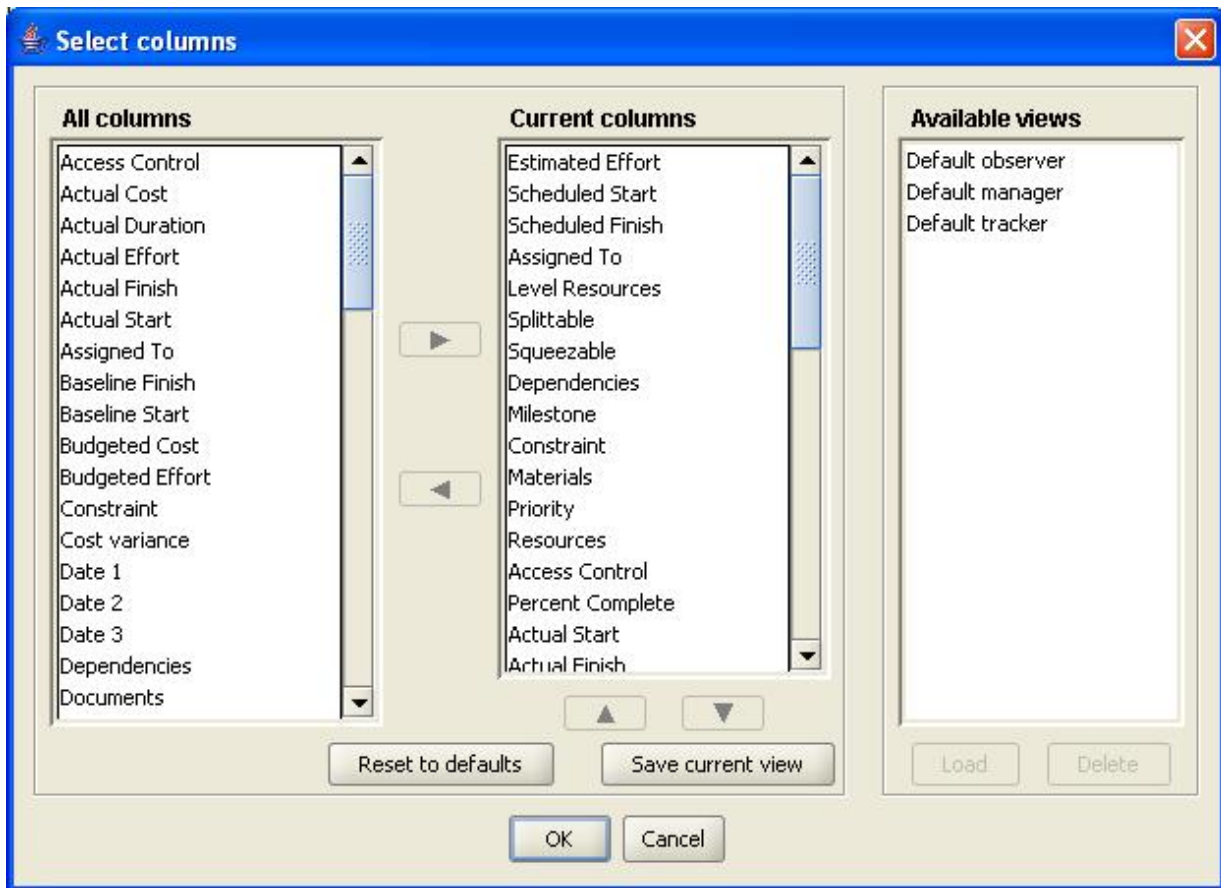
See [navigating](#) for how to bring up the popup menu of functions for the **Project Attributes** view.

Clicking on the **Scroll to column** drop box drops down a list of columns and on selecting a column, the project attribute view scrolls to that column. This is often a useful way of navigating through the many columns.

12.7. Customizing the columns displayed

To select the columns to be displayed in the [Attribute table](#) view :

In the [Attribute table popup](#), click on the **Show/hide columns** button. This brings up the **Select columns** dialog.



The **All columns** list shows all the columns the user has access to and the **Current columns** list shows the displayed columns. Here you can move columns from one to the other using the arrow buttons. You may also alter the order in which the columns are displayed.

The right hand side of the view (**Available views**) shows predefined and user saved column views. To save the current view click on the **Save current view** button. To load an existing view, select it and click the **Load** button. This causes the columns in the **Current columns** list to be replaced by the ones saved in the selected view.

12.8. Defining new columns

The application allows a user to define his own formula driven columns giving him the power to perform some spreadsheet like analysis or planning and also enabling him to create a variety of reports based on the columns created by him.

To define a new column to be displayed in the [Attribute table](#) view :

In the [Attribute table popup](#), click on the **Define/change/delete columns** button. The **Define column** window appears where the existing columns and their corresponding *variable names* are listed on the left. These variable names are used in the [formulas](#) that specify a column's value, as explained below.

To define a new column:

- click the **New column** button on the right hand side. A new column with default parameters is created and added to the list on the left. This column's parameters are also displayed in the panel on the

right. Now you may change the name, description, formula etc.

- follow the [instructions here](#) [81] to make changes.
- click the **Save changes** button. The changes to be saved to the local table.
- click the **OK** button. The dialog closes and the changes are incorporated into the view.

Variable	Column name
c0v	Access Control
c1v	Actual Cost
c2v	Actual Duration
c3v	Actual Effort
c4v	Actual Finish
c5v	Actual Start
c6v	Assigned To
c7v	Baseline Finish
c8v	Baseline Start
c9v	Budgeted Cost
c10v	Budgeted Effort
c11v	Constraint
c12v	Cost variance
c13v	Date 1
c14v	Date 2
c15v	Date 3
c16v	Dependencies

Predefined formula: Project duration

Column name: Estimated Effort

Description: Estimated Effort

Formula:

Output type: Time period

Date format: 4/1/07

Time period format: Default

Buttons: Delete, Find circular dependencies, Save changes, OK, Cancel

Setting a formula: The formula defines what is to be displayed in the new column. In the formula, to refer to the a column in the **Column name** list on the left, use the corresponding entry in the **Variable** list . We give some examples below.

In the examples we assume that the variable name corresponding to **Estimated Effort** is **c29v** , to **Budgeted Effort** is **c10v**

The following formula defines a column which shows the difference between budgeted and estimated effort.

- $c1v - c0v$

The following formula defines a column which displays **Over budget** for those rows where the estimated effort exceeds the budgeted effort.

- `if((c10v - c29v) < 0), "Over budget", "")`

As a convenience, clicking on a variable name in the **Variable** list causes that variable name to be inserted into the **Formula** textfield. The formulas that can be used are described in section [Formulas](#).

For each column defined you can also specify the output type. For output types **Date** and **Time period**, you may further choose the display format.

12.9. Renaming or modifying existing columns

In the [Attribute table popup](#), click on the **Define/change/delete columns** button. The [Define column window](#) appears.

To rename any column:

- click on the desired entry in the **Column name** list. The details of the column get displayed on the right.
- enter the new name into the **Name** textfield.
- click the **Save changes** button to save your change
- click the **OK** button to close the dialog.

To make other modifications, make the desired changes before clicking the **Save changes** button.

Modifying predefined columns: Certain columns are predefined in the system. These are displayed in red. For these columns the only things that can be customized are the name and the display format, where appropriate.

12.10. Sorting columns

Any column in the [Attribute table](#) can be sorted by the values in the column. A column can be sorted by a single click on the appropriate column heading. Subsequent clicks on the same heading will alternate the sorting order between ascending and descending order. To cancel sorting, click on the **Summary** heading.

12.11. Key bindings

Table 12.1. Special Summary view key bindings

Action	Key
While editing summary, finish editing and add a new line below	ENTER
While editing summary, finish editing without adding a new line	TAB

Table 12.2. Summary view and Attribute table key bindings

Action	Key
Move selection up, down, left, right	UP-ARROW , DOWN-ARROW, LEFT-ARROW, RIGHT-ARROW
Edit cell	F2
Finish edit	TAB
Cancel edit	ESCAPE
Toggle check box	SPACE
Show drop-down	Alt-DOWN-ARROW
Select text	Alt-A

Chapter 13. Other features

13.1. Access control

There are three levels of access that a [user](#) may have for a project, Manage , Track and Observe. The projects for which a user has a certain type of access are visible in the corresponding tab in the main window of the application.

Only a [Manager](#) can be given Manage access to a project. Similarly Managers and [Trackers](#) can be given Tracking access to a project and Managers , Trackers and [Observers](#) can be given Observe access to a project.

A user with Manage access may modify most attributes of a project, including allowing other users any level of access to the project. A user with Track access may modify tracking information only (see [tracker](#)). A user with Observe access cannot modify any attribute, but can contribute to discussions, and documents.

In general no user has any access to a project that he did not create, unless granted. The only exception is



Note

If a user is assigned to a task, then he gets tracking access to that task.

To give other users access to certain projects you have created

- double click the project's cell in the Access control column in the [Attribute table](#) view
- The dialog shown below comes up. Check off the users you wish to give access to with the appropriate access level.



Note

Remember, if a user is given access to a project that has subprojects, then he gets access to the subprojects as well.

User	Manage Access	Tracking Access	Observe Access
Bob Dylan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PMUser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OK Cancel

13.2. What-if scenarios using snapshots

Typically, project planners need to explore different scenarios for a project plan, for example, using different resources for projects, or loading resources differently. Intellisys facilitates this exploration of what-if scenarios by means of **snapshots**.

The option **File** → **Save snapshot** allows one to save the current state of the plan as a snapshot. The system prompts the user for a name for the snapshot. After saving a snapshot, one can continue to make changes to the project plan. If one wishes to go back to the saved snapshot, one can do so by selecting the option **File** → **Open saved snapshot**. The system prompts the user to select the name of a saved snapshot. When the user does so, the system reverts its state to the selected snapshot.

One can save multiple snapshots during a session. These snapshots are valid for the duration of the session. Note that on exiting the program, all snapshot information is lost.

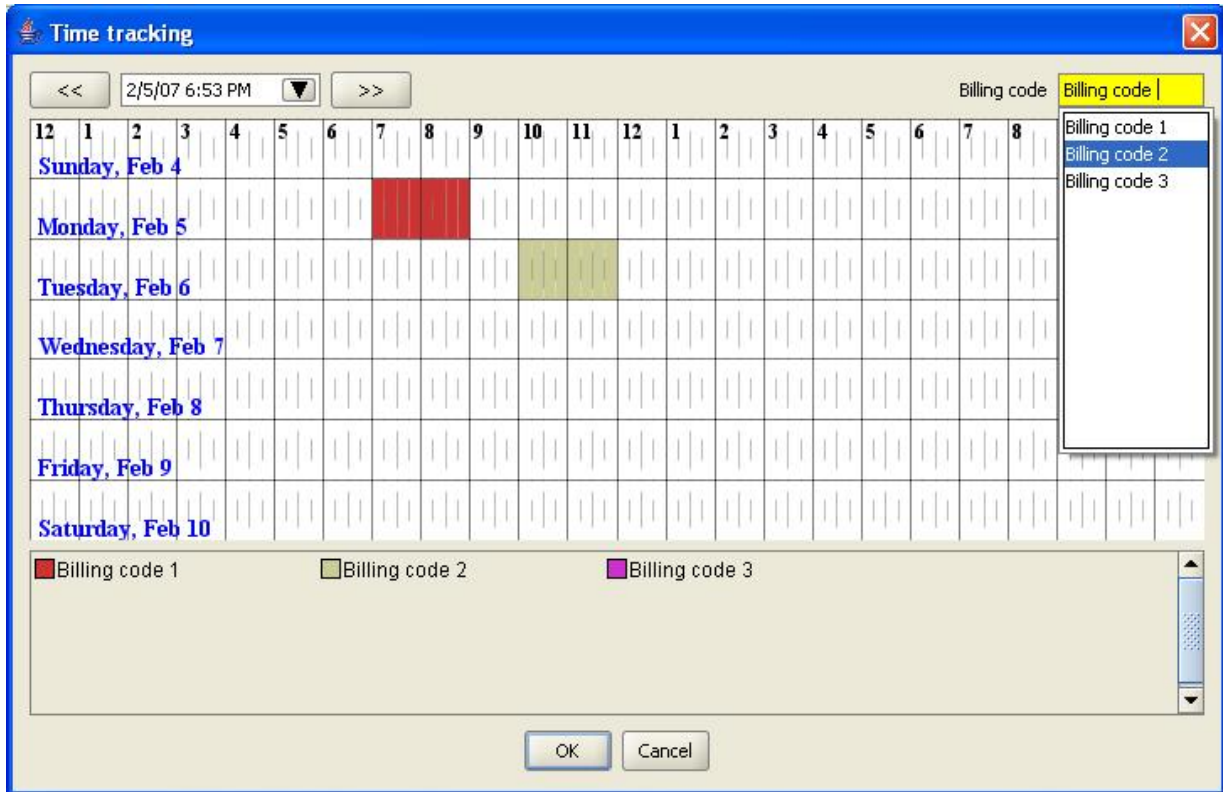
Snapshots in Enterprise The snapshot feature is available in the Enterprise only while [working offline](#). Once a user returns to online work or exits the application, all snapshots will be lost.

13.3. Time Tracking

Time tracking is a feature that allows users to track time more precisely than entering values in the [Actual start](#) and [Actual finish](#) columns. Against each task, a user may enter the precise times worked, and the billing code against which to charge for this time. This may be later used to generate billing reports for customers. To enter tracked hours, double-click in the **Time tracking** column of the task in question. The time tracking dialog below is shown:

- if you wish to track time against a particular billing code, select it in the **Billing code** box.
- to track a range of time, click on the start of the range and drag to the end.
- to unset a range of time that is already tracked, click on the start of the range and drag to the end.
- to track time in the same week against a different billing code, select the new billing code and track time again.
- different billing codes are highlighted in different colours.
- not every period tracked need have an associated billing code. If the **Billing code** box is empty when you are tracking, the time is tracked without billing codes associated.
- when you are done, click on the **OK** button. A further dialog comes up, asking if you wish to adjust the [Actual Effort](#) value.
- if you click **OK** in response to the above dialog, a further prompt comes up asking if you wish to adjust the [Percent Complete](#) value.

See also the [Time Tracking Report](#).



13.4. Messages and documents

The **Messages** and **Documents** columns in the [Attribute table view](#) of the application can be used to attach threaded discussions and files respectively, to projects. The behavior for both is quite alike. One double-clicks in the column to bring up an editing dialog, and then uses the action buttons in that dialog to add and remove messages, or documents.

The **Messages** and **Documents** columns in the hierarchical view show the number of messages and documents in the corresponding project and all its subprojects.

For Project Enterprise users, messages entered in the **Messages** column can also be sent out as emails to the users specified. This is possible as long as an email address of the user is entered at the time of [creating the user](#). Also, see [email server](#).

13.5. Earned Value Management

13.5.1. Earned Value features in Intellisys

Intellisys has features that make earned value analysis easy. There are a number of predefined columns for earned value computations:

- [EV Planned value](#)
- [EV Earned value](#)
- [EV Cost variance](#)

- [EV Cost efficiency](#)
- [EV Schedule variance](#)
- [EV Schedule efficiency](#)

There is a predefined **Earned Value Report** . See [predefined reports](#).

There is also a predefined **Earned Value Plot** . See [predefined plots](#).

A summary of the earned value analysis for the currently selected project can be viewed in **Tools** → **Earned Value Summary** . This view also displays future projections of effort and cost based on the current progress.



Note

The information displayed by the views and reports mentioned above is meaningless unless there is valid data in the system. In particular, there should be valid [cost information](#) and valid [tracking information](#).

13.5.2. Primer on Earned Value Management

The goal of earned value analysis is to compare the originally planned time and cost performance of a project to the actual performance, as a project makes progress. The progress of a project is measured by the [percentage completed](#) to date.

Three pieces of data are calculated to perform an earned value analysis. The analysis is performed over a period of time, which we will call the **reporting period** . Typically the reporting period is from the project start date to the current date.

For uniformity, and ease of comparison, all the data is measured in terms of costs, even though cost is sometimes not the most natural way of viewing the quantity.

The data required are:

- *The [estimated resource cost](#) for the work scheduled to be performed in the reporting period*

This is called the **Planned Value**. It is calculated by adding up the cost of all the time units of work that are scheduled to be performed in the period, as well as any fixed costs incurred in the period. Planned value is also called **Budgeted cost of work scheduled(BCWS)**.

- *The [estimated resource cost](#) for the progress actually made in the reporting period?*

This is called **Earned Value**. It is calculated by multiplying the total budgeted cost for the project by the percentage completed and dividing by 100. **Earned value** is also called **Budgeted cost of work performed(BCWP)**, which is a terrible misnomer, because it actually measures the progress made and not the work.

- *The [actual resource cost](#) of the work performed in the reporting period?*

This is called **Actual Cost**. It is computed by adding up the costs of all the time units of work actually performed in the period, as well as the fixed costs incurred in the period. **Actual Cost** is also called **Actual cost of work performed(ACWP)**.

By comparing these values, the following conclusions may be drawn:

- If **Earned Value** is less than **Planned Value**, the project is behind schedule, i.e. the average unit of progress is taking longer than originally estimated, and vice versa.
- If **Actual Cost** is more than **Earned Value**, then the project is overrunning its cost estimates, i.e. the average unit of progress is costing more than originally estimated, and vice versa.

These values give some information about the current status of the project, and from them, **projections** can be made about the future status. In order to make the projections we need to derive two other values:

1. **Schedule Efficiency = Earned Value/Planned Value**

This number tells us how long the average unit of progress is taking as compared to the original estimate. For instance, if the Schedule Efficiency is 0.5, we may conclude that an average unit of progress is taking twice as long as originally estimated. The Schedule Efficiency is sometimes called the **Schedule Performance Index (SPI)**.

2. **Cost Efficiency = Earned Value/Actual Cost**

This number tells us how much the average unit of progress is costing, as compared to the original estimate. For instance, if the Cost Efficiency is 0.5 we know that the average unit of progress is costing twice as much as originally estimated. The Cost Efficiency is sometimes called the **Cost Performance Index (CPI)**.

From the Schedule Efficiency value, it is easy to project the **expected duration**. For instance if the Schedule Efficiency is 0.5 and the original schedule lasted 8 months, we can expect the project to take 16 months to complete, because it is making progress at half the planned rate.

Similarly, from the Cost Efficiency value, it is possible to project the **expected cost at completion**. For instance if the Cost Efficiency is 0.5 and the originally planned cost of the project was 100000, we can expect the project to cost 200000, because each unit of progress is costing twice as much as originally estimated.

For projects that are behind schedule, one may calculate **the additional resources required in order to still finish on time**. For example if a project is 60 percent complete and its schedule efficiency is 0.75, then it has already taken 80 percent of the time allotted for it. In order to finish on time, the remaining 40 percent of the work must be finished in the remaining 20 percent of the time. In order to do this, the resources must be doubled.



Note

One should keep in mind that this is only an arithmetic calculation based on averages, and does not take dependencies and constraints between projects into account. Also it does not properly factor in materials costs.

13.6. Formulas

When **defining new columns**, the system uses formulas to specify the value to be displayed. The formula syntax used is quite common and should be familiar to most users of spreadsheets and various other programs. Here are some examples of legal formulas:

- $a+10$
- $a + (b-c)*(d/10)$
- $a > b$
- $(a < b) \ \&\& \ (a > c)$
- '6/10/02' (*a constant date*)

The constants available are:

- Numbers (*e.g.* 3.5, -2)
- Text (*e.g.* "Yes", "Overtime")
- Dates (*e.g.* '6/12/03' - *note the single quotes*)

The operators provided are:

- **Arithmetic:** + (*addition*), - (*subtraction*), * (*multiplication*), / (*division*)
- **Relational:** == (*equals*), != (*not equals*), > (*greater than*), >= (*greater than or equal*), < (*less than*), <= (*less than or equal*)
- **Logical:** ! (*negation*), && (*logical and*), || (*logical or*)

Apart from these, one can use certain [predefined functions](#) in formulas.

Data types in formulas: The system has the following data types defined: **Number**, **Date**, **Time period** and **Text**.

The result of a formula depends on the data types of the variables in the formula. Consider the formula $a + b$. If a and b are numbers, the result is a number. If a and b are text (a text value is enclosed in quotes, e.g. "This is text") then the result is the concatenation of the two values. If a is a date and b is a time period, then the result is a date. In most cases common sense will give you the correct interpretation of the result of a formula.

In some cases, the data types of the variables may render a formula nonsensical. In these cases, the result is undefined. For example, if a and b are dates, $a + b$ is undefined. Similarly if a and b are text values, $a - b$ is undefined.

13.6.1. Predefined functions

The system provides the following functions for use in formulas.

- **now()** : Returns the current date. This can be used in arithmetic formulas with other date values to give time periods.
- **defined(a)** : Returns TRUE if the argument is defined and false otherwise.
- **max(a, b, c, ...)** : Returns the maximum of its arguments. All the arguments should be of the same

type.

- **min(a, b, c, ...)** : Returns the minimum of its arguments. All the arguments should be of the same type.
- **if(COND, VAL1, VAL2)** : If COND is not a logical (or boolean) value, the result is undefined. If COND is a logical value that evaluates to TRUE, VAL1 is returned, otherwise VAL2 is returned.

13.7. Import and Export

TODO: finish this The general procedure to interact with projects from other tools is by importing and exporting files. **Note:** The problems with import and export can usually be traced back to an incompatibility with date format, or currency format. When importing please ensure that the date formats in the file you are importing match the format you have selected as the import date format.

13.7.1. Exchanging data with MS Project

Intelliys supports data exchange with MS Project via .mpp, .mpx files.

Reading a .mpp or .mpx file Use the menu option **File Import Import .mpp/.mpx file** . You may select either files with the .mpp extension or the .mpx extension. The imported projects will be installed as subprojects of the topmost project.

Writing a .mpx file Use the menu option **File Export Export .mpx file** . IntelliSys only writes out projects in .mpx format. This format can be read by MS Project. Note that only the currently selected projects are exported.

13.7.2. Saving IntelliSys Project Files

Intelliys allows you to save files that are only readable by the IntelliSys Project software. The files have a .ipf extension.

Reading a .ipf file Use the menu option **File Import Import IntelliSys Project File** . You will then be prompted to select a .ipf file for importing. The imported projects will be installed as subprojects of the topmost project.

Writing a .ipf file Use the menu option **File Export Export IntelliSys Project File** . This format can only be read by the IntelliSys Project software. Note that only the currently selected projects are exported.

13.8. Calendar integration

The [Calendar view](#) allows the currently displayed tasks to be exported as icalendar files. icalendar is a text format supported by most calendars, including iCal (on the Mac) and Outlook (on Windows). The **Export as iCal file** button will write the events currently displayed as .ics files. If a single user's tasks are displayed, the system prompts for a filename to write the data to. If multiple users' tasks are displayed, the system prompts for a directory to write to. The tasks for individual users are written into separate files in this directory. To read the files into iCal on the Mac, just double-click them. To read the files into Outlook, select the **File** → **Import** option in Outlook and then select *icalendar* or *vcalendar* file as the file type.



Note

Note that double clicking the .ics file in Windows will cause only the first event to be read.

13.9. Archiving and unarchiving projects

Once a project is [completed](#), it may be archived. An archived project is no longer visible in the view, and resource assignments in an archived project do not contribute to scheduling. An archived project may be restored, and once restored it behaves like any other project. Only projects that have no parent project may be archived. A resource that is referenced in an archived project cannot be [deleted](#).

To archive a project, select the project use the menu option **File Archive selected project**.

To unarchive a project, use the menu option **File Restore from archive**.

13.10. Concurrent editing (Enterprise)

If someone else is concurrently editing projects that you can see, it may happen that the projects in your view are out-of-date, because the other person has changed them at the server. When you make a change to your view, it may conflict with the state of the projects at the server, in a way that cannot be reconciled. In this case, the system shows a dialog indicating that a conflict has occurred and your change is discarded. In case the server changes and the client changes can be reconciled, the system does so and a status indicator appears at the bottom of the view which says that changes have been merged into your view.

13.11. Offline operation (Enterprise)

It is possible to run the Enterprise user client in **offline** mode, that is, without making a connection to the Enterprise server. There are some situations when this is advantageous, or even necessary. Sometimes, a network connection to the Enterprise server is not available, for example, when a user is in the field with a laptop. Sometimes, one may wish to work offline even when a network connection is available, in order to avoid the network delay associated with communicating with the server.

13.11.1. Server connection not available

When exiting from the Enterprise client, the user is prompted to save data for offline work. When the Enterprise client is started, if a server connection is not available, the system looks for this saved data. If such data is available, the system opens the data and allows the user to work offline. Some operations are disabled in offline mode. When the user next starts the application while connected to the network, the application will detect the offline changes and [sync](#) up with the server.

13.11.2. Switching to offline mode while online

When connected to the Enterprise server, the option **File** → **Switch to offline mode** stops the client communicating over the network, and the user may keep working in offline mode. When done, the option **File** → **Switch to online mode** will reconnect to the server and attempt to [sync](#) the changes made offline with the server, in the manner described in the previous section. This is often useful when one needs to create a large number of projects, or make a large number of changes to projects, and does not wish to incur the network delay associated with communicating each change to the server as it is made. Instead all the changes made offline are communicated to the server in one batch when one switches back to [online mode after working offline](#).

13.11.3. Synchronizing after working offline

When syncing, if projects that have been changed offline have been changed at the server by someone else while the user was offline, the user is asked whether he wishes to sync the changes made at the server with the changes made offline. **USE THIS OPTION WITH CARE**, as it means that someone else's changes may be overwritten. The system brings up the **Sync dialog**, which shows the user the project hierarchy and some status columns, which indicate whether the projects have changed at the server, at the client, or not at all. In case the project has changed at both the server and the client, the **Conflict** column cell is coloured red and the **Sync Direction** column shows an arrow, which indicates whether the client version will override the server version or vice versa. Double clicking the direction arrow changes the direction. The user may double-click on any column to bring up a more detailed dialog of the differences between the server and the client versions. Clicking the **Show results** button will bring up a preview of what the user's view will look like after the sync, given the current user choices regarding the conflicts. Clicking the **OK** button causes the sync to proceed.

13.11.4. Limitations when working offline

Deleting projects when offline is not allowed. The user will not be able to see any external tasks (those that are not in his view). This affects reports, certain views and scheduling when offline. Some project attribute columns may not be edited while offline and appear disabled in offline mode.



Note

Only the Enterprise Client application can be accessed offline and not the Admin Console.

13.11.5. Time tracking when offline

Some points are notable when tracking time in offline mode. First, prior time-tracking entries made while online are not visible in offline mode. Second, if time tracking entries are made for any day in offline mode, they overwrite the entries for that day when syncing. For example: When online, suppose a user had tracked 3 hours for the date 07/15/2004 from 8:00 am to 11:00 am for **Project A**. Later, in offline mode, he further tracks 1:00 pm to 4:00 pm for the same date. When offline he will not see the entries for 8:00 am to 11:00 am. After syncing, the time tracking entries for 07/15/2004 will be only the entries from 1:00 pm to 4:00 pm. To retain the entries from 8:00 am to 11:00 am, the user must re-enter them while online. *This situation can be avoided entirely by never making entries for the same day in both online and offline modes.*

13.11.6. Snapshot feature when offline

The [snapshot](#) feature is available in the Enterprise for users who are in offline mode. Note that on exiting the program or switching back to online mode, all saved snapshots will no longer be available.

Chapter 14. Other administrative tasks

This section describes the administrative functions performed through the [Admin console](#).

14.1. The Admin console

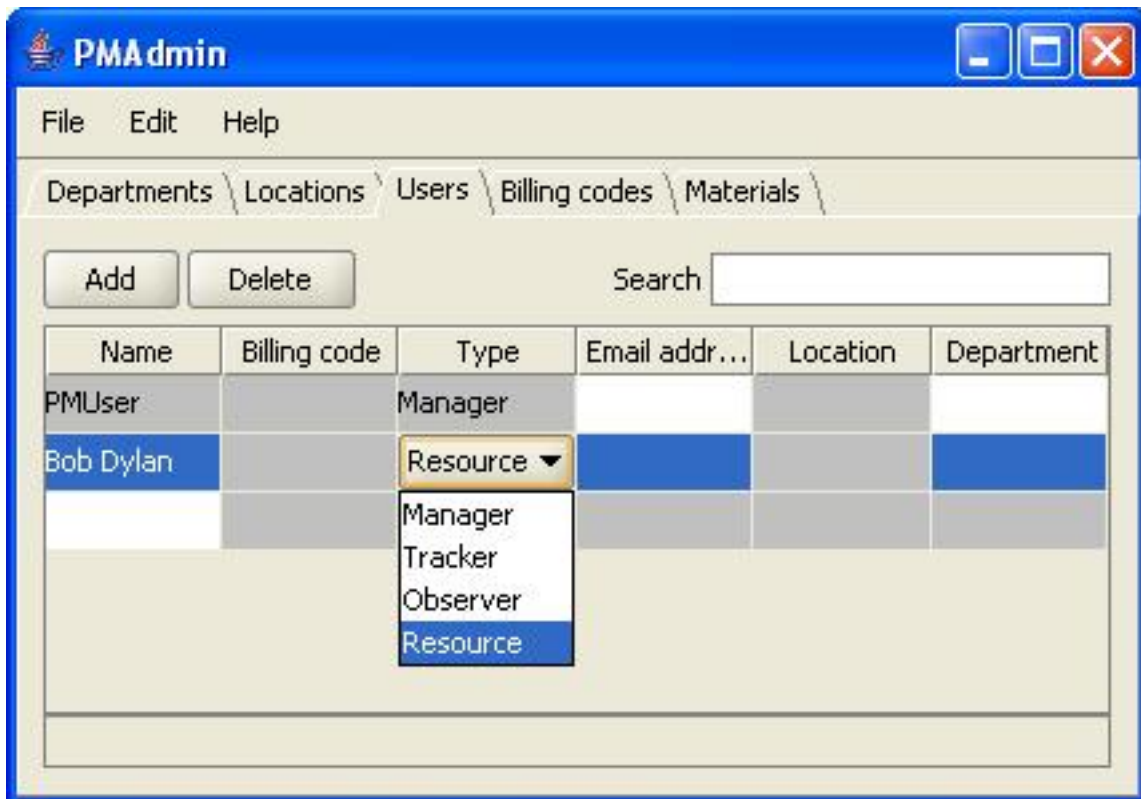
The logon ID and password of the Intellisys Project Management Administrator are created at installation time. Administering the Intellisys Project Management application is done from the [Admin console](#). All the functions described in this section are accessible from the Admin console.

In Project Desktop, to get into the Admin console, in the main menu, click on

- **File → Administrative tasks**

In Project Enterprise, from the **IPE Welcome page**, select **Administer Users** and then click on the button labelled

- **Launch Admin Console**



14.2. User administration

User administration is covered in [this section](#).

14.3. Materials, Billing codes, Departments and Locations

The Admin console has tabs for [Departments](#), [Locations](#), [Users](#), [Billing codes](#) and [Materials](#). Clicking on any tab shows the editing dialog for that class of objects. Except for Departments, all the others can be edited like a spreadsheet. The **Users** tab is discussed [here](#). We discuss the other tabs in this section.

Materials: The properties of a material are the **Name**, the **Cost/unit** and the **Units**. These may be entered into the table in the Materials tab. For example a possible material is Gasoline, with cost/unit 3.00 and units being gallons. All required materials should be entered here. Then they can be used in projects as discussed [here](#).

Billing codes: the properties of a billing code are the **Name** and the **Cost/unit** (unit in this case is always hour). Billing codes should be entered here, and can be used to evaluate project cost as discussed [here](#).

Departments and **Locations** : These are used mainly for classification purposes. Users can be assigned to a department and a location. In some reports and [plots](#) there is the option of grouping by location or by department.

14.4. Organizational time templates and holidays

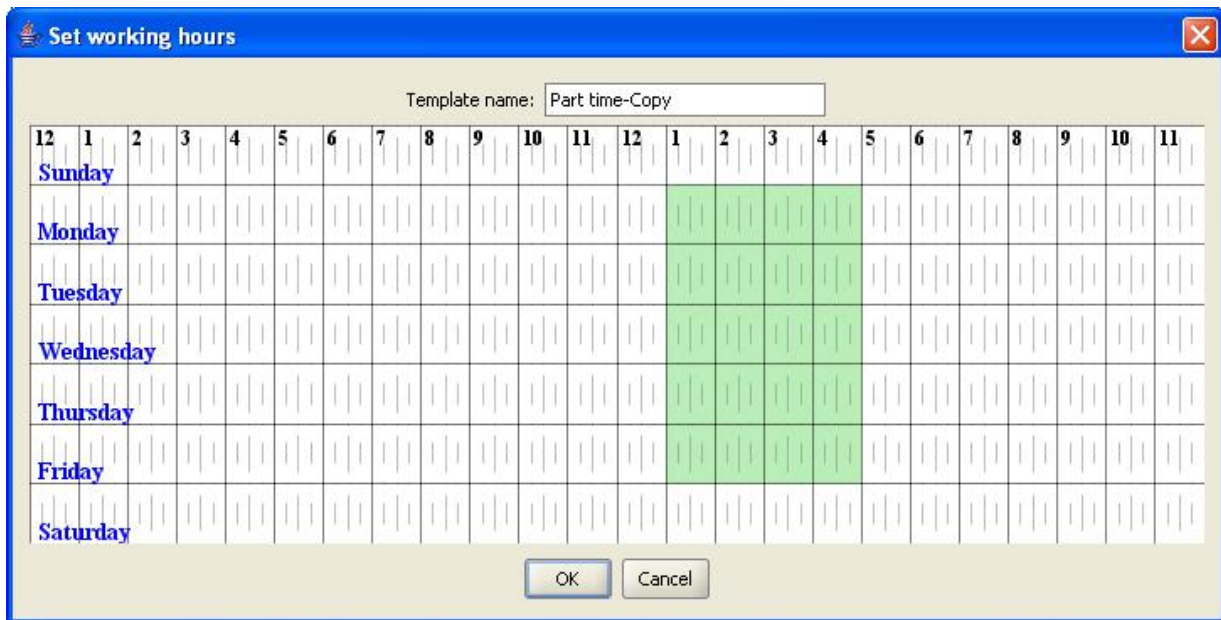
Organizational time templates are [time templates](#) that can be defined and stored in the system. These allow easy specification of a common set of working hours for multiple resources (see [Changing working hours](#)). For example a factory may choose to define a time template for each shift of workers.

To define a new organizational time template, in the [Admin console](#), select the **File** → **Organizational time templates** menu item. A dialog appears in which you can choose whether you want to define holidays, or whether you want to define a new organizational time template.



Setting holidays: To set holidays simply click on the selection button **Define holidays**. Click on the **OK** button, and a calendar will pop up. Go to the month and date you wish to mark as a holiday and double click it. Continue doing this till you have selected the holidays for the year(s) in question. Click **OK** when you are done. You now have assigned holidays to all templates that you can use to assign any resource's working hours to.

Defining a new template To define a new template simply click on the selection button **Define a new template based on existing template**, and select the template you wish to start with, from the drop-down list. On clicking the **OK** button, a 7 day week view will open up.



Green highlights indicate working hours. By clicking and dragging with the mouse in this dialog, you can set or reset ranges of time in a block to be working or non-working, as described earlier. In this manner, you can quickly set the working hours for each day of the week. To save this format under a new name for this template, simply type in the name you wish to give it in the box at the top of the screen. Click **OK** to save the template under this name.

14.5. Creating departments

In the [Admin console](#), click on the **Departments** tab. By default, Intellisys defines a root department named **Organization**, which cannot be moved or deleted. To add departments, first select the department **Organization**, then click the **Add** button to add a child to the selected department.

To delete a department, simply select the department you wish to delete, then click the **Delete** button.

A department, once created, can be moved by clicking the **Move** button and selecting the desired parent.

14.6. Upgrading your licence

In the [Admin Console](#), choose menu **File** → **Upgrade licence**.

You will see the **Upgrade licence window**, which displays the current licence information and detailed instructions.

If you already received a licence key from us, save the licence key to a file, then load the licence file by clicking the **Read licence key file** button and selecting the licence file you had saved. The licence will be automatically upgraded and your new licence information should be displayed.

14.7. Define column visibility permissions

The application provides the facility to setup or customize the columns visible to different types of users (i.e [Managers](#), [Trackers](#), [Observers](#)). For example, it may not be necessary to have cost related fields visible to observers.

This option is available in the [Admin console](#) , under menu **File** → **Define column visibility permissions** . A dialog showing a grid of the different columns against the three user types that can log in (Manager, Tracker, and Observer) appears. In this dialog you can select or unselect the checkbox of the appropriate grid entry to give or revoke view permission.

14.8. Compact DB

This option is available in the [Admin console](#) under menu **File** → **Compact DB** .

Sometimes during the course of operation, the DB can get into a somewhat inefficient state. This affects performance slightly. This option restores the DB to a clean state and will generally help performance.

Never using this option will not cause the program to malfunction.

14.9. Email server (Enterprise)

This option enables the Administrator to set up the Enterprise version to communicate with an SMTP server in order to be able to send email to the users.

The parameters required are:

- **Host** : the hostname where the SMTP server is running
- **Port** : the port on this machine that the SMTP server uses
- **Requires authentication** : Whether the server uses authentication
- **User** : The user to authenticate as (if this value is set, the enterprise will send mail as this user)
- **Password** : What password to use

Selecting the **Send test mail on completion** option, and entering an email address in the **Test mail to address** box will cause a test email to be sent to the given address. This is useful for testing whether the mail server parameters have been correctly set.

Chapter 15. Definitions (Alphabetical)

This chapter contains an alphabetical list of definitions and commonly used terms.

49. Access Control

Displays the kind of access a user has to the selected project. Editing this attribute allows a user to provide Manage, Track or Observe access to another user of the selected project.

see also: [Access control](#), [Manager](#), [Tracker](#), [Observer](#).

44. Actual Cost

The cost actually incurred by this project. It is calculated as the fixed cost plus actual resource cost plus the actual material cost.

see also: [Project actual cost](#).

43. Actual Duration

This is the time difference between the actual start and actual finish of a project. This is a derived value and cannot be edited.

42. Actual Effort

The time actually taken for this project. This is typically entered by the person that the project is assigned to.

see also: [Entering actual time spent](#), [Project actual cost](#).

41. Actual Finish

For a bottom-level project, this is the date the project actually ended. This is typically entered by the person that the project is assigned to. For a project with subprojects, this is defined to be the maximum of the actual finish dates of its subprojects. A project is considered to be completed if this value is defined. **Note:** If the Actual finish of any of the subprojects is not defined, the Actual finish of the project is also undefined.

see also: [Entering actual time spent](#), [Project actual cost](#), [Scheduled finish](#).

46. Actual Material Cost

For a bottom-level project this is calculated as the sum, over all materials actually used by the project, of the quantity of material used times the cost per unit of the material. For a project which has subprojects it is the sum of the actual material costs of the subprojects. This is a derived value and cannot be edited.

see also: [Entering materials actually used](#), [Project actual cost](#).

45. Actual Resource Cost

For a bottom-level project this is calculated as the sum, over all resources assigned to the project, of the number of actual effort hours for each resource times the cost-per-hour of the resource. For a project which has subprojects it is the sum of the actual resource costs of the subprojects. This is a derived value and cannot be edited.

see also: [Entering actual time spent](#), [Project actual cost](#).

40. Actual Start

For a bottom-level project, this is the date the project actually started. This is typically entered by the person that the project is assigned to. For a project with subprojects, this field is not editable and the date displayed is defined to be the minimum of the defined actual start dates of its subprojects.

see also: [Entering actual time spent](#), [started project](#), [Project actual cost](#), [Scheduled start](#).

73. Allocation

The allocation of a resource to a task is the percentage of the resource's time that task is expected to take. An allocation of 100% implies that the resource will work exclusively on that task for the period that he is scheduled to work on it. On the other hand, if the resource is allocated to two tasks at 50% each, then these two tasks may run concurrently. The time taken by a resource to perform a task depends on the allocation. If the resource finished a task in 4 hours at 100% allocation, it will take him 8 hours at 50% allocation.

See also: [Effort-driven](#), [Auto-calculating allocation](#), [Squeezable](#), [Resources working on multiple tasks simultaneously](#), [Changing dates, effort and allocation](#).

39. Assigned To

For a task that is assigned to a single resource, this is the name of the resource that the project is assigned to. For a task assigned to multiple resources, the field displays the names of all the resources. The value is not editable for multiple-resource tasks, projects with subprojects, or projects that have already started. This is typically assigned by the scheduler.

see also: [Single resource task assignment](#), [Changing the assignment of a whole subtree](#).

7. Attribute table view

The center table in the [main application window](#) shows the project attributes for each project. This table is called the attribute table view. The attribute table can have a column for each of the [project attributes](#). Editing of any attribute can be done by double-clicking the appropriate cell, or selecting the cell and entering **F2**.

see also: [Customizing the view](#), [Scrolling to a column](#), [Hiding and showing columns](#), [Defining new columns](#), [Sorting columns](#), [Column visibility](#).

65. String 1-3, Number 1-10, Date 1-3, Flag 1-5

These are auxiliary string, number, date and flag values. These may be used by the user to mark, or classify certain projects.

By [renaming](#) these columns, their role can be made more meaningful in the user's context.

52. Baseline Finish

At any time, the current schedule of a project may be saved as a baseline. This helps in later comparisons when the schedule has changed. This field stores the end date.

see also: [Setting a baseline schedule](#).

51. Baseline Start

At any time, the current schedule of a project may be saved as a baseline. This helps in later comparisons when the schedule has changed. This field stores the start date.

see also: [Setting a baseline schedule](#).

13. Billing codes

Billing codes are a way of associating rates with codes. A billing code has a name and an associated rate (per hour). All project costing is done via billing codes. For each resource working on a project, a billing code may be selected, and the project cost is calculated by multiplying the rate of the billing code with the number of hours the resource works. Billing codes may be defined in the [Admin console](#).

see also: [Billing codes](#), [Project costing](#), [Time tracking](#).

26. Budgeted Cost

The cost budgeted for this project. Only the owner may change this value.

25. Budgeted Effort

The time budgeted for this project. Only the owner may change this value. The value is not editable for milestones.

72. Completed project

A task or project is considered to be completed if its [Percent Complete](#) value is 100.

see also: [Started project](#), [Marking a project as complete](#), [Archiving projects](#).

22. Constraint

A constraint ties a [project](#) to a specific date. There are six types of constraints, each associated with a date. When applied to a project, they force the [scheduler](#) to have the following effect:

- **Start before:** The project must start before the given date
- **Start on:** The project must start on the given date
- **Start after:** The project must start after the given date

- **Finish before:** The project must finish before the given date
- **Finish on:** The project must finish on the given date
- **Finish after:** the project must finish after the given date

see also: [Adding and removing constraints](#), [Changing the start and end dates](#), [Default scheduling policy](#), [The scheduling timeframe](#), [Freezing and unfreezing schedules](#).

53. Cost variance

The difference between Actual Cost and Estimated Cost. This is a derived value and cannot be edited.

69. Critical path

A critical path consists of that set of dependent tasks (each dependent on the preceding one) which together take the longest time to complete.

The dependency may be **explicit**, i.e. one task cannot be started before the previous is finished because of functional requirements (for instance, testing cannot start before prototype development is complete).

Alternatively, the dependency may be because of **resource limitations** (for instance, consider two tasks - painting the house, and landscaping the garden, and only one person to do the tasks).

see also: [The Critical path view](#).

11. Department

Every user may belong to a department. Departments form a hierarchy, at the root of which is the default department called **Organization**. Departments are used to classify users and to collect statistics on projects. Use of departments is optional. Departments may be defined in the [Admin console](#).

see also: [Creating Departments](#).

10. Dependencies and Lags

A dependency is a relationship between two projects known as the predecessor and the successor. A dependency may be of the following types: **Finish-Start**, **Finish-Finish**, **Start-Start**. The type of a dependency determines which end (start or finish) of the predecessor is related to which end (start or finish) of the successor. For example, a Finish-Start dependency specifies that the start of the successor must be after the finish of the predecessor. A Finish-Finish dependency specifies that the finish of the successor must be after the finish of the predecessor. All **Dependencies** put restrictions on projects of the form - *this project must not start (or finish) until ...* The project can start (or finish) at any time after the limit specified by the dependency.

A dependency has an associated **Lag** value. A dependency indicates that when the predecessor and successor are being scheduled, the relevant event of the successor (start or finish) should not occur until *Lag* units of time after the relevant event of the predecessor. Lags may have negative values. Lag times are always measured in elapsed time, and not working time.

The simplest case, a **Finish-Start** dependency with a lag value of zero simply says that the successor should not start until the predecessor has finished. With a lag of -8 hours, the interpretation is that the

successor should not start until 8 hours before the end of the predecessor.

For example, if you wish to order a part by mail and then install the part, and the part takes two days to arrive by mail, the you can create a **Finish-Start** dependency with a lag of two days between the tasks *Order the part* and *Install the part*

Dependencies serve as a way of ensuring a relative order among projects. They cannot be used to ensure that a project starts (or finishes) before an absolute date. (Use [Constraint](#) for that purpose.)

see also: [Adding and removing dependencies](#), [Default scheduling policy](#).



Note

If dependencies between [superprojects](#) exist, then they are interpreted as all of the bottom-level [tasks](#) of one being dependent on all of the bottom-level tasks of the other.

67. Documents

One may attach arbitrary files or documents to a project. Double-clicking in this column will open a Documents window with the option of uploading a document, deleting a document or downloading a document. Uploading a document attaches the document to the particular task and downloading it displays the directory in which the document is placed for the user to access from. The Documents column in the hierarchical view shows the number of documents in the corresponding project and all of its subprojects.

55. Duration variance

The difference between the Actual Duration and the Estimated Duration. This is a derived value and cannot be edited.

54. Effort variance

The difference between Actual Effort and Estimated Effort. This is a derived value and cannot be edited.

14. Email address

A user can have an associated email address. This email address is used in Project Enterprise to send out notifications. It is not used in Project Desktop. Email addresses may be defined in the [Admin console](#).

57. End variance

The difference between the Actual Finish time and the Scheduled Finish time. This is a derived value and cannot be edited.

32. Estimated Cost

This is the sum of the fixed, material and resource costs of a project. This is a derived value and cannot be edited.

See also: [Estimated project cost](#).

28. Estimated Duration

This is the time difference between the scheduled start and scheduled finish of a project, in elapsed time, not working time. This is a derived value and cannot be edited.

27. Estimated Effort

This is the number of working hours it will take to complete the task. For a bottom level task, the value is the estimated effort the task requires, as entered by a manager of the project. For a project which has subprojects, this number is calculated to be the sum of the estimated effort of all the subprojects.

see also: [Effort-driven](#), [Auto-calculating effort](#), [single and multiple resources](#), [Project estimated cost](#), [Actual effort](#).

30. Estimated Material Cost

For a bottom-level project this is calculated as the sum, over all materials used by the project, of the quantity of material used times the cost per unit of the material. For a project which has subprojects it is the sum of the estimated material costs of the subprojects. This is a derived value and cannot be edited.

See also: [Estimated project cost](#).

31. Estimated Resource Cost

For a bottom-level project this is calculated as the sum, over all resources assigned to the project, of the number of estimated effort hours for each resource times the cost-per-hour of the resource. For a project which has subprojects it is the sum of the estimated resource costs of the subprojects. This is a derived value and cannot be edited.

See also: [Estimated project cost](#).

61. EV Cost Efficiency

The ratio of Earned Value to Actual Cost. Used in Earned Value calculations. This is a derived value and cannot be edited.

see also: [Earned value management](#).

60. EV Cost Variance

The difference between Earned Value and Actual Cost. Used in Earned Value calculations. This is a derived value and cannot be edited.

see also: [Earned value management](#).

59. EV Earned Value

The cost of a project prorated by the progress upto now. It is calculated as the product of the Percentage Complete and the Estimated Cost attribute divided by 100. This is a derived value and cannot be

edited.

see also: [Earned value management](#).

58. EV Planned Value

The cost of the work scheduled from the start of a project upto the current time. Also called BCWS (Budgeted Cost of Work Scheduled). This attribute is used in Earned Value calculations. This is a derived value and cannot be edited.

see also: [Earned value management](#).

63. EV Schedule Efficiency

The ratio of Earned Value to Planned Value. Used in Earned Value calculations. This is a derived value and cannot be edited.

see also: [Earned value management](#).

62. EV Schedule Variance

The difference between Earned Value and Planned Value. Used in Earned Value calculations. This is a derived value and cannot be edited.

see also: [Earned value management](#).

29. Fixed Cost

This is the duration independent cost of the project. For example if a project requires the purchase of some machinery, this is part of the fixed cost of that project.

see also: [Project costing](#).

8. Gantt chart

The right hand side panel in the [main application window](#) shows a visual representation of the schedule for each project. This panel is called the Gantt chart.

see also: [Adjusting the scale](#), [Creating dependencies in the Gantt chart](#), [Deleting dependencies](#).

9. Lag

see [Dependencies and Lags](#)

33. Level Resources

If this field is checked, the scheduler will take care not to exceed the maximum workload of the resource when scheduling this task. The value is not editable for projects that have already started.

see also: [Resource levelling](#), [Editing an entire subtree](#).

12. Location

Every user may have a location assigned to them. This is helpful for organizational and classification purposes. Use of locations is optional. Locations may be defined in the [Admin console](#).

17. Manager

A Manager is a type of user in the software who can add and delete projects, and modify any aspect of projects they manage.

see also: [Tracker](#), [Observer](#), [Resource](#), [Access control](#), [Creating and editing resources](#).

48. Materials

Tasks may use materials, and the quantity of the materials used is a property of the task. The task's material costs are measured by the quantity of material used by the task.

see also: [Defining materials](#), [Adding estimated material usage](#), [Entering materials actually used](#).

66. Messages

One may attach threaded discussions to a project. These may be viewed by double clicking in the messages column.

21. Milestone

Milestones are used as checkpoints in the progress of a [project](#), rather than to represent real tasks. Milestone projects are special projects that cannot have subprojects, and whose [estimated effort](#) is zero. A project can be set as a milestone project by double-clicking in the Milestone column in the [Attribute table](#) view and selecting the checkbox. Milestone tasks appear as a diamond shape on the Gantt Chart.

see also: [Moving a project hierarchy into the future](#).

64. Notes

A project may have notes associated with it. Notes can be entered by editing the **Notes** column in the [Attribute table](#).

19. Observer

An Observer is a type of user in the software who cannot add or delete projects, and can only modify [Messages](#) and [Documents](#).

see also: [Manager](#), [Tracker](#), [Resource](#), [Access control](#), [Creating and editing resources](#).

50. Owner

By default, the creator of the project is its **Owner**. The owner can change the ownership of the project.

Only the owner of a project may change the [Budgeted Cost](#) and [Budgeted Effort](#) values.

47. Percent Complete

What percent of the work has been accomplished. For a bottom-level project, this field is editable and is typically entered by the person that the project is assigned to. For a project with superprojects, the field is not editable and the number displayed is calculated from the total work and the respective amounts completed of the subprojects. A project is considered to be started if this value is more than 0. A project is considered to be completed if this value is 100.

see also: [Started project](#), [Completed project](#), [Entering percent complete for a subtree](#), [Marking projects as completed](#).

75. Predecessor

see [dependencies](#)

38. Priority

This can be any positive integer that is used by the scheduler for scheduling. A larger priority implies an earlier schedule. The value is not editable for projects with subprojects and projects that have already started. The default priority value for any project is 100.

see also: [Using priorities](#), [Default scheduling policy](#).

1. Project

A project is a [task](#) or a collection of tasks. It is represented by one line in the [Summary view](#). Projects have a hierarchical structure, in order to break down complex tasks into pieces of manageable size. A project may have a number of [subprojects](#), which, in turn, may have further subprojects. A project that has subprojects is simply a representation of the collection of its subprojects.

see also: [Working with projects](#)

16. Resource

A resource is an entity that can have a task assigned to it, and that expends time on the task. When a resource is spending time on a task it is generally unavailable for other tasks. Typically a resource is a person, but it does not have to be, for example a machine can be a resource because in the time that a machine is working on one job, it is unavailable for another job. Similarly a meeting room could also be a resource in an organization.

From the perspective of user types in the software, a resource may not log into the system, but may have tasks assigned to it.

See also: [Manager](#), [Tracker](#), [Observer](#), [Working with resources](#), [Allocating resources to tasks](#).

37. Scheduled Finish

For a bottom-level project, this is the date the project ends. This is typically calculated by the scheduler. For a project with subprojects, this is defined to be the maximum of the start dates of its subprojects. This value is not editable for projects with subprojects, or projects that have already started. **Note:** If the Scheduled Finish of any of the subprojects is not defined, the Scheduled Finish of the project is also undefined.

see also: [Changing the start or end date](#), [The scheduling timeframe](#), [Actual finish](#).

36. Scheduled Start

For a bottom-level project, this is the date the project starts. This is typically assigned by the scheduler. For a project with subprojects, this is defined to be the minimum of the start dates of its subprojects. This value is not editable for projects with subprojects, or projects that have already started. **Note:** If the Scheduled start of any of the subprojects is not defined, the Scheduled start of the project is also undefined.

see also: [Changing the start or end date](#), [The scheduling timeframe](#), [Actual start](#).

70. Scheduler

The scheduler is the internal engine in the software that calculates when each resource would work on each task. The scheduler always attempts to schedule the tasks so that all the tasks finish as soon as possible. For more information see [this section](#) .

34. Splittable

If this field is checked, the scheduler may split the work for this task into separate time periods.(see [Squeezable and Splittable tasks](#).)

35. Squeezable

If this field is checked, the scheduler may assign the resource for less than the allotted availability (see [Squeezable and Splittable tasks](#).)

56. Start variance

The difference between the Actual Start time and the Scheduled Start time.This is a derived value and cannot be edited.

71. Started project

A task or project is considered to be started if it has a valid [Actual Start](#) date, or if its [Percent Complete](#) value is more than zero.

see also: [The scheduling timeframe](#), [Changing a project plan midway through execution](#).

3. Subproject

A [project](#) that is a part of a bigger project is called a subproject.

74. Successor

see [dependencies](#)

6. Summary view

The leftmost column in the [main application window](#) shows a tree hierarchy of projects. This column is called the summary view.

see also: [Customizing the view](#), [Filtering in the summary view](#), [Finding a project by summary](#)

24. Summary

A short description of the project, that is displayed in the [Summary view](#).

see also: [Quick-Add](#) [27].

2. Superproject

A [project](#) which contains [subprojects](#) or [tasks](#) is referred to as a superproject. A superproject does not represent a specific task to be performed, it is simply a representation of the tasks in the collection of its subprojects.

4. Task

A project that has no further subprojects is called a task and represents a piece of work that has to be performed by a [resource](#).

see also: [Working with projects](#), [Working with resources](#), [Allocating resources to tasks](#)

15. Time Template

A Time Template is a pattern of working and nonworking hours for each day in a week. For example, a Time Template may set only the hours 8AM to 12PM on Monday, Wednesday and Friday to be working hours. The default time template used by the system assigns the working hours of 8AM to 5PM with a break from 12PM to 1PM, Monday through Friday.

Time templates may be defined in the [Admin console](#).

See also: [Organizational time templates](#), [Change a user's working time](#).

68. Time tracking

Displays the time tracked for the selected project. This allows the users to track time more precisely than entering values in the Actual start and Actual finish columns. One can also define different billing rates for each 15-minute tracked and create billing reports for customers. You can also use Time Tracking to track overtime hours of a resource for the selected project.

see also: [Time tracking](#).

18. Tracker

A Tracker is a type of user in the software who cannot add or delete projects, and can modify only [tracking attributes](#) of projects.

see also: [Manager](#) , [Observer](#), [Resource](#), [Access control](#), [Creating and editing resources](#).

20. Tracking attributes

The tracking attributes of a project are [Actual start](#), [Actual Finish](#), [Actual Effort](#), [Percent Complete](#) and actual [Materials](#) used.

23. User

All [resources](#) in the system that have a user type of [Manager](#), [Tracker](#) or [Observer](#) are called users.

5. WBS - Work Breakdown Structure

The hierarchical [project](#) structure that is shown in the [Summary view](#) is sometimes known as a Work Breakdown Structure (WBS).