How Many Days…? Documentation

September 1992 for version 1.2.2

Thank you for looking at *How Many Days…?*. I had fun creating it; I hope you have fun using it. The full *How Many Days…?* package consists of the *How Many Days…?* Documentation (this file you are now reading), *A Brief History of Calendar Reform*, and the *How Many Days…?* application.

Revision History:
1.2.2: Sept '92—Bug fix. Under 1.2 and 1.2.1, finding a date under certain conditions would result in an invalid date appearing. For example, finding a day 20 days after 9/20/1918 in Western Russia would result in 9/40/1918.
1.2.1: Aug '92—Unreleased refinement. Clicking the close box no longer immediately quit the program (you have to release the mouse button in the close box too).
1.2: July '92—finds dates given a number of days to/from another date.
1.1: June '92—first released version.

What does *How Many Days…?* do?

How Many Days…? does one thing, and one thing only: it calculates the number of days between any two dates from the year 1 up to and including the year 4000. Or, given a date and a number of days to or from the given date, *How Many Days…?* will find the date sought. The dates may be expressed in either the Julian calendar (started by Julius Caesar in the year 45 BC) or the Julian calendar's successor, the Gregorian calendar (instigated by Pope Gregory in 1582 AD, and adapted by nearly every country in the world in the 400 years since then). Sorry, *How Many Days…?* does not (as yet) handle converting dates from other calendars.

Why use *How Many Days…?* instead of a spreadsheet program that performs date arithmetic?

Reason 1: To the best of my knowledge (i.e., Lotus 1-2-3 for the Macintosh and Microsoft Excel), spreadsheet date arithmetic is pretty much limited to dates around 1900 (1904 for Excel) through 2099 (2078 for Excel). Before *How Many Days…?*, you would have quite a challenge in figuring out the number of days for dates outside that range.

Reason 2: Even after 1904 some countries—Russia for one—were still using the Julian calendar. Using a Julian Calendar date in a spreadsheet program that assumes the Gregorian calendar results in an incorrect answer. *How Many Days…?* lets you choose the calendar to use. In some instances (and more to come later) *How Many Days…?* lets you simply select a country in order to automatically use whatever calendar was in effect on the date you choose.

Reason 3: *How Many Days…?* loads and runs much faster than any spreadsheet. Plus you do not have to figure out a spreadsheet's formula for date arithmetic.

Why count the number of days at all?

From what I have heard from users of v1.1, one business application is to find the cutoff date for purchasing discount tickets when the tickets must be purchased 'x' number of days before they are used. If one needs to know the number of the days since the beginning of the year (the Julian Date—note that this is not the same as the Julian Calendar!), *How Many Days…?* can calculate it.

For home users, once you start to realize there haven't been all that many days since the year 1, you may start feeling more of a connection to the past. For example, when I was in elementary school a year to me was a long time. A *real* long time. So long that I could not comprehend an amount of time such as the 450 years it had been since Columbus discovered America. But a single day…now **that** I could relate to. Even though the numbers are large, to see that the number of days grew daily—172,150 days, 172,151 days, 172,153 days— well, that almost makes history come alive.

Where are the countries *How Many Days…?* can adjust calendars for?

As of version 1.2, *How Many Days…?* takes into account the calendar(s) in use by Great Britain, the United States, Russia, Belgium, Denmark, Spain, Italy, Portugal, France, and Hungary. If your favorite country is not on this

list, you can choose to use either the Julian calender or the Gregorian calendar—if you know which is appropriate for the time.

Why does the country matter at all? The Gregorian calendar was not universally accepted by the countries of the world. As it was Pope Gregory XIII that ordered the change, Catholic countries adapted it reasonably quickly. Other Christian countries took longer as they resisted 'popery' telling them what to do. Non-christian countries generally ignored the calendar altogether until it was adapted for convenience in business transactions with the rest of the world.

For what years is *How Many Days…?* accurate?

How Many Days…? is accurate from the year 1 to the year 4000, with some cautions.

a) **Leap Year Day** has not always been celebrated on February 29. During the Roman times it was celebrated on our February 24—with February 24 occurring *twice* in a leap year. Over the centuries leap year day has changed; I am still researching its travels by year and by country. In the meantime, I have assumed a February 29 leap day. If either of your dates falls between February 24 and February 29, be aware that the result may need adjusting by a day.

b) **New Year's day** has also moved. However, when Julius Caesar instituted his calendar he set January 1 as new year's day. Generally this date has been observed as the historical start of the new year. But after the Roman Empire crumbled, different regions reverted to whatever day was their 'original' new year's day. Some professions, countries, religions, … observed a different date as new year's day—those more considerate of us living today would also reference the historical date if there was a chance of ambiguity. *How Many Days…?* needs the historical date for its calculations, and thus requires you to use the year beginning January 1. (Version 2 should be able to take into account at least some regions' different new years dates.)

c) **Unless you are working from original documents**, you may not know what calendar a date is from—textbooks may have converted a Julian date into a Gregorian date "for your convenience." For example, the British Empire and colonies—the United States today, as well as portions of Canada—converted to the Gregorian calendar in 1752. But as the United States was formed shortly afterwards, a good number of important dates

before 1752 have been converted to the Gregorian calendar for us by the history book writers.

Here's an example: George Washington was born February 11, 1731 according to the Julian calendar & British civil new year's date then in use. The British Empire changed to the Gregorian calendar in 1752, and at the same time moved its 'civil' new year's day from March 25 to agree with the historical new year's day of January 1. Thus February 11, 1731 (Julian calendar, British civil date) is the same as February 11, 1732 (Julian calendar, historical new year's date) and is the same as February 22, 1732 (Gregorian Calendar). We in the United States have been spared this conversion by the history writers at the cost of our not knowing about the great calendar switch of 1752, and of now being uncertain whether a date before 1752 is the original Julian date (with the historical new year or the civil new year being specified) or whether the date has been converted to the Gregorian calendar for us.

How did *How Many Days…?* develop?

It all started with my oldest daughter (six years old) asking me how old she was.

 When I told her, she said, "No Daddy, I mean how many

days old am I?!" Kids…what can one do about them? What I did was fire up Lotus 1-2-3 for the Macintosh, worked out the formulas, and told her. If you have children, you know that questions lead to more questions, so finally I was working back to how many days old I was, Grandma was, Great-Grandma, and …. oops. 1900 is the limit for most spreadsheets.

Not one to give up so easily (besides, I was beginning to be curious myself!), I put to good use all the effort I had gone through teaching myself "C" using Think C and Dave Mark's wonderful *Learn C* & *Macintosh Primer* books. I found a date arithmetic algorithm and started in, aiming to come up with a program similar to the *Finances DA* by Ed Neu © 1989 Softdisk, Inc.

A footnote in the book from which I got the date algorithm (a 1-day adjustment needs to be made for dates before 1900, and a 2 day adjustment for dates before 1800) got me started into calendar research. Taking into account different countries adoptions of the Gregorian calendar, the changing new years day, the changing leap year days, the proposals for a new world calendar, and so on, made for a most interesting project. Plus I won a few bets in the process.

Can I customize *How Many Days…?*

Why, yes, to a point. If you are handy with ResEdit, you can **deactivate** two static text boxes to be the equivalent of command-U (the Gregorian Calendar dialog). I activated these text boxes because—in spite of my beta tester's opinions—it made switching calendars faster than having to pull down the calendar menu. (And in a bit of foreshadowing for version 2, this approximates the pop-up menus that I'm now working on)

If you prefer to enter dates in day-month-year order, or year-month-day order, or whatever, you can *carefully* rearrange the position of the boxes. I say carefully because there are really two text boxes involved for each of the fields, and one is stacked on top of the other. If you just click on the top one, you will move it and not the bottom one, and quickly things will get messy. If you are faint of heart, then don't try this!

Detailed instructions:
A) To deactivate the static text boxes:
Open DITL 404, the "main dialog" DITL. Double-click on the static text reading "(Gregorian Calendar)" for the first date. This should be item #36. The DITL resource editor will appear as shown. Click on the check box marked Enabled. Close the DITL editor and then double click on item #37 to repeat the process. When you are finished, close & save the resource, then start *How Many Days…?*. When you click on the static text, the Gregorian Calendar Adoption dialog box will no longer appear.

B) To rearrange the month/day/year order in entering dates:
You need to be careful on this one. There are really two dialog items taking up the same space on the dates. What is necessary is to make sure you select both dates before you start moving them around.

Begin by opening DITL 404, the "main dialog" DITL. **Don't click *on*** the dates: drag the cursor *across* the dates you desire. **Do not drag across any other DITL item**, or you will select it too. When you let go, both the static and edit text dates are selected. You may then move both of them together to rearrange the order. Remember to move the "month/day/year" description also.

What's next for *How Many Days…?*

No software is ever finished. Such is the case for *How Many Days…?.* I plan on incorporating the remaining suggestions I received from my Beta testers plus a few items I wanted to incorporate but were not absolutely necessary to get *How Many Days…?* up and running. Planned for future releases are (in the order, more-or-less, that I think I can put these in):

  * as research comes along, add more countries to the (active) selection listing. This listing will probably change from the current dialog box to a pop-up menu as I'm finding out there are a zillion different times when countries converted calendars.

* auto highlighting of the TextEdit field during the error message
* pop-up month menu with the months spelled out (I always have trouble with the later months…is "9" August or September?!)
* better feedback to the user when 'calculate' is chosen.
* 'style sheets' for the dates, where one can set all options at once.
* a 'log' file showing all date calculations, to allow for cutting/copying into another Macintosh application
* user-definable default/reset dates, accessed through the menu or command-keys.

If you have suggestions not listed above, please send them to me. I'll do my best to incorporate them into future releases.

Known bugs:
To date, I know of only one bug, and just between you and me, let's call it a product feature. If you go wild & type in too many digits for a month, day, or year, the text will wrap down the tiny little box I gave you. If you calculate the date, error dialogs will appear giving you the opportunity to correct the invalid date. If you do correct it & continue with the calculation, the cursor will still be placed where it had wrapped, which is now far below the date, or the cursor may be off to the right, and some digits will be hidden by the left boundary of the text edit block. Hitting the 'tab' key will reset the TextEdit block and make everything nice again. I'll fix this as soon as I learn more about the mysteries of TextEdit, which is now at the top of my 'to-do' listing.

Bug reports should also be sent to me. Even if you can't afford to pay the shareware fee, I'd still like to know about any problems encountered. For the record, I and my Beta Testers did try *How Many Days…?* on Systems 6.07, 7.0, and 7.0 with the system 7 tune-up (1.0 and 1.1.1), and we used the following machines: Macintosh Portable, SE/30, IIx, IIcx, IIsi, IIci. We also ran it on the IIci with 32 bit addressing on.

Shareware fee

How Many Days…? is shareware. If, after trying it out for a while, you decide you like it and wish to keep it, please send $7.75 (that's just seven dollars and seventy-five cents) to Robert Howe, 5280 Sharon Lane, Placerville, CA 95667.

It's not that I need the money. My employer—the State of California—is now paying employees with I.O.U.s but that's ok. I'm sure the mortgage company will accept the state's IOU. And my kids don't need to eat; really,

they don't. And my Macintosh has Apple's famous warranty so I'm sure that will be

ok too. No, what really needs the money is my bicycle. The

handlebars and seat spring have cracked from age and metal fatigue, and require replacements which must be machined from scratch. That is an expensive proposition. So please, send in your shareware fee. If you include a disk and a self-addressed stamped envelope I will send you the latest version of *How Many Days…?.*

Thanks to:

◊ Everett for discovering and letting me know about the bug in finding dates. Hope you and Bella enjoyed the dinner at Lyon's!

◊ Price Club, for selling the PowerBook 100s (4/40 w floppy drive) for $899. I traded in my old portable for $1,000 so I can once again ride my bicycle to work.

◊ Bob Annenberg of MacNexus in Sacramento who suggested that *How Many Days…?* find a date given a number of days from/to another. Others had suggested this, but Bob pointed out examples of when it would actually be useful. His suggestion came within 24 hours of the release of version 1.1; it is the primary improvement for version 1.2.

◊ James Divine from West Richland, Washington who asked for more detail regarding the history of the calendar. I wasn't sure if anyone would be interested; glad to know that at least one person is. The detail is presented in the file "A Brief History of Calendar Reform."

A BIG thank you to all my v 1.1 beta testers: Anita Hay, Laura Lunetta, and Mark Taber (version 1.1) Your suggestions were invaluable. Chips and salsa are on me next time. Good luck at Telos, Mark. (BTW, Michelle has your Mac. And Pat Gavia has taken over your office.) Laura: thanks for posting *How Many Days…?* on CompuServe and MacNexus.

Finally, to Unfriendly Loans, for helping finance this whole venture. I'll make the next payment on time, I promise—if the shareware fees come in.

And the fine print:

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