User Guide – ProjectLibre for Project Management

Version 0.2 – October 24, 2012

Introduction to ProjectLibre and Project Management

Overview of ProjectLibre

ProjectLibre is a recently reinvigorated open source project intended to update and revitalize a software tool intended as an alternative to commercial software like Microsoft Project. It is free software, just as the name implies, but it is also compatible with any other project management software that can read and write .xml formatted documents. Obviously, that includes MS Project, as well as several other such software.

The feature set included in the current (1.5 Beta) version of ProjectLibre is largely the one in Open Project, the predecessor open source program. Current features include: task management, work breakdown structure generation (a list and a graphical representation), resource allocation and tracking, and Gantt charts that provide a clear view of the critical path elements of the schedule. Obviously, this list of features is not intended to be comprehensive and there is nothing remarkably unique about this list. Indeed it is appropriate to carefully define some of the terminology frequently used in project management before further elaborating on the capabilities of ProjectLibre, since the use of these terms is not completely uniform, either in project management software nor in organizational usage.

Introduction to Project Management terminology

The following definitions describe how these terms are used in ProjectLibre; your organization may use the terms differently, but at least these definitions provide an unambiguous glossary for usage understanding how this software works. A more complete list of definitions[1] is available for those who need more definitions.

Account: An account is used in a Cost Breakdown Structure (CBS) to represent a place where cost from tasks or resources can be aggregated.

Allocation: Tasks are allocated to resources during the planning stage of the project. Actual assignments are part of the scheduling process. One important point is that simply making such assignments does not guarantee the needed resource will be available.

Assignment: Resources are assigned to complete tasks according to the best estimate of the planners of the project. Assignment is an important part of the scheduling process.

ACWP: Actual Cost of Work Performed (ACWP) is the aggregation of all costs necessary to complete the work for the project.

BCWP: Budgeted Cost of Work Performed (BCWP) is the aggregation of budgeted costs performed in completing the project.

BCWS: Budgeted Cost of Work Scheduled (BCWP) is the aggregation of budgeted costs

predicted for work scheduled to complete the project.

CBS: The Cost Breakdown Structure is made up of resource accounts broken down to fit the elemental tasks spelled out in the Work Breakdown Structure (WBS) for the development. The CBS organizes accounts into a framework that enables costs to be aggregated independent of the WBS or the RBS.

CPI: The Cost Performance Index (CPI) is equal to the BCWP/ACWP. When this index is less than 1, the project is over budget. If the CPI > 1 the costs for the project are under budget.

Estimate: A prediction of the expected amount of effort or time needed to complete a given task.

Milestone: A milestone is a special task represents an event in your project; it is a task with an effort of 0.00h. It is typically used to mark a major outcome; for example, the completion of a deliverable satisfactory to and accepted by the customer.

PERT: The Program Evaluation and Review Technique (PERT) is an enhancement to the Critical Path Method (CPM). Task effort estimates in CPM are point estimates, while task effort estimates in PERT are computed by weighting the Optimistic, Most Likely, and Pessimistic estimates [(O + 4*M + P)/6].

PERT Distribution: This distribution is a simplified way to calculate an Expected estimate from the Optimistic-, Most Likely-, and Pessimistic estimates.

Resource: A research can be one of three types: Work, Material, or Team. All resources must belong to a Research Group.

Resource Group: A resource group is a collection of similar resources.

Resource Team: A resource team consists of a number of resources working together for a common purpose.

RBS: The Resource Breakdown Structure (RBS) organizes resources into resource groups.

SPI: The Schedule Performance Index (SPI) is equal to the BCWP/BCWS. When this index is less than 1, the project is over budget. If the CPI > 1 the costs for the project are under budget.

Summary Task: A summary task has subordinate tasks (sub tasks) and rolls up information based on these sub tasks.

Task: A task is a unit of work; resources are usually allocated at the task level.

WBS: Work Breakdown Structure (WBS) is used to decompose large projects down into manageable chunks to ease planning and management.

Tasks, Resources, and Costs

Three of the more important terms in the list above are tasks, resources, and costs; they are the core elements to be manipulated and organized in project management. We will

elaborate in later sections on each of these concepts and how to work with them in ProjectLibre but for this introductory section the following paragraphs are meant to fix these concepts firmly in the user's mind.

Tasks are the fundamental building blocks for a project schedule.   The definition in the previous section was very terse, but meaningful – each task represents a unit of work, a step toward completing a project. As is likely obvious, tasks often need to take a hierarchical form to help in decomposing a complex project down into manageable and understandable chunks. That is exactly what the definition of a WBS states; therefore, the WBS is made up of a hierarchical tree of decomposed tasks. The organizational structure depicted by the WBS is meant to make it easier to understand how the various elements of a complex task fit together and ProjectLibre is a great tool for depicting that structure of tasks and how they interact.

Resources are shared entities; all the people and materials owned by your organization are shared by all projects supported by the organization. People resources have the type "Work" (expressed in hours or days – time) and materials have the type "Material" (expressed in a quantity – bags of cement, for example). ProjectLibre has a spreadsheet depiction for managing resources (Figure 1).   These typical spreadsheet headings can tailored to suit the needs of specific projects.

Figure 1. Resource spreadsheet

Cost[1] refers to the monetary value or financial pricing of a specific project activity and is the most commonly used way of aggregating resources in a project to be managed. As Figure 1 suggests, it is typical to assign hourly (or weekly or monthly) rates to people resources. Similarly, the amount of money paid to acquire materials, expressed as a dollar

cost, gives an indication of the relative value of different materials.

Installing and Running ProjectLibre

Installing ProjectLibre on a single computer is quite straightforward. For Windows systems, go to http://sourceforge.net/projects/projectlibre/, download the Windows .msi file (currently projectlibre-1.5_beta5.msi, and about 12.1 Mb in size. When the download is complete, double click on the file to open it, and follow the instructions from the installer that are initiated from the installation wizard shown in Figure 2. Then, simply complete the installation following the directions on the screen.
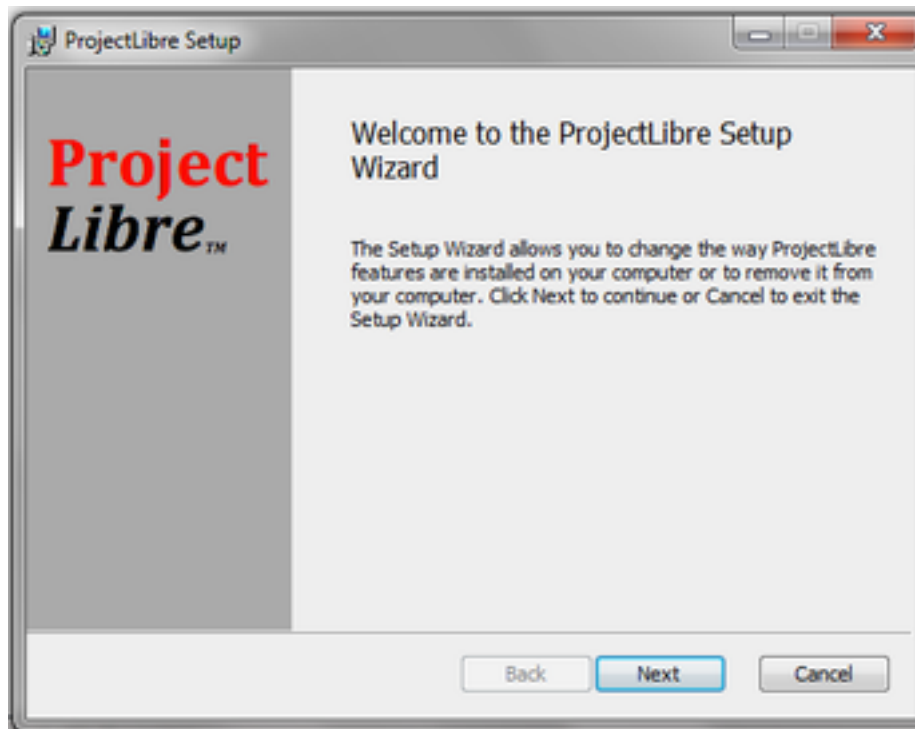

Figure 2. Installer opening dialog box for setup wizard

If ProjectLibre is downloaded from the Sourceforce site listed above logged into a Linux machine,projectlibre1.5_beta5.tar.gz is the downloaded file. This file is a compressed file containing the usable files that must be extracted into a convenient folder on your machine. The notes file in this archive, "readme.html" contains the instructions for installing on both Windows and on Linux:

Running ProjectLibre 1.5_beta5

Requirements:

ProjectLibre uses Java version 6 or later.

To see what version you have, check out this page:

http://www.java.com/en/download/help/testvm.xml

You can download java here: http://www.java.com/en/download/index.jsp

Installation:

Unzip the files to the folder of your choice.

Windows: The installer creates shortcuts for you. Alternatively, click on projectlibre.jar (or projectlibre.bat)
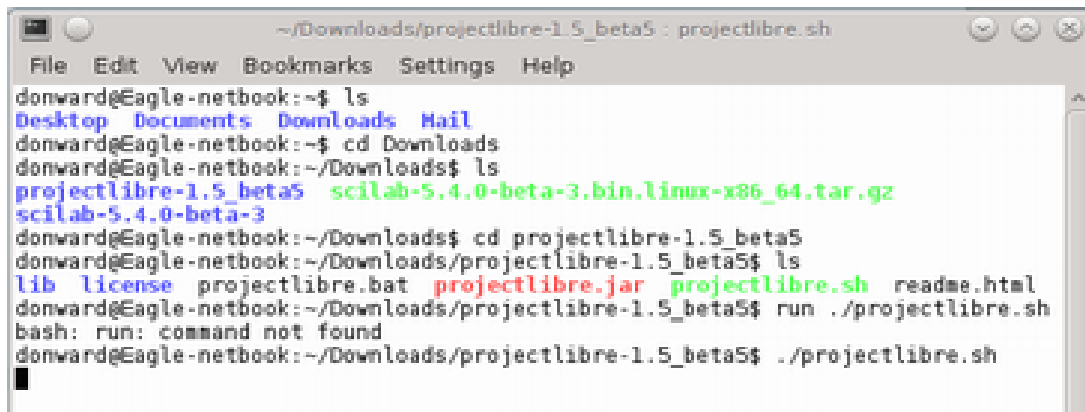
Mac: Click on projectlibre.jar

Linux: Open a terminal, go to the projectlibre folder and run ./projectlibre.sh (assuming you downloaded the tar.gz archive). If you get a permission denied message, do "chmod +x projectlibre.sh" This will let you run the shell script. You can also run with the command "sh projectlibre.sh"

projectlibre.sh will report an error if it doesn't find a valid Java installation on your system.

On some distributions Java Runtime Environment (JRE) isn't installed by default, but it's often provided as an optional package.

This sequence of commands might look like this: (You do not need to be root.)

 Figure 3. Running

ProjectLibre in Linux

Starting and Saving Projects

To open an existing .pod or .xml file or create a new one, use the commands on the top left of the redesigned ProjectLibre page (circled in magenta below). Left click on either "Open" or "New" to start this process.
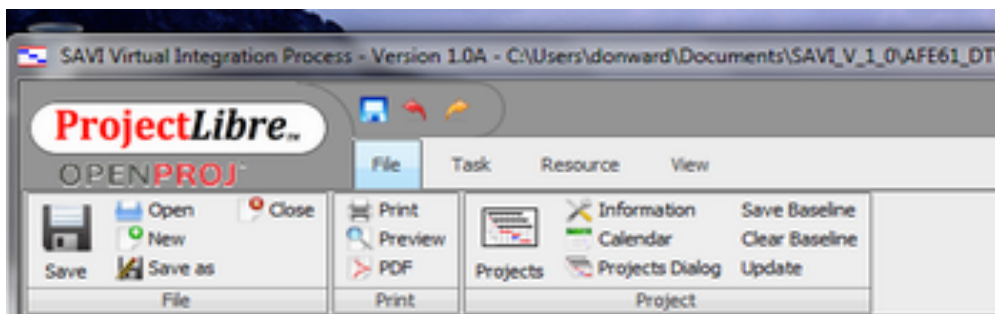
 Figure 4. First step in opening or creating a project management file

Selecting "new" in the dialog box pops up another dialogue box (Figure 5); its primary purpose is to name the new project. The only entry that must be filled in is the name (if you fail to name the new project, a "nag" box (also shown in Figure 5) pops up. You may want to list the manager's name, change the date or add notes in the provided spaces. Once you have made the desired entries, click "ok" to proceed. The "Forward scheduled" box can be unchecked if you do not wish to use this feature (see page tbd). Selecting "Help" in the

bottom right box invokes the online help (which is not fully implemented at this writing – October 3, 2012). Once you have completed your entries and chosen "ok", the program takes you directly to the screen for starting your work plan (Figure 6). This screen is the one to which you are directed if you choose "Open" (in Figure 4) rather than "New". Now, new project task entry lines are blank as in Figure 6.
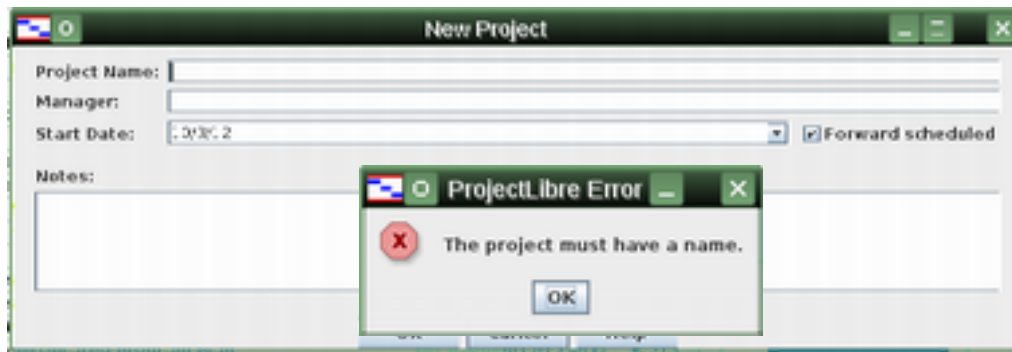

Figure 5. Naming and defining a new project

Notice that this blank file is very similar to most other project planning file templates and is ready for you to begin entering tasks, resources, and schedule information. The right half of the window is the space where the Gantt schedule and its various entries will appear as you define the schedule. The c   alendar is set to

Figure 6. A new project ready for the user to make entries
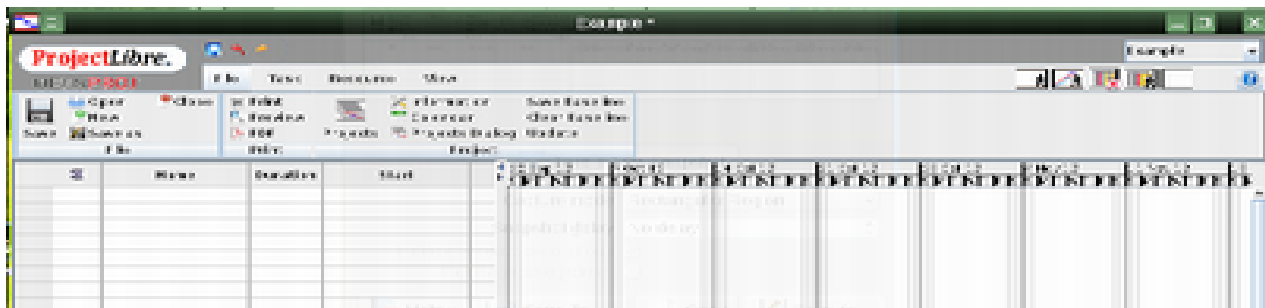
Saving a project in the native format for ProjectLibre is extremely simple. Looking at Figure 6, clicking on the "Save" tag or icon just under the OpenProj name saves this example as a "Example.pod" file. That type of file is native to ProjectLibre (as well as to OpenProj) and gives the highest reliability for capturing and retaining all the information you have entered.
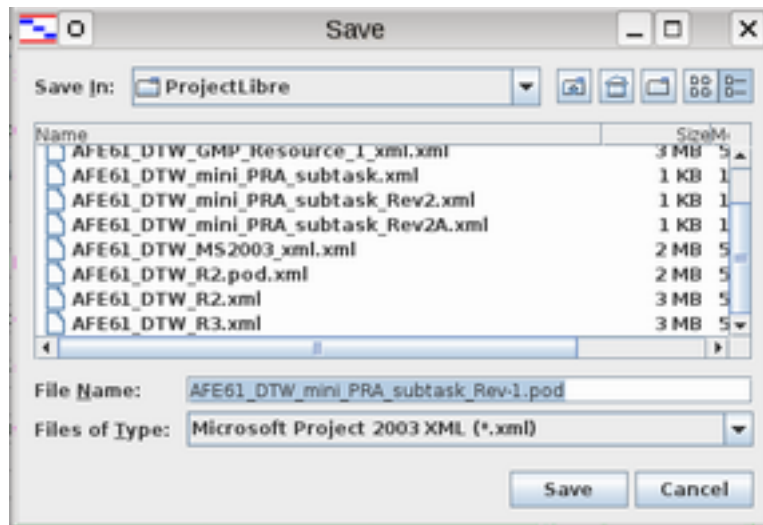
Figure 7. Use of "Save as" under the "File" button

Alternatively, clicking on "Save as" allows you to save your work in the alternative Microsoft Project .xml format, after popping up a dialog box like the one shown in Figure 7. Of course, you a can also change the name of the file by typing in your choice of names in the "File Name" box. If you leave the .pod extension as part of the name, ProjectLibre appends the .xml suffix to the name typed. For example, selecting "Save" in Figure 7, creates a new file named AFE61_DTW_mini_PRA_subtask_Rev-1.pod.xml.

Finally, "Close" is the last of the choices under this left-hand block of functions. Selecting "Close" does just what the name implies. The file that is open is closed, retaining the name which it is currently carrying. If the file has not been saved with a file name before this closure, a window pops up to remind the user to name the file (Figure 8). If "No" is selected here, the file closes with the name assigned when it was opened, discarding any modifications made after the file was last saved. Choosing "Cancel" simply puts you back into the editing mode and closes the dialog box.
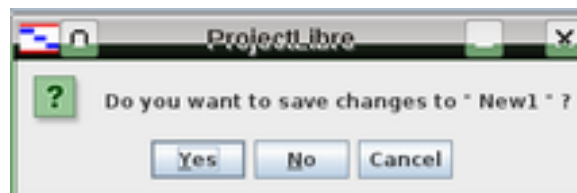
Figure 8. Warning regarding saving changes made to a file

All in all, these "File" opening and saving functions under the primary File button on the upper command bar are quite intuitive to use; there are no surprises.

Navigation with the Primary Controls (Top Line)

The primary navigation through ProjectLibre files and use of program capabilities starts on the main menu (Figure 4). Primary selections for navigation are located just to the right of the "Open", "New", "Save as", and "Close" selections (on the second line of these

command bars) described in the preceding section.   We will examine each section to the right of these buttons, starting with the upper row of primary choices (Figure 9). These top four controls ("File", "Task", "Resource", and ", "View") are the subjects of the next four paragraphs.
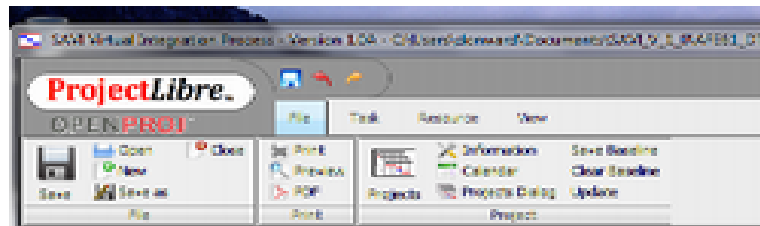
Figure 9.

Navigational controls – primary choices and File functions

First, the File selection provides a way to examine and load different files and it controls all the functions listed below them – printing and previewing and then just to the right, another group of selections that allow the analyst to configure the project schedule to suit specific purposes and to update after analysts. Notice that the "File" button in the top row remains light blue, indicating a specific set of controls are available for use. We will come back later to go over what each of these subfunctions allows in terms of manipulating the ProjectLibre file of interest.

Figure 10. Primary controls – "Task" functions

Figure 11. Selecting the Gantt chart with a secondary button

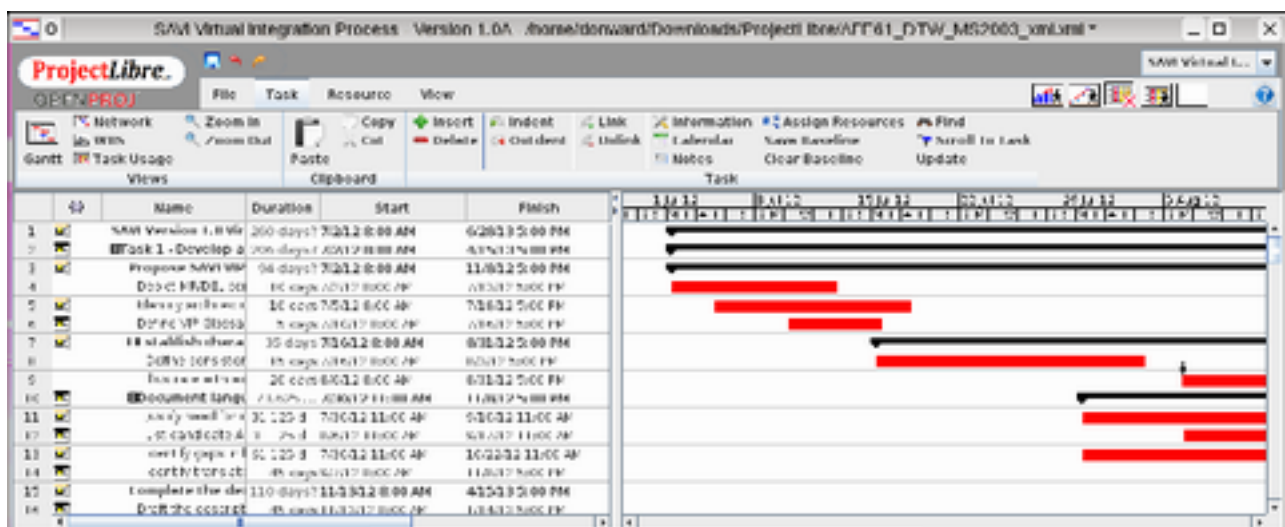The "Task" control brings up a different set of subfunctions (Figure 10). This particular set of secondary controls is primarily for use with the Gantt chart, as the left-most icon suggests. Selecting this "Gantt" icon switches the display in the main window of ProjectLibre so that it shows the schedule as it has been entered so far by the analyst (Figure 11). This Gantt chart is the default display if you open a file that was saved in this form, but if you were working on some other aspect of the project (assigning resources, for example), selecting this option will take you back to this familiar display. Notice also that the "Task" primary control block in the first line is now light blue, rather than the "File" control block. Selecting the "Task" control block gives access to this different set of navigation tools. As there was with the "File" control block selected, there are a number of subfunctions to be discussed later; for now, we will stick to the primary control functions and their elementary use. This Gantt window is, however, where much of the useful work is done to lay out the schedule and tailor it to the specific project being analyzed.

Next, we examine the "Resource" block in the primary control layer of the command lines (Figure 12). As you likely now expect, it allows us to manipulate the resources available for project use. Selecting the "Resource" control does not change the Gantt chart display; however, if you click on the "Resources" icon, the main display window opens up to a spreadsheet (Figure 13) that allows you to enter, select, and modify resources and how they are to be used.
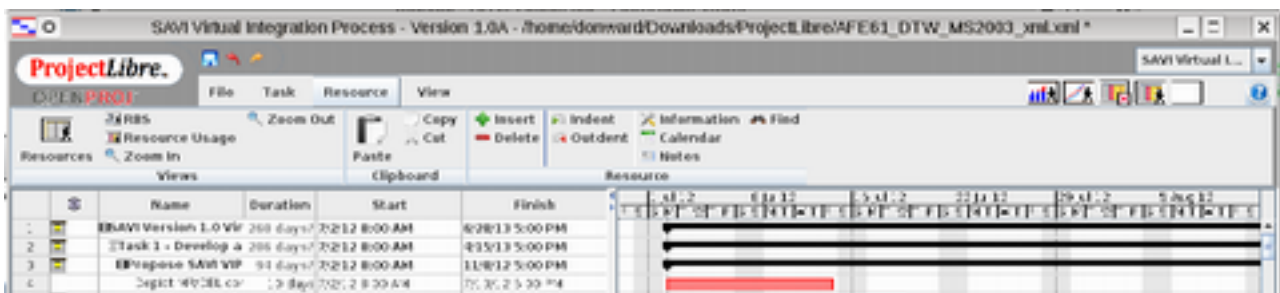

Figure 12. Selecting the "Resource" primary control

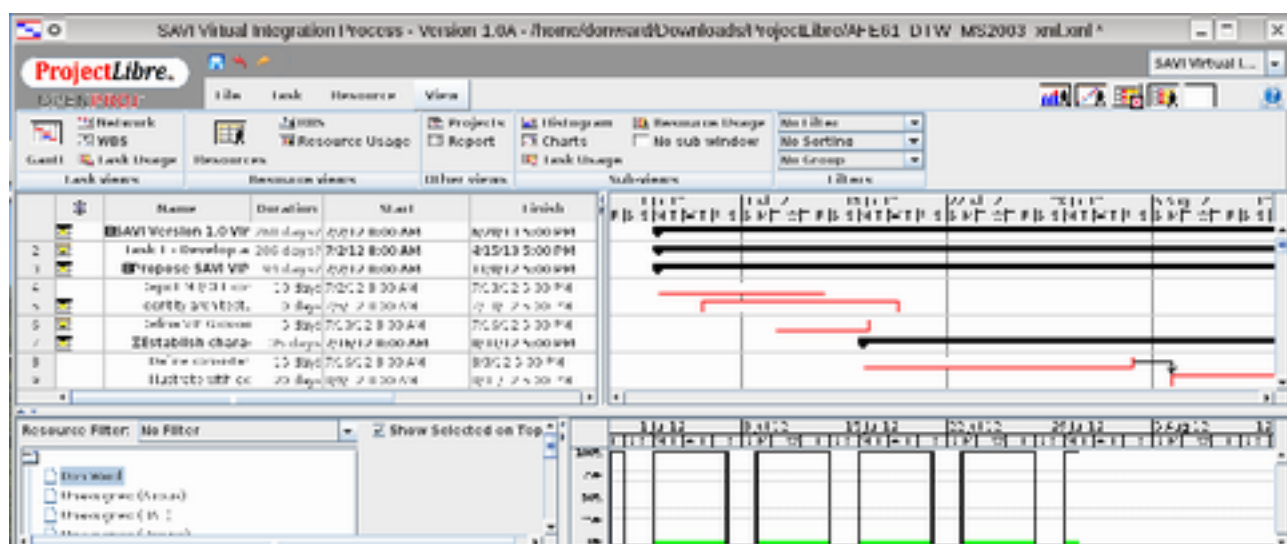Figure 13. Selecting the "Resources" spreadsheet with a secondary button

Figure 14. Selecting the "View" functions with a primary control

As the final step in our initial trip through the primary navigation controls, we select the "View" control box (Figure 14), bringing up a set of secondary controls that gives easy access to views germane to various stages of project work. Now the various views and subviews are named in the bottom section of the secondary control bars (marked with a yellow arrow in Figure 14). In some ways, the "Task views" and "Resource views" groupings are repetitive to the primary control selections in the top bar, but the "View" grouping gives better and immediate access to "Sub-views" and other tools. Again, the goal in this paragraph is not to describe each function in detail, but to overview how to navigate through the menus efficiently. It is however, worth observing at this point, that the main display has now been altered to show four panes, rather than the two that came up when we selected Gantt chart alone earlier. This specific view was obtained by selecting the "Histogram" sub-view (green arrow) with the Gantt chart displayed by itself. You can also return to the Gantt chart panes by clicking on the "No sub window" selection (blue arrow). Finally, there are also other graphical ways to navigate to various views, as is shown in the upper row, right hand side of the primary control bars. There (Figure 14), a series of icons (green ellipse) reside and they can be used to select various sub views. If you hover the cursor over each of the icons, it becomes clear that this set of five controls is associated with the five sub views named in the sub view portion of the secondary controls and discussed earlier. A sixth icon, a blue circle surrounding a question mark, allows the analyst go bring up help in three different forms as suggested by Figure 15. The three labels are self-explanatory.
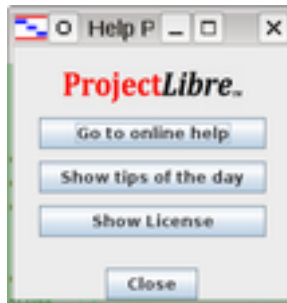
Figure 15. Help pop-up

Create an Example Project

This initial overview of how to create a new project in ProjectLibre is largely based on an OpenProj article in 2010 published at http://www.infobarrel.com by jayrsmith.   We will follow that outline and simply update those parts that are affected by the new interface for ProjectLibre.   As Smith puts it: "The best way to understand how a project plan may be created using OpenProj → ProjectLibre is to study a realistic example such as the one that follows. This example, while simple, provides a step by step description of typical actions that a project manager might use to establish a viable project plan using (ProjectLibre)."   This example likely will not fit your project perfectly, so you may want to either modify this example or initiate your own to fit your needs more specifically. However, the basic steps are still likely to apply.

A relatively small set of assumptions are given for the example project to be exercised here. They include:

1. ProjectLibre has been installed and configured as described above and is connected to a usable printer (or at least to a pseudo printer like pdf creator).

2. The example project, called "News Shower" is a marketing effort lasting 6 months.

3. Three full-time people resources, counting the project manager are assigned to News Shower.

4. There is no budget constraint assigned for News Shower; the organization is fully behind this effort but schedule is very important.   It must be completed within 6 months.

5. The required (mandatory) completion date is no more than six months from the start date.

Step 1: Create the project plan shell

The first step is to identify the basic parameters of the project. The analyst begins this step with ProjectLibre as described starting on page 6. We saw how this process is begun in Figures 4 and 5. Now we name the new project "News Shower" and enter it in the top line as indicated above Figure 5. We also add a start date as shown in Figure 16. You could also deselect the "Forward scheduled" box which is the default selection. Doing so will allow you

to select a finish date and have ProjectLibre work backwards after you enter the required tasks. This alternate method is primarily for those projects that have a firm finish date that must be met., one like News Shower which has a mandatory completion date.   It is perhaps a bit more common to leave the default checked action as shown in Figure 16, enter the required tasks, and use the software to calculate a completion date. But, for our example we will uncheck "Forward scheduled" to be sure we satisfy that mandatory completion date. This change makes our example slightly different than Smith's original one. As you develop your own learning example, you will need to interpret your own organizational environment and utilize features of ProjectLibre that meet your own needs. Setting down the assumptions and constraints is a bit like developing, refining, and validating requirements for a system. The notes on the dialog box used to name the project are a good place to start documenting some of these constraints and assumptions.
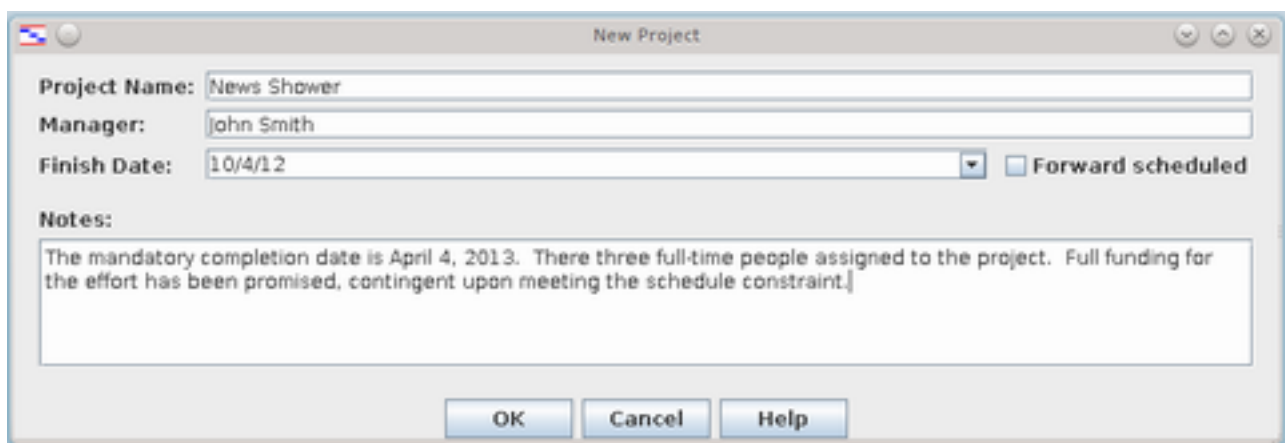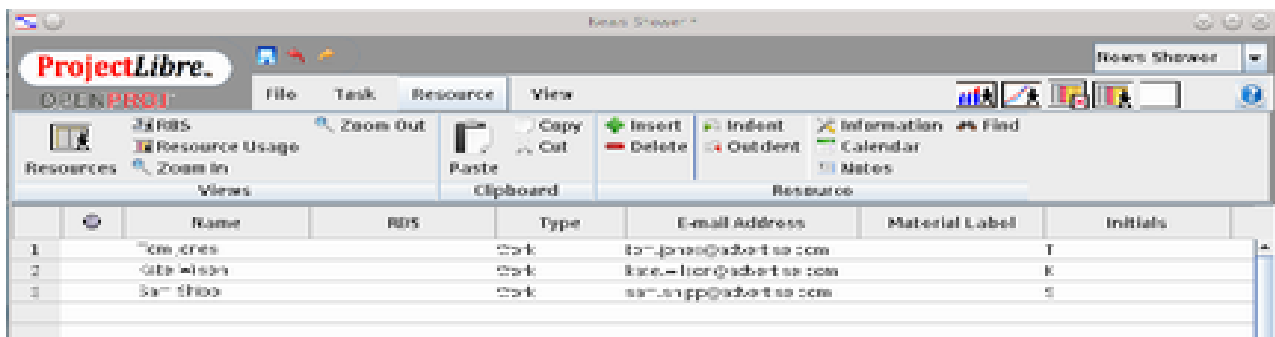

Figure 16. Starting the example project

Once OK is clicked, a blank Gantt chart like the one shown in Figure 6, but with a new project name inserted, is opened.
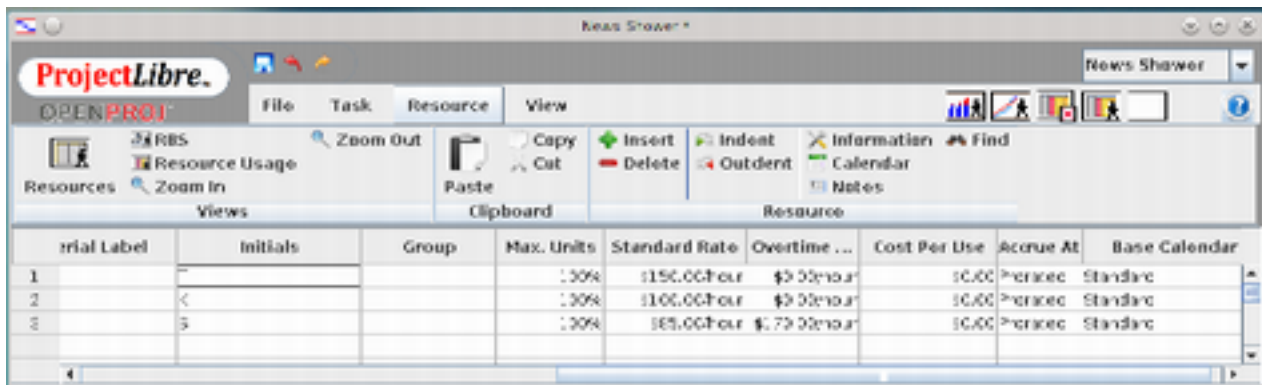
Step 2: Identify the project resources

Figure 17. Resource spread sheet for information about people resources

The next step is to identify and name the available resources. For News Sources all the resources are people resources and we can enter all the necessary information by navigating to the resources spreadsheet in one of the ways we described under the paragraph on navigation within ProjectLibre.   The best way to navigate to this spreadsheet is to select Resource in the top line and click on the Resources icon on the left side of the second line. These two actions bring up the spreadsheet shown in Figure 17.

Figure 18. More categories of information in the Resource spreadsheet

The left portion of the resource spread sheet (Figure 17) is only part of the information that can be stored there. One other way to see more of the possible information that can be maintained here is to simply scroll to the right using the bottom bar in this window, as suggested in Figure 18. This right side of the spreadsheet can hold information like pay rate and calendar as suggested in the titles of the columns.
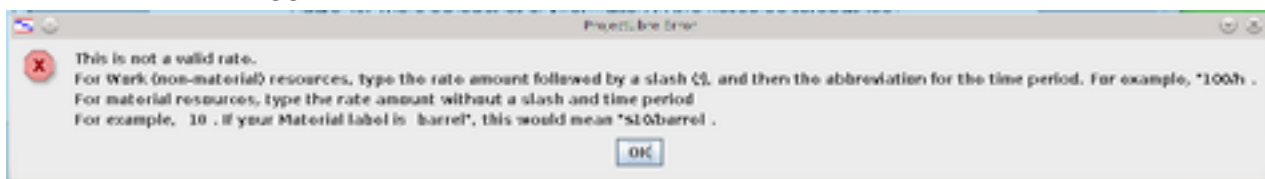

Figure 19. Assigning resources from the Resource spreadsheet

Values entered in the cells of this spreadsheet must be of a specified format or else an error message of the type shown in Figure 19 warns of inconsistent entries.   So this spreadsheet becomes the central source of information about the available resources – both

human and material – available for the project.
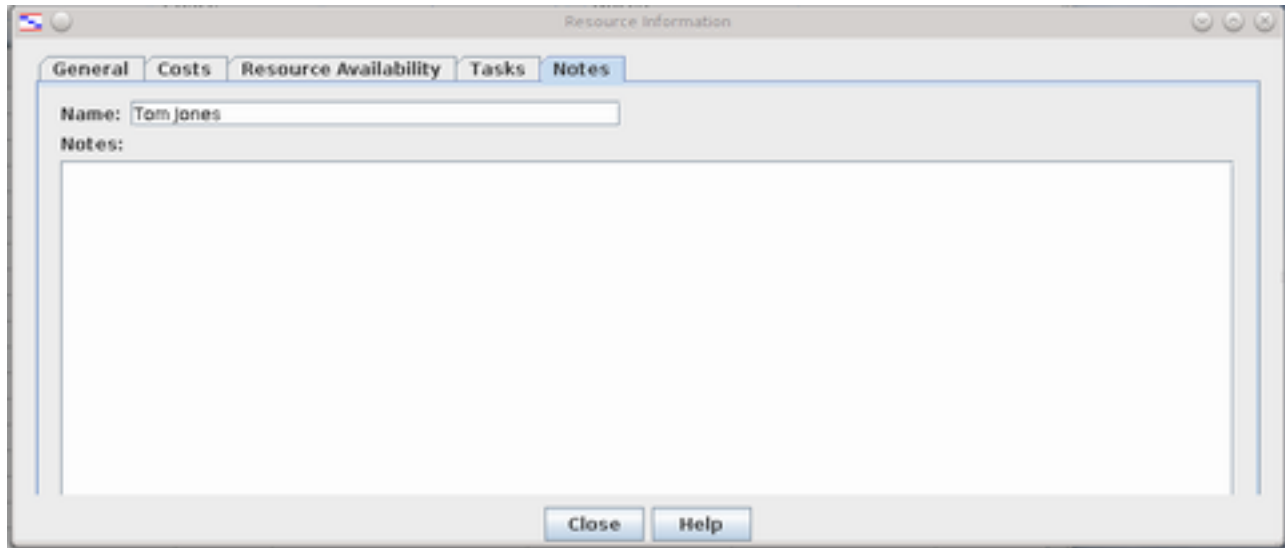
Figure 20. Alternate means of entering Resource information

Incidentally, you can also reach the Resource spreadsheet by choosing View from the top line of the control bar and clicking on the Resources icon in the second line in the "Resource views" block just on block to the right of the Task views block (containing the Gantt icon).

Additionally, the analyst can also input specific resource characteristics – sometimes more conveniently – by left clicking on a resource name in the Resources spreadsheet and making entries in the dialog box (Figure 20) for that named resource. This entry method may be more efficient and easier to organize than making them directly in the spreadsheet. Clearly, each of these tabs and the large space for notes allow a variety of ways tailor the resource inputs to your project.   We need to examine each of the tabs at the top of this dialogue box to elaborate on why this alternative entry method may be useful for your project.

Figure 21. General tab for alternate dialogue box

First, we look carefully at the General tab (Figure 21) and note that many details can be added about each resource that is part of the pro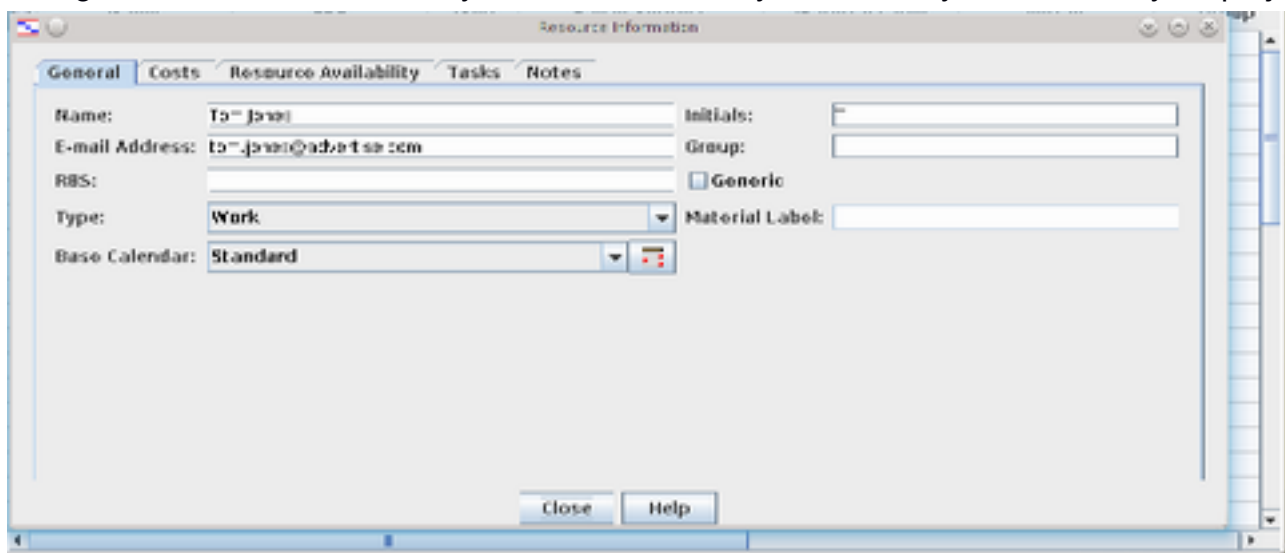ject resource data base. You can specify specific work groups, contact information, material descriptions, and even personalized work calendars (think flex time, if you need to do so) and the usual identifiers like RBS identifier.
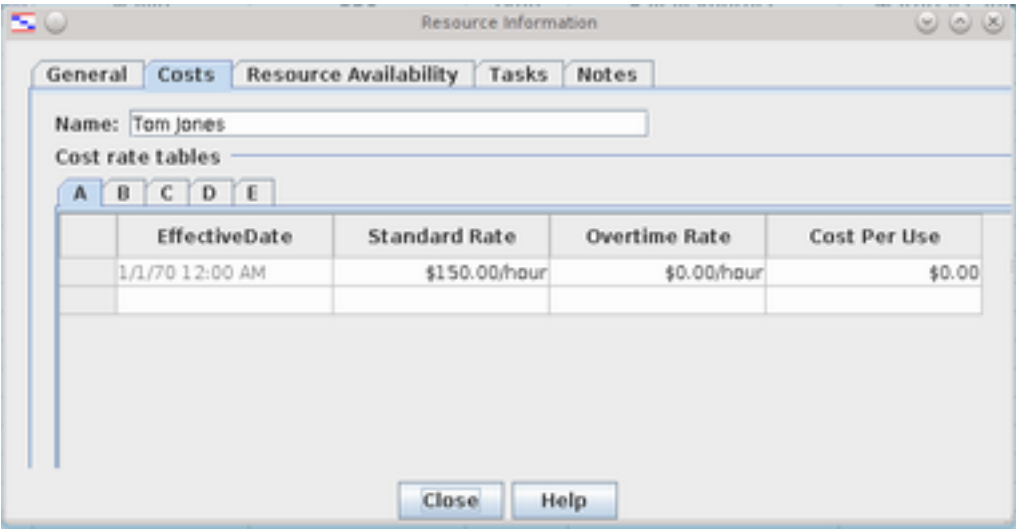
Figure 22. Costs tab for alternate dialogue box

The Costs tab allows the analyst spell out individual labor rates for any given resource on any effective date. In fact the five subtabs (A-E) even allow the analyst to set five different cost rates for a given person resource. Also, it is possible to give the resource a "raise" by simply stepping up the rate at an appropriate "Effective Date" in the left column of a given tab.
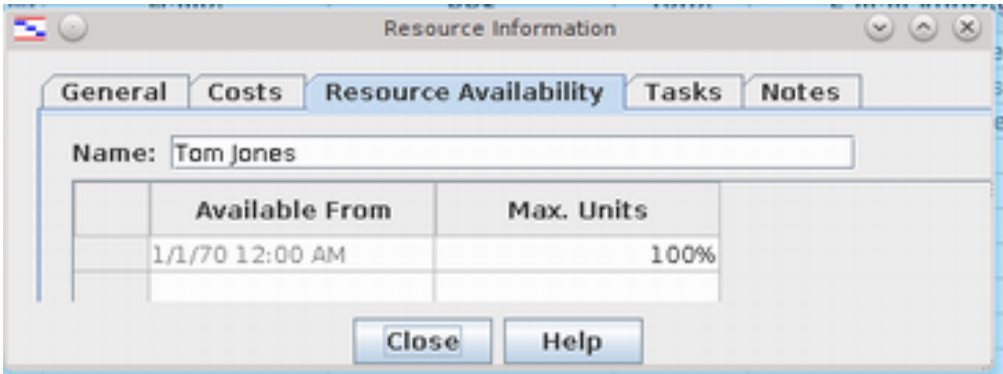
Figure 23. Resource Availability tab for alternate dialogue box

The Resource Availability tab (Figure 23) gives other options for elaborating on the Resource data base. The tab also includes an entry set the upper limit on the use of this resource. This limit is usually set in terms of the m

The Tasks subtab (Figure 24) presents a list of all the commitments or assignments made for each person in the Resources data base. The columns give details about each of these assignments (start and end dates, for example) regarding each of task on each page of the tab for each resource.

Lastly, the Notes subtab is shown in Figure 25. As is obvious, its primary function is to

give space for describing any characteristic of the resource that needs to be document – hence, there is plenty of white space for a narrative description or any other notation.

Figure 24. Tasks tab for alternate dialogue box

Figure 25. Notes tab for alternate dialogue box

Step 3: Identify the project's high-level tasks

Figure 26. High level tasks for the News Showers example

The News Showers example project is assume to be similar to an earlier one successfully completed by the organization. The project, like almost all projects, can be d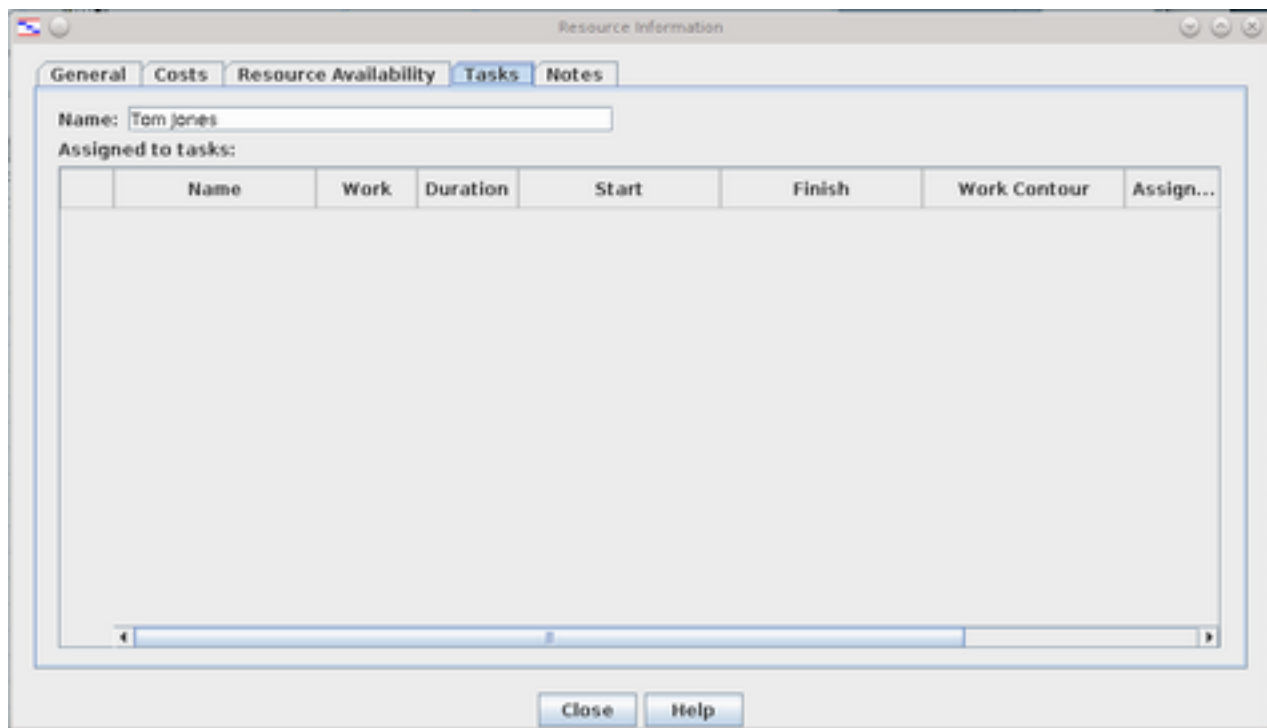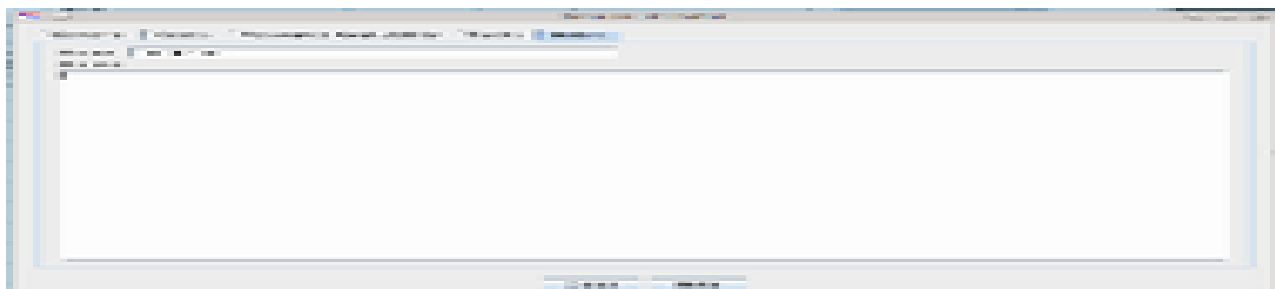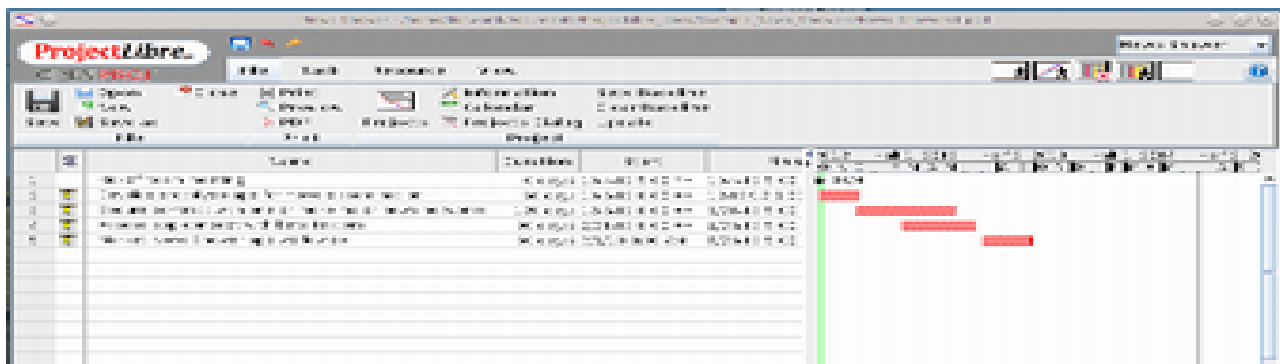escribed with five generic tasks: initiation, research, contracting, development, and launch. These generic tags are not as unambiguously descriptive as one might like to see, but they do outline a general way to categorize upper level tasks. So the analyst enters more descriptive task titles, but you will recognize that these tasks fit this generic description (Figure 26). Observe that all task bars used so far are red. This coloring means that all tasks are part of the critical task, which has no meaning at this point in the analysis. When we finish the critical path will be in red and all non-critical task bars will be blue, But it is way too early to identify a critical path at this stage of developing the project plan.

Step 4: Identify task dependencies

Some tasks cannot start until other tasks have completed; that is, the second task is dependent on another task being completed before the second one can be started. In our News Showers example, it is obvious that the application cannot be marketed worldwide until after the beta testing has been completed and the beta testing cannot begin until the application is developed. Finally, of course, the starting approval (implied by the kickoff meeting having occurred) must occur before any of the other tasks can start. These dependencies show up in Figure 27.
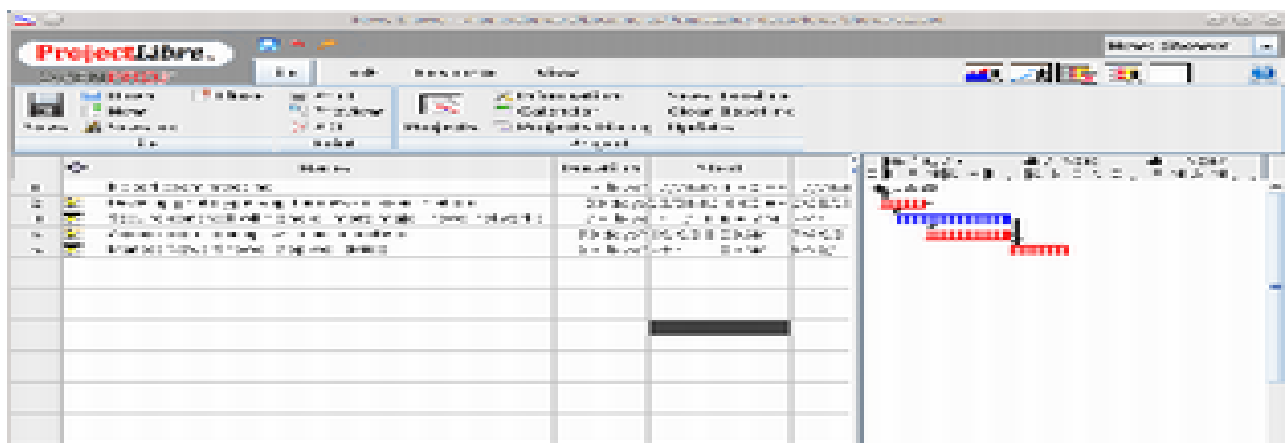
Figure 27. Task dependencies

The color code now shows the critical path in read; the logic of the dependencies shows that critical path. Observe that task 3 is blue and is not on the critical path. This critical path has three elements now and the non-critical path does not affect the critical path. There are several other nuances about how do deal with tasks which will be dealt with in the next section. But first we have to assign resources and decompose the upper level tasks where necessary.

Step 5: Assign project resources to appropriate tasks

Each task is likely to need one or more resources for completion. Columns on the

Gantt chart may be hidden unless the vertical slider is moved to the right. The names of the resource elements can be directly typed into the column named "Resource Names". The default option is to allot 100% of their time to the assigned task, but this option can be changed in the assignment dialogue. The Resource Names field allows direct entry of multiple resources, along with the % time assigned to each task. Each resource name is separated by a semi-colon as shown in the top part of Figure 28 (yellow rectangle). In this chart, the default value of 100% for percentage of time devoted to the project was accepted. By choosing "Task Usage" from the second line of the command ribbon (magenta circle), the resources allotted (in hours) is shown at the bottom left of the display, providing a convenient way to illustrate how each task is covered. You might want to manipulate the hours to relieve the project leader of time for other tasks; try that by changing the hours manually in the appropriate yellow line. Making changes of this nature is likely to alter the total number of days applied to the task; choosing appropriate percentages may be a better way to start this kind of resource leveling. We will come back to that point shortly.
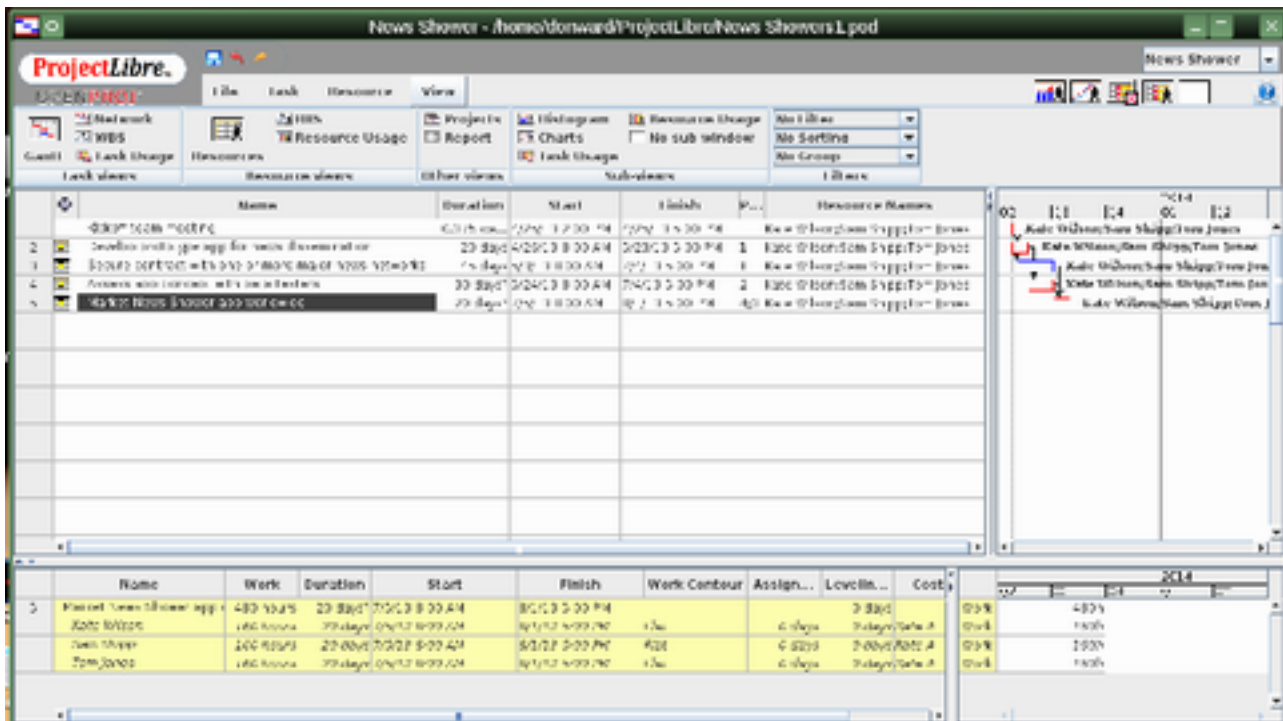
Figure 28. Resource assignment based on task usage

We can also choose the "Resource Usage" option (green ellipse in Figure 29) to see how each person is loaded up for each task. This perspective may be an easier place to start prioritizing workload for each individual. When you start this work prioritization, it is likely that as you adjust percentages of effort, some tasks will be shortened as ProjectLibre attempts to automatically schedule. It may be necessary to choose manual scheduling to accommodate part-time work on desired tasks, level the workload, and still maintain the desired schedule. We will have more to say about this kind of activity when we discuss the use of the Histogram function and filtering activities.
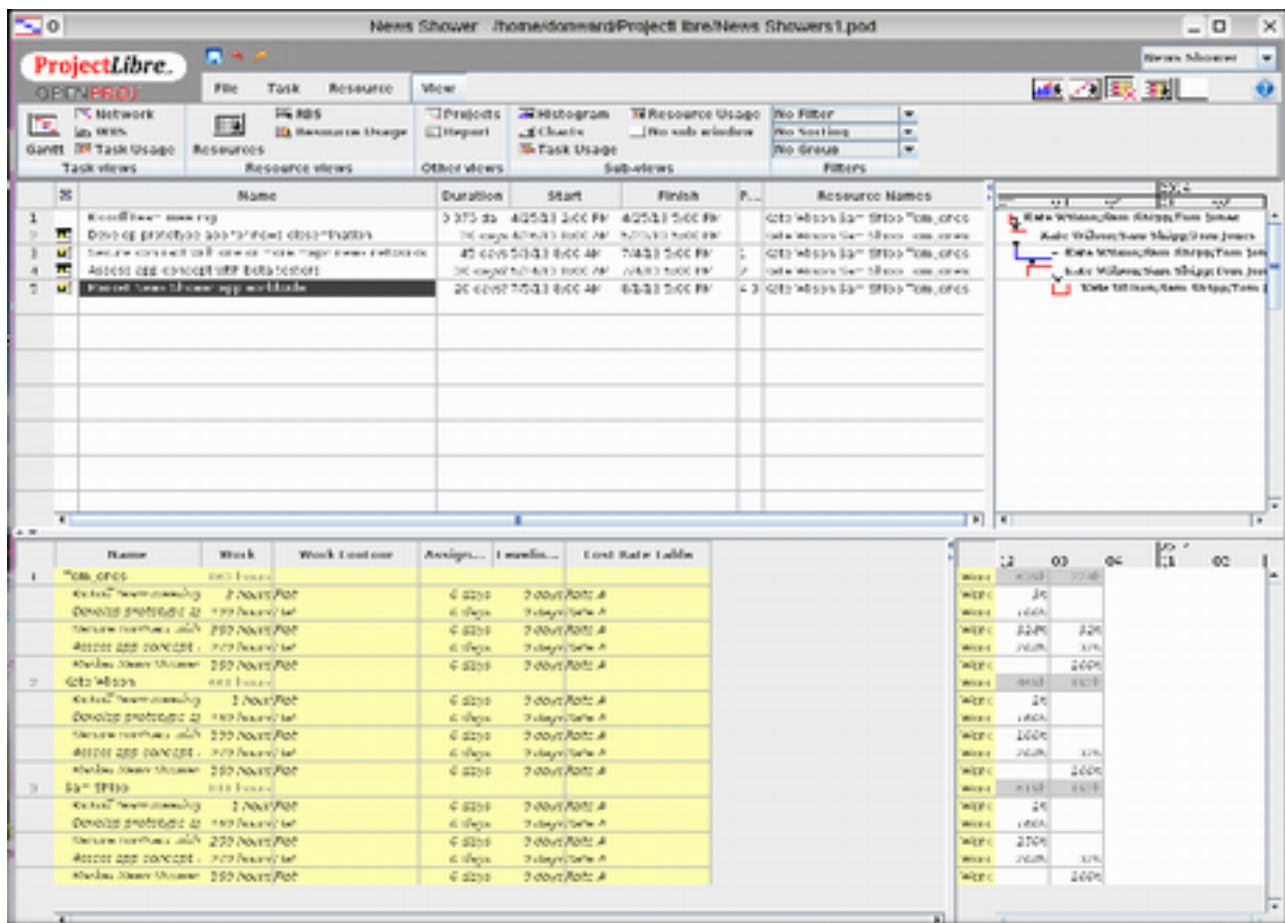
Figure 29. Resource assignment based on individual resource load

Step 6: Elaborate and decompose tasks

Figure 30. Decomposition of high-level project tasks

Being agile in splitting up tasks is an important characteristic for a good manager and ProjectLibre facilitates this kind of activity on the part of the analyst. Decomposing a complex task into simpler ones allows better understanding of interrelationships and gives better
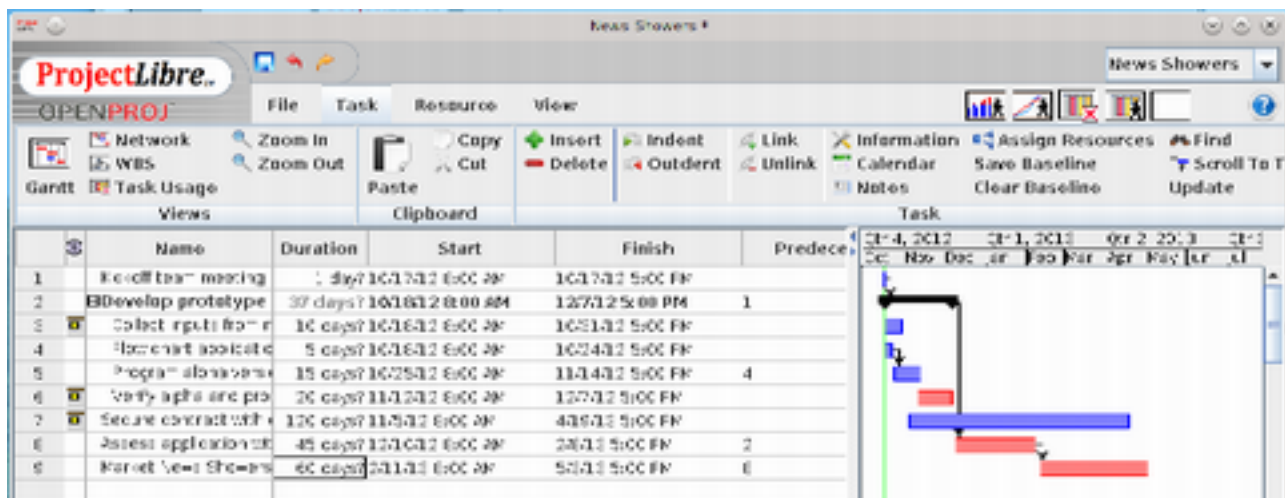
insight on estimating resource needs. It brings just-in-time utilization of resources (both people and facilities) into the scheduling picture in almost every case. Four such task decompositions are shown for our News Showers example in Figure 30 (green rectangle). For more complicated projects, many more decompositions are likely to be used, but these simple ones suffice to illustrate use of the program. Notice that ProjectLibre uses indentation to indicate the hierarchy for subtasks; this feature also feeds development of the Work Breakdown Structure, as we will see later on in the Manual, when we reexamine how tasks are used.

Step 7: Evaluate the project plan

With a representative set of the tasks entered, and a few sub-tasks spelled out, the project plan is well underway. The critical path is perhaps the most significant piece of information in this rudimentary. This knowledge is quite important to the project manager. Analysis and leveling of work loads can be carried out based on the resource information in the ProjectLibre spreadsheets after those entries are completed. In the example, this information is minimal, just enough to show how this effort can be completed. For most projects laying out the needed resources is one of the most important (and most tedious) tasks. Task and subtask reports can be printed at any snapshot in time. Later on, if completion percentages are entered and kept current for each task, status reports can be generated that show progress and permit evaluation of schedule completion. The best way to use ProjectLibre is as a tool to continuously evaluate progress toward project goals.

Tasks

Now we turn attention to a detailed discussion of tasks and how they are handled in ProjectLibre. We set the foundations for this elaboration with the paragraphs surrounding Figures 10 and 11 and also Figures 24, 26, and 27. Tasks are still the primary element for laying out a project plan, so we need to dig a bit deeper and learn a bit more about the Gantt chart and its listing of tasks interacts with the rest of the program to produce the complete Work Breakdown Structure (WBS) and other useful decompositions that describe the project and allow management to readily evaluate progress, reallocate resources, and identify problem areas. The task descriptions are fundamental to all these operations. So, let's reexamine the Gantt chart first, this time looking at each of the functions available with the Tasks tab selected in the top row of the command ribbon. The second row, with its three sections (Views, Clipboard, and Task – third line) and 24 different possible selections in the second row (highlighted with a large yellow rectangle in Figure 30).

Views:

Gantt selection

Starting at the left side of this row of functions, in the Views section, the Gantt chart button is already somewhat familiar, having introduced it earlier. Left clicking on this button

brings up the default spreadsheet that is prelabeled with convenient labels for project management purposes - "Name", "Duration", "Start", "Finish", and the like. There are some unique features associated with this tailored spreadsheet on the lower left side of the Gantt page of ProjectLibre.

The first column is simply a sequential numbering scheme for each task and subtask, starting at 1 and in-creasing one number at at time with each additional row. So, this column is the row number for the Task spreadsheet.

The second column provides some flexibility in tailoring the spreadsheet to your own needs. It has a circle with an "i" in it (magenta ellipse in Figure 30), perhaps to imply that this icon allows insertion of new columns. If you left click on the icon, the entire column is highlighted in black and you can change all rows suit your needs. (Similarly, left clicking in the first or title row also highlights that row for multiple row insertions.) If you right click on the icon, a dialogue box appears that offers three choices: (1) Insert column, (2) Hide column, and (3) Find. Selecting any one of these choices pops up a dialogue box for insertion of more information.   The dialogue box for the first of these selections is below (Figure 31). The are a number of choices for the field variable (see definitions at the beginning of the Manual) and making a selection results in insertion of an additional column (Figure 32) labeled with the Field selection. In our example, the new column is labeled "Baseline1 Start".   This feature allows the analyst to very flexibly tailor the Gantt chart contents for tracking the project,.
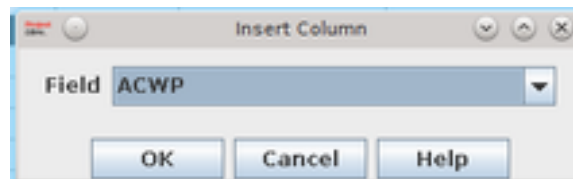

Figure 31.   Dialog box for Gantt spreadsheet Insert Column function

Figure 32. New Gantt chart column with label "Baseline1 Start"

The "Hide Column" selection for this dialogue box allows the user to remove this new column (or any other of the other visible columns) by selecting that choice.   Finally, the "Find" selection brings up a dialog box (shown in Figure 33) that permits a search for a field name. [I do not understand how this search function works. Can someone explain it to me? - DTW]
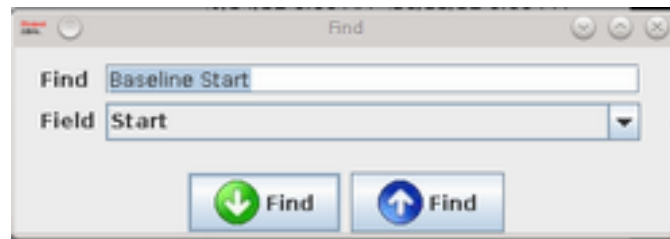
Figure 33. "Find" selection
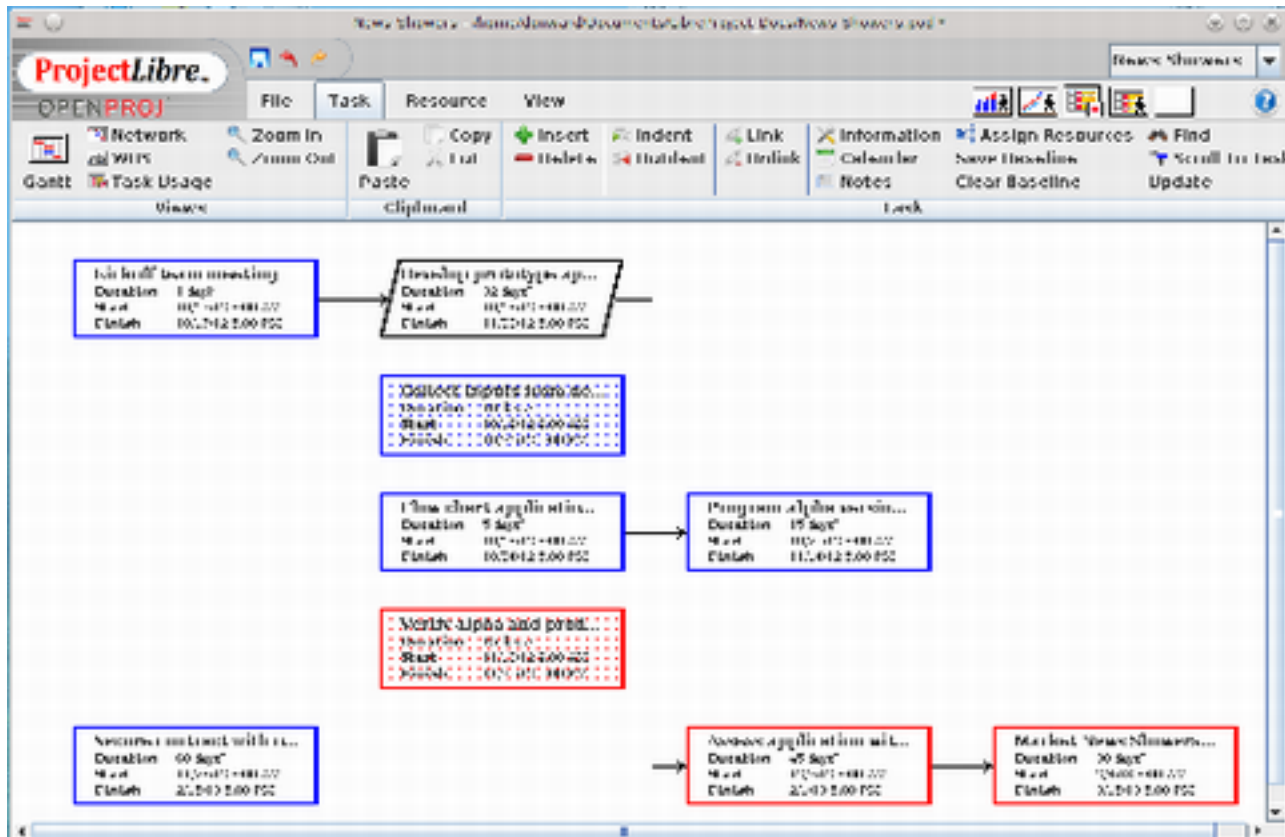
Network or flow diagram view:

Figure 34. Network view of task flow

Figure 34 shows each of the tasks in our example project plan for News Showers in summary form. In one sense, this network view is very similar to the right side of the Gantt chart (Figure 30); the information is the same. The network view simply puts that information in a flow diagram form and relocates the information in each task row within the appropriate block. The analyst can also move the task blocks in the diagram to change the graphical presentation by hovering the cursor over the outline of the block to be moved and waiting until a hand icon appears. Left click and hold the left mouse button down and reposition the selected block to any desired position on the white space. Similarly, if you hover the cursor over a location in the interior of a block and then left click, you can insert additional text or corrected text with keypad inputs.

The linkages between tasks is retained and the critical path is also marked with a red

outline for those blocks.   Linkages can also be added, removed, or modified in this view. If you hover the cursor over a task dependency connection line, a plus sign appears. Then a left mouse click pops up a dialog box (Figure 35) which allows you to alter the connection as desired. This dialog box lays out the From-To dependency sequence, providing both labels for clear identification. Then it offers four possible dependency connection types: FS (the default option), FF, SF, and SS. FS stands for Finish-to-Start (of the From task to the To task), FF implies Finish-to-Finish, SF indicates Start-to-Finish, and SS means Start-to-Start. The choice of connection types obviously alters the flow of the work between tasks. The default choice is by far the most common usage. Notice that this dialog box also allows addition of lag (free) time between tasks with a numerical value in either hours or days or other appropriate time unit. The lower row of four selections allows you to completely remove the linkage, accept changes made, cancel your operation, or go to the on-line help documentation (which is still being developed for ProjectLibre at this writing).
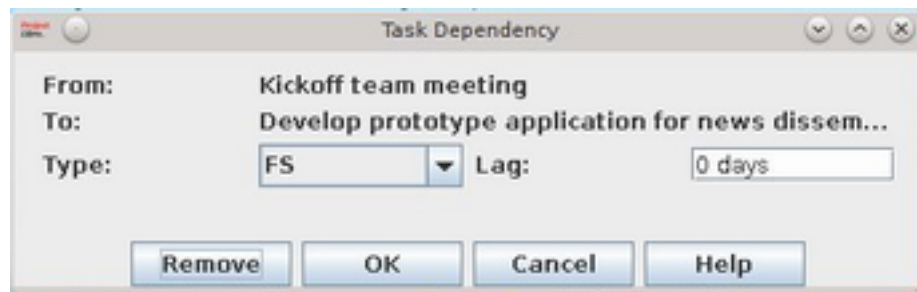

Figure 35.   Task dependency modification dialogue box

Finally, the Network view does not show the chronology of the tasks quite as completely (there is no calendar – merely start and finish dates – showing the progression of tasks).

Work Breakdown Structure:

Figure 37 is the default chart that appears when the WBS (blue ellipse in Figure 36) selection is made with a left mouse click.   This diagram is similar to the Network flow view of the tasks in that each block is separate. However, the textual entries inside the block are related to blocks in the original Gantt spreadsheet, in the example shown "Cost" (implying that as costs are entered during the course of a project's life, they can be monitored by the analyst and/or manager from this block) and "Budget". Notice that this second entry is blank; if we add a budget column (How? There is no "Budget" entry in the dialogue box of Figure 31.)
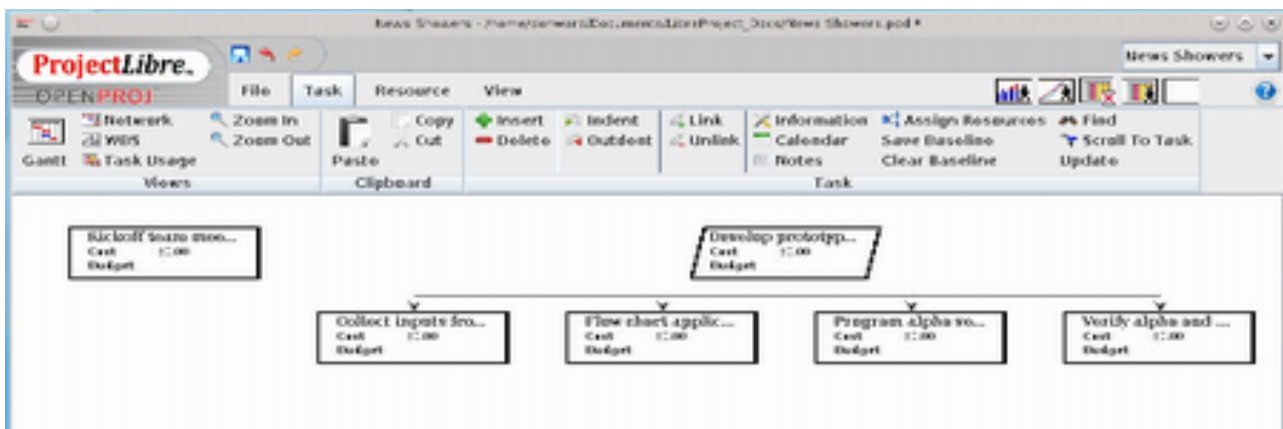
Figure 36. Work Breakdown Structure (WBS) view of tasks

This chart can be modified in much the same way as the Network view chart. Left clicking on textual material in a block allows modification of the text. Also, hovering the mouse over a block outline allows the block to be moved. For example, Figure 36 shows the task blocks for our example project laid out in a horizontal configuration.
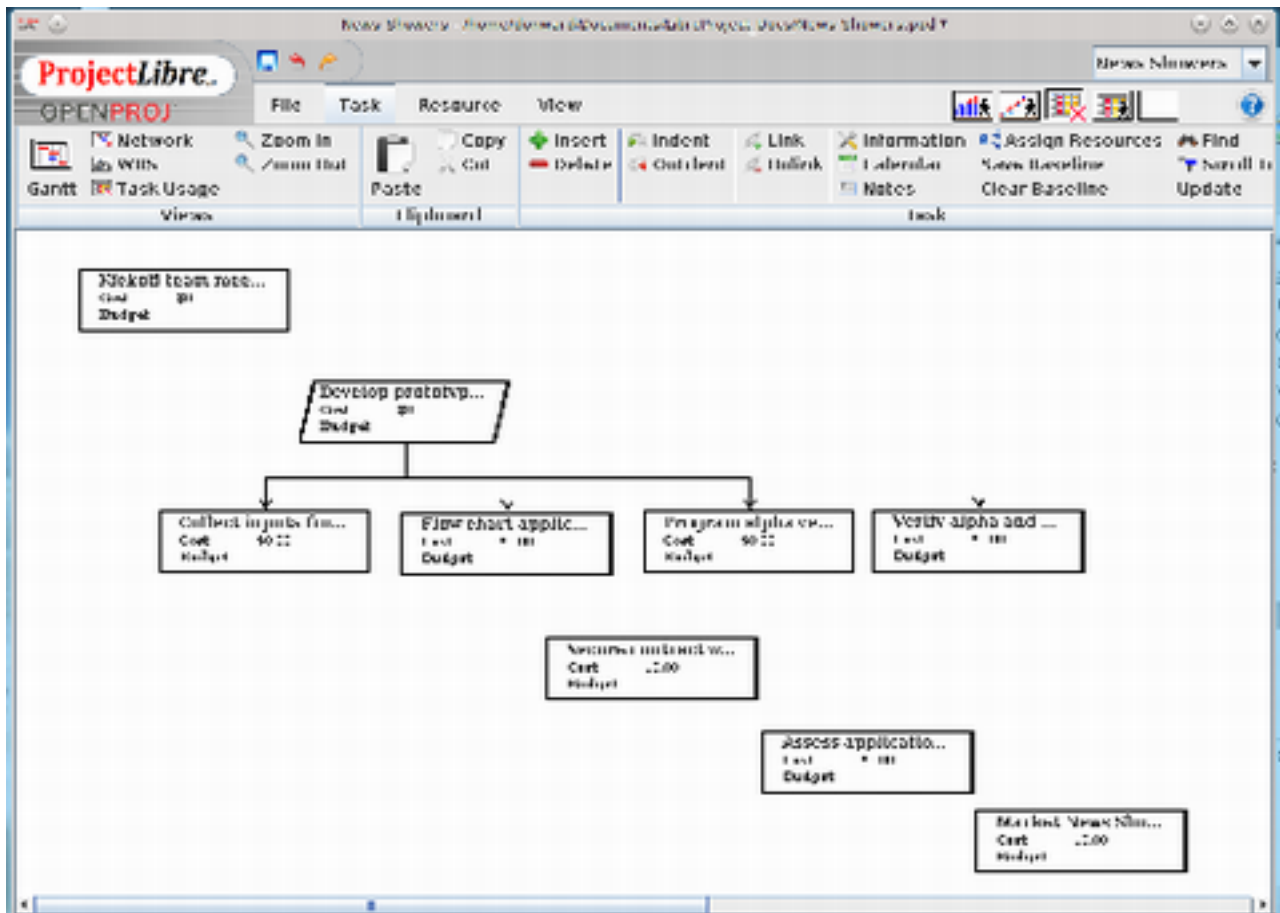

Figure 37. Work Breakdown Structure (WBS) – tasks rearranged

It might suit your purposes better and be more descriptive to arrange the WBS in a

vertical fashion (Figure 37). Moving the blocks is carried out just as described in the Network view paragraph: hover the cursor over the outline of the block to be moved, then left click-and-drag the block to the desired position. The connection lines can be altered similar to how modifications described for the Network view linkages. Of course, the dialogue box is slightly different (Figure 38) and the analyst can only remove the hierarchical relationship (equivalent to selecting "Outdent" in the command line for the subtask) or accept it.

Figure 38. Hierarchical relation dialog box

One final note: when the narrative in the boxes (the task descriptions, for example) exceeds the width shown in the box, a left mouse click with the cursor simply inside the text area will show the rest of the line of text. This "peek-to-the-right" trick also works in the Network view of the previous paragraph. In that case, it is helpful to be sure the cursor is on the line of text to be extended for viewing.
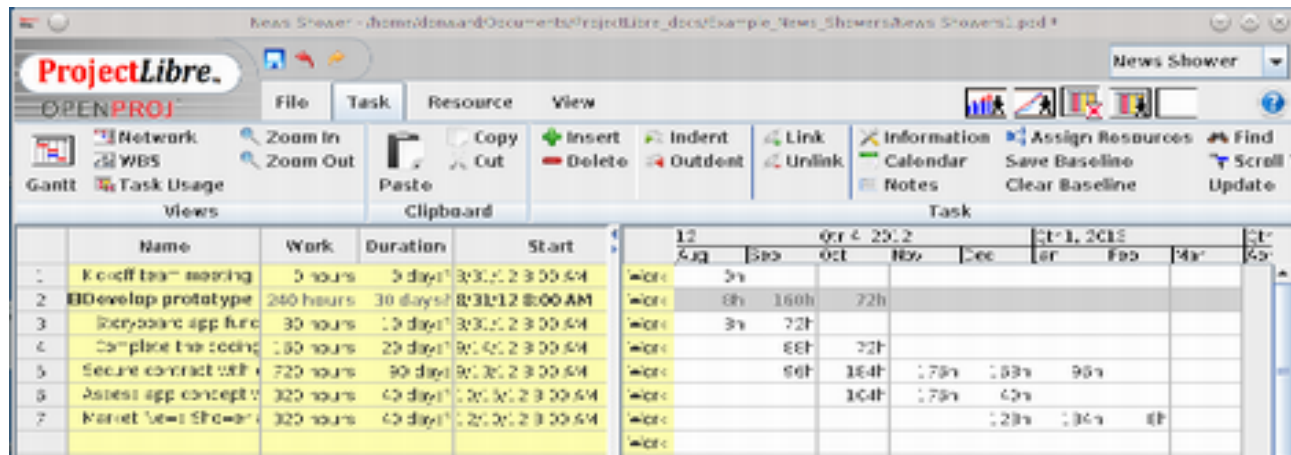
Task Usage view:

Figure 39. Task Usage view

The next selection in the "Views" section of the command ribbon is the "Task Usage View" (Figure 39), which shows hourly work based on information entered. The left half (the spreadsheet half) of the view summarizes the total allocation of hours to each task while the right half (the schedule plan) shows the hourly profile of available workers' hours against chronological time. The spreadsheet is identical to the Gantt chart spreadsheet previously described; the only difference appears to be the light tan background color for this information in the Task Usage view.

The right side of the view shows scheduled work. Observe that scheduled work for a task is the sum of the time allotted to the subtasks within each hierarchical layer. For

example, the sum of the hours in lines 3 and 4 adds up the total hours for the parent task in line 2 (green rectangle) for each month of time. It is possible to directly edit the hours in the right side of this view, but it is also quite possible (perhaps even likely) that doing so will alter the totals on the left side and may cause fractional hours or days to be incorporated into the schedule.
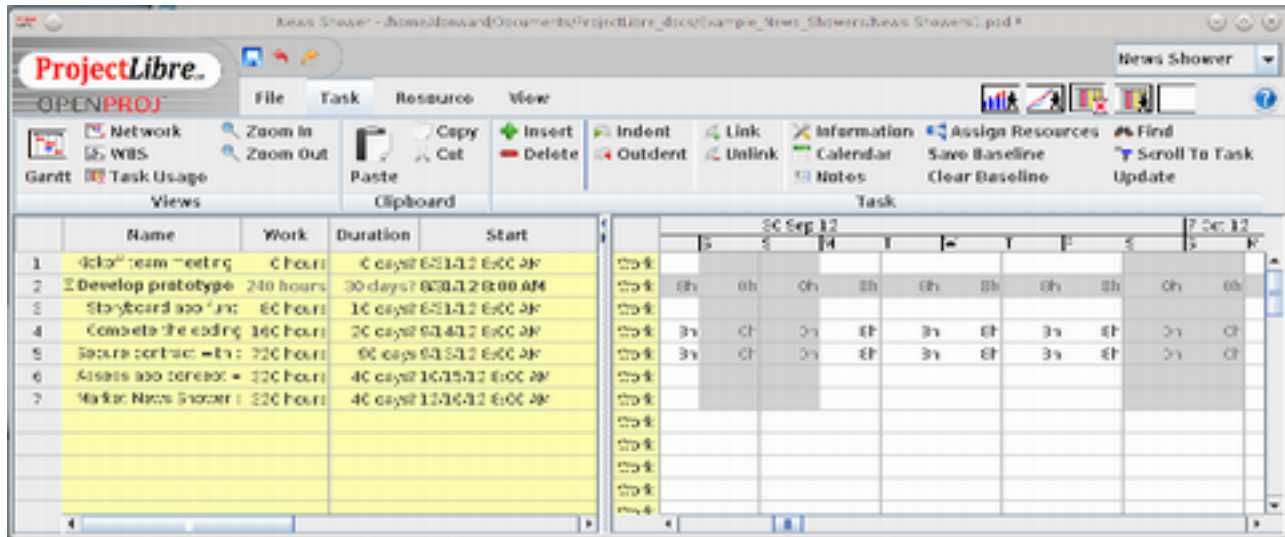
Zoom In or Zoom Out:

Figure 40. Zoom In to daily hours

This last set of selections in the "Views" section control the time scale in the schedule (right) side of the Gantt chart. Left clicking on the "Zoom In" command can drive the schedule to show hours (still in the Task Usage view) for each day of the planned work (Figure 40). Increments can go down to hours to be devoted each day to a given task by repeatedly selecting this command (Figure 41); this level is the smallest time increment that the Zoom In command can select in any of the Task Views.
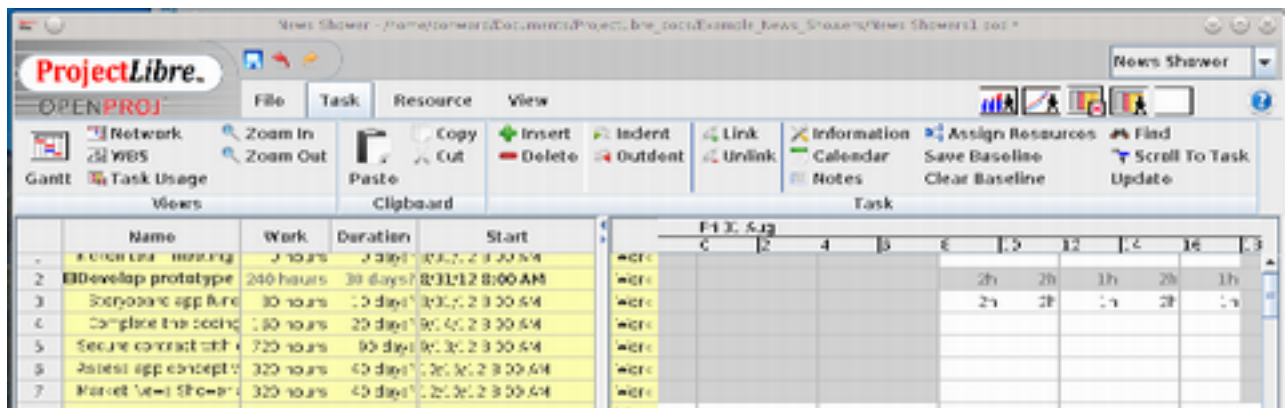

Figure 41. Zoom In to hours for a given day

Zoom Out obviously resets the time scale on the right side of the Gantt chart in the opposite direction as Zoom In. This pair of is quite useful in setting the scales to evaluate the

critical path in the basic Gantt chart (Figure 42). This graphic shows the schedule for the entire example News Showers project reduced to a total length of five months in three different quarters of two different years. Of course, you can use these two commands to help size a Gantt chart for printing in a report or to examine the details of how work is scheduled.
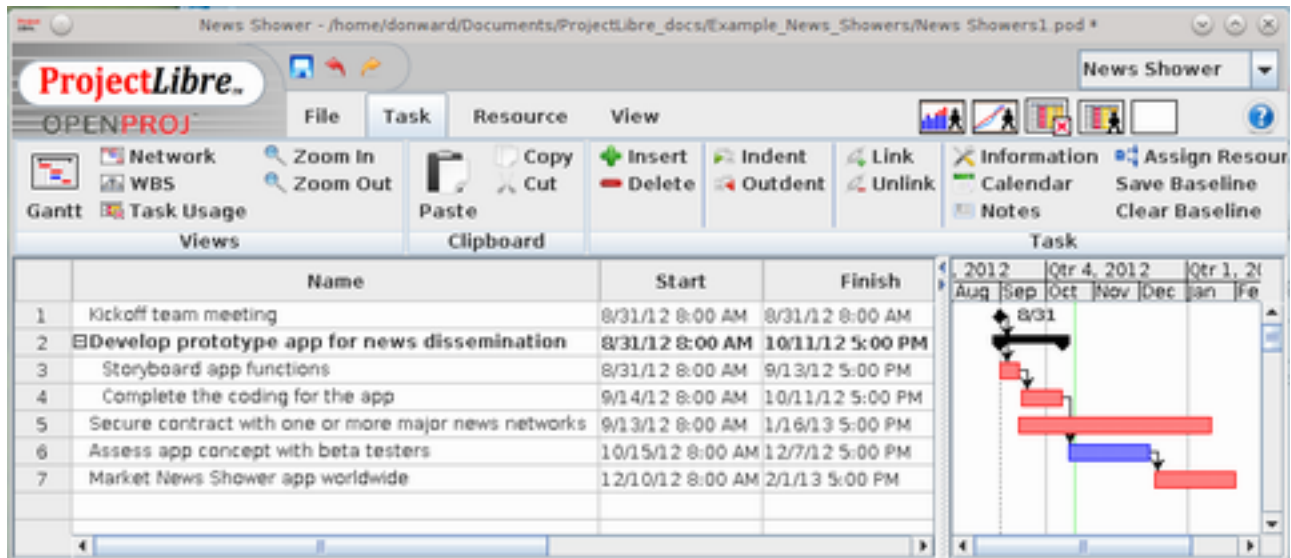

Figure 42.   Zoom Out on Gantt chart view

Zoom Out obviously resets the time scale on the right side of the Gantt chart in the opposite direction as Zoom In. This pair of is quite useful in setting the scales to evaluate the critical path in the basic Gantt chart (Figure 42). This graphic shows the schedule for the entire example News Showers project reduced to a total length of five months in three different quarters of two different years. Of course, you can use these two commands to help size a Gantt chart for printing in a report or to examine the details of how work is scheduled.

Clipboard:

The Clipboard section of the Task command ribbon has only three possible selections: (1) Paste, (2) Copy, and (3) Cut. The names are rather completely descriptive of what each selection does. To use these functions for the Gantt chart spreadsheet the analyst must simply highlight the desired row by left clicking in the first column of the spreadsheet; the selection turns black to show what is selected. Once the desired row is highlighted, left click on Copy, move the cursor to the row on the spreadsheet where you want to insert the duplicate row and left click to highlight the desired location, and then left click on Paste. The results are shown in Figure 43.
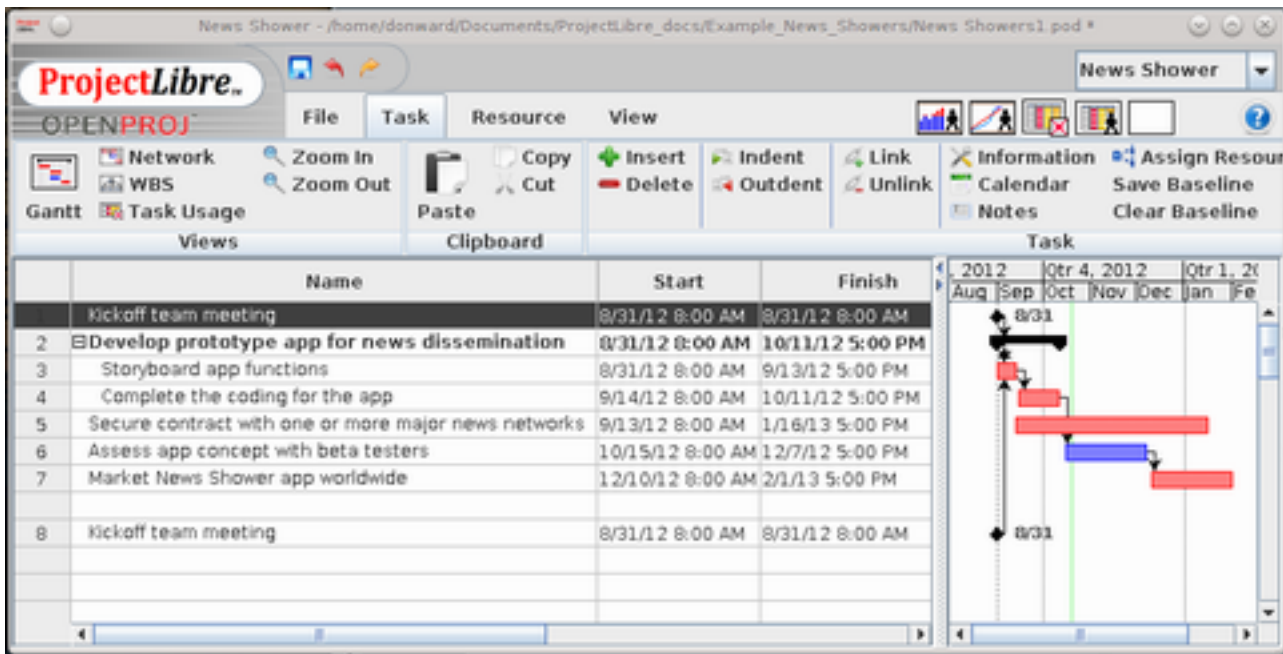
Figure 43. Use of Copy, Paste, and Cut from the Clipboard

The Cut command can be used to remove a highlighted row in the spreadsheet. The same effect can be achieved by selecting the "Undo" command at the top of the ProjectLibre command ribbon (magenta ellipse in Figure 43); this selection simply reverses the last issued command. The gold arrow just to the right of this "Undo" arrow is the "Redo" arrow and it reverses the action of the "Undo" arrow. Quite clearly, ProjectLibre provides more than one command to accomplish similar functions. Incidentally, the "Cut", "Copy", and "Paste" command are also available by simply right-clicking with the cursor hovering over any row or column in the main part of the Gantt chart spreadsheet. In fact this pop-up dialogue box has several other functions including: (1) Indent, (2) Outdent, (3) New (for inserting a new row above the cursor in the Gantt spreadsheet), (4) Delete (which deletes a selected or highlighted item), (5) Expand ??not sure what these last two do??), and (6) Collapse (?? ??). To use these last two functions the cursor????
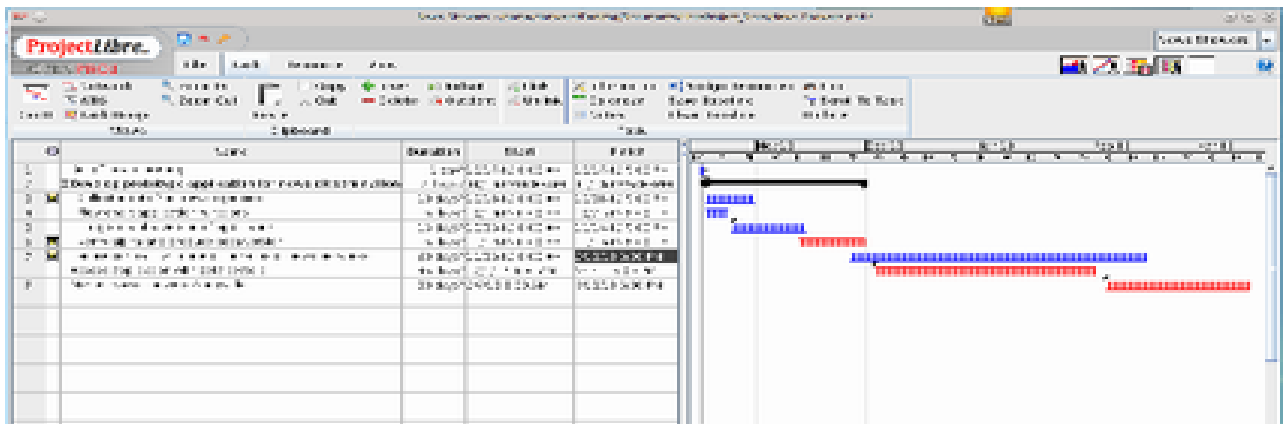
Tasks:

Figure 44. Task section of Task view

The third and last group of commands on the command bars under the Task tab is marked in Figure 44 with a magenta outline. It is by far the largest set of commands to be discussed under the Task view tab, having a total of 15 possible selections available in this section of the command ribbons.

Insert and delete:

These two commands allow insertion of a new row immediately above a selected row in the main Gantt spreadsheet. If you left click on a row (say Row 8 in Figure 44), the row or column is highlighted and choosing "Insert" enters a new blank row immediately above Row 8. If you then enter information for a new task or subtask, the spreadsheet rows are all renumbered to show the new sequence as you inserted them.

Selecting an active task row in the spreadsheet and left clicking on "Delete" in a similar fashion, deletes the selected row and again renumbers the row in sequence. Note that selecting a row for use of either "Insert" or "Delete" can be done in any column on the left hand Gantt spreadsheet and the command action is still carried out for the entire row. These commands have no effect on the schedule elements on the right side of the Gantt chart.

Indent and Outdent:

The Indent and Outdent commands have already been briefly introduced and used in the introductory sections where we spelled out how to show levels in the hierarchy for subtasks. The yellow rectangle shows result making "Indent" selections for the indicated subtasks. It is also possible for repeat the process and n the hierarchy down in sub-subtasks of course. Naturally, the "Outdent" is the inverse of the "Indent" command and simply removes a level from the hierarchy.

Link and Unlink:

The Link and Unlink commands have also already been briefly introduced and used in the introductory sections where we spelled out how to connect tasks and subtasks when the elements were dependent on one another (p. 15 and following). To use the commands on this Task ribbon, first select the link to be operated upon in the left side of the Gantt chart by

left-clicking on one of the two task rows connected by the link to be modified. The task row will be highlighted in black as row 2 is shown in Figure 45. Then go to the task row at the other end of the linking arrow (row 8 in this case), hold down the ctrl key and left click again to highlight both rows 2 and 8 (Figure 45). Then select the Link (or Unlink) command from the ProjectLibre command ribbon to modify the connection.
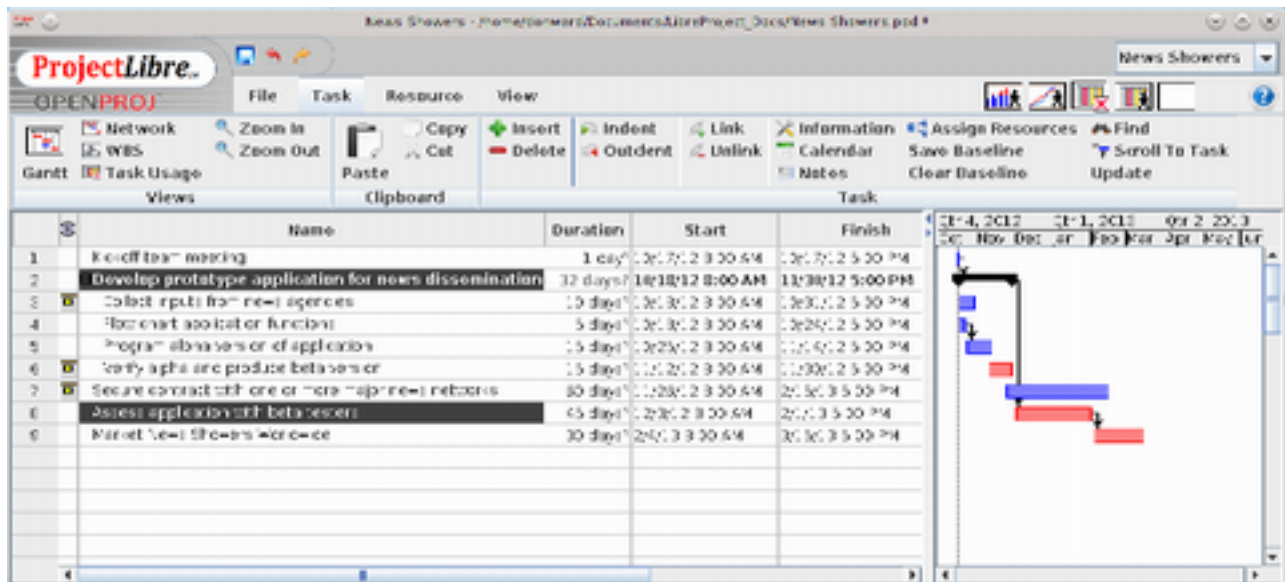

Figure 45.   Using Link and Unlink commands

You an also hover the cursor over the link (yellow ellipse in Figure 45) or any of the white space on the right side of the Gantt chart, right-click, and a dialog box similar to the one shown in Figure 46 pops up.

Figure 46.   Link popup dialogue box

If you left-click on "Split", a small cursor with vertical parallel bars displays. Moving that cursor to one of the blocks on the schedule (right hand) side of the Gantt chart and left-clicking splits the designated block into two parts. Splitting a block can be applied to any of the main blocks (not the black schedule bar). This feature allows repetitively accomplished task events to be shown on the Gantt schedule.

If you left-click on the white circle (radio button) in front of "Show Assignments", resource assignments for the task will be shown (Figure 47), assuming that resources have been previously assigned to the task. This action toggles between the Task view and the Resources view.
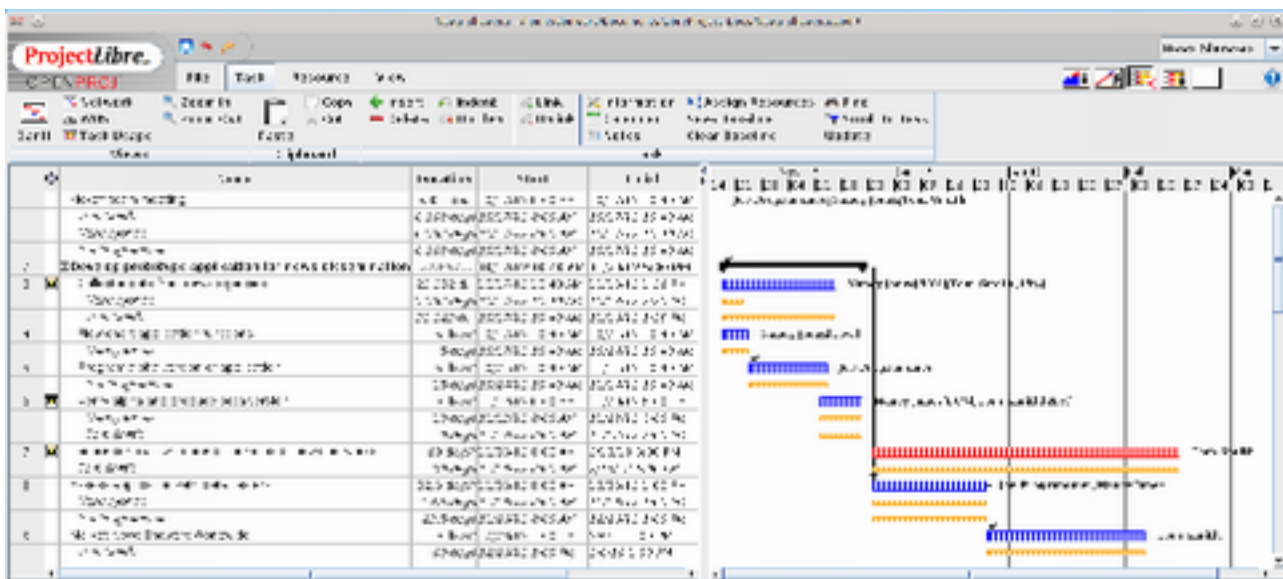
Figure 47. "Show Assignments" results illustrated

The "Show Links" radio button serves as a similar toggle and is operational in either these Gantt schedule or the Resource Assignment views. It simply allows showing all the linkages between tasks or removing them from the schedule (right-hand side) chart.

The "Show Calendar" radio button (in Figure 46) is also a similar toggle switch in both the Gantt Schedule and the Resource Assignment views. However, note that this switch only controls the calendar grid; it does not switch on or off the calendar headings in the top two lines of these two views. The "Show Rows" toggle button (again a radio button in Figure 46) simply adds or removes a horizontal grid to the right side of these two views. Note that no horizontal grid lines are added for task rows on the spreadsheet side of the Gantt chart that are not filled in. This result might suggest that when you want to copy a schedule containing horizontal gridding for the Gantt schedule it might be best to omit the blank lines on the spreadsheet side (left side) of the Gantt chart (as suggested in Figure 48).
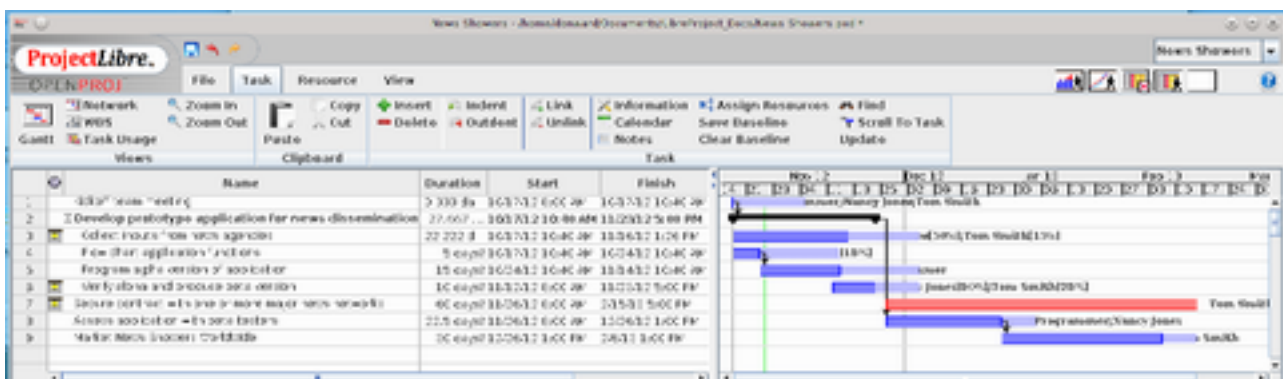

Figure 48. Results of toggling on "Show Rows"

The la st two selections in the dialogue box illustrated in Figure 46 allow tailoring of the Bar Styles (Figure 49) and the Annotation Styles (Figure 50) for the Gantt schedule (right side

of the Gantt chart). Each of these "Styles" menus is a set of radio buttons that merely toggles on on or off the selected style; as is by now familiar, a filled in radio button indicates that the style is shown on the Gantt schedule and an empty radio button indicates that the style is not shown there. These second layer dialogue boxes do not allow any change in color or shape of the bars on the Gantt schedule.

Figure 49. Bar Styles second-level pop-up dialogue

Figure 49 shows the Bar Styles second-level dialogue box with its default settings. To illustrate a change (shown in Figure 48), toggle the Total Slack bar on by left-clicking in the cleared radio button at the bottom of the chart and this selection puts the blue diagonal bars at the end of several task bars on the Gantt schedule chart. Notice that these "Slack" bars cover up portions of the resource listings; this effect may not be desirable for all purposes.

Figure 50. Annotation Styles second-level pop-up dialogue

Figure 50 shows the Annotation Styles second-level dialogue box with its two default settings – Normal Tasks and Milestones. Typically, the analyst would want to show both of these Annotation Styles. However, in the examples shown in Figures 45, 47, and 48 none of the tasks have been marked as milestones. To do so, you must go to the Information command (yellow ellipse in Figure 48) and left-click; the dialogue box shown in Figure 51 appears. Go to the "Advanced" tab and click on the "Display task as milestone" check box and the Kickoff Meeting task will appear as a black diamond on the Gantt schedule (magenta ellipse in Figure 52).
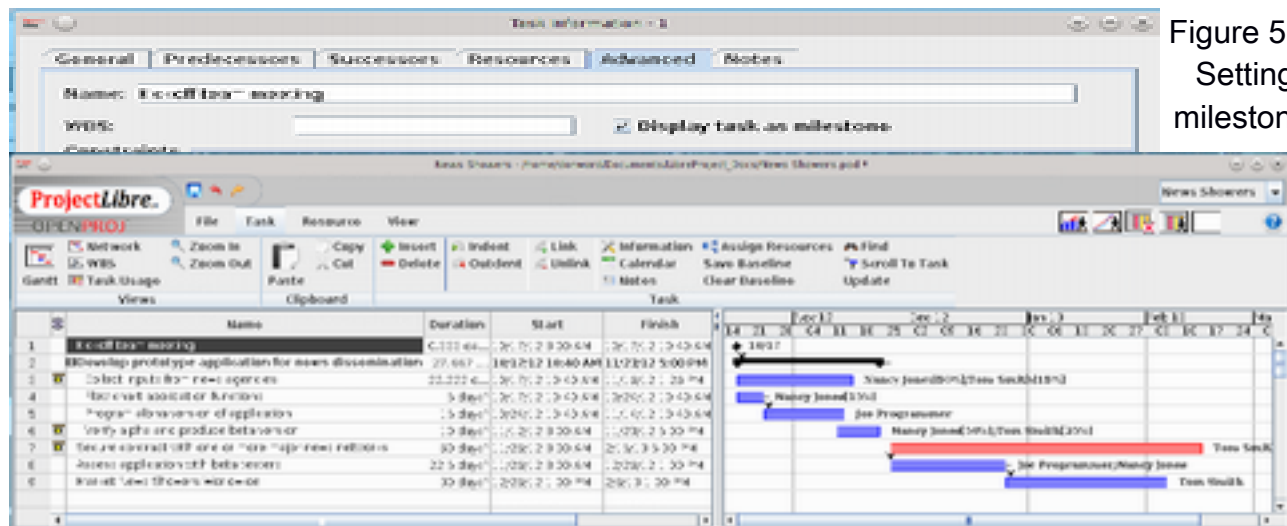

Figure 51. Setting milestones

Figure 52. Kickoff task as a milestone

Information:

The Information command (yellow ellipse in Figure 48) was introduced earlier to discuss Annotation Styles in the previous paragraphs. Now we need to look at each of the Tabs shown in Figure 51 and explain the functionality they provide.

We start with the General tab, the default tab that appears when the Information tab is selected with the mouse. This tab is an alternative way to fill in the most important information about project tasks in one convenient menu. You can enter/edit task information: Duration, Start date and time, Finish date and time, Percent complete (blank until entered), whether Duration is estimated or not (? indicates estimated), the amount of work to be done (usually in hours or days), Priority assigned to the task (a numerical value between 0 and 1000), and Baseline information (Start and End) - once a baseline schedule has been agreed upon and entered. Our starting entries (so far entered directly on the spreadsheet for our News Showers example) is displayed on this General tab.

To use the Information command properly, first select a task as suggested in Figure 53, where the Kickoff task is highlighted in black by left-clicking on the 1 in column 1 of the Gantt spreadsheet (left side). If you select more than one task row and then click on the Information command, a warning box will remind you that only one task can be edited at a time with this approach (Figure 54). Once a single task is properly selected (Figure 53), clicking on Information command brings up the dialogue box in Figure 55 with the General tab selected by default.
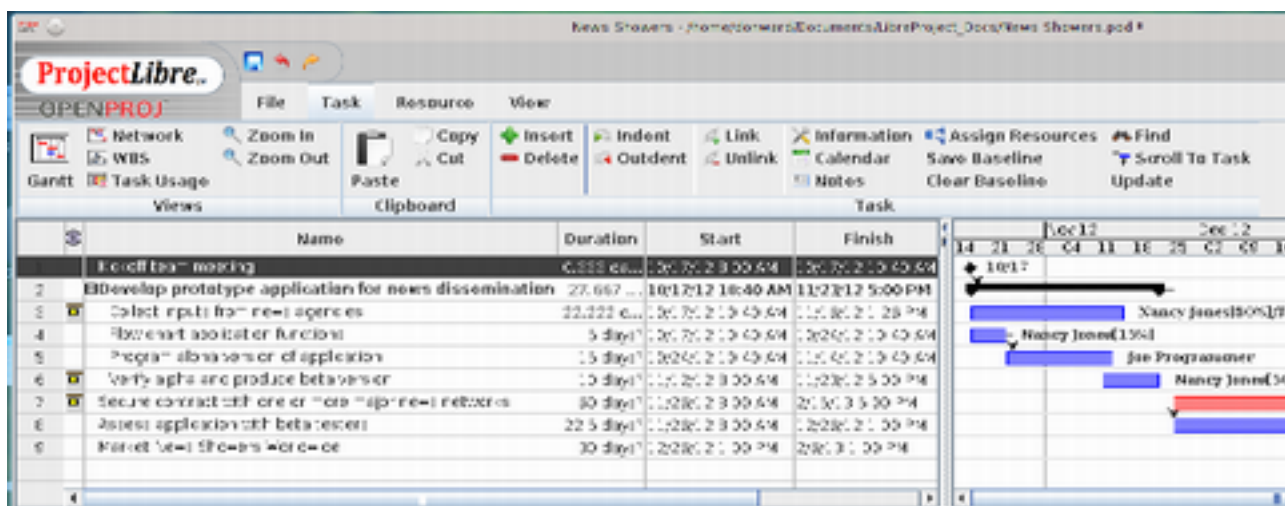

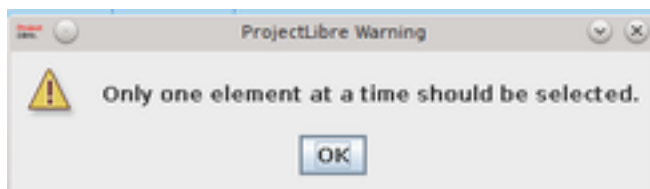Figure 53. Kickoff task selected for Information command in Task block

Figure 54. Warning message if multiple tasks are selected for Information

Figure 55. General tab for Information command

Resources

1.   http://project-management-knowledge.com/definition