Lucent Technologies
Bell Labs Innovations

INTUITY™ CONVERSANT® System

Version 6.0
Year 2000 Compliance

585-310-596
Comcode 108382284
Issue 3
September 1998

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- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

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- A busy tone is received
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Acknowledgment
This document was prepared by Product Documentation, Lucent Technologies, Columbus, OH.

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Year 2000 Compliance

Overview

This document provides the following information:

- Definition of year 2000 compliance — The Lucent Business Communications Systems (BCS) statement of compliance and a description of the customer's responsibilities.
- INTUITY CONVERSANT V6 system areas affected by year 2000 issues — A table showing the affected areas, both before and after the update.
- 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.
- Additional areas to consider — Descriptions of areas that can continue to cause minor errors, including corrective, alternative, or preventive actions.
- Additional information for advanced users — Descriptions of the current format for speaking dates after the year 2000 in U.S. English Enhanced Basic Speech and U.S. English Text To Speech, and testing guidelines should you choose to test your own applications.

NOTE:
If you currently use Graphical Designer, you must upgrade to Voice@Work in order to be year 2000 compliant. (Voice@Work is part of the Lucent Technologies @Work Studio™ suite of products.) Contact your Lucent Technologies Account Representative about upgrading to Voice@Work.

Purpose

The purpose of this document is to inform the customer of the areas that are affected by year 2000 issues and describe any additional responsibilities required of the customer to ensure year 2000 compliance.

Disclaimer: We have attempted in this book to provide an exhaustive list of items affected by the year 2000. However, we might 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 INTUITY CONVERSANT system is entirely year 2000 compliant.

What Is Year 2000 Compliance?

When the date changes from the 20th century (19xx) to the 21st (20xx), INTUITY CONVERSANT features that contain or handle two-digit calendar years, such as reports and call data records, can function in atypical ways. Also, INTUITY 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 handles 21st-century calendar years accurately.

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 Solutions for Your Enterprise, then Special Interest Groups, then Year 2000). At this site, you can view the Lucent BCS definition of compliance.

Customer Responsibilities

The following list summarizes the steps that customers are responsible for taking to make their 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. Ensure that all existing 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.
   - Review, modify if necessary, and test the appropriate applications. Note that Lucent Technologies strongly recommends that you contract with a software provider to test your applications.
3. Ensure that applications developed now and in the future are year 2000 compliant.
4. Familiarize yourself with all remaining areas that might behave differently concerning calendar dates.

Areas Affected

This section describes the areas affected by year 2000 issues and contains a retraction to a statement made in Issue 1 of this document, *INTUITY CONVERSANT System Version 6.0 Year 2000 Compliance*.

Performance Before and After Update 1

Table 1 lists the areas of the INTUITY CONVERSANT V6.0 system that are affected by the year 2000. This table describes how the system performed before the update and how it will perform after.

Table 1. V6.0 System Areas Affected by Year 2000

Area Affected	INTUITY CONVERSANT Version 6.0	INTUITY CONVERSANT Version 6.0 Update 1
Script Builder database tables using date fields with two-digit year	All dates were stored internally with a four-digit year. However, an application could insert a date field using only a two-digit year, in which case the system appended “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.	If an application inserts a date field with a two-digit year, the system appends the *current* century to the value. If your date data spans the 20th and 21st centuries, it is recommended that your applications use four-digit years.
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 receive normal (instead of special) handling on holidays after 2000, even if the staff or other systems are not available.	All applications are updated to use four-digit years for a holiday. Menu options for setting holidays now accept a four-digit year.
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.	All applications are updated to use four-digit years for a seasonal greeting. Menu options for setting seasonal greetings now accept a four-digit year.

Continued on next page

Table 1. V6.0 System Areas Affected by Year 2000 — *Continued*

Area Affected	INTUITY CONVERSANT Version 6.0	INTUITY CONVERSANT Version 6.0 Update 1
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.	The 'Y' host field date format now indicates a two-digit year in the *current* century. A new YT*xxx* date format lets application developers indicate a threshold for a 100-year window across the 20th and 21st centuries (for example, 1970-2069, 1900-1999, or 2000-2099). The window is determined by a threshold that is set per date field by the application developer. See "Use New Formats for Script Builder Host Input date Fields" in the section "Guidelines for Developing Compliant Applications" for how to use the new date formats.
Script Builder speaking dates after 1999	Some oddities occurred when using U.S. English Enhanced Basic Speech and U.S. English Text to Speech for several date formats. 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". Impact: Callers might have difficulty understanding the year spoken when these formats are used.	See "Spoken Formats for Speaking Dates" in Appendix A for the spoken date formats for U.S. English Enhanced Basic and U.S. English Text to Speech.

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Table 1. V6.0 System Areas Affected by Year 2000 — *Continued*

Area Affected	INTUITY CONVERSANT Version 6.0	INTUITY CONVERSANT Version 6.0 Update 1
UnixWare	Various non-compliance commands: passwd, prfpr, sar, sccs, cron, date, listen, nlps_server, IpNet, touch, uucico, uustat, whodo. Impact: Could cause system administration difficulties or problems for custom shell scripts or C programs.	UnixWare is made compliant such that INTUITY CONVERSANT software and hardware will meet the Lucent BCS definition of compliance. (See "Lucent BCS Internet Web Site" for how to access the BCS definition of compliance.)
486 BIOS (25MHz and 50MHz) Version 2.1c	The CMOS BIOS locked up if entered after year 2000. Impact: The system would not function after 2000.	The Version 2.1g BIOS will not lock up after the year 2000.

Correction to Issue 1.0

Issue 1.0 of *INTUITY CONVERSANT System Version 6.0 Year 2000 Compliance*, contains an incorrect statement on page 6 about the system's hardware clock. This statement was based on an incorrect interpretation of lower-level UnixWare code.

Retracted statement: "The system's CMOS (hardware) clock is set to a date 100 year earlier than the UnixWare system date." (An example follows this statement.)

In fact, the system's hardware clock always contains the correct century. We apologize for any confusion the incorrect statement might have caused.

Guidelines for Reviewing Your Applications

You are now ready to begin the work of reviewing your applications, making modifications, and testing your applications to make sure they operate correctly. The guidelines provided here for the review process are 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
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. See "Guidelines for Testing Your Applications" in Appendix A for details.

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 or Voice@Work 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 might require modification.

Also note the section "Areas Requiring Additional Consideration" near the end of this document, which describes areas of your system that might require minor 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 might be affected well before January 1, 2000.

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 2000-2999). 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. Be aware that some applications can be affected in the last hours of December 31, 1999, or the first hours of January 1, 2000 (see "Areas Requiring Additional Consideration").
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 there is no doubt 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 “19xx” with something more appropriate. After making modifications, each application must be tested thoroughly to make sure it operates correctly.

Reviewing Your Applications

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 might have unique year 2000 compliances issues based on the current configuration and applications. Areas to examine include:

- Applications that assume “19xx” when collecting, storing, manipulating, or speaking years.
- Date-related information that uses two-digit years (such as 98, 99, 00). In most cases, using a four-digit year ensures fewer errors are made in manipulating, comparing, storing, or speaking the year. Changing your application to accept four-digit years might require re-recording the prompts that ask callers for this data.
- 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 centuries, and when in the 21st century.
- Custom written shell scripts or programs (or DIPs) that accept or display date-related information; for example, 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. The application developer must review the host data field formats and determine if any changes are needed. For example, an application might benefit from using the new YT*xxx* format described in the section "Use New Formats for Script Builder Host Input date Fields".
- 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 end customers find acceptable the spoken format for years beyond 1999. For details on spoken formats, see "Spoken Formats for Speaking Dates" in Appendix A, "For Advanced Users".

Testing Your Applications

Almost every INTUITY CONVERSANT system has some type of customized application loaded. This application might 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 INTUITY 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. If you choose to do this work yourself, refer to the section "Guidelines for Testing Your Applications" in Appendix A, "For Advanced Users".

Guidelines for Developing Compliant Applications

The following sections provide information to help you construct applications that are year 2000 compliant.

- Use four-digit years whenever possible
- Use new formats for Script Builder date fields for host input
- Adapt your method for processing dates later than the year 2038

Use Four-Digit Years

When modifying existing applications and developing new ones, always use four-digit years whenever possible. Using four-digit years eliminates the issues surrounding system interpretation of the century for two-digit years.

Use New Formats for Script Builder Host Input *date* Fields

The INTUITY CONVERSANT V6 Update 1 provides new formats for host date fields to accommodate dates in the 21st century. This update also provides a new host date field (YT*xxx*) for two-digit years that supports a range of 100 years. You now have the following three formats to use to designate a year:

- Y — Indicates a two-digit year in the *current* century.
- YY — Indicates a four-digit year.
- YT*xxx* — Indicates a four-digit year. Use this format when an application is receiving a two-digit year from an IBM host that has dates spanning the 20th and 21st centuries. You define a threshold that determines which century is appropriate. See the next section for details.

The YT*xxx* Format

The YT*xxx* format allows you to specify a threshold from 0 through 100 to use when applications receive two-digit years from an IBM host that has dates spanning the 20th and 21st century. This threshold is defined in the host screen definition field for the application. (See “Defining Screen Fields” in *INTUITY CONVERSANT System Version 6.0 Application Development with Script Builder*, 585-310-760, for instructions on how to define host screen definition fields.) YT is a two-digit year algorithm that translates the year input received from the host (*yy*) in the following way: If the year *yy* is equal to or greater than the specified threshold, the year is translated to 19*yy*. If the year *yy* is less than the specified threshold, the year is translated to 20*yy*.

To determine an appropriate threshold, analyze the range of dates required per date field from the host. For example, if the range of dates falls between 1940

and 2039, use a threshold of 40 (YT40). If the format is YT40 and an input year from the host is 45 (equal to or greater than 40), the year is translated into 1945. If the input year from the host is 37 (less than 40), the year is translated into 2037.

For a 100-year span of 1900 through 1999, use the format YT0; for the years 2000 through 2099, use YT100.

See *INTUITY CONVERSANT System Version 6.0 Application Development with Script Builder*, 585-310-760, for detailed information on defining host input date fields.

Available Formats

Table 2 shows the formats that are now available for you to use when defining host input into a date field.

Table 2. Host Input into a *date* Field

Format	Description
D	Date in *month day year* format, regardless of the separators used. The month is by digit or name and the year can be in two or four digits, with two-digit years assuming the current century. For example, the 21st century dates “November 23, 2005,” “11/23/05” and “11-23-05” are all interpreted as the same date when it is the 21st century. However, if the current century is the 20th century (19xx), the system will interpret the two-digit-year dates “11/23/05” and “11-23-05” to be in 1905.
DM/D/Y	Date in *month/day/year* in current-century format, such as 11/23/98, 01/02/01, or 1/2/01 (default).
DM-D-Y	Date in *month-date-year* in current-century format, such as 11-23-98, 01-02-01, or 1-1-01 (default) with a hyphen (-) as a separator.
DM.D.Y	Date in *month.date.year* in current-century format, such as 11.23.98, 01.02.01, or 1.2.01 (default) with a period (.) as a separator.
DM/D/YY	Date in *month/date/year* format, such as 11/23/1998 or 01/02/2001, with a slash (/) as a separator.
DMBD,BYY	Date in *month date, year* format, such as November 23, 1998, or January 2, 2001.
DYY.M.D	Date in four-digit *year.month.day* format with a period (.) as the separator, such as 1998.11.23 or 2001.1.2
DM/D/YT<xxx>	Date in *month/day/year* format with a slash (/) as a separator. The YT<*xxx*> threshold is defined in the host field definition and then compared to the input from the host to determine if the century is “19” or “20”.

Continued on next page

Table 2. Host Input into a *date* Field — *Continued*

Format	Description
DM-D-YT<xxx>	Date in *month-day-year* format with a hyphen (-) as a separator. The YT<*xxx*> threshold is defined in the host field definition and then compared to the input from the host to determine if the century is “19” or “20”.
DM.D.YT<xxx>	Date in *month.day.year* format with a period (.) as a separator. The YT<*xxx*> threshold is defined in the host field definition and then compared to the input from the host to determine if the century is “19” or “20”.

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 3. If you use UNIX functions to process date data, dates cannot exceed January 19, 03:14:07, 2038 GMT. You can, however, process dates past this date by switching to the methods described in "Alternative Methods".

Table 3. 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

Script Builder provides several external functions to assist in manipulating dates.

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

The external functions *datetime_u* and *u_datetime* do not work if the data converts to a UNIX time that is greater than the value for January 19, 03:14:07, 2038 GMT (the last date supported by UNIX).

In some cases, CONVERSANT Script Builder application developers might have used these functions to handle date arithmetic. The following example uses them when adding 30 days to a date:

1. Convert the date to UNIX time using *datetime_u*.
2. Add 30 days by multiplying 30 times the number of seconds in a day and adding that value to the UNIX time.
3. Convert the UNIX time back to a regular date using *u_datetime*.

If the value in step1 or step 2 is greater than the value for January 19, 03:14:07 2038, 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.

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 preventative actions you can take.

You should be aware of the following areas so that you can determine if they will affect your system:

- **Time Zone Differences for 12/31/1999 and 1/1/2000**

  Be aware that some of your applications could be affected because of different time zones. During either the last hours of December 31, 1999, or the beginning hours of January 1, 2000, the following two areas could yield inaccuracies if an application is using two-digit years:

  — Applications inserting a two-digit year into a Script Builder database table

  — Applications accepting a two-digit year in a Script Builder Host date field (the Y format for the year field) from an IBM host

  NOTE:
  Using four-digit years will prevent these errors from occurring.

  In both types of applications, the CONVERSANT system converts the two-digit year to a four-digit year by adding the current century, either “19” or “20”, to the front of the two-digit value. The CONVERSANT system uses Greenwich Mean Time (GMT) to determine the current century. (GMT is a standard method of measuring time on a 24-hour clock.) Inaccuracies can occur because of the time difference between midnight GMT and midnight for the time zones for your applications.

  At 12:00 a.m. (midnight) on 1/1/2000 in the GMT zone, the CONVERSANT system will begin to insert the century digits of “20” to all two-digit years, regardless of the time zones in which your applications are running.

  For example, if the application is in Tokyo, Japan, it will be 9:00 a.m. on 1/1/2000 when it is 12:00 a.m.(midnight) GMT. Therefore, during the first nine hours of 1/1/2000 in Tokyo, you could have applications that will still be assuming century digits of “19” when the current century for that location has already changed to 2000. Conversely, if the application is in Denver, North America, 12:00 a.m. (midnight) for that system will occur seven hours after it is midnight GMT. Therefore, during the last seven hours of 12/31/1999 in Denver, you could have applications that will be assuming century digits of “20” while the current year for that location is still 1999.

Table 4 shows the relation of GMT to some sample time zones and the hours that are vulnerable for this kind of inaccuracy on 12/31/1999 and 1/1/2000. Note that these times do not consider time changes due to daylight savings time.

Table 4. Time Zones

Hourly Difference from GMT	Cities	Time When It Is 12:00 am GMT	Window for Error
-8 (Pacific)	Seattle Los Angeles San Diego	4:00 pm on 12/31/99	Last 8 hours of 12/31/99: 4:00 pm to 12:00 am 1/1/2000
-7 (Mountain)	Salt Lake City Denver Phoenix	5:00 pm on 12/31/99	Last 7 hours of 12/31/99: 5:00 pm to 12:00 am 1/1/2000
-6 (Central)	Chicago St. Louis New Orleans	6:00 pm on 12/31/99	Last 6 hours of 12/31/99: 6:00 pm to 12:00 am 1/1/2000
-5 (Eastern)	New York City Washington DC Orlando	7:00 pm on 12/31/99	Last 5 hours of 12/31/99: 7:00 pm to 12:00 am 1/1/2000
-3	Brasilia Buenos Aires	9:00 pm on 12/31/99	Last 3 hours of 12/31/99: 9:00 pm to 12:00 am 1/1/2000
0 GMT	**Greenwich London**	**12:00 am (midnight 12/31/1999)**	**None**
+1	Berlin Paris	1:00 am on 1/1/2000	First 1 hour of 1/1/2000: 12:00 am to 1:00 am
+5.30	Bombay New Delhi	5:30 am on 1/1/2000	First 5 1/2 hours of 1/1/2000: 12:00 am to 5:30 am
+9	Tokyo Osaka	9:00 am on 1/1/2000	First 9 hours of 1/1/2000: 12:00 am to 9:00 am
+10	Melbourne Sydney	10:00 am on 1/1/2000	First 10 hours of 1/1/2000: 12:00 am to 10:00 am

- **Log file year display**: 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 might 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.

  Preventative Action: To avoid this problem, make sure that you enter the date correctly.

- **Datakit**: Customers who have a Datakit connection to the Intuity CONVERSANT system (mostly AT&T or internal Lucent Technologies customers), use a package called *Commkit Host Interface to AT&T Data Switch Package.* This package overwrites some UnixWare files on the system, such as uucico and uucp, with versions that have been altered to work with Datakit. The INTUITY CONVERSANT V6.0 Update 1 contains the standard UnixWare version of these files, which have been made year 2000 compliant. Because the V6.0 Update 1 files do not contain the Datakit alterations, your system cannot work with Datakit. If the customer loads the V6.0 Update 1 onto a system with the Commkit package, failures will occur when a user attempts to use the uucico command across the Datakit network.

  Preventative Action: Contact the Commkit vendor and find out if they have a version that is year 2000 compliant. If one is available, reinstall it after you have installed INTUITY CONVERSANT V6.0 Update 1. If there is not a version that is year 2000 compliant, you will have to choose between Datakit access and year 2000 compliance for the uucico command.

- **Holiday settings with two-digit years**: When you are using Script Builder to specify a date to be handled as a holiday, the system requires you to enter a four-digit year for the first holiday date that you specify. However, if you save that holiday setting and then specify one or more additional dates as holidays, the system will accept some two-digit years if you enter one by mistake. In such circumstances, the system will accept any two-digit year that does not start with a zero. Even though the system allows you to enter two-digit years in such cases, those dates will not receive holiday handling. This issue is currently under consideration for the next remote-field update.

  Preventative Action: Make sure that you enter four-digit years for all dates that you specify as holidays.

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 Enhanced Basic 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.

Spoken Formats for Speaking Dates

This section describes the formats for speaking dates after the year 2000. The current formats take effect after you have loaded the INTUITY CONVERSANT Version 6.0 Remote Field Update RFU+E.

Table 1 describes how dates are spoken after 2000 for the given spoken speech format. The last column shows both the previous and current method of speaking these dates.

Table 1. Formats for Speaking Dates

Product	Format	Years	Previous and Current Spoken Formats
US English Enhanced Basic Speech	DMDY or DMSPDY	2000 – 2009	Previous: Oh-<*year*> Examples: Oh-zero (for 2000); Oh-three (for 2003) Current: Same as previous format, except for the year 00, which is pronounced zero-zero (for 2000)
	DMDYY or DMSPDYY	2001 – 2009	Previous: Twenty-oh-<*year*> Example: Twenty-oh-four (for 2004) Current: Two-thousand-<*year*> Example: Two-thousand-four (for 2004)
	DMDYY or DMSPDYY	> 2009	Previous: Twenty-<*year*> Example: Twenty-eleven (for 2011) Current: Same as previous format
US English Text To Speech	ADMDY or ADMSPDY	2000 – 2009	Previous: Zero-<*year*> Example: Zero-five (for 2005) Current: Same as previous format
	ADMDYY or ADMSPDYY	2000 – 2009	Previous: Twenty-zero-<*year*> Example: Twenty-zero-four (for 2004) Current: Two-thousand-<*year*> Example: Two-thousand-four (for 2004)
	ADMDYY or ADMSPDYY	> 2009	Previous: Twenty-<*year*> Example: Twenty-thirteen (for 2013) Current: Same as previous format

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.

NOTE:
If you have a 486 processor, you must have the 486 BIOS version 2.1g installed before you begin testing.

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

NOTE:
All year 2000 testing should be done on a machine that does *not* take live call traffic at any time, either during or after your testing.

1. 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.
2. Have a written test plan ready. With the system set at the current date, test all applications, custom reports, custom menus, and so on. Ensure that all applications are working. Record your results on your test plan.
3. 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 UnixWare 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 UnixWare prompt, enter **init 1** so that you are in single-user mode.
    c. Log in again as **root**
    d. At the UnixWare prompt, enter **su - sysadm**

       Your user ID is changed to sysadm, and the sysadm screens are displayed.
    e. Select `system_setup` and press ENTER.
    f. Select `datetime` and press ENTER.
    g. Select `set` and press ENTER.

The Set System Date and Time Information screen is displayed.

h. Change the date and time.

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

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

j. Press F7 (Cmd-Menu).

The Command Menu is displayed.

k. Select `exit` and press ENTER

You are returned to the UnixWare prompt.

4. 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 UnixWare processes could fail and compromise your test efforts.

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

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

b. At the next UnixWare 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.

5. After the system has restarted, begin testing custom applications and all other components that you tested in Step 2. Be sure to do the following:

- Have a written test plan and record your results.
- 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.

6. Review the results of the testing in Step 5 with that done in Step 2. 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.

7. When you are satisfied that your custom applications work beyond 2000, set the system back to the current date and time using the **sysadm** command:
    a. Log in as **root**
    b. At the UnixWare prompt, enter **init 1** so that you are in single-user mode.
    c. Log in again as **root**
    d. At the UnixWare prompt, enter **su - sysadm**

       Your user ID is changed to sysadm, and the sysadm screens are displayed.
    e. Select `system_setup` and press ENTER.
    f. Select `datetime` and press ENTER.
    g. Select `set` and press ENTER.

       The Set System Date and Time Information screen is displayed.
    h. Change the date and time.
    i. Press F3 (Save) to save your changes.

       The system displays a message confirming the new date and time.
    j. Press F7 (Cmd-Menu).

       The Command Menu is displayed.
    k. Select `exit` and press ENTER

       You are returned to the UnixWare prompt.
8. Restart the system:
    a. At the UnixWare prompt, enter **cd /**
    b. At the next UnixWare 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.
9. 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.