

**99 Tricks and Traps**

**for**

**Oracle Primavera P6**

**PPM Professional**

***The Casual User's Survival Guide  
Updated for Version 22***

**By**

***Paul E Harris***

**of**

***Eastwood Harris Pty Ltd***

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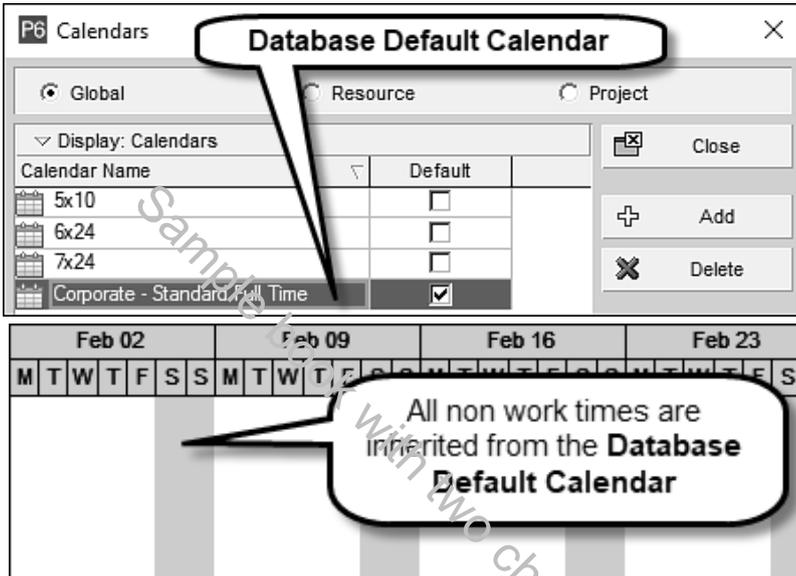
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## 5 CALENDAR ISSUES

### 5.1 Non-Work time display

The **Database Default Calendar** is selected in the **Enterprise, Calendars...** form and is used to display the Nonworking times for all users in all layouts and for all projects in a database.



It is not possible for users to display different nonwork periods for different projects or views, as in most other scheduling software packages, without affecting all other projects in a database.

For example, Microsoft Project may display a different calendar non work time in each different View and Elecosoft (Asta) Powerproject may display each activity calendar as shading behind each activity bar.

This may become an issue with projects that have different work periods and rosters. This issue may be solved by creating another database with a different **Database Default Calendar**.

## 5.2 Copying Project Calendars

Project calendars may not be copied, but may be moved to become a Global Calendar:

To copy a calendar from one project to another:

- ❖ Move the Project Calendar to be a Global Calendar,
- ❖ Create a new Project Calendar in both projects by copying the new Global Calendar.
- ❖ You will have to assign the newly created calendar to any existing activities as they will now be assigned the original calendar, that will now be a Global calendar.
- ❖ **NOTE:** When you delete the Global calendar you will be offered the option of selecting a replacement calendar.

## 5.3 Inherit Holidays and Exceptions from a Global Calendar

When creating a new Project or Resource calendar, a Global Calendar may be selected from the drop-down box and this function will link the calendar holidays from the selected Global Calendar into the displayed calendar.

The Global and the new Project or Resource calendars will remain linked and a change to a Global calendar holiday will be reflected in a calendar with Inherited Holidays.

**NOTE:** It is suggested that this option **NEVER** be used so each calendar is created as standalone without inheriting holidays from another calendar, and therefore will not change if another calendar has holidays changed.

## 5.4 Calendars for Calculating Project, WBS and Other Summary Durations

In Primavera Version 7 and later, the summary durations of bands projects in the **Projects Window** are calculated based on the **Database Default Calendar** from the first activity Start to the last activity Finish, from all the project in that band.

The summary duration of WBS bands and other bands created by Grouping activities by **User Defined Fields** or Activity Codes are calculated by:

- ❖ When all the activities in a band share the same calendar, then the summary duration is calculated on the calendar of the activities in the band and the calendar name is displayed in the Calendar column.
- ❖ When the calendars for the activities are different, the summary duration is calculated on the Project Default calendar and the calendar field is blank.

The Project Default in the picture below has the calendar set as the 8hr/d & 5d/w and the **Project Default** calendar is used to calculate the summary duration for WBS Nodes, Projects when the calendars are different:

Calendars Durations	Calendar	Original Duration	Dec 06							Dec 13							
			n	Mon	Tue	Wed	Thr	Fri	Sat	Sun	Mon	Tue	Wed	Thr	Fri	S	
<b>Calendars = Project Default</b>	8hr/d & 5d/w	10d	[Gantt chart showing a single bar from Dec 06 to Dec 13]														
A1030	8hr/d & 5d/w	10d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1040	8hr/d & 5d/w	7d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1050	8hr/d & 5d/w	5d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
<b>Calendars all different</b>		10d	[Gantt chart showing a single bar from Dec 06 to Dec 13]														
A1060	7 x 24hr. Days	12d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1070	8hr/d & 7d/w	12d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1080	8hr/d & 5d/w	10d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
<b>Calendars NOT = Project Def</b>	7 x 24hr. Days	17d	[Gantt chart showing a single bar from Dec 06 to Dec 13]														
A1090	7 x 24hr. Days	12d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1100	7 x 24hr. Days	5d	[Gantt chart showing a bar from Dec 06 to Dec 13]														
A1110	7 x 24hr. Days	8d	[Gantt chart showing a bar from Dec 06 to Dec 13]														

## 5.5 Resource Dependent Activity Start Date and Time

When an activity is made **Resource Dependent**, unlike in some other software, it still acknowledges the Activity Calendar for calculating the start of the resource work.

Activity Type	Calendar	Resources	Aug 03											
			Fri	S	S	M	T	W	T	Fri	S			
Resource Dependent	5 x 8 No Hols													
Resource Dependent	5 x 8 No Hols	24 h/d 7d/w												
Resource Dependent	7 x 24 No Hols	24 h/d 7d/w												

This activity is scheduled to start on the Data Date ONLY when both the resource and activity are assigned a 24x7 calendar

## 5.6 Project or Global calendars

The author recommends the use of Project Calendars in all project environments:

- ❖ These may only be edited when the project is open.
- ❖ When Global Calendars are assigned to activities, then these calendars may be edited without the project scheduler's knowledge and the schedule will calculate differently.
- ❖ Maintenance programs are often run with Global Calendars, but these need to be strictly controlled.

## 5.7 Elapsed Duration Activities

Activities like “concrete curing” and “process testing” that take place 24 hours per day may be modeled using a 24 hour per day calendar. The disadvantage of this option is that if the predecessor ends at 17:00 then a 5-day curing activity will start and finish at 17:00 and will have float when the successor starts the following morning. To prevent this, I recommend putting these types of activities on calendars with the same hours per day as the other work, but on a 7 day/week basis without weekends or non-workdays:

Activity Name	Calendar	Orig Dur	Start	Finish	Total Float
<b>Elapsed Duartions</b>					
<b>All Activities on a 8hr/day 5 days/week</b>					
Pour	8hr/d 5d/w	5d	09-Jan-23 08	13-Jan-23 16	0d
Cure	8hr/d 5d/w	5d	16-Jan-23 08	20-Jan-23 16	0d
Strip	8hr/d 5d/w	5d	23-Jan-23 08	27-Jan-23 16	0d
<b>Curing on 8 hour per day 7days/week</b>					
Pour	8hr/d 5d/w	5d	09-Jan-23 08	13-Jan-23 16	0d
Cure	8hr/d 7d/w	5d	14-Jan-23 08	18-Jan-23 16	0d
Strip	8hr/d 5d/w	5d	19-Jan-23 08	25-Jan-23 16	0d
<b>Curing on 24 hour per day 7days/week</b>					
Pour	8hr/d 5d/w	5d	09-Jan-23 08	13-Jan-23 16	0d
Cure	24hr/d 7d/w	5d	13-Jan-23 16	18-Jan-23 16	0d 15h
Strip	8hr/d 5d/w	5d	19-Jan-23 08	25-Jan-23 16	0d

**NOTE:** If the curing activity ends on Saturday, then it will normally still have Total Float when the successor may not start till the following Monday.

## 5.8 Tips for Mixed Calendar Schedules

When a project has mixed calendars, say an 8- and 10-hour per day, then a change of calendar from a predecessor on an 8-hour per day calendar to a successor on a 10-hour calendar, the successor activity may have one hour of work on the same day as the predecessor and span 2 days. This situation leads to interesting Float calculations and confusion to schedulers.

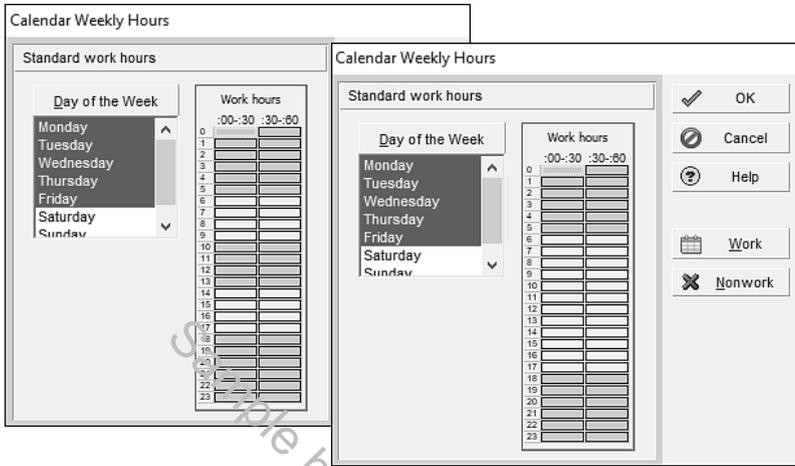
Calendar	Original Duration	Mon Apr 02														Tue Apr 03																
		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
5d/Av 8:00-16:00	1d	[Bar from 8:00 to 16:00 on Mon Apr 02]																														
5d/Av 7:00-17:00	1d															[Bar from 7:00 on Mon Apr 02 to 17:00 on Tue Apr 03]																

Primavera P6 does not have a “Start on a New Day” function found in other products, such as Elecosoft (Asta) Powerproject, but which in itself brings on a new set of calculation issues.

Techniques that may be considered to ensure one-day activities span one day and two-day activities span two days, etc. are:

- ❖ Apply an appropriate lag to the relationship, not recommended and many contracts disallow this type of relationship, or
- ❖ Ensure all calendars have the same finish time but different start times thus giving the activities a different number of hours per day. Then as long as the activity durations are whole days, they will be scheduled to start at the start of the day according to their calendar and will end at the same time at the end of the day, or
- ❖ When the Start and Finish Times are not an important scheduling consideration, then assign all the calendars the same Start and Finish time, but adjust the duration of the lunch break, so the days have the desired number of hours.

The picture below shows how 8-hour a day and 12-hour a day calendars in the same project may be set up to ensure all activities start and finish on the same day:



Sample book with two chapters

## 9 ADDING RELATIONSHIPS

Unlike Microsoft Project, P6 may have up to four relationships between two activities which makes creating a closed network simpler.

Microsoft Project only allows one relationship between two activities that makes creating a **Closed Network** more difficult, especially when utilizing **Ladder Scheduling**.

### 9.1 Adding relationships

There are several ways to add relationships:

- ❖ Graphically in the Bar Chart. Drag the  mouse pointer from either end of one activity bar to either end of another activity bar to create a dependency.
- ❖ Open the **Edit Relationship** form by double clicking on a relationship to edit an existing relationship.
- ❖ By opening the **Activity, Details** form and select the **Relationships, Predecessor** or **Successor** tabs.
- ❖ Opening the **Assign Predecessor** form or the **Assign Successor** form from the menu or toolbar.
- ❖ By displaying the **Predecessor** and/or **Successor** columns.
- ❖ **Chain Linking** with a Finish-to-Start relationship. Select the activities in the order they are to be linked using the **Ctrl** key, right-click and select **Link Activities**.

### 9.2 Relationship Colors

The relationships may not be formatted but the color of the relationship represents:

- ❖ **Red** - Critical and therefore a Driving relationship,
- ❖ **Solid Black** - **Non-Critical Driving** relationship and therefore has **Total Float**,
- ❖ **Dotted Black** - **Non-Critical Non-Driving** relationship and has **Free Float**, and
- ❖ **Blue** - a selected relationship that may be deleted.

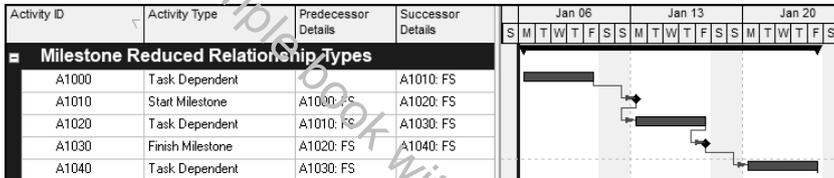
## 9.3 Milestone Reduced Relationship Types

P6 Version 20 and earlier supports more relationship types than P6 Version 21 and later.

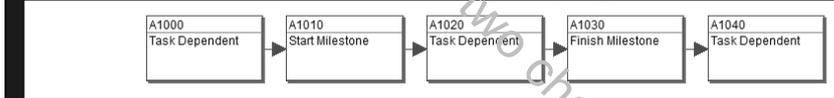
	Start Milestone Predecessors	Start Milestone Successors	Finish Milestone Predecessors	Finish Milestone Successors
P6 Version 20 & earlier	FS and SS	FS, SF and SS	FF, FS and SF	FF and FS
P6 Version 21	FS and SS	SF and SS	FF and SF	FF and FS

Thus, in Version 21 Chain Linking does not result in all the predecessors and successors being a FS relationship and some people would say that this is no longer a critical path program:

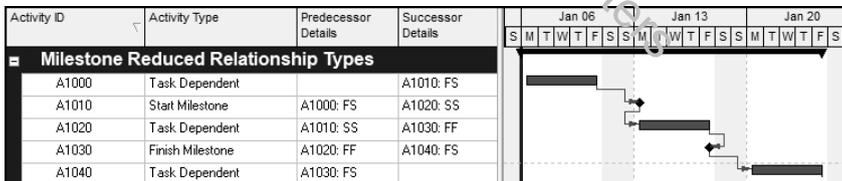
### ❖ P6 Version 20 Chain Linking:



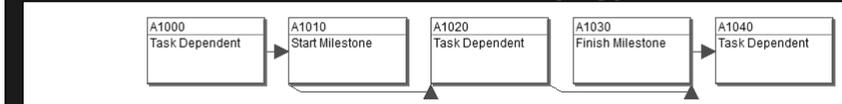
### MRRT Milestone Reduced Relationship Types



### ❖ P6 Version 21 Chain Linking:



### MRRT Milestone Reduced Relationship Types



Projects imported into P6 Version 21 from earlier versions bring in and acknowledge the old relationship types, but these Start Milestone FS and Finish Milestone FF cannot be set in Version 21.

**NOTE:** Should you wish your Milestones to be linked with FS relationships then just add the Milestones as tasks, add the relationships and then change the task to a Milestone.

## 9.4 Hiding relationships

The relationships may be displayed or hidden by clicking the **Activity** toolbar  icon or by checking and un-checking the **Show Relationships** box in the **Bar Chart Options** form, **General** tab.

## 9.5 Circular Relationships

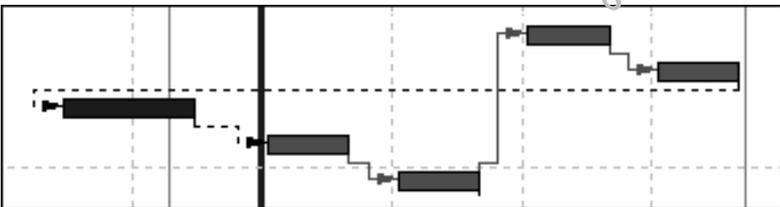
A **Circular Relationship** is created when a loop is created in the logic. When you reschedule you will be presented with the **Circular Relationships** form, which identifies the loop.

In some circumstances when **Retained Logic** is not used and there is progress assigned to one or more activities in the loop, then the **Circular Relationship** will not be identified.

**NOTE:** Thus, a **Circular Relationship** is not recognized and occurs when:

- ❖ One activity in the loop is complete, and
- ❖ Either the **Tools, Schedule, Options** of **Progress Override** or **Actual Dates** are used.

The schedule below is illogical, but P6 calculates and results in strange lag values:

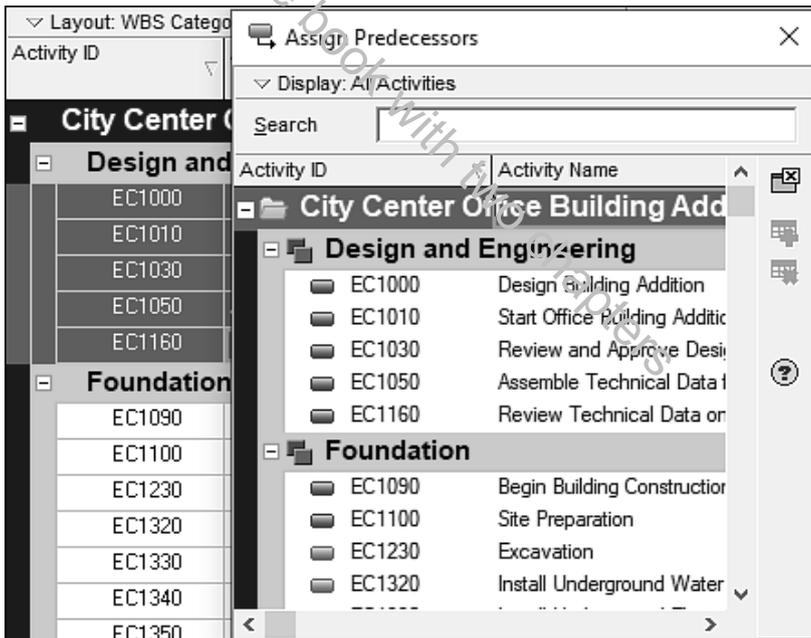


**NOTE:** To avoid all the problems associated **Progress Override** or **Actual Dates** outlined in my other books I recommend only using **Retained Logic**.

## 9.6 Removing Relationships from Selected Activities

Should you wish to remove **ALL** the relationships between a group of activities the simplest way is:

- ❖ Select the activities in the **Activities** Window,
- ❖ Open the **Predecessor** form and select all activities in the form using the **Ctrl+A**,
- ❖ Then the **Delete icon**  will become available and you may delete all the **Predecessors** from the selected activities,
- ❖ Then open the **Successor** form and repeat to remove all the **Successors** from the selected activities,
- ❖ Now all the **Predecessors** and **Successors** will be deleted from the selected activities:





## 9.8 Reviewing Relationships, Leads and Lags

In P6 Version 15 and earlier it is not possible to view all the leads and lags in columns from the user interface, as in Microsoft Project or Elecosoft (Asta) Powerproject.

Version 16.1 has added two more columns to the Activity View titled **Predecessor Details** and **Successor Details** allowing the checking of Lead and Lags in columns.

Activity ID	Activity Name	Predecessor Details	Successor Details
<b>Structure</b>			
EC1090	Building Pad Including	EC1110: FF	EC1150: SS 160, EC1140: FS
<b>Envelope</b>			
EC1360	Mobilize Scaffolding	EC1350: SS	EC1490: FS
EC1990	Install Railings	EC1980: SS	EC2140: FS, EC2440: FS
<b>Interior Finishes</b>			

Relationships may be viewed in P6 Version 15 and earlier using the following methods:

- ❖ Running the “Schedule Report - Predecessors & Successors”, or
- ❖ As an export to Excel and this is a place where the leads and lags may be displayed in columns:

	A	B	C	L	M
1	pred_task_id	task_id	pred_type	lag_hr_cnt	delete_record_flag
2	Predecessor	Successor	Relationship Type	Lag(d)	Delete This Row
3	SH2002	SH2010	FS	-5	
4	SH2010	SH2020	FS	-5	
5	SH2020	SH2030	FS	-5	

## 9.9 Ladder Scheduling

Large negative lags are often considered unacceptable and **Ladder Scheduling** is a technique used to link a set of activities that have substantial overlap, such as pipe laying operations.

Most products, except Microsoft Project, allow multiple relationships between two activities, as per the P6 example below, where the activities are linked using two relationships, a SS+3d and a FF+3d:

Activity ID	Activity Name	Original Duration	Apr 01							Apr 08							Apr 15							Apr 22							Apr 29						
			M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
A1000	Trench	15d	[Gantt bar from Apr 01 to Apr 15]																																		
A1010	Padding	15d	[Gantt bar from Apr 03 to Apr 18]																																		
A1020	Laying	15d	[Gantt bar from Apr 05 to Apr 20]																																		
A1030	Backfill	15d	[Gantt bar from Apr 07 to Apr 22]																																		

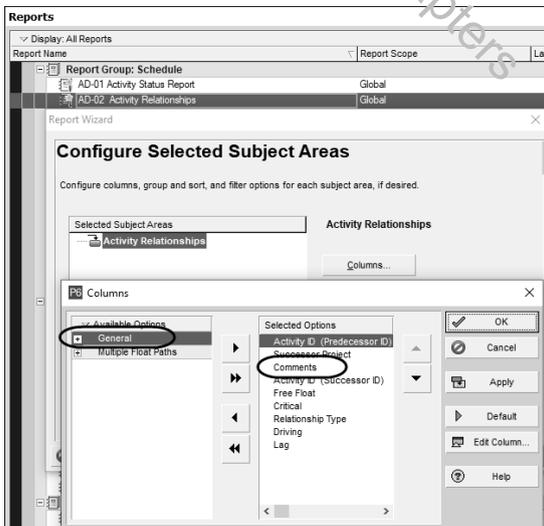
## 9.10 Relationship Comments

A **Comments** column may be added to the **Activities** window **Relationships**, **Predecessor** and **Successor** tabs in Version 20:



The **Comment** is seen in both the **Predecessor** and **Successor** window of each relationship assigned a comment:

- ❖ This is a very useful function and in the past one had to either use a **Note** or a **UDF** assigned to either the predecessor or successor activity to record notes about a relationship.
- ❖ This function is also useful for recording changes to relationships.
- ❖ It may be used to filter on certain types of relationships.
- ❖ The **Comments** column is available in the **Activity Relationship** report and may be used with filters to focus on specific relationship types:



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