

# TOPIC E

## Resolve Resource Conflicts



After you enter resources for your project and assign them to your project, it's a good idea to make sure you aren't planning to give your resources more project work to do than they have time available. When you find that some resources have too much project work assigned to them, you will want to reassign the extra work to other resources that aren't being used to capacity.

### Resource Allocation

Resource *allocation* refers to the amount of time a resource is assigned to work on specific tasks and projects. Resources can be allocated to a number of tasks and projects at any given time and can be overallocated when the work time assigned to a resource is beyond its capacity. *Overallocation* can occur either because a resource is assigned to too many tasks, or because more resource units than are available are assigned to a single task.

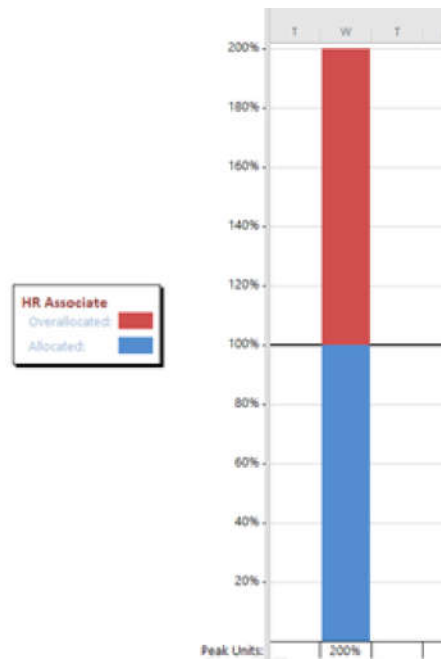
### Resource Allocation Views

Project offers several views for displaying resource allocation information. Within these views, overallocations are identified in various ways, depending on the view that you are looking at.

<i>View</i>	<i>Description</i>	<i>Graphic</i>
<b>Gantt Chart</b>	A red person icon appears in the <b>Indicators</b> column of the tasks with overallocated resources.	
<b>Resource Sheet</b>	The overallocated resource appears in red, and a red person icon appears in the <b>Indicators</b> column.	

View	Description	Graphic
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**Resource Graph**  
 The overallocated resource is displayed in red, and in the bar chart red bars indicate that the resource has exceeded the maximum unit and working time that are available in the given time period.




**Resource Usage**  
 The overallocated resource appears in red, a red person icon appears in the **Indicators** column, and the work details columns display the overallocated hours in red.

		8.1 Distribute to Employees
		8.2 Post to Extranet

**Team Planner**  
 A red person icon appears in the **Resource Name** column, and a red border surrounds the overallocated resource in the date portion of the view.

Resource Name	Unscheduled Tasks	T	W	T
HR Associate			Dist to Post to	

 **Note:** The **Team Planner** view is only available in Project Professional.

## Resource Leveling

Once you have identified any overallocated resource in a project plan, you will need to determine the way in which you can correct the allocation. Microsoft Project offers a possible solution called **leveling**, which is the process of delaying or splitting tasks to resolve conflicts. Tasks are either split or delayed until the resources assigned are no longer overloaded. As a result, leveling can extend the project's finish date. It is important to note that leveling does not change resource assignments, nor

does it add additional resources. By default, resources are not leveled automatically. By manually leveling overallocated resources, you can make leveling decisions based on other project factors such as lowest cost, earliest project finish date, or resource schedules.

On the **Resource** tab of the ribbon, Project gives you the option of leveling one or more resources, or leveling all of them. It is best to level only one resource, then to examine the effect on your project before leveling another resource. You may find that leveling a particular resource is not the best option, and reassigning the task is better. Leveling all of the resources at a time can have major implications, and it will be difficult to later remove the leveling to attack the problem incrementally.



**Note:** Splitting a task breaks it into two working periods with a nonworking period in between. For example, a two-day task that is scheduled for Monday and Tuesday can be split so work is done on Monday and Wednesday, with no work on Tuesday. The duration of the task increases, but the amount of work and cost remain unchanged.

## Slack

When Project levels your overallocated resources, it determines the tasks that have to be split or delayed by looking at the task ID, available slack, task priority, task dependencies, task constraints, and scheduling dates. *Slack* is the amount of time a task can slip before it affects another task's dates or the project finish date.

## Methods of Resolving Resource Conflicts

When you identify overallocated work resources, you should level them.

There are several approaches to leveling:

- Increasing the duration of a task. This approach is used when resources are fixed.
- Increasing the number of resources assigned to a task. This approach is used when task duration is fixed.
- Reassigning a task to another resource who has free time.
- Rescheduling a task.

Project managers typically use a combination of these approaches to achieve a level project.

## Task Priorities

Prior to leveling, you may want to set the task priorities in the **Task Information** dialog box. The priority sets the task's importance and its availability for leveling. The priority value that you enter is a subjective value between 1 and 1000, which enables you to specify the amount of control you have over the leveling process. For example, if you don't want Project to level a particular task, set its priority level to 1000. By default, priority values are set at 500, or a medium level of control. Tasks that have lower priority are delayed or split before those that have higher priority.

## The Task Inspector Pane

The *Task Inspector* pane displays the critical factors which affect a task's scheduling. If the task has overallocated resources, the **Task Inspector** pane will give you information about the resources and, if available, methods for quickly resolving them. For example, you can have Project move the start date of the task to the next time the resource is available.

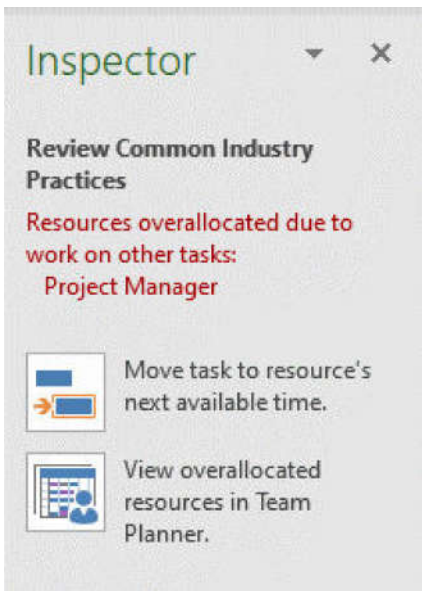


Figure 5-15: The Task Inspector pane gives you information on overallocations and quick resolutions if available.

## The Resource Leveling Dialog Box

You will find all of the leveling controls in the **Level** group on the **Resource** tab of the ribbon. You can control how Project levels resources by setting the options in the **Resource Leveling** dialog box.

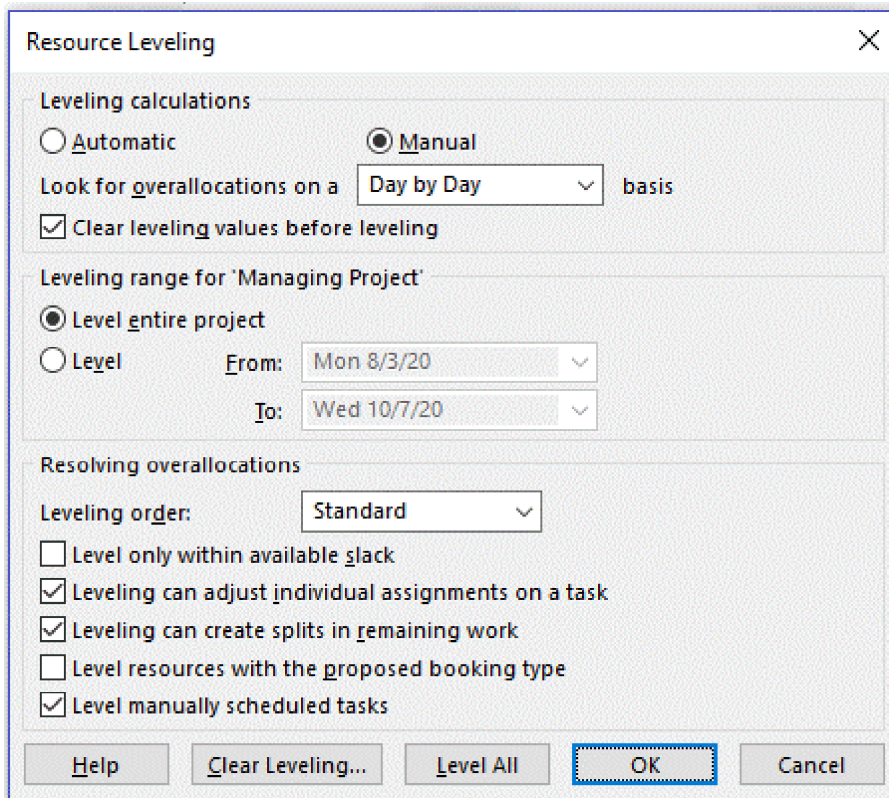


Figure 5-16: The Resource Leveling dialog box gives you control over Project's leveling features.

When selecting options in the dialog box, consider the following:

- **Manual** leveling is the default. Select **Automatic** only if you want Project to level any overallocations instantaneously whenever you change a task or resource.
- **Day by Day** is the default setting. Select other options if you want to level when you have an overallocation within just one minute, one day, one week, or one month.
- The default **Standard** leveling order considers predecessor dependencies, slack, dates, priorities, and constraints to discover whether and how tasks should be leveled. Select **ID Only** to level tasks in ascending order of their ID numbers. Select **Priority, Standard** to check task priorities first and only then examine the standard criteria.
- Check the **Level only within available slack** check box to prevent the finish date of the project from being delayed. This applies even if you do not have a **Finish No Later Than** constraint set on the last task.

## The Leveling Gantt Chart

When you level a project, many changes may be made to the project plan. It is useful to review these changes using the *Leveling Gantt Chart*. The **Leveling Gantt Chart** is a special view which compares the before- and after-leveling project plans. Each task will appear with two different colored bars, one for the position before leveling and one for after. You can also review the delay caused by leveling by examining the **Leveling Delay** column. If you are not satisfied with the changes made by automatic leveling, you can undo them and make adjustments in the **Resource Leveling** dialog box to try again, or you can identify which tasks may need manual adjustments.

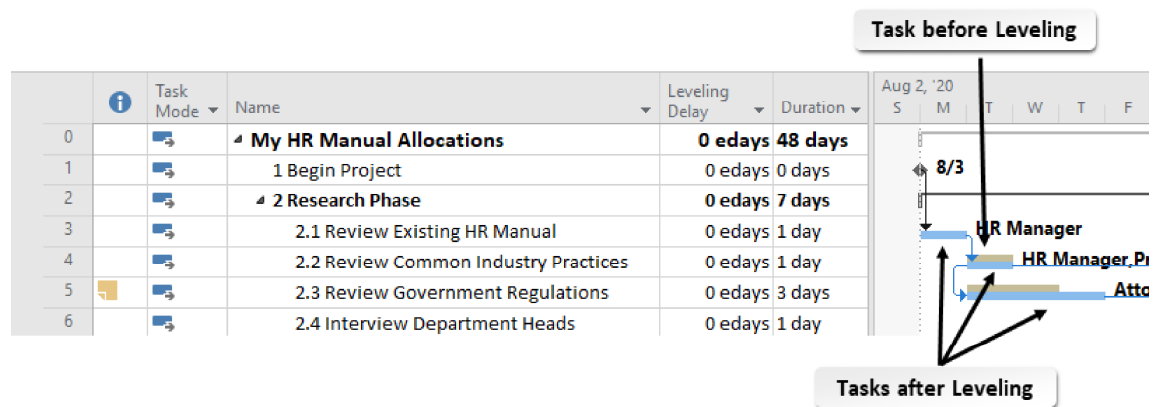


Figure 5-17: Review the changes made by automatic leveling in the Leveling Gantt Chart.



Access the Checklist tile on your CHOICE Course screen for reference information and job aids on How to Resolve Resource Conflicts.

# ACTIVITY 5-5

## Resolving Resource Conflicts

### Data File

C:\091098Data\Managing Project Resources\HR Manual Allocations.mpp

### Before You Begin

Microsoft Project is open.

### Scenario

While you were out of the office for a couple of days, your colleague assigned the remaining resources to the tasks in the HR Manual project plan. You would like to view the data to ensure that the resources have been assigned to tasks correctly. You look at the Gantt chart and see several "red people" next to tasks, indicating that some of the resources have been burdened with too much work. You decide to fix these problems before you hear complaints from the project team.

### 1. Open the HR Manual Allocations.mpp project plan file.

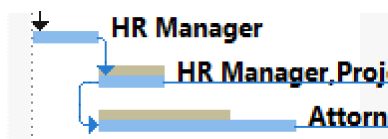
- On the **Open** tab in **Backstage View**, select **Browse**.
- In the **Open** dialog box, navigate to the **C:\091098Data\Managing Project Resources** folder containing your class files.
- Select **HR Manual Allocations.mpp** and select **Open**.

### 2. Resolve an overallocation in the Research Phase using the Task Inspector.

- On the ribbon, select **Gantt Chart**.
- In the **Task Entry** table, select **2.2 Review Common Industry Practices**.
- In the **Indicators** field, right-click the **red person** and select **Fix in Task Inspector**.
- In the **Task Inspector** pane, note the reason for the overallocation: **Resources overallocated due to work on other tasks: HR Manager**.
- Select **Move task to resource's next available time**.  
Notice the error message that Project cannot resolve the overallocation.
- Select **Stop**.
- Select the **red person** in the **Indicators** field for **2.3 Review Government Regulations** and note the reason for the overallocation.
- Select **Move task to resource's next available time**.  
Verify that the duration of Task 2.3 has been extended to 3 days. The two attorneys will work on the first two days, and the HR Manager will work on the third day.
- Close the **Task Inspector**.

### 3. View leveling in the Leveling Gantt Chart.

- Select the **Gantt Chart** drop-down arrow, then select **More Views→Leveling Gantt→Apply**.
- Note that the pre- and post-leveling Gantt bars are shown.



**4. Resolve an overallocation in the Review Phase without using the Task Inspector.**

- a) Select the **Gantt Chart** drop-down arrow, then select **Gantt Chart**.
- b) Select **6.1 Review with Legal Department**, and on the **Task** tab, select **Scroll to Task**.
- c) Right-click the **red person** and select **Reschedule to Available Date**.  
Verify that the task has been extended to two days split, so the VP will work on Monday.

**5. Resolve an overallocation in the Publication Phase by reassigning a task to another resource.**

- a) Select **8.1 Distribute to Employees** and on the **Task** tab, select **Scroll to Task**.  
Note that the Operations Manager is assigned to Tasks 8.1 and 8.2 on the same day.
- b) Double-click **8.1 Distribute to Employees**.
- c) On the **Resources** tab, in the **Task Information** dialog box, select the drop-down arrow next to **Operations Manager**, then select **HR Associate**.
- d) Select **OK**.  
Verify that the overallocation has been resolved.

**6. Save the file as My HR Manual Allocations.mpp and close it.**

- a) On the ribbon, select **File→Save As**.
  - b) Select **Browse** and then navigate to **C:\091098Data\Managing Project Resources**.
  - c) In the **File name** field, enter **My HR Manual Allocations** and select **Save**.
  - d) Select **File→Close**.
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## Summary

In this lesson, you managed project resources in a number of ways using the **Resource Information** dialog box. You also leveled overallocated resources in your project.

**Which features of the Resource Information dialog box are you most likely to use during your next project?**

**Which leveling methods will you use during your next project, and why?**



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