Module 4

Project Task Management

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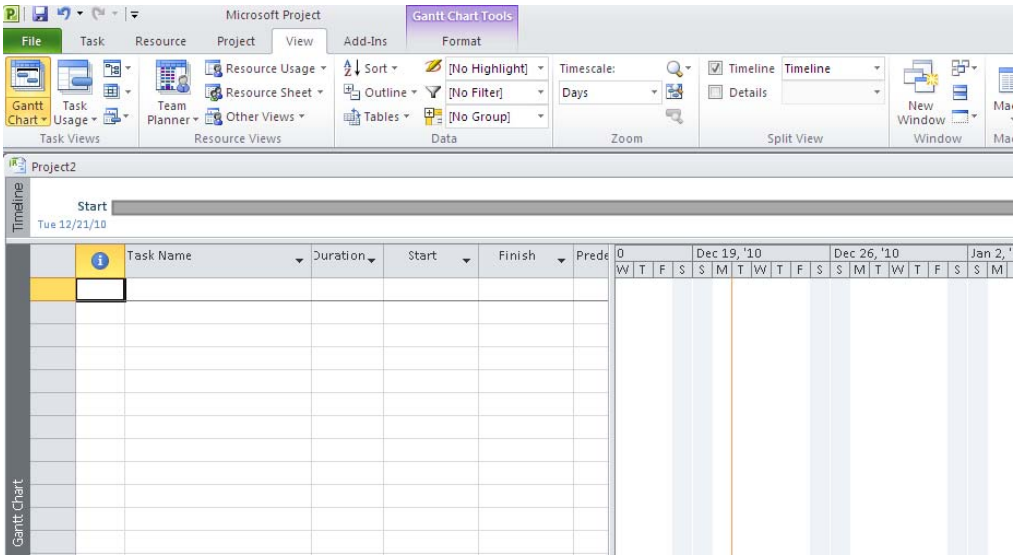
Objectives Covered In This Section

The Project Task Management section covers the following objectives

- Working on MS Project 2010
- Open New Project
- Project Information
- Calendar
- Entering Tasks
- Recurring Task
- Milestone
- Deadline
- Define WBS Code
- Inserting and Deleting tasks
- Linking and Unlinking tasks
- Task Relationships
- Task Constraints
- Task Inspector

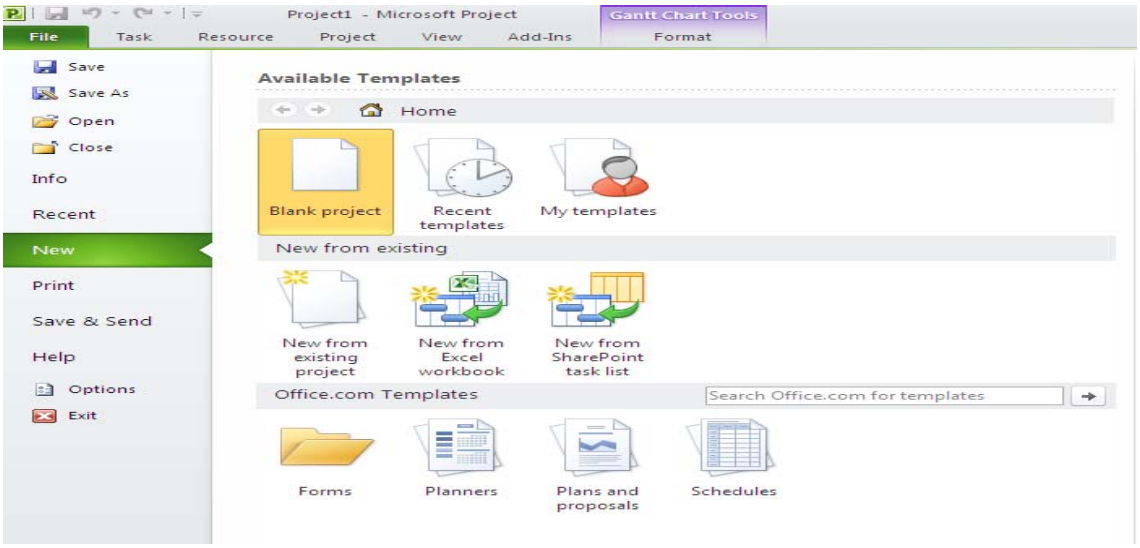
1. Working on MS Project 2010

Open the MS Project 2010 window by double clicking the MSP 2010 icon or selecting MSP 2010 from The Programs menu, the following window opens,



1.1 Open a Blank Project

Select the option to open a Blank Project from the File Tab→New→Blank Project. Open a new Project, File. This gives you the option to open a new or existing project. The user also has the option to open a template.



1.2 Open a Template

Project 2010 allows you to apply built-in templates, to apply your own custom templates, and to search from a variety of templates available on Office.com.

- To find and apply a template in Project 2010, do the following:
  A. On the File tab, click New.
  B. Under Available Templates, do one of the following:
- To reuse a template that you've recently used, click Recent Templates.
- To use a template that you already have installed, click My Templates, select the template that you want, and then click OK.
- To find a template on Office.com, under Office.com Templates, click a template category, select the template that you want, and then click Download to download the template from Office.com to your computer.

Note: You can also search for templates on Office.com from within Project. In the Search Office.com for templates box, type one or more search terms, and then click the arrow button to search.

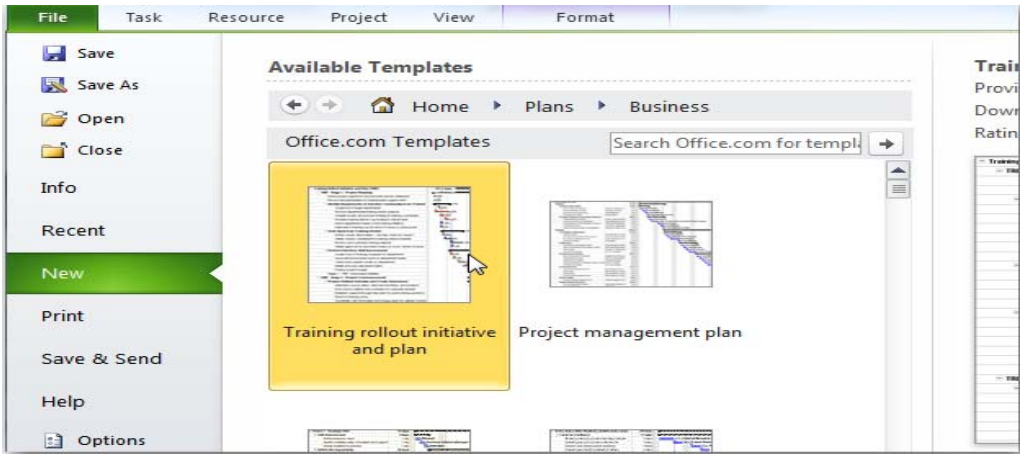
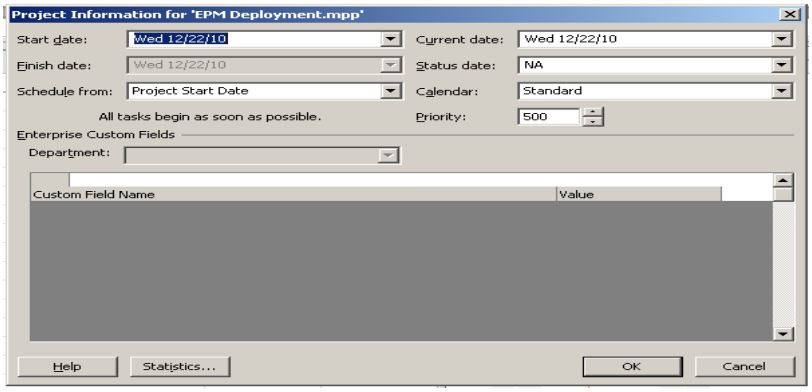


Fig 4.3: Open Template

2 Project Information

We are starting with our first Project in MS Project 2010.
The first task that we need to do is set the Project Start and Finish Dates. Go to the Project tab →
Then Click on Project Information. This opens the Project Information dialog box.



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1. The user can schedule the project either from the Start Date or from the Finish Date.
2. To schedule from the Start Date, enter the ***Start*** date of the project.
3. To schedule from the Finish Date, enter the ***Finish*** date of the project.
4. MS Project 2010 will automatically take the system date as the Current date.
5. Status date is shown as NA by default.
6. Priority is used for resource leveling across multiple projects. Priority of a project can be set between 0-1000, wherein 1000 indicates that the project has the highest priority and 0 being the lowest priority.
7. You can include enterprise custom fields in the project. In the Enterprise Custom Fields section, click the Value field for a custom field, and then select the value.

> **Note:** You must enter values for required enterprise custom fields, marked by an asterisk (*), or you won't be able to save the project.

> Do not change the Status date unless you are working on Tracking and Earned Value Calculations

3 Calendar

MS Project 2010 provides the user with 3 different calendars, viz.

- Standard
- Night Shift
- 24 Hours

Standard Calendar is the default option in MS Project 2010.

3.1 Change Working Time

The user can select the project calendar and define the working time for the same.

To set the Working time for the Project Calendar, go to Project tab → Change Working Time and the following window opens up.

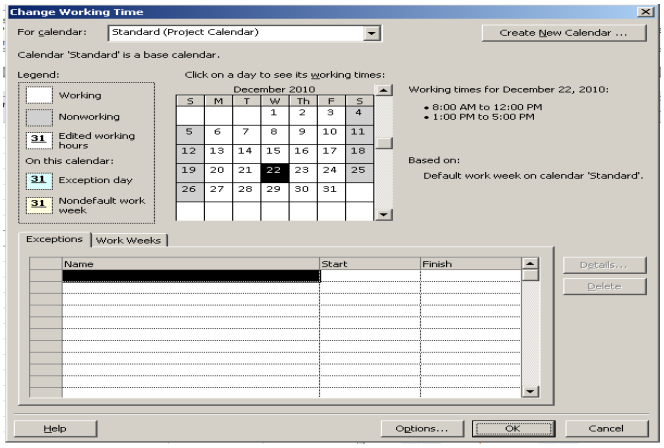


Fig 4.6: Change Working Time

To define a calendar for your project, perform the following steps,

1. Choose the Calendar that should be allocated to your project.
2. Select the day/days to which the working time is to be changed. Under the Work Weeks tab, press the Details field and enter the working times for your project.
3. To set a holiday, select a date or day and click the radio button for 'Set days to Nonworking time'.
4. The user can also define exceptions for the Working time of specific users by entering their Name and the duration.

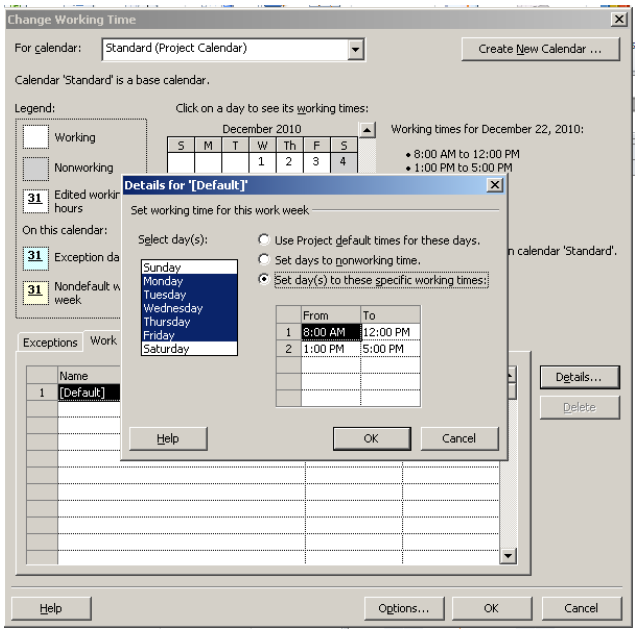


Fig 4.7: Change Working Time

5. The user can define the hours per day, hours per week and days per month for the selected calendar as shown in the figure below,

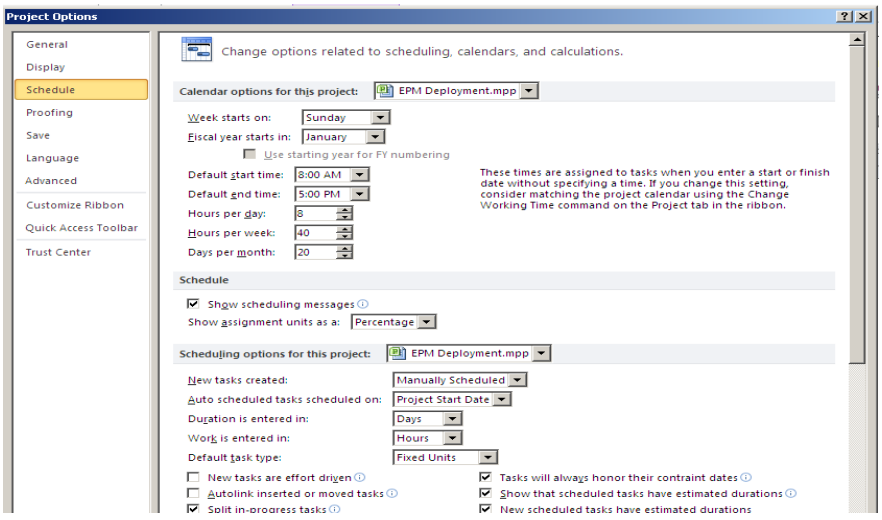


Fig 4.8: Calendar Options

3.2 Create New Calendar

The user has the option to create a new calendar.

To create a new calendar, select the 'Create New Calendar' option in the Change Working Time Window and the following window opens up.

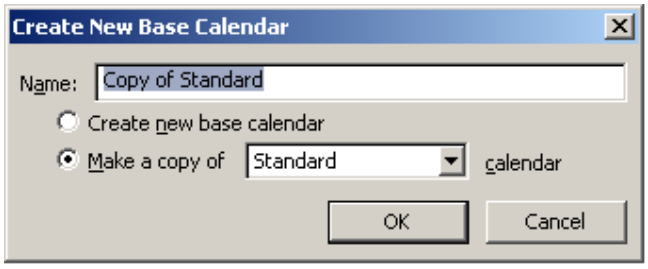


Fig 4.9: Create New Calendar

Follow these steps to create a new base calendar,

1. The user can create a new base calendar wherein he will define the working times for that calendar
2. The user also has the option to make a copy of any of the existing calendars by selecting the option to 'Make a copy of….' and thereafter edit the working times of the calendar.

4 Tasks

Tasks are defined as a piece of work assigned or done as part of one's duties. Tasks have a defined beginning and end.

4.1 Task Mode

The Task Mode field indicates whether a task is scheduled manually or automatically which gives you the option of deciding how much control you want over task scheduling in a project.

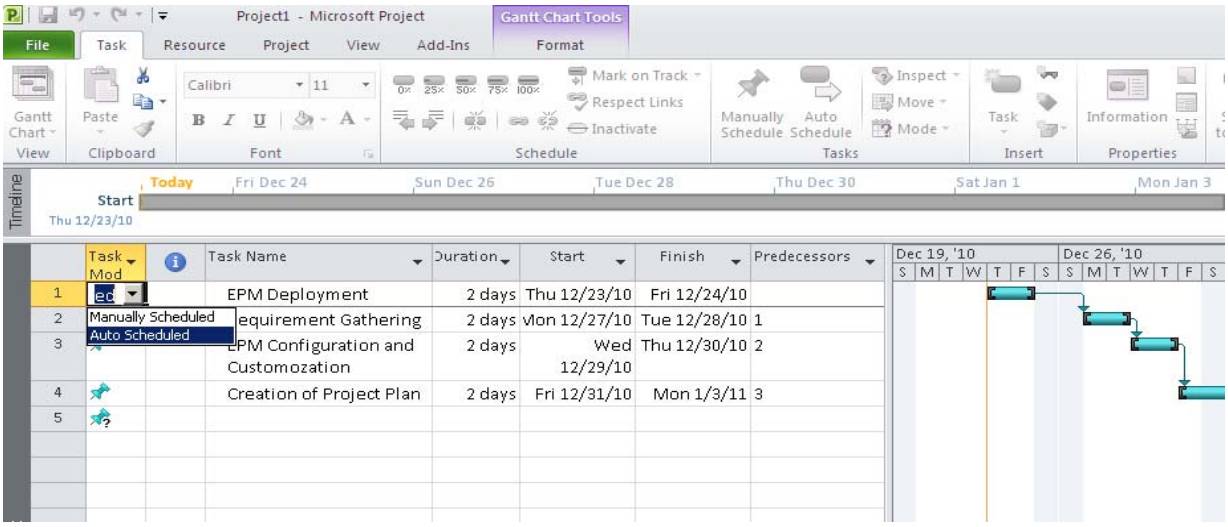
By default, tasks are set as manually scheduled, with a start date, finish date, and duration that you define.

> **Note:** Microsoft Project will never change the dates of a manually scheduled task, but you might see warnings if there are potential problems with the entered values.

You can change a task to be automatically scheduled, which causes Project to schedule the task based on dependencies, constraints, calendars, and other factors.

The Task Mode field is included by default next to the Task Name field on all task-based sheet views, including the Gantt chart. It displays an icon indicating whether a task is a placeholder, a manually scheduled task, or an automatically scheduled task.

To change the task mode, click in the field. In the list that appears, click Manually Scheduled or Auto Scheduled. You can also select specific tasks, and then on the Task tab→ Schedule group→click Manually Schedule or Auto Schedule.



4.1.1 Entering tasks

Open the Gantt table View and start entering tasks in the Task sheet available in the Gantt view by performing the following steps,

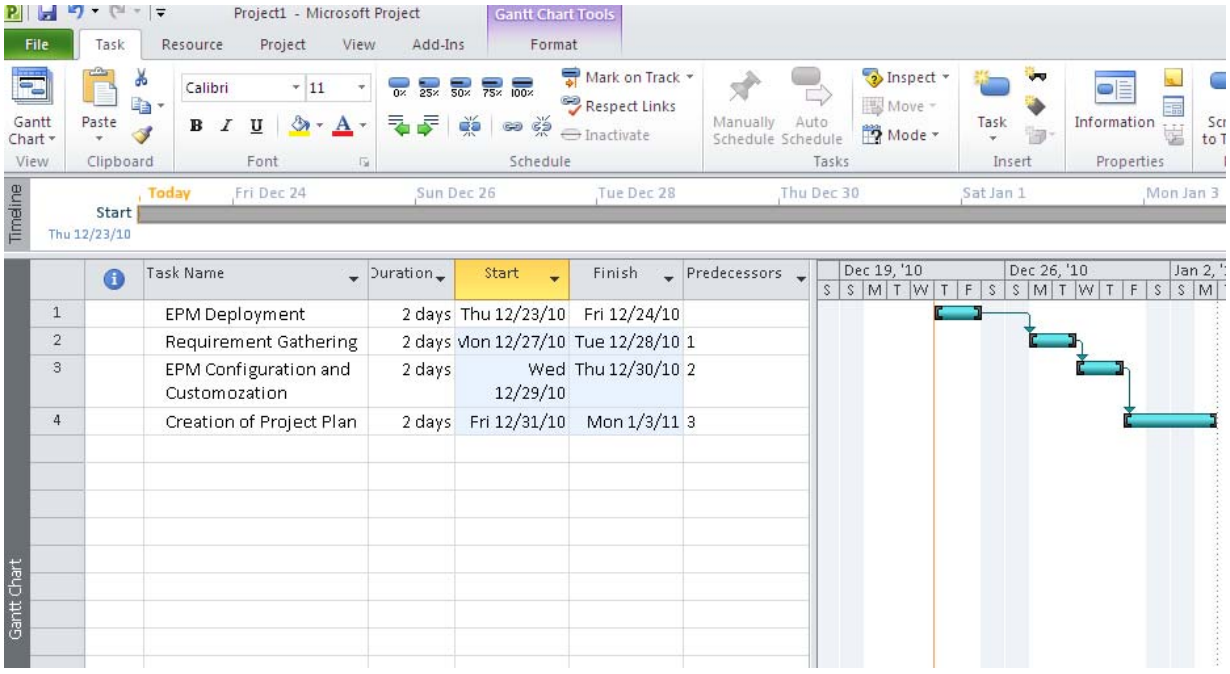


Fig 4.10: Adding Tasks

1. For duration estimates, enter information directly into the Duration column. For example, type approx. 1 month or 2 weeks assuming no customization, or enter more traditional estimates such as 1 day, 1 week, or 1 month
2. Enter start and finish dates directly in the Start and Finish columnsThe user can enter a different value for the duration by entering a value in the duration field. Task durations can be entered in minutes, days, hours, weeks and months.
3. The user can also change the Start and Finish dates for the tasks by entering a different value in the Start and Finish fields.
4. The task IDs in the task sheet are automatically renumbered after you insert a task.
5. The user will be able to view the representation graphically of the task and its duration in the Gantt chart.

Tip: Break down the tasks to the level that is easy to track. For tasks with high risk, break them down into smaller tasks.

4.2 Task Information

Task Information window allows the user to perform task management which encompasses the task management functionality under the different tabs,

- General: Task Name, Task Duration, Task Priority, Task start and finish dates, Percent complete, Task Mode, Inactive.
- Task Predecessors with task relationship with lead and lag, if any, Task Resources : Resource names, Assignment owner, Units and Cost
- Advanced : Task constraints, Task type, Task calendar, WBS Code, Option for marking the task as a milestone
- Notes : Task Notes and inserting an object to the task

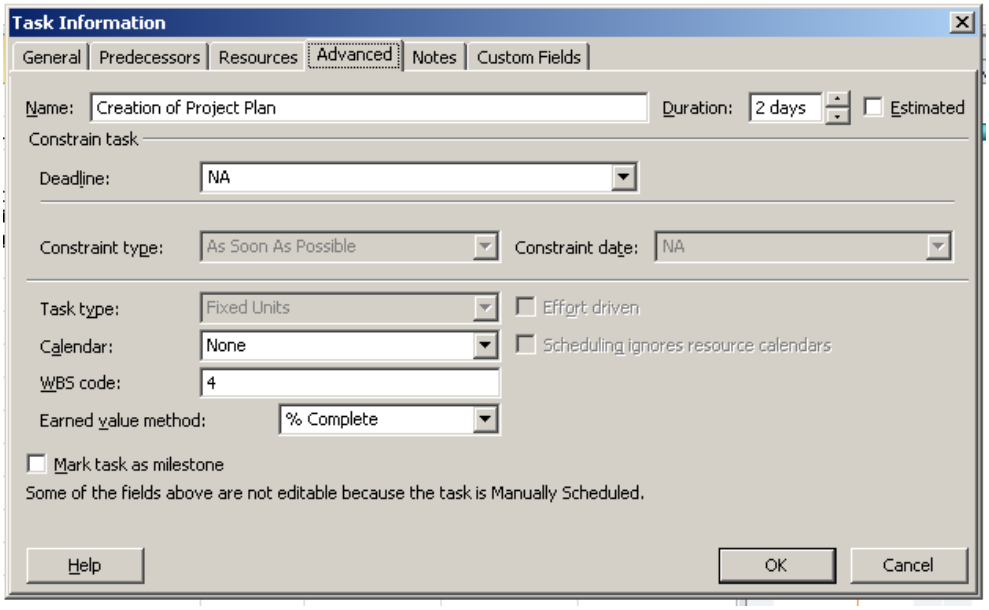


Fig 4.11: Task Information

Why Inactive Tasks?

With the Inactive field, you can inactivate tasks to remove them from the Project plan. Inactive tasks remain available for use in a later phase, a later project, or for reporting or historical purposes. Inactive tasks no longer affect other tasks or the overall Project plan. Unlike deleted tasks, inactive tasks are recoverable and can be returned to active status if needed. Reactivated tasks retain any dependencies, constraints, or resource assignments associated with them.

Note: Microsoft Project retains baseline information for inactivated tasks.

The user can access the Task Information window by any of the following methods,

1. Double click on the task name
2. Click Task Information icon  in the task tab
3. Right click menu of the task
4. Select Task and use keyboard shortcut - Shift+F2

4.3 Create a Recurring Task

About Recurring Task

Recurring tasks are tasks that repeat at regular intervals such as weekly meetings.

To insert a recurring task, select the task above which the recurring task needs to be inserted and go to insert → Recurring Task and the following window opens,

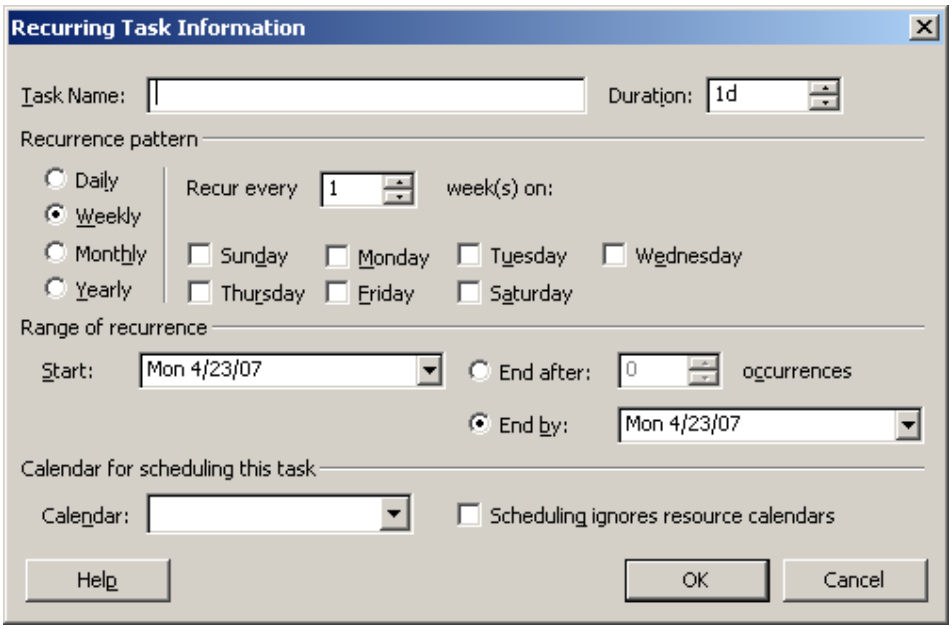


Fig 4.12: Recurring Task

Follow these steps to successfully create a recurring task,

1. The user will have to enter the Task Name and the duration of a single occurrence of the task.
2. The user will have to define Daily, Weekly, Monthly or Yearly under the Recurrence pattern. Also, the day(s) of the week when the task will recur needs to be defined by the user.
3. Under Range of recurrence, the user will have to enter a start date in the Start box. In case the project start date is not entered, MSP will automatically take the project start date.
4. The user will have to define the Calendar to be referred for scheduling the Recurring task. Also, it needs to be defined whether resource calendars needs to be ignored or not. By default the resource calendars are not ignored.

4.4 Defining Milestones

Milestone is defined as a reference point that marks a major significant event in a project and is used to monitor the project's progress.

Milestones can also be marked as a deadline or some other type of restriction imposed on the project.

Simply, a milestone is marked by defining a task with zero duration. But milestones can also be set for tasks with duration greater than zero too.

Follow these steps to create a milestone,

1. To mark a task as a milestone, define the duration of the task as '0'.
2. As soon as the duration is entered, the task is marked as a milestone with the Gantt chart displaying it as ◆ symbol.
3. To define a task with duration greater than zero, double click the Task Name to open the Task Information window and under the Advanced Tab, check the 'Mark task as a milestone' checkbox. This will show the task as a milestone with the Gantt chart displaying it as ◆ symbol.
4. To enter the task as a milestone click on Task tab→Milestone

4.5 Deadlines

Deadline dates can be added to any task, with the exception of the project summary task, a summary task representing an inserted project, or the summary task of a recurring task series. Deadlines are entered in the Constrain task grouping on the advanced tab of the Task Information dialog box.

To assign a deadline to a task:

1. Double click the task that has to be assigned a deadline date.
2. Click on the advanced tab of the Task Information dialog box.
3. In the Deadline field, set a deadline date. Click OK.

With a deadline date assigned, an indicator will be displayed if a task's finish date is later than the deadline. No indicator displays if a task finishes before the deadline. This provides the user with a visible yet unobtrusive notification that the current scheduled Finish is later than the planned deadline. The indicator tip reads as follows

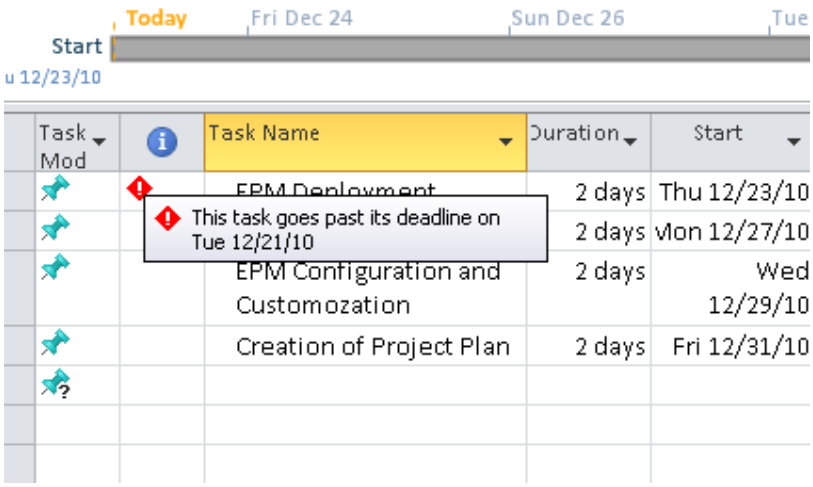


Fig 4.13: Deadline

4.6 Defining the WBS codes

WBS codes are alphanumeric codes that identify each task's unique place in the project. These codes are used for reporting and tracking.

Under the Task Information window, in the advanced tab, the user can view the WBS code assigned to the task.

To define the WBS Code Scheme for tasks, go to Project → WBS → Define Code and the window opens,

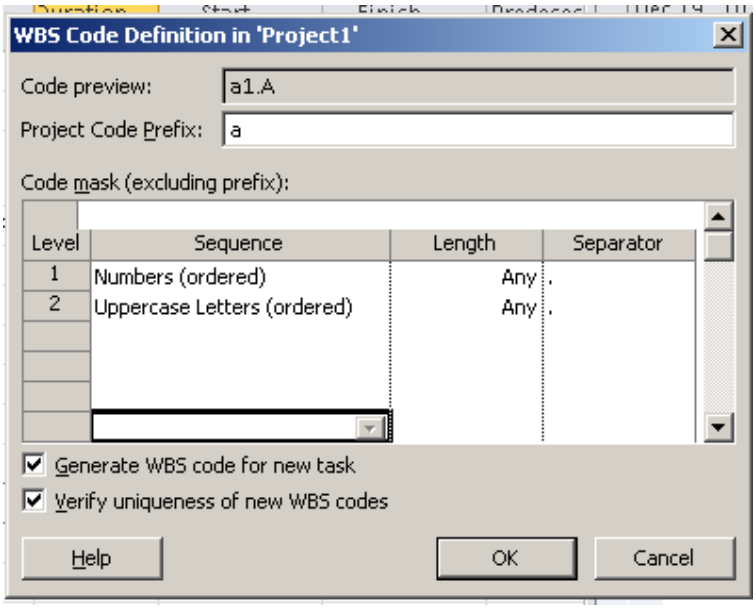


Fig 4.14: WBS Code

1. The Project Code Prefix is used to distinguish tasks in the current project from tasks in other projects. This can be useful in identifying the subprojects in the master project or when task dependencies are defined among different projects.
2. The user can define the WBS codes in any combination of ordered numbers (1,2,3…), lowercase letters (a,b,c…), uppercase letters (A,B,C…) or unordered characters (Var1, Var2, Var3…)
3. The user will need to define the length of the WBS codes in this field. In case the user is not sure of the length, one can choose 'Any' in the Length field.
4. The Separator is the symbol used to separate the different levels of summary tasks. Generally '.' Is the most commonly used separator.
   If not required, the Separator can be deleted by deleting the stated separator.
5. The checkbox for 'Generate WBS code for new task' can be unchecked if the user does not want MSP to automatically assign a WBS code to a new task.

4.7 Inserting and Deleting Tasks

To **insert** a task between existing tasks, select a row below which you want a new task to appear.

Go to the task tab→Insert Area→Task and type the task name. The task IDs are automatically renumbered after you insert a task. To **delete** a task, select the task and press the delete button on the keyboard. Alternatively, select the task and select delete in the right click menu.

4.8 Linking and Unlinking Tasks

Tasks need to be linked in order to show their dependencies. The task whose start or finish date depends on another activity is known as a successor and the task on whom it is dependent is known as a predecessor.

To **link** two tasks, any of the following options can be used,

- Select the predecessor and the successor and press the Link icon in the task tab.
- Select the successor and in the task sheet, under the Predecessors field enter the predecessor's task ID
- Open the Task Information window and enter the Predecessor task name

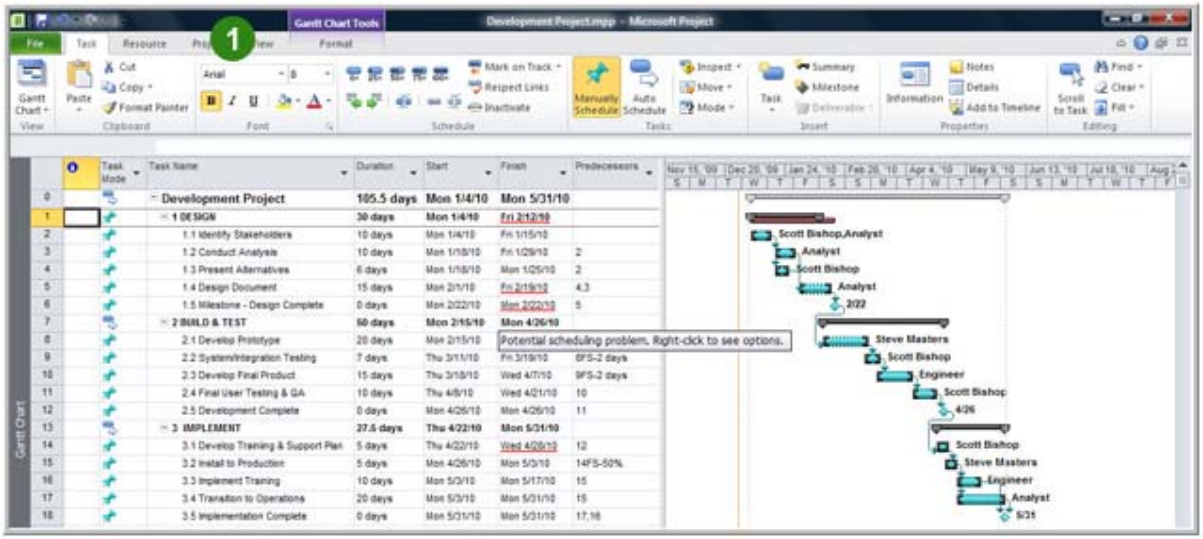
To unlink tasks, any of the following options can be used,

- Select the predecessor and the successor and press the Unlink icon in the task tab.
- Delete the predecessor task id from the Task Sheet or the Task Information window. Formatting for bullets is required

4.9 Respecting Links

You can think of manually scheduled tasks as being constrained on both the start and finish dates so Project will never reschedule them automatically

Instead the Schedule Checker gives you a wavy red line under the finish date to indicate a potential problem

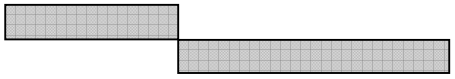
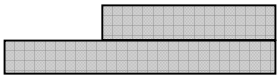


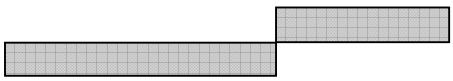
This gives you a chance to decide on what you want to do, rather than Project deciding for you. Or, you can choose to "Respect Links". You need to right-click on the wavy red line or click on the icon on the Task tab.

4.10 Task Relationships

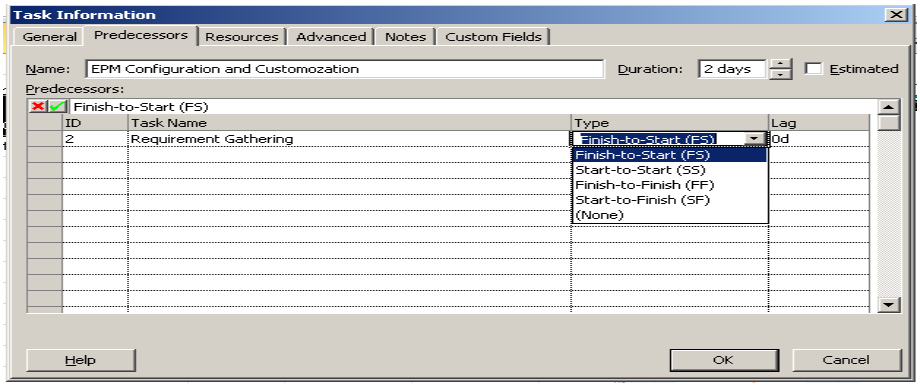
The dependency among tasks can be graphically represented in the Gantt chart by a link.

There are 4 types of relationships that exist among tasks as stated below,

Finish-to-Start	FS	The start of the successor task depends on the finish of its predecessor. In other words, once the first task ends the next tasks starts. Use a finish-to start (FS) relationship when one task must follow another task. 
Finish-to-Finish	FF	The finish of the successor task depends on the finish of its predecessor. In other words, both tasks end at the same time. Use a finish-to-finish (FF) relationship when two tasks should finish simultaneously. 

Start-to-Start	SS	The start of the successor task depends on the start of its predecessor. In other words, two tasks start at the same time. Use a start-to-start (SS) relationship when tasks should start simultaneously. 
Start-to-Finish	SF	The finish of the successor task depends on the start of its predecessor. In other words, the first task begins after the second task ends. A start-to-finish (SF) relationship is seldom used but is in Microsoft Project Professional to allow for just in time scheduling. 

1. By default, Finish-to-Start dependency is set for all task dependencies.
2. The user can define the task relationship under the Predecessors tab in Task Information window.
3. Also, the user can define the task relationship in the Gantt Sheet in the Predecessor's column with the Predecessor's Task ID.



4.15: Task Relationships

4. Lag is defined as delay in the successor activity to start with respect to the predecessor. It is entered as positive number like 2d in the Task Information window under the Predecessor's tab.
5. Lead is defined as acceleration in the successor's activity to start with respect to the predecessor. It is entered as negative number, such as -2d.

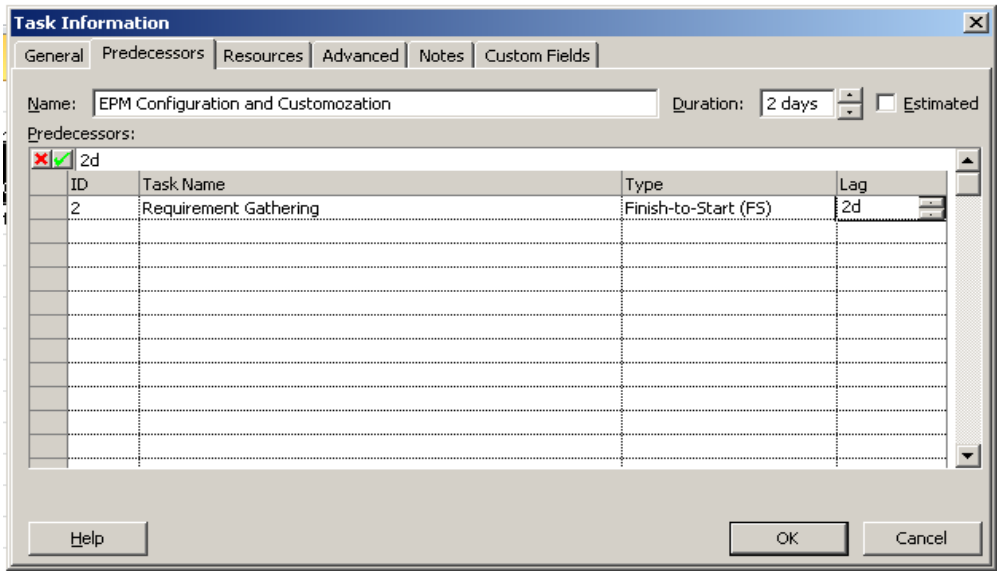


Fig 4.16: Predecessor

4.11 Setting Constraints for Tasks

Constraints are defined as factors that limit the project management team's options.

Formatting required between the heading and the text

Why Constraints?

Constraints provide some flexibility in how tasks are scheduled within Microsoft Project. It allows control of the specific Start or Finish dates that may not be controlled by the availability of a resource or predecessor. Constraints allow time limits to be imposed for such things as contract milestones, deliverables or funding start dates.

Misconception occurs when users don't realize a constraint has been placed on a task and do not understand why a task is being scheduled at an unexpected date.

An indicator will display when a constraint other than As Soon As Possible is on a task. Below is a picture of the indicator and the tooltip that appears when you hold your mouse over it.

A constraint indicator appears next to a task with a constraint. Hold your cursor over it to view more information about the constraint.

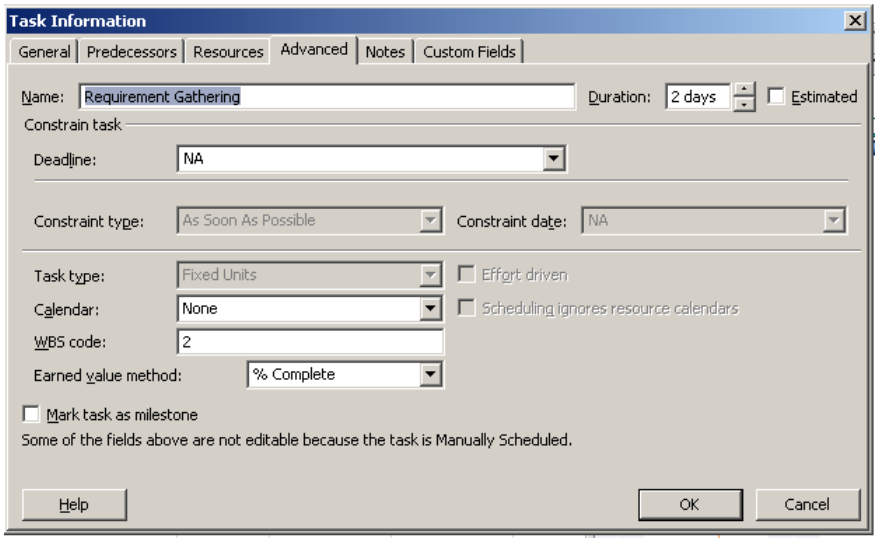
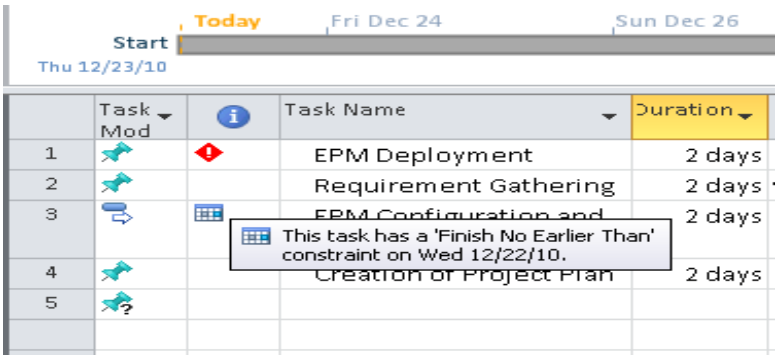


Fig 4.17: Constraint



In MSP 2010, 9 constraints are defined with varying flexibility as defined below,

Flexibility	Constraint	Scheduled From	Description
Flexible	As Late as Possible	Project Finish Date	Schedules the latest possible start and finish dates for the project
Flexible	As Soon as Possible	Project Start Date	Schedules the earliest possible start and finish dates for the project
Moderate	Finish No Earlier Than	Project Start Date	Indicates the earliest possible date that this task can be completed and the task cannot finish anytime before the specified date
Moderate	Finish No Later Than	Project Finish Date	Indicates the latest possible date that this task can be completed and the task can be finished on or before the specified date
Moderate	Start No Earlier Than	Project Start Date	Indicates the earliest possible date that this task can begin. It cannot start anytime before the specified date

Moderate	Start No Later Than	Project Finish Date	Indicates the latest possible date that this task can begin. It cannot start on or before the specified date
Inflexible	Must Finish On	Inflexible	Indicates the exact date on which this task must finish
Inflexible	Must Start On	Inflexible	Indicates the exact date on which this task should start

4.12 Indent / Outdent Tasks

The more the number of tasks, the more difficult it is to manage them. Hence, it is recommended to classify the tasks under a common heading, which is generally referred to as Phases.

Phases collectively are referred to as Project Life cycle. They are defined for easy understanding and grouping of the project activities.

Microsoft Project sums the cost and work from the detail tasks within the summary tasks. If tasks are scheduled in parallel, the summary tasks duration is not the sum of the duration of the tasks but the time spend of the detailed tasks included into the summary. Microsoft Project calculates the summary duration. A summary task is made up of subtasks and summarizes those subtasks. Summary tasks are shown by default and can be shown independent of the project summary task.

To view Summary Tasks, go to File tab → project options→ Advance and check the option for 'Show project summary task'.

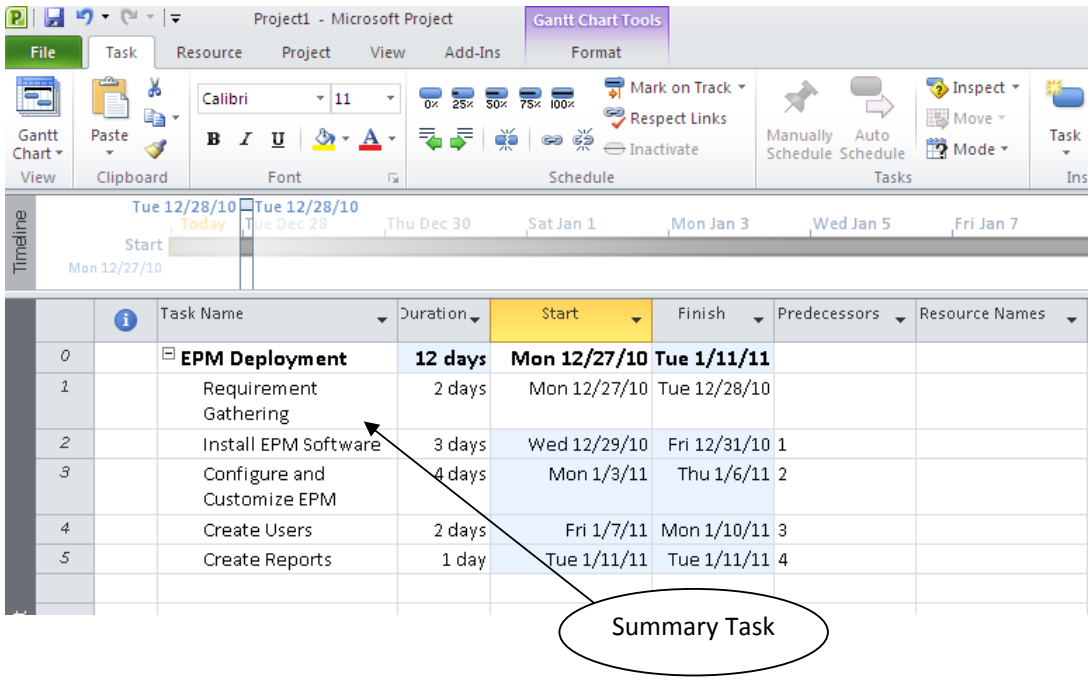


Fig4.19: Indent Outdent Tasks

1. Tasks can be moved under a specific Summary head by Indenting. Indent button is used for creating lower level tasks under high- level tasks.
2. Indenting can also be done by selecting a group of tasks (select a task and drag the mouse downwards) together.
3. To move the subtasks out of the summary task, the user can out dent the tasks.
4. Indent and Outdent options are available in the Tasks tab→Schedule Area→ 

4.13 Edit Tasks

As you create a task list, you might need to rearrange tasks, copy a set of tasks, or delete tasks you don't need after all.

In the ID field (the leftmost field), select the task you want to copy, move, or delete.

- To select a row, click the task ID number.
- To select a group of adjacent rows, hold down SHIFT, and then click the first and last ID numbers of the group.
- To select several nonadjacent rows, hold down CTRL, and then click the task ID numbers.
- To copy the task, click Copy. 
- To move the task, click Cut.  , then move the selection you cut or repeat the selection you copied, select the rows where you want to paste it. In case there is information in the destination row, the new rows will be inserted above the destination row.

5 Task Inspector

It's likely that occasionally you'll notice red underlines on dates in your Microsoft® Project 2010 project plan. These indicate possible scheduling conflicts that will require your attention to resolve. You can use the new Task Inspector tool to help you identify precisely what is causing the problem, and to choose the best corrective action to take.

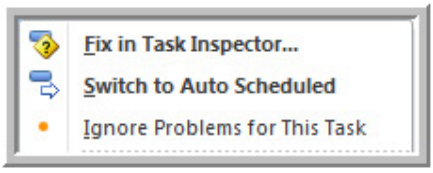
> **Why Task Inspector?**
>
> You can also use Task Inspector when there are no scheduling issues, to view the factors that affect any task.

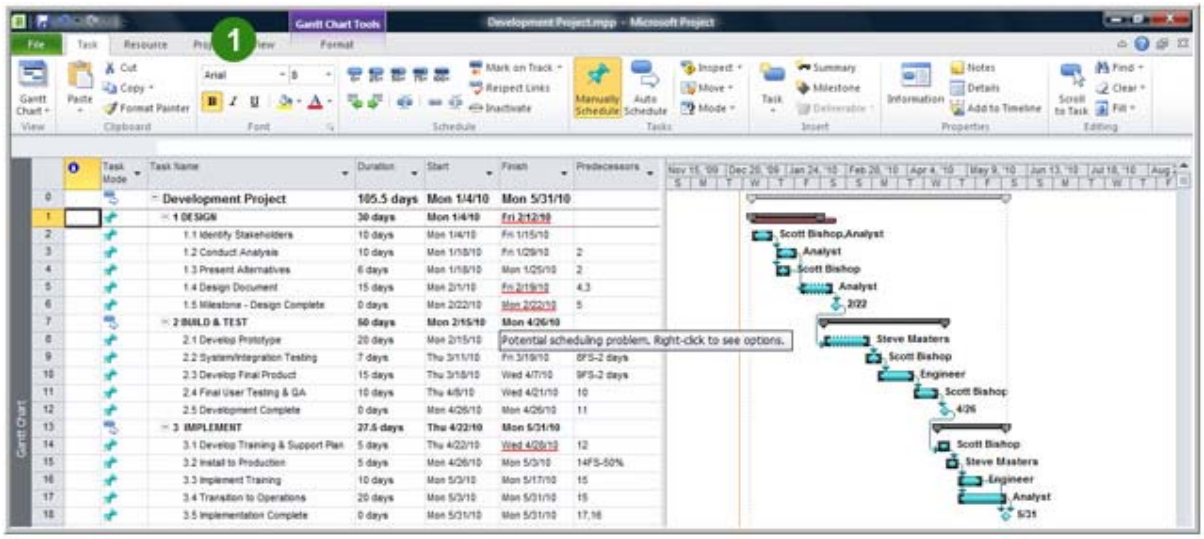
Activate the Task Inspector Pane

Select the task and go to Task tab → Inspector. The subsequent window will open up showing the tasks that will get affected due to the selected task in the left pane.

A. Right-click the red underlined text OR, on the View tab, in the Tasks group, click Inspect
B. Click Fix in Task Inspector.

> **Note:** You can also click Ignore Problems for This Task to remove the red underline.





Use Task Inspector to Choose the Best Repair Option or to Identify Controlling Factors

A. In the Task Inspector pane, review the Problem, Repair Options, and Factors Affecting Task sections.

B. Under Repair Options, you can choose the most appropriate repair option and review the effect on your schedule.

C. Under Factors Affecting Task, you can analyze which predecessor or other factor, such as a task scheduled in Manually Scheduled task mode, is driving the start date.

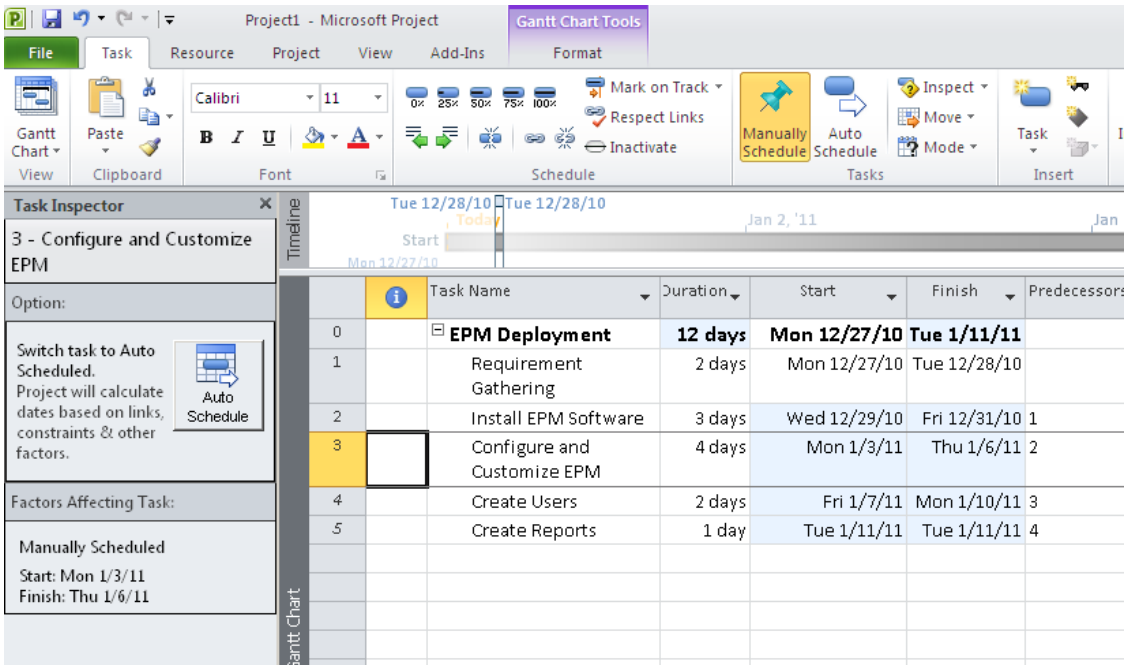


Fig 4.20 : Task Inspector

Print the current view

By default, Project prints the current view of your project.

1. Click the File tab, and then click Print.
2. Under Settings, do one of the following:

   - To print the whole project, click Print Entire Project.

   - To print only specific dates in the project, click Print Entire Project and then click Print Specific Dates.

   - To print specific pages by number, click Print Entire Project and then click Print Custom Dates and Pages, and then enter a list of individual pages, dates, or both.

3. When you finish making your selections, click Print.

EXERCISE

About this exercise

This exercise has two objectives:

- To give you basic practice in using MS-Project, by planning a simple project that you are already familiar with.
- To provide a working knowledge to MS-Project so that you may use it to support your main assignment.

1. Create a Project Plan for organizing an annual meeting for your company. Enter 1st Jan 2008 as Start date of the project in "Project Information" dialog box provided under "Project" menu

2. Create a new calendar named "Annual Meeting Calendar" using "Change Working Time" option available under "Tools" menu. Make it the default calendar for your project.

3. Make Monday to Saturday working from 10:00 A.M. to 5:00 P.M. with One hour lunch break (1:00 P.M. to 2:00 P.M.).

4. Enter the following Tasks: -

I) Book the Meeting Venue
II) Schedule Speakers –Duration: 2 Days
III) Arrange for Audiovisual Equipment –Duration: 3 Days
IV) Order food
V) Send out invitations – Duration: 2 Days
VI) Mail out Annual reports – Duration: 3 Days

5. Create Sub tasks for "Order Food" task.

I) Create a budget – Duration: 1 Day
II) Determine a menu – Duration: 1 Day
III) Select a caterer
IV) Give final headcount to caterer – Duration: 1 Day
V) Confirm caterer one week before the meeting – Duration: 1 Day

6. Create Sub tasks for the "Select a caterer" task

I) Send out request for Bids – Duration: 1 Day
II) Receive all estimates – Duration: 2 Days
III) Review estimates – Duration: 1 Day
IV) Award contract – Duration: 1 Day

7. Insert following Sub tasks for "Book the Meeting Venue" Task

I) Request Purchase Order – Duration: 2 Days
II) Select Room – Duration: 1 Day
III) Confirm Space – Duration: 1 Day

8. Create "Finish-to-Start (FS)" link between all the subtasks of "Book the Meeting Venue".

9. Start "Request Purchase Order", "Schedule Speakers" and "Arrange for Audiovisual Equipment" simultaneously.

10. Link "Arrange for Audiovisual Equipment" and "Create a budget" with Finish-To-Start relationship.

11. Link "Create a budget" and "Determine a menu" with Finish-To-Start relationship.

12. Link "Determine a menu" and "Send out request for Bids" with Finish-To-Start relationship.

13. Link all sub tasks of "Select a Caterer" with Finish-To-Start relationship.

14. Link "Award contract", "Give final headcount to caterer" and "Confirm caterer one week before the meeting" with Finish-To-Start relationship.

15. Start "Arrange for Audiovisual Equipment" and "Send out invitations" on the same day.

16. Start "Mail out Annual reports" after the completion of "Confirm caterer one week before the meeting" and "Send out invitations.

17. Use Task Drivers to determine the factors driving the start date of the task- "Arrange for Audiovisual Equipment"

18. Change the duration of "Arrange for Audiovisual Equipment" to 5 Days and find out all the dependents using "Change Highlighting".

19. Give "Must Start On" 1st January 2008 constraint to "Request Purchase Order" task.

20. Give Deadline date being 11th Jan 2008 to "Request Purchase Order" task.

21. Enter Task Notes in "Request Purchase Order" task.

22. Create a Recurring Task for a weekly review meeting on every Saturday

23. Convert the task "Award contract", "Send out Invitations","Confirm Space" into a Milestone.

24. Add the Milestone tasks on the timeline.

25. Create WBS Codes for your project.

Notes