



Task Types and Order of Entry

Microsoft Project has a built-in formula that helps Project Managers when they enter time for a Resource’s work. The difficulty is that sometimes a Project Manager wants a Resource to have a longer duration to do their work than the hours of work require. For example, if the Project Manager wants to give a Resource 5 days of duration to accomplish 8 hours of work, they need to enter the Resource Name, Duration and Work in the right order. Otherwise, the system will modify the other item(s) of the formula in ways that the Project Manager might not like.

The two key pieces to understand are:

1. The Task Type
2. The formula

There are three Task Types – Fixed Work, Fixed Duration and Fixed Units. We have a detailed White Paper titled “Task Types – Fixed Duration, Fixed Work, Fixed Units” which explains the Task Types in detail. That paper can be found [here](#).

The formula is fairly basic. It is:

$$\textit{Duration} * \textit{Units} = \textit{Work}$$

When you modify one, the system calculates the rest for you. From the document mentioned above is this helpful graph:

In a...	If you revise units...	If you revise duration...	If you revise work...
Fixed-units task	Duration is recalculated.	Work is recalculated.	Duration is recalculated.
Fixed-work task	Duration is recalculated.	Units are recalculated.	Duration is recalculated.
Fixed-duration task	Work is recalculated.	Work is recalculated.	Units are recalculated.

Therefore, the order that you enter the data, based on the type of task, will give you the result for Duration and Work.

The way to enter a Fixed Work task, when you want the Duration and Work to be “modifiable” without a lot of frustration is this:

1. Resource



2. Work
3. Duration

Here are a couple simple examples for Fixed Work.

In our example, we want to give a Resource 5 days to do 8 hours of work.

If we just enter the Task Name (“A” in this case) the system will automatically put in the Work at 0 and the Duration to the default of 1 estimated day. We do NOT yet put in 5 days duration because the order of entry is to do Resource, Work and then Duration because the system automatically calculates the rest for us.

		Task Mode	Type	Task Name	Duration	Work	Resource Names
1			Fixed Work	A	1 day?	0 hrs	

As soon as we enter the Resource name, the system automatically assumes the number of hours. This is based on the formula where the Resource at 100% for 1 day (still estimated) is 8 hours.

		Task Mode	Type	Task Name	Duration	Work	Resource Names
1			Fixed Work	A	1 day?	8 hrs	BOB

But, for our example, we want to make it five days – so we change the duration to 5. Because of the order of entry, the 8 hours stay in place for work.

		Task Mode	Type	Task Name	Duration	Work	Resource Names
1			Fixed Work	A	5 days	8 hrs	BOB

Another variation of this is for the Resource Jane, where we want to give Jane 20 hours of work in 5 days. When we create TaskName “B” and add Jane the 8 hours for 1 day appeared. BUT, we want Jane to have 20 hours of work. We modify the work column to 20. The system automatically adjusts the number of days in Duration to match what 20 hours of work would be – which is 2.5 days (at 8 hours a day).



	i	Task Mode	Type	Task Name	Duration	Work	Resource Names
1		Fixed Work	A	5 days	8 hrs	BOB	
2		Fixed Work	B	2.5 days?	20 hrs	JANE	

We can then modify the days to 5 and we are now at our goal.

	i	Task Mode	Type	Task Name	Duration	Work	Resource Names
1		Fixed Work	A	5 days	8 hrs	BOB	
2		Fixed Work	B	5 days	20 hrs	JANE	

So, what would have happened if we had entered our Duration BEFORE the Resource? For the example of BOB, if we had entered the Duration first, 5 days in this case for Task C it would appear like this.

	i	Task Mode	Type	Task Name	Duration	Work	Resource Names
1		Fixed Work	C	5 days	0 hrs		

But, as soon as we add Bob the formula would do its job and would and would give us 40 hours of work (5 days at 8 hours a day).

	i	Task Mode	Type	Task Name	Duration	Work	Resource Names
1		Fixed Work	C	5 days	40 hrs	BOB	

Here are a couple simple examples for Fixed Duration.

The way to enter a Fixed Duration task, when you want the Duration to be the key factor and Work hours or Units (or even number of Resources) are not as important is to enter in this order:

1. Duration
2. Resource(s)
3. Work – **IF** you are modifying work (read the other document because usually if you are Fixed Duration you aren't modifying Work...)



In this example, we create Task D and the Duration immediately puts the 1 estimated day and there is no work or resources.

Task Mode	Type	Task Name	Duration	Work	Resource Names	Add
	Fixed Duration	D	1 day?	0 hrs		

Since we are concerned about the duration only, that is what we enter. For this example, we want the Duration to be 3 days. Therefore, we change Duration to 3.

Type	Task Name	Duration	Work	Resource Names	Add New
Fixed Duration	D	3 days	0 hrs		

We are not concerned about work (at least in this example) so we add the Resource(s). In this case, I will add three separate Resources. Notice that the formula still works and the system still gives us a number for Work. But, for this part of the example, we are ignoring the work column because we just want the three days of duration to drive this task.

Type	Task Name	Duration	Work	Resource Names
Fixed Duration	D	3 days	72 hrs	Tim,Catherine,Darin

Fixed Duration Example Two:

But, what if we do care about the work? What if we want the 3 days duration and we do want to modify the work? Then that is the third item. Again, read the other document mentioned earlier to determine if you are really wanting to modify work for a fixed duration task (and there are many reasons why you might so that is sometimes done).

If we want to modify the work, we can modify that third. In this case, we will make it 12 hours (using the formula, that would be 4 hours each for the three resources).

Type	Task Name	Duration	Work	Resource Names
Fixed Duration	D	3 days	12 hrs	Tim,Catherine,Darin



Here are a couple simple examples for Fixed Units.

The way to enter a Fixed Units task, when you want the Duration and Work to be modified based on the availability of the Resource:

1. Resource Units
2. Work – IF you are tracking this task by work (thereby leaving duration to be calculated)
3. Duration– IF you are tracking this task by duration (thereby leaving work to be calculated)

This is the least used methodology. However, when it is used, the most common example we have encountered with clients where the Resource Units are used is when a Resource is given “half-time” to a project. In that case, we only get the Resource 50%.

We start out the same – enter the task and let the estimated duration appear.

Task Mode	Type	Task Name	Duration	Work	Resource Names	Add
Fixed Units		E	1 day?	0 hrs		

However, we do not just add the resource, we double click the task and in Task Information. In the Resources tab, we modify the Units field (to 50% in this case).

Resource Name	Assignment Owner	Units	Cost
Half-Time Charlie		50%	



This automatically takes the estimated duration and puts in the appropriate hours based on the formula. We currently have 1 day estimated duration, so that is 4 hours of work.

Task Mode	Type	Task Name	Duration	Work	Resource Names
	Fixed Units	E	1 day?	4 hrs	Half-Time Charlie[50%]

This is where you will enter EITHER Duration or Work – whichever is more important to you for this task (you could enter them both if so desired as well). For our example, we will say that it is 20 hours of work. When, we modify the Work to 20 hours, the system will calculate the duration for us. In this case, that is five days.

Task Mode	Type	Task Name	Duration	Work	Resource Names	Add New Col
	Fixed Units	E	5 days?	20 hrs	Half-Time Charlie[50%]	

Notice that the 5 days is still estimated though. It is best practice to now type in the 5 or uncheck the estimated checkbox so that we know that the five days is not estimated.