CEE 538 Computer-Aided Project Management

What time units does P6 use to store and work with Activity Durations internally?

Internally, P6 stores and works with "Activity Durations in Hours" (and not Activity Durations in "Days" or "Weeks").

Why is this important for the Woodstock Sawmill Case?

The fact that P6 stores and works with Activity Durations in hours is important for projects such as the Woodstock Sawmill Case because their activity durations are specified in weeks (and not days) and the project needs to be scheduled using weeks and not days. The consequence is that oftentimes, the scheduling results for the Woodstock Sawmill may appear to be wrong.

For example, it is possible to observe the following unexpected behavior:

- Changing the calendar assigned to activities also changes their durations. Why?
- The bars in the P6 Gantt chart for the Woodstock Sawmill appear to be too short. Why?

What is the underlying key relationship that produces these unexpected results?

The key relationship in P6: Each calendar defines its own "Hours per Time Period".

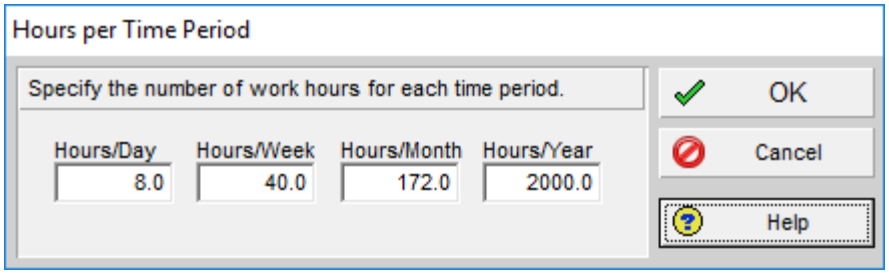
The durations shown by P6 are continuously and dynamically translated from their internally stored values, which are "durations in hours", to the displayed durations in "other time units".

The translation from "hours" to "other time units" is controlled by the settings in "Hours per Time Period" which are defined inside each calendar and give the "number of hours" in a "day", in a "week", in a "month", and in a "year".

You can change these settings for each calendar, using the dialog "Hours per Time Period":

- Enterprise > Calendars > (select calendar) > Modify > Time Periods

For example, the dialog for the "Standard 5 Day Workweek" calendar, is:



Notice that the "Standard 5 Day Workweek" calendar has 5*8 = 40 Hours/Week. Similarly, a "6 Day Week" calendar should have 6*8 = 48 Hours/Week.

How can I create an Incorrect "6-Day Week" Calendar for the Woodstock Sawmill?

For the "Woodstock Sawmill Project" you need a "6-Day Week" calendar because activity durations are given in weeks (and not days) with 6 working days in each week.

Since P6 does not include a "6-Day Week" calendar, it is necessary to create one by copying and modifying an existing calendar. At this point it is possible to make a mistake and create "6-Day Week" calendar that has 40 Hours/Week. This could be done by copying and modifying a "5-Day Week" calendar and forgetting to adjust the "Hours per Time Period" from 40 Hours/Week to 48 Hours/Week.

Why is the above an Incorrect "6-Day Week" Calendar for the Woodstock Sawmill?

Suppose, for example, that all activity durations for the Woodstock Sawmill are entered using the above "6-Day Week" calendar (that is incorrect because it has 40 Hours/Week).

When an activity duration is entered as "1w" it will be stored internally as "40 hours".

When P6 is set to show durations in "weeks" it will show what appears to be the correct duration "1w" because it will translate "40 hours" using again the factor "40 Hours/Week".

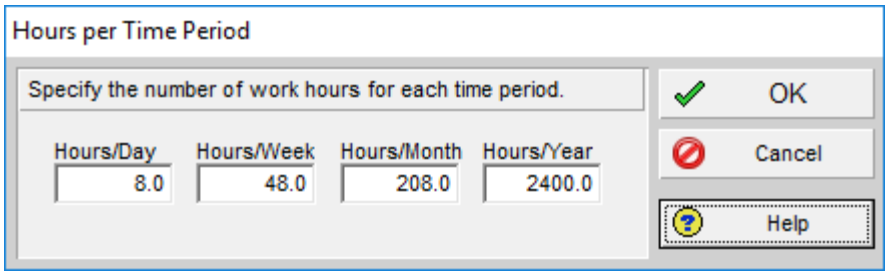
However, when P6 is asked to show durations in days (using "Edit" > "User Preferences"), P6 will display the wrong duration. I.e., P6 will show 1w as 5d = 40h/(8h/d), and not the intended duration of 6d.

A consequence of this mistake is that all activity durations have been stored as 5/6 of the correct durations and the duration of the entire project will be 5/6 of the correct project duration.

This mistake is also the cause of the incorrect (short) lengths for the activity bars in the bar chart. The bar for a 1-week activity will have a length of 5/6 weeks. The bar for a 3-week activity will be 2.5-weeks long. All bars will have 5/6 of the correct time length.

How should I define the "6-Day Week" Calendar for the Woodstock Sawmill Project?

To avoid this mistake, the "Hours per Time Period" for the "6-Day week" calendar for the Woodstock Sawmill Project should be defined as follows with (48h/w, 208h/mo, 2400h/y):



How can I correct the "6-Day Week" Calendar and all Activity Durations for the Woodstock Sawmill, easily?

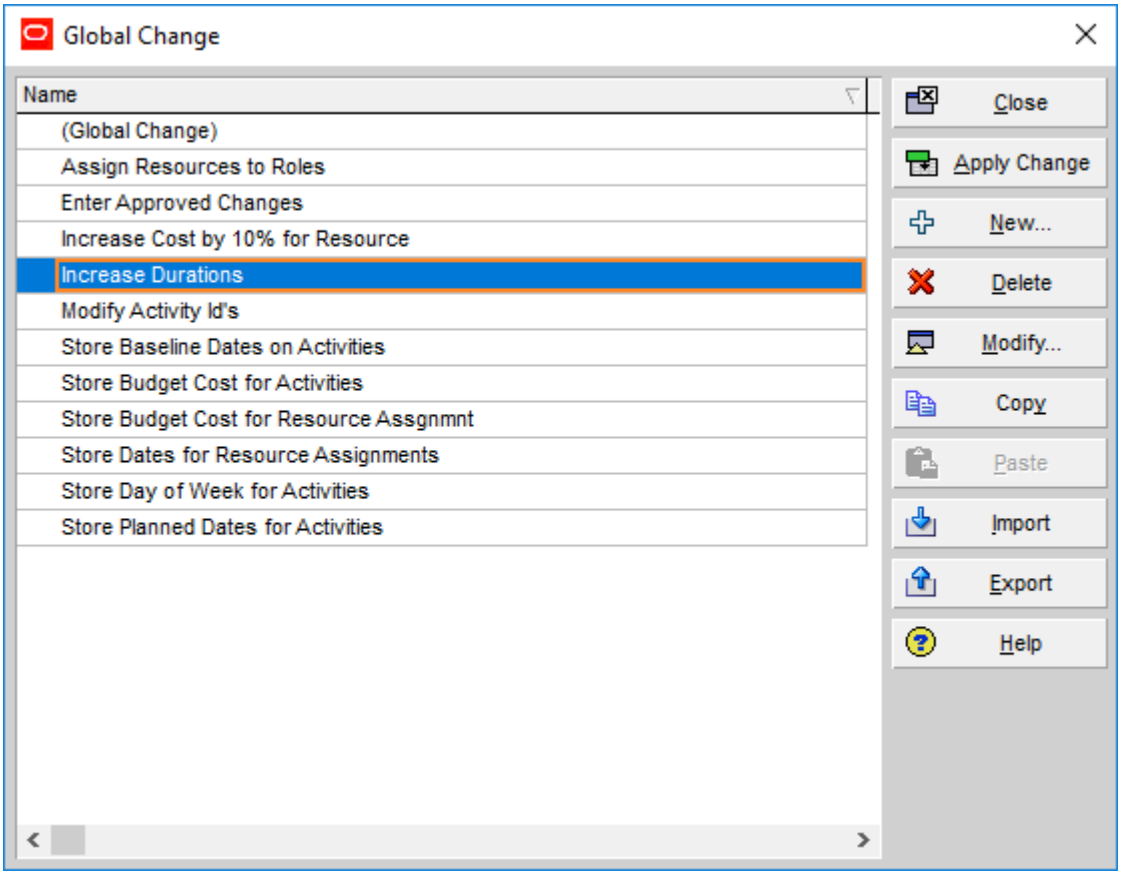
Consider the situation where by mistake, the durations for all activities for the Woodstock Sawmill were entered in "weeks" using an incorrect "6-Day Week" calendar that had 40hrs/week (instead of the correct 48hrs/week). This would make all activity durations stored internally by P6 to be too short—their internal duration (in hours) would be 5/6 of the correct duration (in hours).

Fortunately, this mistake can be corrected easily, in two steps:

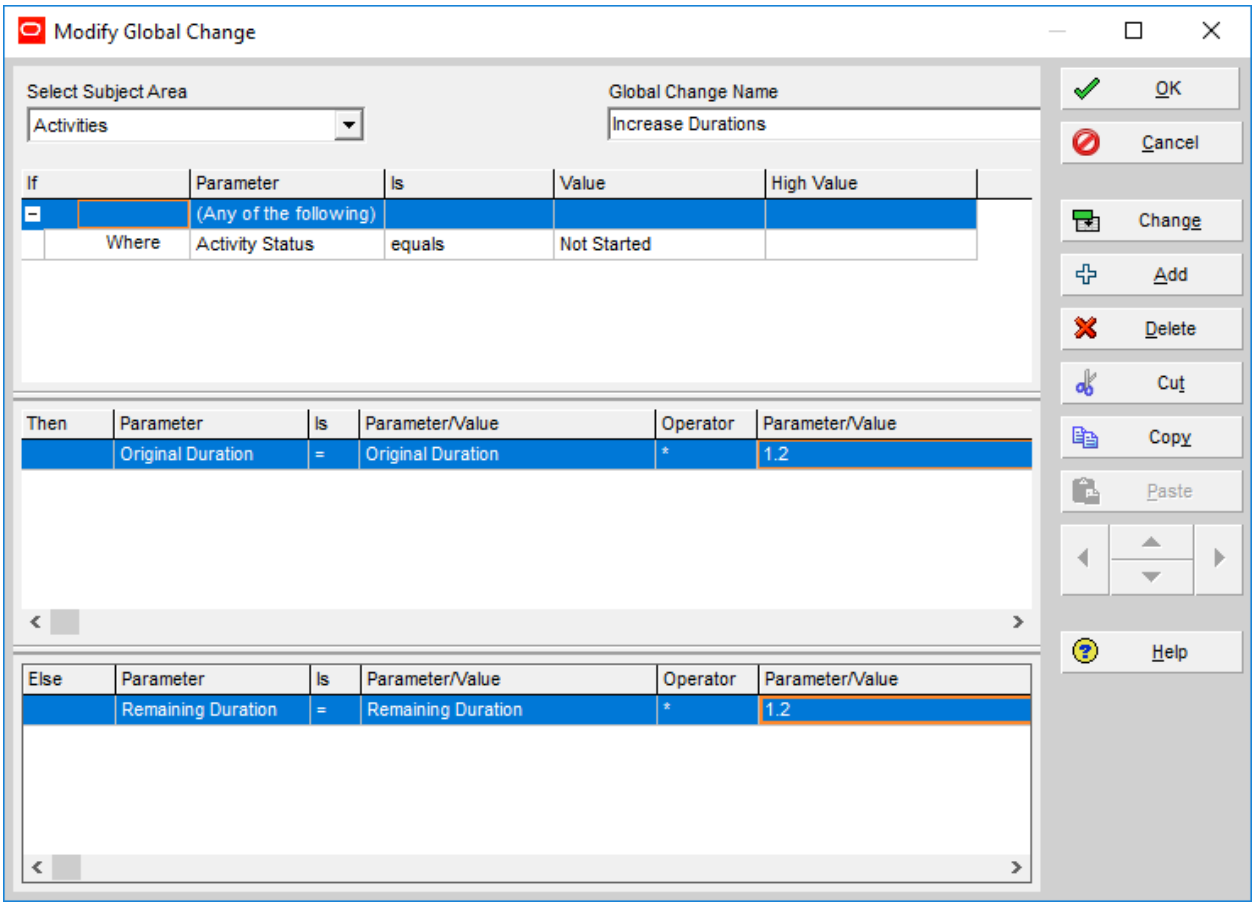
1. Change the "Hours per Time Period" for the "6-Day Week" calendar to the correct values of (48h/w, 208h/mo, 2400h/y) as shown in the example above.
2. Use "Global Change" to increase the duration of all activity durations (which are stored internally in hours) by a factor of 6/5=1.2

To make this global change follow these steps:

- Tools > Global Change
- Select "Increase Durations" and click "Modify…".



- Set the "Parameter/Value" to 1.2 as shown below:



Click "OK".

- Click on "Apply Change".

Now all activities should have the intended durations (in hours, days, and weeks) and bars in the bar-chart should have the correct length. The duration of the project should also be correct.