Lucent Technologies
Bell Labs Innovations

CONVERSANT® VIS

Version 3.1.1
Year 2000 Compliance

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Acknowledgment
This document was prepared by the Global Learning Solutions organization of the BCS division of Lucent Technologies. Offices are located in Denver CO, Columbus OH, Middletown NJ, and Basking Ridge NJ, USA.

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Overview

The V3.1.1 Year 2000 Update Kit contains the tools you need to update your 486 BIOS, UNIX, and CONVERSANT® systems to become year 2000 compliant. This kit is for customers with the CONVERSANT Intro V3.1.1 or the CONVERSANT VIS 3.1.1 product; in this document, the term *CONVERSANT V3.1.1* refers to both sets of customers.

> ⮕ **NOTE:**
> If you currently use an Olivetti platform: To become year 2000 compliant, you must upgrade to INTUITY CONVERSANT Version 6.0 Update 1 or Version 7.0, on a MAP/100P or MAP/40P platform. Contact your Lucent Technologies Account representative about upgrading your system.

This document provides the following information:

- Contents of the update kit — A list of the diskettes and documentation included in the kit.

- Definition of year 2000 compliance — A general description of year 2000 compliance, including the address for the World Wide Web site for Lucent Business Communications Systems (BCS) where you can view the BCS definition of compliance. Also included is a summary of customer responsibilities for ensuring year 2000 compliance.

- CONVERSANT V3.1.1 system areas affected by year 2000 issues — A table showing the affected areas, both before and after the update.

- Installation procedures — Complete instructions on how to install all of the updates in the kit.

- Guidelines for reviewing your applications — A checklist of suggested areas to investigate in your applications when reviewing them for year 2000 compliance.

- Notes on developing applications that are year 2000 compliant — Recommendations to follow to keep your applications year 2000 compliant.

- Description of the new y2kmenu utility — Instructions for using the Administration After Year 2000 menu to access system reports and to set holidays and seasonal greetings, after January 1, 2000.

- Areas requiring additional consideration — Descriptions of areas that can continue to cause errors, plus any corrective or alternative actions that are available.

- Removal procedures — Instructions on how to remove the CONVERSANT and UNIX updates. The BIOS update cannot be removed.

- Support for this product — A description of the support that is available for this product through the year 2001.

Purpose

The purpose of this document is to guide the CONVERSANT Intro V3.1.1 or CONVERSANT VIS 3.1.1 customer through the steps to install the updates for year 2000 compliance, to provide guidelines for reviewing existing applications and developing future ones, and to document the areas that might perform differently because of the year 2000.

Disclaimer: We have attempted in this book to provide an exhaustive list of items affected by the year 2000. However, we may have overlooked other areas. If you identify any such areas, contact the remote maintenance center to report the problem. Lucent Technologies makes no representation or warranty that this version or any other version of the CONVERSANT system is entirely year 2000 compliant.

Contents of the V3.1.1 Year 2000 Update Kit

The V3.1.1 Year 2000 Update Kit enables you to update your CONVERSANT V3.1.1 system to make it year 2000 compliant. Along with this document, the update kit contains the following:

- 486 BIOS Version 2.1g — One diskette. For MAP/100 or MAP/40 486 systems only. You do *not* need to install the 486 BIOS update if you have either of the following:

    - A Master Controller platform

    - A MAP/100 or MAP/40 with a 386 processor

- UNIX System V/386 3.2.3 Year 2000 Update — One diskette. This update is used for both 386 and 486 processors.

- CONVERSANT VIS V3.1.1 Year 2000 Update — Two diskettes.

Once you have installed the V3.1.1 Year 2000 Update kit, you must take additional actions to ensure that dates with two-digit years are handled correctly. Please see the section "Developing Compliant Applications" for details about these actions.

About Year 2000 Compliance

When the date changes from the 20th century (19xx) to the 21st (20xx), CONVERSANT features that contain or handle two-digit calendar years, such as reports and call data records, can function in atypical ways. Also, CONVERSANT applications that process data containing dates from the 21st century might require modifications in order to ensure that calendar years are handled correctly. "Year 2000 compliance" is the process of updating and modifying your system so that it accurately handles 21st-century calendar years.

Lucent BCS Internet Web Site

For the most current information about year 2000 issues and Lucent Business Communications Systems (BCS) products, see our World Wide Web site at **www.lucent.com/enterprise/sig/yr2000** (or, from the Lucent Technologies home page of www.lucent.com, click on Enterprise, then Year 2000).

At this site, you can view the complete Lucent BCS definition of compliance. To view compliance information for your CONVERSANT product, click on BCS Product Compliance Status, then click on Voice Response.

Summary of Customer Responsibilities

The following list summarizes the steps that customers are responsible for taking to make their CONVERSANT VIS system year 2000 compliant. More detailed instructions or guidelines for each step are included in this document. The most time-consuming step is that of reviewing your applications for non-compliant behavior. If areas of non-compliancy are found and modifications are needed, these changes are usually minor and easy to fix.

1. Read through this document to ensure that you understand all areas that apply to your system for year 2000 compliance.

2. Install the applicable updates from the V3.1.1 Year 2000 Update Kit. Note that installing these updates will not harm your applications. After installation is complete, you will need to test your applications before routing live traffic back into the system.

3. Ensure that all applications are year 2000 compliant, which includes the following tasks:

   - Assess your resources: For example, determine if you have applications that were developed by an outside vendor, or if you have the in-house expertise to review your applications.

   - Familiarize yourself with the areas affected by year 2000.

   - Determine which applications need to be reviewed. It is likely that any application using two-digit years will need to be modified.

   - Review, modify if necessary, and test the appropriate applications.

     ⇒ **NOTE:**
     Lucent Technologies *strongly recommends* that you contract with a software provider to test your applications.

4. Ensure that applications developed now and in the future are year 2000 compliant.

5. Familiarize yourself with all remaining areas that might behave differently concerning calendar dates.

Areas Affected

Table 1 lists the areas of the CONVERSANT V3.1.1 system that are affected by the year 2000. This table describes how the system performed before the update kit was installed, and how it will perform after.

Table 1. V3.1.1 System Areas Affected by Year 2000

Area Affected	Before the Update	After the Update
Call Data Reporting	The following reports and their command-line options will not work when date data spans two centuries: ■ Call Classification Report (ccarpt) ■ Call Data Detail Report (cddrpt) ■ Call Data Summary Report (cdsrpt) ■ Traffic Report (trarpt) Impact: Reliable call data reporting is not available after year 2000.	The reports and command-line options will work correctly when the data spans two centuries. The new y2kmenu utility provides access to these reports and allows you to set holiday and seasonal greetings. The y2kmenu is explained in detail in the section "Administration After the Year 2000".
Call Data Handling (CDH) deletion	Call data records are normally deleted after seven days. Call data handling deletion does not work properly when dates span 1999 and 2000. Impact: Records that start in 1999 and end on 1/1/2000 will not be deleted.	CDH deletion will work properly. A separate job is run after the start of 1/1/2000 to delete all records that began in 1999 and ended in 1/1/2000.

Continued on next page

Table 1. **V3.1.1 System Areas Affected by Year 2000** — *Continued*

Area Affected	Before the Update	After the Update
Script Builder database tables using date fields with two-digit year	All dates were stored internally with a four-digit year. However, an administrator or an application can insert a date field with a two-digit year; the system appends "19" as the century. For example, "10/25/01" would be inserted as "10/25/1901". If the application always uses four-digit years in date fields, there is no problem. Impact: Calls might be mishandled if the application depends on the correct century.	Customer must modify applications that use two-digit years. The appropriate century must be inserted before the date data is stored in a local database table. See the section "Modify Two-Digit Years Before Storing in Local Database Tables" for details.
Holidays	When setting system holidays within an application (for special handling in the application), the system only allowed years from '89 through '99. Impact: Callers will receive normal (instead of special) handling on holidays after 2000, even if the staff or other systems are not available.	The system accepts years after 1999. Use the new Holidays and Greetings menu option on the Administration After Year 2000 menu. See "Administration After the Year 2000" for details.
Seasonal Greetings	When setting seasonal greetings within an application, the system only allowed years from '89 through '99. Impact: No seasonal greetings are played after 2000.	The system accepts years after 1999. Use the new Holidays and Greetings menu option on the Administration After Year 2000 menu. See "Administration After the Year 2000" for details.
Script Builder Host Screen date fields with two-digit year	A two-digit year (defined with the "Y" date format) retrieved from the IBM host was always translated into 19*xx*. Impact: Calls can be mishandled if the application depends on the correct century.	Customer must modify applications that accept a two-digit year from an IBM host. See "Modify Two-Digit Years Retrieved from an IBM Host" for details.

Continued on next page

Table 1. **V3.1.1 System Areas Affected by Year 2000** — *Continued*

Area Affected	Before the Update	After the Update
Script Builder speaking dates after 1999	Some oddities occurred for several date formats when using U.S. English standard speech and Text to Speech. For example, when speaking year 2000 dates with the date format of DMDY, the last two digits of the year 2000 were spoken as "oh-zero". <u>Impact</u>: Callers may have difficulty understanding the year spoken when these formats are used.	Years are now spoken in the preferred format shown in Table A-1 in Appendix A, "For Advanced Users".
UNIX System V/386 Release 3.2 Version 2.3	Various non-compliant commands: date, sar, touch, passwd, prfpr, at, face, lp <u>Impact</u>: Could cause system administration difficulties or problems for custom shell scripts or C programs.	UNIX is made compliant such that CONVERSANT software and hardware meet requirements as stated in the Lucent BCS web site. See the section "Lucent BCS Internet Web Site" for the address.
486 BIOS (25MHz and 50MHz) Version 2.1c	Only for systems on MAP/100 or MAP/40 platform; Master Controller platforms not affected. The CMOS BIOS locked up if entered after year 2000. <u>Impact</u>: The system would not function after 2000.	The Version 2.1g BIOS will not lock up after the year 2000.
Master Controller III	The system can lock up the first time you reboot on or after 1/1/2000.	If the system locks up, just press the reset key to restart the system. The system then starts normally.
MAP/5, Master Controller II, and Master Controller III CMOS Setup utility	The CMOS Setup utility does not recognize 2/29/2000 as a valid date. <u>Impact</u>: If you need to access this utility on 2/29/2000, you will have to reset the date when you are through.	No change. See the section "MAP/5 Platform" in "Areas Requiring Additional Consideration" for detailed information.

Installation Procedures

This section gives procedures for installing the updates in the V3.1.1 Year 2000 Update Kit. The CONVERSANT VIS V3.1.1 Year 2000 Update Kit contains the following diskettes:

- 486 BIOS Version 2.1g — One diskette. The BIOS update is for MAP/100 or MAP/40 486 systems only. You do *not* need to install the 486 BIOS update if you have any of the following:

    - A Master Controller platform

    - A MAP/5 platform

    - A MAP/100 or MAP/40 with a 386 processor

- UNIX System V/386 3.2.3 Year 2000 Update — One diskette.

- CONVERSANT VIS V3.1.1 Year 2000 Update — Two diskettes.

Table 2 shows the components involved in installing these updates with the approximate time it takes to complete each part. Each part is described in more detail in the procedures to follow.

Table 2. Installation Components with Approximate Times

Component	Approximate Time
Back up your system (optional but recommended)	2 hours
Prepare for the Voice System to stop	< 20 minutes
Install the 486 BIOS update (for 486 systems only on MAP/100 or MAP/40 platforms)	10 minutes
Install the UNIX update	5 minutes
Install the CONVERSANT update:	20 minutes
Back up your system again with another tape (optional but recommended)	2 hours

Before You Begin

> ⚠ **CAUTION:**
> *Before you install this update kit, you are strongly advised to do the following:*

Back Up Your System

Make a complete backup of your entire system before you begin the installation. You can use the **mkimage** command to make this backup. See *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT VIS Version 3.1 Maintenance, 585-350-105,* for instructions on backing up your system (or *CONVERSANT VIS Version 3.1 Command Reference, 585-350-203*, for details on the mkimage command).

After you have completed the installation process, make a complete backup of your entire system again. Use a different tape for this second backup.

Route Calls Away

Because the CONVERSANT voice system is stopped during the updates, plan to install the updates at a time when your system is not busy and have the system administrator route calls away from the system.

Install the 486 BIOS Version 2.1g Update (MAP/100 or MAP/40 Platforms Only)

This update consists of one diskette. Once installed, the BIOS system update cannot be removed.

Not all customers need to install the 486 BIOS update. To determine your status, see "Who Should Install the BIOS Update?" below.

> **NOTE:**
> The BIOS update affects only those aspects of the CPU card that are necessary to correct year 2000 issues, as well as some minor text changes in the Power-On Self-Test (POST) screen.

Who Should Install the BIOS Update?

You should install the 486 BIOS Version 2.1g update only if you have 486 processor on a MAP/100 or MAP/40 platform.

You do *not* need to install the 486 BIOS Version 2.1g update if you have any of the following:

- A Master Controller platform. If you have a Master Controller platform, proceed to the next section, "Install the UNIX System V/386 3.2.3 Year 2000 Update".

- A MAP/5 platform. If you have a MAP/5 platform, proceed to the next section, "Install the UNIX System V/386 3.2.3 Year 2000 Update".

- A MAP/100 or MAP/40 with a 386 processor. If you have a 386 processor, proceed to the next section, "Install the UNIX System V/386 3.2.3 Year 2000 Update".

  If you are not sure which processor you have, use the following procedure to determine it:

  1. Type **cd /** at the UNIX prompt and press ENTER.

  2. Type **/etc/memsize** and press ENTER.

     The system displays a number, for example `12189696` or `16384000`. If the number begins with "12", the processor is a 386. You do not need to install the 486 BIOS update and should proceed to the section "Install the UNIX System V/386 3.2.3 Year 2000 Update".

     If the number begins with "16", the processor is a 486. You should install the 486 BIOS update according to the procedure below.

Installation Procedure for 486 BIOS Update

Use the following procedure to install the 486 BIOS update:

1. Log in as **root**

2. Stop the VIS system. You can type **stop_vs** and press ENTER. If you need further instructions, see the procedures given in *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT VIS Version 3.1 Maintenance, 585-350-105*.

3. Stop the UNIX system as follows. See the procedures given in *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT VIS Version 3.1 Maintenance, 585-350-105*, if you need further instruction.

    a. Type **cd /** and press ENTER.

    b. Type **/etc/shutdown -g0 -y** and press ENTER.

    The system shuts down and then displays the following message:

    ```
    Reboot the system now
    ```

4. Insert the BIOS Version 2.1g update diskette in the floppy disk drive.

5. Press either CONTROL ALT DELETE or the Reset button to restart the system from the diskette.

    The system begins to restart and displays a dialogue box with the following options:

    ```
    ENTER: Program New BIOS
      ESC: Abort and Reset System
    ```

6. Press ENTER to select Program New BIOS.

    The window displayed shows the progress of the installation. When the BIOS programming operation is complete, a dialogue box displays the message below.

    ⇒ **NOTE:**
    You must remove the diskette before you press any key to restart.

    ```
    The System Will Need to Be Reset
    Press Any Key to Reset
    ```

7. Remove the diskette before you reset the system.

8. Press any key to reset the system. If the system does not restart after 30 seconds, press the Reset button again to restart.

9. When the POST screen is displayed during the restart, look for the BIOS version number in the following line, located under the copyright notice, and verify that it is correct:

   ```
   D486SX 25 MHz Industrial Computer BIOS, Version 2.1g
   ```

10. You are now ready to install the UNIX System V/386 3.2.3 Year 2000 Update update. Proceed to the following section, "Install the UNIX System V/386 3.2.3 Year 2000 Update".

Install the UNIX System V/386 3.2.3 Year 2000 Update

The UNIX System V/386 3.2.3 Year 2000 Update consists of one diskette. Although this update is named "V/386", this update is used for both 386 and 486 processors. Use the following procedure to install the update:

1. Log in as **root**

2. Stop the VIS system. You can type **stop_vs** and press (ENTER). If you need further instruction, see the procedures given in *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT VIS Version 3.1 Maintenance, 585-350-105*.

3. At the prompt, type **installpkg**, and then press (ENTER).

   The system displays the following message:

   ```
   Please indicate the installation medium
   you intend to use.
   ```

4. Type **F**

   The system displays the following message:

   ```
   Please insert the floppy disk.
   Strike ENTER when ready
   or ESC to stop
   ```

5. Insert the UNIX System V/386 3.2.3 Year 2000 Update diskette in the floppy disk drive and press (ENTER).

   The system begins the installation procedure.

6. When the installation is complete, the system displays the following message:

   ```
   The installation of the UNIX System V/386 3.2.3 Year
   2000 Update is now complete.
   ```

7. Remove the diskette from the floppy disk drive.

8. You are now ready to install the CONVERSANT VIS V3.1.1 Year 2000 Update. Proceed to the section "Install the CONVERSANT VIS V3.1.1 Year 2000 Update".

Install the CONVERSANT VIS V3.1.1
Year 2000 Update

The CONVERSANT VIS V3.1.1 2000 Update contains two diskettes. Use the following procedure to install the CONVERSANT Update.

➡ **NOTE:**
If the Voice System is currently running, it will be stopped during installation of this update. The system will prompt you near the end of the installation for permission to restart the Voice System.

1. At the UNIX prompt, type **installpkg**, and then press (ENTER).

   The system displays the following message:

   ```
   Please indicate the installation medium
   you intend to use.
   ```

2. Type **F**

   The system displays the following message:

   ```
   Please insert the floppy disk.
   If the program installation requires more than one floppy
   disk, be sure to insert the disk in the proper order, starting
   with disk number 1.
   After the first floppy disk, instructions will be provided
   for inserting the remaining floppy disks.
   Strike ENTER when ready
   or ESC to stop
   ```

3. Insert the first of the two CONVERSANT VIS V3.1.1 2000 Update diskettes in the floppy disk drive, and press (ENTER).

4. Follow the instructions displayed on the screen as to when to insert the second diskette.

   If the Voice System is currently running, the system displays the following message when the second diskette is in the disk drive:

   ```
   Voice System is currently running. The Voice System
   must be STOPPED as part of the installation for
   this package: CONVERSANT VIS V3.1.1 Year 2000 Update.
   Is it ok to stop the Voice System during this
   installation (y/n) [y]
   ```

5. Press (ENTER) or enter **y** to have the system stop the Voice System and continue with the installation.

   If you enter **n**, the installation will stop and the update will not be loaded.

6. The system then prompts you for permission to restart the Voice System. Enter one of the following:

   ■ **y** (yes) to start the Voice System.

   ■ **n** (no) to have it remain stopped. You must start the Voice System on your own.

7. When the installation of this update is complete, the system displays the following message:

```
The installation of the CONVERSANT VIS V3.1.1 Year 2000
Update is now complete.
```

Guidelines for Reviewing Your Applications

All CONVERSANT VIS applications should be evaluated for year 2000 issues. This section provides guidelines to help you review your applications and is organized into the following sections:

1. Assess your resources.

2. Familiarize yourself with the areas affected by year 2000.

3. Determine which applications need to be reviewed. It is likely that any application using two-digit years will need to be modified.

4. Review, modify, and test the appropriate applications.

> ➡ **NOTE:**
> Lucent Technologies *strongly recommends* that you contract with a software provider to test your applications. If you do choose to test your applications yourself, be sure that you test on a non-production machine. For more information, see "Guidelines for Testing Your Applications" in Appendix A, "For Advanced Users".

Assess Your Resources

Before you begin modifying your applications, determine the following and estimate any possible costs:

■ Was your application developed in-house? If you contracted with an outside vendor, contact the vendor to discuss year 2000 compliance for the application. If you contracted with Lucent Technologies, contact your Lucent Technologies Account Representative.

■ Do you have the expertise in-house to review your applications for compliance? If you do not, contact your Lucent Technologies Account Representative for help in connecting you to a software provider.

■ Does the application source code reside in-house, or did a software vendor provide the object code only? If a software vendor retained the source code, contact the vendor to discuss year 2000 compliance for the application.

■ Do you have Script Builder software to make the necessary changes? If not, then contact the application developer who wrote the application.

Familiarize Yourself with Areas Affected

In the section "Areas Affected" at the beginning of this document, Table 1 describes the areas that are affected by the year 2000. Review this table thoroughly so that you can more easily identify the areas within your own applications that will require modification.

Also note the section "Areas Requiring Additional Consideration" near the end of this document, which describes the areas of your system that might require alternative or corrective actions.

Determine the Applications to Be Reviewed

Examine your applications to determine which ones will be affected by year 2000 issues. Of those applications that require review, determine when the data is impacted—some applications may be affected well before January 1, 2000. You can use the following general guidelines to help determine the applications that need to be reviewed:

1. Determine all applications that have date-related information that is collected, stored, manipulated, spoken, recognized, or reported. If an application does not in any way handle date-related information, it might not need to be reviewed.

2. Determine if the data used by an application will span into the 21st century (years 2000-2099). If so, when? For example, if you ask callers to input their credit card expiration date, is that date already in the 21st century? If yes, your application might already be impacted. If your data always remains in the current year, your solution might not be affected until the year 2000.

3. Determine if you have any applications that will be replaced prior to year 2000 and that do not handle date-related information involving years in the 21st century. These applications might not need to be reviewed.

➡ **NOTE:**
It is best to review all applications thoroughly unless you are certain that an application will not be affected.

Review, Modify, and Test Your Applications

In most cases, the most time-consuming portion of making your system year-2000 compliant involves reviewing your applications for non-compliant behavior. If areas are found, they usually require only minor changes to become compliant, such as replacing a hard-coded "19*xx*" with something more appropriate. After making modifications, each application must be tested thoroughly to make sure it operates correctly.

➡ **NOTE:**
Lucent Technologies strongly recommends that you work with a software provider to test your applications. However, if you choose to do this work yourself, see the section "Guidelines for Testing Your Applications" in Appendix A, "For Advanced Users".

Review Checklist

Use the checklist below as a guide in reviewing your voice response solution for year 2000 compliance. The list describes areas to investigate for year 2000 compliance, but it is not intended to be exhaustive. Each customer may have unique year 2000 compliance issues based on the current configuration and applications. Areas to examine include:

- Applications that assume "19*xx*" when collecting, storing, manipulating, or speaking years.

- Date-related information that uses two-digit years (such as, 98, 99, 00). If an application requires the correct century to function properly, the application developer must modify the application to provide the correct century for a two-digit year, in the following cases:

    — After a two-digit year is retrieved from an IBM host

    — Before a two-digit year is stored in a local database table

    The section "Developing Compliant Applications" contains details about modifying an application to provide the correct century.

- Applications that manipulate dates (for example, calculating age, expiration date, and so on). Test to ensure correct operation when the dates involved span the 20th and 21st century, and when in the 21st century.

- Custom written shell scripts or data interface processes (DIPs) that accept or display date-related information, such as a custom call data report that accepts a date as input. Test to ensure that years beyond 1999 are accepted and output correctly.

- Custom cron (automatically scheduled) jobs. Test to ensure execution beyond the 20th century.

- Host database records. Review for the year format. The application developer must review the host data field formats and determine if any changes are needed.

- Host databases that contain records using a two-digit year, and the century is context dependent. The application developer must include some post-processing after the year is retrieved and translated by the host DIP.

- Applications that use spoken dates, specifically with a two-digit year. Test to ensure that the spoken format for years beyond 1999 will be acceptable for end customers. For current formats, see Table A-1 in "Spoken Formats for Speaking Dates" in Appendix A, "For Advanced Users".

Customized Applications

Almost every CONVERSANT system has some type of customized application loaded. This application may include scripts, custom menus, custom reports, and so forth. Because of the unique nature of each custom application, year 2000 compliance for many custom components falls outside the responsibility of Lucent Technologies. You are, therefore, responsible for ensuring that your CONVERSANT custom applications can continue to operate through the year 2000. Lucent Technologies *strongly recommends* that you work with a software provider to test your applications.

Developing Compliant Applications

This section provides information on the following topics to help you construct applications that are year 2000 compliant:

- Use four-digit years when adding dates to database tables

- Modify two-digit years in the following cases:

    — before storing them in local database tables

    — after they have been retrieved from an IBM host

    If the application needs the correct century to function properly, you must ensure that two-digit years are changed to four-digit years in both of these cases. If you do not, 21st century dates (20*xx*) can be incorrectly stored or retrieved as a 20th century date (19*xx*). Sample code is provided.

- Adapt date-processing methods for dates later than the year 2038

Use Four-Digit Years When Adding Dates to Database Tables

When modifying existing applications and developing new ones, use four-digit years whenever possible. Using four-digit years eliminates the need for the system to assume a century for two-digit years.

If you are editing a database table through Script Builder, always use four-digit years in the date fields when you are adding or modifying dates.

Modify Two-Digit Years Before Storing in Local Database Tables

When CONVERSANT VIS version 3.1.1 stores dates in a local database table, it converts all two-digit years in date-field format to four-digit years in the 20th century (19*xx*). If having the correct century is important for your application, you must ensure that the application is inserting a date with a four-digit year; otherwise, dates in the 21st century (20*xx*) will be stored incorrectly as 19*xx*. Therefore, you must change two-digit years to four-digit years before CONVERSANT stores the date in a local database table. You can take *either* of the following approaches:

- Accept only four-digit years from your source. You can take steps to force the caller or external source to enter or send data using four-digit years. This approach involves changing prompts, program logic, and perhaps the size of some character variables.

- Continue to accept two-digit years from your source and change the logic in the application to add the correct century. The sample code below shows one way to modify an application to add the correct century to a two-digit year.

Sample Code

The following sample code shows one method for modifying an application so that it accepts a date with a two-digit year from a caller and then supplies the correct century before saving the date in a local database table.

This sample uses a 100-year window from 1998 to 2097. The caller enters an expected retirement date. Because in this application a retirement date is a date in the future, the application takes the year 1998 as the first year of the 100-year span. If the year is equal to or less than 97, the application adds 2000 to the value to create a 21st century date (20*xx*). If the year is greater than 97, the application adds 1900 to the value to create a 20th century date (19*xx*).

When using this method, determine the 100-year window very carefully. This method is not appropriate for all applications. For example, if your data includes birth dates, the dates could span more than a 100-year range, and a safer method would be to accept only four-digit years from your source. Also, note that you can choose other ways to modify an application to achieve the same result; for example, you can use the substring and concat external functions to remove the century and apply another.

⇒ **NOTE:**
This sample shows only the part of the application that handles adding the correct century for two-digit years. The sample begins arbitrarily with step 9 to indicate that other steps will likely come before it in your application. Note that this sample also does not include some of the verification that would be used in a real application, such as confirming that the date received is a valid date.

Table 3 explains what happens during each step in the sample code:

Table 3.   Explanation of Sample Code

Step(s)	Explanation
9	The caller is asked to enter an expected retirement date. The system accepts *month/day/year* format, which accepts both two-digit and four-digit years. Sample valid inputs include 100199, 02282000, and 123199. The date is stored in a character field.
10–12	The date is broken into three character fields of month, day, and year. When the year field is separated, the system keeps track of the length of the string so it can tell if the caller entered a two-digit or four-digit year.

Continued on next page

Table 3.   Explanation of Sample Code — *Continued*

Step(s)	Explanation
13–16	A window of 100 years, from 1997 to 2097, is used to select the century for two-digit years. Because the date for this sample application is an expected retirement date, the date will be in the future. The application adds 1900 to any year larger than 97 and stores it as 19*xx*; it adds 2000 to any year less than or equal to 97, and stores it as 20*xx*.
17–19	The retirement date is assembled back into *YYYYMMDD* format, which is the format for data entered in the date-format.
20	The correct retirement date is stored in a local database table. (A read was performed on the table earlier in the application.)

```
   1. Answer phone.
          .
          .
          .

# In the next step in this application, the caller is asked to
# enter an expected retirement date.
   9. Prompt & Collect
        Prompt
          Speak With Interrupt
            Text: "Please enter the date you intend to retire "
            Text: "in month, day, and year format. "
        Input
          Caller Input Field: intended_retire_date
          Min Number Of Digits: 06
          Max Number Of Digits: 08
        Checklist
          Case: "Input Ok"
            Continue
          Case: "Initial Timeout"
            Reprompt
          Case: "Too Few Digits"
            Reprompt
          Case: "No More Tries"
            Quit
      End Prompt & Collect

# Separate month, day, & year of intended retirement date
  10. External Function
        Function Name: substring
        Use Arguments: intended_month intended_retire_date 0 2
        Return Field:  return
```

```
    11. External Function
          Function Name: substring
          Use Arguments: intended_day intended_retire_date 2 2
          Return Field:  return

    12. External Function
          Function Name: substring
          Use Arguments: intended_year intended_retire_date 4 4
          Return Field:  length_of_year

# If 2-digit year was provided, add the century
# before saving this date in a database table
   13. Evaluate
       If length_of_year  = 2
   14.   Evaluate
       If intended_year  > 97
   15.     Set Field Value
              Field: intended_year = intended_year + 1900
           Else
   16.       Set Field Value
              Field: intended_year = intended_year + 2000
           End Evaluate
        End Evaluate

#Put the date back together in YYYYMMDD format
   17. External Function
          Function Name: concat
          Use Arguments: retire_date retire_date intended_year 4
          Return Field:  return

   18. External Function
          Function Name: concat
          Use Arguments: retire_date retire_date intended_month 6
          Return Field:  return

   19. External Function
          Function Name: concat
          Use Arguments: retire_date retire_date intended_day 8
          Return Field:  return

# Add the intended retirement date to the database
   20. Modify Table
          Table Name: employees Operation: Change
            Field: intend_retire_date = retire_date

                   .
                   .
                   .
```

Modify Two-Digit Years Retrieved from an IBM Host

When retrieving dates from an IBM host, CONVERSANT changes all two-digit years in date-format (such as *D*, *DM/D/Y*, *DM-D-Y*, or *DM.D.Y*) to four-digit years in the 20th century (19*xx*). If having the correct century is important for your application, you must adjust the century after it has been retrieved from the IBM host. If you do not, dates in the 21st century (20*xx*) will be returned incorrectly to the application as 20th century dates (19*xx)*.

> **NOTE:**
> If the century is not needed for the application to work properly, you might not need to make these modifications. However, if the date field is spoken, you must adjust the spoken format of the date so that it speaks only the last two digits of the year. For example, use formats that speak a two-digit year *(DMDY or DMSPDY)* instead of formats that speak a four-digit year *(DMDYY* or *DMSPDYY)*. You can also use a format without the year, such as *DMD* or *DMSP*, if the application does not require the year to be spoken.

The following samples show two ways of supplying the correct century for two-digit years retrieved from an IBM host. After retrieving the date, the host DIP has processed it and stored it as 19*xxxxxx* (*CCYYMMDD* format).

- Addition and Subtraction Method — Subtract 19000000 from the date and then add 2000000 to create a 20*xxxxx* date.

- Window Method — Select a date as the first year of a 100-year window and use the substring to subtract 1900 and add 2000 to all years less than or equal to that date.

Each method is described in detail in the sections below.

> **NOTE:**
> These samples do not include some of the verification that would be used in a real application, such as confirming that the date received is a valid date.

Sample Code 1: Addition and Subtraction Method

In the following sample, a two-digit year is retrieved from an IBM host. In this sample, the year is for an expiration date on a credit card. The host DIP automatically assigns the date to the 20th century (19*xx*) and stores it in *CCYYMMDD* format (19*xxxxxx*). In this sample application, the expiration date on credit cards is at least three years in the future, so this application can safely change all dates to 20*xxxxxx*. To do this, the application subtracts 19000000 from the stored date and then adds 2000000.

NOTE:

This sample shows only the part of the application that handles inserting the correct century for two-digit years. The sample begins arbitrarily with step 9 to indicate that other steps will likely come before it in your application.

Table 4 explains what happens during each step.

Table 4. Explanation of Sample Code 1

Step	Explanation
9	The host screen act_inquiry is retrieved from the host. This screen contains a field `expiration_date`. The field format is defined as DMDY. Examples of what may be retrieved from the host are: 100100 (for Oct 1, 2000) or 123102 (for Dec 31, 2002). When the host DIP processes the date, it stores it internally in the format of CCYYMMDD (century, year, month, day) with CC equal to 19. These examples would be stored as 19001001 and 19021231.
10	To change the century from 19*xx* to 20*xx,* subtract 19000000 and then add 20000000. For example: 19001001 – 19000000 = 1001. Then 1001 + 20000000 = 20001001 (for 10/01/2000)
11	The expiration date is spoken using the ADMSPDYY format (Text to Speech with a spoken month and four-digit year, such as "January 3rd, 2000").

```
   1. Answer phone.
         .
         .
         .
   9. Get Host Screen
      For Screen Name: act_inquiry
  10.   Set Field Value
          Field: expiration_date  = expiration_date - 19000000
          Field: expiration_date  = expiration_date + 20000000
  11.   Announce
          Speak With Interrupt
            Text: "Your card expires on"
            Field: expiration_date As ADMSPDYY
      End Get Host Screen

         .
         .
```

Sample Code 2: Window Method

This sample shows a second method for modifying an application so that it adds the correct century to a two-digit year that has been retrieved from an IBM host. In this sample, the date retrieved is a employee hire date on an application. The application then supplies the correct century by creating a 100-year window starting with a date that you specify.

According to the application in this sample, hire dates should occur on or after 1920. The application then uses a 100-year window of 1920-2019. If the year for the hire date is less than or equal to 1920, the application subtracts 1900 and adds 2000 to create a 21st century date (20*xx*). If the date is greater than 1920, it is not altered.

Note that this means this modification would not work if there are dates after the year 2019. The window techniques you use will need to be updated at some point in the future, or you will need to replace it with four-digit years.

➡ **NOTE:**
The following sample shows only the part of the application that handles inserting the correct century for two-digit years. The sample begins arbitrarily with step 9 to indicate that other steps will likely come before it in your application.

Table 5 explains what happens during each step.

Table 5.   Explanation of Sample Code 2

Step(s)	Explanation
9	The host screen emp_inquiry is retrieved from the host. This screen contains a `hire_date` field in *DMDY* format, which should occur on or after 1920. Examples of dates retrieved from the host include 051455 (for May 14, 1955) or 021500 (for Feb 15, 2000). When the host DIP processes the date, it stores it internally as *CCYYMMDD*, with CC equal to19. These examples would be stored as 19550514 and 19000215.
10–11	The year is separated from the date using a substring.
12–13	The window technique is applied. For example, if the date retrieved is less than or equal to 1920, the century should be 20xx. Subtract 1900 and then add 2000 to the year. By doing this, we have selected a 100 year window of 1920-2019. In step 13, the application transfers the year to a `num` field.
14–16	The date is reassembled in *YYYYMMDD* format, assigned to the original variable name, and then spoken out to the caller.

```
  1. Answer phone.
          .
          .
          .
  9. Get Host Screen
     For Screen Name: emp_inquiry

## First, separate the year from the date into year_str
 10.    External Function
          Function Name: substring
          Use Arguments: year_str  hire_date  0  4

 11.    External Function
          Function Name: substring
          Use Arguments: date_str  hire_date  4  4

 12. Evaluate
     If year_str   < 1920
```

```
13.  Set Field Value
        Field: year_num = year_str - 1900
        Field: year_num = year_num + 2000
     Else
       Set Field Value
        Field: year_num = year_str
     End Evaluate

14.  External Function
        Function Name: concat
        Use Arguments: new_date_str  year_num  date_str  0

15.  Set Field Value
        Field: hire_date = new_date_str

16.  Announce
        Speak With Interrupt
          Text: "You were hired on"
          Field: hire_date As DMSPDYY
     End Get Host Screen

               .
               .
               .
```

Adapt Date-Processing Methods for Year 2038

The UNIX operating system supports dates between January 1, 00:00:00, 1970 Greenwich Mean Time (GMT) and January 19, 03:14:07, 2038 GMT, as shown in Table 6. If you use UNIX functions to process date data, dates cannot exceed January 19, 03:14:07, 2038 GMT. Your CONVERSANT application can, however, process dates past this date by switching to the methods described in "Alternative Methods".

Table 6.   Range Supported by UNIX Operating System

Earliest date supported by UNIX	Last date supported by UNIX
January 1, 00:00:00 1970 (GMT)	January 19, 03:14:07 2038 (GMT)

How UNIX Calculates Time

The UNIX operating system calculates the current time based on the starting point of January 1, 00:00:00, 1970 GMT (referred to as the *Epoch*). To determine the current day, the UNIX operating system keeps track of the number of seconds that have occurred since the Epoch in a data type *time_t*, which is defined with a 32-bit internal date representation.

Because the data type *time_t* is based on a signed 32-bit value, the maximum date that UNIX can represent is January 19, 03:14:07, 2038 GMT. You can set the UNIX operating system date to any point in this range and have accurate results regarding the system day and time. However, you cannot use UNIX functions to process dates exceeding the last supported date of January 19, 03:14:07, 2038 GMT.

Script Builder Example

The Script Builder *datetime_u* and *u_datetime* external functions are used to process dates and could be involved in processing values that exceed the last date supported by UnixWare 2.1. These external functions do not work if the date converts to a UnixWare v2.1 time that is greater than this value.

For example, in an application that requires adding 30 days to a date, CONVERSANT Script Builder application developers might have used the *datetime_u* and *u_datetime* functions to handle date arithmetic as follows:

1. The *datetime_u* function converts the date (in *CCYYMMDD* format) and time (in *HHMMSS* format) to the UNIX representation of time as the number of seconds since the Epoch.

2. Thirty days is added by multiplying 30 times the number of seconds in a day and adding that value to the UNIX time.

3. The *u_datetime* function converts the UNIX time (in seconds since the Epoch) back to a regular date (in *CCYYMMDD* format) and time (in *HHMMSS* format).

If the value achieved in step1 or step 2 is greater than the value for January 19, 03:14:07 2038 GMT, the *datetime_u* and *u_datetime* functions will not work.

Alternative Methods

If your application must process dates beyond the last date supported by UNIX, you can use the following alternatives:

■ Use the ORACLE database. This database has many date functions that can be accessed by writing a C-language data interface process (DIP). CONVERSANT can call this DIP to handle date arithmetic. Some ORACLE date functions are listed below. See the ORACLE documentation for more information on date functions.

— ADD_MONTHS — to add some number of months to a given date

— LAST_DAY — to compute the last day of the given month

— MONTHS_BETWEEN — to compute the number of months between two given dates

— NEW_TIME — to compute the date and time in a different time zone

— NEXT_DAY — to compute the first day of the week that is equal to or later than a given day

■ Use your own date processing functions to manipulate dates and handle any date arithmetic needed by your applications. Ensure that the functions correctly handle calculations involving leap years, if appropriate.

Administration After the Year 2000

The CONVERSANT VIS V3.1.1 Year 2000 Update provides a new **y2kmenu** utility that you should use on or after January 1, 2000, to perform some of the system administration functions that were affected by the year 2000. When you enter the y2kmenu command, the system displays the Administration After Year 2000 menu (Figure 1). Use this menu to perform these tasks:

■ Accessing and editing system reports

■ Setting holidays and seasonal greetings

Before 1/1/2000, you should perform these tasks through the cvis_menu command or Script Builder, as usual. After 1/1/2000, these areas will not work correctly through the cvis_menu and Script Builder; instead, use the y2kmenu utility to perform these operations from the Administration After Year 2000 menu.

NOTE:
The Administration After Year 2000 menu is not meant to be used before your system date reaches1/1/2000. If you enter the y2kmenu command before 1/1/2000, the system displays the following message:

```
We strongly recommend that you do not use the y2kmenu
command-line utility until 1/1/2000. If you modify holidays or
seasonal greetings using the y2kmenu utility, your changes will
not appear in cvis_menu screens.
Are you sure you want to continue? <y or n> [n]
```

y2kmenu Utility:
Administration After Year 2000 Menu

The Administration After Year 2000 menu gives you access to the following:

- System reports, such as VIS call classification reports, call data detail reports, call data summary reports, message log reports, and traffic reports. You can tailor each report to your own needs.

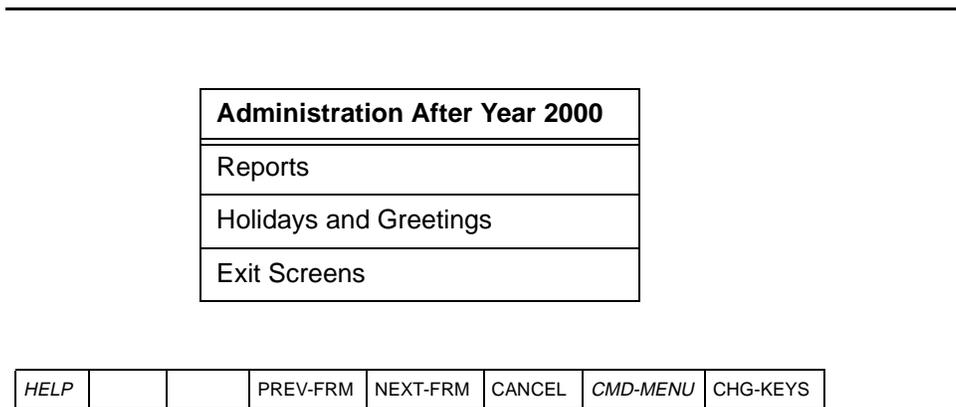- Holidays and greetings setup windows.

➡ **NOTE:**
The HELP and CMD-MENU function keys do not operate on the Administration After Year 2000 menu; pressing these keys has no effect. These keys are italicized in sample windows in this document.

At the CONVERSANT VIS UNIX prompt, type **y2kmenu** and press (ENTER). The system displays the message below and then proceeds to display the Administration After Year 2000 menu (Figure 1).

```
After updating Holidays & Greetings from this utility,
please be sure to VERIFY & INSTALL the script before the
changes take effect.
VERIFY & INSTALL keys can be accessed by using the CHG-KEYS
(F8) in the Set Holidays & Greetings Screen.
```

Each of the options on the menu is described in the sections that follow.

Administration After Year 2000
Reports
Holidays and Greetings
Exit Screens

HELP			PREV-FRM	NEXT-FRM	CANCEL	CMD-MENU	CHG-KEYS

Figure 1.   The Administration After Year 2000 Menu

Reports Option

The Reports option lets you access the following system reports (formerly accessed through cvis_menu):

■ Call Classification Report

■ Call Data Detail Report

■ Call Data Summary Report

■ Message Log Report

■ Traffic Report

You can access and use the reports on the System Reports window in the same way that you have used them through cvis_menu, with the change noted in Table 7. See *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT Version 3.1 Operations, 585-350-701*, for details on using these reports.

The following change applies for the reports that let you specify a two-digit year:

■ Call Classification Report (The `Start Date` and `End Date` fields accept two-digit years.)

■ Call Data Detail Report (The `Date` field accepts a two-digit year.)

Be aware that the system assumes a century of either "19" or "20" according to the number you specify for the year *yy,* as shown in Table 7.

Table 7.   Century Assignments

If you specify a number from	The system assumes a century of
70 through 99	19 (1970 – 1999)
00 through 37	20 (2000 – 2037)

Accessing System Reports

1. Select the Reports option on the Administration After Year 2000 window and press ENTER. The system displays the Reports Administration window (Figure 2).
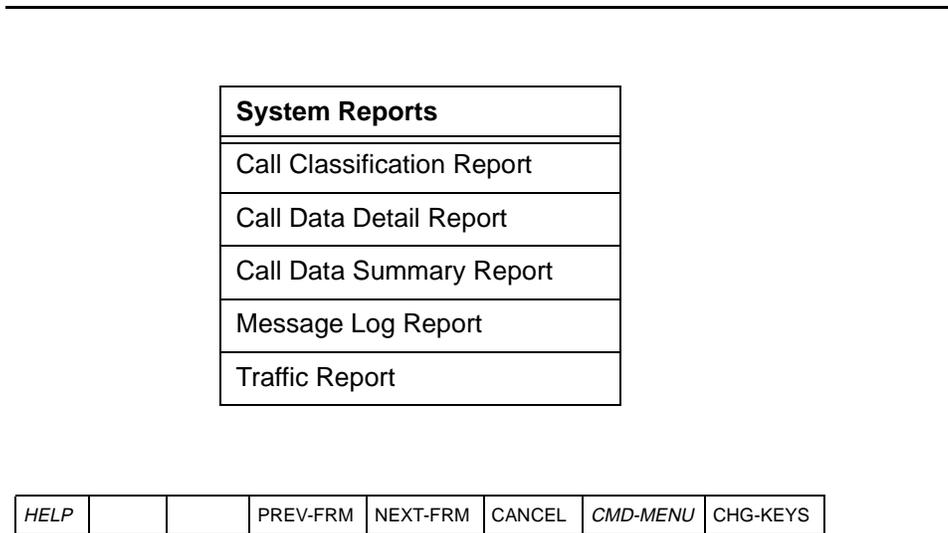
   ⇒ **NOTE:**
   If your system has AUDIX Voice Power, the Reports Administration window displays an option for it. You can access and edit these reports in the same way that you have used with cvis_menu. See *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT Version 3.1 Operations, 585-350-701*, for information about these reports.

Reports Administration
System Reports

HELP			PREV-FRM	NEXT-FRM	CANCEL	*CMD-MENU*	CHG-KEYS
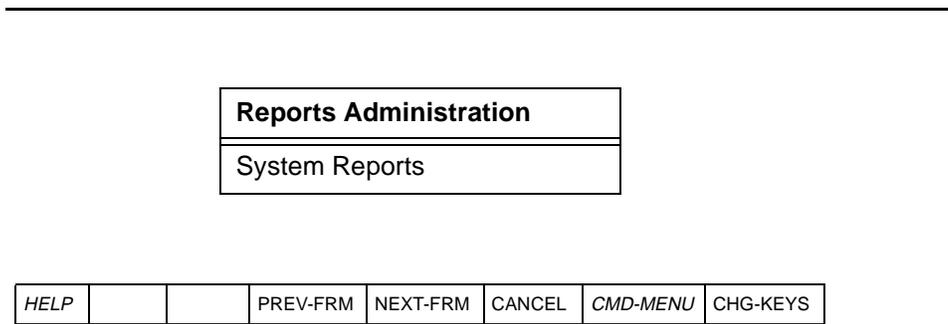
Figure 2.   Reports Administration Window

2. From the Reports Administration window, select the System Reports
    option and press ENTER. The system displays the System Reports window
    (Figure 3).

System Reports
Call Classification Report
Call Data Detail Report
Call Data Summary Report
Message Log Report
Traffic Report

HELP			PREV-FRM	NEXT-FRM	CANCEL	*CMD-MENU*	CHG-KEYS

Figure 3.   System Reports Window

3. From the System Reports window, select the option for the report you want
    to access and press ENTER. The system displays the window for that
    report. Enter data on this window as you normally would through cvis_
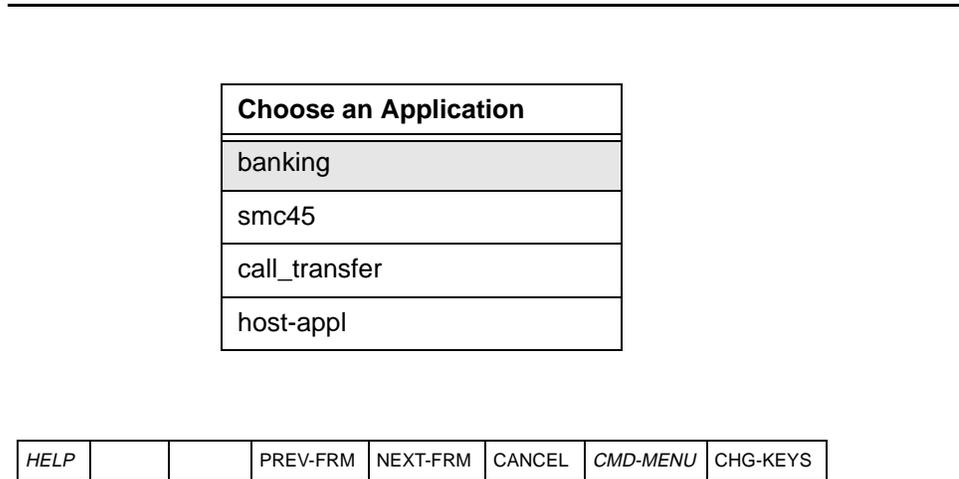   menu.

Holidays and Greetings Option

Before January 1, 2000, you should set holidays and seasonal greetings as usual, with the Parameters option while editing your application through Script Builder. Beginning on January 1, 2000, use the Holidays and Greetings option on the Administration After Year 2000 menu to perform these tasks.

For basic instructions on adding and removing holidays or seasonal greetings, see "Setting Holidays" or "Setting Seasonal Greetings" in this document. For detailed information on holidays and greetings, see *CONVERSANT Intro Version 3.1.1 Script Builder User's Guide, 585-351-701*, or *CONVERSANT Version 3.1 Script Builder, 585-350-702*.

Accessing Holidays and Greetings

1. From the Administration After Year 2000 menu, select the Holidays & Greetings option, and press (ENTER). The system displays the Choose an Application window (Figure 4).

Choose an Application
banking
smc45
call_transfer
host-appl

HELP			PREV-FRM	NEXT-FRM	CANCEL	*CMD-MENU*	CHG-KEYS

Figure 4.   Sample Choose an Application Window

2. The Choose an Application window displays various applications. Select the appropriate application and press (ENTER). The system displays the Set Holidays and Greetings window (Figure 5).

➡ **NOTE:**
The LIST option on the Set Holidays and Greetings window is disabled for this window; pressing it will have no effect.

SET HOLIDAYS & SEASONAL GREETINGS FOR: banking

Set Holidays And Greetings
Holidays
Seasonal Greetings

		SAVE	REDRAW	*LIST*	CANCEL	EXIT	CHG-KEYS

Figure 5.   Set Holidays and Greetings Window

3. From the Set Holidays and Greetings window, select either of the following and press ⌨ENTER.

   ■ Holidays option — The system displays the Holidays window for the application. For instructions on adding or removing a holiday setting, see "Setting Holidays" in this document.

   ■ Seasonal Greetings option — The system displays the Seasonal Greetings window. For instructions on adding or removing a seasonal greeting, see "Setting Seasonal Greetings" in this document.

Setting Holidays

The Holidays option lets you specify a date as a holiday. These dates are then entered on a holiday list. When calls come into the system, the call date is checked to see if it matches one of the dates on the holiday list. If a date is specified as a holiday, the transaction begins at the HOLIDAY label.

Use this option to add and remove dates as holidays.

Adding a Holiday

To add a holiday, follow these steps:

1. From the Set Holidays and Greetings window, select the Holidays option and press ⌨ENTER.

   The Holidays window is displayed for the selected application.

2. Press ⌨F1 (Add).

   The Add Holiday window is displayed.

3. Fill in the month, day and year of the holiday. Note that for the two-digit year, CONVERSANT interprets the values as follows:

  - Values from 00–37 become the years 2000–2037.
  - Values from 70–99 become the years 1970–1999.

4. Press F3 (Close).

   The date is added to the holiday list. The Holidays window remains open in case you want to add another holiday. (To cancel entries without saving, press F6 (Cancel) and then F7 (Discard)).

5. When you are finished adding holidays, press F6 (Cancel).

6. Press F8 (Chg-Keys) to show the next set of function keys.

7. Press F3 (Save) to save your changes.

8. Press F6 (Cancel).

9. Press F3 (Save) to save your changes at the next level.

10. Press F8 (Chg-Keys) to show the next set of function keys.

11. Once the holiday has been added and saved, you must verify and install the application. Press F3 (Verify).

    The Verify Procedure window is displayed. When the system has verified the application, it displays the message "Verification successful".

12. Press F6 (Cancel).

13. Press F4 (Install) to install the application.

    The Install Procedure window is displayed. When the system has installed the application, it displays the message "Installation completed".

14. Press F6 (Cancel).

    The Set Holidays and Greetings window is displayed.

15. Press F8 (Chg-Keys) to show the next set of function keys.

16. Press F6 (Cancel).

    The Administration After Year 2000 menu is displayed.

Removing a Holiday

To remove a holiday, follow the steps below. Note that a HOLIDAY label must exist for the date before you can remove the date as a holiday.

1. From the Set Holidays and Greetings window, select the Holidays option and press ENTER.

   The Holidays window is displayed.

2. Select the date to be removed.

3. Press ⒡2 (Remove).

   The date is removed. To remove another holiday, select another date and press ⒡2 (Remove) again.

4. When you are finished removing holidays, press ⒡8 (Chg-Keys).

5. Press ⒡3 (Save) to save your changes.

6. Press ⒡6 (Cancel).

7. Press ⒡3 (Save) to save your changes at the next level.

8. Press ⒡8 (Chg-Keys) to show the next set of function keys.

9. Once the holiday has been removed and the change saved, you must verify and install the application. Press ⒡3 (Verify).

   The Verify Procedure window is displayed. When the system has verified the application, it displays the message "`Verification successful`".

10. Press ⒡6 (Cancel).

11. Press ⒡4 (Install) to install the application.

    The Install Procedure window is displayed. When the system has installed the application, it displays the message "`Installation completed`".

12. Press ⒡6 (Cancel).

    The Set Holidays and Greetings window is displayed.

13. Press ⒡8 (Chg-Keys) to show the next set of function keys.

14. Press ⒡6 (Cancel).

    The Administration After Year 2000 menu is displayed.

Setting Seasonal Greetings

The Seasonal Greetings option lets you customize a call by adding a greeting appropriate for a single holiday or a holiday season. Whenever a call is received during a holiday or holiday season, the system plays the specified greeting.

Use this option to add and remove dates that are assigned seasonal greetings.

Adding a Seasonal Greeting

To add a seasonal greeting for a date, follow these steps:

1. From the Set Holidays and Greetings window, select the Seasonal Greetings option, and press ⒠ENTER⒡.

   The Seasonal Greetings window is displayed for the selected application.

2. Press ⒡1 (Add) from the Seasonal Greetings window.

   The Add Seasonal Greeting window is displayed.

3. Fill in `Start Date,` `End Date,` and `Greeting Phrase` as desired. Dates are in *mm/dd/yy* format. Note that for the two-digit year, CONVERSANT interprets the values as follows:

   ■ Values from 00–37 become the years 2000–2037.

   ■ Values from 70–99 become the years 1970–1999.

   The greeting phrase you specify is announced from 12:01 a.m. of the start date until 12:00 p.m. of the end date. If you wish for the greeting to play for a single day, the start and end date must be the same.

4. You can press F2 (Choices) to display a selection of dates and phrases. You also can create a phrase for the season if what you want is not listed in the display. The greeting phrase tag is limited to a maximum length of 50 characters. If you choose to record a greeting, see *CONVERSANT Intro Version 3.1.1 Script Builder User's Guide, 585-351-701*, or *CONVERSANT Version 3.1 Script Builder, 585-350-702*, for more information.

5. Press F3 (Close) to add the greeting to the Seasonal Greetings list.

   The Seasonal Greetings window remains open in case you want to add another date.

6. When you are finished adding dates, press F6 (Cancel).

7. Press F8 (Chg-Keys) to show the next set of function keys.

8. Press F3 (Save) to save your changes.

9. Press F6 (Cancel).

10. Press F3 (Save) to save your changes at the next level.

11. Press F8 (Chg-Keys) to show the next set of function keys.

12. Once the date has been removed and the change saved, you must verify and install the application. Press F3 (Verify).

    The Verify Procedure window is displayed. When the system has verified the application, it displays the message "`Verification successful`".

13. Press F6 (Cancel).

14. Press F4 (Install) to install the application.

    The Install Procedure window is displayed. When the system has installed the application, it displays the message "`Installation completed`".

15. Press F6 (Cancel).

    The Set Seasonal Greetings window is displayed.

16. Press F8 (Chg-Keys) to show the next set of function keys.

17. Press F6 (Cancel).

    The Administration After Year 2000 menu is displayed.

Removing a Seasonal Greeting

To remove a Seasonal Greeting, follow the steps below:

1. From the Set Holidays and Greetings window, select the Seasonal Greetings option, and press [ENTER].

   The Seasonal Greetings window is displayed for the selected application.

2. Select the greeting to be removed and press [F2] (Remove).

   The date is removed from the seasonal greetings list. To remove another seasonal greeting date, select another date and press [F2] (Remove) again.

3. When you are finished removing dates as seasonal greetings, press [F8] (Chg-Keys) to show the next set of function keys.

4. Press [F3] (Save) to save your changes.

5. Press [F6] (Cancel).

6. Press [F3] (Save) to save your changes at the next level.

7. Press [F8] (Chg-Keys) to show the next set of function keys.

8. Once the date has been removed and the change saved, you must verify and install the application. Press [F3] (Verify).

   The Verify Procedure window is displayed. When the system has verified the application, it displays the message "Verification successful".

9. Press [F6] (Cancel).

10. Press [F4] (Install) to install the application.

    The Install Procedure window is displayed. When the system has installed the application, it displays the message "Installation completed".

11. Press [F6] (Cancel).

    The Set Holidays and Greetings window is displayed.

12. Press [F8] (Chg-Keys) to show the next set of function keys.

13. Press [F6] (Cancel).

    The Administration After Year 2000 menu is displayed.

Areas Requiring Additional Consideration

The following sections describe additional areas of your system related to year 2000 issues that you should take into consideration. These areas are minor and should not impact customer applications. Some areas are situations that you should note, while others have corrective or alternative actions you can take. You should, however, become familiar with all of these areas so that you can address them if necessary.

CONVERSANT Areas

This section describes the areas of the CONVERSANT system that have behavior that differs from the documented behavior for before the year 2000.

Integrated Voice Response Date Option

For CONVERSANT Intro V3.1.1 systems: In the Integrated Voice Response utility, the menu option to set the date does not function correctly in the 21st century (20xx). To set the date after 1/1/2000, use the menu options in the **face** utility.

Log File Display Date

The log file **/usr/faxdb/spool/fax/logs/faxdaily.log** displays the year in 3 digits: 100 represents year 2000, 101 represents year 2001, and so forth. For example, the log file represents Jan 1, 2000, at 1:32 AM as "01 01 **100** 01 32".

Call Classification Report

The Call Classification Report does not handle input consistently when a user enters an invalid start or end date. For example, if the end date is mistakenly entered as a date *before* the start date, the system may not produce an error, and no call records will be displayed. If the user correctly enters valid start and end dates (end date *after* the start date), the call data is shown as usual. To avoid this problem, make sure that you enter the date correctly.

Database Time Field

If a CONVERSANT database record containing a time field was created before the year 2000, a user will be unable to query, modify, or delete the record if it is accessed on or after 1/1/2000. This problem is fixed in CONVERSANT VIS Year 2000 Update — Patch 1, QPPCN 1169, which is being sent to all CONVERSANT customers who have purchased the CONVERSANT VIS V3.1.1 Year 2000 Update Kit. It is strongly recommended that customers install the update patch. However, if you require a method to work around the problem without using the patch, see "Alternative Methods for Database Records with Time Fields" in Appendix A, "For Advanced Users".

UNIX Areas

This section describes the areas of UNIX that have behavior that differs from the documented behavior for before the year 2000. It also shows the areas that are no longer supported.

face Utility

The face utility functions correctly, but the date at the top of the output screen continues to display "19*xx*".

Problem. The face utility functions correctly, but the date at the top of the output screen continues to display "19*xx*".

Corrective Action. Adjust the menu screen that displays the date. Use the procedure below.

➡ **NOTE:**
This procedure requires that you edit a file using a UNIX-based editor, such as /bin/vi. Please do not attempt to perform this procedure unless you are comfortable using a UNIX-based editor.

1. Log in as **root**

2. At the UNIX prompt, enter **cd /usr/vmsys/OBJECTS/pref**

3. At the next UNIX prompt, enter **vi Form.color**

   The Form.color file is displayed.

4. In the fourth line of the text, replace **19%y** with **%Y**, as follows:

   Change: `done='indicator -w;echo "banner=\"  AT&T FACE - \'date '+%h %d, 19%y'\'\"`

   To: `done='indicator -w;echo "banner=\"  AT&T FACE - \'date '+%h %d, %Y'\'\"`

5. Save the file and exit vi.

6. To activate the change, perform this save procedure:

   a. At the UNIX prompt, enter **face** to display the FACE screen.

   b. Select `Office of Root`

   c. Select `Preferences`

   d. Select `Color Attributes`

   e. Select ⒡₃ (Save).

f. Select F6 (Cancel) repeatedly until the initial FACE screen is displayed.

g. Select Exit

h. Select F3 (Continue) to complete the exit.

Result. The date at the top of the face output screen displays the correct century.

passwd Command

Problem. When a user invokes the **passwd -s -a** command in or after the year 2000, password-change dates display the year in three digits instead of two digits. The passwd command used with the **-s -a** options displays information about the password settings (but not the specific passwords) for all users of the system. Included in this information is the date that a password was last changed, unless the password is locked (LK) or none exists (NP). The date displayed for an existing, unlocked password will, for example, represent the year 2000 as 100 instead of the 00, and the year 2015 as 115 instead of 15.

Alternative Action. View the password information for users individually. Instead of using the **-a** option, which displays information for all users, use the command **passwd -s <*username*>** (for example, **passwd -s root**) and view information for a specific user.

Result. The password-change date displays a two-digit year.

date Command

After the Year 2000 Update kit has been installed, if you use the date command to set the system date, the format will require a year. The correct format to use for the date command is *MMDDHHmmYYYY*, where *MM* is the month, *DD* is the day, *HH* is the hour in 24-hour format, *mm* is the minute, and *YYYY* is the year in four digits.

ctime Library Functions

This section describes the localtime, gmtime, ascftime, and cftime UNIX ctime library functions, all of which require minor corrective actions or alternative methods in order to produce correct output. Most corrective actions involve appending a modulous 100 to the tm_year structure.

localtime() and gmtime()

Problem. The tm_year structure in these routines calculates the number of years elapsed since 1900. After 1999, two-digit years will print in three digits. For example, the year 2036 will print as "136" instead "36".

Sample. The following shows sample code for the localtime function. The tm_year structure is indicated in bold.

```
#include <sys/types.h>
#include <time.h>
char *mon[] =
{
   "January",
   "February",
   "March",
   "April",
   "May",
   "June",
   "July",
   "August",
   "September",
   "October",
   "November",
   "December"
};
main()
{
   time_t clock();
   time_t curtime;
   struct tm *localtime();
   struct tm *tptr;
   time( &curtime );
   tptr = localtime( &curtime );
   printf( "The current date is: %s %d, %.2d\n", mon[tptr->tm_mon],
           tptr->tm_mday, tptr->tm_year );
}
```

Corrective Action. Append a modulous 100 to the tm_year structure. In the preceding sample, you would make the following change, as noted in bold:

Replace:
```
printf( "The current date is: %s %d, %.2d\n", mon[tptr->tm_mon],
                tptr->tm_mday, tptr->tm_year );
```

with:
```
printf( "The current date is: %s %d, %.2d\n", mon[tptr->tm_mon],
                tptr->tm_mday, tptr->tm_year % 100 );
```

Result. Table 8 shows results for the above sample code, before and after appending the modulous 100, for the date of February 9, 2036.

Table 8. Sample localtime Results for February 9, 2036

Before Corrective Action	After Corrective Action
The current date is: February 9, **136**	The current date is: February 9, **36**

cftime()

Problem. The %D field descriptor (%m/%d/%y format) and the %y field descriptor (year within century, 00-99) use two-digit years and produce unacceptable results for 21st century dates. The %Y field descriptor (four-digit year) prints accurately. For example, the year 2036 prints as follows:

■ %D output for the year: =6

■ %y output: =6

Alternative Action. Use the ascftime function.

ascftime()

Problem. The %D field descriptor (%m/%d/%y format) and the %y field descriptor (year within century, 00-99) use two-digit years and produce unacceptable results for 21st century dates. The %Y field descriptor (four-digit year) prints accurately. For example, the year 2036 prints as follows:

- %D output for the year: =6

- %y output: =6

Sample. The following shows sample code for the ascftime function. The field descriptors are indicated in bold.

```
#include <sys/types.h>
#include <time.h>
main()
{
  char str[40];
  time_t clock();
  time_t curtime;
  struct tm *localtime();
  struct tm *tptr;
  time( &curtime );
  tptr = localtime( &curtime );

  ascftime( str, "%D" tptr );
  printf( "The current date is: %s\n", str );

  ascftime( str, "%B %e, %y" tptr );
  printf( "The current date is: %s\n", str );
}
```

Corrective Action. Append a modulous 100 to the tm_year structure. In the preceding sample, you would add the following instruction:

Add: **tptr->tm_year = tptr->tm_year % 100;**

Example: tptr = localtime(&curtime);
         tptr->tm_year = tptr->tm_year % 100;

Result. Table 9 shows the results for the above sample code, before and after appending the modulous 100, for the date of February 9, 2036.

Table 9.   Sample ascftime Results for February 9, 2036

Desc.	Before Corrective Action	After Corrective Action
%D	The current date is: 02/09/**=6**	The current date is: 02/09/**36**
%y	The current date is: February 9, **=6**	The current date is: February 9, **36**

UNIX Areas No Longer Supported

The following UNIX subsystems are not supported once you have installed the UNIX System V/386 3.2.3 Year 2000 Update. These routines do not affect the CONVERSANT voice system or existing applications.

- UNIX Accounting subsystem

- UNIX SCCS subsystem (for example, the SCCS command)

MAP/5 Platform

This section describes the area of the MAP/5 hardware platform that has behavior that differs from the documented behavior for before the year 2000.

CMOS Setup Utility

The CMOS Setup utility for the MAP/5 Master Controller platform does not support the leap-year date of 2/29/2000. If you enter the CMOS Setup utility on 2/29/2000, you will have to reset the system date after you have exited the utility. If you do not enter the CMOS Setup utility on 2/29/2000, the system will function normally on that day.

The CMOS Setup utility is entered by pressing a special set of key strokes when booting the system and is used only when performing maintenance such as replacing a hard disk or adding memory. When you exit the utility, the system automatically restarts. If you enter the CMOS Setup utility on 2/29/2000, CMOS will change the date to 2/28/2000, which it recognizes as a valid date. When you exit the utility and your system restarts, your system date will be changed to 2/28/2000 as well. To correct the date, use the Face utility or the date command to set the date back to 2/29/2000.

Removal Procedures

This section gives procedures for removing the UNIX System V/386 3.2.3 Year 2000 Update and the CONVERSANT VIS V3.1.1 Year 2000 Update. The 486 BIOS Version 2.1g update cannot be removed once it has been installed.

Removing the UNIX System V/386 3.2.3 Year 2000 Update

Use the following procedure if it is necessary to remove the UNIX System V/386 3.2.3 Year 2000 Update.

1. Stop the VIS system. You can type **stop_vs** and press ⸨ENTER⸩. See the procedures given in *CONVERSANT Intro Version 3.1.1 Operations, 585-351-501*, or *CONVERSANT VIS Version 3.1 Maintenance, 585-350-105*, if you need further instruction.

2. At the prompt, type **removepkg**, and then press ⸨ENTER⸩.

   The system displays a numbered list of installed packages.

3. Type the number associated with the UNIX System V/386 3.2.3 Year 2000 Update, and then press ⸨ENTER⸩.

   The system displays the following message:

   ```
   Do you really want to remove the UNIX System V/386 3.2.3
   Year 2000 Update?
   Strike ENTER when ready
   or ESC to stop
   ```

4. Press ⸨ENTER⸩.

   The system displays the following message when the removal is complete:

   ```
   The UNIX System V/386 3.2.3 Year 2000 Update is now
   removed.
   ```

Removing the CONVERSANT VIS V3.1.1 Year 2000 Update

Use the following procedure to remove the CONVERSANT VIS V3.1.1 Year 2000 Update.

➡ **NOTE:**
If the Voice System is currently running, it will be stopped during removal of this update. The system will prompt you near the end of the removal process for permission to restart the Voice System.

1. Login as **root**

2. At the prompt, type **removepkg**, and then press ⸨ENTER⸩.

   The numbered list of installed packages is displayed.

3. Type the number associated with the CONVERSANT VIS V3.1.1 Year 2000 Update, and then press (ENTER).

The system displays the following message:

```
Do you really want to remove the CONVERSANT VIS V3.1.1
Year 2000 Update?
Strike ENTER when ready
or ESC to stop
```

4. Press (ENTER) to continue with the removal process.

The system proceeds with the removal process. If the Voice System is currently running, the system prompts you for permission to shut down the Voice System:

```
Is it okay to stop the Voice System at this time?
(y/n) [y]
```

5. Press (ENTER) to stop the Voice System and continue with the removal process. If you enter **n**, the removal will stop. If you enter **y**, the system displays the following message:

```
The Voice System is now stopping
```

The system proceeds to stop the Voice System and remove the update.

6. The system prompts you for permission to restart the Voice System. Enter one of the following:

   - **y** (yes) to start the Voice System.

   - **n** (no) to have it remain stopped.

If you entered **y**, the system starts the Voice System. It then displays the following message:

```
The CONVERSANT VIS V3.1.1 Year 2000 Update is now
removed.
```

Support for This Product

It is the intent of Lucent Technologies to provide services support as follows for CONVERSANT VIS 3.1.1, with the Year 2000 Update Kit installed:

- Maintenance contracts can be renewed through 12/31/99, on a one-year basis. (A maintenance contract renewed on 12/31/1999 provides coverage through 12/31/2000.)

- From 1/1/2001 through 12/31/2001, support will be provided on a "best efforts — time and materials" basis.

Services for AUDIX Voice Power and FAX Attendant, when loaded on a CONVERSANT VIS V3.1.1 system with the Year 2000 Update Kit installed, are as follows:

- Maintenance contracts for AUDIX Voice Power and FAX Attendant can be renewed through 12/31/1998, on a one-year basis. (A maintenance contract renewed on 12/31/1998 provides coverage through 12/31/1999.)

- From 1/1/2000 through 12/31/2000, support will be provided on a "best efforts — time and materials" basis.

This policy is predicated on parts and personnel availability.

For Advanced Users

A

Overview

This appendix contains the following information designed to help advanced users:

- Spoken formats for speaking dates after the year 2000 — Descriptions of the formats for speaking dates after the year 2000 in U.S. English Standard Speech and U.S. English Text To Speech.

- Guidelines for testing your applications — General guidelines for testing for year 2000, should you choose to test your own applications. Note that Lucent Technologies *strongly recommends* that you contract with a software provider to test your applications.

- Alternative methods for the database records with time fields — Descriptions of the problem involving the time fields in database records, the update that fixes it, and alternative methods to work around it.

Spoken Formats for Speaking Dates

Table A-1 describes how dates are spoken after 2000 for the given format. These formats take effect after you have installed the updates in the CONVERSANT VIS V3.1.1 Year 2000 Update kit.

> **NOTE:**
> A format ending in "Y" indicates a two-digit year, and a format ending in "YY" indicates a four-digit year. U.S. English Standard speech formats begin with "D", and U.S. English Text To Speech (TTS) formats begin with "A".

Table A-1.   Formats for Speaking Dates

Date Formats	Years	Spoken Formats	Examples
2-digit formats:	2000	zero-zero	"zero-zero"
DMDY, DMSPDY, ADMDY, or ADMSPDY	2001 – 2009	zero-<year>	"zero-five" for 2005 (Previously "oh-<year>" for US English Standard speech)
	> 2009	<year>	"ten" for 2010
4-digit formats:	2000	Two thousand	"two thousand" (Previously "twenty zero-zero" for ADMDYY format)
DMDYY, DMSPDYY, ADMDYY, or ADMSPDYY	2001 – 2009	Two thousand <year>	"two-thousand-five" for 2005 (Previously "twenty-oh-<year> for US English Standard speech and ""twenty-zero<year>" for US English TTS)
	> 2009	Twenty-<year>	"twenty-ten" for 2010

Guidelines for Testing Your Applications

You are responsible for ensuring that your INTUITY CONVERSANT custom applications can continue to operate through the year 2000. To perform this testing, Lucent Technologies *strongly recommends* that you work with a software provider. If you choose to do this work yourself, we offer these general guidelines for testing for year 2000.

Before You Begin

Before you start to test your applications, review the following list and perform any necessary procedures. Proper preparation is crucial for successful testing.

- Ensure that you have installed the CONVERSANT VIS 3.1.1 Year 2000 Update Kit before you begin testing. (If you have a 486 processor, make sure you have installed the 486 BIOS version 2.1g update that is included in the kit.)

- Do all year 2000 testing on a machine that does *not* take live call traffic at any time, either during or after your testing.

- Perform a complete backup (mkimage) of the system. This step is critical because you will need to restore your system from this backup after you are done testing. Some features, such as reports or error logging, might not operate correctly after you have set the system date ahead to 2000 and then back to the current year. For instructions on backing up your system, see Chapter 3, "Common System Procedures" in the maintenance book for your platform.

- Have a written test plan ready.

Testing Guidelines

Use the following steps as a guide in testing applications for year 2000:

1. With the system set at the current date:

    a. Test all applications, custom reports, custom menus, and so on. Ensure that all applications are working.

    b. Record your results on your written test plan.

2. Set the system date to December 31, 1999, at 11:00 p.m. Note that we recommend setting the time to 11:00 p.m. If you set the system time too close to midnight, some UNIX processes might fail. By setting the time to 11:00 p.m., the system will advance normally to midnight without these failures. To set the date and time ahead, do the following:

     a. Log in as **root**

     b. At the UNIX prompt, enter **face**

        The Face screen is displayed.

     c. Select `System Administration` and press ENTER.

     d. Select `Date and Time` and press ENTER.

        The Change Date and Time screen is displayed.

     e. Change the date and time.

     f. Press F3 (Save) to save your changes.

        The system displays a message confirming the new date and time.

     g. Press F3 (Cont) to confirm the new date and time.

     h. Press F6 (Cancel) until you reach the Face screen.

     i. Select `exit` and press ENTER

     j. Select F3 (Cont) to confirm the exit.

        You are returned to the UNIX prompt.

3. Shut down and restart the system. This step ensures that all system processes are updated with the new date and time of the system.

⚠ **CAUTION:**

If you do not shut down and restart the system after you have set the date ahead, some UNIX processes could fail and compromise your test efforts.

To shut down and restart the system, follow these steps:

     a. At the UNIX prompt, enter **cd /**

     b. At the next UNIX prompt, enter **/etc/shutdown –g0 –y**

        After a few moments, the system displays the following message:

```
The system is down. Press CRTL-ALT-DEL to restart
the computer.
```

     c. Press CONTROL ALT DELETE.

4. After the system has restarted, begin testing custom applications and all other components that you tested in Step 1. Be sure to do the following:

    ■ Record your results in your written test plan.

    ■ Start your testing at a time before your system time reaches midnight, and continue to test through the rollover to 2000.

    ■ Ensure that some test calls begin in year 1999 and end in 2000.

    ■ Continue to run calls through the system for some time after the system date reaches 2000.

5. Review the results of the testing in Step 4 with that done in Step 1. You should expect that your custom applications, reports, and so forth all work the same before and after 2000. All custom menus or commands that accept years should allow data to be entered as "2000" or "00", whichever is appropriate.

6. When you are satisfied that your custom applications work beyond 2000, set the system back to the current date and time using the **face** command:

   a. Log in as **root**

   b. At the UNIX prompt, enter **face**

      The Face screen is displayed.

   c. Select `System Administration` and press (ENTER).

   d. Select `Date and Time` and press (ENTER).

      The Change Date and Time screen is displayed.

   e. Change the date and time.

   f. Press F3 (Save) to save your changes.

      The system displays a message confirming the new date and time.

   g. Press F3 (Cont) to confirm the new date and time.

   h. Press F6 (Cancel) until you reach the Face screen.

   i. Select `exit` and press (ENTER)

   j. Select F3 (Cont) to confirm the exit.

      You are returned to the UNIX prompt.

7. Restart the system:

   a. At the UNIX prompt, enter **cd /**

   b. At the next UNIX prompt, enter **/etc/shutdown –g0 –y**

      After a few moments, the system displays the following message:

      ```
      The system is down. Press CRTL-ALT-DEL to restart
      the computer.
      ```

   c. Press (CONTROL) (ALT) (DELETE) to restart the system.

8. Restore the system from the mkimage tape. For instructions on restoring your system, see Chapter 3, "Common System Procedures" in the maintenance book for your platform. If you do not restore your system from the mkimage tape, the system may not operate correctly, as some files on the system now have timestamps in the future.

   In and after the year 2000, the top of the Face utility screens continues to display "19" as the century unless you take the corrective action described in the "face Utility" section of "Areas Requiring Additional Consideration". Note that the "19" is display output only; the correct century is displayed on the screens for setting the date and time.

Alternative Methods for Database Records with Time Fields

If a CONVERSANT database record contains a time field and was created *before* the year 2000, the CONVERSANT application will not be able to perform the following actions if the record is then accessed *after* the year 2000:

■ Query a record using the time field as the search criteria

■ Modify a record in the table containing the time field

■ Delete a record in the table containing the time field

For example, this problem might occur in a CONVERSANT application that accepts calls from people requesting a catalog (a "form-filler" kind of application). The application records the caller's voice input, such as name and address, and stores the voice-phrase tags in a local database table. It also stores the date and time of the call using a time field. Later, an agent calls into the CONVERSANT system to transcribe the caller's information so the catalog can be sent. Typically, the agent listens to the record and then deletes it once the mailing has been invoked. If the caller calls in before year 2000, and the agent tries to transcribe on or after 1/1/2000, the agent can listen and transcribe the caller's responses but cannot delete those records in the database.

This problem does *not* occur if the record with a time field is created and accessed within the same century. Also, applications that represent time with the $UNIX_TIME timestamp or a character field are not affected.

About the Update Patch

This problem is fixed in CONVERSANT VIS Year 2000 Update — Patch 1, QPPCN 1169, which is being sent to all CONVERSANT customers who have purchased the CONVERSANT VIS V3.1.1 Year 2000 Update Kit. It is recommended that customers install the update patch. However, this section gives procedures you can use if you need a method to work around the problem without using the update patch. Note that the update patch can be installed at any time, but the alternative methods must be performed at the end of 1999, after the last call of 1999 and before the first call of year 2000.

Before the update is installed, the CONVERSANT database table time fields are stored in an ORACLE database date field, which contains both a date and time. If values are assigned to a CONVERSANT database table time field (through manual editing or by a CONVERSANT application), the CONVERSANT ORACLE database interface process (DIP), **/vs/bin/vrs/oraldb**, stores a dummy value in the date portion of the ORACLE date field. Then, when accessing the CONVERSANT database time fields, the **oraldb** DIP file queries the record using both the time and dummy date.

After installing CONVERSANT VIS Year 2000 Update, Patch 1, ORACLE supplies a default value for the date when storing a CONVERSANT database time field. When inserting a value into a CONVERSANT database time field, the **oraldb** file provides only the time portion and lets ORACLE insert the first day of the month as the standard value for the date portion. Also, the **oraldb** file now does not query or access a record using the date portion of the field; it only uses the time portion of the field to query or access a record.

Alternative Methods

The following methods are available if you need to work around the problem without using the update patch. Both methods must be performed at the end of 1999, after the last call that could insert records in the 20th century and before the first call that could access or insert records in the 21st century. Each is described in more detail below.

■ Transcribe before 2000

■ Adjust the date using SQL commands (for qualified application developers only)

> **NOTE:**
> Even if you use this alternative method, Lucent Technologies recommends you install the update patch at the next convenient time. The changes you make can be lost, for example, if a previous backup is loaded in error.

Transcribing

For some types of applications, such as the form-filler example previously described, problems with the database time field can be avoided by transcribing all existing caller records in the database before the first call is taken in year 2000.

Using SQL Commands to Adjust the Date

Transcribing is not an appropriate solution for some types of applications. In such cases, you can adjust the date portion of the database time fields using SQL commands. The date portion is changed from Jan 01, 1901, to Jan 01, 2001. Note that this method should be performed only by qualified application developers.

> **NOTE:**
> Using this method does not affect any future installation of CONVERSANT VIS Year 2000 Update, Patch 1.

Procedure

Use the following procedure to adjust the date. Immediately following this section is a sample of this procedure applied to a database called "orders".

1. Confirm that your application uses a database time field.

2. Determine the name of both the database table (*dbtablename*) and the time field within the table (*timefield*).

3. Log in to the CONVERSANT system as **root**

4. Back up the database table using the Script Builder application Backup option for Database tables. (From the cvis_menu, select Script Builder Applications, select the application name, select Backup, select Database).

   Repeat this step for all database tables that are affected by the problem. Label the backups to indicate they were made prior to this procedure.

5. At the UNIX prompt, enter **sqlplus sti/sti**

   The system displays the SQL> prompt.

6. At the SQL prompt, enter:

   update "*dbtablename*" set "*timefield*" = "*timefield*" + 36525;

   For *dbtablename*, type the name of the database table (such as "orders"), and for *timefield*, type the name of the time field in the database (such as "order_time").This command updates the time fields in the database table from Jan 01, 1901, to Jan 01, 2001, by adding to the field the number of days between these dates. (There are 36,525 days between 1/1/1901 and 1/1/2001.)

7. Repeat step 6 for all database tables affected by this problem. Make sure this procedure if performed after the last call that could insert records in the 20th century and before the first call that could access or insert records in the 21st century.

8. Perform a second Script Builder backup of all database tables altered by this procedure. Indicate on the backup that it was done *after* performing this procedure.

9. Also perform a backup using the mkimage command to ensure the current copy of the tables are saved. For details on the mkimage command, see *CONVERSANT VIS Version 3.1 Command Reference,* 585-350-203.

Sample

The following sample shows the above procedure applied to a table called
orders.

1. At the UNIX prompt, enter **sqlplus sti/sti**

   The system responds with:

   ```
   SQL*Plus: Release 3.1.3.4.1 - Production on Wed Aug 18
   15:42:28 1999
   Copyright (c) Oracle Corporation 1979, 1994. All rights
   reserved.
   Connected to:
   Oracle7 Server Release 7.1.3.2.0 - Production Release
   PL/SQL Release 2.1.3.2.0 - Production
   ```

2. At the SQL> prompt, enter **select count(*) from "orders";**

   The system displays the count of rows in the table orders. Your table will
   likely have many more rows than this example.

   ```
     COUNT(*)
   ----------
          5
   ```

3. Enter the following command to see the date and time portion of the field
   order_time in the table *orders*:

   **select to_char("order_time", 'MON-DD-YYYY HH24MISS') order_time
   from "orders";**

   The system displays the date and times stored in the order_time field.
   Note that the date is always JAN-01-1901.

   ```
   ORDER_TIME
   -----------------------------------------------
   JAN-01-1901 030000
   JAN-01-1901 031200
   JAN-01-1901 161000
   JAN-01-1901 221200
   JAN-01-1901 121400
   ```

4. Enter the following command to update the date portion of the field to Jan
   01, 2001:

   update "orders" set "order_time" = "order_time" + 36525;

   The system displays the number of rows that were updated. (This should
   equal the number of row in the table, as shown in step 2.)

   ```
   5 rows updated.
   ```

5. Enter the following command to confirm that the date portion has been updated to Jan-01-2000:

   select to_char("order_time", 'MON-DD-YYYY HH24MISS') order_time from "orders";

   The system displays the contents of the date and time portion of the order_time field. The dates should all say JAN-01-2001 and the times should not be changed from the display in step 3.

   ```
   ORDER_TIME
   ---------------------------------------------
   JAN-01-2001 030000
   JAN-01-2001 031200
   JAN-01-2001 161000
   JAN-01-2001 221200
   JAN-01-2001 121400
   ```

6. To save the changes, enter **commit;**

   The system displays the following message: `Commit complete.`

7. To quit the system, enter **quit:**

   The system displays the following message:

   ```
   Disconnected from Oracle7 Server Release 7.1.3.2.0 –
   Production Release
   ```

   ```
   PL/SQL Release 2.1.3.2.0 - Production
   ```

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CONVERSANT® VIS Version 3.1.1 Year 2000 Compliance
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