

# The Year 2000 Challenge

A Guide for Home Computers

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## Frequently Asked Questions

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### 1. What is the year 2000 problem?

The year 2000 problem, commonly known as Y2K, is a computing issue related to the way computers handle and store date information. A date-related computing issue in any one of three areas of your PC system (hardware, software and personal data files) can potentially cause problems.

- The year 2000 issue stems from three principal causes. Personal computers, even if new, are not immune to these risks. Because the year 2000 issue has multiple causes and is varied in its impact, there is no one-size-fits-all solution to address it.

The three major contributing causes to the year 2000 issue are:

- **The use of two digits to represent a four-digit calendar year.**

This is the most common source of year 2000 problems. Errors may occur because of the way that software or hardware handles dates that are represented by only the last two digits of the year, excluding specific information about the century. Interpretation of two-digit years always requires an assumption or interpretation about the intended century.

- As we enter the next century, a computer system that incorrectly interprets the new century as 1900, instead of 2000, will be at risk; calculations based on dates in the “new” century will be calculated from the year 1900 instead of the year 2000. For example:  $2000 - 1998 = 2$  but  $1900 - 1998 = -98$  (or 98 if the software program does not permit negative numbers).

- **The year 2000 is a special-case leap year.**

Because a special-case leap year occurs once only every 400 years, some software may not recognize the year 2000 as a leap year. (Years ending in 00 are not leap years—unless they are divisible by 400.) If the formula for determining a leap year does not include special-case occurrences, dates following February 28, 2000 will be offset by one day.

- **Programmers’ use of dates for special meanings.**

Older software programs, particularly custom software programs, may contain dates that have special program-related meanings. The most well-known example is the date 9/9/99, which may have been used by a programmer to indicate such meanings as “save this data item forever,” “remove this data item automatically after 30 days,” or “sort this data item to the top of the report.” Different “special dates” may have been assigned different “special meanings,” depending on the programmer and the program. This is why it is so difficult to track down potential problems within older or custom programs.

### 2. Why do we have this problem?

In the 1940s & 50s, there was limited space on 40 and 80-column punch cards. In the 1970s, computer memory was very expensive. Conserving just two bytes per record in memory (the “19” of 1975, for example) allowed software developers to be more efficient and save millions of dollars for their companies. These programming practices continued because the turn-of-the-century seemed far in the future. Good programming practice now calls for year 2000 aware date-handling methods, but many programs—particularly older or custom ones— must be assessed to determine their readiness for the year 2000.

Another source of the problem is sociological—the everyday tendency for people to use two-digit shortcuts to indicate the calendar year. As a result, many computer users have included two-digit date shortcuts (for example, 98 for 1998) throughout their documents and spreadsheets. This seemingly innocent and timesaving practice is another major cause of the year 2000 issue.

**3. What kinds of computers are affected by the year 2000 problem?**

The greatest concern is for large computer systems using software programs written many years ago. Yet all computer systems—mainframe, mini, UNIX, PC, and even devices that have embedded microchips—must be assessed to determine their readiness for the year 2000.

**4. I purchased my computer last year. Because it is new, isn't it immune to year 2000 issues?**

Not necessarily. Though it is likely that your PC's hardware (clock/BIOS) is ready for the year 2000, it is best to confirm this with the PC manufacturer. You should also confirm that your software and personal data files are ready for the year 2000. See the Web site section "Exploring Your PC" for more information about the parts of your computer system that may be at risk for year 2000 issues.

**5. I've heard that the year 2000 issue is a virus. Will virus detection software resolve these issues?**

No, the year 2000 issue is not caused by or related to a virus. It mainly stems from the decades-long practice of using two-digit years, a practice that demands interpretation or assumption of the century. And in some cases, it stems from the fact that the year 2000 is a "special case" leap year. Running virus detection software will not address or remedy any year 2000 issues.

**6. What are some potential types of year 2000 issues?**

The impact of year 2000 will depend on the particular computer system—its hardware, software, and personal data files—and the **types of tasks for which your computer is used**.

Possible scenarios in the new century include:

- Your computer starts but says the date is 1900, making the dates on new files you create appear to be one century old (when viewed in "My Computer").
- Calculations or time-sensitive events (such as automatic billings or check payments) in your financial management program become inaccurate, revealing your computer system's misinterpretation of the date, and calculations based on that date.
- The spreadsheet program that you use to determine mortgage payments provides unusual numbers after its calculations, revealing your computer system's mis-interpretation of the date, and calculations based on that date.
- The letter template that you regularly use, which includes an automatic date entry, shows January 1, 1900.
- You notice absolutely nothing unusual.

**7. What is Microsoft's year 2000 strategy for helping home and small business PC owners?**

Microsoft is committed to actively help home and small business customers address year 2000 issues by increasing customer awareness and education, and by providing resources to help customers get ready. Some of these resources include:

- **Year 2000 Consumer Web site**

This site has been designed to help nonprofessional IT computer users understand the year 2000 challenge. It presents an overview of the year 2000 challenge as it relates to the home PC, offers a course of action for addressing and resolving these issue, and lists abundant resources for getting ready for the year 2000.

- **Year 2000 toll-free phone number**

Microsoft has launched a toll-free information line for customers who do not have Web access and would like to receive information by fax or e-mail. This number is (888) MSFT-Y2K (or 888-673-8925).

- **Microsoft Year 2000 Product Analyzer**

This free software tool from Microsoft will inventory your computer system and assess the readiness status of your operating system and Microsoft software programs. It will recommend actions that you should take to maximize year 2000 readiness, with links to obtain any necessary software updates.

- **Document correction tools**

Microsoft has developed three add-in tools for use with Microsoft Excel 97 to help you scan, analyze and revise dates in Excel spreadsheets. The Date Fix Wizard, the Date Migration Wizard, and the Date Watch Wizard can be downloaded at <http://support.microsoft.com/support/kb/articles/Q176/9/43.asp>.

- **The Year 2000 Readiness and Disclosure Resource Center:**

The Year 2000 Readiness and Disclosure Resource Center has comprehensive year 2000 information about most Microsoft products, and has been translated into many languages for ease of use outside of North America. This site is located at <http://www.microsoft.com/y2k>.

- **The Year 2000 Product Guide**

If you have questions related to a specific Microsoft product, detailed information is available at Microsoft's online Year 2000 Product Guide, located at <http://www.microsoft.com/technet/year2k/product/product.htm>. The contents of most Product Guides have been translated into many languages.

## 8. How exactly do year 2000 issues affect a PC system?

There are three parts of every PC system that can be affected by year 2000 issues:

- **Hardware** (Real Time Clock and BIOS)

The most common hardware problem presented by the year 2000 is associated with a PC's Real Time Clock (RTC) and Basic Input/Output System (BIOS). It is sometimes called the BIOS "rollover problem."

- **Software**

- **Operating System**

The computer's operating system is the software foundation for all other software programs of the computer system. The operating system gets its information about the date and time from the RTC and BIOS, and then typically passes date/time information on to software programs. For this reason, it is important that the operating system be ready for the year 2000.

- **Software Programs** (Standard and Custom)

Both off-the-shelf programs and custom software programs must be assessed for year 2000 issues. Some software programs have internal calendars that could potentially miscalculate the leap year or misinterpret a two-digit date. Custom programs (macros, custom mathematical formulas, and custom programs developed in Visual Basic for Applications to enhance an Office application) can also contain a number of potential year 2000 issues.

- **Personal (Data) Files**

Spreadsheets, documents and database files need to be assessed for year 2000 issues if they contain years that are described in two (rather than four) digits.

**9. What actions does Microsoft recommend home and small business owners take to address PC readiness for the year 2000?**

Microsoft recommends that home and small business PC owners follow a four-step approach for achieving year 2000 readiness:

- **Step 1: Investigate**

Take inventory of what you have for your hardware, software (operating system and software\_ programs), and personal data files.

- **Step 2: Determine Readiness**

Prioritize what to assess first, based on what you have learned from the educational tour on this Year 2000 Consumer Web site. Learn about the readiness of each item. You will need to contact the manufacturers of your computer hardware and software products that you own.

- **Step 3: Choose Strategy**

Each manufacturer may suggest one or more alternatives for making that item ready for the year 2000. Choose an option or strategy that works best for your needs. The best option will vary, depending on your specific overall PC system—and how you use it.

- **Step 4: Implement**

On the basis of the strategy you chose for each item in step 3, carry out the actions needed to achieve readiness.

**10. What is the BIOS “century rollover” hardware problem?**

As related to the year 2000 issue, this refers to the inability of some computer hardware, usually the Real Time Clock (RTC) and Basic Input/Output System (BIOS), to correctly interpret the century as the twenty-first (20xx). When the two digits allocated for the year “roll over” from “99” to “00,” the BIOS of some computers will incorrectly interpret the year to be “1900” instead of “2000.” This will may lead to inaccuracies within the computer system regarding dates and date calculations.

For more information, see the Microsoft White Paper, [Microsoft Operating System Interactions with BIOS and Real Time Clock](#).

**11. How can I know if my computer’s BIOS is ready for the year 2000?**

Contact the computer or BIOS manufacturer to learn about your PC’s hardware (RTC/BIOS) readiness for the year 2000. You will need to know the exact model number of your PC when contacting the manufacturer. Web site addresses of several major PC manufacturers are listed in the “Taking Action” section of the Microsoft Consumer Web site.

Do not make assumptions about the BIOS of your computer. It is possible that different brands or versions of the BIOS were supplied during production of the same model of a PC. Make sure that the BIOS of each specific computer you have is ready for the year 2000.

**12. Is there a way to check the computer’s RTC/BIOS prior to year 2000, without contacting the PC manufacturer?**

Microsoft recommends that you contact the PC manufacturer to obtain information about the year 2000 readiness of your PC’s clock and BIOS.

Detailed information about BIOS testing has been prepared for IT professionals, however, in the white paper [Microsoft Operating System Interactions with BIOS and Real Time Clock](#). (Note:

For BIOS testing, we recommend the use of an MS-DOS boot disk to check the system for clock issues. This will separate the day-to-day functionality of the system from the date testing. After testing, make sure to reboot the machine to the boot disk and set the clock back to the right time.)

### **13. How does the Windows operating system handle a BIOS rollover problem?**

It depends on the version of Microsoft Windows. In newer versions, logic has been included to compensate for a BIOS rollover problem. Windows 98, Windows 2000, Windows NT 3.51 (with Service Pack 5), and Windows NT 4.0 (with Service Pack 4) will all recognize 1900 as an error and automatically compensate by setting the date to 2000.

Yet even with these versions of the Windows operating system (Windows 98, Windows 2000, Windows NT 3.51, and Windows NT 4.0), there are instances when a computer might still encounter BIOS issues. For example:

- Some types of BIOS revert to 1900 every time the system reboots, and will need Windows to repeatedly correct the computer's clock throughout the year 2000. When the year reaches 2001 (and the system resets itself to 1901), Windows will not correct the date.
- Other types of BIOS have error handling built into them that reset a 1900 date before the Microsoft operating system becomes involved. If the date provided by the BIOS is incorrect but in a valid date format (for example, 1993), Windows will not perform corrective steps.

For these reasons, it is recommended that you identify the BIOS make and version number of your computer, contact the hardware manufacturer, and follow the recommendations of the manufacturer for making sure that your hardware is year 2000 ready.

### **14. How can I find out which version I have of the Windows operating system?**

For Windows 95 or later products, version information is easily obtained by doing the following:

1. Highlight the "My Computer" icon on your desktop, then click the right mouse button.
2. Select "Properties" from the fly-out menu.
3. Your exact Windows version should be visible in the General section of the dialog box below "System." (This dialog box is the System Control Panel.)

### **15. Where can I find the latest update for Windows?**

You can find the latest update to your Windows operating system at these locations:

Windows 95: <http://www.windowsupdate.microsoft.com>

Windows 98: <http://www.windowsupdate.microsoft.com>

Windows NT: <http://www.microsoft.com/support/winnt>

### **16. How can I find out which version I have of my Microsoft software program (application)?**

For most Microsoft software programs, you can find the exact version listed in the program's "About..." dialog box. The "About..." dialog box is located at the bottom of each software program's Help menu.

### **17. Where can I find the latest update for Microsoft Office 97?**

You can find the latest update for Microsoft Office 97 at:

<http://officeupdate.microsoft.com/default.htm>

**18. Where can I find the latest update for Microsoft Office 95?**

You can find the latest update for Microsoft Office 95 at:  
<http://officeupdate.microsoft.com/default.htm>

**19. What is the Microsoft Year 2000 Product Analyzer and what does it do?**

The Microsoft Year 2000 Product Analyzer is a software tool that can scan a hard drive to determine the Microsoft operating system(s) and software programs that are installed. It then produces a report that lists the Microsoft products it has found with information about the year 2000 compliance status of the products. For products found, the report also lists the URL for obtaining recommended downloadable software updates.

**20. Where can I find the complete Microsoft product testing results?**

You can find detailed results of product testing in the Microsoft Year 2000 Product Guide located at <http://www.microsoft.com/technet/year2k/product/product.htm>.

**21. How does Microsoft software handle the date 9/9/99?**

There are no known issues in any of the tested Microsoft software products related to the date 9/9/99.

**22. I have read that Microsoft products will function through the end of year 2035. What happens in 2035?**

The date 2035 is referenced to assure customers of the longevity of most our products. Our testing programs assessed functionality through this period. Many programs, however, will function far beyond this date.

**23. How do I download and install a software update?**

A software update is a program you download to your harddrive for installation. To “download” just means to transfer the program to your computer system from where it is stored on the Web.

When you plan to download an update or any software program from the Web, always look for an accompanying “Readme” document. Readme documents contain important information that will help you better understand the specific update or program you will be installing.

It is also important to save the downloaded update to a convenient, specific place on your hard drive. See the next question for specific instructions on how to create a handy folder directly on your desktop for this purpose.

When you are ready to download an update, follow these steps:

1. Click its underlined download link on the Web page.
2. If you get a message asking whether you would like to open the file or save it, choose to save the file.
3. When the dialog box labeled “Download” or “Save As” appears, look for the field called “Save In” or “Destination.” This field determines where your file will be saved on your hard drive.
4. Click on the little arrow next to this field to see the “drop down list” which allows you to see other items and folders on your computer hard drive. If you do not see the folder you want to download items into, navigate this list to find it.
5. Double-click on the folder to open. It should now appear in the “Save In” or “Destination” field.
6. Click the large “Save” button to begin downloading and saving the item to your hard drive.

7. Repeat the above steps to download and save the associated "Readme" documents for the software update.

Once the update items have been downloaded, open the folder in which you saved them. Double-click on the "Readme" document for instructions on installing the software update.

#### **24. How do I create a "Download" folder directly on my Windows desktop?**

When you plan to download a software update from the Web to install at a later date, it works well to create a folder right on your desktop for saving items. This allows you to easily find what you have downloaded.

To create a folder called "Download" directly on your Windows desktop:

1. Point to a blank place directly on the Windows desktop with your mouse and click the right mouse button.
2. Click "New" on the pop-up menu that appears. Another fly-out menu will appear to the right of "New."
3. Click on "Folder."
4. A new folder will appear and the label underneath it will be highlighted, with a cursor blinking. Immediately type in a name for the folder, such as "Download."
5. Target all software updates that you plan to download to this new desktop folder for easy, hassle-free access.

#### **25. Why should I use four-digit-years in my documents or data files?**

The use of four-digit years in spreadsheets, database files or any other important personal data files will lead to the highest level of accuracy because the century of the date will be specified and will not need to be interpreted. It is important to verify that your data files, as well as those you exchange with others, are prepared with four-digit-year dates.

#### **26. Why do you recommend changing the default for the Short Date in the Windows Regional Settings to a format that has a 4-digit year (YYYY)?**

We recommend changing the Short Date format in Regional Settings (Windows Control Panel) to a four-digit year so that a "Short Format" year displayed by Windows is fully distinguished in terms of its century.

The formats that are specified in the Windows Regional Settings influence many software programs. Making a change in Regional Settings will help these programs to display four-digit years, thereby minimizing confusion about what century is intended for the dates that are used. For example, the formats in Windows Regional Settings for Short Date and Long Date are adopted by Excel 95 and 98, affecting the default way that Excel displays dates that are in Excel spreadsheets.

#### **27. How can I reduce the year 2000 risk for my Excel spreadsheets?**

The use of dates in Excel is very common, and two-digit date shortcuts to represent calendar years introduce risk to personal files created with Excel. You can greatly reduce potential year 2000 issues by consistently using four-digit dates on all of the spreadsheets you create. This is particularly true if you plan to exchange or share spreadsheet data with others.

You can change the way spreadsheets are formatted in Excel by changing the Date formats in the Windows Regional Settings to use 4 digits for years. To do this, make sure that both the selected formats for the Short Date and the Long Date have four digits ("YYYY") for the year.

## 28. What should I do about existing spreadsheets that have two-digit years?

If you plan to use these spreadsheets in the year 2000 and the spreadsheets contain information that is critical to you, it is best to adjust these files to contain four-digit years.

Microsoft has developed three date migration add-in tools for Microsoft Excel 97 to help customers adjust older spreadsheets and to monitor the creation of new ones. These free utilities are available at <http://support.microsoft.com/support/kb/articles/Q176/9/43.asp>.

- **The Date Fix Wizard**

Allows users to quickly find and change date formats of ambiguous two-digit-years or to modify dates so that they fall within a specified century.

- **The Date Migration Wizard**

Helps ensure that two-digit-years are handled properly when worksheets created in an earlier version of Microsoft Excel are opened in Excel 97.

- **The Date Watch Wizard**

Monitors your work for ambiguous and potentially risky dates and formats.

## 29. Should I be concerned about personal (data) files that I receive or share with others?

You need to be cautious about important data files that are shared with other individuals or companies. Even if your system—including all of your personal data files—are year 2000 ready, the files you receive from others may not be. Communicate with other individuals and companies the importance of entering four-digit-years in shared files.

## 30. What is the best way to enter dates using Access 97?

The most reliable way to enter dates in Access is by using a 4-Digit Year Date Input Mask. An Input Mask that is created to allow entry of only four-digit years is the easiest way to make sure that dates are specified with accuracy for the century.

To create an Input Mask that forces the entry of four-digit years, do the following:

1. Open the table in Design view and select the date field.
2. On the General tab of Field Properties (at the bottom of the window), click in the Format field and select a format option that includes “yyyy” to represent the year from the drop-down list that appears.
3. Click in the Input Mask field and then on the Builder (...) button to activate the Input Mask wizard.
4. Click on the Edit List button of the Input Mask wizard.
5. Click on the New Record button (>\*) and fill in the fields for the new record as shown below:  
Description: 4-Digit Year Date  
Input Mask: 09/09/0000  
Placeholder: [leave blank]  
Sample Data: 12/31/1999  
Mask Type: Date-Time
6. Close the dialog box.
7. Select the new Input Mask from the list.
8. Click Next, Next, and Finish to complete the creation of the new 4-Digit Year Date Input Mask.



**31. How do I permanently change the way Word formats the date when I use Word's "Date and Time..." dialog box?**

To permanently change the way that Word formats dates that are inserted into your documents using the "Date and Time..." dialog box, do the following:

1. In the "Date and Time..." dialog box, select a date format that includes a four-digit year ("yyyy").
2. With the date format selected, click on the "Default..." button in the dialog box.
3. Answer "Yes" to the question that appears.
4. Click "OK" to close the dialog box and accept the changes you have made to the default for Time and Date

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