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PLANNING
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SURETRAK[®] PROJECT MANAGER
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PAUL EASTWOOD HARRIS

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SUMMARY

The book was written so it may be used as:

- A training manual for a two-day training course, or
- A self teach book, or
- A reference manual.

The book has been written to be used as the basis for a two-day training course and includes exercises for the students to complete at the end of each chapter. Unlike many training course publications this book may be used by the students as a reference book after the course.

CUSTOMIZATION FOR TRAINING COURSES

Training organizations or companies that wish to conduct their own training may have the book tailored to suit their requirements. This may be achieved removing, reordering or adding content to the book and by writing your own exercises. This book is available in both A4 Spiral Bound, which lies flat on the desk for training and/or self teaching and in A4 paperback as a reference manual. Please contact the author to discuss this service.

AUTHOR'S COMMENT

As a professional project planner and scheduler I have used a number of planning and scheduling software packages for the management of a range of project types and sizes. There appeared to be very little literature aimed at the professional who understands how to run projects but requires a practical guide on how to use planning and scheduling software. The first books I published were user guides/training manuals for Primavera SureTrak and P3 users. These were well received by professional project managers and schedulers, so I decided to turn my attention to Microsoft Project 2000, 2002 & 2003 and Primavera Enterprise TeamPlay, P3e and P3e/c, Primavera Version 4.1 and Primavera Version 5.0. I trust this book will assist you in understanding how to use SureTrak on your projects. Please contact me if you have any comments on this book.

UPDATES INCLUDED IN THIS PUBLICATION

The Workshops have been updated from the previous publication so they start in late 2008, the earlier version had the exercises starting in late 2005 which would result in students undertaking workshops which started in the past. There have been a number of enhancements to the text to make the book more useful to the reader.

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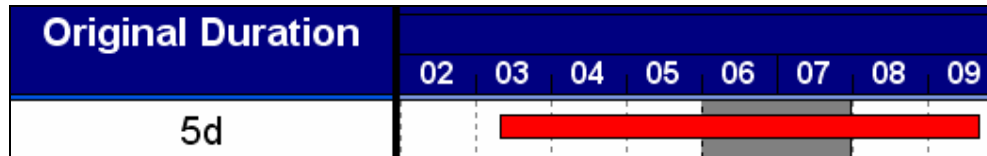
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5 DEFINING CALENDARS

The end date of an activity is calculated from the start date plus the duration over the calendar associated with the activity. Therefore, a five day duration activity that starts on a Wednesday, and is associated with a five day work week calendar (with Saturday and Sunday as non-work days) will finish on the following Tuesday:



Every SureTrak schedule is created with a Global Calendar and a one Base (activity) calendar, **Calendar 1**.

Global Calendars

- The Global Calendar may be edited for each new schedule.
- The Global Calendar sets the default working days and hours used in new calendars and the holidays for all calendars.
- The Global Calendar may not be assigned to an activity.

Base (activity) Calendars

- Up to 31 Base calendars may be created and assigned to activities.
- Base calendars are assigned to activities so as to allow for each activity's individual calendar requirements. For example, office work would be allocated a five-day calendar, while site work would be allocated a six-day calendar.

Templates should be created for projects that utilize the same calendars and this saves time when creating a new project.

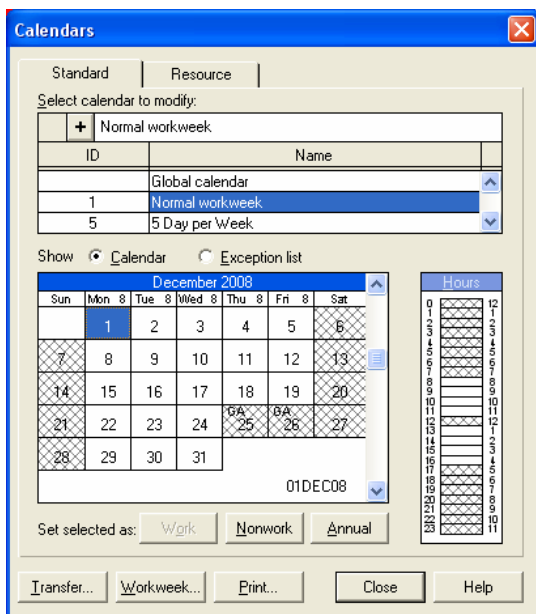
5.1 Global Calendar

Each Holiday or Non-workday nominated in the **Global Calendar** is reflected in all **Base calendars**. As a general rule you should make the Global Calendar 5 or 6 days per week at 8 hrs per day and include Public Holidays. Public Holidays on the same date every year may be made **Annual**. Rostered Days Off may also be entered in the Global Calendar only if they affect all other calendars.

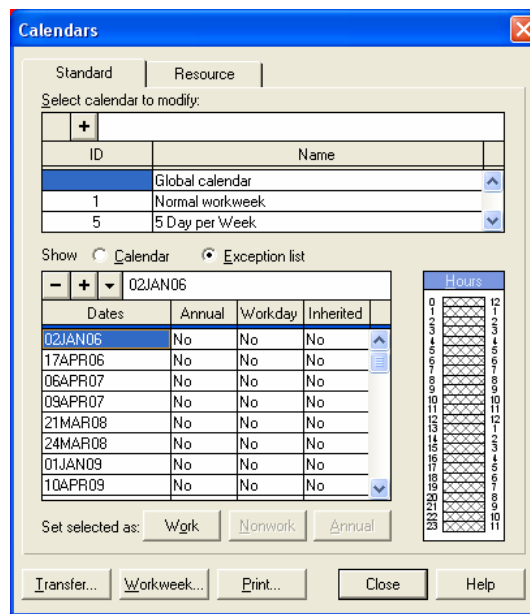
To edit, delete or create calendars select **Define, Calendars** to display the **Calendars** form. This will display the **Standard** tab as default.

- Click on **Show Calendar** radio button to display the calendar or the **Show Exception list** radio button to see a complete list of holidays and non-work days.

Calendar

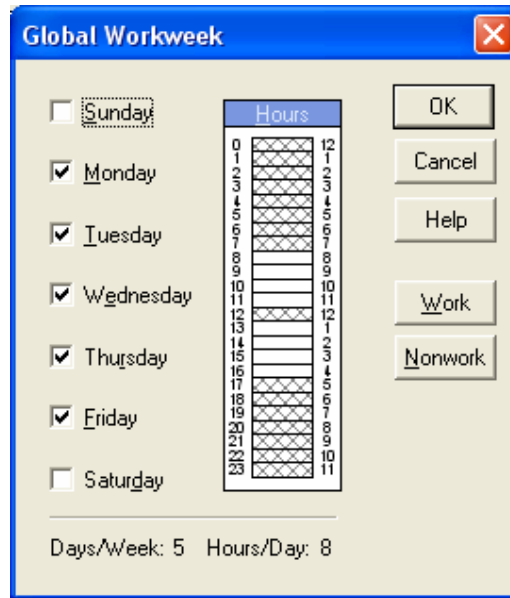


Exception list



- In the **Calendar** view one or more days may be selected by using the **Ctrl right click** or dragging with the mouse.
- To make work days into holidays or Nonwork days, double click on the day or highlight the day and click on **Work** in the **Calendar** view or add a Non work day using the drop down list in the **Exception list** view.
- To make holidays or Nonwork days into working days double on them or highlight them and click on **Nonwork** view or delete a Non work day the using the drop down list in the **Exception list** view.
- Click on **Annual** in the **Calendar** view to make the holiday apply every year.
- Transfer allows the transfer of calendars from another project.

Select **Workweek** to nominate the normal working days and hours.



- Check the work days and work hours to reflect your standard working week, the picture above shows a 5 day working week of 8 hours per day.
- If the planning unit is days then do not change the hours for any day from 8 hours.
- Double click on the Hours to make each hour a Work or Non work period or highlight the **Work** or **Nonwork** icons.

5.2 Summary Duration Calculation

SureTrak effectively calculates in hours and the factors displayed by **Days/Week** and **Hours/Day** in **Global Workweek** form above are used to calculate and display durations in days and weeks.

Description	Orig Dur	MAY						
		31	01	02	03	04	05	06
A task assigned with a 8 hour per day calendar	5d							
A task assigned with a 24 hour per day calendar	5d							

Thus, when a schedule has calendars which have a different number of hours per day than set in the Global Calendar, then the durations displayed in days or weeks may be misleading for the activities assigned with these calendars. In this situation it is recommended that all durations are displayed in hours.

- **i** If it is intended to open a daily schedule in P3 then an 8-hour day calendar should be selected. This is because the activity durations are divided by 8 when the project is opened in P3. If a project has a 10-hour day and is opened in P3 the durations will be increased by 25%.

5.3 Activity Calendars







Up to 31 Activity Calendars may be created and assigned to activities. Examples of other calendars are:

- 2 – Weekend only
- 3 – Three Shift/24hour per day
- 4 – Mon to Thu
- 5 – Day week
- 6 – Day week and
- 7 – Day week

Try to select Calendar IDs that have some meaning as only the ID may be displayed in columns.


5.3.1 Creating a New Calendar

To create a new calendar:

- Click on the  icon or select the first blank row in the list of calendars.
 - Enter the ID of between 2 and 9, A to Z except I, O & W and
 - Enter a description.
- Leave the calendar highlighted to edit work days and hours.
- The Standard work days and hours are changed using the **Workweek** form in the same method as the Global Calendar and is opened by clicking on the  button.
- Holidays or Non Work days and hours are edited using the same method as the Global Calendar.
 - **Global Holidays** will be displayed like this .
 - **Global Annual Holidays** will be displayed like this .
 - Days with non standard hours per day are displayed like this .
 - Global Holidays may be made into Working days by highlighting the day and clicking on the  button.

For simplicity, it is suggested that the number of working hours are kept the same for each day and the same number as the Global otherwise summary durations in Days and Weeks will not reflect the correct duration.

5.3.2 Deleting a Calendar

Select the calendar and then click on the  icon or strike the Delete key.

5.4 Resource Calendars

Individual Resources are allocated a base calendar when they are created. The resource calendar is edited to reflect the availability of the resource. This facility is covered in the CREATING AND USING RESOURCES chapter.

10 ADDING THE RELATIONSHIPS

The next phase of a schedule is to add logic to the activities. There are two types of logic that you must deal with here:

- Logic links or relationships between activities and
- Imposed constraints to the activities which are covered in the next chapter.

10.1 Understanding Relationships

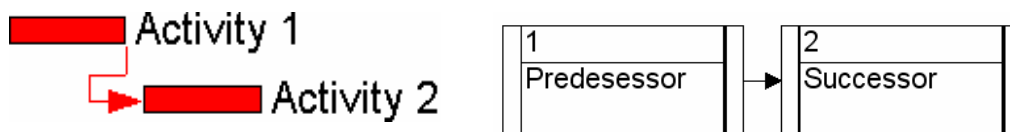
There are four types of relationship available in SureTrak:

- Finish-to-Start (FS) (also known as conventional)
- Start-to-Start (SS)
- Start-to-Finish (SF)
- Finish-to-Finish (FF).

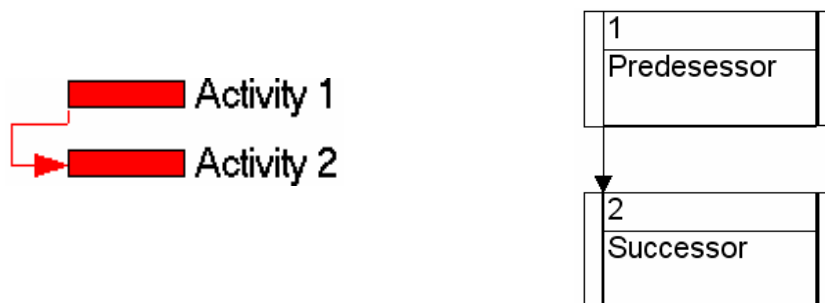
Other terms you must understand are:

- Predecessor, an activity that controls the start or finish of another activity and
- Successor, an activity whose start or finish depends on the start or finish of another activity.
- Lag is a delay to a relationship, see the diagram over the next page.
- Lead or Negative Lag is the opposite of a Lag, see the diagram over the next page.

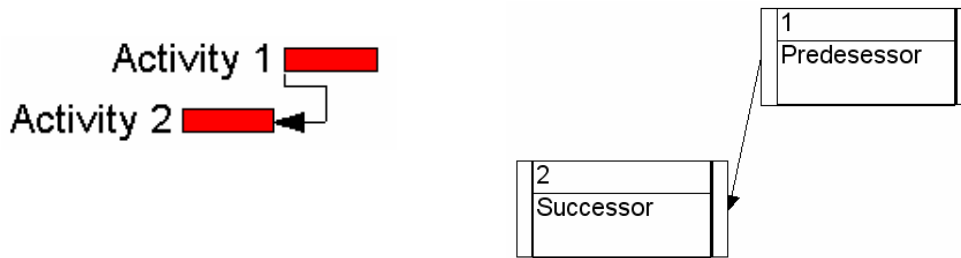
The FS (or conventional) relationship looks like this:



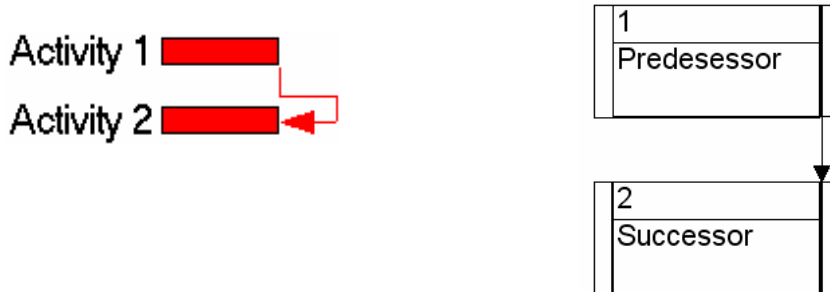
While the SS relationship is like this:



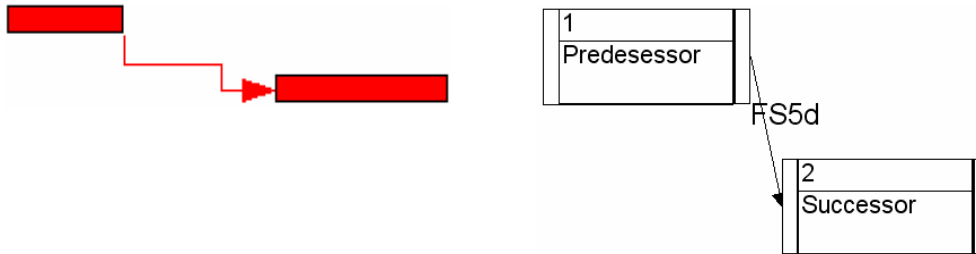
The SF relationship looks like:



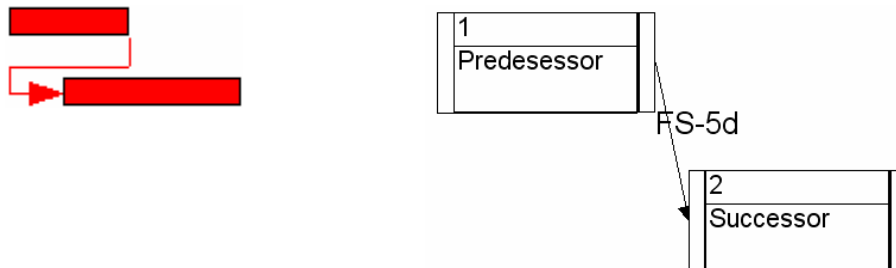
The FF relationship would be:



An example of a FS with positive lag:



and an example of a FS with negative lag:




You must be careful when using a lag to allow for delays such as curing concrete when the predecessor is not a seven-day calendar. The concrete will cure while the predecessor calendar has non-work days, and therefore, may be cured before SureTrak's allotted date.

10.2 Adding Relationships to the Activities


There are a number of methods of adding logic to activities. We will look at the following techniques:

- Graphical Adding, Editing and Deleting Relationships
- Series Link and Unlink
- The **Autolink** function
- Successor and Predecessor forms
- PERT View

10.2.1 Graphical Adding Relationships

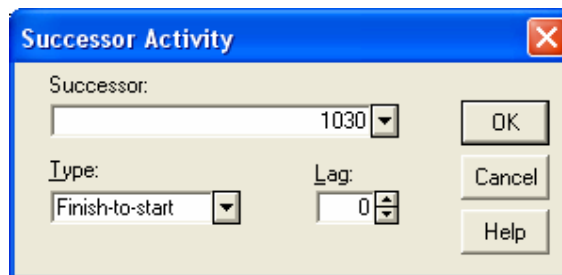
There are two modes of screen presentation. The first is with links displayed on the screen and the second is without links. Logic may be added on the screen when links are displayed or hidden. To change between modes click on the  icon in the tool bar, push **F3** or select **View, Relationships**.

The **Relationship Lines** may be formatted by selecting **Format, Relationship Lines** which will display the **Format Relationship Lines** form. The defaults are normally acceptable.

To add relationships you can click on the end of the predecessor activity bar, which will change the mouse arrow to a . Then simply hold down the left mouse, drag to the start of the successor activity and release the mouse button.

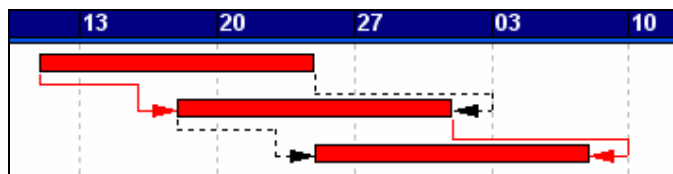
To create other relationships such as **Start to Start**, drag from the beginning of the predecessor to the beginning of the successor bar.

When you add a link, SureTrak will display the **Successor Activity** form, to confirm the link, the type of link and the lag.




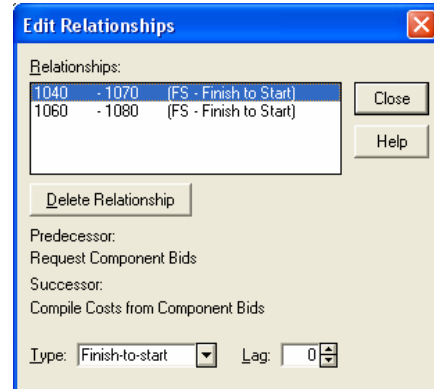
10.2.2 Number of Relationships between Activities

SureTrak allows two relationships between two activities, unlike Microsoft Project which only allows one:




Editing Relationships in the Bar Chart View

To edit a relationship, move the mouse arrow over the relationship line to display the  icon. Right click to display the **Edit Relationships** form where you will be able to select and edit or delete a relationship.



10.2.3 Series Link and Unlink


The Series Link is a method of linking a series of activities with **Finish to Start** relationships. To series link activities:

- Highlight the activities that are to be linked
- **Click Edit, Link Activities, F8** or the  icon on the tool bar
- All the activities are now linked.

The activities need not be consecutive activities to be **Series Linked**. Activities may be selected at random with the **Ctrl** key held down and then **Series Linked**.

- When three or more activities are selected for linking and activities lower down in the schedule are selected first then the activities will be linked from top to bottom; they will not be linked in the order they were selected, as in Microsoft Project.
- When two activities are selected and the activity lower down in the schedule is selected first then the two activities will be linked in the order they are selected.

To remove Finish to Start relationships, highlight the activities to be unlinked and select:

- The  icon on the tool bar or
- Select **Edit, Unlink** or
- Press **Shift F8**.



In Microsoft Project tasks are linked in the order they are selected. In SureTrak when two tasks are selected they are linked in the order they are selected, when more than two tasks are selected they are linked from top to bottom ignoring the order they were selected.

10.2.4 Autolink

The **Insert, Autolink** function will link a chain of activities as they are added to the schedule. The linking will take place to all activities added after the function is turned on and will stop when the function is turned off.

10.2.5 Successor and Predecessor Forms

The third way to link activities is to use the **Successor** and the **Predecessor** form associated with each activity. There are several methods of opening these forms.

Method 1

- Highlight the activity then click the right mouse button to display a menu.

Act ID	Description	Orig Dur	Early Start	Early Finis	2008		
					30	07	14
1000	Bid Request Documents Received	0	01DEC08				
1010	Bid Strategy meeting		01DEC08	01DEC08			
1020	Investigate Technical Feasibilit		02DEC08	11DEC08			
1030	Document Installation requirem		12DEC08	16DEC08			
1040	Request Component Bids		12DEC08	16DEC08			
1050	Develop Project Schedule		17DEC08	20DEC08			
1060	Draft Technical Details Schedu		12DEC08	24DEC08			
1070	Compile Costs from Compone		17DEC08	18DEC08			
1080	Draft the Bid Document		29DEC08	31DEC08			
1090	Meeting to review the Draft Bid			02JAN09			
1100	Design Presentation			05JAN09			
1110	Edit Proposal Bid Document			05JAN09			
1120	Negotiate Component Work Packages			13JAN09			
1130	Final Review of Bid Document			14JAN09			
1140	Submit Bid			14JAN09			

- Select **Activity Detail**, and a second menu is displayed.
- Select the form you wish to use, the Predecessor form is shown below.

Successor	Type	Lag	TF	Description	Driving	Cal	Early Start	Early F
1100	FS - Fin	0 0		Design Presentation	Yes	5	16JAN06	16JAN06
1110	FS - Fin	0 4d		Edit Proposal Draft Bid Dc	Yes	5	16JAN06	16JAN06

- You may add, delete or edit the relationships, including the link type and the lag.
- Jump takes you to the activity that is highlighted in the form to assist you in tracing the logic.

Method 2

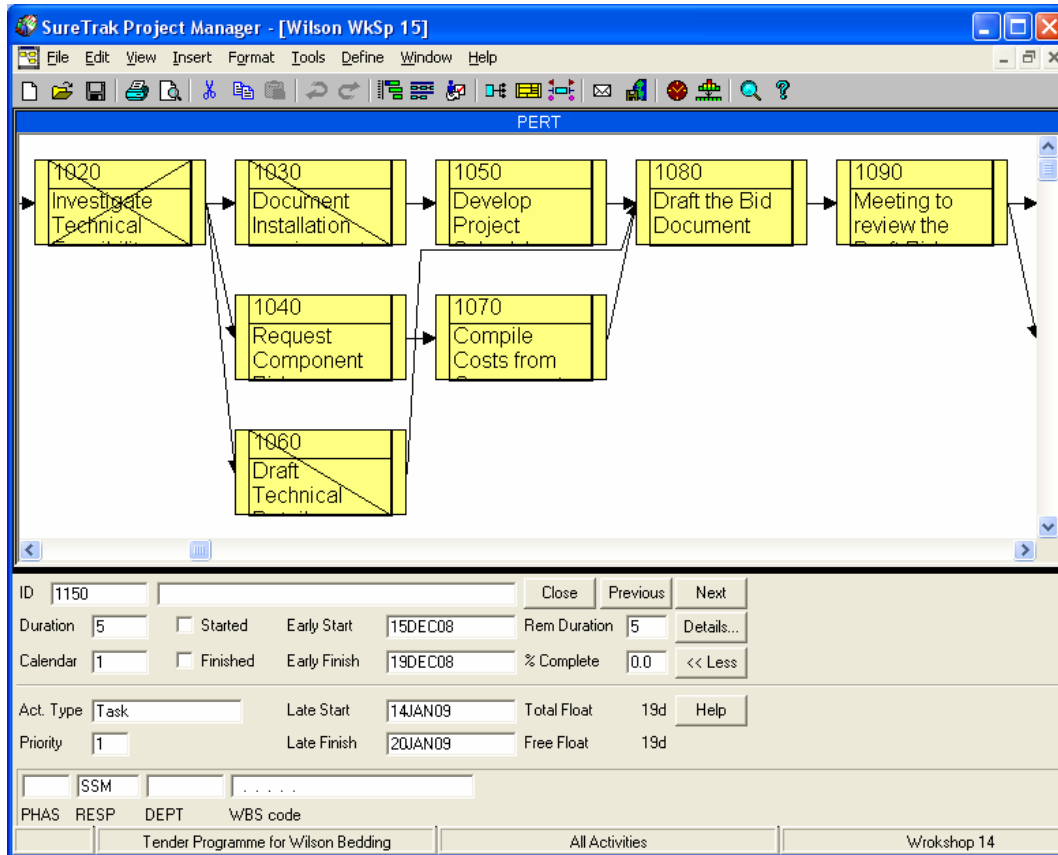
Select **View, Activity Detail** to display the same menu that the right mouse button displays. Select the form you wish to use.


Method 3

Select the **Details** and **Predecessor** or **Successor** option in the **Activity form**.

10.3 PERT View

The last method is to use PERT (Project Evaluation and Review Technique) view. This is a non-time phased view of the activities. Select **View, PERT** or press **F6**. The screen will change from Bar Chart view to PERT view.



Position the mouse on the left (for start) or right (for finish) end of the predecessor activity, waiting for the cursor to change to a  and drag (by holding the left mouse button down) the cursor to the left or right of the successor activity.

If the activity is not visible release the mouse in a blank area and choose the successor using the **Successor Activity** form.

The Successor Activity dialog box contains the following fields and controls:

- Successor:** A drop-down menu for selecting the successor activity.
- Type:** A drop-down menu currently set to "Finish-to-start".
- Lag:** A numeric input field currently set to "0".
- Buttons:** OK, Cancel, and Help.

Select the required successor activity from the drop-down **Successor** box.

To change the relationship or alter the lag of an existing relationship, move the mouse over the relationship line and then use the left mouse click to display the **Edit Relationships** form.

Edit Relationships

Relationships:

1090	- 1100	(FS - Finish to Start)
------	--------	------------------------

Close
Help

Delete Relationship

Predecessor:
Meeting to review the Draft Bid Document

Successor:
Design Presentation

Type: Finish-to-start Lag: 0

10.3.1 Formatting PERT View Relationships

Select **Format, Relationship Lines** to open the **Relationships** form as the first step in tailoring the PERT view:

Relationships

Display

Driving relationships Nondriving relationships

Line style: [Solid] Line style: [Dashed]

Line color: [Black] Line color: [Black]

Relationship Lines

Direct Shared Separate

Lag and Type

Display lag
 Display type

Font: Arial, 6, Bold

OK Cancel Help

This form allows the following options:

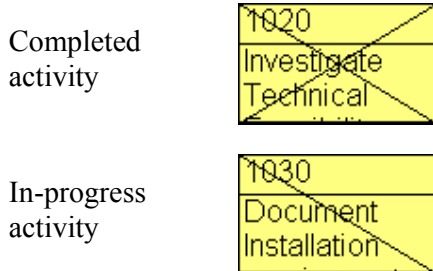
- Display or not display the Driving relationships and Non-driving relationships
- Change the Relationship Lines color and line style
- Change to style of drawing the Relationship Lines
- Display the Lag and Relationship Type in the font of your choice.

10.3.2 Formatting PERT Activity Boxes

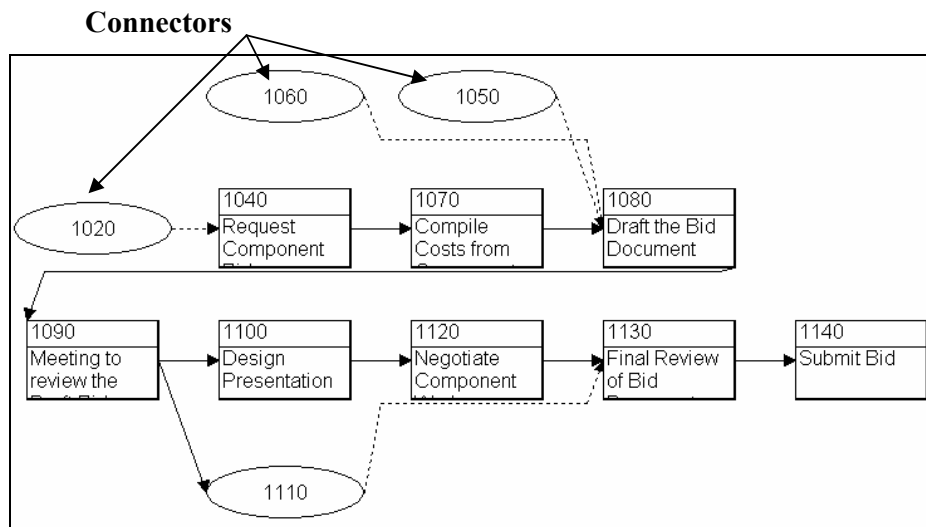
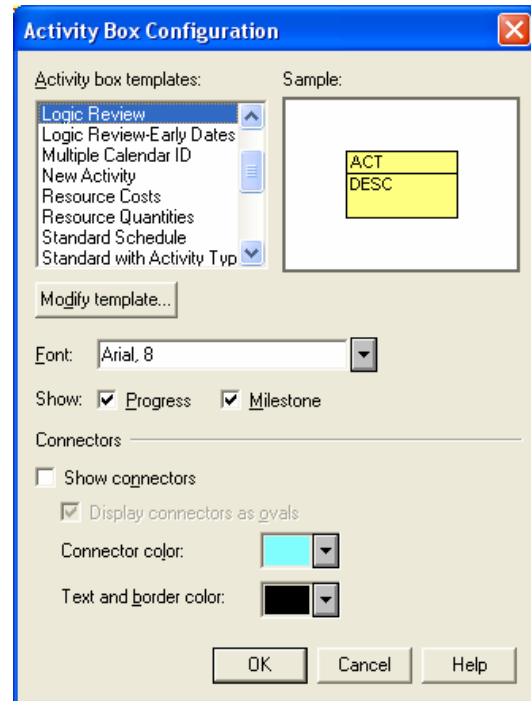
Select **Format, Activity Box Configuration** as the next step in tailoring the PERT view.

The **Activity Box Configuration** form allows you to:

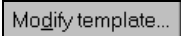
- Select/modify the contents of each activity box by selecting **Modify template...**
- Select the font to be used for the text in the box from the **Font** drop down box.
- Optionally display progress and milestones:

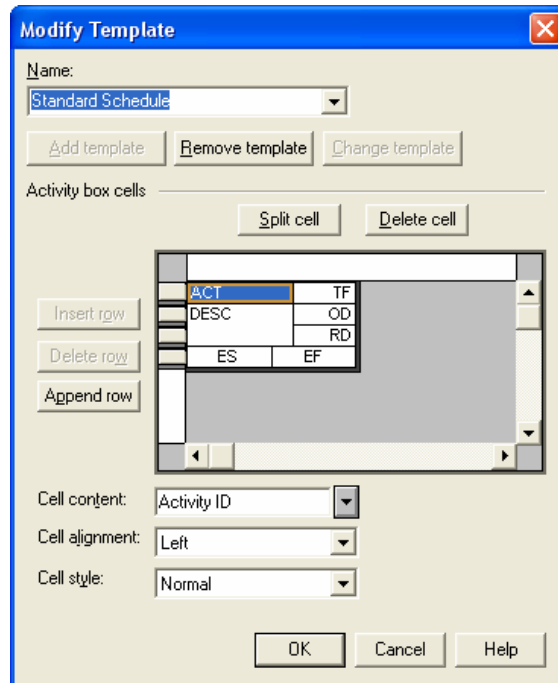


- Display/not to display connectors and font that are not in your current view.
- **Connectors** are activities that are not displayed in the current view and may be displayed as oval shape as in the picture below. **Connectors color** and **Text and Border color** allows the formatting of the Connectors.



10.3.3 Modify PERT View Activity Box Templates

Modify or create a new template by using the  icon to display the **Modify Template** form.



Modify Template

Name: Standard Schedule

Add template Remove template Change template

Activity box cells

Split cell Delete cell

ACT	TF
DESC	OD
	RD
ES	EF

Insert row Delete row Append row

Cell content: Activity ID

Cell alignment: Left

Cell style: Normal

OK Cancel Help

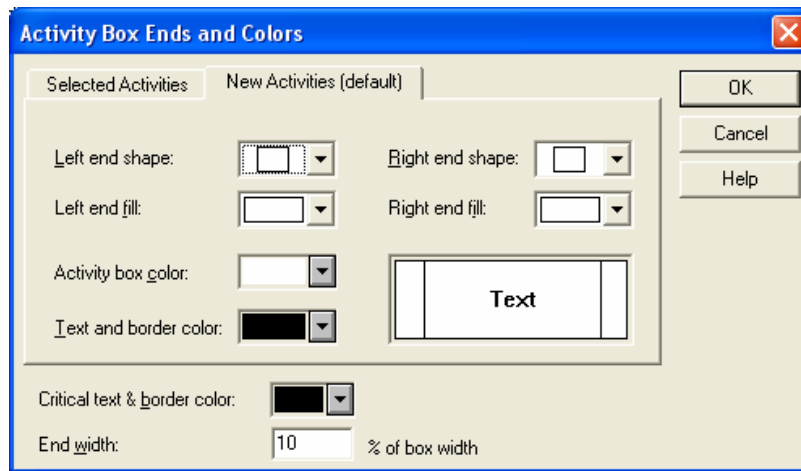
Entering a new template name activates the **Add template** form and allows you to store your modifications under a new name.

Select the cell you wish to modify and then you may:

- Insert a row above the row of that cell
- Delete the row of that cell
- Append a row to the last row of the box
- Split the selected cell in two
- Delete the cell but leave the row and other cells in that row
- Alter the cell contents, alignment or style.

10.3.4 Formatting Activity Box Ends and Colors

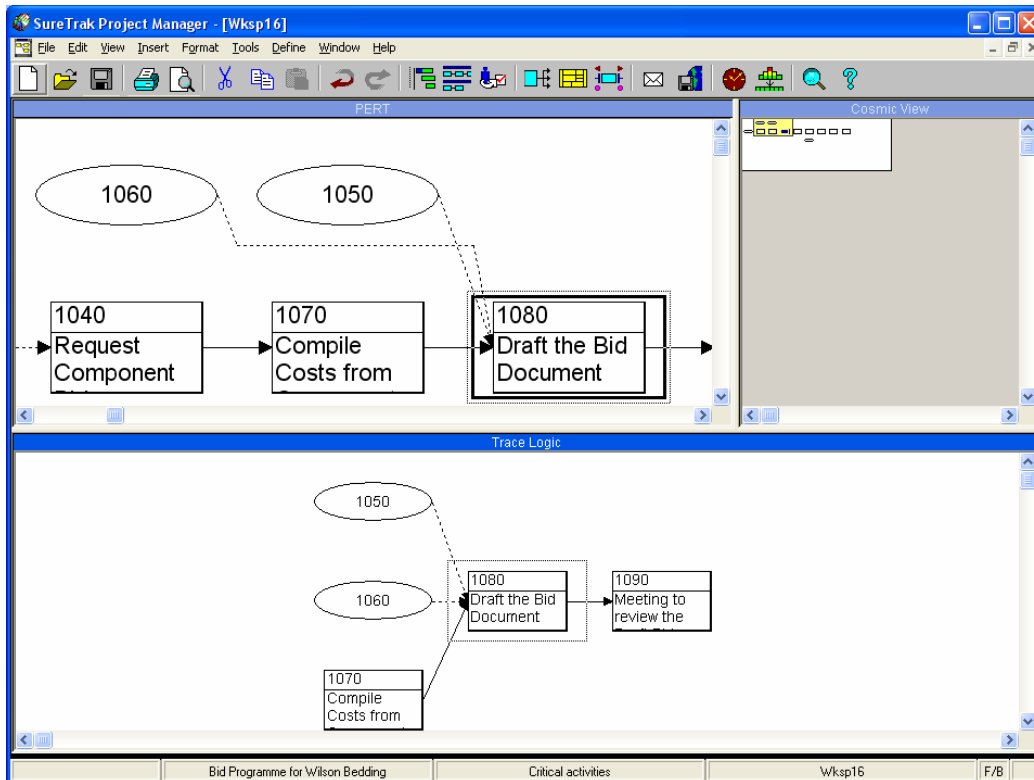
The next step in tailoring the PERT view is to select **Format, Activity Box Ends and Colors** to open the **Activity Box Ends and Colors** form.



You may tailor the shape, pattern, color and width of the ends of the boxes by using a filter or the **Shift/Ctrl** keys to select multiple activities.

10.3.5 Cosmic View and Trace Logic

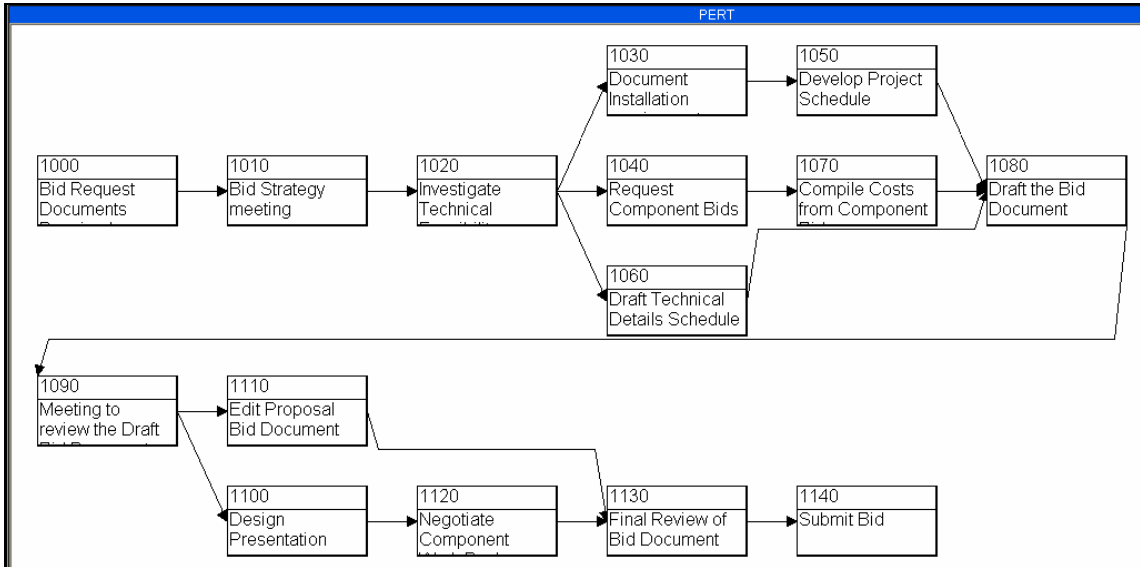
The **View, Cosmic View** (lower window in the picture below) and **View, Trace Logic** (right window) open two other panes for viewing the PERT chart and the logic may be followed in all screens by clicking in the appropriate place in any pane.



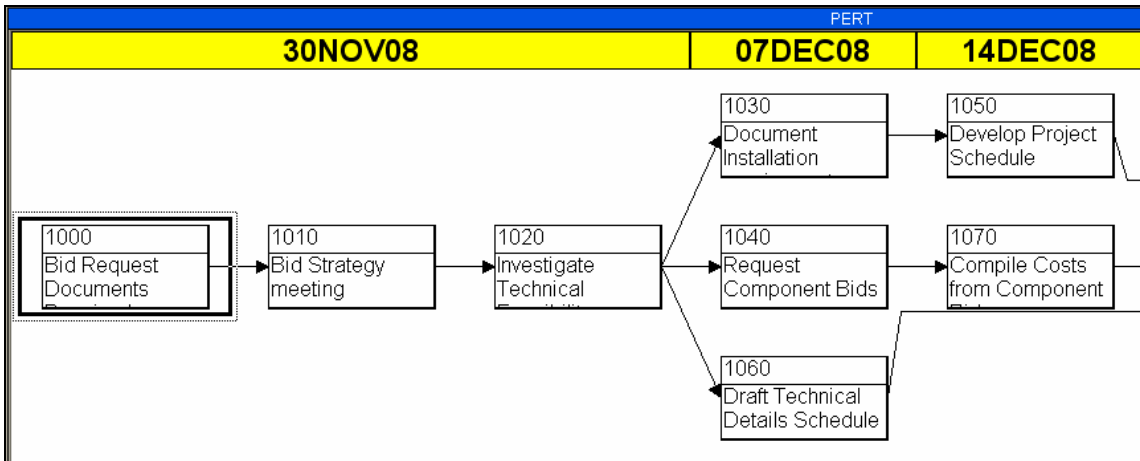
10.3.6 Timescaled PERT

SureTrak Version 3.0 has the facility for displaying a Timescaled PERT diagram which places the activities on a timescale. This option is found under **Format, Organize, Arrangement**.

Non Timescaled PERT Diagram



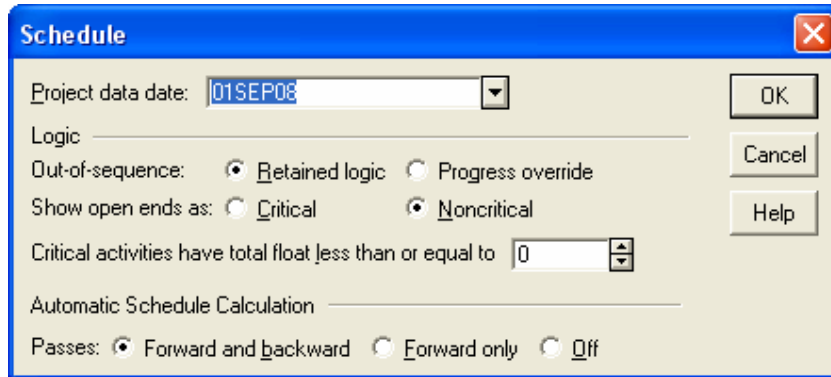
Timescaled PERT Diagram




10.4 Scheduling the Project

Now that you have activities and logic in place, it is time to calculate the activity dates. More specifically, you will **Schedule** the project to calculate the Early Dates, Late Dates and the Total Float. This will allow you to determine the **Critical Path** of the project.

To schedule your project, select **Tools, Schedule**, to open the **Schedule** form and check that the **Project data date** is correct.



If you know that your data date is correct and **Automatic Schedule Calculation** is set to **Off**, then press **F9** or click on the  icon to schedule the project.

It is possible to edit the Early Dates in the Activity form and show some temporary changes to individual activities and the other activities will not be rescheduled when:

- **Automatic Schedule Calculation** is turned off and
- The **Allow editing of early and late dates in the activity form** option is selected in **Tools, Options, Defaults** tab.



The author has found that editing of the Early Finish changes the Remaining Duration and not the Actual Duration which is not desirable for un-started activities and when the schedule is recalculated a different Early Finish date is calculated as the Remaining Duration. This function should be used with caution.

23 STATUSING PROJECTS WITH RESOURCES

It is important for the user/organization to determine how the schedule is to be updated, what information is to be entered into the software, including the source, what output is required.

The Autocost rules in the **Options** form need to be established in order for the schedule to calculate correctly. The Autocost rules may be set so all quantities and costs are calculated by the software, or so the user may enter their own information from timesheet, accounting and cost management systems.

One major drawback of SureTrak is that the Budget Cost and Quantities are linked to the At Completion value until an activity has been marked as started. Thus it is not possible to re-estimate the cost of a project without the Budget changing. This is not ideal when it is desired to maintain the Original Budget and this issue has often pushed people to managing their projects in P3 where this option is available.

Statusing a project with resources takes place in two distinct steps:

- The dates are statused using the methods outlined in the TRACKING PROGRESS chapter, then
- The resources are updated.

This chapter covers the following topics:

- Understanding Target Schedule and Budgets
- Understanding the Data Date with respect to resources
- Information Required to Update a Resourced Schedule
- Updating Resources
- Schedule Check List.

23.1 Understanding Target Schedule and Budgets

Budgets

The Budget hours or quantities and costs of resources are automatically recorded in the Budget field of each resource as it is assigned to an activity.



The Budget Costs and Quantities are always set equal to the **To Complete** until the activity has **Started**. This may be frustrating should you wish to show a revised estimate that is different from the Budget for un-started activities.

Target Dates

A Target Schedule records the planned start and finish dates. The Target Dates are a copy of the current schedule dates that are copied into two fields:

- Target Start and
- Target Finish.

Setting the Target dates was covered in the chapter TRACKING PROGRESS.

Multiple Target dates may be preserved by maintaining an old copy of a schedule and if required the Target Dates copied and pasted from one schedule to another. They may also be copied and pasted to a spreadsheet.

Target dates may be displayed using the following methods:

- Display the Target Start and Finish columns
- Display the Activity Detail, Dates form (shown below)
- Display the Bar Chart Bars.

1020 - Investigate Technical Feasibility		
	02DEC08	
	Start	Finish
Early	02DEC08	11DEC08
Late	12DEC08	23DEC08
Unleveled	02DEC08	11DEC08
Target	02DEC08	11DEC08
Constraint		
Type		
Actual		
Suspend		

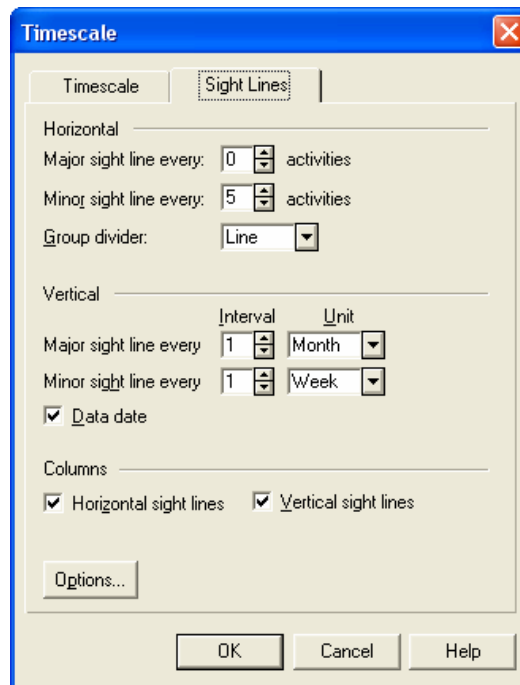
23.2 Understanding the Data Date

The **Data Date** is also known as **Review Date**, **Status Date**, **As Of Date**, **Status Date** and **Update Date**.

- The Data Date is the date that divides past and future in the schedule.
- Actual Start, Actual Finish, Actual Costs and Quantities/Hours should have occurred before the data date.
- Costs and Quantities/Hours To Complete occur after the data date.
- The Early Finish of an in-progress activity is calculated from the Data Date + the Remaining duration over the activity calendar.
- The Data Date is not normally in the future, but often in the recent past, due to the time it may take to collect the information to status the schedule.

Formatting the Data Date

To format the Data Date display on the Bar Chart select **Format, Sight Lines** to display the **Sight Line** form.



- Check the Data Date Box to display the Data Date in the Bar Chart Area.
- Options allow the selection of colors and line types for all sight lines.
- All other sight lines may be defined in this form.

23.3 Information Required to Update a Resourced Schedule

A project schedule is usually updated at the end of a period, such as each day, week or month. One of the purposes of updating a schedule is to establish differences between the plan and the current schedule.

The following information is required to status a resourced schedule.

Activities commenced in the update period:

- Actual Start date of the activity
- Remaining Duration from the Status Date or Expected Finish date
- Actual Costs and Hours or Quantities to date
- Estimated Costs and Hours or Quantities to complete
- Suspend and Resume dates for activities that have had their work suspended.

Activities Completed or Started and Completed in the update period:

- Actual Start date of the activity
- Actual Finish date of the activity
- Actual Costs and Hours or Quantities to date.

Activities Not Commenced:

- Changes in logic or date constraints
- Changes in Costs or Hours or Quantities.

Scope Changes and/or Variations

- Any scope changes and/or variations should be added or deleted from the schedule.
- It is often better to add a new activity to a schedule in preference to editing an existing activity to represent a change, this will add clarity to the schedule.
- A note could also be added to a Log column to explain the changes.
- An Activity Code could be used to identify changes.

Once this information is collected the schedule may be updated.

23.4 Updating Dates and Percentage Complete

You should update the dates using the methods outlined in the chapter TRACKING PROGRESS.

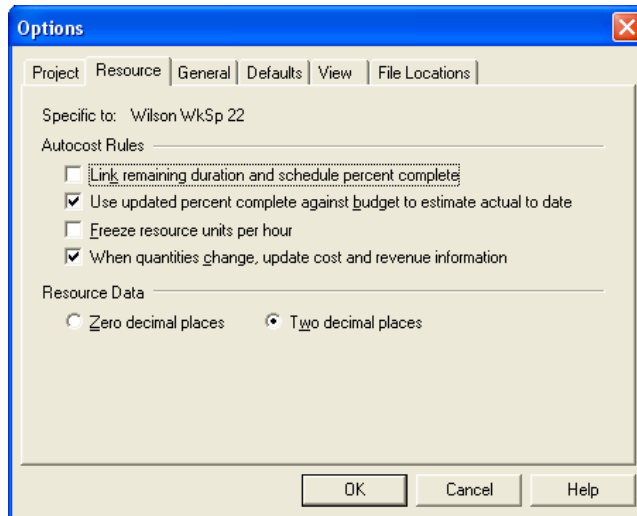
The resource hours and costs may recalculate depending on how the Autocost rules are set in the **Options** form which is covered next.

23.5 Updating Resources

SureTrak has some options that allow the scheduler to decide how costs are calculated. These should be set before statusing the schedule for the first time.

23.5.1 Options, Resources

Select **Tools, Options, Resources** tab to nominate how SureTrak calculates the Resource data. It is important that these options are understood; they are well defined in SureTrak Help and the descriptions are self explanatory.



- **Link remaining duration and scheduled percent complete** was covered in detail in **OPTIONS AND OUT OF SEQUENCE PROGRESS** chapter and should be normally be unchecked.
- **Use update percent complete against budget to estimate actual to date** when checked SureTrak calculates costs and quantities to date based on the percent complete and budget costs and quantities. When unchecked does not recalculate these values when the Percent Complete is manually entered.



When **Update Progress** is used then the Percent Complete and all resource quantities and costs are recalculated based on the activity progressing according to plan.

- Selecting **Freeze resource units per hour** results in an increase in Quantities or Hours to complete as the Remaining Duration is increased, and a decrease when the Remaining Duration is decreased. If this option is not selected then the Quantity to Complete remains constant and the Units per hour vary inversely to the Remaining Duration.
- Selecting **When quantities change, update cost and revenue** information allows SureTrak to calculate Actual to date, To complete and At completion from the Cost assigned to the resource in Define Resources. If this option is not checked then the Costs may updated by the scheduler, say from an accounting system, and Quantities from a time sheet system and these values are now unlinked.
- **Resource Data** allows the costs and quantities to be calculated to zero or two decimal places.



If at any time the Remaining Duration is set to Zero then the Hours/Quantity to complete is set to zero.

23.5.2 Updating Resources Using Resource Form

Select the Resources form to update the resource information.

	Resource 1	Resource 2	Resource 3
Resource	SYSENG		
Driving	No		
Units per hour	1.00		
Budgeted quantity	128.00		
Resource duration			
Resource lag	0		
Percent complete			
Resource start	04DEC08		
Resource finish	15DEC08		
Actual to date	40.00		
To complete	48.00		
At completion	88.00		
Completion variance	40.00		

- The above example has the quantities for Actual to date and To complete entered separately.
- The Completion Variance is the difference between the Budget quantity and At completion.

23.5.3 Updating Resources Using Resource and Costs Form

Select the Resources and/or Costs form to update the resource information.

	Resource 1	Resource 2	Resource 3
Resource	BM	SALESENG	
Budgeted cost	800.00	640.00	
Percent expended	0.0	0.0	
Percent complete			
Actual to date	0.00	0.00	
To complete	800.00	640.00	
At completion	800.00	640.00	
Scheduled budget	0.00	0.00	
Earned value	0.00	0.00	
Cost variance	0.00	0.00	
Schedule variance	0.00	0.00	
Completion variance	0.00	0.00	

- The above example has the Actual to date (cost) calculated from the resource units from the previous paragraph. This is also known as Actual Cost of Work Performed (ACWP).
- Scheduled Budget is the amount of work planned to be completed by the data date. Commonly known as Budgeted Cost of Work Scheduled (BCWS) or Planned Cost.
- The Earned Value is the value of work completed to date, (i.e. % Comp x Budget). This is also known as Budgeted Cost of Work Performed (BCWP)
- Schedule variance is the difference between the Earned value and Scheduled budget.
- Completion variance is the difference between Budget cost and At completion.
- The Percent complete may be manually entered against each resource. This is an optional field, when completed is used to calculate the Earned Value in the Costs Form, when left blank the Earned Value in the Costs Form is calculated from the Task Form Percent Complete.

23.5.4 Updating Resources Using Columns

By selecting the **Layout by Resource** and the appropriate columns, the costs and quantities may be updated using the columns.

Act ID	Description	Resource	Units per Hour	Actual Quantity to Date	Quantity to Complete	Quantity at Completion	Budgeted Quantity	Completion Variance Quantity	Actual Cost to Date	Cost to Complete	Cost at Completion	Budgeted Cost	Completion Variance Cost
Wilson WkSp 24 - Tender Programme for Wilson Bedding													
			20.00	0.00	512.00	512.00	512.00	0.00	0.00	44,640.00	44,640.00	44,640.00	0.00
1000 - Bid Request Documents received													
1000	Bid Request Documents received		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1010 - Bid Strategy meeting													
BM - Bid Manager													
1010	Bid Strategy meeting	BM	1.00	0.00	8.00	8.00	8.00	0.00	0.00	800.00	800.00	800.00	0.00
SALESENG - Sales Engineer													
1010	Bid Strategy meeting	SALESENG	1.00	0.00	8.00	8.00	8.00	0.00	0.00	640.00	640.00	640.00	0.00
1020 - Investigate Technical Feasibility													
SYSENG - System Engineer													
1020	Investigate Technical Feasibility	SYSENG	2.00	0.00	128.00	128.00	128.00	0.00	0.00	10,240.00	10,240.00	10,240.00	0.00
1030 - Document Installation requirements													
SCHED - Scheduler													
1030	Document Installation requirements	SCHED	1.00	0.00	32.00	32.00	32.00	0.00	0.00	1,600.00	1,600.00	1,600.00	0.00
1040 - Request Component Bids													
SALESENG - Sales Engineer													
1040	Request Component Bids	SALESENG	1.00	0.00	24.00	24.00	24.00	0.00	0.00	1,920.00	1,920.00	1,920.00	0.00
1050 - Develop Project Schedule													
SCHED - Scheduler													
1050	Develop Project Schedule	SCHED	1.00	0.00	32.00	32.00	32.00	0.00	0.00	1,600.00	1,600.00	1,600.00	0.00
1060 - Draft Technical Details Schedule													
CS - Clerical Support													
1060	Draft Technical Details Schedule	CS	2.00	0.00	144.00	144.00	144.00	0.00	0.00	7,200.00	7,200.00	7,200.00	0.00
LUMPSUM - Lump Sum													
1060	Draft Technical Details Schedule	LUMPSUM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,000.00	3,000.00	3,000.00	0.00

The layout must be organized by Resource to allow the editing of resource data in columns.

23.5.5 Updating Revenue

The Revenue is updated from the **Revenue** form.

Revenue - Wilson WkSp 24			
1020 - Investigate Technical Feasibility			
- + ▾ SYSENG			
	Resource 1	Resource 2	Resource 3
Resource	SYSENG		
Percent earned	45.5		
Percent complete			
Revenue to date	4,000.00		
Revenue at completion	8,800.00		
At completion (cost)	7,040.00		
Net at completion	1,760.00		

- Revenue to date is calculated from the Quantity to date multiplied by the Revenue as defined in the Resources dictionary.
- Revenue at Completion is calculated from the Quantity at completion multiplied by Revenue as defined in the Resources dictionary.
- At Completion (cost) is the same data as the At completion in the Cost form, and editing it here will change the Actual cost data.
- Net at completion equals Revenue at completion minus At completion (cost), i.e. the profit.

23.6 SureTrak & P3 Project Schedule Check List

The following check list may be used to check the integrity of an in progress schedule.

Complete Activities

- Have all activities Actual Start & Finish in the past.

In Progress Activities

- Is Remaining Duration and % Percent Complete linked and if they are, should they be?
- Actual Starts should all be in the past.
- Check activities with Expected Finish Constraints, are they valid?
- Do all activities have successors?
- Are you using Retained Logic or Progress Override? Review any significant out of sequence progress and ensure you are using the most appropriate option.

Not Started

- Check the activities with Expected Finish Constraints, their durations will be calculated by the software from the Early Start to the Expected Finish constraint.
- Confirm all activities have successors and review float, activities with excessive float should be assigned appropriate successors or delayed if they are being scheduled too early to place them in a realistic timeframe using sequencing logic of Early Start constraints.
- Ensure that all the remaining scope of the project is reflected by the activities in the schedule. If there are activities missing for scope changes then these should be added. Notes could be added to the Log Text or an Activity Code created for recording scope changes.

Critical and Near Critical Path

- Review the Critical Path and ensure the critical path of the schedule is aligned with the perceived Critical activities. Make sure the critical path does not include activities that may be easily shortened and that it includes the project critical activities.

Contingent Time

- Ensure that an appropriate amount of contingent time is included in the project schedule to allow for any likely delays and reduce it as the contingent time is consumed and this will maintain the end date and critical path when a project **Must finish by** date is set in the **Project Overview** form.

Target Comparison

- Review the target dates with the current schedule and confirm that any delays are legitimate.
- Have there been many changes and delays and therefore should the schedule be re-baselined?

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