Advanced Formula Techniques for MS Project Experts

Using

Microsoft® Office Project's

Built-in Functions in Formulas

Second Edition

Learn how to use the built-in functions below in formulas by examples

ProjDateAdd ProjDateValue ProjDurValue
ProjDateSub ProjDateConv ProjDurConv
ProjDateDiff

Add the powerful formulas developed in the book to your formula toolbox

Ismet Kocaman

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About the Author

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INTRODUCTION

INTRODUCTION

This book is composed of two parts; the Function Reference that explains how to use all the built-in functions listed under the Project category and the Formula Toolbox that contains a set of formulas developed by using the built-in functions.

The **Function** button in the **Formula** dialog box lists many built-in functions that can be used in the custom field formulas. As you may have already noticed, just seven of them have the function names starting with the prefix Proj. The following table lists all of them under the corresponding category and subcategory names:

Built-in Functions		
Project		
ProjDateAdd	**Conversion**	**Date/Time**
ProjDateSub	ProjDateConv	ProjDateAdd
ProjDateDiff	ProjDurConv	ProjDateSub
ProjDateConv		ProjDateDiff
ProjDurConv		ProjDateValue
ProjDateValue		ProjDurValue
ProjDurValue		

Those powerful functions are specific to MS Project and the product help article titled "Project functions for custom fields" is the only source of reference information on them (search on the product support website in order to locate the article). In the Function Reference part of the book, we will get into the details of all these functions and explore their lesser-known capabilities. This part of the book can be used as a reference manual for the functions.

Each section in the Formula Toolbox part explains all the steps of the formula development process in detail. Some advanced formula techniques are implemented in these sections. You can add the formulas developed in this part to your formula toolbox and start to use them right away while working on the project schedules.

The content of this book is only related to processing a project's task and resource data by using the custom field formulas, therefore no part of this book covers the topics related to managing projects with MS Project. Developing formulas for schedule health check and schedule quality assessment is outside the scope of this book.

A custom field formula cannot reference a user-defined function (i.e., a custom function created in MS Project's development environment), thus any instance of the term "function" stands for "built-in function in the Project category" throughout the book.

MS Project's backward compatibility and multi-language support features handle the necessary conversions for the components of the formulas while saving the current file to the file format of the previous versions, or while opening a file from the file format of the earlier versions, or while opening a project plan file created by using a version of the product installed in a system with a different locale. But it is strongly recommended that you always check the custom field formulas to ensure that they work correctly after any of these operations. Note that MS Project does not change any text enclosed in double quotation marks (that is, the strings) in formulas.

The name "MS Project" will be used throughout the book in place of the complete product name. The term "formulas" is to be used throughout the book as the plural form of "formula", instead of "formulae". The fields other than the custom fields are referred to as either "non-custom fields" or "regular fields" when we need to differentiate them from the custom fields in the context.

All the formulas have been tested with the version 1910 (Build 12130.20410 C2R) of MS Project Professional 2019 which was the latest standalone desktop version of the product that was available at the time of producing this book. Beware that the results from the formulas may change as the product is updated with the new public updates or service packs released, or when the formulas are used in the future versions of the product. The formulas presented in the book work in all the standalone desktop versions/editions of the product supporting the custom field formula feature unless stated otherwise in the text.

There is no particular convention in using font color or background color in the text as the only purpose with the color formatting of the text is to make some information easy to see for the readers.

The content of this book has been developed on a 32-bit computer system. If you use 64-bit version of the product, you are not going to experience any compatibility issues with the content, as far as the custom field formulas are concerned. Just in case, check the product specifications related to the custom fields for the 64-bit version of the product.

INTRODUCTION

As an MS Project user who already has knowledge and skills to develop and maintain custom field formulas, you can create powerful formulas by utilizing the formula techniques and the features of the built-in Project functions discussed in detail in this book ■

Calculating Fiscal Information to Display on the Tables

Any tier of the timescale in any view can display fiscal information based on the **Fiscal year starts in** setting on the **Schedule** tab of the **Project Options** dialog box. On the other hand, this feature is not available on the table part. Therefore, we will now develop formulas to calculate the fiscal year, the fiscal quarter and the fiscal week numbers corresponding to the calendar dates and then display them on the table part of a view.

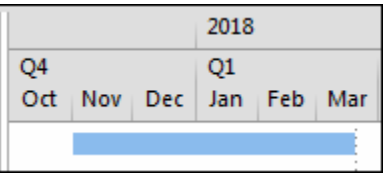
> **IMPORTANT NOTE |** The purpose of developing these formulas is not to implement different models for the fiscal year, but instead, to have a consistent look between the fiscal information shown on the timescale and the corresponding information displayed on the task date fields of a task table.
>
> Do not make any decisions, especially including the financial ones, based on the fiscal information calculated by using the formulas developed here. Instead, use them just for information and always verify the results by comparing them with the timescale's fiscal information and/or by using other financial calendar tools in your project environment ■

Let us first explore how MS Project's local settings for the fiscal year work before starting to develop formulas to calculate any fiscal information based on the calendar dates specified.

How Do Fiscal Year Related Settings Work ?

Consider the simple schedule below, where both the fields of the table and the tiers of the timescale show the same date information, as we would expect:

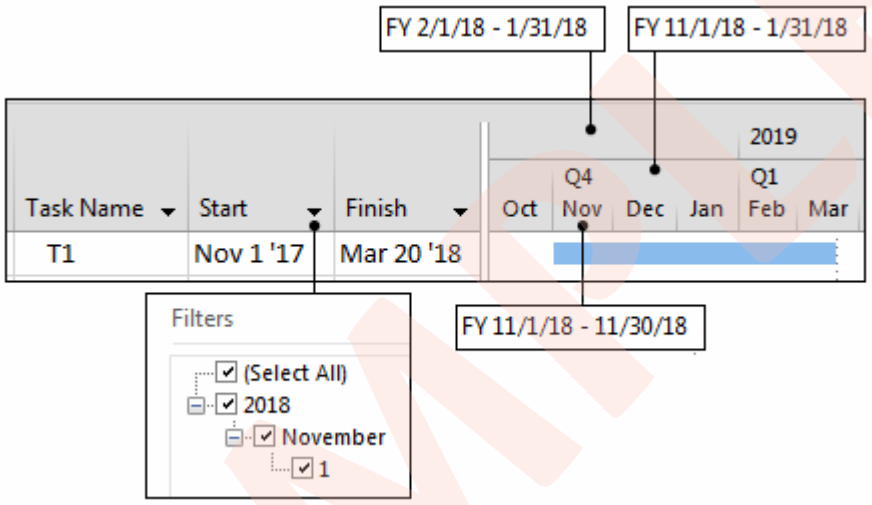
Task Name	Start	Finish
T1	Nov 1 '17	Mar 20 '18



Calculating Fiscal Information

Suppose that the fiscal year begins in February, so let us now set the **Fiscal year starts in** box to February, but keep the current setting of the checkbox **Use starting year for FY numbering** which is unchecked by default initially. Note that this checkbox is activated only when a month name other than January is selected in the **Fiscal year starts in** box. The schedule now looks like this:

Fiscal year starts in: <February>
[ ] Use starting year for FY numbering (the default setting)



MS Project displays the range of dates for the fiscal year, the fiscal quarter and the month in response to holding the mouse pointer over the tiers of the timescale as it is seen in the pictures. All the tip boxes show the date ranges prefixed with the label FY, which represents the fiscal year. The calendar dropdowns in the cells and the date fields show the calendar year even though the AutoFilter uses the fiscal year. Note that the day numbers and the month names for the task dates are always the same on the timescale but the quarter and year labels on top of them are arranged according to the fiscal year setting. The month February is always the second calendar month in the calendar years while it is now the first month of every fiscal year.

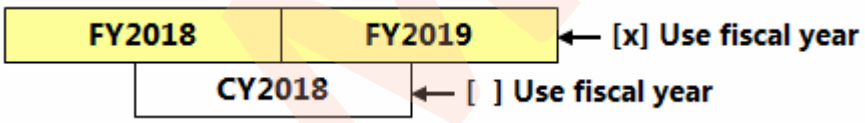
Calculating Fiscal Information

In the **Timescale** dialog box, the **Use fiscal year** checkbox is turned on by default for all the tiers, so the timescale shows the fiscal years and the fiscal quarters; thus, the year labels are arranged as follows:

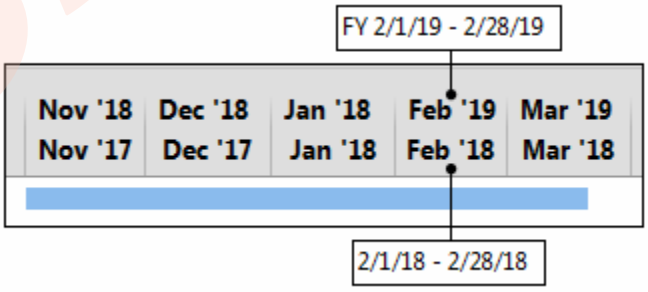
Fiscal year starts in: <February>
[ ] Use starting year for FY numbering (the default setting)

The picture below presents a simple version of the demonstration above, on how the timescale numbers (or labels) the fiscal years with reference to the calendar year 2018 (CY2018) on the tiers showing years, based on the setting of the checkbox **Use starting year for FY numbering**. In this configuration, any fiscal year ends in the calendar year which it is numbered with. Thus, FY2018 ends in CY2018:

[ ] Use starting year for FY numbering (default)



Alternatively, the tiers of the timescale can be compared in order to see how not using the starting year for FY numbering affects labeling. Thus, the following picture shows timescale with two tiers of Months, with the bottom tier not using the fiscal year (that is, the **Use fiscal year** checkbox is unchecked):

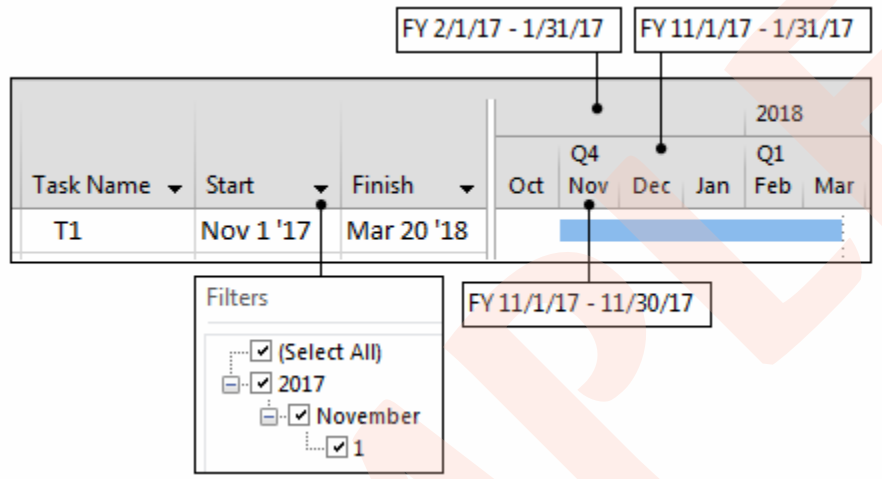


As it is seen in the labels above, the fiscal year 2018 ends in the calendar year 2018.

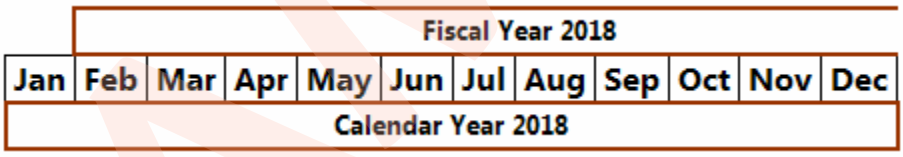
Calculating Fiscal Information

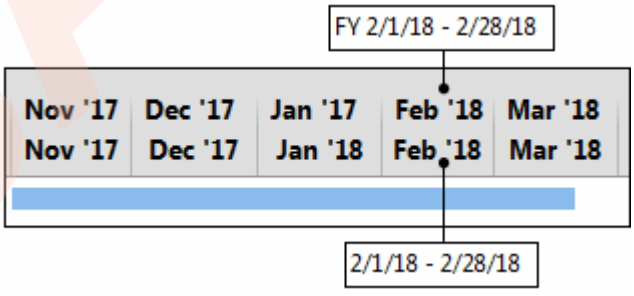
Let us now turn on the **Use starting year for FY numbering** checkbox and see how the timescale's fiscal year labeling changes, as shown below:

Fiscal year starts in: <February>
[x] Use starting year for FY numbering



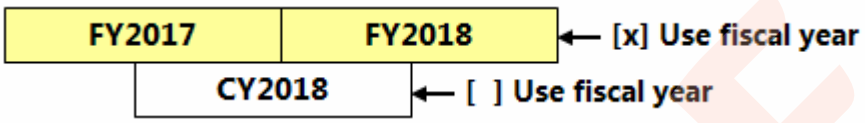
The following pictures show how the fiscal year labeling on the top tier changes:





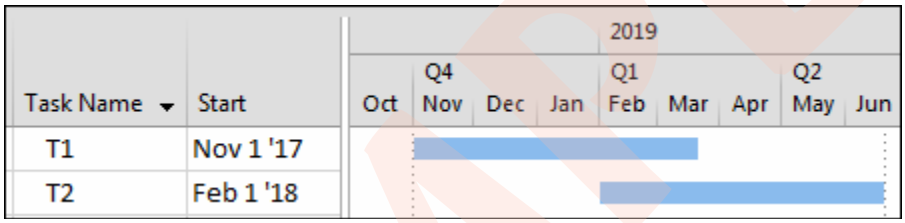
Note that, this time, the fiscal year 2018 begins in the calendar year 2018. In the following configuration, any fiscal year starts in the calendar year with which it is numbered. Thus, FY2018 starts in CY2018.

[x] Use starting year for FY numbering



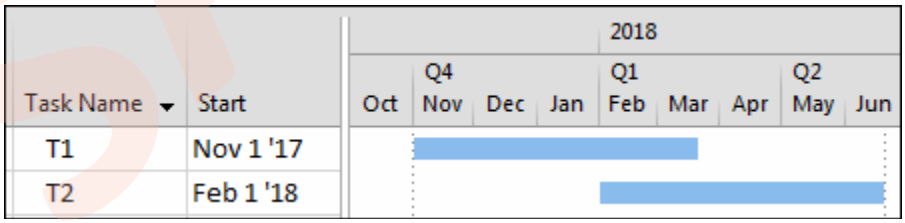
As another example, consider the timescale of the simple schedule below, where the fiscal year starts in February:

[ ] Use starting year for FY numbering



Note on the change in the fiscal year number from FY2019 to FY2018 on the top tier of the timescale in the picture below, when the checkbox is turned on. Therefore, the fiscal quarter #1 of the fiscal year 2018 (FQ1/FY2018) now starts in February of the calendar year 2018. The fiscal quarter labels with reference to the month names remain unchanged, as we would expect.

[x] Use starting year for FY numbering



It is important to note that, as it is seen in the examples above, the fiscal year settings do not affect tasks' start and finish dates or any other date information stored in the date type fields as well as MS Project's scheduling calculations on the dates. Instead, they only affect how the AutoFilter pane displays the year numbers in the date type fields and also how the timescale tiers show the periods of the dates.

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