



BUILDER
INFORMATION
SYSTEM

BIS[®]
Job Scheduling Module
Reference Manual

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Conventions Used In This Manual

Every effort has been used to try to make this manual as useful and informative as possible. To accomplish that goal, several conventions have been used to assist the reader.

Throughout the manual, the terms process and activity are generally used interchangeably.

Caution

These boxes contain warnings about things that **MUST** be checked, or of items to be aware of, before proceeding. In many cases, the advice is to check with a C.P.A. or other tax advisor.

Tip

Tips offer special information, considerations, or other insights when undertaking the task described.

Hyperlink

A hyperlink is shown with an underline as it is shown by default in the program. Hyperlinks may be found in screen forms or in screen previews of reports.

Access

Menu access to selected items is shown in the two or three ways available (depending on the item). Here is an example for access to a functional menu element:

Job Scheduling - Menu Access

Modular Menu Access

Other | Job Scheduling

This represents access to Job Scheduling from the Modular menu, irrespective of Reports Group or List.

Standard Menu Access

Job | Job Scheduling

This represents access to Job Scheduling from the Standard menu.

Here is an example of access to a report item:

Access to Reports in Job Scheduling Menu

Reports | Critical Path

This represents access to the Critical Path report from the Job Scheduling menu.

In some instances, individual screen buttons are shown in the text, such as the Magnifying Glass  icon.

Section 1 – Job Scheduling

Job Scheduling (JS) is a new BIS® module designed to provide project management services based on the Critical Path Method (CPM). Although JS is designed as a separate executable program, it only works within and from BIS®.

JS is available beginning with Version 1136.06 and only for the Professional and Enterprise editions.

Introduction to Critical Path Method

What is CPM?

The Critical Path Method is a project management tool used to formulate a time frame for a project in order to determine where potential delays are most likely to occur. The process includes a step-by-step process that provides the user with a visual representation of potential bottlenecks throughout the course of the project.

Project Management using bar chart was developed in 1910 by an industrial engineer named Henry L. Gantt. The Critical Path Method (CPM) was originally designed in the 1950's as a method of organizing and tracking the numerous activities of the Polaris nuclear submarine and missile defense program. However, CPM is useful with many projects and makes the planning process easier.

Using a CPM technique, the following will be found:

1. The total time to complete a project
2. The scheduled start and finish dates for each activity pertaining to the project's completion
3. The activities that are "critical" to the project that must be completed exactly as scheduled
4. The "slack" time available in non-critical activities, as well as how long they can be delayed before they affect the project finish date

Creating a CPM Plan

1. List the activities to be considered in approximate order. This example will use the activities listed below in determining the critical path:

Figure: JS-1
Initial list of activities for Job Scheduling

Activities
A
B
C
D
E



Tip

Throughout the manual, the terms process and activity are generally used interchangeably.

2. Number the activities, estimate the time required for each, and determine their predecessors. In this step, each process is sequenced in the approximate order of completion. All processes are also given an estimated amount of time required to complete the activity, and all predecessor processes are also recorded.

Figure: JS-2
Activity List showing Description, Duration, and Predecessor(s).

Id	Description	Duration	Predecessor(s)
A	Activity 1	2	None
B	Activity 2	5	None
C	Activity 3	7	A
D	Activity 4	3	A
E	Activity 5	5	D
F	Activity 6	4	C

3. Arrange the activities on a CPM diagram showing the activities with numbered boxes and their predecessor relationships with connection lines. There are many methods of constructing a CPM diagram, but BIS® uses boxes instead of circles. Each area of the boxes is explained in the example below.

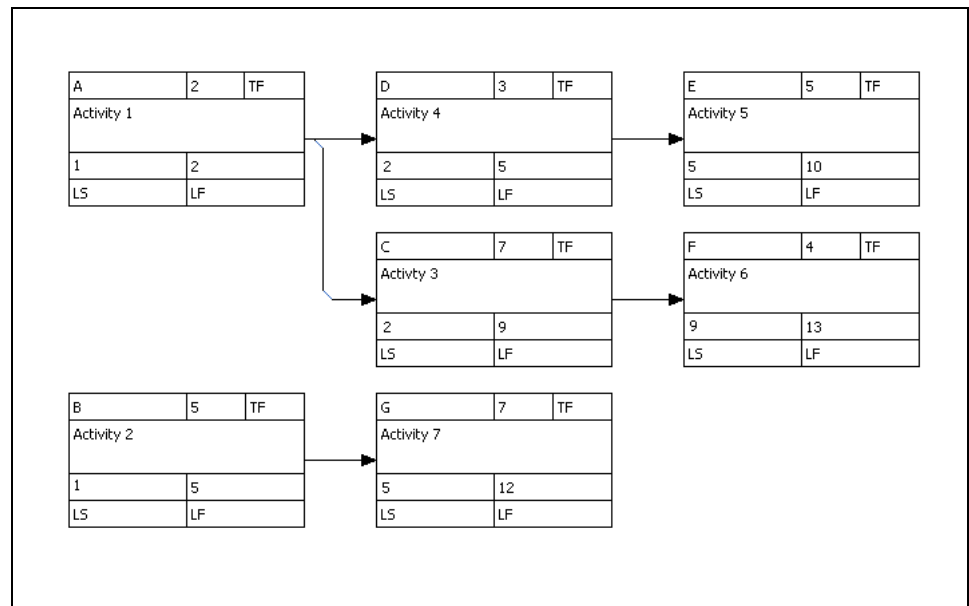
Figure: JS-3
Example of Job Scheduling CPM diagram box.

ID	ODUR	TF
DC		
ES	EF	
LS	LF	

- a. ID = Activity Identification
- b. ODUR = Original Duration
- c. DC = Activity Description
- d. ES = Early Start, the earliest that an activity may start, based upon the early finish times of its predecessor activities
- e. EF = Early Finish
 $EF = ES + \text{Duration}$
 $ES = EF \text{ of a predecessor activity} + 1 \text{ day}$
 If there are multiple predecessors, ES = the greatest of the EF times of all of the predecessors + 1 day.

- f. LF = Late Finish, the latest that an activity may finish, based upon the Late Start times of its successor activities.
 - h. LS = Late Start
 $LF = LS$ of a successor activity minus 1 day
 If there are multiple successors, $LF =$ the least of the LS times of all of the successors minus 1 day.
 - I. LS = Late Start, the latest that an activity may start, based upon the Late Finish time and the activity duration.
 $LS = LF - \text{Duration}$
 - j. TF = Total Float is the amount of time by which an activity may be delayed without delaying the project.
 $TF = LF - EF$
 $TF = LS - ES$
 For activities on the critical path, $TF = 0$.
4. Forward Pass (Predecessors to Successors):
- a. Activities with no predecessors are assigned an ES of One. This applies to activities A and B. EF for these activities is equal to their durations.
 - b. ES for the next activities in the sequence are set equal to the EF times for their predecessors.
 ES for activities C and D is set equal to EF for activity A.
 ES for activity G is set equal to EF for activity B.
 ES for activity F = EF for activity C; ES for activity E = EF for activity D.

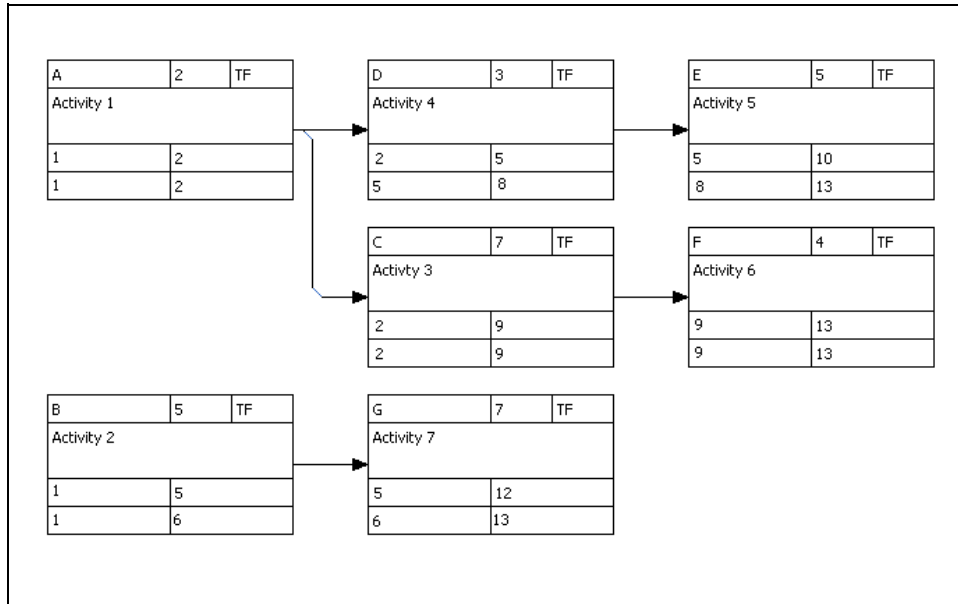
Figure: JS-4
 Example of Job Schedule
 Forward Pass (Left to Right).



5. Backward Pass (Successors to Predecessors):
- a. Activities with no successors are assigned a LF time equal to the greatest EF for the project. This applies to activities E, F and G.
 LS for these activities is equal to $LF - \text{duration}$.
 - b. LF for the next activities in sequence is set equal to the LS times for their predecessors.
 LF for tasks C and D are set equal for activities F and E, respectively.

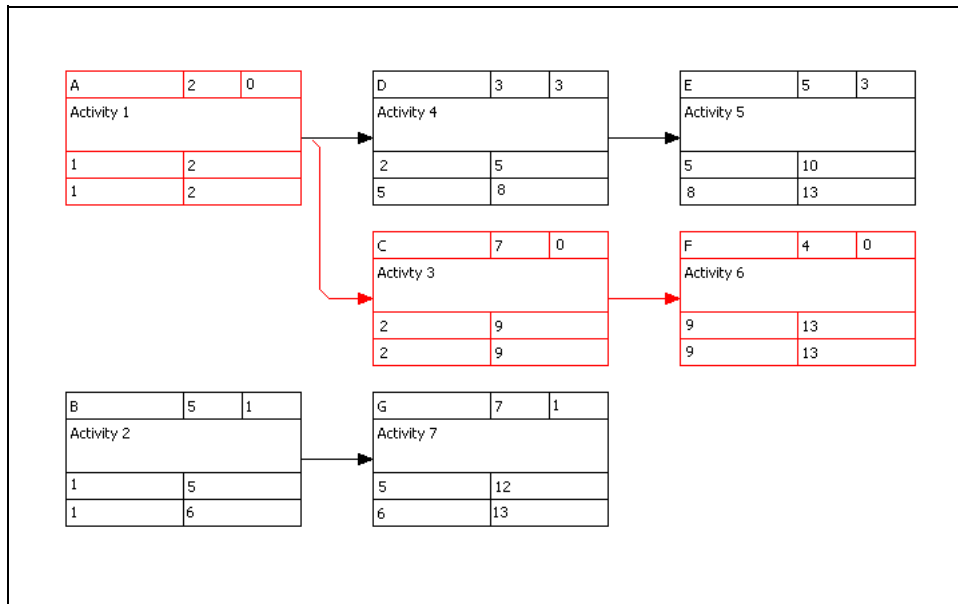
LF for activity B is set equal to LS for activity G.
 LF for activity A is set equal to LS of activity C (the lesser of the two LS times).

Figure: JS-5
 Example of Job Schedule Backward Pass (Right to Left).



6. **Critical Path:** The longest path through the network. Activities on the critical path cannot be delayed without delaying the project completion. For activities on the critical path, $TF = 0$

Figure: JS-6
 Example of Job Schedule Critical Path.



Tip

A constraint can cause a alteration of critical path, and therefore can modify the project duration.

Modular Menu Access

Other | Job Scheduling

Standard Menu Access

Job | Job Scheduling

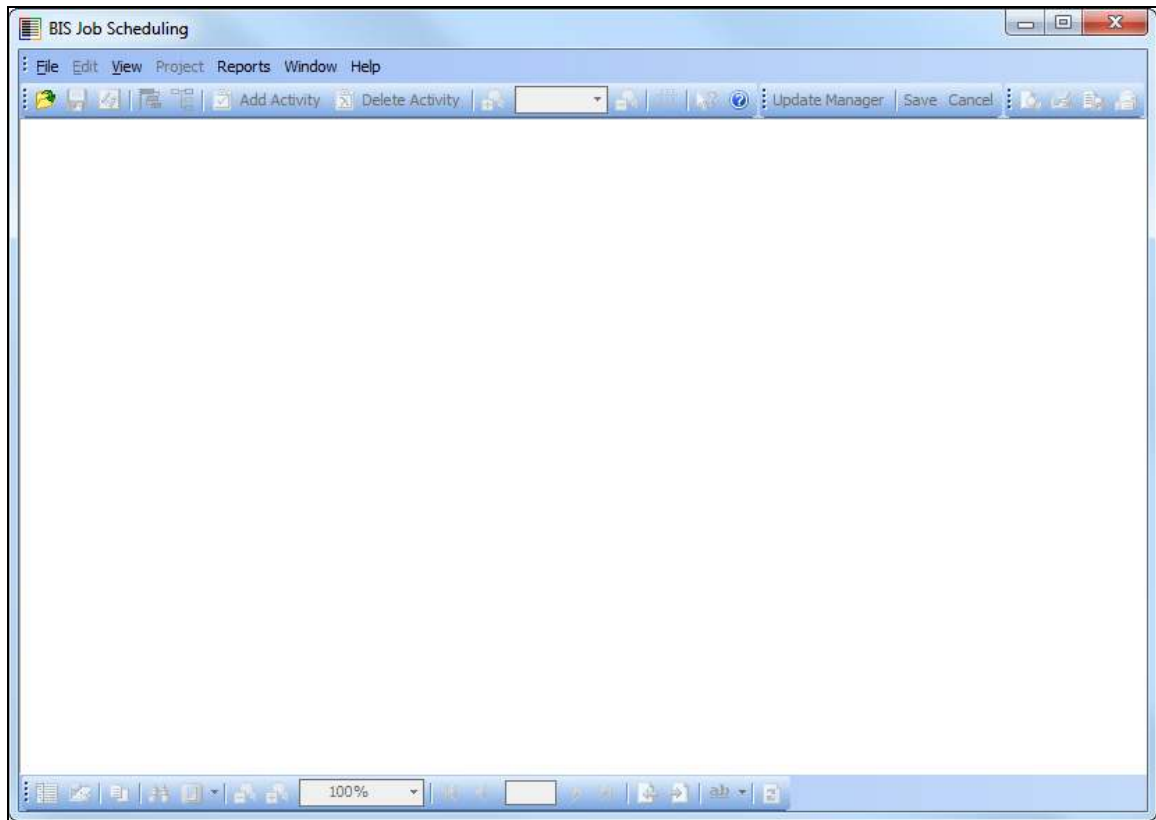


Figure: JS-7 Initial Job Scheduling screen.

Creating Projects

In Job Scheduling, each job is a project, and the activities to each project come from the Budget, Schedule of Values, or they can be processed as a Free Format schedule. A job schedule cannot be initiated until the Job master record has been completed.

From the Job Scheduling menu, either click on the Select Job button, press Ctrl-O, or click on File, and choose Select Job.

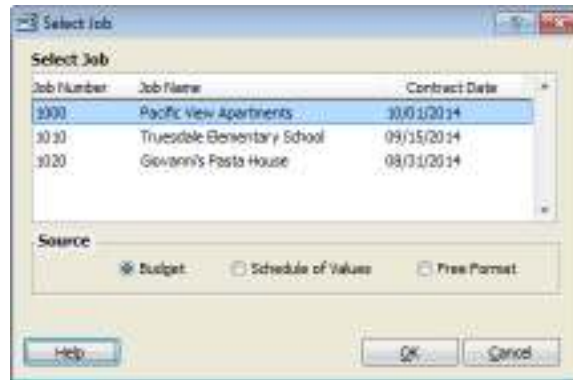
Menu Access

File | Select Job

Alternatively, Ctrl-O may be used. The Select Job screen form will appear.

Figure: JS-8

Job Scheduling module
Select Job screen form
showing sources of
activities.



Main Tab Select Job

The Select Job List shows the list of job numbers, names, and contract dates of those jobs for the current company.

Source

The Source option offers the user three choices for the activities for the selected project. The first two options are unique to BIS[®]. Users can instantly utilize the list of budget or schedule of values' items as activities for a project.

Budget

Selecting Budget will pull the activities from the budget list for the job. Please note that the list of activities can be subsequently expanded in Job Scheduling.

Schedule of Values

If Schedule of Values is chosen, the activities will be pulled from the Schedule of Values for the job. As with the Budget option, the user can add to the list of activities in Job Scheduling.

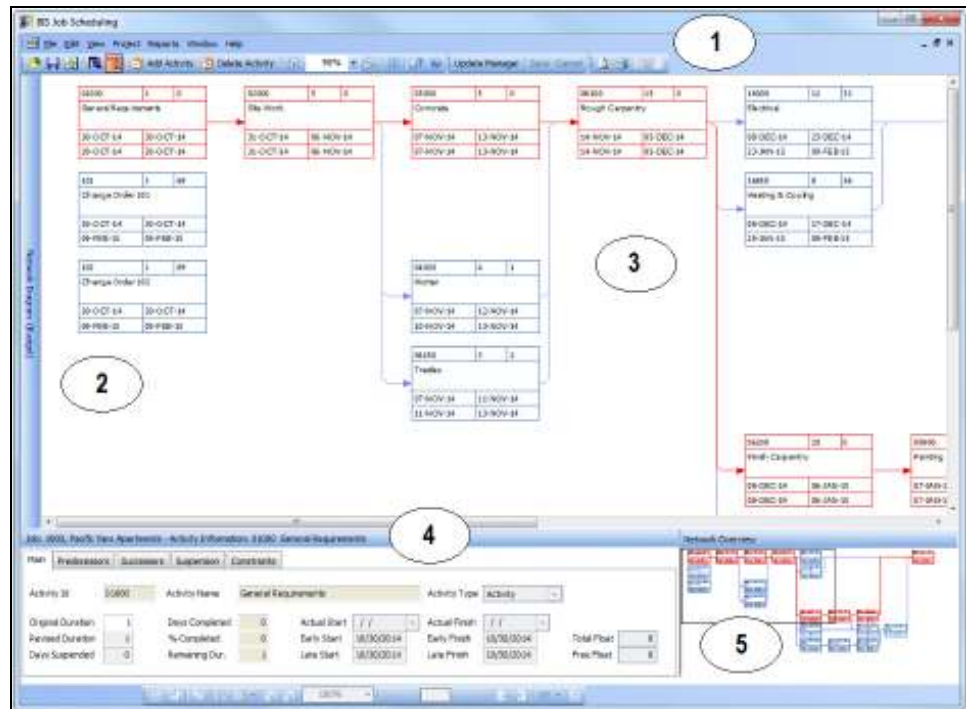
Free Format

Selecting Free Format, the user will be able to manually enter all of the activities for the project. Once the selection is chosen, press the OK button to load the project.

Please note that a user can create three different schedules for the project based on their respective sources of activities. For example, a schedule for internal use could be created based on the budget, another schedule based on the schedule of values for the owner of the project, and a third for other purposes.

**Working with Projects
Job Scheduling Screen Elements**

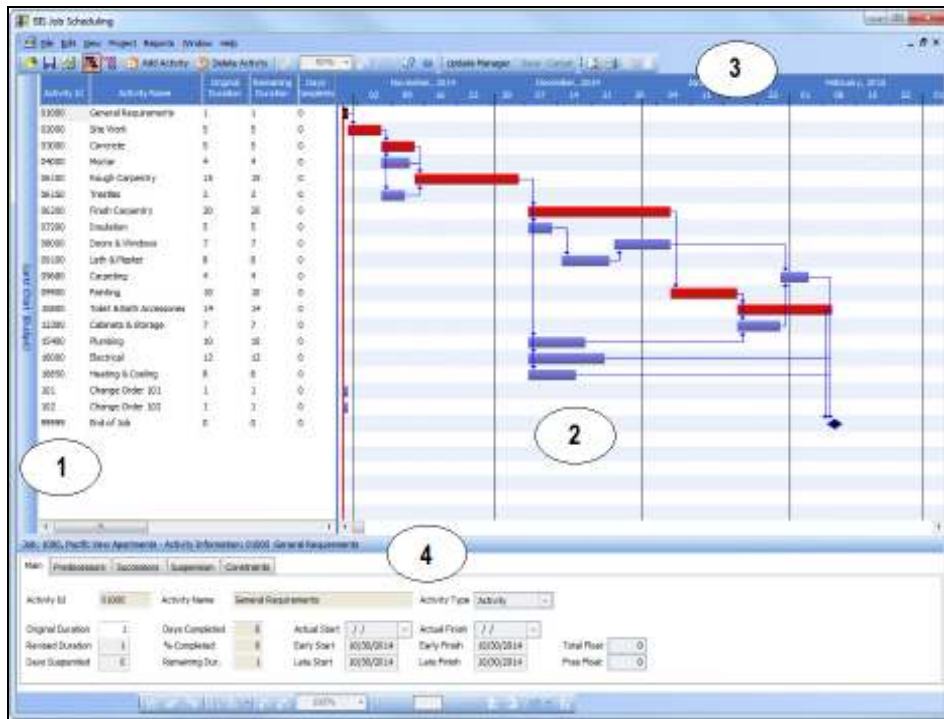
Figure: JS-9
Job Scheduling screen elements example (showing Network Diagram.)



1. Menu and Toolbars
2. Diagram Type
3. Diagram section
4. Activity Information
5. Network Overview Diagram

**Job Schedule Views
Gantt Chart**

Figure: JS-10
Gantt Chart screen elements.



1. Activities List: Items listed can be modified to change the duration of activities. However, the Description and Id can only be changed in the Free Format mode.
2. Draw Area: Bar size or position can be changed by using the mouse.
3. Date Scale: The Date Scale can be expanded or contracted by pressing the Control key, clicking the mouse button, and dragging to the left or right.
4. Activity Information

Activities List Sorting

The Activities List can be sorted by clicking in the header columns. The function can be applied to any of the columns in the Activity List.

Activity Id	Activity Name	Original Duration	Remaining Duration
01000	General Requirements	1	1
02000	Site Work	1	1

Activity Id	Activity Name	Original Duration	Remaining Duration
16850	Heating & Cooling	1	1
16000	Electrical	1	1

Figure: JS-11 Activities Lists showing ascending and descending sort orders.

Activity Id	Activity Name	Original Duration	Remaining Duration	Days Completed	Percent Completed	Early Start	Early Finish	Late Start	Late Finish	Actual Start	Actual Finish	Free Float	Total Float
-------------	---------------	-------------------	--------------------	----------------	-------------------	-------------	--------------	------------	-------------	--------------	---------------	------------	-------------

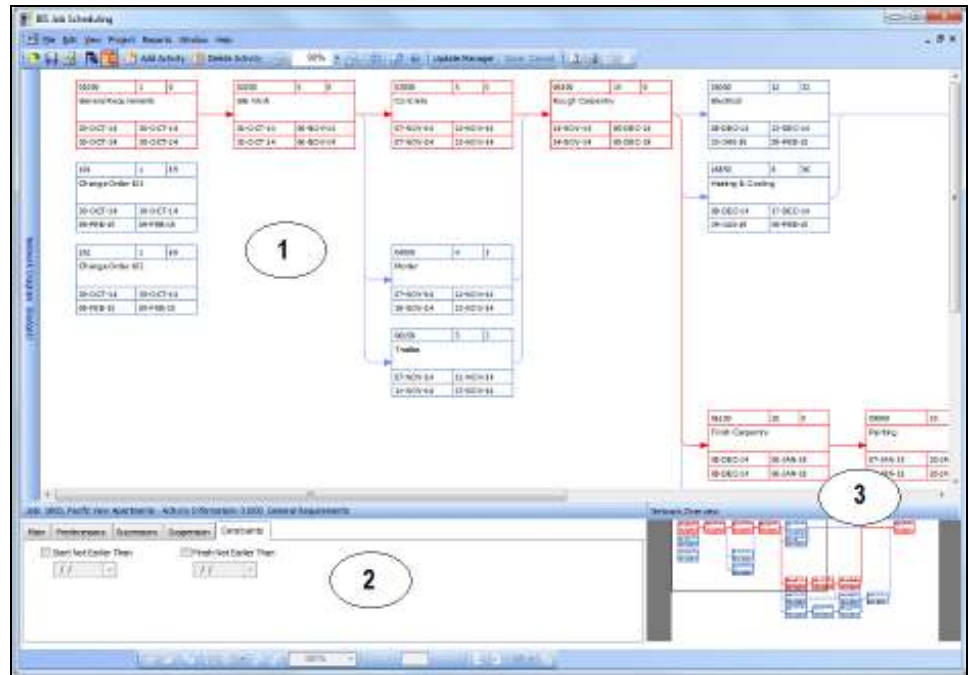
Figure: JS-12 Activity List columns.

Activities List Editing

Only the Original Duration column can be edited when activities originate from the Budget or the Schedule of Values. If the task was entered manually, the Id, Description, and Original Duration columns can be edited. These entries also can be modified in the Activity Information Window. Others columns, however, are set as read-only.

Network Diagram

Figure: JS-13
Network Diagram screen elements.



1. Draw Area: The box sizes cannot be changed, but they can be moved.
2. Activity Information
3. Network Diagram Overview: This is a visual tool to focus on a segment of the project in the overview.

Section 2 – Job Schedule Menu

Most of the selections under File are self-evident. However, one of particular note is the Print Preview option. The Network Diagram and Gantt Charts can be printed from the Print Preview selection. In addition, in the Print Preview mode, the pages of the diagrams or charts can be exported or attached to an email in an exported format. Because they are graphical images, they should not be exported as RTF, XLS, or TXT. It would be more appropriate to export them as PDF or TIFF.

Print Preview – Menu Access

File | Print Preview

Edit

The Edit menu item includes two features also available from the standard toolbar: Add Activity and Delete Activity.

Add Activity – Menu Access

Edit | Add Activity


Even if a schedule has been developed from a Budget or Schedule of Values, and especially if the schedule has been developed in free-form mode, activities can be added by either clicking on the Add Activity  icon, selecting Add Activity from the drop-down menu, pressing Ctrl-A, or right-clicking in one of the columns in the Activity List area, and clicking on Add Activity. The new activity is added to the bottom of any existing list.

Figure: JS-14
Gantt Chart Activity list with blank new addition.

Gantt Chart (Budget)	09900	Painting	10	10	0	
	08000	Doors & Windows	7	7	0	
	10800	Toilet & Bath Accessories	14	14	0	
	12300	Cabinets & Storage	7	7	0	
	09680	Carpeting	4	4	0	
	99999	End of Job	1	1	0	
			1	1	0	

As with any of the items listed, as soon as the new item is selected, it will change to blue and become editable.


Figure: JS-15
Gantt Chart Activity List with new activity highlighted for editing.

Gantt Chart (Budget)	09900	Painting	10	10	0	
	08000	Doors & Windows	7	7	0	
	10800	Toilet & Bath Accessories	14	14	0	
	12300	Cabinets & Storage	7	7	0	
	09680	Carpeting	4	4	0	
	99999	End of Job	1	1	0	
			1	1	0	

Similarly, the Activity Id and Durations can be changed. Once entered, the Activity should be established with its appropriate dates and times.

Delete Activity – Menu Access

Edit | Delete Activity

Alternatively, the user can delete activities from the toolbar by clicking on the Delete Activity  icon, by pressing Ctrl-Del, or right-clicking in one of the columns in the Activity List area, and selecting Delete

Activity. Only the activities manually created can be deleted; activities pulled from Budget and Schedule of Values cannot be deleted. New activities should then be arranged in the schedule.

View

The View menu item includes four features, two of which are also available from the standard toolbar. All features are also available from the Network Chart. The first two options allow the user to select either the Gantt Chart or the Network Diagram views of the project. The last two options enable zooming in or out on the Network Diagram.

Gantt Chart – Menu Access

View | Gantt Chart

The Gantt Chart can be accessed from the toolbar by clicking on the Gantt Chart  icon.

Network Diagram – Menu Access

View | Network Diagram

The Network Diagram can be accessed from the toolbar by clicking on the Network Diagram  icon.

Subcontract – Menu Access

View | Subcontract

Subcontract scheduling data can be accessed from the drop-down menu. Initial access to the Subcontract View opens the Subcontract scheduling screen.

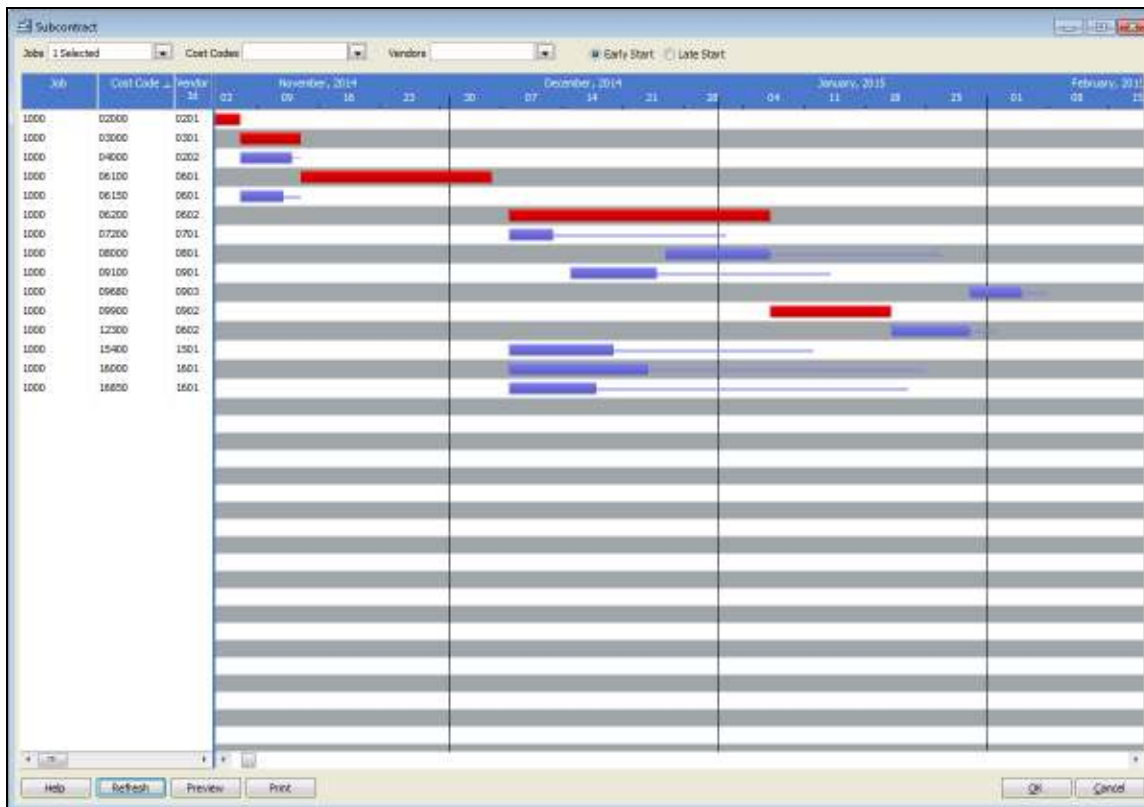


Figure: JS-16 Initial Job Scheduling – Subcontract Schedule screen.

Jobs

Jobs to be included in the Subcontract View can be selected from the Jobs drop-down window. The job(s) of interest may be selected manually or by using the button Check All to select all jobs, or Uncheck All to deselect all checked jobs. The Close button will close the drop-down screen.

Figure: JS-17
Subcontract View – Jobs selection drop-down window.

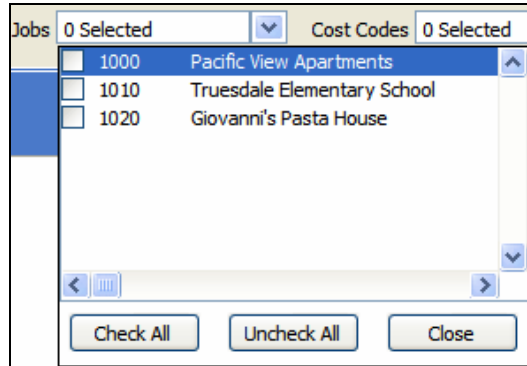
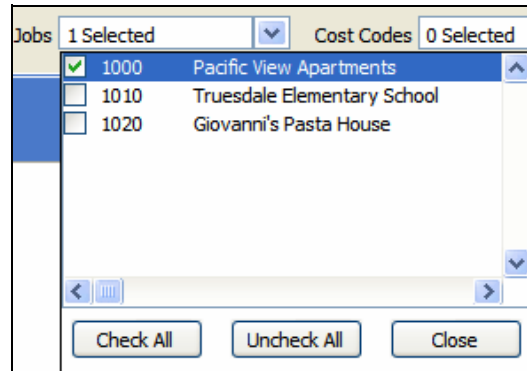


Figure: JS-18
Subcontract View – Jobs selection drop-down window showing one job selected.



Cost Codes

Cost Codes to be included in the Subcontract View can be selected from the Cost Codes drop-down window. The job(s) of interest may be manually selected or by using the button Check All to select all jobs, or Uncheck All to deselect all checked jobs. The Close button will close the drop-down screen.

Figure: JS-19
Subcontract View – Cost Codes selection drop-down window.

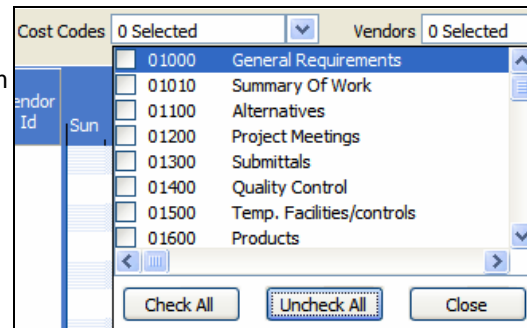
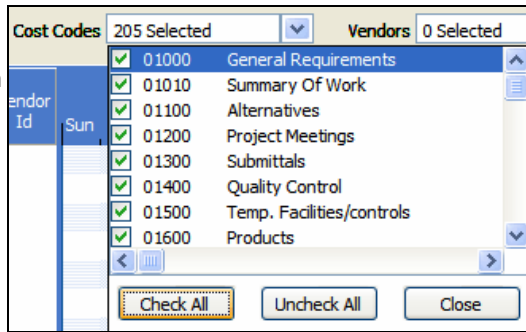


Figure: JS-20
Subcontract View – Cost Codes selection drop-down window showing all cost codes selected.



Vendors

Vendors to be included in the Subcontract View can be selected from the Vendors drop-down window. The vendor(s) of interest may be manually selected or by using the button Check All to select all vendors, or Uncheck All to deselect all checked vendors. The Close button will close the drop-down screen.

Figure: JS-21
Subcontract View – Vendors selection drop-down window.

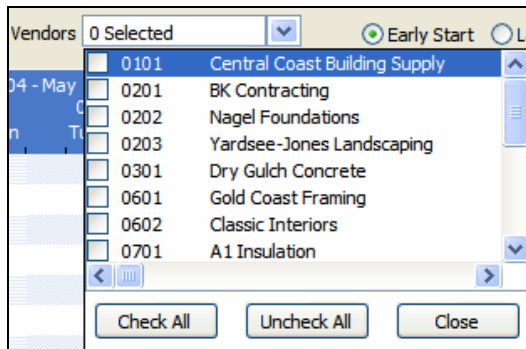
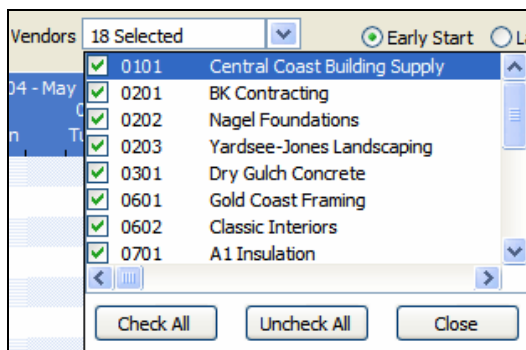


Figure: JS-22
Subcontract View – Vendors selection drop-down window with all vendors selected.



Early Start / Late Start

Users can select to see the schedule either from the Early Start or the Late Start perspective.

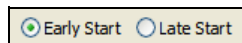



Figure: JS-23
Early Start/Late Start view option.

These options permit looking at the earliest start date or the latest start date each activity in the schedule.

Refresh Button

When all of the selections are made or reset, press the Load button  to view the schedule according to the selections made.

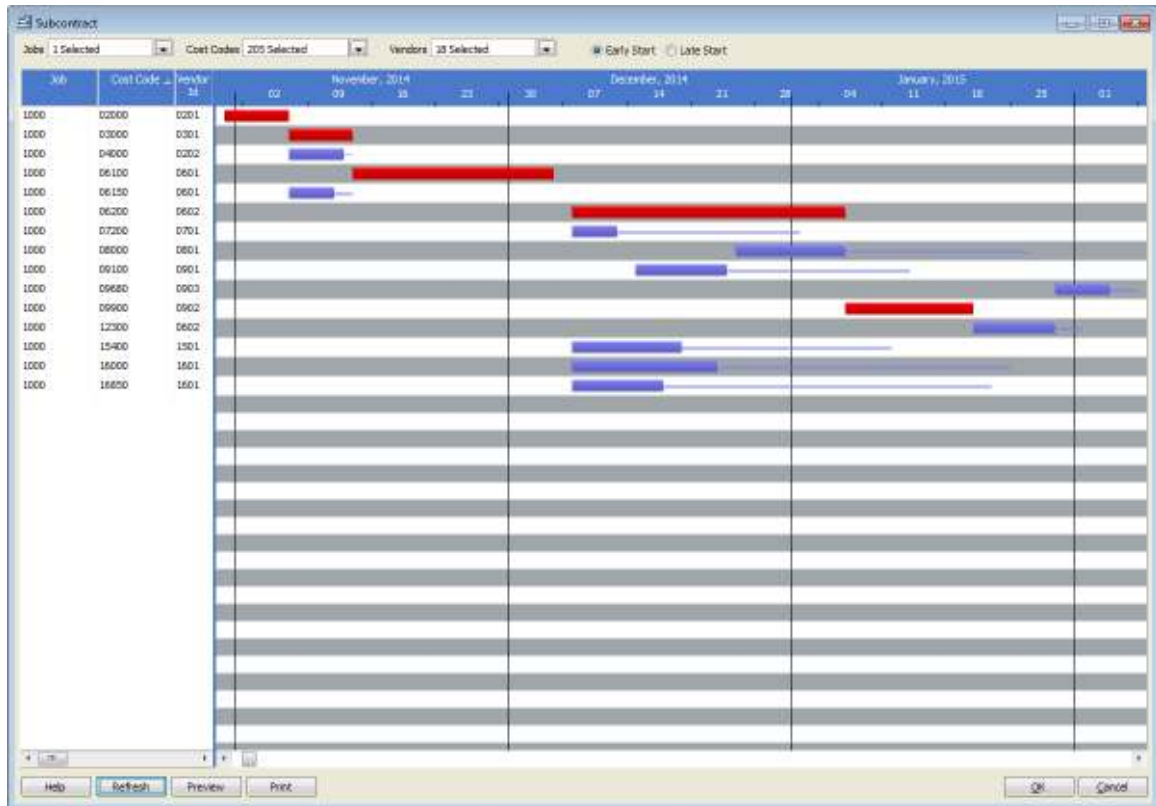




Figure: JS-24 Job Schedule – Subcontract View screen resulting from filter selections.

Preview Button

When all of the selections are made or reset, press the Preview  button to view a Print Preview of the Subcontract Gantt Chart schedule according to the selections made.

When the preview is viewed, the preview toolbar permits other functions to be applied including printing, exporting, and emailing the report. See the section of this manual on Preview Toolbar Controls for more details.

Print Button

When all of the selections are made or reset, press the Preview  button to print the Subcontract Gantt Chart schedule according to the selections made.

Subcontract Gantt Chart – Detail Report – Early Start, Screen Preview and Print

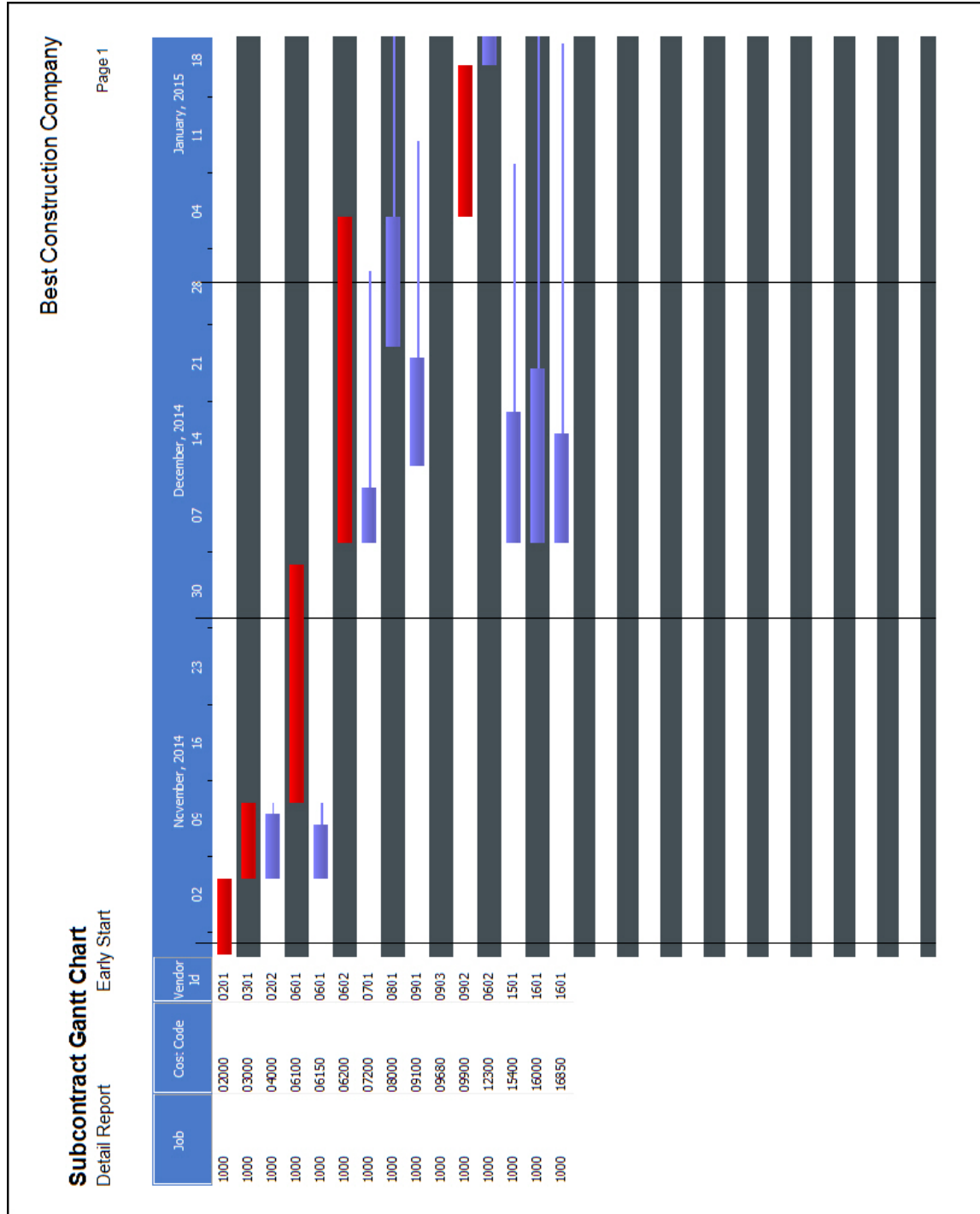



Figure: JS-25 Subcontract Gantt Chart – Detail Report – Early Start screen preview and print version.


Network Diagram Zoom In – Menu Access

View | Zoom In

The user can zoom in on the Network Diagram from the toolbar by clicking on the Zoom In  icon.

Network Diagram Zoom Out – Menu Access

View | Zoom Out

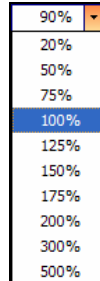
The user can zoom out on the Network Diagram from the toolbar by clicking on the Zoom Out  icon.

Network Diagram Zoom Out

In addition to using either the Zoom In or Zoom Out buttons, the user can select or enter a percentage zoom from the toolbar.

Figure: JS-26

Network Diagram Zoom percentage setting drop down menu. The user can also enter a percentage number manually.



Project

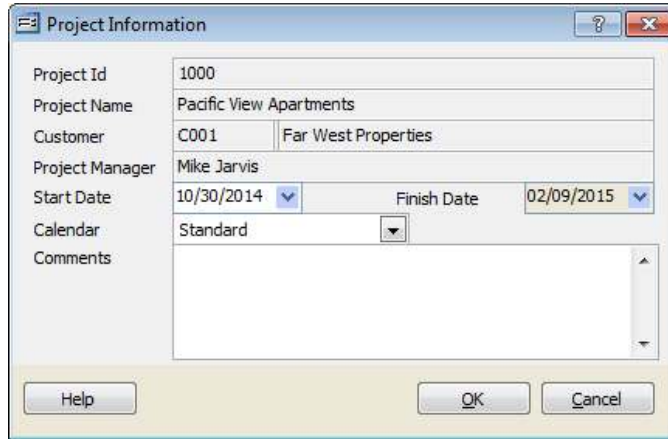
The Project menu has 5 selections, of which the last one is only available in the Network Diagram view. These include Project Information, Calendars, Update Advance, Layout, and Layout Entire Diagram.

Project Information

Project | Project Information

Project Information access also arises when the user selects a new schedule. Basic project information comes from the Job master record in BIS®. Only two fields can be edited: Start Date, and Comments.

Figure: JS-27
 BIS® Job Scheduling
 Project Information screen form.

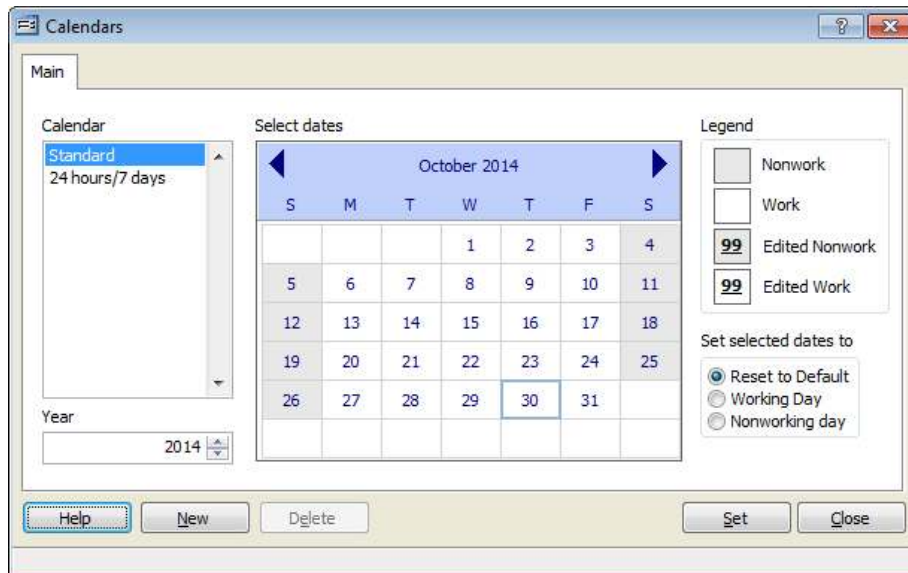


Calendars – Main Tab

Project | Calendars

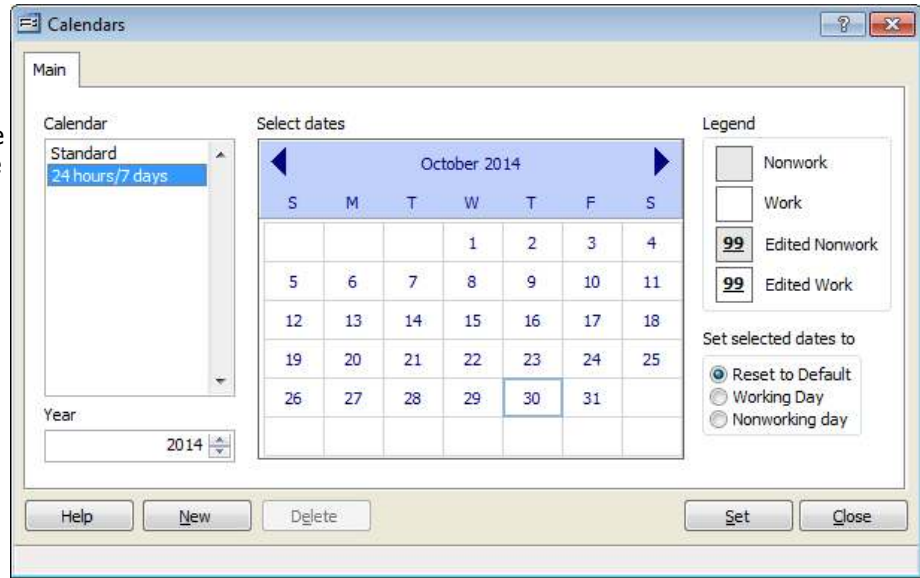
Initially, users can select from two default calendar types: Standard and 24 hours/7days, but custom calendars also may be created. The Standard calendar shades the weekend days, and makes them inaccessible for assignment.

Figure: JS-28
 BIS® Job Scheduling
 Calendar screen form showing Standard work week. Note that the Standard calendar also shows national holidays.



The 24 hours/7 days calendar makes the weekends available for assignment in the Job Schedule.

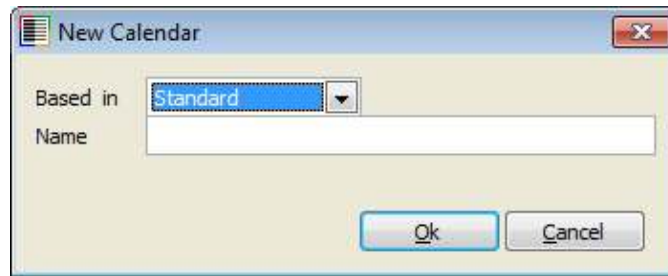
Figure: JS-29
 BIS® Job Scheduling
 Calendar screen form
 showing 24 hours/7 days
 work week. Notice that the
 calendar does NOT include
 national holidays.



The appropriate year can be selected in the lower left in the Year data field. The Legend at the right indicates whether dates are for Work, Nonwork, Edited Work, or Edited Nonwork. Please also note that selected dates can be marked as Default, Working Days, or Nonworking Days.

New Calendars can be developed, named, and saved by clicking on the New button.

Figure: JS-30
 Job Scheduling New
 Calendar sub-form used to
 create new job calendars.



In order to change the current calendar for the project, press the “Set” button.

Update Advance

Project | Update Advance

Update Advance opens three options including, Update Manager, Save, and Cancel.

Update Manager

Project | Update Advance | Update Manager

These options are also available from the Update Process Update Manager toolbar.

When the Update Manger is opened, the underlying form shown below appears. When the Add button is pressed, the Update Date subwindow appears. Please note that the date entered must be within the date range of the project or beyond the Finish Date.

Figure: JS-31
Update Manager screen form.

Update Date	User	Session Date	Revised By	Revised Date
10/30/2014	ADMIN	10/30/2014	//	

Figure: JS-32
Update Manager, Update Date sub-form.

After pressing the OK button, both screens disappear, and the Update Manager option grays out from the Update Advance menu and from the Update Process toolbar. However, the Save and Cancel options are now available.

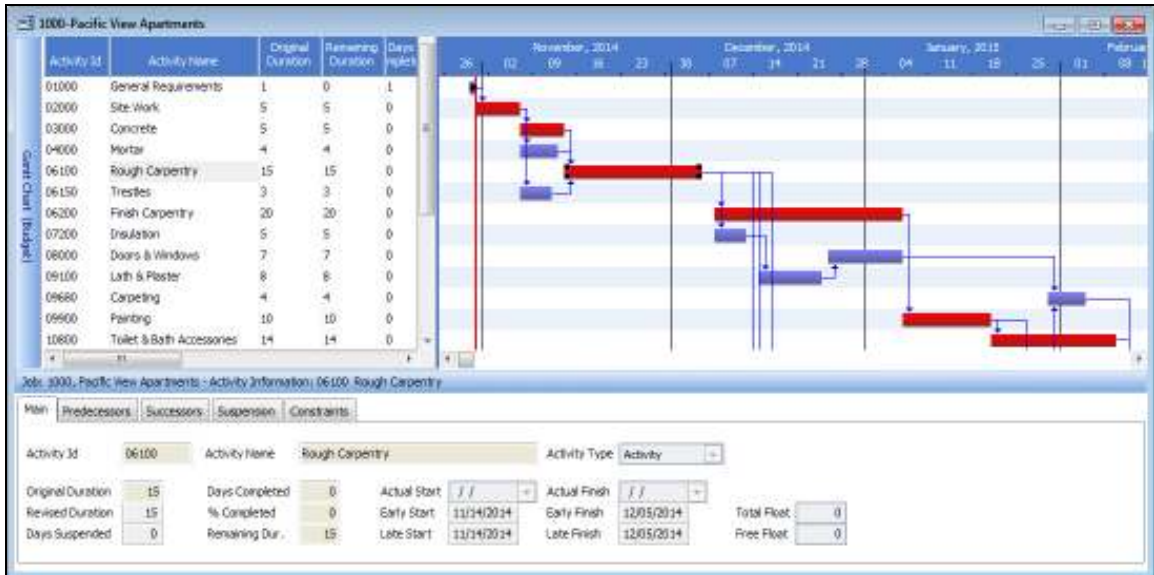




Figure: JS-33 Visual effect of the Update Advance saved to the Gantt Chart.

Please note that a red vertical line appears on the Gantt Chart on the date selected, and a differently colored stripe appears across the activity item range. The vertical line remains if saved.

Fully completed activities are identified as: 

Partially completed activities are identified as: 

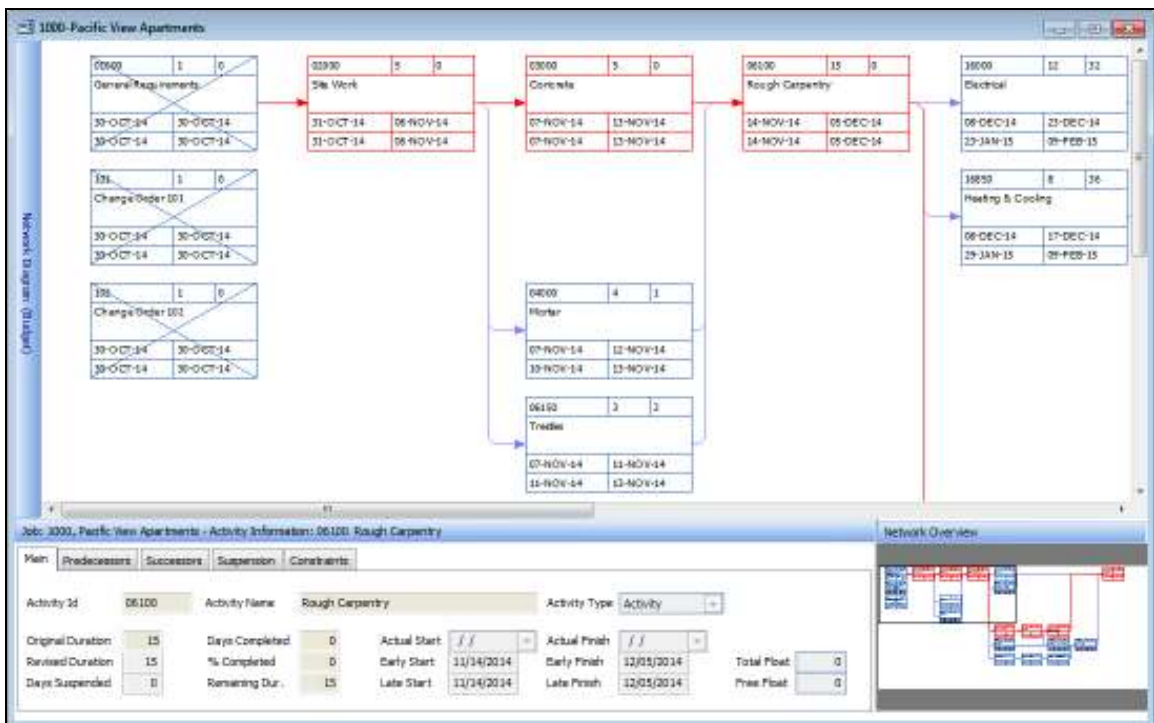


Figure: JS-34 Visual effect of the Update Advance saved to the Network Diagram.

Figure: JS-35
Partially completed activity in Network Diagram are noted with a single diagonal line.

02000	5	0
Site Work		
31-OCT-14	06-NOV-14	
31-OCT-14	06-NOV-14	

Figure: JS-36
Fully completed activity in Network Diagram with double crossing diagonal lines.

02000	5	0
Site Work		
31-OCT-14	06-NOV-14	
31-OCT-14	06-NOV-14	

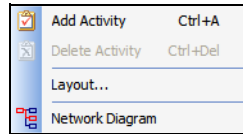
Layout – Gantt Chart

Project | Layout

The Gantt Chart layout option is also available by right-clicking on the diagram and selecting Layout.

Figure: JS-37

Access to Layout is available by right-clicking on the Gantt Chart.



It opens the Gantt Chart Format screen.

Figure: JS-38

Gantt Chart Format screen form showing Bar tab options.



Bars Tab

Opening up the Gantt Chart Format window Bar Tab, three options are offered.

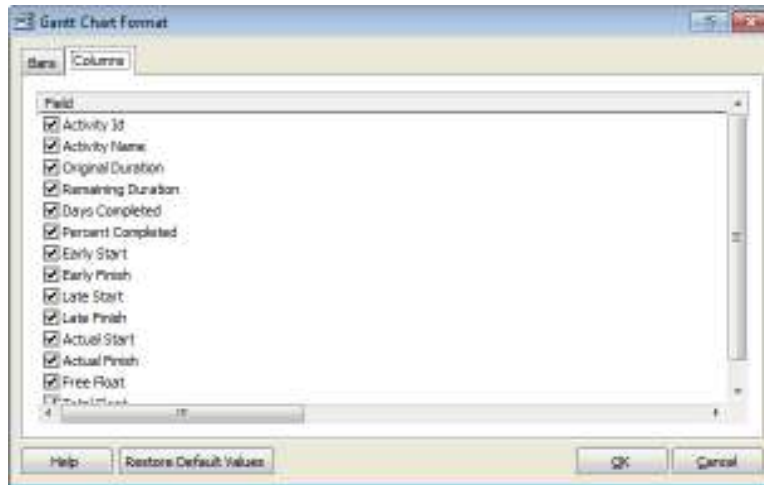
The user can select from among three different link styles. Additionally, in Bar Style and Color, the user can choose either standard or custom colors for Critical and Non Critical activities. In addition, the user can select either of two shapes of the bars: Rectangle or Pipe. The Background Color has options for the 1st Color and the 2nd Color.

Columns Tab

Opening up the Gantt Chart Format window Columns Tab, 14 column fields are offered:

- Activity Id
- Activity Name
- Original Duration
- Remaining Duration
- Actual Duration
- Percent Completed
- Early Start
- Early Finish
- Late Start
- Late Finish
- Actual Start
- Actual Finish
- Free Float
- Total Float

Figure: JS-39
Gantt Chart Format screen form showing Color tab options.



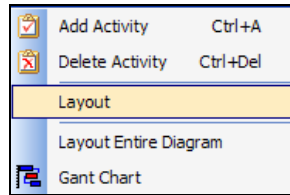
Layout – Network Diagram

Project | Layout

The Network Diagram layout option is also available by right-clicking on the diagram and selecting Layout.

Figure: JS-40

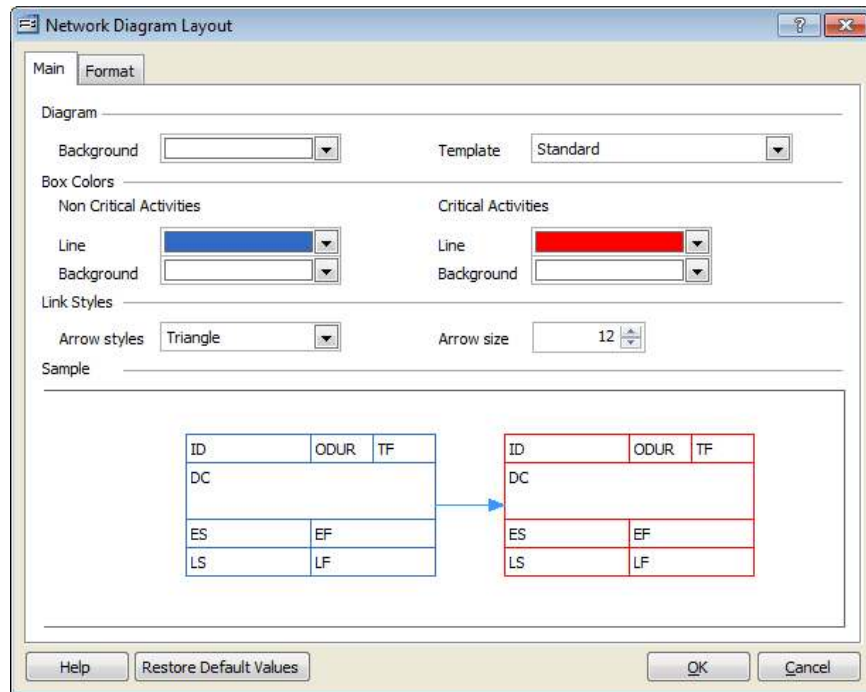
Access to Layout available by right-clicking on the Network Diagram.



It opens the Network Diagram Format screen.

Figure: JS-41

Network Diagram Format screen form showing the Main tab options.



Diagram

Two options are available in the Diagram section of the Network Diagram Format screen: Background and Template. The Background option allows the user to set standard or custom colors. The Template option offers three settings, Standard, Standard with Descriptions on Top, and Standard with Floats. The result of these selections is shown immediately in the Sample section in the lower half of the screen form.

Box Colors

Two selection options each are available in two sections of the Box Colors section of the Network Diagram Format screen: Non Critical Activities and Critical Activities. Each of those primary choices is divided into Line and Background selections. As with other color choices, the user is offered either standard or custom colors. By default, any Non Critical Activities are blue on a light blue background, and the Critical Activities are red on a white background.

Link Styles

Two options are available in the Link Styles section of the Network Diagram Format screen: Arrow Styles and Arrow Size. As with the diagram templates, the effects of any change are immediately shown in the Sample area in the lower half of the screen form.

Format Tab

The Format Tab offers two options: Date format options and Numeric format options for the number of days. Each offers clear examples of its available choices.

Once the desired selections are made, the user should click on the OK button.

Creating Relationships

In order to create activity relationships, the user should select a box with the mouse and drag the arrow to the next box in the sequence.

Figure: JS-42

Example of dragging the mouse from one activity to the next to establish their relationship.

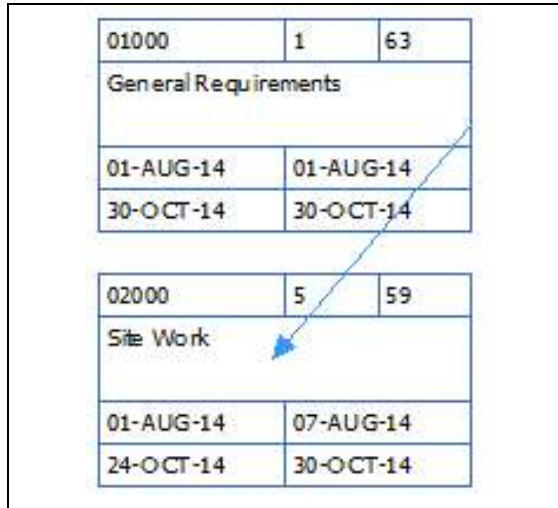
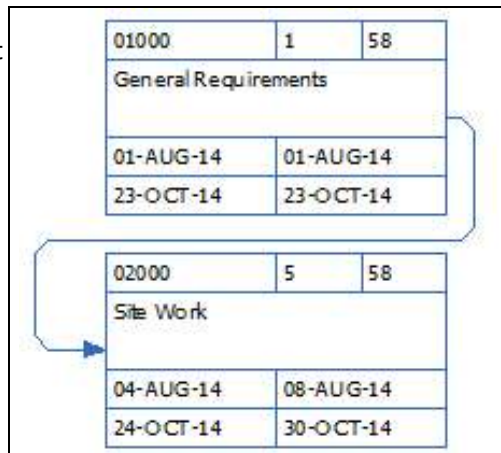


Figure: JS-43

Example of relationship set between two activities.

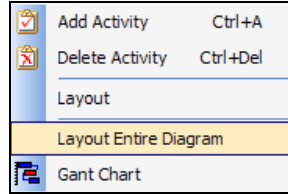


Layout Entire Diagram

Project | Layout Entire Diagram

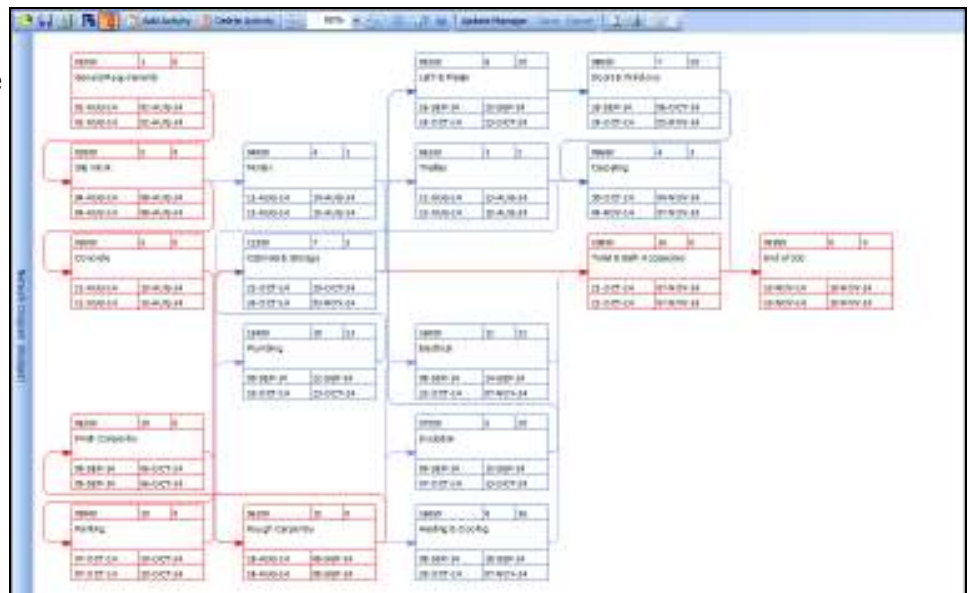
The last menu choice under Project is only available to the Network Diagram view; it is also available by right-clicking on the network diagram that appears on the screen.

Figure: JS-44
Access to Layout Entire Diagram by right-clicking on the Network Diagram pane.



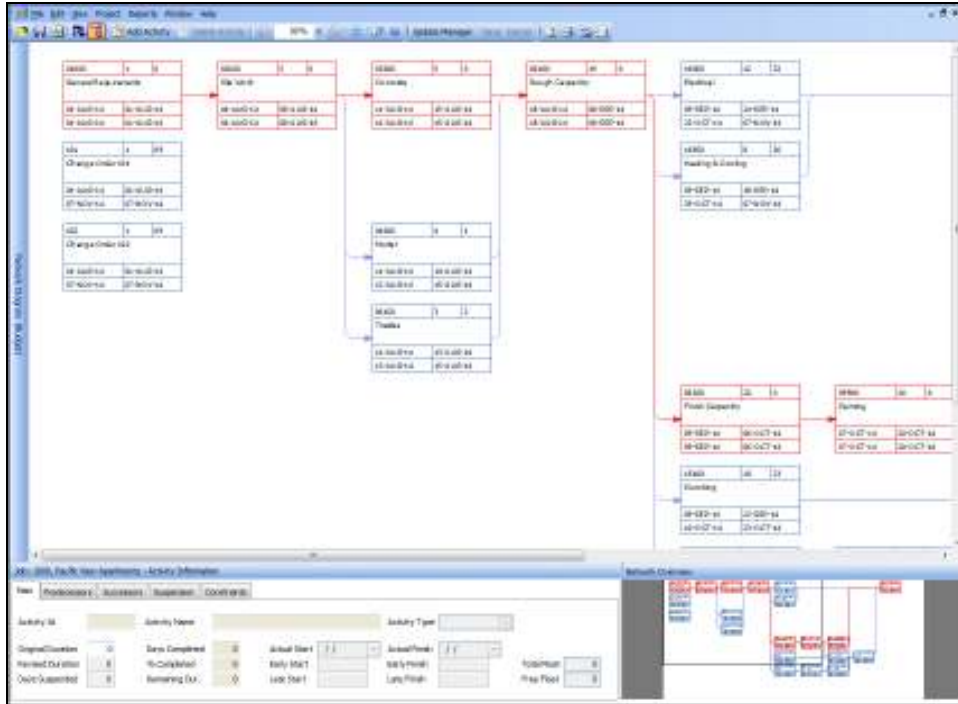
When a project is large and has many relationships, it is necessary to organize it visually to create effective activities tracking. The Job Scheduling module simplifies the task with the “Layout Entire Diagram” option.

Figure: JS-45
Sample Network Diagram prior to reorganizing entire layout



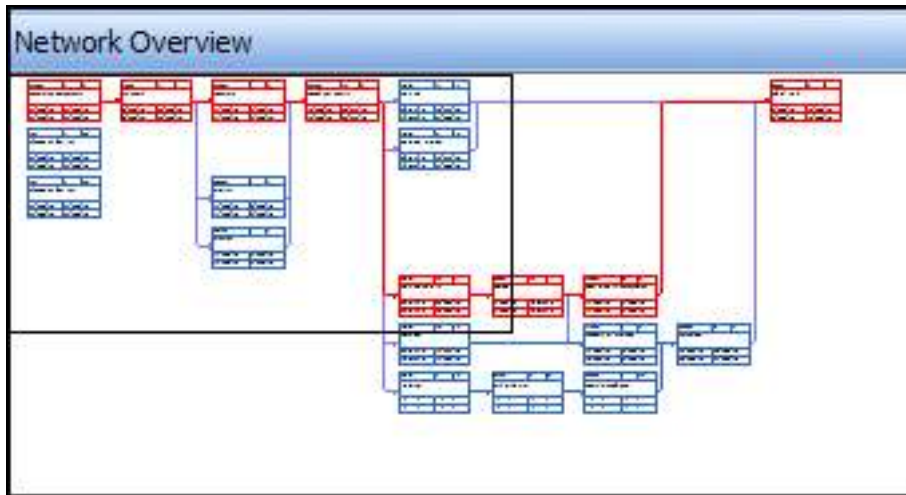
The illustration above shows a network diagram before selecting the “Layout Entire Diagram” option.

Figure: JS-46
 Portion of Network Diagram after applying changes in Layout Entire Diagram. The entire diagram can be seen in the Network Overview window in the lower right-hand corner of the screen.




The following illustration shows part of the network diagram after selecting the “Layout Entire Diagram” option. Note that overlapping lines are gone because the activities have been organized in a logical fashion.

Figure: JS-47
 Closeup view of Network Overview segment of the Network Diagram screen.



Grid

The Network Diagram view can add a light grid background by clicking the Grid  icon.

Window

The Windows menu selection controls the appearance of the Job Scheduling program. The selections include:

- Tile Horizontally
- Tile Vertically
- Cascade

These styles are covered in the BIS® overview manual.

Section 3 – Job Scheduling Reports

This section covers the reports available for Job Scheduling. Access to specific reports begins with the Query screen that enables selecting the particular variation needed. As with other reports in BIS[®], reports can generally be one of 3 types: Summary, Detail, and Extended. Most reports offer the ability to select an “Order By” setting, and often have several choices of fields for that choice. Bank Reconciliation Reports usually permit the user to select the general ledger bank account being reviewed with the report. Additionally, most reports have a variety of Options allow certain elements to show or not on the report. Finally, most reports offer a listing of fields that can allow a refined selection of data. The Report Query will be remembered by User Id until changed.

All report options are listed under the Reports menu, and many reports can be selected by right-clicking on a data hyperlink to open a pop-up report menu related to that field. Either method opens a report setup form depending upon the type of report selected.

Job Scheduling Reports offer the opportunity to view all job scheduling records and activity for a company. Reports are an easy way to view the effects of specific actions. They are also a good way to get a summary view of either specific or all actions.

BIS[®] reports allow the user to enter the exact specifications of what the report will contain. Make it as detailed or simple as needed. Narrow or broaden the search criteria to allow as few as one record, or as many as all records pertaining to the topic.

Once the criteria have been entered into the report form, the report can be viewed on the screen by clicking the Preview button. A window will open to display the report, and this is useful for detecting any errors in setting up the report before actually printing it on paper. Use the scroll bars on the right side and bottom of the screen to move around the page.

When previewing a report, the usual toolbar will disappear and the preview toolbar appears. After closing the preview of the report and returning to the Report form, the report can be printed. Select Print, either from the File menu or by clicking the Print button on the main tool bar. The Print dialogue box will open. Specify whether to print the entire document or select certain pages to print. Also, select the number of copies desired and which printer to use.

Reports can be viewed on the screen, printed, and exported. In other editions of BIS[®], reports can be exported and emailed in up to six different formats. Most reports have hyperlinks that enable users to either drill down to the source record, or by right-clicking, open a list of other reports and functions related to the hyperlink field selected.

Toolbar Controls


There are a number of controls that affect reports and how they are rendered. Initial access comes from the report toolbar.




Figure: JS-48
Report Toolbar

Reports Toolbar


Preview

 The Preview icon works with the Report and printing functions, allowing a preview in WYSIWYG (What You See Is What You Get) mode. As with other screen elements, these report previews can be tiled or layered with the BIS[®] MSD (Multiple Screen Display).


Print (Ctrl-P)

 The BIS[®] Print icon causes the current report to be sent to the print spooler so that it can be printed by the default or selected printer accessible to the sending computer.

Export Report

 The Export Report icon exports the current report in up to six different formats, depending on the edition of BIS[®] used. Standard edition users can export in DOS TXT, Microsoft[®] Excel[®] WKS, and Adobe[®] PDF formats. Professional edition users add Microsoft[®] Word[®] and the graphical TIFF formats. Finally, Enterprise edition users can also export in HTML format.


Email Report

 The Email Report icon enables Professional and Enterprise edition users to email reports from directly within BIS[®]. The available formats for these editions are the same as listed for Export above.


Preview Toolbar Controls

Once a report is opened, and appears on the screen, an additional Preview Toolbar opens.


Table of Contents

 The BIS[®] Table's of Contents icon adds a table of contents to the left side of the screen report. Using a familiar Explorer-style format, each primary record of the report can be directly accessed, eliminating the need for laborious searching.


Show/Hide Ruler

 The Show/Hide Rule icon reveals or hides a ruler guide to the top and side of the report. Users of word processing and some graphics programs should be familiar with this feature.


Copy Page

 The Copy Page icon copies the current page of the report to the Windows[®] Clipboard.

Find

 The BIS[®] Find icon enables finding or searching for a particular piece of data in the current report.

Display Pages

 The Display Pages icon controls how many pages of the report can appear on a single screen and how they are arranged. The choices are: 1x1, 1x2, 1x3, 2x1, 2x2, and 2x3.

Zoom in

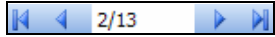
The Zoom in icon enlarges the screen image by preset percentages.

Zoom Out

The Zoom in icon reduces the screen image by preset percentages.

Zoom Control

The Zoom Control drop-down allows enlarging or reducing the screen image by preset percentages: 25, 50, 75, 100, 125, 150, 175, 200, 400, and 800, as well as Page Width and Full Page.

“VCR” Buttons

The VCR button icons provide a way of moving through pages of the report. In sequence, they are: the First Page, the Previous Page, the Next Page, and the Last Page. The numeric information in the center indicates which page is showing or selected out of the total number of pages in the report.

Backward

The Backward icon reverses the order of the pages of the report that appear on the screen.

Forward

The Forward icon resets the order of the pages of the report that appear on the screen.

Hyperlink Appearance

The Hyperlink Appearance icon controls how the hyperlinks will appear on the displayed report (and any report printed from the preview).

Figure: JS-49

Hyperlink format options

ab	Blue Underline
ab	Blue
ab	Black Underline
ab	Black
ab	Blue Italic Underline
ab	Blue Italic
ab	Blue Italic Underline
ab	Blue Italic

Refresh

The Refresh icon updates the report with the latest data from the program.

List Reports

The majority of BIS[®] reports are list reports. This section explains how to set up a list report and define the search criteria on which to base it. If the criteria specified do not yield any records, BIS[®] will not allow the report to be previewed or printed.

My Query

The My Query option enables the user to save multiple sets of query conditions (and is described in greater detail below).

Report Type

Select the type of report, which generally determines the level of detail contained in the report itself. The amount and type of detail available vary from report to report.

Order By

Use the drop down menu tool in the Order By option to select which field should be used to list entries. Some reports can only be ordered by a certain field. If applicable, choose whether the entries will be shown in ascending or descending order. For example, ascending alphabetical listings display A-Z entries, while a descending list orders Z-A entries.

Options

The choices given in the Options box allow the report to be further defined. To select any of these options, check the corresponding box.

Filter

The listing at the bottom of the form defines which records will be included in the report. Data can be selected for inclusion by the fields displayed in this area. A variety of criteria can be used to make the report as narrow or broad as necessary.

First select an operator from the drop down list in the Operator field. Depending on which operator is chosen, the Beginning and/or Ending fields may need to be filled with data based on the field type. Sometimes a drop-down menu is made available in these columns so that records may be selected from those on file.

Operators

- All Shows all records
- = Displays only records with data matching the data in the Beginning column.
- On Date Run For Date fields only; this dynamic operator uses the system date for the program
- Day # of Month For Date fields only; this dynamic operator uses the pres-selected specific day of the month
- First Day of the Month For Date fields only; this dynamic operator uses the first day of the current month
- Last Day of the Month For Date fields only; this dynamic operator uses the first day of the current month
- In Includes all records contain the data entered in the Beginning column
- Between Shows records that fall between the records listed in the Beginning and Ending columns
- Tag Includes specific records tagged from a drop-down list of records
- > Includes records that have a value greater than that entered in the Beginning column
- < Only shows records with a value less than that defined
- >= Displays records with a value greater than or equal to the defined data
- <= Includes records whose value is less than or equal to the data entered

My Query

The My Query option enables the user to save multiple sets of query conditions including Order By, Field Operators and their settings, and Options. The initial use of My Query shows no saved Queries. If there are existing named queries available they can be seen using the drop-down tool. The saved Query, however, can be applied to any of the available Report Types.

Figure: JS-50
My Query drop-down list sample.



As with other system reports, each named query selection can be further refined with the other settings.

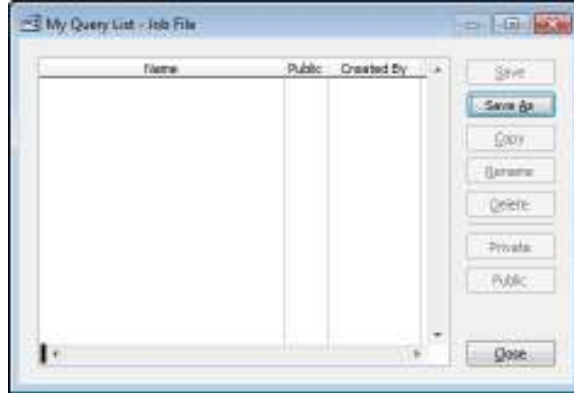
Refresh Button

If a query has been saved, and new changes are made to the query settings, clicking on the Refresh button will remove those unsaved changes.

Details Button

A query can be saved by clicking on the Details button. If there are no pre-existing queries, two buttons are available, Save As and Close.

Figure: JS-51
My Query List initial use sample screen form.



Save

The Save button will save the current settings, but will provide a dialog box asking, “Do you want to overwrite this query?” Click on Yes to save the current settings under the selected name, or No to not save them under the current name.

Save As

The Save As button opens the Save As Query sub-form.

Figure: JS-52
Save As Query List sample screen form showing the two optional Scope selections: Private and Public.



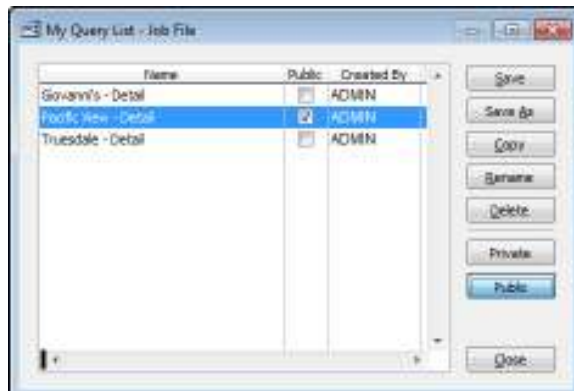
Name

Use this field to assign a name to the saved query.

Scope

The Scope option allows the user to specify whether the saved query will be kept for private use or be made available to all users with access rights to the information.

Figure: JS-53
My Query List sample screen form with saved filters, one public and two private.



OK

Click on the OK button to accept the name and scope selections.

Cancel

Click on the Cancel button to close the form without saving.

Copy

The copy button will copy the current saved query to a new name, and allow changing its scope setting. The newly named query can then be edited and saved again.

Figure: JS-54

Copy query screen form.

Rename

The Rename button opens the Rename Query form that allows the query to be saved with a new name.

Figure: JS-55

Rename Query screen form.

Delete

The Delete button will delete the selected named query. If the query is a public query, the following dialog box question will appear, “This is a public query. Are you sure that you want to delete this query?” If the selected query is not a public query, the system simply asks for a confirmation of the action.

Private

If the query is marked as Private, the button will be grayed out. The user has the option of changing the scope of the query to Public by using the next button.

Public

If the query is marked as Public, the button will be grayed out. The user has the option of changing the scope of the query to Private by using the preceding button.

Close

This button closes the My Query List.

Clear Button


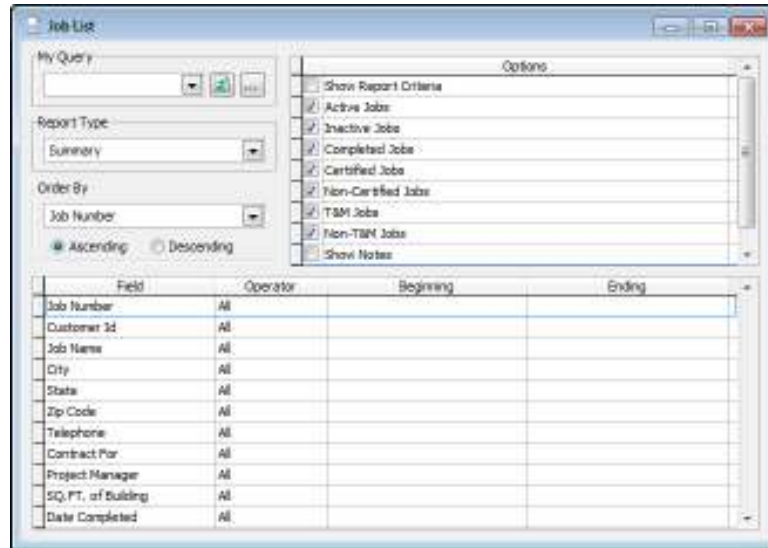
 The clear button (available on system reports only, not Job Scheduling reports) is located on the tool bar normally at the top of the screen. The button applies only to the report queries. BIS® reports query settings are remembered by user from one session to the next. Thus, if a saved query was last used, the query screen for the same report would open with it preselected. The clear button resets the query screen to the system default.

Figure: JS-56

Sample report query form after apply clear button.



The screenshot shows a software window titled "Job List" with a query configuration interface. On the left, there are sections for "My Query" (with a clear button), "Report Type" (set to "Summary"), and "Order By" (set to "Job Number" with "Ascending" selected). On the right, an "Options" panel lists various job status filters, all of which are checked: Active Jobs, Inactive Jobs, Completed Jobs, Certified Jobs, Non-Certified Jobs, T&M Jobs, Non-T&M Jobs, and Show Notes. At the bottom, a table lists the fields to be displayed in the report.

Field	Operator	Beginning	Ending
Job Number	All		
Customer Id	All		
Job Name	All		
City	All		
State	All		
Zip Code	All		
Telephone	All		
Contract For	All		
Project Manager	All		
SQ, PT, of Building	All		
Date Completed	All		

Job Scheduling Reports

The Reports menu offers 6 reports, available in a total of 22 report types:

- Job File
- Activity Logic
- Activity Status
- Critical Path
- Target Comparison
- Cash Flow

Job File Report

The Job File report provides data about the job start and finish, as well as the number of activities for each of the available schedule activity sources, budget, schedule of values, or free form.

Access to Job File

Reports | Job File

Report Types

Summary

The Summary Report Type displays the Job Number, Job Name, Address, City, State, Zip Code, Telephone and Fax Numbers, Status, Certified Payroll Status, Information Source, and whether the job has a schedule based or a Budget, Schedule of Values, and/or is Free Format.

Detail

The Detail Report Type also displays the Scheduled Start Date, Actual Start Date, and Start Variance; the Scheduled Finish Date, the Actual Finish Date, and the Finish Date Variance; the Original Duration and the Projected Duration; the Number of Activities, the Number of Completed Activities, the Activities in Progress, and the Number of Activities that have not started; and the last update date for each type of schedule that has been created, Budget, Schedule of Values, and/or Free Format.

Options

- Show Report Criteria
- Active Jobs
- Inactive Jobs
- Completed Jobs

Order By

- Job Number

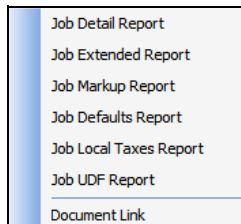
Fields

- Job Number

Drill-Down+® Destinations

Figure: JS-57

Right-click a Job hyperlink to display a selection of reports and other available functions.



Job File – Summary Report

Best Construction Company					
Job File					Page 1
Summary Report					
Job	Job Name Address/City	Telephone State	Fax Zip Code	Status	Certified
1000	Pacific View Apartments 1800 Pacific Avenue Pismo Beach	(805)543-7000 CA	(805)534-1595 93448	Active	No
	Job Scheduling	Budget	Yes		
		Schedule of Values	Yes		
		Free Format	Yes		
1010	Truesdale Elementary School 4790 N. Broadway Arroyo Grande	(805)543-7000 CA	(805)534-1595 93420	Active	Yes
	Job Scheduling	Budget	Yes		
		Schedule of Values	No		
		Free Format	No		
1020	Giovanni's Pasta House 520 Beach St. Pismo Beach	(805)543-7000 CA	(805)534-1595 93448	Active	No
	Job Scheduling	Budget	Yes		
		Schedule of Values	No		
		Free Format	No		

Figure: JS-58 Job Scheduling Job File Summary Report.

Job File – Detail Report

Best Construction Company					
Job File					Page 1
Detail Report					
Job	Job Name Address/City	Telephone State	Fax Zip Code	Status Project Manager	Certified
1000	Pacific View Apartments 1800 Pacific Avenue Pismo Beach	(805)543-7000 CA	(805)534-1595 93448	Active Mike Jarvis	No
	Job Scheduling	Budget	Schedule of Values	Free Format	
	Scheduled Start Date	06/01/14	??	??	
	Actual Start Date	??	??	??	
	Variance				
	Scheduled Finish Date	11/07/14	??	??	
	Actual Finish Date	??	??	??	
	Variance				
	Original Duration		71	0	0
	Projected Duration		0	0	0
	Number of Activities		20	0	0
	Completed Activities		1	0	0
	Activities in Progress		0	0	0
	Activities no Start		20	0	0
	Last Update Date	??	??	??	

Figure: JS-59 Job Scheduling Job File Detail Report.

Activity Logic Report

The Activity Logic report provides data about the sequential logic of job activities.

Access to Activity Report

Reports | Activity Logic

Report Types

Budget

The Budget Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed from the Budget.

Schedule of Values

The Schedule of Values Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed from the schedule of values.

Free Form

The Free Form Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed free form.

Tip

Since the format and content of these reports is the same, only one is shown.

Options

- Show Report Criteria
- Active Jobs
- Inactive Jobs
- Completed Jobs
- Case Sensitive

Order By

- Job Number

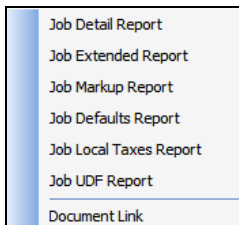
Fields

- Job Number
- Activity Id

Drill-Down+® Destinations

Figure: JS-60

Right-click a Job hyperlink to display a selection of reports and other available functions.



Activity Logic – Budget Report

Best Construction Company					
Activity Logic		Job <u>1000</u>		Pacific View Apartments	
Budget Report				Page 1	
Activity Id	Activity Name	Relationship	Activity Id	Activity Name	Type
Budget					
01000	General Requirements				
		Successor	02000	Site Work	Finish-Start
02000	Site Work				
		Successor	03000	Concrete	Finish-Start
		Successor	04000	Mortar	Finish-Start
		Successor	06150	Trestles	Finish-Start
		Predecessor	01000	General Requirements	Finish-Start
03000	Concrete				
		Successor	06100	Rough Carpentry	Finish-Start
		Predecessor	02000	Site Work	Finish-Start
04000	Mortar				
		Successor	06100	Rough Carpentry	Finish-Start
		Predecessor	02000	Site Work	Finish-Start
06100	Rough Carpentry				
		Successor	06200	Finish Carpentry	Finish-Start
		Successor	07200	Insulation	Finish-Start
		Successor	15400	Plumbing	Finish-Start
		Successor	16000	Electrical	Finish-Start
		Successor	16850	Heating & Cooling	Finish-Start
		Predecessor	03000	Concrete	Finish-Start
		Predecessor	04000	Mortar	Finish-Start
		Predecessor	06150	Trestles	Finish-Start
06150	Trestles				
		Successor	06100	Rough Carpentry	Finish-Start
		Predecessor	02000	Site Work	Finish-Start
06200	Finish Carpentry				
		Successor	09900	Painting	Finish-Start
		Predecessor	06100	Rough Carpentry	Finish-Start
07200	Insulation				
		Successor	09100	Lath & Plaster	Finish-Start
		Predecessor	06100	Rough Carpentry	Finish-Start
08000	Doors & Windows				
		Successor	09680	Carpeting	Finish-Start
		Predecessor	09100	Lath & Plaster	Finish-Start
09100	Lath & Plaster				
		Successor	08000	Doors & Windows	Finish-Start
		Predecessor	07200	Insulation	Finish-Start
09680	Carpeting				
		Successor	99999	End of Job	Finish-Start
		Predecessor	12300	Cabinets & Storage	Finish-Start
		Predecessor	08000	Doors & Windows	Finish-Start
09900	Painting				
		Successor	10800	Toilet & Bath Accessories	Finish-Start
		Successor	12300	Cabinets & Storage	Finish-Start
		Predecessor	06200	Finish Carpentry	Finish-Start
10800	Toilet & Bath Accessories				
10/31/14 02:21 PM					

Figure: JS-61 Job Scheduling Activity Logic Budget Report.

Activity Status Report

The Activity Status report provides data about the sequential logic of job activities.

Access to Activity Status Report

Reports | Activity Status

Report Types

Budget

The Budget Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed from the Budget.

Schedule of Values

The Schedule of Values Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed for the Schedule of Values.

Free Form

The Free Form Report Type displays the Job Number, Activity Id, Activity Name, Relationship, Activity Id of the related item, Activity Name, and Type for the job schedule developed Free Form.

Tip

Since the format and content of these reports is the same, only one is shown.

Options

- Show Report Criteria
- Active Jobs
- Inactive Jobs
- Completed Jobs
- Case Sensitive

Order By

- Activity Id
- Activity Name
- Revised Duration
- Remaining Duration
- Early Start
- Early Finish
- Late Start
- Late Finish
- Free Float
- Total Float

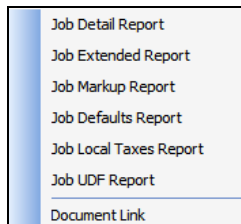
Fields

- Job Number
- Activity Id

Drill-Down+® Destinations

Figure: JS-62

Right-click a Job hyperlink to display a selection of reports and other available functions.



Activity Status – Budget Report

Best Construction Company										
Activity Status		Job <u>1000</u>		Pacific View Apartments		Page 1				
Activity Id	Activity Name	Revised Duration	Percent Completed	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Free Float	Total Float
Budget										
01000	General Requirements	1	0%	1	01-AUG-14	01-AUG-14	01-AUG-14	01-AUG-14	0	0
02000	Site Work	5	0%	5	04-AUG-14	08-AUG-14	04-AUG-14	08-AUG-14	0	0
03000	Concrete	5	0%	5	11-AUG-14	15-AUG-14	11-AUG-14	15-AUG-14	0	0
04000	Mortar	4	0%	4	11-AUG-14	14-AUG-14	12-AUG-14	15-AUG-14	1	1
06100	Rough Carpentry	15	0%	15	18-AUG-14	08-SEP-14	18-AUG-14	08-SEP-14	0	0
06150	Trestles	3	0%	3	11-AUG-14	13-AUG-14	13-AUG-14	15-AUG-14	2	2
06200	Finish Carpentry	20	0%	20	09-SEP-14	06-OCT-14	09-SEP-14	06-OCT-14	0	0
07200	Insulation	5	0%	5	09-SEP-14	15-SEP-14	07-OCT-14	13-OCT-14	20	20
08000	Doors & Windows	7	0%	7	26-SEP-14	06-OCT-14	24-OCT-14	03-NOV-14	20	20
09100	Lath & Plaster	8	0%	8	16-SEP-14	25-SEP-14	14-OCT-14	23-OCT-14	20	20
09680	Carpeting	4	0%	4	30-OCT-14	04-NOV-14	04-NOV-14	07-NOV-14	3	3
09900	Painting	10	0%	10	07-OCT-14	20-OCT-14	07-OCT-14	20-OCT-14	0	0
10800	Toilet & Bath Accessories	14	0%	14	21-OCT-14	07-NOV-14	21-OCT-14	07-NOV-14	0	0
12300	Cabinets & Storage	7	0%	7	21-OCT-14	29-OCT-14	24-OCT-14	03-NOV-14	3	3
15400	Plumbing	10	0%	10	09-SEP-14	22-SEP-14	10-OCT-14	23-OCT-14	23	23
16000	Electrical	12	0%	12	09-SEP-14	24-SEP-14	23-OCT-14	07-NOV-14	32	32
16850	Heating & Cooling	8	0%	8	09-SEP-14	18-SEP-14	29-OCT-14	07-NOV-14	36	36
99999	End of Job	0	0%	0	10-NOV-14	10-NOV-14	10-NOV-14	10-NOV-14	0	0
Change Orders										
101	Change Order 101	1	0%	1	01-AUG-14	01-AUG-14	07-NOV-14	07-NOV-14	69	69
102	Change Order 102	1	0%	1	01-AUG-14	01-AUG-14	07-NOV-14	07-NOV-14	69	69

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Figure: JS-63 Job Scheduling Activity Status Budget Report.

Critical Path Report

The Critical Path report provides data about the critical path elements of job activities.

Access to Critical Path Report

Reports | Critical Path

Report Types

Budget

The Budget Report Type displays the Job Number, Activity Id, Activity Name, Original Duration, Revised Duration, Days Completed, Percent Completed, Remaining Duration, Early Start Date, and Early Finish Date for the job schedule developed from the Budget.

Schedule of Values

The Schedule of Values Report Type displays the Job Number, Activity Id, Activity Name, Original Duration, Revised Duration, Days Completed, Percent Completed, Remaining Duration, Early Start Date, and Early Finish Date for the job schedule developed from the Schedule of Values.

Free Form

The Free Form Report Type displays the Job Number, Activity Id, Activity Name, Original Duration, Revised Duration, Days Completed, Percent Completed, Remaining Duration, Early Start Date, and Early Finish Date for the job schedule developed from Free Form.

 **Tip**

Since the format and content of these reports is the same, only one is shown.

Options

- Show Report Criteria
- Active Jobs
- Inactive Jobs
- Completed Jobs
- Case Sensitive

Order By

- Activity Id
- Activity Name
- Original Duration
- Revised Duration
- Days Completed
- Remaining Duration
- Early Start
- Early Finish

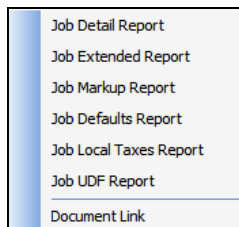
Fields

- Job Number
- Activity Id

Drill-Down+® Destinations

Figure: JS-64

Right-click a Job hyperlink to display a selection of reports and other available functions.



Critical Path – Budget Report

Critical Path		Best Construction Company						
Budget Report		Job <u>1000</u>	Pacific View Apartments				Page 1	
Activity Id	Activity Name	Original Duration	Revised Duration	Days Completed	Percent Completed	Remaining Duration	Early Start	Early Finish
Budget								
01000	General Requirements	1	1	0	0%	1	01-AUG-14	01-AUG-14
02000	Site Work	5	5	0	0%	5	04-AUG-14	08-AUG-14
03000	Concrete	5	5	0	0%	5	11-AUG-14	15-AUG-14
06100	Rough Carpentry	15	15	0	0%	15	18-AUG-14	08-SEP-14
06200	Finish Carpentry	20	20	0	0%	20	09-SEP-14	06-OCT-14
09900	Painting	10	10	0	0%	10	07-OCT-14	20-OCT-14
10800	Toilet & Bath Accessories	14	14	0	0%	14	21-OCT-14	07-NOV-14
99999	End of Job	0	0	0	0%	0	10-NOV-14	10-NOV-14

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Figure: JS-65 Job Scheduling Critical Path Budget Report.

Target Comparison – Budget, Schedule of Values, and Free Form Reports

The Target Comparison report provides data about the status of the job between two target dates, usually involving an update date.

Access to Target Comparison Report

Reports | Target Comparison | Budget

Access to Target Comparison Report

Reports | Target Comparison | Schedule of Values

Access to Target Comparison Report

Reports | Target Comparison | Free Form

Report Types

Early

The Early Report Type displays the job number, activity Id, activity name, and duration, early start date, and early finish date for both target one and target two, along with the variance for duration, start, and finish between those targets.

Late

The Late Report Type displays the job number, activity Id, activity name, and duration, late start date, and late finish date for both target 1 and target 2, along with the variance for duration, start, and finish between those targets.

 **Tip**

Since the format and content of these reports is the same, only one is shown.

Options

- Show Report Criteria

Order By

- Activity Id
- Activity name
- Dur Target 1
- ES/LS Target 1
- EF/LF Target 1
- Dur Target 2
- ES/LS Target 2
- EF/LF Target 2
- Variance Duration
- Variance Start
- Variance Finish

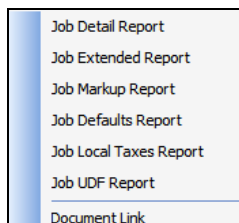
Fields

- Job Number
- Target 1
- Target 2

Drill-Down+® Destinations

Figure: JS-66

Right-click a Job hyperlink to display a selection of reports and other available functions.



Target Comparison – Budget Report

Best Construction Company											
Budget Target Comparison											
Early Report											
Job 1000 Pacific View Apartments											
Page 1											
Target 1: 08/01/14 Target 2: 08/05/14											
Activity Id	Activity Name	TARGET 1			TARGET 2			Variance			
		Duration	Early Start	Early Finish	Duration	Early Start	Early Finish	Duration	Start	Finish	
101	Change Order 101	1	01-AUG-14	01-AUG-14	1	AS 01-AUG-14	AF 01-AUG-14	0	0	0	
102	Change Order 102	1	01-AUG-14	01-AUG-14	1	AS 01-AUG-14	AF 01-AUG-14	0	0	0	
01000	General Requirements	5	01-AUG-14	07-AUG-14	5	AS 01-AUG-14	07-AUG-14	0	0	0	
02000	Site Work	5	08-AUG-14	14-AUG-14	5	08-AUG-14	14-AUG-14	0	0	0	
06150	Trees/ies	3	15-AUG-14	19-AUG-14	3	15-AUG-14	19-AUG-14	0	0	0	
04000	Mortar	4	15-AUG-14	20-AUG-14	4	15-AUG-14	20-AUG-14	0	0	0	
03000	Concrete	5	15-AUG-14	21-AUG-14	5	15-AUG-14	21-AUG-14	0	0	0	
05100	Rough Carpentry	15	22-AUG-14	12-SEP-14	15	22-AUG-14	12-SEP-14	0	0	0	
07200	Insulation	5	15-SEP-14	19-SEP-14	5	15-SEP-14	19-SEP-14	0	0	0	
16850	Heating & Cooling	8	15-SEP-14	24-SEP-14	8	15-SEP-14	24-SEP-14	0	0	0	
15400	Plumbing	10	15-SEP-14	26-SEP-14	10	15-SEP-14	26-SEP-14	0	0	0	
16000	Electrical	12	15-SEP-14	30-SEP-14	12	15-SEP-14	30-SEP-14	0	0	0	
09100	Lath & Plaster	8	22-SEP-14	01-OCT-14	8	22-SEP-14	01-OCT-14	0	0	0	
06200	Finish Carpentry	20	15-SEP-14	10-OCT-14	20	15-SEP-14	10-OCT-14	0	0	0	
08000	Doors & Windows	7	02-OCT-14	10-OCT-14	7	02-OCT-14	10-OCT-14	0	0	0	
09900	Painting	10	13-OCT-14	24-OCT-14	10	13-OCT-14	24-OCT-14	0	0	0	
12300	Cabinets & Storage	7	27-OCT-14	04-NOV-14	7	27-OCT-14	04-NOV-14	0	0	0	
09680	Carpeting	4	05-NOV-14	10-NOV-14	4	05-NOV-14	10-NOV-14	0	0	0	
10000	Toilet & Bath Accessories	14	27-OCT-14	13-NOV-14	14	27-OCT-14	13-NOV-14	0	0	0	
99999	End of Job	0	14-NOV-14	14-NOV-14	0	14-NOV-14	14-NOV-14	0	0	0	

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Figure: JS-67 Target Comparison – Budget Report.

Cash Flow Report

The Cash Flow reports show the prorated amounts, based on the interval of the selected activity and presumption of Early or Late Starts, for the duration shown on the schedule selected.

Access to Cash Flow Reports

Reports | Cash Flow

Report Type

- Early Start Daily
- Early Start Weekly
- Early Start Monthly
- Early Start Monthly Graphics
- Late Start Daily
- Late Start Weekly
- Late Start Monthly
- Late Start Monthly Graphics

Options

- Show Report Criteria
- Active Jobs
- Inactive Jobs
- Completed Jobs
- Case Sensitive

Order By

- Job Number

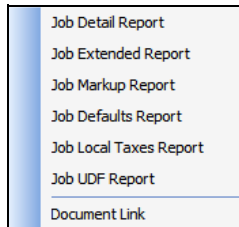
Fields

- Job Number
- Activity Id

Drill-Down+® Destinations

Figure: JS-68

Right-click a Job hyperlink to display a selection of reports and other available functions.



Tip

Since the format and content of these reports is the same, only one is shown.

Budget Cash Flow – Early Start Weekly Report

Best Construction Company		
Budget Cash Flow		
Early Start Weekly Report	Job 1000	Pacific View Apartments
		Page 1
Week	Cash Flow	Balance
Week 31: 08/01/14 - 08/01/14	18,000.00	18,000.00
Week 32: 08/04/14 - 08/08/14	92,100.00	110,100.00
Week 33: 08/11/14 - 08/15/14	100,547.50	210,647.50
Week 34: 08/18/14 - 08/22/14	78,895.83	289,343.33
Week 35: 08/25/14 - 08/29/14	79,866.65	369,009.98
Week 36: 09/01/14 - 09/05/14	79,866.65	448,876.63
Week 37: 09/08/14 - 09/12/14	79,866.65	528,343.28
Week 38: 09/15/14 - 09/19/14	238,375.00	764,718.28
Week 39: 09/22/14 - 09/26/14	264,387.50	1,029,105.78
Week 40: 09/29/14 - 10/03/14	125,401.78	1,154,507.56
Week 41: 10/06/14 - 10/10/14	65,785.70	1,220,293.26
Week 42: 10/13/14 - 10/17/14	32,259.00	1,252,552.26
Week 43: 10/20/14 - 10/24/14	32,259.00	1,284,811.26
Week 44: 10/27/14 - 10/31/14	35,542.85	1,320,354.11
Week 45: 11/03/14 - 11/07/14	82,703.56	1,383,057.67
Week 46: 11/10/14 - 11/12/14	22,236.42	1,405,294.09

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Figure: JS-69 Job Scheduling Budget Cash Flow Early Start Weekly Report.

Budget Cash Flow – Early Start Daily Report

Best Construction Company				
Budget Cash Flow				
Early Start Daily Report	Job <u>1000</u>	Pacific View Apartments	Page 1	
Day	Date	Day of the Week	Cash Flow	Balance
1	09/07/05	Wednesday	9,000.00	9,000.00
2	09/08/05	Thursday	9,000.00	18,000.00
3	09/09/05	Friday	9,000.00	27,000.00
4	09/12/05	Monday	9,000.00	36,000.00
5	09/13/05	Tuesday	9,000.00	45,000.00
6	09/14/05	Wednesday	9,000.00	54,000.00
7	09/15/05	Thursday	9,000.00	63,000.00
8	09/18/05	Friday	9,000.00	72,000.00
9	09/19/05	Monday	9,000.00	81,000.00
10	09/20/05	Tuesday	9,000.00	90,000.00
11	09/21/05	Wednesday	20,100.00	110,100.00
12	09/22/05	Thursday	20,100.00	130,200.00
13	09/23/05	Friday	20,100.00	150,300.00
14	09/26/05	Monday	20,100.00	170,400.00
15	09/27/05	Tuesday	20,100.00	190,500.00
16	09/28/05	Wednesday	20,147.50	210,647.50
17	09/29/05	Thursday	20,147.50	230,795.00
18	09/30/05	Friday	20,147.50	250,942.50
19	10/03/05	Monday	12,647.50	263,590.00
20	10/04/05	Tuesday	9,820.00	273,410.00
21	10/05/05	Wednesday	15,933.33	289,343.33
22	10/06/05	Thursday	15,933.33	305,276.66
23	10/07/05	Friday	15,933.33	321,209.99
24	10/10/05	Monday	15,933.33	337,143.32
25	10/11/05	Tuesday	15,933.33	353,076.65
26	10/12/05	Wednesday	15,933.33	369,009.98
27	10/13/05	Thursday	15,933.33	384,943.31
28	10/14/05	Friday	15,933.33	400,876.64
29	10/17/05	Monday	15,933.33	416,809.97
30	10/18/05	Tuesday	15,933.33	432,743.30
31	10/19/05	Wednesday	15,933.33	448,676.63
32	10/20/05	Thursday	15,933.33	464,609.96
33	10/21/05	Friday	15,933.33	480,543.29
34	10/24/05	Monday	15,933.33	496,476.62
35	10/25/05	Tuesday	15,933.33	512,409.95
36	10/26/05	Wednesday	47,275.00	559,684.95
37	10/27/05	Thursday	47,275.00	606,959.95
38	10/28/05	Friday	47,275.00	654,234.95
39	10/31/05	Monday	47,275.00	701,509.95
40	11/01/05	Tuesday	47,275.00	748,784.95
41	11/02/05	Wednesday	56,387.50	805,172.45
42	11/03/05	Thursday	56,387.50	861,559.95
43	11/04/05	Friday	56,387.50	917,947.45
44	11/07/05	Monday	47,612.50	965,559.95
45	11/08/05	Tuesday	47,612.50	1,013,172.45
46	11/09/05	Wednesday	37,862.50	1,051,034.95
47	11/10/05	Thursday	37,862.50	1,088,897.45

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Figure: JS-70 Job Scheduling Budget Cash Flow Early Start Daily Report.

Budget Cash Flow – Early Start Monthly Graphics

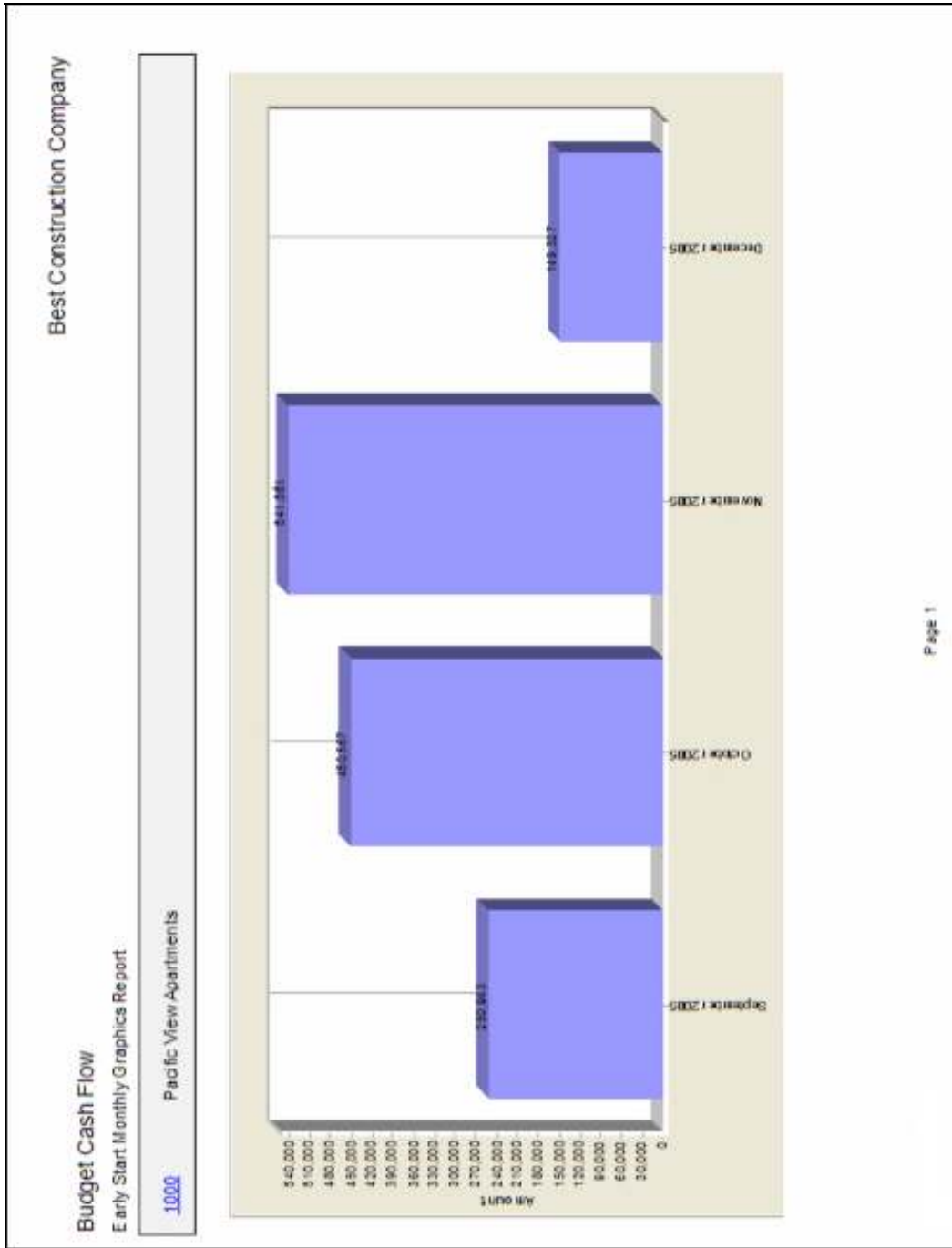


Figure: JS-71 Budget Cash Flow – Early Start Monthly Graphics.

Section 4 – Activity Information

The Activity Information can be viewed and modified in the lower left-hand corner of the Job Scheduling screen.

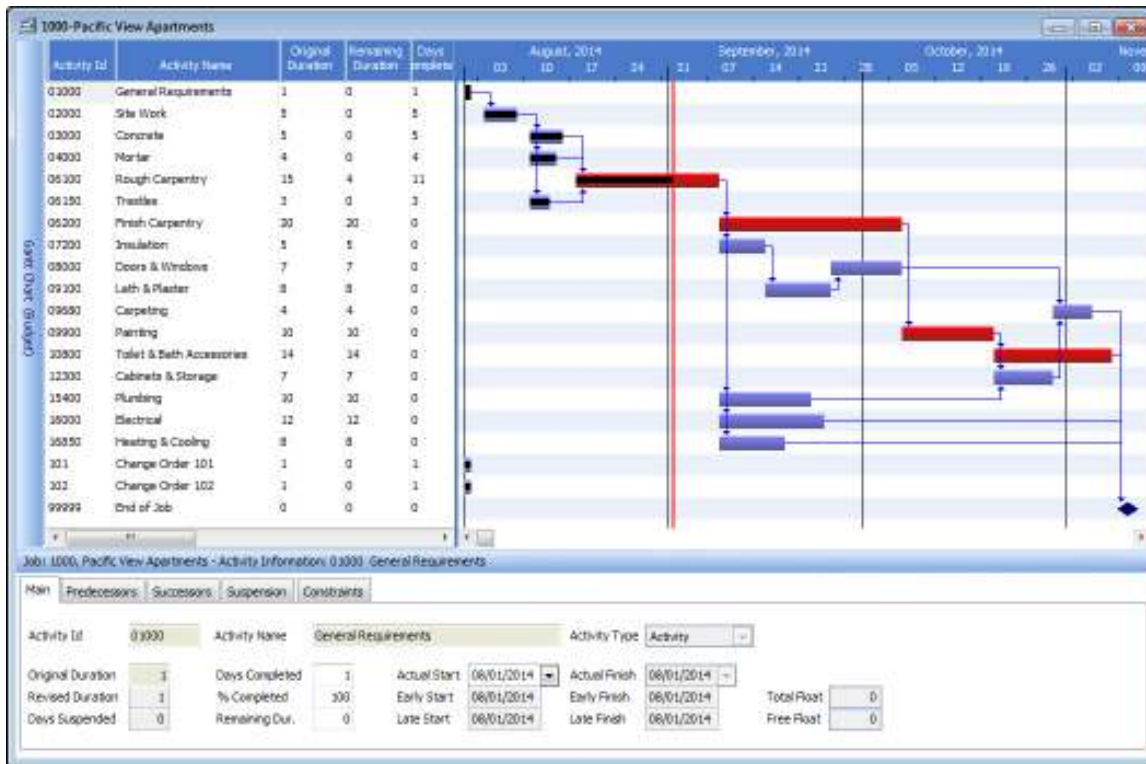


Figure: JS-72 Job Scheduling screen showing Gantt Chart view, with Activity Information in lower left.

Overview

The information displayed in the Activity Information window is based on Activity selected in the Activity List (seen in the Gantt Chart). It is one of the tools used to determine the sequence of activities of the project.

Main Tab

The Main tab of the Activity Information window includes a range of information including the Activity Id, Name, and Type; the Original Duration, Revised Duration, and Days Suspend; the Days Completed, Percentage Completed, and Remaining Duration; the Actual Start date, Early Start date, and Late Start date; the Actual Finish date, Early Finish date, and Late Finish date; the Total Float and Free Float.

Figure: JS-73

Job scheduling Activity Information window showing 5 tabs: Main, Predecessors, Successors, Suspension, and Constraints.



Activity Id

The activity Id is the identification assigned to an activity. If the activity originated from the Budget or the Schedule of Values, the Id will be the same.

Activity Name

The activity name is the label or name assigned to an activity. If the activity originated from the Budget or the Schedule of Values, the name will be the same.

**Activity Type
Activity**

An activity is a task that is scheduled according to the calendar, with predecessor and successor activities.

Milestone

A milestone is a zero duration activity. It represents an event rather than an activity involving work.

Original Duration

The original duration is amount of time that is expected to finish an activity

Revised Duration

A revised duration is the sum of Days Completed and Remaining Duration

Days Suspended

The Days Suspended are the days that a selected activity is suspended from its start day.

Days Completed

The days completed is the number of days accomplished for an activity.

% Completed

The percentage complete is the completed time of an activity represented as a percentage.

Remaining Duration

The remaining duration is the amount of time required to complete an activity.

Actual Start

The Actual Start indicates the real start date of an activity.

Early Start

The early start date is the earliest that an activity may start, based upon the early finish times of its predecessor activities

Late Start

The late start date is the latest that an activity may start, based upon the Late Finish time and the activity duration.

Actual Finish

The actual finish date indicates the true finish date of an activity

Early Finish

The early finish date is the earliest that an activity may finish, based upon the early finish times of its predecessor activities

Late Finish

The late finish date is the latest that an activity may finish, based upon the Late Start times of its successor activities.

Total Float

The total float is the amount of time that an activity may be delayed without delaying the overall project.

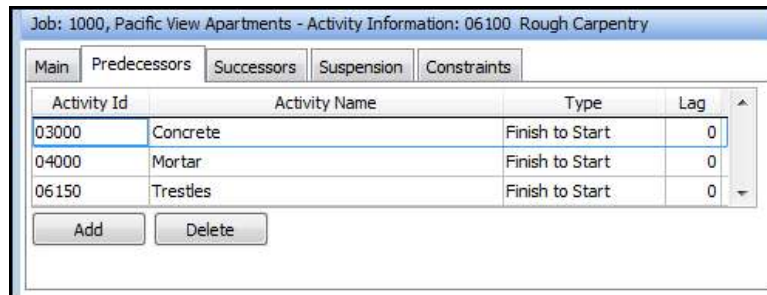
Free Float

The free float is the amount of time that an activity may be delayed without affecting its successors.

Predecessors Tab

The Predecessors tab is used to add or delete Activities that precede the selected activity. The columns of the Predecessor tab include the Activity Id, Activity Name, Type, and Lag.

Figure: JS-74
Predecessors selection screen form.



Type of Relationships Finish to Start

In a Finish to Start relationship, the successor activity cannot start until the preceding activity is complete

Start to Start

In a Start to Start relationship, the successor activity cannot start until work on the preceding activity has been started.

Finish to Finish

In a Finish to Finish relationship, the successor activity cannot finish until work on the preceding activity has been finished

Start to Finish

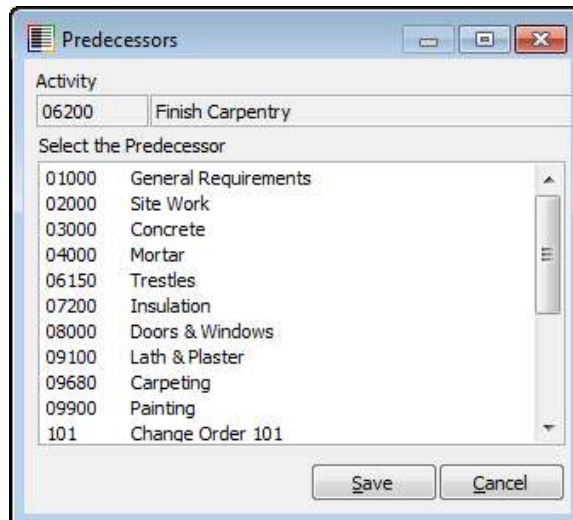
In a Start to Finish relationship, the successor activity cannot start until work on the preceding activity has been finished.

Lag

Lag is a delay in a relationship. The Lag can be positive or negative value

Adding Predecessors

Figure: JS-75
Predecessors selection screen form.



Clicking on the Add button in the Predecessors tab screen form opens the Predecessors form. Simply select the predecessor activity and save the selection.

In addition to adding predecessor activities, previously selected Predecessor activities can be deleted by selecting an activity in the main Predecessor tab form and clicking on the Delete button.

Type

There are four varieties of Types that can be assigned to an activity in a drop-down list:

- ▶ Finish to Start (Default)
- ▶ Start to Start
- ▶ Finish to Finish
- ▶ Start to Finish

To select or change the Type, simply click on the field and the drop-down list will appear.

Lag/Lead

The length of time between the finish of one activity and the finish of another activity is called the lag, usually defined in number of days. The time associated with a Start to Start relationship is sometimes called the Lead time, but in BIS® Job Scheduling, the term Lag will be used to refer to both time intervals entered.

Successors Tab

The Successors tab is used to add or delete Activities that follow the selected activity. The columns of the Successor tab include the Activity Id, Activity Name, Type, and Lag.

Figure: JS-76
Job Scheduling Activity Information Successors tab screen form.

Activity Id	Activity Name	Type	Lag
06200	Finish Carpentry	Finish to Start	0
07200	Insulation	Finish to Start	0
15400	Plumbing	Finish to Start	0

Type of Relationships

Finish to Start

In a Finish to Start relationship, the successor activity cannot start until the preceding activity is complete

Start to Start

In a Start to Start relationship, the successor activity cannot start until work on the preceding activity has been started.

Finish to Finish

In a Finish to Finish relationship, the successor activity cannot finish until work on the preceding activity has been finished

Start to Finish

In a Start to Finish relationship, the successor activity cannot start until work on the preceding activity has been finished.

Lag

Lag is a delay in a relationship. The Lag can be positive or negative value

Adding Successors

Clicking on the Add button in the Successors tab screen form opens the Successors form.

Figure: JS-77
Successors selection
screen form.

Simply select the successor activity and save the selection. In addition to adding successor activities, previously selected Successor activities can be deleted by selecting an activity in the main Successor tab form and clicking on the Delete button.

Type

There are four varieties of Types that can be assigned to an activity in a drop-down list:

- ▶ Finish to Start (Default)
- ▶ Start to Start
- ▶ Finish to Finish
- ▶ Start to Finish

To select or change the Type, simply click on the field and the drop-down list will appear.

Lag/Lead

The length of time between the finish of one activity and the finish of another activity is called the lag, usually defined in number of days. The time associated with a Start to Start relationship is sometimes called the Lead time, but in BIS® Job Scheduling, the term Lag will be used to refer to both time intervals entered.

Suspension Tab

Sometimes a task must be suspended one or more days because of some unexpected cause, such as a delay in a shipment from a supplier. They are interruptions to the job.

Figure: JS-78
Job Scheduling Activity Information Suspension tab screen form.

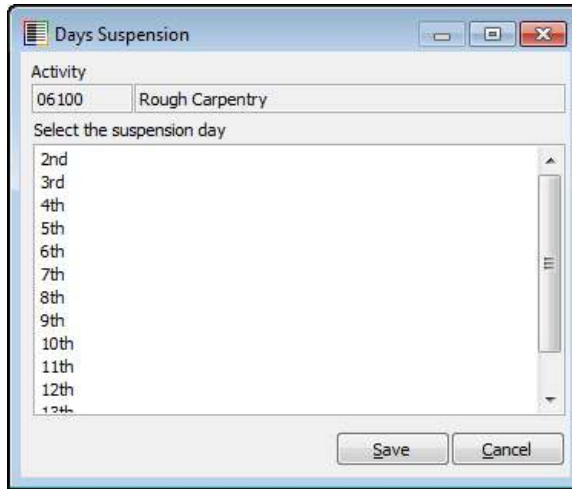


The Suspension tab is used to enter the day that the selected activity is suspended from its start day. The only column used is the Suspended Day of the activity.

Adding Suspension Days

Clicking on the Add button in the Suspension tab screen form opens the Days Suspension form.

Figure: JS-79
Days Suspension selection screen form.



Simply select the suspension day and save the selection. In addition to adding suspension days, previously selected suspension days can be deleted by selecting an activity in the main Suspension tab form, and clicking on the Delete button.

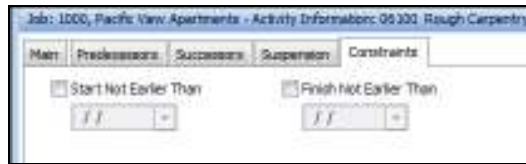


Figure: JS-80 Visual effect on Gantt Chart activity from adding a suspension.

Constraints Tab

The Constraints tab is used to enter either of two dates: a date before which that the activity cannot start, or a date before which the activity may not finish.

Figure: JS-81
Job Scheduling Activity Information Constraints tab screen form.



Start Not Earlier Than

An entry in this field delays the start of an activity. The activity can start on or after the assigned date. When a checkmark is placed in the Start Not Earlier Than box, the date field opens to allow entry of the date. The calendar tool may be used to select the date. In addition, the bar for the activity in the Gantt chart may be dragged to institute a constraint.

Finish Not Earlier Than

An entry in this field delays the finish of an activity. The activity can finish on or after the assigned date. When a checkmark is placed in the Start Not Earlier Than box, the date field opens to allow entry of the date. The calendar tool may be used to select the date, or the bar for the activity in the Gantt chart may be dragged to institute a constraint.

If the selected date is prior to an Update date line, the program will add an Actual Date instead of a constraint.

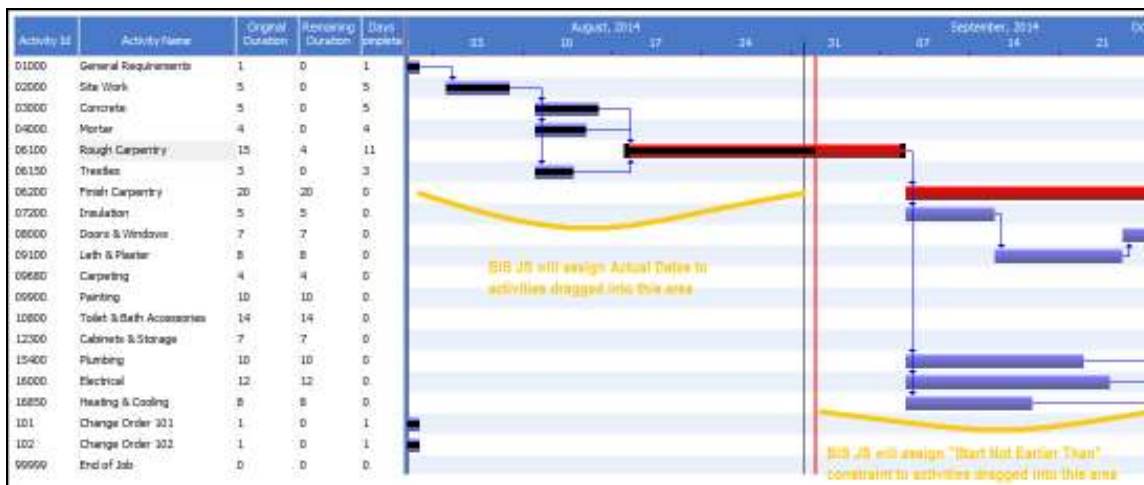


Figure: JS-82 The program will add an Actual Date instead of a Constraint when the selected date is prior to an Update date.

Sample

Consider a project with the following information:

Start Date : 08/12/14
 Calendar : 24 hours / 7 days

Activity	Duration	Predecessor
01000 - General Requirements	7	
02000 - Site Work	10	A - General Requirements

Gantt Chart



Figure: JS-83 Gantt Chart based on the information above.

Case 1 – Drag an Activity to the Right

Drag Gantt Chart bar to 08/15 (to the right on the calendar)

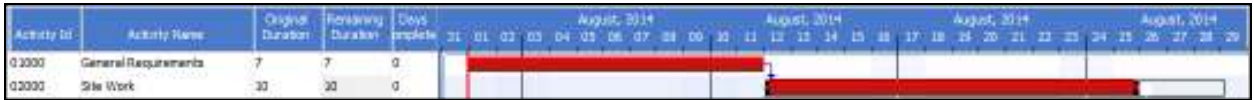
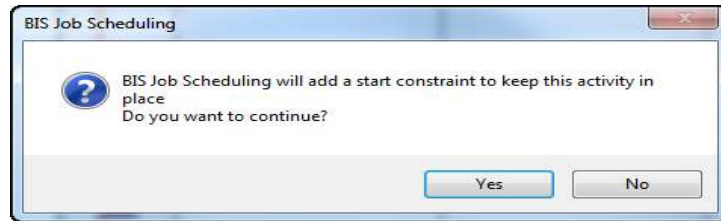


Figure: JS-84 Visual effect of dragging the Site Work Activity to 08/15 (to the right on the calendar).

Figure: JS-85

Once the activity is dragged to the right, BIS® notes that a start constraint must be added and asks for confirmation.



If the answer is no, the Gantt Chart will return to its initial status. Otherwise, the bar will be positioned in the new location.

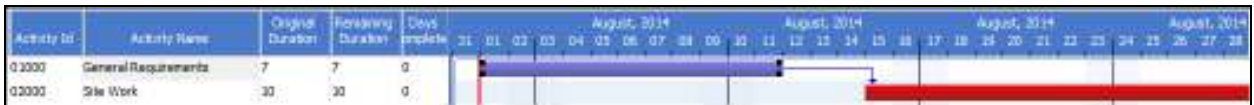
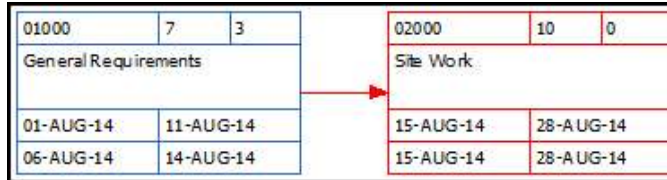


Figure: JS-86 Gantt Chart resulting from accepting the added constraint.

Notice that Critical Path is affected. The following network diagram illustrates the reason:

Figure: JS-87
Network Diagram showing critical path after adding a constraint.



For an activity to be critical, the Total Float should be Zero (Total Float = Late Finish - Early finish). The late start for activity 01000 is 08/06/14 due to this constraint. (See “Backward Pass on Creating a CPM Plan” section of this document). When calculating the difference between Late Start and Early Start, the result is 2, and thus, the activity no longer is critical.

Case 2 – Drag an Activity to the Left

Drag Gantt Chart bar to 08/09 (to the left side of the calendar)

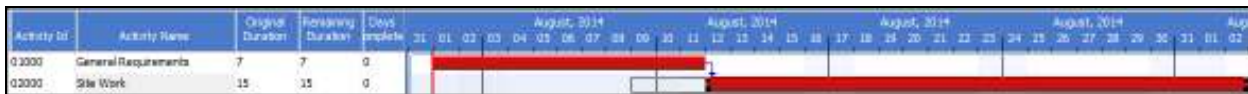


Figure: JS-89 Visual effect of dragging the Site Work activity to the left to 08/09/14.

Figure: JS-90

Once an activity is dragged to the left, BIS® notes that start constraint is needed and asks for confirmation.

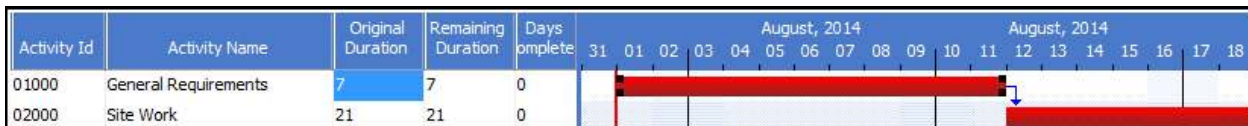
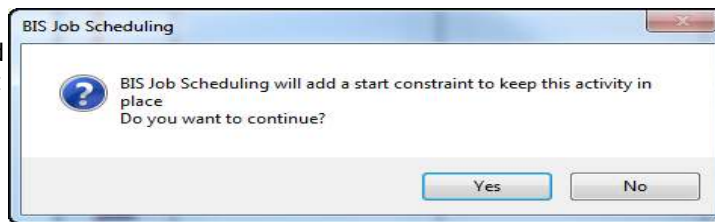


Figure: JS-91 Gantt Chart resulting from accepting or rejecting the new constraint.

If the answer is no, the Gantt Chart will return to its initial status. If the answer is yes, the bar will be positioned in the new location since Activity 02000 still depends on the completion of Activity 01000. The effect of the new constraint will only be evident if the ending date of the predecessor is shortened to at least one day prior to the constraint.

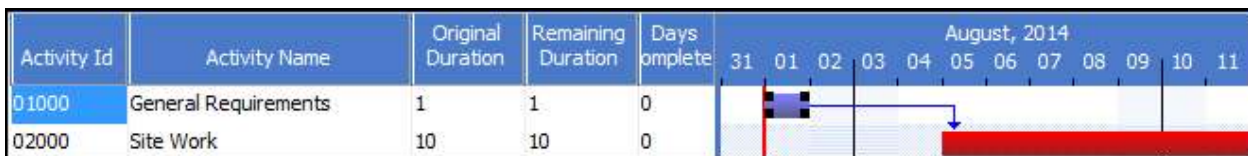


Figure: JS-92 Gantt Chart showing the effect of the constraint set for Activity 02000 and changing the ending date for the predecessor activity 01000.

Network Overview

The Network Overview is a tool to move around within large network diagrams. The use of this tool is simple, only requiring the user to select and drag the rectangle in the miniature image.

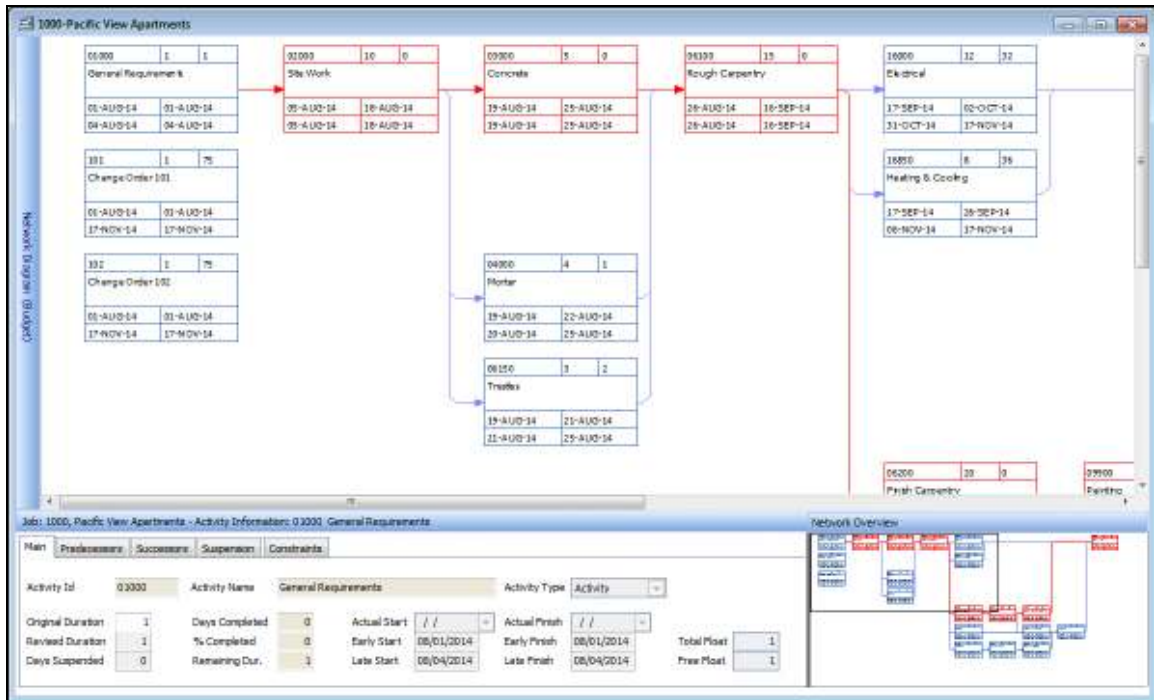


Figure: JS-93 Job Scheduling Network Diagram example showing Network Overview in lower right corner. Note that the initial selection frame is around the left-hand part of the diagram, shown in the larger screen above.

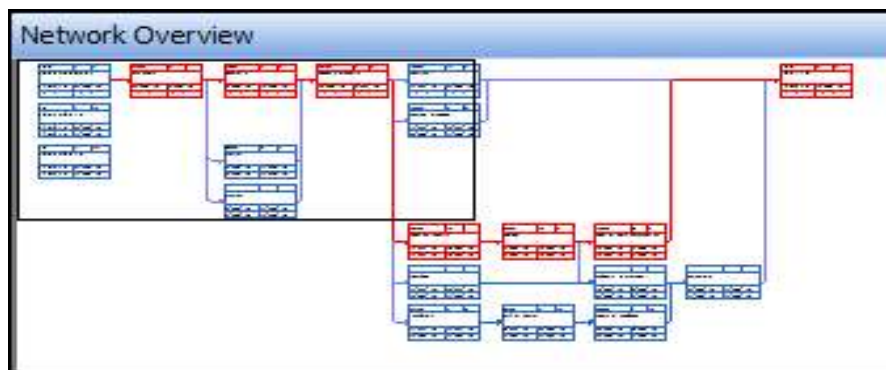


Figure: JS-94 Closeup view of Network Overview segment of the Network Diagram screen showing the selection frame placement at the left.

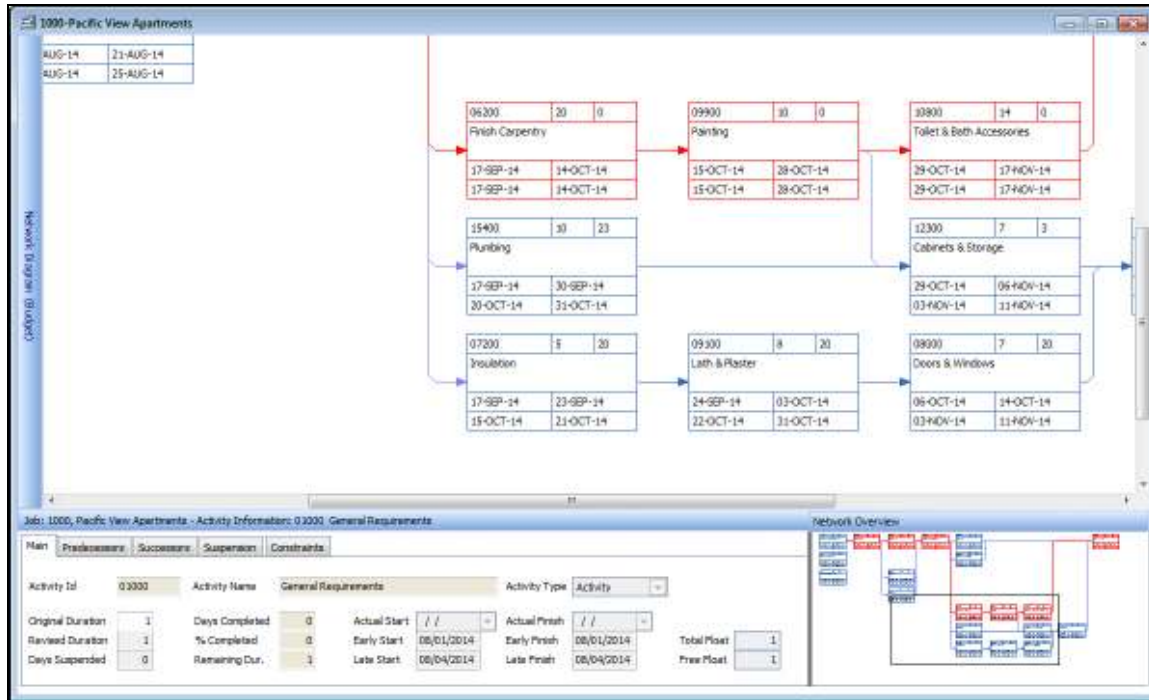


Figure: JS-95 Job Scheduling Network Diagram example showing the Network Overview in the lower right-hand corner. Note that the selection frame is around the center part of the diagram, shown in the larger frame above.

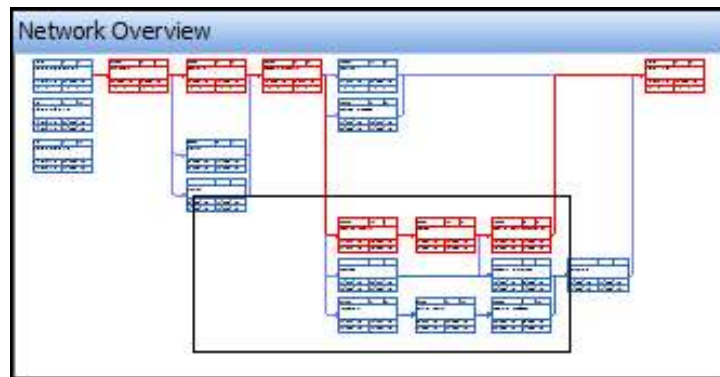


Figure: JS-96 Close-up of Network Overview.

Appendix

Analysis of an Example

Project Start : 06/27/14
 Calendar : Normal (Weekends are nonworking days.)

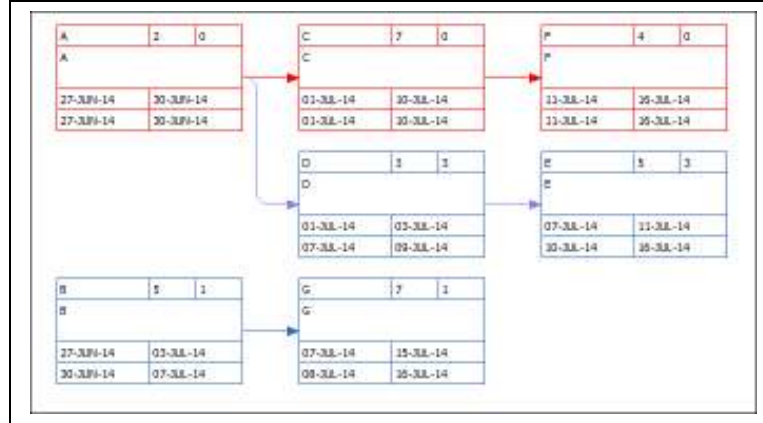


Figure: JS-97 Project Example showing the top row of Activities in red as critical.

1. Forward Pass

Activity A	Date	
ES	06/27	Start Project date because the activity has no predecessors.
EF	06/30	06/27 + 2 (06/27 is 1 day + 06/30 is 1 day)

Activity B	Date	
ES	06/27	Start Project date because the activity has no predecessors.
EF	07/03	06/27 + 5

Activity C	Date	
ES	07/01	EF of predecessor A = 06/30 + 1 (+ 1 because Activity C cannot start the same day that A finishes.)
EF	07/10	07/01 + 7 + Weekend (2 days) (Example treats July 4 as a holiday.)

Activity D	Date	
ES	07/01	EF of predecessor A = 06/30 + 1 (+ 1 because Activity D cannot start the same day that activity A finishes)
EF	07/03	07/01 + 3

Activity E	Date	
ES	07/07	EF of predecessor D = 07/03 + Holiday (July 4) + Weekend (2 days) + 1 (+ 1 because activity E cannot start the same day that Activity D finishes.)
EF	07/11	07/07 + 5

Activity F	Date	
ES	07/11	EF of predecessor C = 07/10 + 1 (+ 1 because activity F cannot start the same day that Activity C finishes.)
EF	07/16	07/11 + 4 + weekend (2 days)

Activity G	Date	
ES	07/07	EF of predecessor B = 07/03 + Holiday (July 4) + Weekend (2 days) + 1 (+ 1 because Activity G cannot start the same day that activity B finishes.)
EF	07/15	07/07 + 7 + weekend (2 days)

2. Backward Pass

Activity E	Date	
LF	07/16	This activity has no successors. The LF for this activity is the major EF on the project. In this case, Activity F has the major EF of 07/16.
LS	07/10	07/16 – 5 – Weekend

Activity F	Date	
LF	07/16	This activity has no successors. The LF for this activity is the major EF on the project. In this case, Activity F has the major EF of 7/16.
LS	07/11	07/16 – 4 – Weekend

Activity G	Date	
LF	07/16	This activity has no successors. The LF for this activity is the major EF on the project. In this case, Activity F has the major EF of 07/16.
LS	07/08	07/16 – 7 - Weekend

Activity D	Date	
LF	07/09	LS from the successor Activity E 07/10 - 1 (-1 because the LF cannot be the same as the LS of the successor activity.)
LS	07/07	07/09 –3

Activity C	Date	
LF	07/10	LS from the successor Activity F 07/11 - 1 (-1 because the LF cannot be the same as the LS of the successor activity.)
LS	07/01	07/10 – 7 - Weekend - Holiday (July 4)

Activity A	Date	
LF	06/30	Since this activity has 2 successors, the LF will be the lesser LS of the successors - 1. In this case, the LS comes from Activity C 07/01 - 1 (-1 because the LF cannot be the same as the LS of the successor activity.)
LS	06/27	06/30 –2 - Weekend

Activity B	Date	
LF	07/07	LS of successor G 07/08 - 1 (-1 because the LF cannot be the same as the LS of the successor activity.)
LS	06/30	07/07 – 5 - Weekend - Holiday (July 4)

3. Total Float and Critical Path

Activity	EF	LF	TF	
A	06/30	06/30	0	Critical activity (in Red)
B	07/03	07/07	1	
C	07/10	07/10	0	Critical activity (in Red)
D	07/03	07/09	3	
E	07/11	07/16	3	
F	07/16	07/16	0	Critical activity (in Red)
G	07/15	07/16	1	

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