

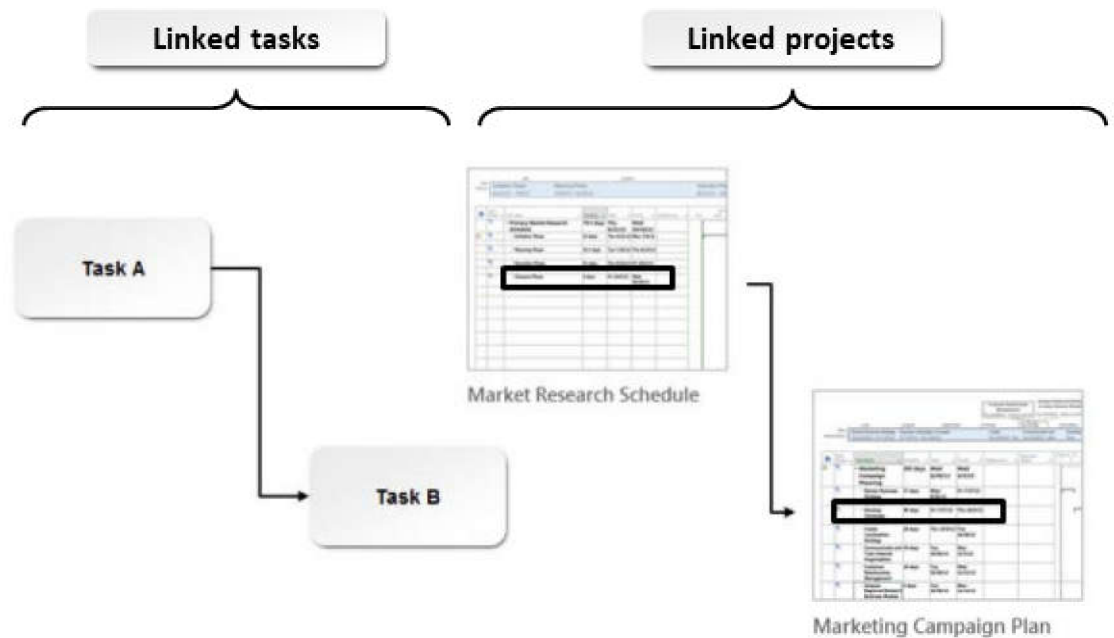
## TOPIC B

### Link Project Plans

There are situations where you may want to manage multiple projects that are dependent on one another. For example, a master project may have multiple subprojects that are managed by different project managers. Project allows you to link multiple projects so that you manage the dependencies between them.

#### Linked Projects

You already know how to link tasks within a Project file. It is also possible to link separate Project files by linking a task in one project to a task in another project. This establishes a relationship between the Project files.



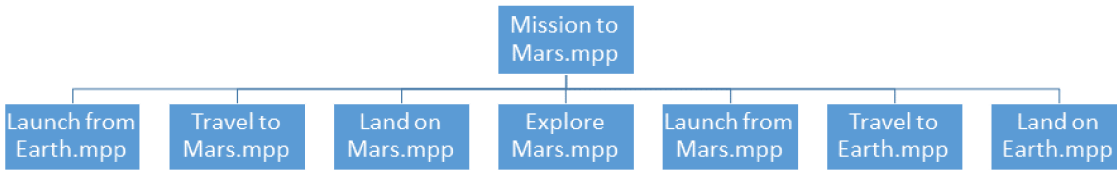
**Figure 5-3:** Linked tasks and linked projects.



**Note:** You can link up to 999 projects.

#### Master Projects and Subprojects


A **master project** is one that contains one or more smaller subprojects. Conversely, a **subproject** is one that is part of a master project. If you are managing a large, complex project, you may find it easier to create several small Project files and combine them with a master Project file. For example, the master project **Mission to Mars.mpp** might be composed of seven subprojects:



**Figure 5-4:** A master project is composed of two or more subprojects.

One of the advantages to combining your subprojects into a master project is that it enables you to view all of your resources across projects and make sure none of them are overallocated.

You can easily insert a subproject into a master project by selecting the **Project** tab on the ribbon, finding the **Insert** command group, and selecting the **Insert Subproject** button.



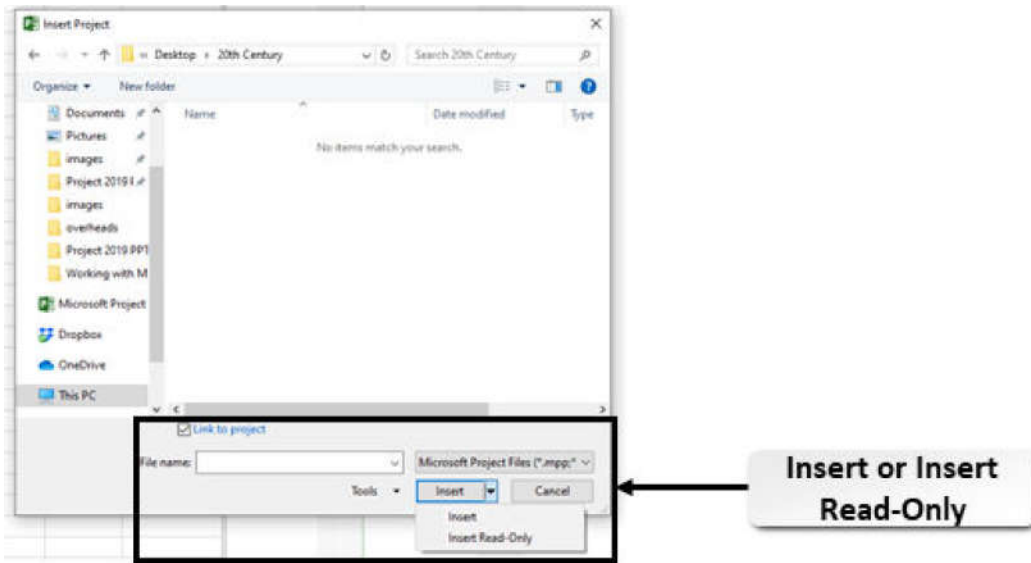
**Note:** To insert a subproject into a master project, you must be in a task-related view (such as **Gantt Chart** or **Network Diagram**). The **Insert Subproject** button will be disabled if you are in another type of view (such as **Calendar** or **Resource Sheet**).

### Master Projects and the Critical Path

By default, Microsoft Project treats subprojects as summary tasks, so a single critical path is created that covers all projects in the master project plan. To turn off this feature, select the **File** tab, then select **Options**→**Schedule**. Scroll down to **Calculation options for this project** and uncheck the box that reads **Inserted projects are calculated like summary tasks**.

### The Insert Project Dialog Box

When you select the **Insert Subproject** button, the **Insert Project** dialog box will open.



**Figure 5-5:** Select a subproject in the **Insert Project** dialog box.

The **Insert Project** dialog box allows you two options for creating a link between the two files.

Option	Result
<b>Insert</b>	This option inserts a copy of the subproject data into the master project file. No link is established between the two files. A change made to either file will not be reflected in the other.

Option	Result
<b>Insert Read-Only</b>	A one-way link is established between the subproject and the master project. A change made in the subproject file will be reflected in the master project file, but changes in the master file will not be reflected in the subproject file. This option protects the original subproject files from unwanted changes.

A subproject inserted into a master project looks and behaves much like a summary task. You can expand the subproject in the master project to see the subproject's tasks. You can collapse the subproject in the master project to hide the subproject's tasks.



**Note:** If you have a subproject with a two-way link to a master project, you can make a change to the subproject within the master project, and then save the master project. Project will ask you whether or not you want to save the change to the subproject.

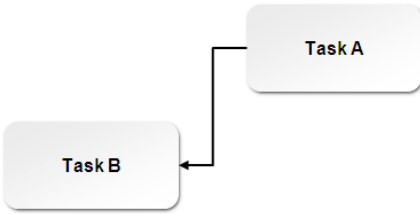
## Dependencies

As you may recall, when you link two tasks together in Microsoft Project, you are creating a **dependency** between their start and finish dates. Dependencies drive the project schedule. A task may be linked to **predecessors** or **successors**. Every change you make to a linked task will affect its successors.

Linking tasks between two projects has the same effect as linking tasks in a single project. Remember that there are four types of dependencies.

Dependency	Description	Example
<p><b>Finish-to-Start (FS)</b></p>	The predecessor must end before the successor task can begin. This is the default in Microsoft Project and the most commonly used dependency.	You must finish applying primer (Task A) before you can start applying paint (Task B).
<p><b>Start-to-Start (SS)</b></p>	The predecessor must begin before the successor task can begin.	You must begin duplicating a report (Task A) before you can begin binding the report (Task B).
<p><b>Finish-to-Finish (FF)</b></p>	The predecessor must end before the successor task can end.	You cannot finish detouring traffic (Task A) until you finish road work (Task B).

Dependency	Description	Example
Start-to-Finish (SF)	The predecessor must begin before the successor task can end. This is the most difficult type of dependency to understand. However, it will make more sense if you remember that the predecessor task is later in time than the successor task.	The start of a concert (Task A) ends ticket sales (Task B).



## The Links Between Projects Dialog Box

When subprojects are linked to a master project, you can establish dependencies between the tasks of the subprojects or between the tasks of the master project and its subprojects. This is done exactly like establishing dependencies between tasks in an independent project.

You can easily see the dependencies that exist between a project and other projects by selecting the **Project** tab on the ribbon, finding the **Properties** command group, and selecting the **Links Between Projects** button.

Selecting this button will display the **Links Between Projects** dialog box, which has two tabs. The **External Predecessors** tab shows you which tasks in the project have predecessor tasks in other projects. The **External Successors** tab shows you which tasks in the project have successor tasks in other projects.

For example, in the following image, the HR Manual project has one external successor: a Finish-to-Start dependency between the Project Complete task and the Begin Project task in another project (in this case, the Finance Manual project).

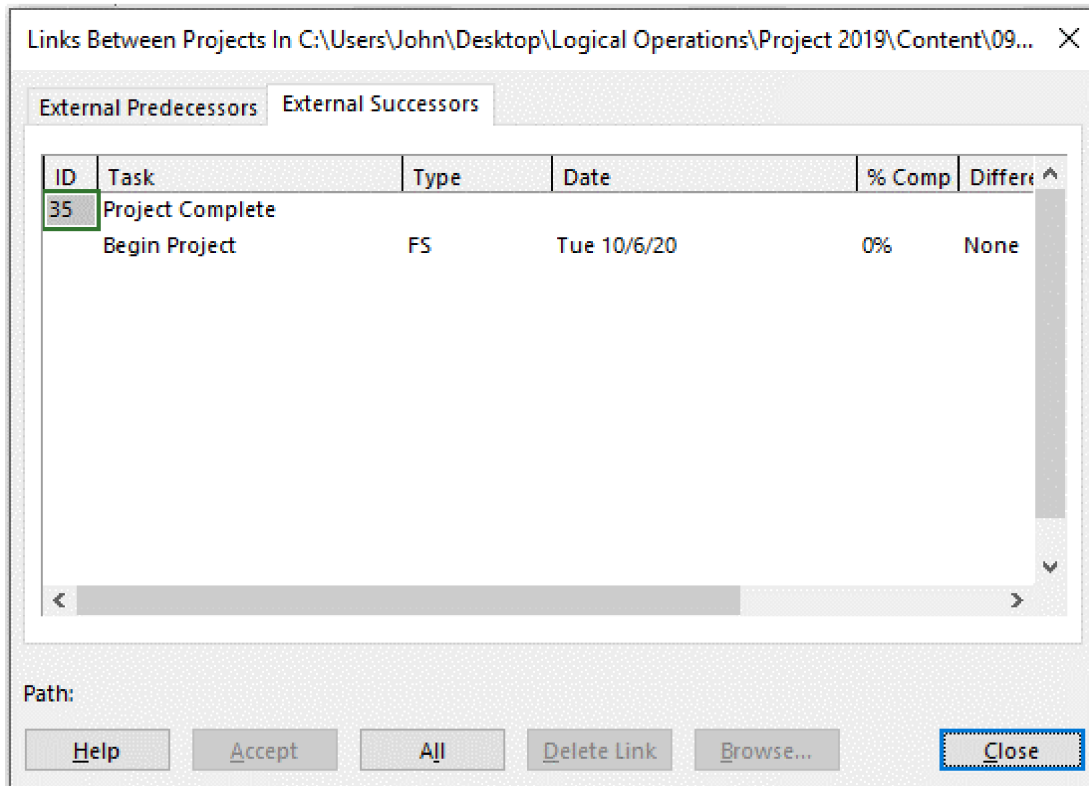


Figure 5-6: View external dependencies in the Links Between Projects dialog box.



**Note:** The **Links Between Projects** dialog box will be automatically displayed whenever you open a Project file that has tasks with unsynchronized links to tasks in other projects. This gives you the opportunity to review any differences. You can use the buttons at the bottom of the dialog box to accept a single selected difference or accept all differences shown.



Access the **Checklist** tile on your **CHOICE** Course screen for reference information and job aids on **How to Link Project Plans**.

# ACTIVITY 5-2

## Linking Project Plans

### Data Files

C:\091099Data\Working with Multiple Projects\GCNB Resource Pool.mpp

C:\091099Data\Working with Multiple Projects\HR Manual.mpp

C:\091099Data\Working with Multiple Projects\Finance Manual.mpp

### Before You Begin

Microsoft Project is installed on your computer.

### Scenario

You have created two project plan files, one for a new HR Manual and the other for a new Finance Manual. (For this activity, assume that neither project has begun, and that resources have not been included in either project plan file.) You have also created a resource pool that contains the resources for both projects. The Finance Manual project will begin shortly before the HR Manual project has finished. You want to track both projects in one Microsoft Project file, so you decide to create a master project into which you will insert the two files as subprojects.

After you set up the master project and its subprojects, you need to link the two subprojects together sequentially. You will use a Finish-to-Start relationship between the Print Final task in the HR Manual project and the first task in the Finance Manual project.

You remember that when a new project plan file is created, all new tasks are manually scheduled by default. Because you want Project to auto-schedule all new tasks, you change the scheduling mode to Auto Scheduled.

### 1. Open the GCNB Resource Pool, the HR Manual, and the Finance Manual project plans, and share resources from the resource pool with each one.

- a) Select **File→Open** and navigate to **C:\091099Data\Working with Multiple Projects**, and then select **GCNB Resource Pool.mpp**.






**Note:** If the resources have been previously shared, select **Open resource pool read-only** from the dialog box. (You will not see the dialog box the first time the resource pool is opened).

- b) Select **File→Open** and navigate to **C:\091099Data\Working with Multiple Projects**, and then open **HR Manual.mpp**.
- c) Select **Resource→Resource Pool**, then select **Share Resources**.
- d) In the **Share Resources** dialog box, select the radio button **Use resources (requires at least one open resource pool)**, and from the **From** drop-down list, select **GCNB Resource Pool.mpp**.
- e) Confirm that **Pool Takes Precedence** is selected.
- f) Select **OK**.
- g) Repeat Steps b through f to open the **Finance Manual.mpp** project and share the resources.

### 2. Create a new blank Project file and save it as the master project.

- a) Select **File→New**, then select **Blank Project**.
- b) Select **Gantt Chart Tools Format** and check the **Project Summary Task** check box.
- c) Select **File→Save As**.
- d) Navigate to the **C:\091099Data\Working with Multiple Projects** folder.

- e) Enter the file name **My Master Manuals Project** and select **Save**.
3. Insert **HR Manual.mpp** and **Finance Manual.mpp** into the new master project as subprojects.
- In the **Task Entry** table, select the first empty row.
  - Select **Project→Subproject**.
  - In the **Insert Project** dialog box, navigate to **C:\091099Data\Working with Multiple Projects** and select **HR Manual.mpp** and select **Insert**.
  - Select the next empty row.
  - Select the **Subproject** button again.
  - In the **Insert Project** dialog box, navigate to **C:\091099Data\Working with Multiple Projects**, select **Finance Manual.mpp**, and select **Insert**.  
Notice that both subprojects are visible in the **Gantt Chart** view of the master project and behave much like summary tasks.
4. Create a dependency between tasks in the two subprojects.
- In the **Gantt Chart** view of the master project, expand the **HR Manual** subproject by selecting the arrowhead  next to the subproject name.
  - Scroll down to the bottom of the Gantt chart and also expand the **Finance Manual** subproject.
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**Note:** You may want to place your cursor on the vertical line between the **Task Name** and **Duration** fields, and double-click to expand the **Task Name** field.
- Select row **31**, the **Print Final** task in the **HR Manual** project.
  - Press the **Ctrl** key, and select row **1**, the **Begin Project** task in the **Finance Manual** project.
  - Select **Task→Link the Selected Tasks** button. 
  - Select **Print Final**, then select **Task→Scroll to Task** to see the link between the two projects.
5. Assign the HR Associate to a task in each project.
- Double-click Task 35 **Post to Extranet** in the HR Manual project, and on the **Resources** tab of the **Task Information** dialog box, in the first line under **Resource Name**, select **HR Associate**. Then select **OK**.
  - Scroll down and select Task 4 **Review Existing HR Manual** in the Finance Manual project. Assign the **HR Associate** to the task and select **OK**.  
Note that the **Indicators** field has a **red person** symbol for the two tasks that are assigned to the **HR Associate**, showing that the resource is overallocated.
6. Fix the overallocation by moving the **Review Existing HR Manual** task to the next available time.
- Right-click **Review Existing HR Manual** and select **Fix in Task Inspector**.
  - In the **Task Inspector** pane, select **Move task to resource's next available time**.  
Verify that there are no more red person symbols, and that the task has moved forward one day.
  - Close the **Task Inspector** pane.
7. Change the scheduling mode so new tasks are automatically scheduled.
- On the status bar, select **New Tasks: Manually Scheduled**, and select **Auto Scheduled**.
  - Verify that the status bar message now reads **New Tasks: Auto Scheduled**.
8. Save and close the Master project and the two subprojects.
- Select **File→Save**.
  - In the **Microsoft Project** dialog box, select **Yes to All**. Then select **OK** to save the resource pool.
  - Select **File→Close** several times to close all files except the resource pool.

## Summary

In this lesson, you learned how to create a master project and subprojects, and how to link the tasks in subprojects together.

**Is your company likely to use resource pools to help monitor resource usage? Give reasons.**

**Which types of projects might you envision as candidates for master projects and subprojects?**



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