

# How to Easily Convert Dates to Numbers in Excel

Authored by  
**stats writer**

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Understanding how Microsoft Excel handles temporal data is fundamental for complex spreadsheet management and analysis. Unlike typical software that might store dates as text strings, Excel converts dates into a numerical format, known as a serial number. This specialized approach allows users to perform sophisticated calculations, sort data chronologically, and measure elapsed time accurately.

The core mechanism for this conversion involves assigning the integer value 1 to January 1, 1900, which serves as the base date, often referred to as the Excel epoch. Every subsequent day is then assigned an incrementally higher integer. For instance, January 2, 1900, is represented by the number 2. When you see a date like 2/10/2022 in a cell, Excel is internally recognizing it as a large integer--the number of days elapsed since the benchmark date of 1/1/1900. This numerical representation is crucial for any time-based operation.

While Excel often performs this conversion automatically when you input a valid date format, there are numerous scenarios where explicit conversion is necessary, particularly when dealing with imported data that is formatted as text. For these explicit conversions, two primary methods are employed: utilizing the specialized DATEVALUE function, or simply adjusting the cell's formatting settings. This tutorial will explore these methods in depth, providing clear, structured examples for converting dates in various contexts.

This comprehensive guide is structured to detail the process of converting dates into their corresponding numerical values across three primary scenarios, addressing both single data points and large datasets:

1. Converting a Single Date Using the DATEVALUE Function.
2. Converting Multiple Dates Simultaneously Using Formatting.
3. Calculating the Number of Days Elapsed Between Two Specific Dates using the DATEDIF function.

Let us now proceed with a detailed examination of these techniques.

## The Excel Serial Date System: A Necessary Foundation

Before diving into the conversion methods, it is imperative to grasp the concept of the serial date system. Excel relies on this system to ensure accurate chronological operations. Every single date within the program is ultimately stored as a floating-point number. The integer part of this number represents the date itself--the total number of full days since January 1, 1900--and the fractional part (the decimal) represents the time of day.

For instance, if a date converts to 44602, it means 44,602 full days have passed since the base date of January 1, 1900. If the value were 44602.5, the integer portion indicates the date, while the .5 represents noon (12:00 PM), or half a day. Understanding this numerical basis demystifies why date conversion is necessary when you are attempting to use dates in calculations where Excel might misinterpret them as text strings, particularly after importing data from external databases or legacy systems.

It is important to highlight that this standard numerical convention ensures consistency and uniformity across complex financial models, project timelines, and scientific data analysis where precise calculation of time intervals is paramount. When we convert a date to a number, we are essentially revealing this hidden numerical identity that Excel uses internally.

## Utilizing the DATEVALUE Function for Explicit Conversion

The most straightforward and explicit method for converting a date that is stored as a text string into a numerical serial value is by employing the DATEVALUE function. This function is specifically designed to recognize date formats embedded within text and transform them into the corresponding serial integer that Excel utilizes for date tracking.

The syntax for the function is concise: `=DATEVALUE(date_text)`, where the `date_text` argument must be a text string representing a recognizable date format, or a reference to a cell containing such a string. If the input text cannot be parsed into a valid date, the function will return the `#VALUE!` error. This reliance on text input makes DATEVALUE exceptionally useful for cleaning up non-standardized imported datasets.

Crucially, the DATEVALUE function only handles the date portion and completely disregards any time components. If your source text contains time information (e.g., "2/10/2022 10:30 AM"), the output will still be the integer serial number corresponding to the date, without the fractional part that represents the time.

## Case Study: Converting a Single Date Using DATEVALUE

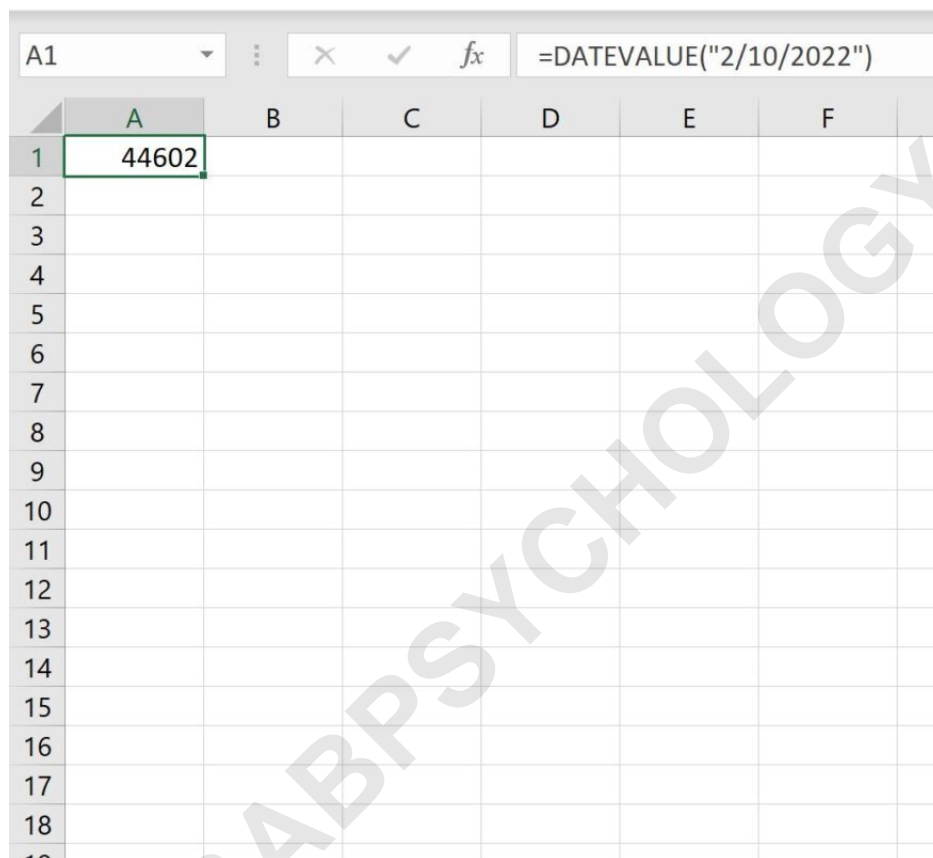
Consider a practical scenario where we have a specific date, such as "2/10/2022," which we need to convert into its underlying numerical value within Excel. This date might have been manually typed or imported in a format that Excel currently treats strictly as text.

To achieve this precise numerical conversion, we must invoke the **DATEVALUE** function directly, passing the date string as the required argument. The necessary formula, assuming we are entering the date directly into the function rather than referencing a cell, would look like the following:

## **=DATEVALUE("2/10/2022")**

Upon execution, this function calculates the total number of days that have elapsed between the specified date and the Excel epoch date of **January 1, 1900**. This result is the unique serial number associated with February 10, 2022.

The following illustration demonstrates the application of this function and the resulting numerical output in a standard Excel environment:



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	44602					
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

As shown in the output, the formula returns the value **44,602**. This critical piece of information confirms that there is exactly a difference of **44,602** days between the starting point of 1/1/1900 and the target date of 2/10/2022. Once converted to this numerical format, the cell content can be reliably used in complex time-series analysis and date subtraction operations.

## **Converting Multiple Dates Quickly via Number Formatting**

While the DATEVALUE function is effective for text-based dates, there is an even faster technique for mass conversion, provided the dates are already recognized by Excel as valid date objects, even if they are currently displayed in a date format (e.g., mm/dd/yyyy). This method relies purely

on manipulating the cell's formatting without altering the underlying numerical value.

Suppose we are presented with a substantial list of dates, typically found in a column within a dataset. Although these cells look like dates, their true value is the serial number. By simply instructing Excel to display this serial number instead of the formatted date, we can achieve instant conversion for the entire range.

Consider the following list of dates, which are currently formatted for readability but need to be revealed in their numerical state for analytical purposes:

	A	B	C	D	E	F
1	1/4/2022					
2	1/9/2022					
3	1/15/2022					
4	1/16/2022					
5	2/3/2022					
6	2/5/2022					
7	2/11/2022					
8	2/15/2022					
9	2/27/2022					
10	3/5/2022					
11	3/14/2022					
12						
13						
14						
15						
16						
17						

This bulk conversion process is highly efficient and is the preferred method when the data integrity--that is, the correct recognition of the date by Excel--is already confirmed. The simplicity of this technique stems from the fact that all date and time display options in Excel are merely custom views of the same underlying numerical data.

### Step-by-Step Guide: Applying Number Formatting for Date Conversion

To convert an array of dates using the formatting technique, follow these precise steps within the Excel interface. This process ensures that the internal serial number is revealed without requiring any complex formula application or data manipulation.

**Selection:** Identify and highlight the entire range of cells containing the dates you wish to convert

to numerical values.

**Navigation:** Navigate to the **Home** tab located in the Excel ribbon interface.

**Formatting:** Locate the **Number** group within the Home tab. Click the **Number format** dropdown menu (usually displaying "Date," "General," or a specific date format).

**Execution:** Select the **Number** option from the list of available formats. This action instructs Excel to display the underlying numerical content of the cell, rather than the date-specific format currently applied.

The process involves highlighting the range of cells that contain the dates, then clicking the **Number format** dropdown menu on the **Home** tab and choosing **Number**:

The screenshot shows the Microsoft Excel interface with the Home tab selected. The ribbon includes options for File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Developer, and Help. The Font group shows Calibri font and size 11. The Alignment group is visible. The Number format dropdown menu is open, showing various options: General (No specific format), Number (44565.00), Currency (\$44,565.00), Accounting (\$44,565.00), Short Date (1/4/2022), Long Date (Tuesday, January 4, 2022), Time (12:00:00 AM), Percentage (4456500.00%), and Fraction (44565). The spreadsheet shows a list of dates in column A from row 1 to 11, with the formula bar displaying 1/4/2022.

	A	B	C	D	E	F	G
1	1/4/2022						
2	1/9/2022						
3	1/15/2022						
4	1/16/2022						
5	2/3/2022						
6	2/5/2022						
7	2/11/2022						
8	2/15/2022						
9	2/27/2022						
10	3/5/2022						
11	3/14/2022						
12							
13							
14							
15							
16							

Upon successful application of the Number format, Excel will instantaneously convert the visual representation of each date. This result explicitly shows the numerical difference between each date and the foundational date of **1/1/1900**:

	A	B	C	D	E	F
1	44565.00					
2	44570.00					
3	44576.00					
4	44577.00					
5	44595.00					
6	44597.00					
7	44603.00					
8	44607.00					
9	44619.00					
10	44625.00					
11	44634.00					
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

It is important to understand that this operation does not change the data type itself; if the original cells were already numerical dates, this action merely changes how those numbers are presented. If the cells were text strings, this method would fail, necessitating the use of the [DATEVALUE](#) function first to coerce them into numerical data before formatting can take effect.

## Calculating the Difference Between Two Dates Using DATEDIF

Beyond simply converting a date to its static serial number, a common analytical requirement involves calculating the exact number of days, months, or years elapsed between two distinct dates. For this specific calculation, Excel provides the highly versatile, albeit somewhat hidden, [DATEDIF](#) function. This function is essential for measuring duration in fields like finance (loan maturity), project management (task duration), and human resources (service tenure).

The [DATEDIF](#) function calculates the count of days (or other intervals) between two date values. The structure requires three arguments: the start date, the end date, and the unit of time you wish to measure the difference in. When the goal is to find the total number of days, the unit parameter must be set to "d" (for days).

The general structure for using this powerful time calculation formula is as follows:

**=DATEDIF(start\_date, end\_date, "unit")**

If, for example, we wish to calculate the duration in days between a date in cell **B2** (the start date) and a date in cell **A2** (the end date), the implementation of the formula would be written precisely as:

**=DATEDIF(B2, A2, "d")**

This particular configuration calculates the precise count of days between the date contained in cell **B2** and the date found in cell **A2**, providing a relative measure instead of the absolute serial number derived from 1/1/1900.

## Interpreting DATEDIF Results and Syntax Units

To fully leverage the capabilities of the DATEDIF function, it is essential to understand the various unit codes that can be used in the third argument. While "d" specifically returns the difference in total days, other codes allow for measuring time in years, months, or compound units.

"**Y**": Returns the number of complete years in the interval.

"**M**": Returns the number of complete months in the interval.

"**D**": Returns the total number of days in the interval.

"**YM**": Returns the number of months remaining after subtracting full years.

"**YD**": Returns the number of days remaining after subtracting full years.

"**MD**": Returns the number of days remaining after subtracting full months and years.

In the following demonstration, we apply the **DATEDIF** formula to calculate the number of days elapsed between the dates listed in column A and a fixed reference date of 1/1/2022:

B2    fx    =DATEDIF(\$E\$1, A2, "d")						
	A	B	C	D	E	F
1	<b>Date</b>	<b>Date Difference</b>		<b>Starting Date</b>	1/1/2022	
2	1/4/2022	3				
3	1/9/2022	8				
4	1/15/2022	14				
5	1/16/2022	15				
6	2/3/2022	33				
7	2/5/2022	35				
8	2/11/2022	41				
9	2/15/2022	45				
10	2/27/2022	57				
11	3/5/2022	63				
12	3/14/2022	72				
13						
14						
15						
16						
17						
18						
19						

The resulting values in column B are interpreted as the differential number of days from the reference date (1/1/2022) to the dates listed in column A. Specifically:

For the first entry, there are **3** days between 1/1/2022 and 1/4/2022.

For the second entry, there are **8** days between 1/1/2022 and 1/9/2022.

For the third entry, there are **14** days between 1/1/2022 and 1/15/2022.

This powerful functionality allows analysts to derive precise temporal differences necessary for metrics such as inventory turnover or age calculations, providing highly actionable numerical data from standard date inputs.

## Conclusion: Mastering Date Conversion in Excel

The ability to reliably convert dates into their numerical counterparts is a cornerstone of effective data management and analysis in Excel. Whether you are dealing with text strings requiring the explicit coercion provided by the DATEVALUE function, or simply adjusting the display format for recognized dates, these techniques ensure your temporal data is ready for computation.

Furthermore, leveraging functions like DATEDIF allows you to move beyond simple serial numbering to derive complex time intervals, transforming raw dates into meaningful metrics.

Mastering these conversion methods guarantees data accuracy and flexibility, which are essential prerequisites for advanced spreadsheet operations.

By applying these robust functions and formatting techniques, users gain complete control over how time is represented and manipulated within their datasets, ensuring maximum efficiency and reliability in all date-related calculations.

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