Technical Bulletin
Year 2000 Compliance Testing

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Product: BadgeBuilder® Family

Situation: Year 2000 Compliance Testing Procedure and Results

BadgeBuilder contains several locations where dates must be interpreted correctly.

In testing for Year 2000 compliance, we looked at the following areas: Date fields, Date/Time fields, the "Now" and "All Now" buttons, as well as reporting where applicable. Each of the five database drivers that are supplied with BadgeBuilder was tested to make certain they met the criteria. BadgeBuilder has been tested according to the University of Ottawa Computing and Communications Compliance Definitions below. Each definition is followed by the procedure used to test it and the result. In all cases, the Windows Global Settings for date structure were set to M/D/YYYY. (For details on dealing with 2 digit dates and their limitations, see "Program Feature that assists in 2-digit date entry and interpretation" below). All testing was done using version 2.61.05 of BadgeBuilder, and is applicable to BadgeBuilder on Wheels, and BadgeBuilder Portatil. This testing is also valid for version 1.2.4 of BadgeBuilder Express and LXI, and 1.4.5 of AssetTracker. Anyone concerned with earlier versions and their compliance should contact their dealer and make certain to upgrade to the current release version of their BadgeBuilder product.

Year 2000 Testing:

Definition 1: From now until January 1, 2000, each application must correctly process data containing dates before January 1, 2000.

Procedure: A database was created containing both a date field and a date/time field. Dates were entered that went up to and included 12/31/1999. Events were logged for reporting and a database activity report was run. Records were added and modified using the "Now" and "All Now" buttons to get current date and time information.
Result: BadgeBuilder successfully accepted and displayed the data in the entry dialogs and on a card. The report contained correct information about the data in the card and its date of modification. BadgeBuilder picked up the current and correct date and time information when the "Now" and "All Now" buttons were pressed.

Definition 2: From now until January 1, 2000, each application must correctly process data containing dates after December 31, 1999.

Procedure: A database was created containing both a date field and a date/time field. Dates were entered that included and exceeded 01/01/2000. Dates tested did include the leap year date of 02/29/2000. Events were logged for reporting and a database activity report was run. Records were added and modified using the "Now" and "All Now" buttons to get current date and time information.

Result: BadgeBuilder successfully accepted and displayed the data in the entry dialogs and on a card. The leap year date was successfully accepted. The report contained correct information about the data in the card and its date of modification. BadgeBuilder picked up the current and correct date and time information when the "Now" and "All Now" buttons were pressed.

Definition 3: From January 1, 2000 forward, each application must correctly process data containing dates before January 1, 2000.

Procedure: The computer's internal date was changed so that it was post Year 2000 (October 26, 2003). A database was then created containing both a date field and a date/time field. Dates were entered up to and included 12/31/1999. Events were logged for reporting and a database activity report was run. Records were added and modified using the "Now" and "All Now" buttons to get current date and time information.

Result: BadgeBuilder successfully accepted and displayed the data in the entry dialogs and on a card. The report contained correct information about the data in the card and its date of modification. BadgeBuilder picked up the current and correct date and time information when the "Now" and "All Now" buttons were pressed.

Definition 4: From January 1, 2000 forward, each application must correctly process data containing dates after December 31, 1999.

Procedure: The computer's internal date was changed so that it was post Year 2000 (October 26, 2003). A database was created containing both a date field and a date/time field. Dates were entered that included and exceeded 01/01/2000. Dates tested did include the leap year date of 02/29/2000. Events were logged for reporting and a database activity report was run. Records were added and modified using the "Now" and "All Now" buttons to get current date and time information.

Result: BadgeBuilder successfully accepted and displayed the data in the entry dialogs and on a card. The leap year date was successfully accepted. The report contained the correct information about the data in the card and its date of modification. BadgeBuilder picked up the current and correct date and time information when the "Now" and "All Now" buttons were pressed.

Definition 5: Display, print, input, and store dates unambiguously in the context of the systems which use them.

Procedure: Pre and post Year 2000 dates were examined in the data entry screen, data modification screen, on an on-screen card, on a printed card and in the underlying database table.

Result: In each case, the date field displayed and printed the correct information as it was entered.

Definition 6: Each application must be capable of recognizing that the Year 2000 is a leap year

Procedure: See "Leap Year Testing" below.

Result: BadgeBuilder recognized and dealt with both valid and invalid dates correctly and did not return any errors.

Definition 7: Each application must ensure:

a. February 29, 2000 is recognized as a valid date.
    - Passed as described in Definition 6.

b. Julian date 2000060 is recognized as February 29, 2000.
    - BadgeBuilder does not utilize the Julian date system.

c. Julian date 2000366 is recognized as December 31, 2000.

- BadgeBuilder does not utilize the Julian date system.

d. Arithmetic operations performed recognize that year 2000 has 366 days.
   - No arithmetic operations are performed on dates in BadgeBuilder.

<u>Leap Year Testing:</u>

All of the dates below were checked for compliance in BadgeBuilder. Dates marked as "should reject" were disallowed by the program as invalid. All others were accepted as valid. The testing protocol dictated that the following dates be included in comprehensive leap year testing:

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Leap Year:          02/28/1996
                    02/29/1996

Not Leap Year:      02/29/1999 (should reject)

Leap Year:          02/28/2000
                    02/29/2000
                    03/01/2000

Not Leap Year:      02/28/2001
                    02/29/2001 (should reject)
                    03/01/2001

Leap Year:          02/28/2004
                    02/29/2004
                    03/01/2004
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<u>Testing Conditions:</u>

Year 2000 testing was carried out on several different machines with different processors, motherboards, and operating systems. They include:

1. Cyrix 200Mhz Processor on a P5V580-B v.2 Motherboard. Motherboard has a VIA Chipset and an Award Bios 4.51PG. Operating system is Windows98.
2. Pentium 200Mhz MMX Processor on an E5TX-AT Motherboard. Motherboard has an Intel Chipset and Award Bios 4.51PG. Operating systems include Windows98 and Windows NT 4.0 Workstation.
3. Compaq Presario 1625 Laptop with a 266MHz AMD K6 MMX Processor and Compaq Bios. Operating system is Windows98.

<u>PLEASE NOTE</u>: All customers should also make certain that the computer that they are running BadgeBuilder on is Year 2000 compliant. This includes, at least, the operating system and the System BIOS. If they are not, the 'NOW' and 'ALL NOW' buttons which get their information from Windows® may return year 2000 dates as 1900. Check with your computer manufacturer/provider for details on your particular system.

Program Feature that assists in 2-digit date entry and interpretation:

Within the "Configuration / Program Setup" listing in BadgeBuilder is a special section that deals with base century for dates. In cases where 2-digit dates are entered, the user can set the prefix to be interpreted as 19 or 20. If set to 20, this will allow 2-digit Year 2000 dates to be entered correctly (e.g. 12/12/03 will mean 2003). However, this system will not work if people are currently entering dates that contain both 19xx and 20xx dates. This is because the prefix can only be set to one century. When both centuries need to be included, the 4 digit date pattern becomes necessary and must be set in Windows.