Handling Multiple Hours-Per-Days by Using Custom Field Formulas in

Microsoft® Office Project

Learn how to develop custom field formulas that help you to implement multiple hours-per-days in project plans easily in any desktop edition/version

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Multiple Hours-Per-Days
by Using Custom Field Formulas
in Microsoft® Office Project

An eBook for the users of all desktop editions/versions

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About the Author
Ismet Kocaman is a Management Consultant, Project Management Consultant, Technical Project Manager and a Mechanical Engineer with over 20 years of experience in the manufacturing sector.

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Other eBooks by the Author
Mastering Custom Field Formulas in Microsoft® Office Project
Using Microsoft® Office Project's Built-in Functions in Formulas
Text Reporting in Microsoft® Office Project

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Introduction

While building a project schedule in MS Project, most probably, it will be required to edit the default working/nonworking time patterns defined in the base calendar selected as the project calendar in order to customize them for the project being currently planned; or instead of using a modified base calendar, a new base calendar with the custom patterns can be created to be used as the project calendar. And then, if required, the project's time unit conversion factors associated with the three time periods and the default start/end times are set according to the project calendar; see the three boxes with spin buttons, **Hours per day**, **Hours per week**, and **Days per month** and the two boxes with drop-down lists, **Default start time** and **Default end time** on the **Schedule** tab of the **Project Options** dialog box.

All three settings, **Hours per day**, **Hours per week**, and **Days per month**, can be adjusted by either directly typing in numbers to the entry boxes or using the up and down arrows; each click in one of the arrows in the **Hours per week** box increments or decrements the number of hours by 8, while in the other two boxes, the same action changes the value just by one, up or down in the range from 0 to a definite upper limit. Therefore, for example, in order to set 45 hours for a week, one must enter 45 by typing in.

> NOTE -- Although MS Project uses all three settings, **Hours per day**, **Hours per week**, and **Days per month** in the time unit conversion calculations for both the work and the duration data, from this point on, they will be referred to as "duration unit conversion factors" in this eBook. The term "duration unit conversion factor" or "conversion factor" in short is not a product technical term.

Synchronization among all these settings ensures consistency in the project schedule's data either calculated/filled in by MS Project or entered by the user. Otherwise, for example, the default end time that MS Project automatically adds to a date value typed in to the **Deadline** field without time would not match the time at which a workday ends in the project calendar; or as another example, the number of duration minutes that MS Project stores to the **Duration** field when the duration "1 day" is entered to the field would not be equal to the common daily working hours, and hence the common daily working minutes, adjusted in the project calendar.

The project calendar is the global calendar which applies to the whole project, and it cannot be customized for individual tasks or group of tasks. At this point, MS Project's calendar feature enables us to define and apply task calendars to the tasks that need to be scheduled with the working/nonworking times different than the rest of the project in the same project plan file. For example, some tasks of a single location project or tasks at certain sites of a multi-location project may require the use of task calendars with different working/nonworking times in the same schedule. However, in such projects, the resulting data that the project schedule show may cause confusion if the user is not aware of MS Project's behavior in that both the duration unit conversion factors and the default start/end times, which are adjusted according to the project calendar, are also applied to the tasks with task calendars since it is not possible to set separate versions of these two groups of settings for each task calendar. This situation immediately leads to the following question, which will be answered in this eBook: how to deal with this behavior while scheduling such projects in MS Project ?

In this eBook, we will develop some custom elements to help MS Project users who want to apply non-default hours-per-day conversion factors and start/end times to the tasks scheduled according to the task calendars in the same project plan file. The model presented here is not a complete solution to the issue but rather a limited workaround for small projects in a single project plan file with no subprojects (i.e., inserted projects) and involves adjustments for the hours-per-day values only.

The content has been aimed at professionals who currently plan and manage projects by using MS Project, and therefore, who already have knowledge and skills to handle various calendars, and also to develop and maintain custom field formulas in MS Project. All the information presented in this eBook are based on the results of experimenting with the latest standalone desktop version of MS Project available at the time of writing this eBook. The examples in this eBook were developed and tested by using MS Project loaded with the latest updates.

Before getting started with developing the formulas, let us first see how MS Project makes use of the duration unit conversion factors while processing any duration or work data being entered to, or calculated in, a project schedule; and also how it affects the existing data in a schedule, if the duration unit conversion factors are changed afterwards.

How MS Project Uses Duration Unit Conversion Factors

In a project plan file, MS Project stores a project's duration and work data, either calculated by scheduling engine or entered by a user, as minutes in the duration type fields, such as **Duration**, **Duration1** and **Work**. Therefore, MS Project converts any value entered to any of those fields with a time unit such as hours, days, weeks and months to minutes and then stores it in the field. Conversion process takes place in the other direction as well; that is, any duration or work value calculated as minutes by the scheduling engine is converted to hours, days, weeks or months, based on the user's preferences, and then displayed in the associated fields.

In all conversion calculations, MS Project references the three duration unit conversion factors located on the **Schedule** tab of the **Project Options** dialog box. They are listed below with their default values and the corresponding working minutes calculations:

Hours per day: 8 (the number of working minutes in a day is 8 * 60)
Hours per week: 40 (the number of working minutes in a week is 40 * 60)
Days per month: 20 (the number of working minutes in a month is 20 * **Hours per day** * 60 or 20 * 8 * 60)

Note that those default values are in accordance with the base calendar **Standard** which is the default project calendar. No need to mention that the conversion factor from hours to minutes and vice versa never changes, but the conversion factors for days, weeks and months, listed above, can be custom set by the user, based on the requirements of the project environment.

On the **Schedule** tab, the default conversion factors listed above can be set to new values for the active project plan file, and if required, those new settings can also be adjusted to be the new MS Project defaults for all new projects by selecting it from the box **Calendar options for this project**.