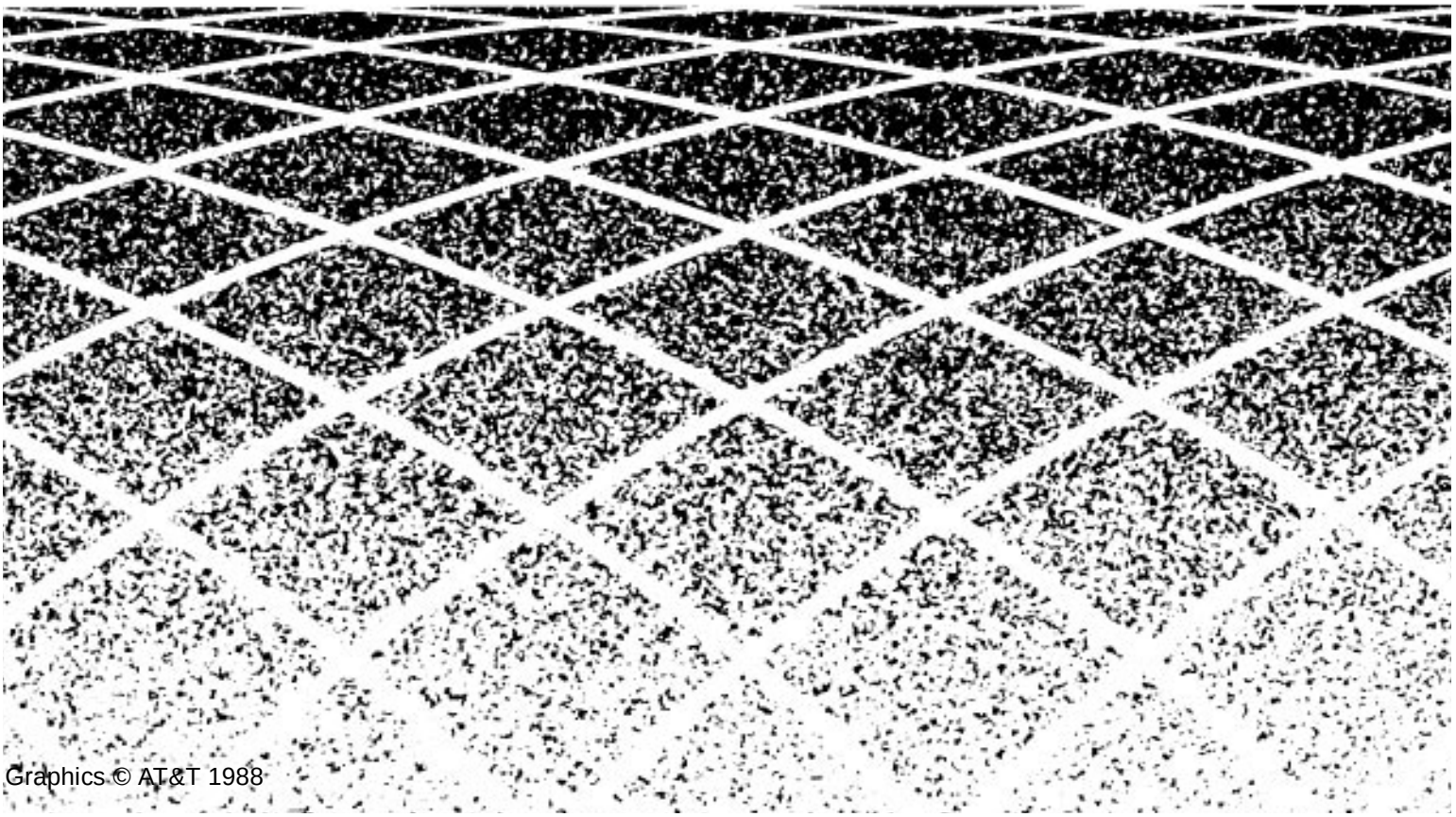
585-350-815
Issue 1
October, 1993

Conversant VIS V4.0
3270 Host Interface



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About This Book

Purpose

This book provides information concerning the host environment as it relates to the CONVERSANT Voice Information System (VIS). It details information on the 3270 host communications package, basic file transfer, and enhanced file transfer, including installing, administering via screen and command line interfaces, and troubleshooting.

Intended Audiences

This book is primarily aimed at the customer's host interface administrator and/or developer. Other audiences include field support.

How This Book is Organized

This book is organized into the following chapters:

- Chapter 1, "Overview of CONVERSANT VIS Host Interface"

  This chapter provides an overview of the host interface capabilities offered with the VIS, including the 3270 Host Communications package, basic file transfer, and enhanced file transfer.

- Chapter 2, "Installing Host Interface Hardware and Software"

  This chapter describes the procedures to install the common hardware and the various software package for each of the host packages.

- Chapter 3, "Using the CONVERSANT VIS Host Interface"

  This chapter provides information on administration procedures for the host interface packages using the screens interface and the command line interface.

- Chapter 4, "Troubleshooting the CONVERSANT VIS Host Interface"

  This chapter describes troubleshooting and maintenance procedures to follow should difficulties arise between the VIS and host environment.

This book also includes a list of abbreviations, a glossary and a cross-referenced index.

Conventions Used in This Book

The following typographic conventions are used in this book:

- The word “enter” means to type a value and press ENTER. For example, an instruction to type y and press ENTER is shown as

  Enter **y** to continue.

- The word “select” is used to mean the following: move to the desired menu item using the arrow keys and press ENTER.

- Terminal keys are shown in rounded boxes. For example, an instruction to press the enter key is shown as

  Press ENTER.

- Function keys (also known as “soft” keys) are shown in square boxes followed by the actual name of the key on the keyboard in parentheses.For example, an instruction to press the choices key is shown as

  Press CHOICES (F2).

- Two or three keys that you press at the same time (that is, you hold down the first key while pressing the second and/or third key) are shown as a series of rounded boxes. For example, an instruction to press and hold ALT while typing the letter d is shown as

  Press ALT D.

- Information that is displayed on your terminal screen including screen displays, field names, prompts, and error messages is shown in typewriter-style constant-width type; for example

  ```
  Installation is in progress -- do not remove the
  floppy disk.
  ```

- Information that you enter from your terminal keyboard is shown in bold type, for example

  Enter **root** at the `Console Login:` prompt.

- Command and file names and their parameters are shown in **bold** type.Variable parameters are shown in ***bold italic*** type when they are part of a user input and in *regular italic* type when they are not. All are illustrated in the following example:

  Use the **print** command to print your report.The command syntax is **print *reportname***, where *reportname* is the name of the report to be printed.

Related Resources

The following books are expected to be used in conjunction with this book:

- *CONVERSANT VIS Version 4.0 Operations*, 585-350-703
- *CONVERSANT VIS Script Builder,* 585-350-704

A full description of the CONVERSANT VIS library is available in the *CONVERSANT Voice Information System Documentation Guide*, 585-350-002.

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Overview of CONVERSANT VIS Host Interface

1

Introduction

The CONVERSANT Voice Information System (VIS) host interface is available as optional packages, which can be installed on the CONVERSANT VIS. These packages include:

- 3270 Host Communications Package
- Basic File Transfer
- Enhanced File Transfer

Refer to the information in the following pages for a description of the capabilities and functionality of each of these packages.

3270 Host Communications Package

The 3270 Host Communications package, an optional package on the CONVERSANT VIS, consists of a circuit card and UNIX driver, 3270 Communication Manager, 3270 Terminal Emulator, and file transfer software (written by CLEO Communications, Inc.). The circuit card must be a PC/XL.

The 3270 Host Communications package emulates an IBM 3274-41C or a 3174-01R cluster controller with up to 32 logical units (that is, 3278 Model 2 terminals) connected to it. However, it does not emulate the extended attributes of a 3279 terminal. The “3270 card” is typically linked to a 3725 or 3745 Front End Processor (FEP) and uses either bisynchronous (BISYNC or BSC) or synchronous data link control (SDLC) data streams. A sample connection is shown in Figure 1-1.

The 3270 Host Communications package allows Script Builder applications to send and receive screens from applications running on the host mainframe.

Standard links from the card to the FEP can be made through synchronous modems (for distances over 100 feet) and leased lines or modem eliminators (for distances under 100 feet). The software will support speed up to 56-kbyte baud with the following restrictions:

- BSC protocol is limited to 9600 baud and below
- Speeds higher than 9600 baud are available only with the PC/XL card using SDLC protocol. Note that certain line configurations are required to operate at speeds higher than 9600 baud. Refer to the information provided later in this section for assistance in operating at speeds over 9600 baud.
- High speed connections for 56-kbyte baud operation may use modems or modem eliminators with V.35 connectors. If so, this will require an RS-232 to V.35 interface converter since the PC/XL card has only an RS-232 connector.

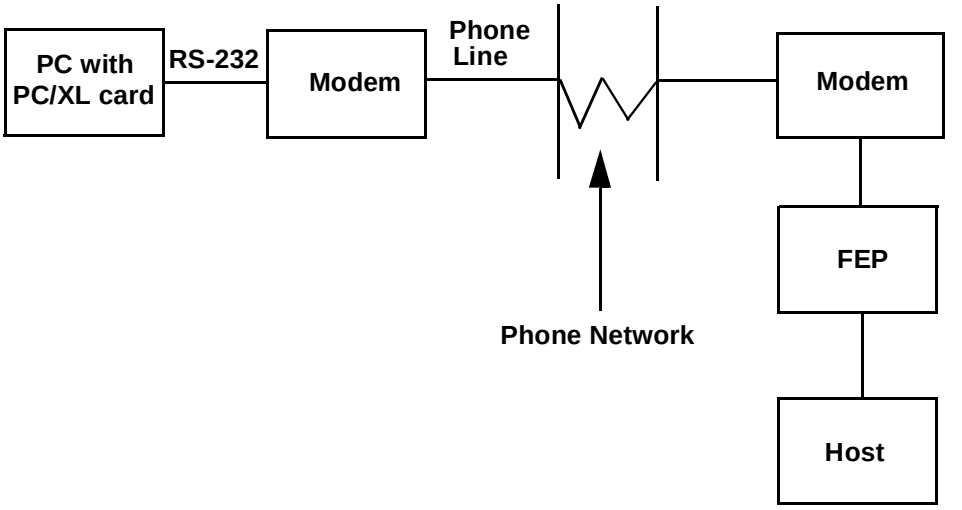

Figure 1-1. 3270 Host Sample Connection

Basic File Transfer

The 3270 File Transfer package allows you to transfer text or binary files between a mainframe and your VIS system via the PC/XL host interface card. File Transfer System (FTS) works in conjunction with the IBM host program IND$FILE.

Installation of FTS on your system is optional (refer to Chapter 2, "Installing Host Interface Hardware and Software"). The IBM IND$FILE utility *must* be installed on your host mainframe in order to use FTS.

FTS can work with multiple IBM mainframe operating environments or processing subsystems. These host systems and their IBM IND$FILE program product numbers include:

- Time Sharing Option (TSO) — #5665-311
- Conversational Monitor System (CMS) — #5663-281
- Customer Information Control System (CICS) — #5789-DQH

Once installed, file transfer may be initiated interactively through the Terminal Emulator (TE) program or directly from the UNIX command line either by entering the FTS commands or by running a shell script containing the commands.

Enhanced File Transfer

The Enhanced File Transfer feature greatly simplifies voice application upgrades of either Script Builder applications or software packages by providing a general purpose two-way file transfer capability between host computers running either the System Network Architecture or Bisynchronous protocol and VIS machines running UNIX. (Two way file transfer means you can send information to and from VIS machines to host computers.) In addition to allowing a Script Builder application or software package to be installed on a remote site, the Enhanced File Transfer feature allows the host to retrieve current status or log information from a remote VIS (via a log file) and allows the remote user to send files other than the log file to the host (via the **hsend** command). The feature also provides a means for automatically installing transferred files.

The Enhanced File Transfer package provides a set of procedures to be performed at both the local VIS as well as the remote VIS. If you are working at the local VIS, you should perform the procedures provided under "Local VIS Procedures" on page 3-24 in Chapter 3, "Using the CONVERSANT VIS Host Interface". If you are working at the remote VIS, you should perform the procedures provided under "Remote VIS Procedures" on page 3-26 in Chapter 3, "Using the CONVERSANT VIS Host Interface".

Figure 1-2 shows a sample architecture for the Enhanced File Transfer feature. In this example, one local VIS and two remote VIS machines are connected to the host mainframe machine via the host3270 interface provided by the VIS. The local VIS (development VIS) is used to develop, verify, and test an application script that will be later sent and installed on the remote VIS (production VIS). The remote VIS machines handle customer calls coming from the PBX. In the example shown in Figure 1-2, the developer on the local VIS machine and the remote VIS machines (remote VIS A and remote VIS B) develops, verifies, and installs a host maintenance script and then assigns this script to a particular host session.

The developer on the local VIS develops, verifies, and installs an application script or software package. The local VIS developer then creates a batch file (that is, a shell script) to install the application script or software package at the remote site. If the local VIS has developed an application script, the batch file is bundled with the transaction, speech, and database portion of the application. If the local VIS has developed a software package, the batch file is bundled with this package into one cpio file. Optionally, the local VIS developer may create an APPL_FTS utility to postprocess the bundle that will be sent to the remote VIS. These procedures are described in detail in "Local VIS Procedures" on page 3-24 in Chapter 3, "Using the CONVERSANT VIS Host Interface". Procedures and suggestions for batch files are described in detail in "Batch Files used in the Enhanced File Transfer System" on page 3-29 in Chapter 3.

Remote VIS A and remote VIS B both poll the host for the file at a time determined by the **/vs/data/fts_config** configuration file on the remote VIS machines. Optionally, the remote VIS may create an APPL_FTS utility to preprocess the bundle received from the host. These procedures are described in detail under "Remote VIS Procedures" on page 3-26 in Chapter 3, "Using the CONVERSANT VIS Host Interface".

In summary, the main feature of the Enhanced File Transfer package is that a Script Builder application can be developed and tested on a VIS, and then delivered and installed electronically on other VISs using the host 3270 mainframe. Without this capability, the Script Builder application would have to be installed individually on the remote VISs using floppy disks.

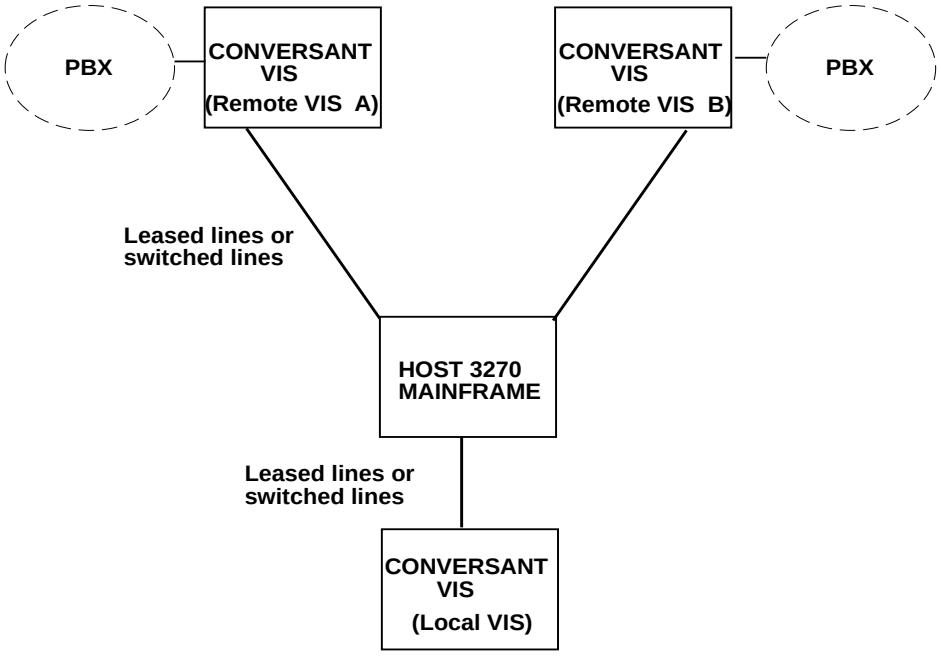

Figure 1-2. Enhanced File Transfer Hardware Architecture Example

Installing Host Interface Hardware and Software

2

Introduction

This chapter contains information on installing the host interface hardware and software.

Installing Host Interface Hardware

In order for host communications to be established properly between the VIS and the host, a synchronous card (the PC/XL) must be installed in the VIS. Up to two of the PC/XL cards may be installed in one VIS.

For information on installing the host interface communications card, refer to “General Steps for Circuit Card Installation” in Chapter 6, “Installing Circuit Cards – Introduction and Types,” of *Voice Processing Hardware Installation* book for the appropriate platform. To make sure that the switch settings are correct, see "Setting PC/XL Resource Options" on page 2-2 later in this chapter.

Setting PC/XL Resource Options

The PC/XL communications card is shown below in Figure 2-1; the location of the input/output (I/O) address switches and interrupt request (IRQ) jumper are identified.

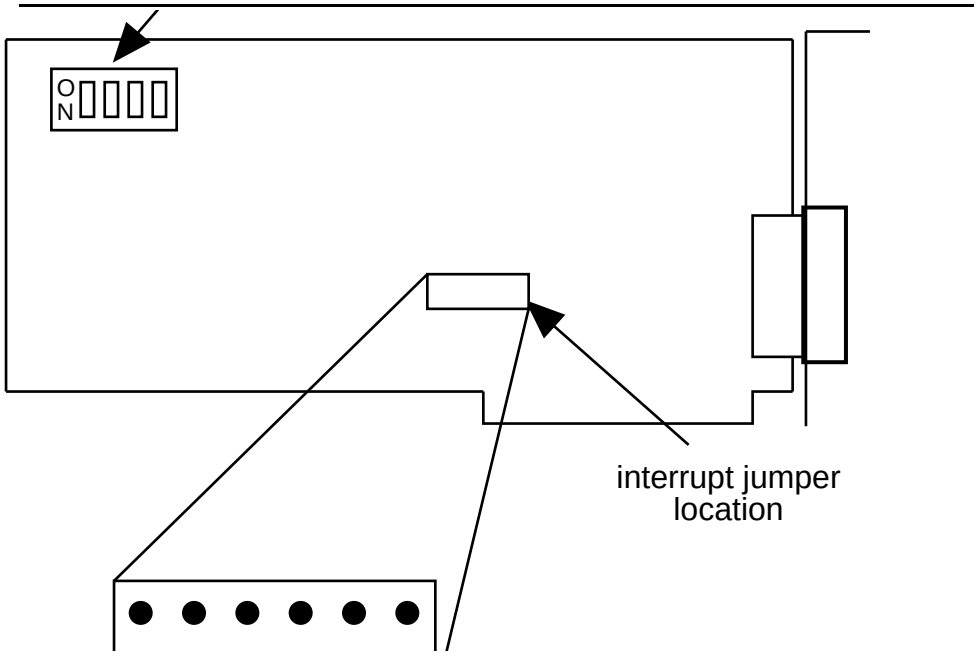

Figure 2-1. PC/XL Synchronous Card

The IRQ line enables the PC/XL to request service from the processor.

- Set the IRQ jumper — The default is 5. However, you must set the jumper according to the output from the configuration software program. Refer to Chapter 4, “Running the Configuration Program,” of the *Voice Processing Hardware Installation* book for the appropriate platform. The important thing is to be sure that no other device in the system uses the same interrupt line.
- If you are installing multiple PC/XL cards (maximum 2), set both of these to the same IRQ.

The I/O address is the door through which the PC/XL accesses the PC data paths. Figure 2-2 illustrates the I/O address settings.

- Set the I/O address DIP switches (switches 1–3). The default I/O address is 2A0. Again, you must set the switches according to the output from the configuration program. Refer to Chapter 4, “Running the Configuration Program,” of the *Voice Processing Hardware Installation* book for the appropriate platform.

NOTE:
Switch 4 is not used.

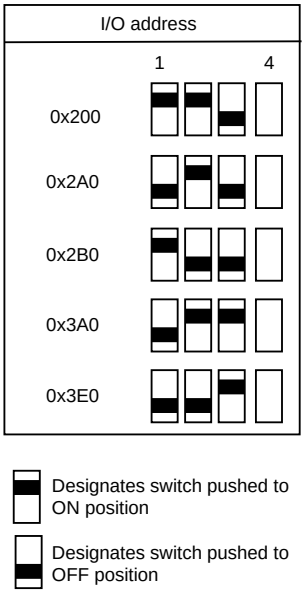

Figure 2-2. Base I/O Address Settings for PC/XL Card

The PC/XL card allows a portion of its on-card memory (RAM) to be accessed (both read and write) by the central processing unit (CPU). All transactions with the PC/XL card take place through this shared memory window (SMW).

The location of the SMW is set during 3270 software installation. Refer to "Installing the 3270 Host Communication Package" on page 2-4. The SMW is 16K in size and may reside at any available 16K boundary below 1Mbyte. The locations is controlled by software, so there are no jumpers to adjust for this aspect.

Installing Host Interface Software

NOTE:
Be sure that you have run the Configuration Program and indicated *all* hardware that is/will be on your system. The data generated by the program is crucial in assuring that you respond correctly the prompts in this chapter. See Chapter 4, “Running the Configuration Program,” in your hardware installation book.

The procedures in this section document how to install the optional feature packages supported with CONVERSANT VIS host interface.

Installing the 3270 Host Communication Package

Ensure that you have the 3 floppies needed to install this package:

- CONVERSANT VIS V4.0 3270 U/X Host Communications Package – 1 of 2
- CONVERSANT VIS V4.0 3270 U/X Host Communications Package – Protocol – 2 of 2
- CONVERSANT VIS V4.0 3270 Host Communication Package File Transfer System

Get the following information from your host administrator:

- The device configuration information — includes the type of devices (for example, terminal) the host expects at a given logical unit (LU) number and the maximum number of devices expected for that cluster controller emulated by the PC/XL card.
- The addressing information needed by the host to address the 3274 cluster controller the PC/XL card is emulating. For SDLC, you need the control unit address (SDLC address = station address) and the XID (dewlap lines only). For BSC, you need the control unit address. You also must determine the line mode (half or full duplex) and the coding scheme (NRZ or NRZI).
- The type of protocol used (BSC or SNA)

Use the following procedure to install this optional feature package:

1. Verify that the PC/XL card is installed in the CONVERSANT system. Refer to "Installing Host Interface Hardware" on page 2-1 for procedures to install your cards.
2. If you are not already logged in, do so now.
   a. Enter **root** at the `Welcome to the AT&T 386 UNIX System` prompt.

      System response:

      ```
      Password:
      ```

   b. Enter your password. You eventually see the UNIX system prompt #.
3. Enter **installpkg**

   System response:

   ```
   Please indicate the installation medium you intend to
   use. Strike “C” to install from CARTRIDGE TAPE or “F” to
   install from FLOPPY DISKETTE. Strike ESC to stop.
   ```

4. Press F.

   System response:

   ```
   Insert the floppy disk.

   Strike ENTER when ready
   or DEL to cancel.
   ```

5. Insert the floppy disk labeled CONVERSANT VIS V4.0 3270 U/X Host Communications Package — 1 of 2 and press ENTER.

   System response:

   ```
   Installation in progress -- do not remove the floppy
   diskette.

   This DataTalker 3270 Installation disk is intended for
   use with:
   AT&T System V/386, Release 3.2. Continue installation
   (Y/N)?:
   ```

6. Enter **y**

   System response:

   ```
   The 3270 software uses several system resources when in
   operation. These include an I/O port, a memory segment,
   and an interrupt request line.
   Continue installation (Y/N)?:
   ```

7. Enter **y**

   System response:

   ```
   Verifying required system utilities exist....OK
   Verifying Driver is not present from previous
   install....OK
   Please answer the following questions concerning the
   CLEO 3270 installation:
   ```

   You are now presented with a menu similar to the following:

   ```
   BOARD TYPES:
   1) CLEO DataTalker PC/XL
   2) EMULEX DCP88/VMX
   3) DigiBoard PC/Xi (AT Bus)
   4) DigiBoard MC/Xi (MicroChannel)

   Identify by index (1-4) the board which you are
   installing (or q to quit):
   ```

   NOTE:
   Only selection 1 applies to CONVERSANT VIS.

8. Enter **1**

   System response:

   ```
   I/O ADDRESSES:
   1) 0x3A0
   2) 0x3B0
   3) 0x3E0
   4) 0x200 (factory setting)
   5) 0x2A0 (secondary setting)
   6) 0x2B0
   7) 0x2E0

   Enter the index (1-7) of the I/O address (or q to quit):
   ```

   NOTE:
   Selections 2 and 7 are not supported. Do not choose either as your selection.

9. Enter the number that corresponds to the I/O address.

   System responds:

```
RAM ADDRESSES:
1) 0xA0000   5) 0xB0000    9) 0xC0000    13) 0xD0000
2) 0xA4000   6) 0xB4000   10) 0xC4000    14) 0xD4000
3) 0xA8000   7) 0xB8000   11) 0xC8000    15) 0xD8000
4) 0xAC000   8) 0xBC000   12) 0xCC000    16) 0xDC000

Enter the index (1-16) of the Shared Memory base
address (or q to quit):
```

10. Enter the number that corresponds to the I/O address of the shared memory window.

    System response:

```
Enter Interrupt Jumper setting (2, 3, 4, 5*, 6, 7, 0 =
PollingMode)
(Multiple boards should all be set to the SAME Inter-
rupt setting)
(Note: IRQ 2 is mapped to IRQ 9) (*=factory setting) or
q to quit:
```

11. Enter the number that corresponds to the interrupt address.

    System response:

```
Enter a descriptive keyword by which THIS board will be
identified. (This name will be used as the value of the
SYNCPORT parameter in your 3270 Host Configuration
file(s) (/usr/lib/3270/host.cfg[0-3]) to refer to THIS
board.

Please limit your response to ALPHANUMERIC Non-Blank
characters.
```

    You are given a blank line for your response.

12. Enter the descriptive keyword of your choice.

    System response:

```
This installation's SYNCPORT will be known as name. OK?
```

    (*name* is the keyword you entered.)

NOTE:
When administering the host link, please remember to use the same descriptive name for SYNCPORT field in the SNA or BISYNC form displayed under HOST LINK menu (refer to Chapter 3, "Configuration Management," of *CONVERSANT VIS Version 4.0 Operations*, 585-350-703, for further information).

13. Enter **y**

    System response:

    ```
    Insert the CLEO DataTalker 3270 Protocol disk.
    Press ENTER when read (or q to quit):
    ```

14. Make sure the light on the floppy disk drive is off. When it is off, remove the floppy disk 1. Insert the floppy disk labeled CONVERSANT VIS V4.0 3270 U/X Host Communications Package – Protocol and press ENTER.

    System response:

    ```
    If you know your diskette device name, enter its name
    here; or leave empty for automatic detection (or q to
    quit):
    ```

15. Press ENTER and the second disk is read. If the wrong device name was supplied, or automatic detection fails, an appropriate message appears and you have a chance to try again.

    System response:

    ```
    Testing diskette devices names:
        /dev/rdsk/f xxx...Success
        /dev/rdsk/f xxx...Success
        /dev/rdsk/f xxx...Success

    PROTOCOL SELECTION
    B) Configure board for BSC
    S) Configure board for SNA
    Q) Quit

    Enter letter from choices above:
    ```

16. Enter **b** or enter **s** according to the protocol type given by the host administrator.

    System response:

    ```
    Using /usr/lib/3270/BSC.cfg as the template to create
    or
    Using /usr/lib/3270/SNA.cfg as the template to create
    a user-customizable Host Configuration file called/usr/
    lib/3270/host.cfg0.

    Remove the CLEO DataTalker 3270 Protocol disk. Press
    ENTER when ready:
    ```

17. Make sure the light on the floppy disk drive is off. When it is off, remove the floppy disk 2 and press ENTER.

    System response:

```
Installing Translation file for language support....OK
Customizing 3270 Driver to your environment....OK
Adding 3270 to UNIX configuration....OK
Building new UNIX system kernel....OK
Installing include files into /usr/include....OK
Installing End-user executables into /usr/lbin....OK
Installing API & HLLAPI Libraries into /usr/lib....OK
Installing Administration executables into /usr/
lbin....OK
Installing Product Information files into /usr/lib/
3270....OK
Installing language definitions into /usr/lib/3270/
lang....OK
Installing source code samples into /usr/lib/3270/sam-
ples....OK
Installing 3270 Terminal Keyboard layouts into /usr/
lib/3270/term....OK
The installed 3270 Communications board is /dev/hostN.
Each additional 3270 board (if any) requires an invoca-
tion of the ‘addboard’ utility. The ‘lsboard’ utility
will display the configuration of every 3270 card.
The ‘rmboard’ utility will de-install any individual
3270 card.
To alter any hardware aspect of the 3270 card, run
‘rmboard’, then ‘addboard’.

Press ENTER to continue:
```

18. Press ENTER.

    System response:

    ```
    Before utilizing this Product you MUST perform the fol-
    lowing setup:

    1) Add /usr/lbin to the PATHS of all 3270 users.
    2) Edit the configuration files /usr/lib/3270/host.cfg0
       as necessary
    3) Reboot the system to activate the new system
       keyboard => kernel
    4) Download the board (by invoking 3270_cfg 0)
       --> You may automate this step by inserting the
       appropriate command(s) in your system's start-up
       script.
       Refer to the "Advanced Topics" section for the 3270
       Manual for details.

    Press ENTER to continue:
    ```

19. Press ENTER.

    NOTE:
    The steps needed to fulfill these requirements are found later in this procedure.

    System response:

    If you wish to install the File Transfer software perform the following steps:

    ```
    1) Insert the File Transfer Software (FTS) diskette.
    2) At the next shell prompt, invoke the following
       installation utility:
       AT&T UNIX users: 'installpkg'
       SCO UNIX users: 'custom'

    Press ENTER to continue:
    ```

20. Insert the CONVERSANT VIS V4.0 3270 U/X Host Communications Package File Transfer System and press ENTER.

    System response:

    ```
    To complete the install/remove process a shutdown is
    now being initiated automatically.

    Make sure your floppy drive is empty. If you are
    installing or removing controller boards, you may power
    down the system after the shutdown has completed.

    Strike ENTER when ready
    or ESC to stop.
    ```

21. Press ENTER.

    You will be prompted to reboot the system. While holding down CTRL and ALT, press and release DEL on the numeric keypad, then release CTRL and ALT.

22. Upon rebooting the modified kernel with 3270 software will be active. You must log in. Follow Step 2a through Step 2b of this procedure to log in.

23. Insert the File Transfer Software floppy (from the 3270 Host Communications 3-disk set) floppy disk. Enter **installpkg**.

    System response:

    ```
    Please indicate the installation medium you intend to
    use.
    Strike “C” to install from CARTRIDGE TAPE
    or “F” to install from FLOPPY DISKETTE.
    Strike ESC to stop.
    ```

24. Press F.

    System response:

    ```
    Insert the floppy disk.

    Strike ENTER when ready
    or DEL to cancel.
    ```

25. Press ENTER.

    System response:

    ```
    Installation in progress -- do not remove the floppy
    diskette.
    ```

    When the system has finished installing, the system responds:

    ```
    Installation is complete.

    Press ENTER to continue.
    ```

26. Press ENTER.

27. You have completed this procedure.

Installing Multiple 3270 Host Cards

In certain situations, multiple 3270 host cards can be installed in a single system. If you are installing more than one 3270 host card, follow the steps below.

Use the output from the Configuration Program for proper resource settings.

1. Jumper each card for a unique I/O address according the output from the Configuration Program.
2. Locate an open memory segment (shared memory window) for each card.
3. Jumper all cards for the same IRQ setting according the output from the Configuration Program.
4. With only one host card installed in the platform, install the software for the first card following “Installing 3270 Host Communication Package” found earlier in this section.
5. After verifying successful operation of the first card, install the additional cards one at a time as described below.
6. Enter **addboard**

   System response:

   ```
   This system is currently configured for N 3270
   board(s).

   Device    I/O  IRQ  Address  Size  Board-Type  KeyName

   Enter the new board’s /dev/host suffix digit (0-3) of
   the Board to be added (or q to quit):
   ```

   NOTE:
   N in the message line above is the number of cards in your system. This will either be a 0, 1, or 2.

7. Enter **0** if this is the first card to be added to your system. Enter **1** if it is the second card to be added to your system.

   System response:

```
BOARD TYPES:
1) CLEO DataTalker PC/XL
2) EMULEX DCP88/VMX
3) DigiBoard PC/Xi (AT Bus)
4) DigiBoard MC/Xi (MicroChannel)

Identify by index (1-4) the board which you are
installing (or q to quit):
```

   NOTE:
   Only selection 1 applies to CONVERSANT VIS.

8. Enter **1**

   System response:

```
I/O ADDRESSES:
1) 0x3A0
2) 0x3B0
3) 0x3E0
4) 0x200 (factory setting)
5) 0x2A0 (secondary setting)
6) 0x2B0
7) 0x2E0

Enter the index (1-7) of the I/O address (or q to quit):
```

   NOTE:
   Selections 2 and 7 are not supported. Do not choose either as your selection.

9. Enter the number that corresponds to the I/O address.

   System response:

```
RAM ADDRESSES:
1) 0xA0000   5) 0xB0000    9) 0xC0000    13) 0xD0000
2) 0xA4000   6) 0xB4000   10) 0xC4000    14) 0xD4000
3) 0xA8000   7) 0xB8000   11) 0xC8000    15) 0xD8000
4) 0xAC000   8) 0xBC000   12) 0xCC000    16) 0xDC000

Enter the index (1-16) of the Shared Memory base
address (or q to quit):
```

10. Enter the number that corresponds to the I/O address of the shared memory window.

    System response:

    ```
    Jumper new board for IRQ (same as pre-existing 3270
    board(s)).
    Press ENTER or q to quit:
    ```

11. Press ENTER.

    System response:

    ```
    Enter a descriptive keyword by which THIS board will be
    identified. (This name will be used as the value of the
    SYNCPORT parameter in your 3270 Host Configuration
    file(s) (/usr/lib/3270/host.cfg[0-3]) to refer to THIS
    board.

    Please limit your response to ALPHANUMERIC Non-Blank
    characters.
    ```

    You are given a blank line for your response.

12. Enter the descriptive keyword of your choice. It *must* be a unique name.

    System response:

    ```
    This installation's SYNCPORT will be known as name. OK?
    ```

    (*name* is the keyword you entered.)

    NOTE:
    When administering the host link, please remember to use the same descriptive name for SYNCPORT field in the SNA or BISYNC form displayed under HOST LINK menu (refer to *CONVERSANT VIS Version 4.0 Operations,* 585-350-703, for further information).

13. Enter **y**

    System response:

    ```
    PROTOCOL SELECTION
    B) Configure board for BSC
    S) Configure board for SNA
    Q) Quit

    Enter letter from choices above:
    ```

14. Enter **b** or enter **s** according to the protocol type given by the host administrator.

    System response:

    ```
    Using /usr/lib/3270/BSC.cfg as the template to create
    or
    Using /usr/lib/3270/SNA.cfg as the template to create
    a user-customizable Host Configuration file called
    /usr/lib/3270/host.cfgN.

    Press ENTER when ready:
    ```

15. Make sure the light on the floppy disk drive is off. When it is off, remove the floppy disk and press ENTER.

    System response:

    ```
    Installing Translation file for language support....OK
    Collecting current UNIX-configuration information....OK
    Updating the UNIX configuration files....OK
    Making device node /dev/host1....OK
    Building new UNIX system kernel....OK

    To conclude the installation of the additional 3270
    board:

    1) Edit the configuration file /usr/lib/3270/host.cfg1
       as necessary.
    2) Reboot the system to activate the new system system
       kernel.
    3) Download the newly added 3270 board (by
       invoking 3270_cfg 1).
    ```

16. Press ENTER.

    System response:

    ```
    Before utilizing this Product you MUST perform the fol-
    lowing setup:

    1) Add usr/lbin to the PATHS of all 3270 users.
    2) Edit the configuration files /usr/lib/3270/host.cfg0
       as necessary
    3) Download the board (by invoking “3270_cfg 0)

    Press ENTER to continue:
    ```

17. Press ENTER.

    System response:

    ```
    Confirm

    To complete the install/remove procedure a shutdown is
    now being initiated automatically.

    Make sure your floppy drive is empty. If you are
    installing or removing controller boards, you may power
    down the system after the shutdown has been completed.

    Strike ENTER when ready
    or ESC to stop.
    ```

18. Press ENTER.

19. You have completed this procedure.

Installing the 3270 Enhanced File Transfer Software

Use the following procedure to install this optional feature package:

1. If you are not already logged in, do so now.
   a. Enter **root** at the `Welcome to the AT&T 386 UNIX System` prompt.

      System response:

      `Password:`

   b. Enter your password. You eventually see the UNIX system prompt #.
2. Enter **installpkg**

   System response:

   ```
   Please indicate the installation medium you intend to
   use. Strike "C" to install from CARTRIDGE TAPE or "F" to
   install from FLOPPY DISKETTE.
   Strike ESC to stop.
   ```
3. Press F.

   If the voice system is running, the system responds:

   ```
   Voice system is currently running.
   Is it ok to STOP the Voice system? (y/n)
   ```
4. Enter **y**

   System response:

   ```
   Stopped.

   Insert the floppy disk.

   Strike ENTER when ready
   or DEL to cancel.
   ```

5. Insert the CONVERSANT VIS V4.03270 Enhanced File Transfer floppy disk and press ENTER.

   System response:

   ```
   Installation in progress -- do not remove the floppy
   diskette.

   Installing files into system directories...
   ```

   When the system has finished installing Enhanced File Transfer, you receive the system response:

   ```
   The installation of the 3270 Enhanced File Transfer
   package is now complete.
   ```

6. Make sure that the light on the floppy disk drive is off. When it is off, remove the floppy disk.
7. You have completed this procedure.

Configuring the Host Interface

You must verify that both the IBM host and the VIS are configured correctly.

Host Sysgen Data

The host sysgen data is the configuration information about the 3270 link in the VIS. The values of the following parameters in the host sysgen file are critical for the proper functioning of the 3270 software on the VIS. Refer to "VIS Host Configuration" on page 2-22 for additional information concerning configuration values.

- DLOGMOD — Should be set to D4C32782 or the system default for the ISM 3278 Model 2 terminal
- DUPLEX — Can be either HALF or FULL. On multi-drop lines (more than one terminal share the line), HALF duplex should be used.
- MAXDATA — Determines the maximum path information unit for type2. The MAXDATA parameter should be less than or equal to 265.
- MAXOUT — Determines the maximum number of frames sent before the next polling. The MAXOUT parameter should be set to 7.
- NRZ (No Return to Zero) — Should be noted so that NRZ_CODE can be configured to match the host setting. This parameter can either be turned on (the line is NRZ), or turned off (the line is NRZ1 — No Return to Zero Inverted).
- PU ADDR (Physical Unit Address) — Critical for host communication. For the host, this value is defined as a hexadecimal (that is, base 16) value. However, the VIS must have the decimal equivalent in its configuration file. The PU address corresponds to the SDLC_ADDR used in the **/usr/lib/3270/hostCfg*N*** configuration file. In the examples on the next pages, the sysgen file has the address as 0xC0 (the 0x prefix indicates a hex value) and the VIS has the SDLC_ADDR value set to 192 (dec). Note that 0xC0 is equal to 192.
- PUTYPE — Sets the cluster controller type. The PUTYPE parameter should be set to 2.
- SPEED — Can be any standard speed up to 56K baud that is supported by the attached modem or modem eliminator and the interface card. Make sure that it does not exceed the maximum speed of the modems or modem eliminators being used.
- TYPE — Can be either SWITCHED or LEASED. It must match the setup for the modem or modem eliminator. Refer to the information provided later in this chapter for assistance in operating at speeds over 9600 baud.

The following is a partial sample of a working NCP (Network Control Program) gen:

```
G2SDLC      GROUP     BATCH=N,.              INTERACTIVE PRIORITY
                      CLOCKING=EXT,          EXTERNAL CLOCKED MODEM
                      DATRATE=HIGH,          DEPENDS ON MODEM SPEED
                      DIAL=NO,               LEASED OR NON/SWITCHED LINE
                      DISCNT=NO,             NO DISCONNECT AFTER LAST LU-LU
                      DLOGMOD=D4C32782,      IBM DEFAULT FOR 3278 MOD2
                      DUPLEX=FULL,           FULL DUPLEX COMMUNICATION LINE
                      IRETRY=NO,             DO NOT RETRY POLL AFTER IDLE T/O
                      ISTATUS=ACTIVE         INITIAL STATUS IS ACTIVE
                      LNCTL=SDLC,            SDLC PROTOCOL
                      MAXDATA=265,           MAX PIU SIZE FOR TYPE2 PU
                      MAXOUT=7,              FRAMES SENT BEFORE POLL SENT FOR RESP
                      MODETAB=ISTINCLM,      USE IBM DEFAULT LOGMODE TABLE
                      NEWSYNC=NO,            NO NEW SYNC FEATURE
                      NRZI=YES,
                      PACING=NO,             DEFAULT
                      PASSLIM=7,             MAX CONSECUTIVE PIU'S SENT
                      PAUSE=0.2,             AVERAGE DURATION OF POLLING CYCLE
                      PUTYPE=2,              PHYSICAL UNIT TYPE
                      REPLYTO=1.0,           TIMEOUT INTERVAL AFTER CPS RECEIVED
                      RETRIES=(2,3,2),       RETRY OPTIONS
                      SERVLIM=10,            NORMAL SCANS OF SERVICE ORDER TABLE
                      SPDSEL=NO,             NO CHANGE OF MODEM DATA RATE
                      SPEED=9600,            LINE SPEED
                      SSCPFM=USSSCS,         CHAR CODED RU'S
                      TYPE=NCP,              NCP LINE GROUP
                      UUSTAB=ISTINCDT,       USE IBM DEFAULT USS TABLE
LN0A8       LINE      ADDRESS=(0A8)
            SERVICE   ORDER=(PU0A80)
PU0A80      PU        ADDR=C0
LU0A8000    LU        LOCADDR=02,
                      USSTAB=USSRMT
LU0A80001   LU        LOCADDR=03,
:           :         :                      :
:           :         :                      :
```

Figure 2-3. Sample NCP gen

Operating Speeds Over 9600 Baud

The DataTalker 3270 U/X software now supports SDLC speeds up to 56-kbyte when utilized with CLEO's DataTalker/XL co-processor card. BSC protocol supports speeds up to 9600 baud.

Certain line configurations must be present to utilize SDLC baud rates above 9600 baud. Table 2-1 summarizes the affected configuration parameters.

Table 2-1. Configuration Parameters

Duplex	Type	Max Baud	Comments
FULL	LEASED	56 Kbyte	Ideal environment for the highest supported baud rates
HALF	LEASED	56 Kbyte	Typical environment for a multi-drop configuration
HALF	SWITCHED	9600 Kbyte	This environment is not supported at line speeds above 9600 Kbyte.

The two optional configurable parameters which introduce transmission line delays, the CTS_DELAY and FRM_DELAY parameters in the host.cfgX file, should not be set to any value above zero (unless it has been specifically determined that it is necessary to do so). Setting either of these parameters to a value above zero for line speeds over 19.2 Kbyte baud causes line transmission problems. This may result in missing received frames.

The configuration parameters, LINE_TYPE and LINE_MODE, must be set to reflect your modem environment. The two possible LINE_TYPE values are SWITCHED and LEASED. The LEASED setting indicates that a line connection will always be present. The SWITCHED setting means that one end must dialup the other end in order for a line connection to be established.

The two possible LINE_MODE values are HALF and FULL. The HALF setting is used in most dial-up environments except when the modem is a V.32, V.22, or aV.42. HALF must also be specified in multi-drop environments. The FULL setting is used in single-drop, dedicated-line environments or when V.22, V.32 and V.42 modems are being used.

Table 2-2 summarizes these two configuration parameter settings. The CTS column indicates the action of the RTS modem signal. Toggled means that RTS is raised and lowered as required; Constant means that RTS is raised during protocol initialization and left high.

Table 2-2. Configuration Parameters

LINE_MODE	LINE_TYPE	CTS	Situation
HALF	SWITCHED	Toggled	All dial-up modems *except* V.22, V.32 or V.42 which keep DSR constantly high
HALF	LEASED	Toggled	Multi-drop environments (not dial-up)
FULL	SWITCHED	Toggled	Dial-up environments utilizing V.22, V.32 or V.42 modes which indicate line-connection via DCD
FULL	LEASED	Constant	Single-drop, dedicated-line environments

VIS Host Configuration

After the host is configured properly, the VIS parameters must be set to agree with the host's parameters. This configuration information is stored in an ASCII file called **/usr/lib/3270/host.cfgn**. The Define SNA Link and Define BISYNC Link screen fields corresponding to these configuration parameters are in parentheses. The more common parameters are discussed below. Refer to "Host Sysgen Data" on page 2-19 for additional information concerning configuration values.

SDLC/SNA Configuration

The following parameters are downloaded to the card in binary format, along with the executable card-level files (that is, sna). Other configuration parameters are available; however, they are rarely used and not included in the following list. The procedures for initializing the card are provided later in this chapter.

- EXEC_TYPE (Protocol) — Specifies the 3270 Communication Manager software that will be downloaded when the card is initialized. The value for this parameters must be SNA (for SNA/SDLC).

- CRT24_80 (List of LUs) — Specifies which logical unit (LUs) should be defined as 3278 Model 2 terminals. The list of device numbers can range from 2 to 255. These numbers correspond tot he Lus that are defined in the host sysgen. They do *not* have to be consecutive numbers. There are other types of devices available; however, the typical configuration is for CRT24_80.
- SDLC_ADDR (SNA Address) — Specifies the cluster controller address. The range of values for address is 1–254. This address must be given a decimal value and should be equal to the hex value for the PU ADDR parameter in the host sysgen. If this value is omitted or is incorrect, host communications will not be established.
- LINE_MODE (Line Mode) — Specifies the duplex setting for the host link. The two values for mode are HALF and FULL. Each line that is multi-dropped should be configured for half duplex and should have a unique SDLC_ADDR value. This parameter should match the setting in the host sysgen for the DUPLEX parameter. The default value for mode is HALF.
- XID (XID) — Necessary only for host links that go through dialup lines. The aid string is derived from the host system parameters, IDBLOCK (values can be 0x017, 0x018, or 0x03D), and IDNUM (values can range from 0x0000 to 0xFFFFF). You can get these values from the host system administrator. For example, the XID for dialing into a host with IDBLOCK of 0x017 and IDNUM of 0xC8C90 would be 017c8c90 (not the leading zero and the lowercase hex digits).
- NRZ_CODE (Code) — Specifies the data link's encoding format. This parameter should match the setting in the host sysgen for the NRZ parameter. The valid values for code are NRZ (Non Return to Zero) or NRZI (Non Return to Zero Inverted).

BISYNC Configuration

The following parameters are downloaded to the card in binary format, along with the executable card-level files (that is, bsc). Other configuration parameters are available; however, they are rarely used and not included in the following list. The procedures for initializing the card are provided later in this chapter.

- EXEC_TYPE (Protocol) — Specifies the 3270 Communication Manager software that will be downloaded when the card is initialized. The value for this parameter must be BSC.
- CRT24_80 (List of LUs) — Specifies which logical units (LUs) should be defined as 3278 Model 2 terminals. The list of device numbers can range from 0 to 31. These numbers correspond to the LUs that are defined in the host sysgen. They do *not* have to be consecutive numbers. There are other types of devices available; however, the typical configuration is for CRT24_80.

- CONTR_TYPE (Controller Type) — Indicates the cluster controller type to be emulated. The valid values for type are 32784 3275, or 3276. There must be a value specified for this parameter.
- CU_ADDR (Control Unit Address) — Specifies the control unit address. The values for address can range from 0 to 31. There must be a value specified for this parameter.

Initializing the Host Interface Card

Refer to Chapter 3, “Configuration Management,” of *CONVERSANT VIS Version 4.0 Operations*, 585-350-703, for information on initializing the host links. The 3270 host card may also be initialized by typing the following command at the UNIX system prompt.

/usr/lbin/3270_cfg 0 (to initialize card 0)

or

/usr/lbin/3270_cfg 1 (to initialize card 1)

These commands will verify configuration information provided in the ASCII **/usr/lib/3270/host_cfg*n*** file and display a confirmation screen only if the configuration information is correct. Confirm the information in this screen by typing **y** or pressing ENTER. The UNIX system prompt will appear after a message indicating that download of the card is complete.

These commands are found in the directory **/usr/lbin**. If they do not appear to work, make sure that the **/usr/lbin** directory is added to the UNIX system $PATH variable and that the 3270 package has been installed. Also confirm that administrator privileges are available.

Using the CONVERSANT VIS Host Interface

3

What's in This Chapter

This chapter describes the administration procedures for the host interface packages using the screen interface and the command line interface

Administering the 3270 Host Communications Package

The 3270 Host Communication Package can be administer from the screen interface and the command line interface. This section details administration from the command line interface. For information on administration of the package via the screen interface, refer to Chapter 1, "User Interface," and Chapter 3, "Configuration Management," of *CONVERSANT VIS Version 4.0 Operations*, 585-350-703.

Starting Terminal Emulation

To begin a host session via the Terminal Emulator, follow the procedure outlined below.

1. Turn on the modem or modem eliminator.
2. Start the 3270 Terminal Emulation software directly by entering the following command:

   sb_te <*session_number*>

   NOTE:
   Mapping between session numbers and LU number if performed by the 3270 software in the following manner. Sessions numbered from 0 to 31 occur over host line 0 (card 0), while sessions numbered from 32 to 63 occur over host link 1 (card 1). The sessions correspond to the LU that is being used for Terminal Emulation will not be available for any service (Script Builder application) assignment.

   The Terminal Emulator Initialization screen will appear.
3. From the Terminal Emulator Initialization screen, press any key to begin terminal emulation.

   If the host is active, the Terminal Emulator screen will display the current screen. If the host is inactive, the screen will display the last screen sent from the host.

   The 3270 status line appears at the bottom of the screen. Figure 3-1 shows an example of what a status line might look like. Note that the LU number at the bottom right of the status line corresponds to the session number. For SNA, LUs begin numbering at 2 instead of 0 (zero). For example, entering **sb_te 0** display “LU:2” on the right side of the status line. Refer to Table 3-1 for additional information on the meanings for status line indicators generated during terminal emulator operations. Mapping from session numbers to LU numbers is performed by the 3270 software.
4. Connect with the host computer by dialing the telephone number of the host (dial-up connections). If you have direct connect (leased-line) connections rather than dial-up connections, the host will probably identify itself soon after the communications card is loaded.

   You will now be able to send commands to the host.

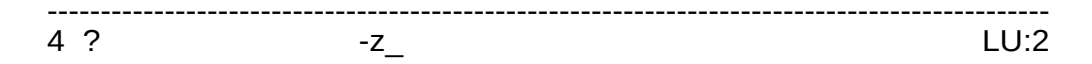

Figure 3-1. Terminal Emulator Status Line

Status Line Indicators

Table 3-1 lists the status line values and meanings for status line indicators generated during the terminal emulator operations. Unless otherwise noted, these indicators are located on the bottom left side of the screen.

A real 3278 terminal also displays indicators when SHIFT is depressed and when NUM LOCK is engaged. Due to UNIX limitations, these are not displayed on the emulated status line, but most PC keyboards have lighted indicators for NUM LOCK and CAPS LOCK. A real 3278 Terminal displays some of the above in different form, using the 3278 graphic capabilities (“System busy,” for example, shows a miniature clock face and “Connected to SSCP” and “Go elsewhere” show a little stick figure symbol).

Table 3-1. Terminal Emulator Status Line Indicators

Status Line	Meaning
4	Host card is emulating a 3270 controller.
?	Host session has not been actuated by the host.
O	Host connected to SSCP (SNA-only).
■	Host connected to a host application (LU-LU).
X SYSTEM	Keyboard has been disabled (host will not respond to input). System lock
X (<)	Keyboard has been disabled (host will not respond to input). System busy.
X =.=	Keyboard has been disabled (host will not respond to input). Printer busy.
X < -t >	The keyboard is locked. You are attempting to input into a protected field. Press the key configured as Reset on the 3270 host to unlock the keyboard. *Do not* press the PC master RESET to unlock the keyboard.
X -f	The keyboard is locked. The function key you pressed is unavailable. Press the key configured as Reset on the 3270 host to unlock the keyboard. *Do not* press the PC master RESET to unlock the keyboard.
X t>	The keyboard is locked due to field overflow (too much data input). Press the key configured as Reset on the 3270 host to unlock the keyboard. *Do not* press the PC master RESET to unlock the keyboard.
X ?+	The keyboard is locked. Input is ignored because keyboard is disabled. Press the key configured as Reset on the 3270 host to unlock the keyboard. *Do not* press the PC master RESET to unlock the keyboard.
^	Insert mode (toggles on and off with Insert key).
=.=	Printing.
-z_	Broken communication line; that is, there is no DSR signal from modem, or SDLC is in Normal Disconnect Mode, or more than 60 contiguous seconds of silence from the host. This status line indicator is located at the left center of the screen.

SESSIONS_TO_START Parameter

The SESSIONS_TO_START parameter in the hostdip parameter file (**/vs/etc/default/agdip3270**) allows you to specify the number of sessions to which you want to receive and send screens concurrently. Setting this parameter to 5, for example, means that 5 sessions at most are allowed to start logging-in, logging-out, or recovering at one time. The rest of the sessions wait to start until one or more of the 5 sessions complete executing their login, logout, or recover sequences. The default is to allow all 32 sessions to access the host concurrently.

In most cases, 32 works well, but if all 32 sessions are logging-in, an individual session will take longer to log in than if it was the only one accessing the host. In the case of 32, an individual session has to compete for the host link resource with 31 other sessions.

On the other hand, setting SESSIONS_TO _START=1 allows only one session to log in at a time while the rest wait their turn. This speeds up the logging-in for one session, but overall it will take longer to log in all sessions than if multiple session were logging-in at a time.

Selecting a good value for SESSIONS_TO _START will involve trial and error, depending on the host environment and the applications. However, in most cases the default of 32 is fine.

To set the SESSIONS_TO_START parameter:

1. Perform the “Stopping the Voice System” procedure in Chapter 4, “Common Maintenance Procedure,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112, for details.
2. Enter **vi /vs/etc/default/agdip3270**
3. Set the SESSIONS_TO_START parameter to the maximum number of sessions that can be receiving and sending screens concurrently. For example, to have only one session interacting with the host, set SESSIONS_TO_START=1.
4. Exit the file.
5. Perform the “Starting the Voice System” procedure in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112, for details.

Retry Strategy

Sessions that repeatedly fail to log in are subject to a retry delay before trying to recover again. The retry delay is incremented by 20 seconds for each consecutive failure. For example, 6 consecutive failed attempts to log in results in 120 seconds of delay before the session will be allowed to start its 7th attempt to log in. Refer to the following figure to show how a session attempts to log in. The session will wait no longer than 600 seconds to attempt to log in again.

A host card is downloaded if all of its sessions attempted their recovery or login sequences 15 times without successfully logging-in. Once a card is redownloaded, all past failed attempts are cleared and the recovery or login sequence is restarted for all sessions on the card.

A session is *not* delayed the next time it tries to log in if one of the following occurs:

- The session is freed via **hfree**. This clears all past failed attempts made to log the session in.
- The hostdip downloads the card.
- The **hlogout**, **hassign**, **hnewscript**, or **hdelete** commands are executed on the session. These commands are queued if the session is in the middle of executing its login or recover sequence. Once the login or recover sequences completes, the commands(s) are executed.
- The session recovers and becomes logged-in.

Figure 3-2 shows how a session tries to log in. After a session is assigned a Script Builder application, it begins to log in. After it completes the login sequence, the session is in one of the following states:

- The session is **logged-in** if the current screen is the transaction base screen. In this state, the session is ready to get data when a call is made to a Script Builder application.
- The session is **logging-in** if the current screen is the login-base screen. In this state, the session will wait an additional 20 seconds before attempting to reach the transaction base screen.
- The session is **recovering**. In this state, the session will wait an additional 20 seconds before attempting to reach the transaction base screen.

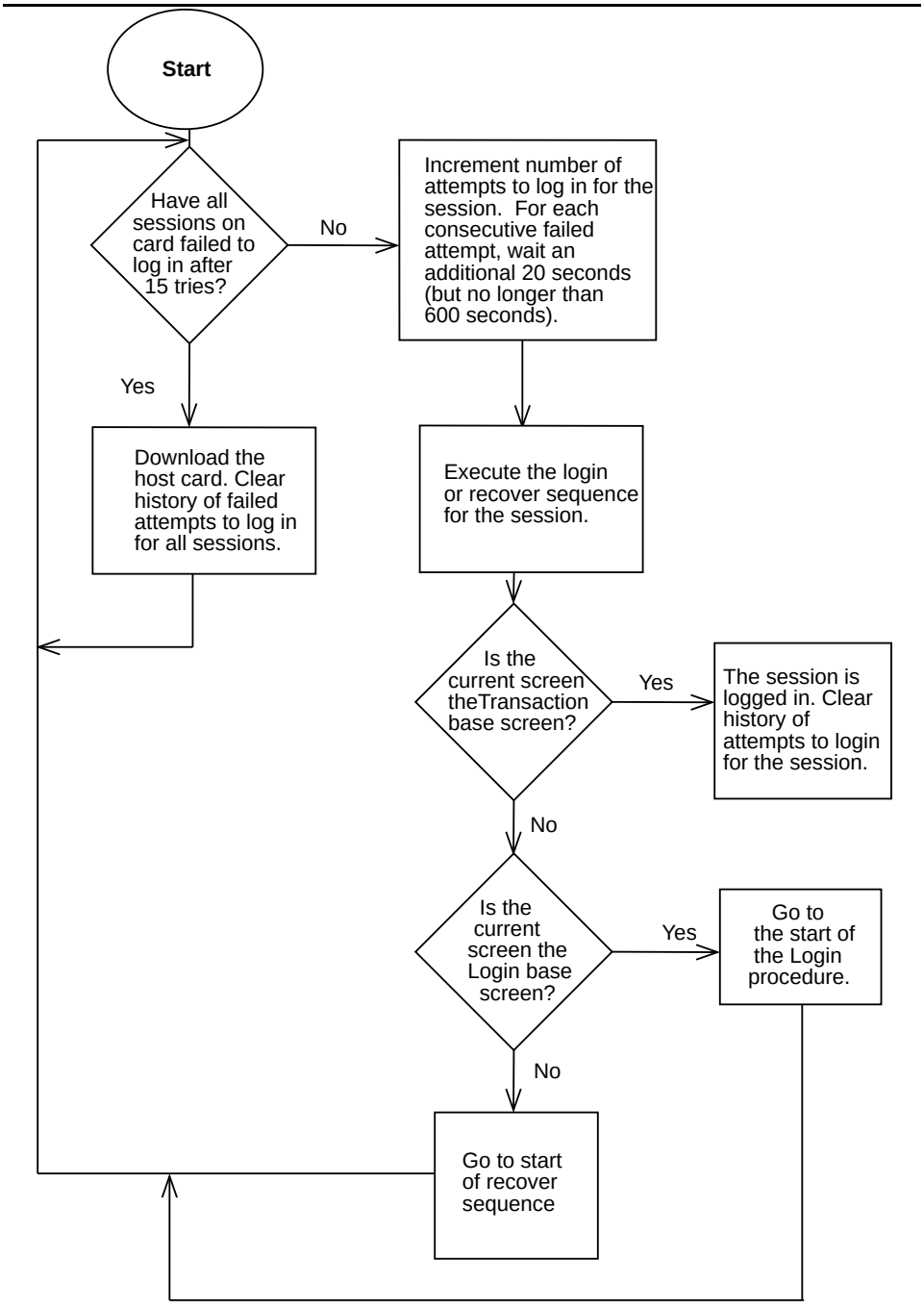

Figure 3-2. How a Session Tries to Log in

Administering Basic File Transfer

Interactive File Transfer

NOTE:
In transferring files between a host and the VIS, the host runs a file transfer program. This IND$FILE utility must be installed on your host system in order to use the File Transfer System.

From the Terminal Emulation Utilities screen, you can begin file transfer by type f (upper or lowercase), or using the spacebar or arrow keys to highlight File Transfer and pressing ENTER. The File Transfer screen appears (Figure 3-3).

NOTE:
The host session must be logged in and at a system prompt before the send and receive commands can be performed. You must use the **sb_te** command to establish the host session before using the file transfer command. Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on the **sb_te** command.

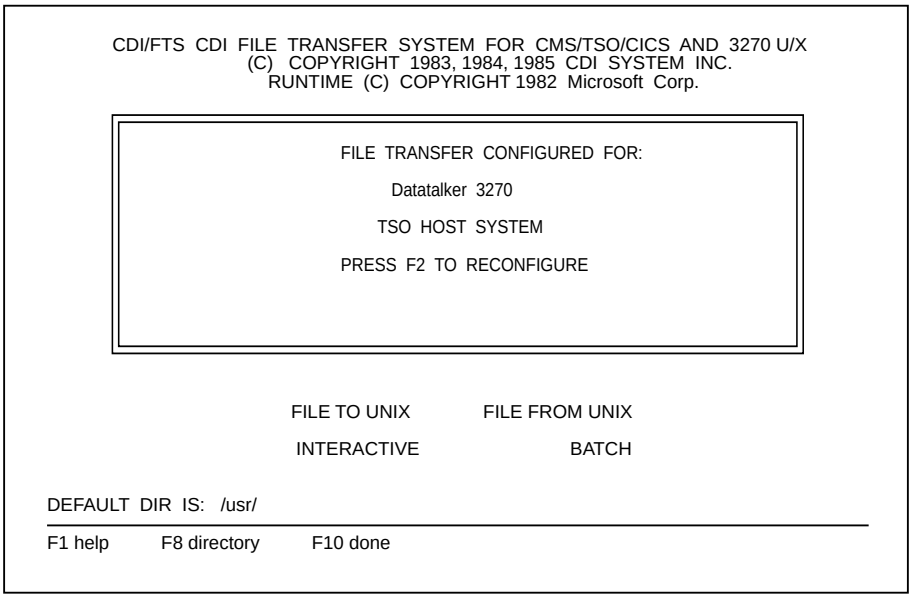

Figure 3-3. File Transfer Screen

File to UNIX

The default option for direction of file transfer is FILE TO UNIX. The cursor is in this field when the screen is displayed. To transfer a file from the mainframe to the VIS, press ENTER.

File from UNIX

To transfer a file from the VIS to the mainframe, use ► to highlight FILE FROM UNIX and press ENTER .

Interactive

The default option for which file to transfer is *Interactive*. The cursor moves to this field after the direction of the file transfer is selected. Selecting Interactive causes the File Transfer System to look to the keyboard for responses to the subsequent prompts. To select Interactive, press ENTER to type **i** (upper or lowercase). Another screen is displayed, which prompts you for the host file and UNIX file names and the data transfer mode (Figure 3-4).

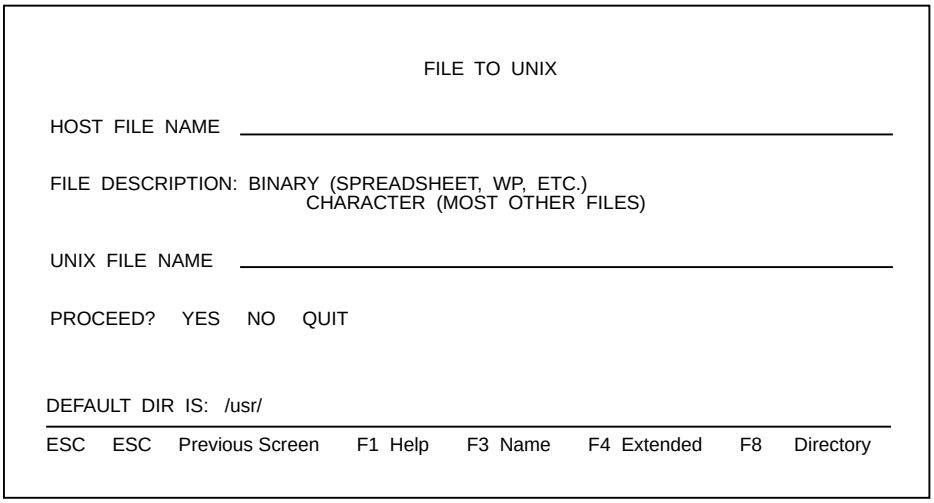

Figure 3-4. Interactive Setup Screen

Host File Name

In the Host File name field, enter the name of the host file and then press ENTER.

File Description

The Interactive Setup screen requires you to describe the file to be transferred to UNIX, either *binary* or *character*. The File Description default option is *Binary*. Binary files may contain nonprintable characters. The files are sent to the host in a special expanded form and are normally not used in host applications. Binary transfer is useful when the host is used as a storage facility allowing other PC systems to access a copy of a PC file. A file transferred to the host in binary form will be received back to the PC system in the exact image originally transferred to the host. The cursor moves to this field after the host file name is entered. To select BINARY, press ENTER.

Character data mode files must contain only printable ASCII characters. Character data mode should be used for printable source or text files. Character files are by default translated to EBCDIC during transmission. To select Character, press ▼ to highlight CHARACTER and then press ENTER.

UNIX File Name

Enter the name of the UNIX file to be used during the transfer in the UNIX File Name field. The screen will then ask you whether you wish to proceed with the file transfer. Press ENTER to select the default of *yes* to proceed with the file transfer.

After you have completed the Interactive Setup screen, the file transfer is started.

Interactive Setup Function Keys

In the next few pages, the commands for the interactive setup menu screen are described.

F1 HELP

HELP displays screen-specific information to assist you with the highlighted. Press the spacebar to exit the help screen.

F3 NAME

NAME specifies the name of a batch job file to record all the options specified on this screen.

F4 EXTENDED

EXTENDED modifies the default parameters used during the file transfer. Specifically, EXTENDED enables you to request a carriage-return-line-feed to be added to each file record before it is added to the UNIX PC file. To add a carriage control unit to each UNIX file, press F4. The screen prompts you with the following:

```
CARRIAGE CONTROL ADDED TO UNIX FILE (Y/N)?
```

Press ENTER to accept the default response **Y** (yes).

F8 DIRECTORY

DIRECTORY tells you the current directory.

ESC

Press ESC twice to return to the previous screen.

Batch

Selecting *Batch* as the method of file transfer causes the File Transfer System to look into a file to obtain the answer to the subsequent prompts. To select Batch, use the ► key to highlight Batch and press ENTER or type **b** (upper or lowercase). You will next be prompted for the batch file name. The batch file contains all of the keystrokes that you would normally enter in interactive mode to start a file transfer. You can create a batch file with any UNIX system editor or by selecting the Command Record Facility (F3) during an Interactive mode file transfer. After entering the batch file name, press ENTER. The keystrokes are read from the batch file and the file transfer is started. The File Transfer in Progress screen appears (Figure 3-4).

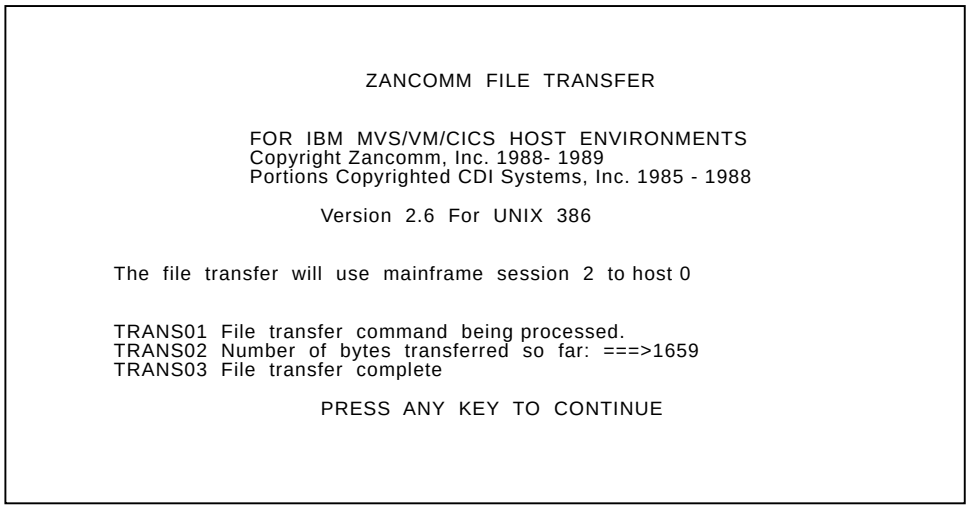

Figure 3-5. File Transfer in Progress Screen

The File Transfer in Progress screen displays information about the transfer, including the number of bytes transferred so far.

If for any reason you wish to stop the transfer, press the UNIX system kill or interrupt key. After a short delay, the File Transfer System will display the current state of the mainframe and return to the initial File Transfer screen.

When the transfer is complete, the File Transfer System displays the following message:

```
TRANS03 File transfer complete

PRESS ANY KEY TO CONTINUE
```

Press any key to return to the initial File Transfer screen. From this point, you can start another transfer or press F10 to exit the File Transfer System.

UNIX System

While you are working in emulation mode in contact with the host computer, you may temporarily enter the UNIX system environment without exiting the terminal emulation program. To move to the operating environment, press ESC twice and then **U** (upper or lowercase). Alternatively, press ESC twice from emulation mode to display the Terminal Emulation Utilities screen, then type **U** (upper or lowercase), or either SPACE or the ▲ or ▼ key to highlight UNIX System, then press ENTER.

Type CONTROL and D to exit the UNIX system and return to terminal emulation.

⚠ CAUTION:
Do not *invoke* **cvis_mainmenu** *while at the UNIX system prompt. Because you are logged into the system through the menus, invoking the menus again can cause system problems.*

Take-Snapshot

The Take-Snapshot option is used to capture “snapshots” of the currently displayed host screen. To take a snapshot while you are working in emulation mode in contact with the host computer, press ESC twice and then **T** (upper or lowercase). Alternatively, press the ESC key twice from emulation mode to display the Terminal Emulation Utilities screen, then type T (upper or lowercase), or use the SPACE or the ▲ or ▼ key to highlight Take-Snapshot, then press ENTER.

Exit Terminal Emulation

When you are finished taking snapshots, log off the host, then exit terminal emulation either via the command menu (by pressing ESC twice to enter the command menu, then **e** to exit) or directly by using CONTROL X. This returns you to the Terminal Emulator screen.

Exiting terminal emulation does *not* automatically log you off the host. In fact, you can exit TE and restart it later (by pressing SAVE), and find yourself right where you left the host application when you exited.

Direct File Transfer

File transfers are performed directly using the **send** and **receive** programs in the directory **/usr/lbin**. The send and receive programs transfer files using a screen-buffer which interacts with the host **IND$FILE** file transfer program.

NOTE:
The host session must be logged in and at the system prompt before the send and receive commands can be executed. You must use the **sb_te** command to establish the host session before using the file transfer command.

send

Use the send program to transfer a file from the VIS to the host mainframe; that is, to upload a file. Following is an example of the send program:

send -b*B* -n*N* *unix-file host-filename options*

- The ***-b*** is an argument indicating the 3270 card that will be used to send files and B is a value for this argument. The value for *B* is either 0 or 1 (corresponding to card number 0 and card number 1).
- The ***-n*** is an argument indicating the LU number that will be used to send files and the N is a value for this argument. The value for *N* ranges from 2 through 255 for SNA (corresponding to the LU numbers 2 through 255 on the SNA link) or from 0 through 31 for BSC (corresponding to LU numbers 0 through 31 on the BSC link).
- The *unix-file* is the name of the VIS file to be transferred. Note that the naming convention of the file follows UNIX standards. The file must be named with a full path. No directory is required if the file is in the current working directory. Refer to Table 3-2 for tips on how to specify filenames when performing file transfers.
- The *host-filename* is the name of the target host mainframe file.

- There are several *options* that may be entered to control the file transfer. File transfer options are provided in Table 3-3. Note that some options are not available with all systems.

NOTE:
Mainframe systems vary in their requirements for the options list. Some mainframes require that the option list be enclosed in parentheses, some require only the left parentheses, and others do not permit the use of parentheses. You should therefore verify the requirements of the mainframe you are using before using any of these options. All meta characters [* , ( ) etc.] must be preceded by a backslash (\) character in the send command line. Other characters may work, but the backslash is recommended in all cases.

receive

Use the receive program to transfer a file from the host mainframe to the VIS; that is, to download a file. Following is an example of the receive program:

receive -b*B* -n*N* *unix-file host-filename options*

- The **-b** is an argument indicating the 3270 card that will be used to receive files and *B* is a value for this argument. The value for *B* is either 0 or 1 (corresponding to card number 0 and card number 1).
- The **-n** is an argument indicating the LU number that will be used to receive files and *N* is a value for this argument. The value for *N* ranges from 2 through 255 for SNA (corresponding to the LU numbers 2 through 255 on the SNA link) or from 0 through 31 for BSC (corresponding to LU numbers 0 through 31 on the BSC link).
- The *unix-file* is the name of the target VIS file on download. Note that the naming convention of the file follows UNIX system standards. The file must be named with a full path. No directory is required if the file is in the current working directory. Table 3-2 for tips on how to specify filenames when performing file transfers.
- The *host-filename* is the name of the host mainframe file to be transferred.

- There are several *options* that may be entered to control the file transfer. File transfer options are provided in Table 3-3. A summary of these options is provided in Table 3-4. Note that some options are not available with all systems and may not all be available to Call Management System (CMS), Customer Information Control System (CICS), and Time Share Operation (TSO) systems.

  NOTE:
  Mainframe systems vary in their requirements for the options list. Some mainframes require that the option list be enclosed in parentheses, some require only the left parentheses, and others do not permit the use of parentheses. You should therefore verify the requirements of the mainframe you are using before using any of these options. All meta characters [* , ( ) etc.] must be preceded by a backslash (\) character in the **receive** command line. Other characters may work, but the backslash is recommended in all cases.

When an ASCII file is received from the host, it may have been sent with a ^Z (Ctrl-Z) at the end of the file. When you try to “vi” the file, a message may complain about an unrecognized character. You should attempt to get rid of the character in the file. This is typically a problem with TSO and VM systems.

When a binary file is received from the host, zeros (0) are added to the end of the block to make it a multiple of 80. For example, if a file of 4 bytes is sent to the host, it may contain 76 more bytes when it is returned (4 + 76 = 80).

Table 3-2 provides tips on how to specify filenames when performing file transfers.

Table 3-2. Filename Guidelines for File Transfer

If Filename Contains	UNIX			Host3270		
	Syntax	Examples		Syntax	Examples	
		Original	Converted		Original	Converted
| & ; < > () ‘ \ ‘ * ? [] Space Tab # ~ †	Precede each special character with a backslash (\).	ix’yy’a\bc	x\’yy’\a\\bc	Precede each special character with a backslash (\).	#AB~C*D E?cde#f*h	\#AB~C*DE \?cde#f*h
$	Precede $ with backslash(\).	AB$tmp	AB\$tmp	Precede $ with backslash (\) ‡.	XXyy$zz	XXyy\$zz
.	as-is	s.xx.c	s.xx.c	Enclose filename first with \’.††	s.xx.c	\’.xx.c\’
Character not in above list	as-is	abcd	abcd	as-is	a123bcd	a123bcd

† # and ~ must be protect with a backslash only is they begin the filename

‡ Protect $ with backslash only when the the file transfer is done directly with the send or receive commands. Do not protect $ when file transfer is done through the 3270 terminal emulator.

†† Protect . only if transferring files to/from a tso system and the dots in the filename is a fully qualified filename (containing the user id).

Table 3-3. File Transfer Options

Parameter	Availability	Meaning
/password	TSO only	Allows the entry of a password if the TSO Data Set is password protected.
file type	CMS only	Allows the entry of the CMS file type.
file mode	CMS only	Allows the entry of the CMS file mode.
APPEND	TSO, CMS	Allows the file to be transferred to be appended to an existing file. If this parameter is not specified, the file being transferred will overwrite the existing file.
ASCII	CICS, TSO, CMS	Specifies that data format conversion between the ASCII format used by the PC and the EBCDIC format used by the mainframe be done automatically. ASCII should normally be specified for text file transfers. If this parameter is omitted, binary transfer is assumed. Binary transfer allows the transfer of data in non-readable, binary format.
BLKSIZE(n)	TSO only	Specifies the size in bytes of the TSO data set. If this parameter is omittted, the LRECL will be used. this parameter is ignored when appending to or replacing an existing data set.
CRLF	CICS, TSO, CMS	This parameter should normally be specified when text fiels are transferred. It directs CDI/FTS to insert carriage return/line fee characters after each record on download and strips these characters on upload.
NOCRLF	CICS, TSO, CMS	Causes CDI/FTS to ignore carriage return/line feed characters.

Table 3-3. File Transfer Options

Parameter	Availability	Meaning
LRECL(n)	TSO, CMS	Specifies the record length in bytes of the mainframe file or data set on upload. If this parameter is omitted, a record length of 80 for new files is assumed. When replacing or appending to existing files, this parameter is ignored. For variable length records, specify the largest possible record size the mainframe will accept. The actual LRECL will be the size of the largest record sent.
RECFM(F/V/U)	TSO, CMS	Specifies the format and attributes of the mainframe file or data set on upload. **F** specifies fixed-length records padded with trailing blanks up to the LRECL. **V** specifies variable-length records. **U** specifies undefined-length records. RECFM is ignored for existing files if the APPEND option is specified. The default for new files is F if CRLF is not specified and V if CRLF is specified.
SPACE(q,i)	TSO only	Specifies the disk space to be allocated on the mainframe for a data set being uploaded. The sub-parameters q and i are the quantity and increment of space to be allocated. If the SPACE parameter is not specified, the value of the BLKSIZE parameter is used to allocate space. **AVBLOCKS(value)**, **TRACKS**, and **CYLINDERS** unit parameters may also be used with the SPACE parameter. **CYLINDERS** specifies the units to be allocated.

Table 3-4 provides a quick reference to the command line parameters that can be used for each host type when transferring files.

Table 3-4. File Transfer Options Summary

Option	TSO	CMS	CICS
/password	•		
file type		•	
file mode		•	
APPEND	•	•	
ASCII	•	•	•
BLKSIZE	•		
CRLF	•	•	•
NOCRLF	•	•	•
LRECL	•	•	
RECFM	•	•	
SPACE	•		

Return Codes

Table 3-5 lists the return values and meanings for return codes generated during file transfer operations. The message will be output to either stdout or stderr with a brief message describing the error.

Table 3-5. CLEO File Transfer Return Codes

Return Value	Message	Meaning	Remedy
0x0000	TRANS03	File successfully transferred.	Check the information in the file to confirm that the operation was executed correctly.
0x0100	TRANS100	General failure (no stdout message). There are numerous possible causes, including: Host not in state to accept file transfer request, UNIX unable to run send or receive program (file not found), bad option specified on receive, etc.	Make sure the FTS software is installed correctly. Refer to Chapter 2, "Installing Host Interface Hardware and Software". Reinstall if necessary.
0x0400	TRANS04	File transfer completed with some records segmented. At least one record exceeded the maximum record length. The error may have resulted from using the CRLF option when the file did not contain logical records.	Check the contents of the file being uploaded and the options used. Then, try sending the file again. Alternatively, send the data to the host “as is” without interpretation. The data can then be interpreted on the host.
0x0500	TRANS05	Unix file name incorrect. No file transferred.	Use the correct UNIX file name including the full path if necessary.
0x0600	TRANS06	Command incomplete. File transfer canceled.	Review the **send** and **receive** command requirements.

Table 3-5. CLEO File Transfer Return Codes

Return Value	Message	Meaning	Remedy
0x0A00	TRANS10	Host has not responded within timeout period (approximately 60seconds).	If the host screen displays the message "HOLDING,'' enter a host session and try to start the file transfer by pressing PF2 for CICS, Clear for CMS, or PA2 for TSO. If X SYSTEMS or X appears in the host screen, wait for the message to clear. This message indicates that the system is working slowly. If several timeout messages appear and you want to end the file transfer attempt, enter a host session and do one of the following. Press [RESET] to clear operator information area. Press [PF2] and [ENTER] to stop the file transfer procedure. Press [CLEAR] to continue.
0x0C00	TRANS12	Error writing to disk or disk full. File transfer canceled	Check the file system and retry the transfer
0x1200	TRANS18	Incorrect option detected. File transfer canceled.	Correct the command to include an acceptable option and try transferring the file again.
1x1900	TRANS25	Keyboard locked. File transfer canceled.	Wait until the keyboard is free and try again. If the keyboard remains locked, switch over to the host session and analyze the problem.
0x3600	TRANS54	File transfer canceled at user request via break key.	Redo the transfer.
0x6500	TRANS101	Cannot open keyboard mapping file (zancomm.key). File transfer package improperly installed.	Remove and reinstall the File Transfer Software package. Refer to Chapter 2, "Installing Host Interface Hardware and Software".

Table 3-5. CLEO File Transfer Return Codes

Return Value	Message	Meaning	Remedy
0x6B00	TRANS106	Cannot initialize mainframe session. Possible causes: Board not loaded, LU not configured, LU opened by another process, LU configured as a printer.	Make sure you have fully logged into a proper user on the host system and are at a point to type commands (that is, at “READY” prompt in TSO).
0x6B00	TRANS107	Cannot open upload file.	Make sure the host file name is correct and you have permission to write to or create the file.
0x6C00	TRANS108	Cannot open download file.	Make sure the UNIX file name is correct and you have permission to write to or create the file.

Administering Enhanced File Transfer

Local VIS Procedures

The user at the local VIS should do the following:

1. Develop, verify, and install a host maintenance script that initiates and maintains a host session; that is, provides procedures for login, logout, and recovery screen sequences. Note that the script should leave the host session at the host system ready prompt that will allow an interface with the host **IND$FILE** file transfer program.Refer to the *CONVERSANT VIS Script Builder*, 585-350-704, for information on developing, verifying, and installing a host maintenance script.

   NOTE:
   After a file transfer, the host system ready prompt may be in a different position on the screen. The recovery and logout sequences must take this into consideration. The user may need to define multiple screens for the host system ready prompt.

2. Begin the file transfer by executing the hassign command to assign the host maintenance script to the host session. Following is the format of the hassign command:

   hassign *<application>* to *<session>* FTSCRT

   The application is a required argument that specifies the host maintenance script for file transfer. The session is a required argument that specifies the session number or a range of session numbers. You may assign enhanced file transfer to sessions 0–31 only. The *FTSCRT* is a required argument that assigns the session for file transfer. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on using the **hassign** command.

3. Execute the **hstatus** command to verify that the session is logged in to the proper screen for file transfer.If the session is logged in properly, hstatus will display ‘‘file transfer’’ as the session’s status. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information on using the **hstatus** command.

4. If you are preparing to transfer a Script Builder application script to the remote site via the host, you must develop, verify, and install this application script using Script Builder. Refer to the C*ONVERSANT VIS Script Builder*, 585-350-704, for information on developing, verifying, and installing Script Builder applications.

5. If you are preparing to transfer a Script Builder application script to the remote site via the host, create a batch file to remove existing applications and install the new application script developed in the previous step. This batch file is sent with the application script to the remote VIS via the host. Once the batch file is received by the remote VIS, the remote VIS executes the commands in the batch file. The batch file can be any combination of regular UNIX commands, executable shell files, and executable program names. For example, to automatically install an application received from the host, the batch file can execute the **remove_appl**, **restore_appl**, **backup_appl**, and **install_appl** commands. Note that the name of the batch file should end with **.vb**. Procedures and suggestions for batch files are described in detail later in this chapter under "Batch Files used in the Enhanced File Transfer System" on page 3-29. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on the **remove_appl**, **restore_appl**, **backup_appl**, and **install_appl** commands.

6. If you are preparing to transfer a Script Builder application, execute the **backup_appl** command to create one file each for the transaction, speech, and database portion of the transaction. Next, bundle the Script Builder transaction, speech, and database files and the batch file into one bundle using the UNIX **cpio** command. If you are preparing to transfer a software package, bundle the software package and the batch file into one bundle by using the cpio command. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on the **backup_appl** command. Refer to the *UNIX System V Release 3.2 User's Reference Manual* for information on using the UNIX **cpio** command.

7. Name the file to be sent to the remote VISs and, if necessary, modify the DESTINATION parameter in the configuration file (**/vs/data/fts_config)** on the local VIS machine to include this filename.The DESTINATION parameter specifies the name of the bundle on the host 3270 mainframe machine. The DESTINATION parameter is required and must be set either in the configuration file or on the **hsend** command line. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on using the **hsend** command.

8. If necessary, create the APPL_FTS utility to postprocess the bundle (that is, a single file, a group of files, or a combination of both) that was sent to the remote VIS. APPL_FTS will be executed after the bundle is received on the remote VIS. Postprocessing is optional and may be used to customize the file transfer feature by adding header information, special files, etc. to the files that will be handled by the Enhanced File Transfer system. Note that the full path name of the postprocessing utility should be added to the APPL_FTS field in the configuration file.

9. Send the file to the remote VISs by executing the hsend command. The format of the **hsend** command is as follows:

   hsend file=<filename> ***[dest=] [opt=]***

   The *<filename>* is a required argument that specifies the full path name of the UNIX file or cpio bundle to be sent to the host. Refer to Table 3-1 for filename guidelines for file transfers. The dest is an optional argument that specifies the final destination of the file at the host. If a destination is not specified, the DESTINATION parameter from the **/vs/data/fts_config** file is used as the destination. The *opt* is an optional argument that specifies either a list of options or the letter n (for no options). Note that the options must be separated by a space. If an option list is provided, it is sent to the host. If the option argument value is n, the PARAM1, PARAM2, and PARAM3 parameter values are not appended to the host **IND$FILE** file transfer program. If this argument is missing, the PARAM1, PARAM2, and PARAM3 parameter values are used.

The local VIS is now ready to send files to the remote VIS via the host and/or receive files sent from the remote VIS via the host.The procedures for sending files from the host to the remote VIS and sending files from the host to the local VIS are discussed later in this chapter.

Remote VIS Procedures

The user at the remote VIS should do the following:

1. Develop, verify, and install a host maintenance script that initiates and maintains a host session; that is, provides procedures for login, logout, and recovery screen sequences.Note that the script should leave the host session at the host system ready prompt that will allow an interface with the host **IND$FILE** file transfer program. Refer to the C*ONVERSANT VIS Script Builder*, 585-350-704, for information on developing, verifying, and installing a host maintenance script.

   NOTE:
   After a file transfer, the host system ready prompt may be in a different position on the screen. The recovery and logout sequences must take this into consideration. The user may need to define multiple screens for the host system ready prompt.

2. Execute the hassign command to assign the host maintenance script to the host session. Following is the format of the **hassign** command:

   hassign *<application>* to *<session>* FTSCRT

   The application is a required argument that specifies the host maintenance script for file transfer. The session is a required argument that specifies the session number or a range of session numbers. You may assign enhanced

file transfer to sessions 0–31 only. The *FTSCRT* is a required argument that assigns the session for file transfer. Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for information on using the **hassign** command.

3. Execute the **hstatus** command to verify that the session is logged in to the proper screen for file transfer. If the session is logged in properly, hstatus will display ''file transfer'' as the session's status. Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information on using the **hstatus** command.
4. Modify the **/vs/data/fts_config** configuration file on the remote VIS to poll the local VIS for the file. Procedures for modifying the **/vs/data/fts_config** file are described later in this chapter.
5. If necessary, create the APPL_FTS utility to preprocess the bundle received from the host. Preprocessing is optional and may be used to customize the file transfer feature by adding header information, special files, etc. to the files that will be handled by the Enhanced File Transfer system. Note that the full path name of the preprocessing file should be added to the APPL_FTS field in the configuration file.

The remote VIS is now ready to receive files sent from the local VIS to the host and/or send files to the host and the local VIS. The procedures for sending files from the host to the local VIS and sending files from the host to the remote VIS are discussed later in this chapter.

Sending Files from the Host to the Remote VIS

The Enhanced File Transfer system automatically transfers files from the host to the remote VIS. The following occurs as part of this automatic transfer procedure:

1. Poll the host at a time determined by the **/vs/data/fts_config** configuration file (POLL_START, POLL_FREQ, and POLL_END fields).
2. Receive bundles sent by the local VIS.
3. Place each bundle in a temporary directory (for example, fts_tmp1, fts_tmp2, etc.) and create a separate directory for each bundle under a directory specified in the FROM_HOST_DIR field in the **/vs/data/fts_config** file. By default, each temporary directory is created under the **/usr/tmp** default directory.
4. Create a log file containing a list of bundles successfully received along with the full path name for each bundle in the file specified in the $FROM_HOST_DIR field in the **/vs/data/fts_config** file. By default, this information sent from the host is placed in **host_log**. All batch file command outputs are appended to the log file, with each record in the log file containing the original command line and the command output.

5. Execute either the APPL_FTS (if one exists) or the UNIX **cpio** command (if an APPL_FTS file does not exist) to preprocess the bundle received from the host.
6. After preprocessing is complete, execute each batch file received from the host under each temporary directory. Note that the batch file name must end with **.vb** and must conform to UNIX standards. Refer to Appendix B, "UNIX System Basics," of *CONVERSANT VIS Version 4.0 Operations*, 585-350-703, for information on UNIX file naming conventions.

WARNING:
If more than one batch file is sent in a bundle, it is treated as an error and no further processing will take place for that bundle.

7. Record the status of all Enhanced File Transfer activities in the log file.
8. After executing all batch files, the Enhanced File Transfer system will send the log file to the host. At this time, the user may execute the hsend command to send other files to the host, including output files created during the execution of commands within the batch files. Refer to the information on "Examples — Sending to the Host" on page 3-33 for information on this procedure.
9. Set the next polling time.

Sending Files from the Host to the Local VIS

The remote VIS may send files other than the log file to the host, including output files created during the execution of commands within the batch files by using the hsend command. The format of the **hsend** command is as follows:

hsend file=<filename> *[dest=][opt=]*

The *<filename>* is a required argument that specifies the full path name of the UNIX file or cpio bundle to be sent to the host. Refer to Table 3-1 for filename guidelines for file transfers. The *dest* is an optional argument that specifies the final destination of the file at the host. If a destination is not specified, the DESTINATION parameter from the **/vs/data/fts_config** file is used as the destination.The *opt* is an optional argument that specifies either a list of options or the letter **n** (for no options). Note that the options must be separated by a space. If an option list is provided, it is sent to the host. If the option argument value is n, the PARAM1, PARAM2, and PARAM3 parameter values are not appended to the host **IND$FILE** file transfer program. If this argument is missing, the PARAM1, PARAM2, and PARAM3 parameter values are used.

NOTE:
The Enhanced File Transfer system removes the log file on the remote VIS after the file is successfully transferred to the host. If the log file is not sent to the host successfully, it will be stored, at FROM_HOST_DIR directory and renamed ***[unix time]*.log** where *[unix time]* indicates the current system time in seconds. It is the user's responsibility to remove the stored log file later to save disk space.

Batch Files used in the Enhanced File Transfer System

UNIX commands have two output files, stdout and sterr. Conventionally, stdout is used for expected output (often none) and sterr is used for error messages. You may discard the output of either the stout or sterr (or both) by directing it to /dev/null. Generally, a command line in a batch file should behave the same way as a command typed at a terminal; that is, the following occurs:

- Undirected sterr and stdout are collected and appended to the host log
- If stdout is redirected to /dev/null, the output will not be appended to the host log (for example, **install_sw xmas_sale > dev/null**)
- If stderr is redirected to /dev/null, the output will not be appended to the host log (for example, **install_sw xmas_sale > dev/null**)
- If both stderr and stdout are redirected to **/dev/null**, nothing regarding the command is written to the host log (for example, i**nstall_sw xmas_sale > dev/null2 > &1**)
- Strings that are recognized as evidence that the user does not want the command to be logged include ''space > /dev/null'' and ''1 > /dev/null'' (for stdout) and ''2 > /dev/null'' (for stderr)

All batch file command outputs are appended to the log file which is created in the $FROM_HOST_DIR, with each record in the log file containing the original command line and the command output.

NOTE:
Commands that are inherently interactive or that do not terminate automatically should be avoided in batch files. Commands that are inherently interactive are difficult to execute on a non-interactive basis unless all the required responses are known in advance. In addition, commands that do not terminate automatically can also cause a problem.

Configuring fts_config File for Enhanced File Transfer

The Enhanced File Transfer configuration file contains field settings that are used in configuring the IND$FILE file transfer program on the host.

Configuration information is stored in an ASCII file called /vs/data/fts_config. You should view and edit the contents of this file by performing the following procedure:

1. Login as **root**.
2. Enter:

   vi /vs/data/fts_config

   The default value for parameters in /vs/data/fts_config are shown in (Figure 3-1).

To modify or edit the /vs/data/fts_config file, use the UNIXsystem vi editor. Refer to Appendix B, “UNIX System Basics,” of *CONVERSANT Voice Information Systerm Version 4.0 Operations,* 585-350-703, for information on using the vi editor.

```
POLL_START=-01:00
POLL_FREQ=04:00
POLL_END=24:00
DESTINATION=
ORIGINATION=
APPL_FTS=
HOST_OS=TSO
FROM_HOST_DIR=/usr/tmp
PARAM1=
PARAM2=
PARAM3=
Verbose=1
Max_receive=1
```

Figure 3-6. /vs/data/fts_config Example

Following is a description of each field in the **/vs/data/fts_config** file.

POLL_START

The POLL_START field specifies the time of day at which the Enhanced File Transfer system first polls the host.The POLL_START default value is -01:00, which specifies that the Enhanced File Transfer system will never poll the host but will, instead, send files only when a request is made. If the POLL_START value is changed from the default (-01:00) to any value between 00:00 to 24:00, the Enhanced File Transfer system will use the new POLL_START value immediately after midnight.

NOTE:
Note that the POLL_START field may not be set to a value greater than 24 hours (24:00). If you attempt to set the POLL_START field to a value greater than 24 hours, the value (00:00) is used.

POLL_FREQ

The POLL_FREQ field specifies the intervals at which the Enhanced File Transfer system polls the host. The POLL_FREQ default value is 04:00, which specifies that polling will occur every four hours. If the POLL_FREQ field is set to a value less than or equal to 00:00, the Enhanced File Transfer system will poll only at POLL_START. For example, if the POLL_FREQ field is set to -01:00 and the POLL_START is set to 01:00, the Enhanced File Transfer system will poll the host starting at 01:00. If the POLL_FREQ field is set to a value greater than 24 hours, the Enhanced File Transfer system polls the host at this offset from POLL_START. For example, if POLL_START is set to 02:30 and POLL_FREQ is set to 50 hours, the Enhanced File Transfer system polls the host at 4:30 a.m. on alternate days. If the POLL_FREQ field is changed just after the most recent POLL_START, the Enhanced File Transfer system changes the POLL_FREQ at the next POLL_START. For example, if POLL_FREQ is changed from 01:00 to 00:30 at 2:20 p.m., the POLL_FREQ will not change until the next polling period begins at 3:00 p.m.

POLL_END

The POLL_END field indicates the time of day after which the Enhanced File Transfer system will not poll the host. The POLL_END default value is 24:00.

NOTE:
Note that the POLL_END field may not be set to a value less than or equal to 00:00 or greater than or equal to 24:00. If you attempt to set POLL_END in this manner, the default value (00:00) is used.

DESTINATION

The DESTINATION is a required field that specifies a dataset (file) name that is acceptable to the host. The DESTINATION specified in this field is used as the destination argument to the **hsend** command for sending a bundle to the host.

ORIGINATION

The ORIGINATION is a required field that indicates a dataset (file) name that is acceptable to the host. The ORIGINATION specified in this field is used as the origination argument to the **receive** command for receiving a bundle from the host.

APPL_FTS

The APPL_FTS field is used only if a program has been created to either preprocess the bundle received from the host. The APPL_FTS field specifies the full path name of this program. The APPL_FTS default value is NULL (indicating that a preprocessing program does not exist).

HOST_OS

The HOST_OS is a required field that indicates the name of a host application. You may specify either CICS, TSO, or CMS in this field. The HOST_OS default value is TSO.

FROM_HOST_DIR

The FROM_HOST_DIR field specifies the full pathname of the directory on the VIS where the Enhanced File Transfer system creates a temporary directory to receive a bundle from the host and executes the batch file from each of these temporary directories. The FROM_HOST_DIR default value is **/usr/tmp**.

PARAM1, PARAM2, PARAM3

PARAM1, PARAM2, PARAM3 are optional fields that are reserved for any additional parameters. Note that the parameters will be sent in the order of PARAM1, PARAM2, and PARAM3 with a space in between them (for example, PARAM1 PARAM3). Refer to Table 3-2 and Table 3-3 for a list of file transfer options.

Verbose

The Verbose field indicates the level of detail of the **/tmp/fts_trace** file. A Verbose setting of 1 indicates the most detailed level. This file is used for debugging purposes.

The Verbose default value is 1.

Max_receive

The Max_receive field specifies how many times the VIS will attempt to receive the bundles from the host during each polling cycle. The Max_receive default value is 1. A Max_receive value of -1 specifies that the VIS will never poll the host.

Changes in the configuration file take effect the next time the host is polled. In order for changes to take effect immediately, perform the ***Stopping the Voice System*** and ***Starting the Voice System*** procedures in Chapter 4, ''Common Maintenance Procedures,'' of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. Alternatively, you may cause changes to take effect by using the **hsend** command. Refer to the information on sending files to the host in this chapter for additional information on using the **hsend** command.

Examples — Sending to the Host

Following is an example of how to send a single ASCII file to the host:

Enter:

hsend file=*<filename> [dest=filename on the host] [opt=ASCII CRLF]*

Following is an example of how to receive a single ASCII file from the host:

1. Enter:

   vi /vs/data/fts_config

   c. Change the APPL_FTS parameter to **/usr/tmp/appl**

   d. Change the FROM_HOST_DIR parameter to **/usr/tmp**

   e. Change the PARAM1 parameter to ASCII and the PARAM2 parameter to CRLF

   f. Change the ORIGINATION parameter to the filename on the host

2. Create the file **/usr/tmp/appl** with the following contents:

   cp /usr/tmp/fts_tmp1/tmp1.pkg /usr/tmp/hostfile

   where */usr/tmp/hostfile* is the file received from the host.

Following is an example of how to send a package to the host. The remove_sw and install_sw commands are used in Step 7 to remove a software package on the system and install a software package received from the host.

1. Enter **cd /tmp**
2. Enter **mkdir /tmp/pkg**
3. Enter **cd /tmp/pkg**
4. Insert the floppy that contains the software package to be sent into the floppy drive.
5. Enter **cpio -idumv < *<floppy drive device name>*** where *<floppy drive device name>* is typically **/dev/rdsk/f0**.
6. Enter **find . -print | cpio -odumv > tmp.pkg**
7. Enter **vi tmp.vb** and edit it as follows:

   mkdir /tmp/pkg
   mv ./* /tmp/pkg
   /vs/bin/remove_sw "<*package name*>"
   /vs/bin/install_sw -p /tmp/pkg -n tmp.pkg << EOF
   <any anticipated input from the installation
   script of the package as the package is being installed
   from floppy>
   EOF

8. Enter **ls tmp.pkg tmp.vb | cpio -odumv > tmp.bundle**
9. Enter **hsend file=tmp.bundle dest=*<where tmp.bundle is being sent>***

Following is an example of how to receive an application from the host.

Modify the **/vs/data/fts_config** file as follows:

1. Keep the APPL_FTS parameter blank
2. Change the FROM_HOST_DIR parameter to /usr/tmp
3. Change the ORIGINATION parameter to the destination file name used in the **hsend** command.
4. Change the DESTINATION parameter to a desired host file name for later use. The Enhanced File Transfer system will use this file name in sending the trace log from the **aaa.vb** execution back to the host.

Following is an example demonstrating the steps necessary to test sending an application to a host, and then receiving that same application back through the use of Enhanced File Transfer:

1. Enter **backup_appl -n <*appl_name*>**

   This creates binary files for each component of an application, which include Transaction (Trans), Speech (Spch), and Database (Dbase).

2. Enter **cd /tmp/sb/BkUpAppl/<*appl_name*>**

   This is the directory to which the Trans, Spch, and Dbase files are copied.

3. Enter **vi <*filename*>.vb**

   This is the file which will be run when it is received on the target system.

4. Enter **ls |cpio -oBcv > <*all_files_name*>**

   This creates one file, whatever you used for <*all_files_name*> which really contains all the files bundled together and will be sent using the **hsend** command.

5. Enter **vi /vs/data/fts_config**

   This is the file used by EFT. Update the Destination parameter with the name you want this application to be stored under on the host system. Remember, it must conform to the host file naming rules, special characters should be preceded with a backslash. Also update the POLL_SEQ with a positive value that you want to now poll the host.

6. Enter **hassign <*eft_appl*> to <*session number*> FTSCRT**

   This assigns the Enhanced File Transfer script to a session, which gets a session to the READY prompt, ready for a file transfer. You can ensure that the session is ready by using **hstatus <*session number*>**, which must have ‘‘file transfer’’ for the state.

7. Enter **hsend file=/tmp/sb/BkUpAppl/<*appl_name*>/<*all_files_name*>**

   This starts the send of the <*all_files_name*> to the host, using the session which was hassigned in Step 6.

8. Enter **vi /vs/data/fts_config**

   This time, set Destination to blank and set Origination to the name you stored the application under on the host in Step 5. Once the send has completed, this file will be updated when the polling value is reached, and the **receive** command is initiated. Once the file is received the **<*name*>.vb** file is run. Some examples of what might be used in the **<*name*>.vb** file are **backup_appl, restore_appl**, and/or **install_appl**, to first make a backup of the original application, then to restore the new application, and to finally install the new appliction. Once the receive is complete, the dates on the appl files in **/att/trans/sb/<*appl*>** should be close to the current time.

Troubleshooting the CONVERSANT VIS Host Interface

4

Troubleshooting Overview

This chapter is intended to isolate the cause of troubles between the VIS and the host environment and propose one or more resolutions. The information provided here is based on ideas and suggestions obtained from actual field troubles.

Sometimes a problem with the host interface shows up immediately, such as when you first turn VIS on after installing the card, or when the 3270 Host Communications software is started. Other times, it may not occur until you are in the middle of some other task.

Diagnostic Tools and Utilities

The following diagnostic tools are available for use when troubleshooting the CONVERSANT VIS host interface. Each of these tools are described in greater detail throughout this chapter. Each of these tools are also documented in *CONVERSANT VIS Version 4.0 Commmand Reference*, 585-350-209.

- **addboard**
- **cmgrtool**
- **dscope**
- **hassign**
- **hdelete**
- **hfree**
- **hlogin**
- **hlogout**
- **hspy**
- **lsboard**
- **rmboard**
- **sb_te**

Isolation Procedures

Following is the order in which troubles should be isolated, from most obvious to less likely. These steps should be used in both new and existing host environments. More information about each of these steps will be provided later in this chapter.

NOTE:
Many of the troubleshooting commands used during this isolation procedure, reside in the directory **/usr/lbin** or **/usr/lib/3270**. Ensure that these directories are part of your default directories by entering **echo $PATH**. If they are not part of the output seen, add these directories by entering **PATH=$PATH:/usr/lbin:/usr/lib/3270.**

1. Determine if the host interface card is functioning/installed properly and that it does not conflict with any other hardware in the VIS.
2. Check the physical connections between the VIS and the host.
3. Confirm that the configuration parameters are set correctly for the host environment.
4. Determine if the host screens can be accessed using Terminal Emulation.
5. Trace the host link and host application activity.
6. Test the host application login, logout, and recovery sequences.
7. Review the miscellaneous host interface troubles to discover another resolution to the trouble being experienced.

As you step through the isolation procedures above, be sure to document the actions taken for each step and the results of those actions. This helps to expedite the resolution process should a support person become involved. It is also helpful when trying to recreate the problem if it appears to be software-related problem.

Verifying Hardware/Software Settings

The host interface communications card must be configured so it does not conflict with other devices installed in the VIS. The interrupt request line (IRQ), the I/O address, and the shared memory address must all be assigned values that do not conflict with other hardware.

Also, the 3270 Host Communications software must be configured to match the physical settings on the card itself.

Refer to Chapter 2, "Installing Host Interface Hardware and Software" for additional information.

Verifying Physical Connections

Physical connection problems are detectable through the data trace services provided by the 3270 Protocol Communications Manager (CMGR) software that has been downloaded to the communications card.

Cabling

The minimum cable consists of pins 1 through 8, 15, 17, and 20 wired straight through, without crossovers. If a problem is suspected with the cabling:

1. Ensure that the RS-232 cable is connected properly to the appropriate host interface card.
2. If connected properly, try exchanging the cable between the host communications card and the modem with one that is know to be good.

NOTE:
High speech connections for 56K baud operation may use modems or modem eliminators with V.35 connectors. This requires an RS-232 to V.35 interface converter since the PC/XL card has only an RS-232 connector.

Modem Connection and Settings

The 3270 Host Communications hardware and software is designed to operate with synchronous modems. It relies on the modem (or modem eliminator) for clocking transmissions. The baud rate of the modem must be in the range of the host computer (some host computers can adjust their rates automatically to match the connecting modem). If the host uses an error-correcting protocol (such as V.35), the modem must be able to match that protocol.

The signals sent between the host and the modem use two different modulating frequencies: “originate” and “answer.” The frequency used by the modem to transmit must match that used by the host to receive. Usually, the modem originates contact, so it uses the “originate” frequency on which to transmit.

If you are using SDLC baud rates above 9600 baud, certain line configurations must be present. Refer to "Operating Speeds Over 9600 Baud" on page 2-21 in Chapter 2, "Installing Host Interface Hardware and Software" for information on configuration parameters.

Connecting with the Host

If everything works until you try to connect with the host computer, perform the following procedure:

1. Check the screen by entering **sb_te**.
2. If the status line does not show 4B?, make sure the host link is activated.
3. Enter **cmgrtool -s -i**

   System response:

   Figure 4-1is an example of **cmgrtool -s -i**. This trace is example of trading Receiver Ready (RR) and modem values between the VIS and the host.

NOTE:
The SDLC_ADDR for the VIS in the following example is 13. This example is normal trace output in a multi-drop environment.

```
Sample3270 SNA CONTROLLER (CMGR/DBM) VER: (WI PC/XL 1-Way) *Fri Jun 18
12:36:09 1993**
Copyright (C) 1986-1990, CLEO Communications
{SCC Loopback Test Started{Trace_init: buf=4000:0000 size=fc00}-1--3--4--5-.. Loopback
Sucessful}<CMGR INIT>{init_iack}<SNA INIT>{108 BTUs available}{CLOCK}{Clock
Done}{Trace_init: buf=4000:0000 size=fc00}Clock Enable DlcMsg:NDM DlcMsg:NDM
wrong sdlc addr of 11 wrong sdlc addr of 12 wrong sdlc addr of 11 wrong sdlc addr of 12
wrong sdlc addr of 11 wrong sdlc addr of 12 wrong sdlc addr of 11 wrong sdlc addr of 12
wrong sdlc addr of 11 wrong sdlc addr of 12 wrong sdlc addr of 11 FUNC? DBM_RC=80
wrong sdlc addr of 12 wrong sdlc addr of 11 wrong sdlc addr of 12 DlcMsg:NRM~>

cmgrtool -s -i
 1 Time:   t=  116345
 2 RXFRM:  t=  116345 size=   2  13 51
 3 MODEM:  t=  116346 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
 4 MODEM:  t=  116365 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
 5 TXFRM:  t=  116369 size=   2  13 51
 6 MODEM:  t=  116372 rxc=   0 txc=   0 modem=0072    DTR DSR DCD     CTS
 7 MODEM:  t=  116373 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
 8 RXFRM:  t=  116612 size=   2  13 51
 9 MODEM:  t=  116612 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
10 MODEM:  t=  116632 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
11 TXFRM:  t=  116637 size=   2  13 51
12 MODEM:  t=  116639 rxc=   0 txc=   0 modem=0072    DTR DSR DCD     CTS
13 MODEM:  t=  116640 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
14 RXFRM:  t=  116879 size=   2  13 51
15 MODEM:  t=  116880 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
16 MODEM:  t=  116899 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
```

```
17 TXFRM:  t=  116904 size=   2  13 51
18 MODEM:  t=  116907 rxc=   0 txc=   0 modem=0072    DTR DSR DCD   CTS
19 MODEM:  t=  116907 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
20 RXFRM:  t=  117147 size=   2  13 51
21 MODEM:  t=  117147 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
22 MODEM:  t=  117167 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
23 TXFRM:  t=  117172 size=   2  13 51
24 MODEM:  t=  117174 rxc=   0 txc=   0 modem=0072    DTR DSR DCD     CTS
25 MODEM:  t=  117175 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
26 RXFRM:  t=  117414 size=   2  13 51
27 MODEM:  t=  117415 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
28 MODEM:  t=  117434 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
29 TXFRM:  t=  117439 size=   2  13 51
30 MODEM:  t=  117442 rxc=   0 txc=   0 modem=0072    DTR DSR DCD     CTS
31 MODEM:  t=  117442 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
32 RXFRM:  t=  117682 size=   2  13 51
33 MODEM:  t=  117682 rxc=   0 txc=   0 modem=0036    DTR DSR DCD RTS
34 MODEM:  t=  117702 rxc=   0 txc=   0 modem=0076    DTR DSR DCD RTS CTS
35 TXFRM:  t=  117707 size=   2  13 51
36 MODEM:  t=  117709 rxc=   0 txc=   0 modem=0072    DTR DSR DCD     CTS
37 MODEM:  t=  117710 rxc=   0 txc=   0 modem=0032    DTR DSR DCD
38 RXFRM:  t=  117949 size=   2  13 51
39 MODEM:  t=  117950 rxc= ~>
```

Figure 4-1. Sample cmgrtool output

If data is being received, Figure 4-1 gives a sample of the output. If nothing appears when entering **cmgrtool -s -i**, something is wrong with the connections (either the modem or the cable) or the value in NRZ_CODE is wrong. Refer to "Verifying Physical Connections" on page 4-4 again to check the modem and cable connections or "Verifying Configuration Parameters" on page 4-7 to check the NRZ_CODE.

Verifying Configuration Parameters

If, after configuring both the host and the VIS, communication (that is, polling) cannot be established, review the critical parameters described in Chapter 2, "Installing Host Interface Hardware and Software". Typical descriptions of faulty host links along with the most likely causes are provided next.

- Host polls but VIS does not respond (no data is being transmitted or received) — Most likely, the host is sending the XID exchange information that the VIS does not recognize. Verify that the XID value in the VIS configuration file matches the value in the host sysgen file. The proper format is outlined in Chapter 2, "Installing Host Interface Hardware and Software". Also check the SDLC_ADDR and the modem/modem eliminator settings. The card must be downloaded again if these parameters are changed or if the card appears to be “stuck” [for example, X(<) is displayed on the status line after a function key or ENTER has been pressed]. Use the **3270_cfg n** file to reset the 3270 card. After the card is reset, some hosts will need to have the link to the VIS deactivated and activated.
- Communication starts but then the link is dropped — The most likely cause of this is that the cluster controller addresses for the host and the VIS do not match. The VIS must have the decimal equivalent of the hex value in the host sysgen file.
- The link appears to be polling but there is no link activity — This can be a result of mismatched codes between the host and VIS. Check the host’s sysgen for the link’s encoding mode. Verify that the NRZ_CODE value in the VIS configuration file matches the NRZI value.
- On a multi-dropped line, one VIS works but another VIS does not — The host link must be configured for half duplex in the VIS configuration files. Also, each VIS must have a unique SDLC_ADDR.
- Poor host response times — Some items to check for in this situation include: mismatching duplex settings between the host and the VIS, noisy data link causing a high retransmission rate, host applications that use the ‘Read Buffer’ command, and applications that send a full 1920 bytes of data when only a few bytes are required. It may be necessary to consult with the host application administrators to improve some of these performance problems. For the non-application based problems, check the duplex settings and the physical link between the host and the VIS. The network administrator should be able to help you in these instances.
- Application does not work the same as on another 3278 terminal — The most likely cause of this problem is that the host and VIS are configured for different types of devices. Verify that the sysgen parameters are set for a 3274 cluster controller with 3278 model 2 terminals connected to it.

Cannot Establish Polling Connection with the Host

This trouble usually indicates that one of the configuration parameters has been set incorrectly. The primary suspects include the LINE_MODE, SDLC_ADDR, and XID values.

- The LINE_MODE value must be set for HALF for VIS systems on a multi-dropped line (when more than one terminal share the line). Also, each device must have a unique SDLC_ADDR that the host is aware of in order to be able to recognize each device.
- The SDLC_ADDR value in the host.cfg0 file must be a decimal value that is equivalent to the hex value for PU ADDR in the host sysgen. The conversion from hex to decimal involves multiplying each hex digit by its positional weight.

  Hex digits range from 0 to 9 then continue as A (equal to a decimal 10), B (11), C (12), D (13), E (14), and F (15). The digit farthest to the right in a hex number has a weight of 1 and the next position to the left has a weight of 16. So to calculate the decimal equivalent to the hex number 0xC2, multiply C (12) by 16, then add that to the product of 2×1; that is, C2 = $12 \times 16 + 2 \times 1 = 194$. Examples include (0xD7 = $13 \times 16 + 7 \times 1 = 215$), (0xA1 = $10 \times 16 + 1 \times 1 = 161$), (0x01 = $0 \times 16 + 1 \times 1 = 1$).
- The XID is a string used for identification of devices connected to the host via dialup lines. The XID is not needed for systems that are connected through leased lines or modem eliminators. However, if it is set for these systems, it will not cause any damage.

  The XID consists of two host parameters: IDBLOCK and IDNUM. The IDBLOCK is a parameter that can have one of the three hexadecimal values: 0x17, 0x18, or 0x3D. The IDNUM can be any hex value from 0x00000 to 0xFFFFF. The XID format is [Leading zero][IDBLOCK][IDNUM]. For example, the XID for connecting to a host with an IDBLOCK of 0x17 and an IDNUM of 0xC8C90 would be 017c8c90 (Note the lowercase hex digits).

Note that some of the “causes” listed above also can be the source for more than one symptom. For example, faulty device definition on the host can lead to slow host response times, interrupted link activity, and dropped host links. In other words, you should review all parameters if the suggestions above do not solve the problem.

Accessing Terminal Emulation

Determine if you can access the terminal emulator by using the "Starting Terminal Emulation" on page 3-2 in Chapter 3, "Using the CONVERSANT VIS Host Interface". Answer the following questions to determine whether you have accessed the terminal emulator successfully:

1. Does the login base screen appear when you access terminal emulation?
2. Can you manually login to the host application?

If yes, you may resolved the problem that you have experienced. At this time, you may define the application or assigned an already defined application to a host session.

If you are uncertain as to whether the problem was resolved or if the problem does not occur until after the host session has been running for some time, proceed to “Tracing Host Links and Host Application Activity” to capture a trace of the current activity. This trace can be viewed and analyzed to further isolate the problem

Tracing Host Links and Host Application Activity

Traces of the host link and host application activity often prove to be the critical factor in resolving faulty VIS-host communications. This trace captures everything that is being sent and received between the VIS and the host mainframe.

NOTE:
If you are not comfortable performing this procedure, contact your support organization for assistance.

1. Capture the sync-line data to a file. Enter:

   cmgrtool -t *<cmgrtool.out>*

   where *<cmgrtool.out>* is the name of the file where you want the data to be stored. Use the *&* option to run the command in the background if you need to recreate the problem through terminal emulation or by placing a call to the application.

2. Recreate the trouble you are trying to resolve. For example, place a call to the application or attempt to log in or log out the application. The method used to recreate the trouble depends on the trouble being experienced.

3. After the problem has been recreated, stop the capture by entering:

   kill *<pid >*

   or

   kill 0

   where *<pid>* is the process number returned after running **cmgrtool** in Step 1.

4. Convert the raw data captured by cmgrtool to a readable form by entering:

   dscope *<cmgrtool.out>* > *<dscope.out>*

   where *<cmgrtool.out>* is the name of the file where the raw data resides and *<dscope.out>* is the name of the file where the converted data is to be stored.

   NOTE:
   There are numerous options available with the **dscope** command. For additional information on the **dscope** option that best suits your needs, refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209.

5. Review the data captured in ***<dscope.out>*** by using your favorite editor. Use the *pg* option to page through the data as the trace data captured is usually large and is difficult to bring up. The following figure is an example of the output from **dscope**. Use the tables on the pages following the sample to read the transmit and receive data in the output.

```
DataScope SNA Trace  Sep 29 11:39:23 1993   cmgrtool.out            Page   1
------------------------------------------------------------------------------

RX  XID     FF BF                                47886 [..]

TX  XID     C1 BF 02 00 03 DE 8D 07                    21 [A.......]

RX  SNRM    C1 93                                 2398 [Al]

TX  UA      C1 73                                 10 [A.]

RX  ACTPU   C1 00 2D 00 00 00 23 F8 6B 80 00 11 02 01 05 00  [A......8,........]
                00 00 00 24                             908 [....]

TX +ACTPU   C1 20 2D 00 00 00 23 F8 EB 80 00 11 11 40 40 40  [A......8.....  ]
                40 40 40 40 40 00 00 07 01 00 00 00 00 00 00 293 [  ..........]

TX  FMD     C1 22 2C 00 00 00 00 01 0B 80 00 41 03 8D 00 00  [A..............]
                00 00 00 00 3A 00 00 19 10 F1 16 11 01 13 00 12  [.........1......]
                F3 F2 F7 F4 F6 F1 C3 00 00 F0 F0 C5 F8 C4 F0 F7 [327461C..00E8D07]
                0E 91 00 0F 03 00 FF FE 3A FE 3A FE 01 00 05 A0  [.j..............]
                F0 F0 F2 03 A0 40 07 42 EF 00 00 00 00       136 [002.. .......]

RX +FMD     C1 42 2C 00 00 00 00 01 8B 80 00 41 03 8D    245 [A.............]

RX  ACTLU   C1 44 2D 00 02 00 23 F9 6B 80 00 0D 02 01    145 [A......9,.....]

TX +ACTLU   C1 64 2D 00 00 02 23 F9 EB 80 00 0D 01 01 00 85  [A......9.......e]
                00 00 00 0C 06 03 00 01 00 00 00            63 [...........]

RX  ACTLU   C1 66 2D 00 03 00 23 FA 6B 80 00 0D 02 01    133 [A.......,.....]

TX +ACTLU   C1 86 2D 00 00 03 23 FA EB 80 00 0D 01 01 00 85  [Af.............e]
                00 00 00 0C 06 03 00 01 00 00 00            65 [...........]

RX  ACTLU   C1 88 2D 00 04 00 23 FB 6B 80 00 0D 02 01    132 [Ah......,.....]

TX +ACTLU   C1 A8 2D 00 00 04 23 FB EB 80 00 0D 01 01 00 85  [Ay.............e]
                00 00 00 0C 06 03 00 01 00 00 00            63 [...........]

RX  ACTLU   C1 AA 2D 00 05 00 23 FC 6B 80 00 0D 02 01    131 [A.......,.....]

TX +ACTLU   C1 CA 2D 00 00 05 23 FC EB 80 00 0D 01 01 00 85  [A..............e]
                00 00 00 0C 06 03 00 01 00 00 00            64 [...........]

RX  ACTLU   C1 CC 2D 00 06 00 23 FD 6B 80 00 0D 02 01    133 [A.......,.....]
```

Figure 4-2. Sample dscope output

The following tables provide a description of the codes that appear in the trace of the host link. Each of the frame codes can be proceeded by a “+” (plus) or “-” (minus) which indicates that the frame is an SNA positive or negative response, respectively.

Table 4-1. SNA Supervisory Command

Frame Code	Description
REJ	Reject
RNR	Receive Not Ready
RR	Receive Ready
???	(unknown frame type)

Table 4-2. SNA Unnumbered Command

Frame Code	Description
BCN	Beacon
CFGR	Configure
DISC	Disconnect
DM	Disconnect Mode
FRMR	Frame Reject
LPDA	LPDA Request/Response
RIM	Request Initialization Mode
SDLC	Unknown Unnumbered Command
SNRM	Set Normal Response Mode
TEST	Test
UA	Unnumbered Acknowledgment
UI	Unnumbered Information
UP	Unnumbered Poll
XID	Exchange Identification

Table 4-3. SNA Network Control

Frame Code	Description
LSA	Lost Subarea
NC	Unknown Network Control frame

Table 4-4. SNA Session Control

Frame Code	Description
ACTLU	Activate Logical Unit
ACTPU	Activate Physical Unit
BIND	Bind Session
CLEAR	Clear
CRV	Cryptography Verification
DACTLU	Deactivate Logical Unit
DACTPU	Deactivate Physical Unit
RQR	Request Recovery
SC	Unknown Session Control frame
SDT	Start Data Traffic
STSN	Set and Test Sequence Numbers
UNBIND	Unbind Session

Table 4-5. SNA Data Flow Control

Frame Code	Description
BID	Bid
DIS	Bracket Initiation Stopped
CANCEL	Cancel
CHASE	Chase
DFC	Unknown Data Flow Control frame
LUSTAT	Logical Unit Status
QC	Quiesce Complete
QEC	Quiesce at End of Chain
RELQ	Release Quiesce
RSHUTD	Request Shutdown
RTR	Stop Bracket Initiation
SHUTC	Shutdown Complete
SHUTD	Shutdown
SIG	Signal

Table 4-6. SNA Function Management Data

Frame Code	Description
COPY	Copy
ERASEAU	Erase All Unprotected
ERASEW	Erase/Write
ERASEWA	Erase/Write Alternate
FMD	Generic Function Management Data frame (SSCP, Pacing, etc.)
RDALL	Read Modified All
RDBUF	Read Buffer
RDMOD	Read Modified
WRITE	Write
WSF	Write Structured Fields

The following table provides a description of the frame identifiers for a BISYNC link.

Table 4-7. BSC Frame Identifiers

Frame Code	Description
ACK0	Positive Acknowledgment
ACK1	Positive Acknowledgment
COPYCMD	Copy Command
EAU	Erase All Unprotected
ENQ	Enquiry
EOT	End of Transmission
ERSWRCMD	Erase/Write Command
GENPOLL	General Poll
NAK	Negative Acknowledgment
POLL	Specific Poll
RDALLRSP	Read All Response
RDBUFCMD	Read Buffer Command
RDMODCMD	Read Modified Command
RVI	Reverse Interrupt
SELECT	Select
SHRTREAD	Short Read
SNS&STAT	Sense and Status
TESTREQ	Test Request
TTD	Temporary Text Delay
WACK	Wait before transmit
WRITECMD	Write Command
???	(unknown BSC command)

Tracing Host Application Activity

During the course of application development, some applications experience difficulties in the host interface definition. Problems in this area of the application may have causes ranging from system limitations to lack of understanding of the VIS-host interaction. The following information is provided to help you isolate and solve difficulties that may occur during host application development.

To start a trace on the host application:

1. Enter **sb_trace *<session number>* &** where *<session number>* is the number of the session that you want to trace. The output of this trace is stored in **/vs/trans/hostdata/chan*XX***, where *XX* is the session number being traced.

   NOTE:
   If you remove the files in **/vs/trans/hostdata/**, you must stop and start the voice system before trace files be recreated in this directory.

2. Recreate the trouble you are trying to resolve. For example, place a call to the application or attempt to log in or log out the application. The method used to recreate the trouble depends on the trouble being experienced.
3. After the trouble has been recreated, press DELETE or enter **kill 0** to stop the trace.
4. Review the data captured in **chan*XX*** by using your favorite editor. Use the *pg* option to page through the data**.** Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information on the **sb_trace** command.

Host Interface Process Not Responding Message

If this message is returned after submitting a request (**hfree, hassign, hlogin**, etc.) to the host interface process. the 3270 DIP is stuck in a state that prevents it from reading its queue. This can occur if the application causes the DIP to stay in a ‘tight loop’. A tight loop is one in which the application causes the same module to be executed many times very quickly.

The most common method of invoking this condition is to continually go to the top of the recovery module from another statement within recovery. For example, if an initial attempt to recover from an aborted call fails and the application’s reaction is to ‘Goto recovery’, then a tight loop may be started. This practice is unnecessary because as long as the host interface process is not at the Transaction Base Screen after Recovery, it waits and repeats that module automatically. The time intervals between retries increase from 20 seconds, to 40, to 60, up to 10 minutes, so loops are not needed.

Although this type of loop is most common in the recovery procedure, it is by no means limited to that section. Any portion of an application that reacts to a failure by immediately jumping to itself may cause tight loops. More suitable responses to such situations are to wait for the host screens to settle down, increase the number of retries or the timeout value before a failure status is returned, or use specific commands or keys that can be sent to force certain screens to appear (for example, the CLEAR key).

By producing more robust code for the host interface portions of the application, the developer can allow for a greater variance of host behavior. Typically, this type of problem surfaces on days when the host is slow in sending back screens, causing the application to timeout on reading that screen. After timing out, the application may transfer the caller and enter the recovery procedure which, due to the slow host response time, may induce a tight loop. In other words, under normal conditions, this problem may never appear. However, certain abnormal conditions may uncover the faulty code in an application.

In order to return the system to normal after locking up the host interface process, stop and then start the VIS. You may stop and restart the voice system by performing the stop voice system and restart voice system procedures described in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112, or by using the System Control screen as described in Chapter 3, “Configuration Management.” of *CONVERSANT VIS Version 4.0 Operations, 585-350-703*.

Unrecognized Screen Errors

This error can appear in the logger or in a trace of an LU that the application is using. This messages indicates either that some of the host screens in the Script Builder application are not properly defined (identifiers, or actual screen names) or that the host application has changed, resulting in a different screen being sent. There also may be other non-application dependent causes, which are identified later in this chapter.

In order to isolate this problem, use the terminal emulator program, **sb_te**, to log into the host application to verify that the screens are correct. The Script Builder program may be needed to capture new screens or to define new identifiers.

Send Screen Input Inhibited Errors

Typically, these errors occur when the sequence of Get Screen and Send Screen commands are out of order. The host must be expecting a screen from the VIS when a Send Screen command is issued; otherwise, an Input Inhibited error is produced. The only way for the application to make sure that the host is expecting a screen is to Get the previous screen. Thus, executing two Send Screens in a row without a Get Screen causes the ‘send failed’ error. The non-application dependent causes for these errors also are described later in this chapter.

Testing Application Login, Logout, and Recovery Sequences

In this section, standard methods used to diagnose host problems are discussed. Included for each method is the procedure, the tools, and the organizations that can help. Remember, the more on-site investigative work that is completed to identify a problem, the faster these organizations can help you to solve the problem.

Once you have determined there is a problem between the VIS and the host, there are several tools available that provide valuable diagnostic information. Collecting this data before reporting the trouble will save time. One of the critical steps involved in solving host interface problems is identifying what part of the application is having the trouble. There are three areas of interaction between the VIS application and the host machine: the login/logout procedure, the recovery procedure, and the transaction steps in the host application. Many of the tools described below require that the problem be reproduced multiple times in order to gather the necessary data. Use the following techniques to repeat the steps within that procedure.

- Login/logout

  For most applications, stopping and starting the VIS (either using the System Control screen or, from the UNIX system command line, using the **stop_vs** and **start_vs** commands) causes the host interface process to logoff from the host (**stop_vs**) and then to log back into the host (**start_vs**). The stop_vs command checks the LUs and logs out the application(s). The command waits up to 60 seconds (6 series of the 10 seconds each), then continues stopping the voice system. If the application was generated with Script Builder, then the commands **hlogout** and **hlogin** force the 3270 DIP to go through the logout and login procedures. The syntax for the hlogout and hlogin commands is provided below.

- Recovery

  If the application has a recovery module, it can be invoked by calling into the application, then hanging up in the middle of the transaction. In other words, the recovery sequence takes over once the call has been completed (whether by hanging, completing the transaction, etc.). Sometimes a test of the recovery module may require that this procedure be repeated many times in rapid succession with a single LU to the host.

- Transaction

  An application's transaction can be invoked by calling into the application and then going through the steps until the problem is reached.

In addition to providing diagnostic information after the problem has been identified, these methods for repeating modules of the host interface process are useful in isolating the area that is experiencing the problem.

The commands (along with the recommended syntax for those commands) that are used in gathering network diagnostic information are described below. For additional information concerning these commands, refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209.

- **sb_te {<session_number>}**

  This terminal emulation program allows a user to step through the host application, including the logon, logoff, and recovery procedures of a Script Builder application. Only one session_number is accepted. This session_number is optional and ranges from 0 to 63. If no session_number is given, the command tries to open all sessions on all 3270 cards installed in the system and automatically displays the first session (use CTRL Y to display multiple sessions). If a session is not specified, the system assumes the value "all" for sessions 0–63 for both cards in a two card installation. Sessions numbered from 0 to 31 are mapped to Logical Unit (LU) numbers configured in card 0 and sessions numbered from 32 to 63 mapped to LUs configured in card 1. For example, session number 0 corresponds to the first LU number specified in the Configure Host Link screen for Link 0, while session number 1 corresponds to the second LU number in the Configure Host Link screen. Similarly, session number 32 corresponds to the first LU number specified in the Configure Host Link screen for Link 1, while session number 33 corresponds to the second LU number in the Configure Host Link screen, etc. If the first session the first card is not configured, **sb_te** automatically proceeds to the first session on the next card. For example, if session 0 on card 0 is specified and that session is not configured, a failure message is displayed and the **sb_te** command proceeds to the first session on card 1.

  The **sb_te** command is used to verify if there have been any changes to the host application. Sometimes changes can occur on the host end that are not passed down to the VIS development end. The session number chosen must be released from the host interface process before invoking **sb_te**. This can be accomplished by stopping the DIP (for non-Script Builder applications) or by using the **hfree** command described later (for Script Builder applications). Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **sb_te** command.

- **hspy [<session_number or range or all>]**

  By specifying a session number (or all), this command shows what screen currently is being presented on that session. Make a note of this information; it will help to isolate what screens might be involved in the problem. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hspy** command.

- **hlogin [<host application> or <session_number or range or all>]**

  The **hlogin** command invokes the login procedure that is defined in the application's host session maintenance section. This command is often used in the system's cron table to log in early the next morning. It is a clean, convenient way to log in to the host application. Note that the LU must be in the logged out state before you may use the **hlogin** command. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hlogin** command.

- **hlogout [<host application> or <session_number or range or all>]**

  The **hlogout** command invokes the logout procedure that is defined in the application's host session maintenance section. This command is often used in the system's cron table to log off of the host before it goes down at night. It is a clean, convenient way to log out of the host application. Note that the LU must be in the logged in state before you may use the hlogout command. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hlogout** command.

- **hfree [<host application> or <session_number or range or all>]**

  The **hfree** command releases sessions from their Script Builder application assignments. It is necessary to use this command to switch from the application to the terminal emulator on a given session. Note that the **hfree** command will not automatically log out the specified session. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hfree** command.

- **hassign [hostsvc] <host application> to <Session # or range or all>**

  The **hassign** command assigns applications to session numbers. It is necessary to use this command to switch from using the terminal emulator to having an application assigned to a given session. Note that the **hassign** command automatically attempts to log in the specified session. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hassign** command.

- **hdelete [hostsvc] <host application> from <Session # or range or all>**

  The **hdelete** command invokes the logout procedure that is defined in the application's host session maintenance section, releases LUs from their Script Builder application assignments, and automatically removes the host application from the session. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **hdelete** command.

- **addboard**

  The **addboard** command enables you to add or modify hardware configuration information for a single 3270 host card to the system. You may add the 3270 hardware before or after using the **addboard** command to add or modify hardware configuration information. Installing a new 3270 host card requires that the VIS be shut down and then rebooted. Consequently, after you perform the **addboard** command, you must execute **stop_vs** and then **start_vs** from the UNIX system command line to stop and restart the system and automatically activate the new hardware information for the selected 3270 host card. Confirm that you are logged in as root (super user) before using the addboard command. Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the addboard command.

- **rmboard**

  The **rmboard** command enables you to remove hardware for a single 3270 host card from the system. After you perform the rmboard command, you must execute **stop_vs** and then **start_vs** from the UNIX system command line to stop and restart the system and deactivate the 3270 host card which was removed from the system. Confirm that you are logged in as **root** (super user) before using the rmboard command. Refer to the *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about the **rmboard** command.

- **lsboard**

  The **lsboard** displays configuration information for every 3270 card on the system. Confirm that you are logged in as root (super user) before using the **lsboard** command.

Interface Problems with Cards and Host Interface Process

Occasionally, you may not receive any response from some of the above administrative commands. This might occur if the 3270 hostdip process, the 3270 driver, 3270 card software, and the host are not in sync with each other. This could be indicative of any of the following problems:

- The hostdip 3270 process and the 3270 card software
- The 3270 card software and the host
- Both of the above

A HOST004 logger message indicating that “Failed to access the card” from the hostdip indicates a problem between the hostdip process and the 3270 card software. Refer to the HOST004 repair procedure in Chapter 3, “System Message Listings,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112.

Miscellaneous Host Interface Troubles

The following table provide information about known troubles experienced with the 3270 Host Communications packages and file transfer. Resolutions to each of these troubles are also provided.

Table 4-8. Host Interface Communications Troubles and Resolutions

Trouble Indication	Corrective Action
API Test Failed: Status=3	1. Visually check which IRQ is jumper on the host interface card(s). 2. Enter **/usr/lbin/lsboard** to determine which IRQ the host interface software expects. 3. If these values do not match, you may change either the hardware or the software. a. To change the software: i. Enter **cd /usr/lib/3270** ii. Enter **cp host.cfg0 orig.host.cfg0**. If your system has two cards, also enter **cp host.cfg1 orig.host.cfg1**. iii. Enter **lsboard > lsboard.out** iv. Enter **rmboard <card number>** v. Access the **lsboard.out** file to verify the options. vi. Enter **addboard** and use the options obtained from **lsboard.out** to respond to prompts. b. To change the hardware: i. Perform the “Stopping the Voice System” procedure in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. ii. Perform the “Shutting Down the System” procedure in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. iii. Change the jumper on the host interface card to match the software. iv. Power up the system. 4. If the host card is using IRQ 3, 4, or 7, check that this IRQ has been disabled on the CPU. Refer to Chapter 9, “Installing Standard MAP[40, 100, 100C] Circuit Cards,” of the hardware installation book for your platform. 5. Check that no other card in the system is set to the IRQ used for the host interface card(s), even if the other card is not being used.

Table 4-8. Host Interface Communications Troubles and Resolutions

Trouble Indication	Corrective Action
Load_bin: Failure of the CLEO board to initialize.	1. Visually check which I/O address is used on the host interface card(s). 2. Enter **/usr/lbin/lsboard** to determine which I/O address the host interface software expects. 3. If these values do not match, you may change either the hardware or the software. a. To change the software: i. Enter **cd /usr/lib/3270** ii. Enter **cp host.cfg0 orig.host.cfg0**. If your system has two cards, also enter **cp host.cfg1 orig.host.cfg1**. iii. Enter **lsboard > lsboard.out** iv. Enter **rmboard <card number>** v. Access the **lsboard.out** file to verify the options. vi. Enter **addboard** and use the options obtained from **lsboard.out** to respond to prompts. b. To change the hardware: i. Perform the “Stopping the Voice System” procedure in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. ii. Perform the “Shutting Down the System” procedure in Chapter 4, “Common Maintenance Procedures,” of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. iii. Change I/O address on the host interface card to match the software. iv. Power up the system. 4. Check that no other card in the system is set to the I/O used for the host interface card(s), even if the other card is not being used.
The **addboard** command complains of an I/O address conflict.	Run **/vs/bin/util/configure** to determine which I/O address can be used. This will require knowing the other components in your system and what settings these components use. Refer to Chapter 4, “Running the Configuration Program,” of the hardware installation book for your platform. If configure has been run previously, the **show_config** command can be used to see the current configuration. Refer to *CONVERSANT VIS Version 4.0 Command Reference*, 585-350-209, for additional information about **show_config**.

Table 4-8. Host Interface Communications Troubles and Resolutions

Trouble Indication	Corrective Action
hassign command reports: command rejected by the host interface process	1. Enter **display messages** for host-related (HOST) errors. 2. Ensure that the host script has been successfully verified and installed. 3. If host admin commands have recently been issued, it may have caused the host interface process to mark this session as "not available." Use **hstatus** to verify this. An error may have occurred on that particular session or the session is being used by another process. If you are unable to clear the session, you may need to download the host card. Downloading the host interface card will free it immediately, but should only be done in a test environment or if nothing else has cleared the the problem. All activity must be removed from the card prior to download, or the voice system must be stopped and started after the download.
hstatus command reports: host interface is not responding	1. This does not always mean that the host has stopped communicating. It may indicate that the host process is very active, and has not been able to service your command after 60 seconds. Enter **display messages** and check Chapter 3, "System Message Listings," of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112, for the repair procedure. 2. Enter **trace dip0 | tee /tmp/dip0.out** to check for any host process activity. There could be a 10 minute delay is the sessions have been in recovery for a while
hstatus command reports: host interface is not running	Verify that the host interface process is running. If it is not, try running **sh -x /vs/data/S96hostint** from the command line. This command will attempt to start up the host interface process.
File transfer fails after system mkimage	Remove and re-install the 3270 File Transfer package as described in Chapter 2, "Installing Host Interface Hardware and Software". This is one floppy and takes about 5 minutes to remove and re-install.
login or logout do not work	1. Enter **sb_trace *<session number>*** to capture a trace of the process. 2. Use **hassign** to assign the host application to the host session. Trace data may also appear on the screen. 3. Enter **hstatus** for "logged in" if testing login or enter **hlogout *<session number>*** if testing logout. 4. After the application has had enough time to complete, stop the trace by pressing DELETE. 5. View this data by entering **pg /vs/trans/hostdata/chan*xx***, where *xx* is the host session number.

Table 4-8. Host Interface Communications Troubles and Resolutions

Trouble Indication	Corrective Action
recovery does not work	1. Enter **sb_te *<session number>*** on an available session. 2. Take this session to various screens this application may receive, then exit **sb_te** by pressing CONTROL X. 3. Enter **sb_trace *<session number used in Step 1>***. 4. Use **hassign** to assign the host application to the host session. This causes the application to jump to the recovery procedure. 5. Enter **hstatus** to monitor the status of this session. a. If it reaches "logged in," the recovery was successful. b. If not, stop the trace and review the data. Enter **hfree *<session number>*** and repeat all steps for each screen the application may experience.
File /dev/host0 fails to open	1. Perform the ***Stopping the Voice System*** procedure in Chapter 4, "Common Maintenance Procedures," of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. 2. Perform the ***Shutting Down the Operating System*** procedure in Chapter 4, "Common Maintenance Procedures," of *CON VERSANT VIS Version 4.0 Maintenance*, 585-350-112. 3. Turn the unit off and then back on again. 4. If the problem persists, reseat the host interface card.
Parity error address add-on card unknown	1. Perform the ***Checking a Card*** procedure on the host interface card. 2. If the problem persists, replace the card.
Software version number incompatibility	1. Enter **hstatus *<session number>*** 2. If the session is used by a Script Builder application, enter **hfree *<session number>*** to make is available to **sb_te**.
Screens not being dumped through sb_trace	1. Perform the "Stopping the Voice System" and "Starting the Voice System" procedures in Chapter 4, "Common Maintenance Procedures," of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112. 2. Do not remove the files in /vs/trans/hostdata/chanXX as the host DIP will not recreate them unless a stop_vs and start_vs has been done.
Hardware fault detected on host interface card (com-code 804682908)	A parity error has occurred on the PC/XL card. Verify that the SIMMS on this circuit card are not loose. If the inspection of the SIMMS does not reveal a problem, replace the card using the "Replacing a Circuit Card" procedure in the appropriate appendix for your platform in *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112.

Table 4-8. Host Interface Communications Troubles and Resolutions

Trouble Indication	Corrective Action
VIS could not recognize the Host screen	Make sure the identifiers from the host do not contain oversized characters and/or change the identifer being used.
Receive initial screen, but nothing after that	Verify that the MAXDATA parameter in the host sysgen is not greater than 265.

Abbreviations

A

ACD	Automatic Call Distributor
ADPCM	Adaptive Differential Pulse Code Modulation
ANI	Automatic All Indentification
ARU	Alarm Relay Unit
ASAI	Adjunct/Switch Application Interface
ASCII	American Standard Code for Information Interchange

B

BB	Bulletin Board
bps	Bits per second
BSC	Binary Synchronous Communication

C

CCA	Call Classification Analysis
CDH	Call Data Handler
CIC	AT&T Customer Information Center
CICS	Customer Information Control System
CMP	Companion card
CMS	Call Management System
CO	Central office
CPE	Customer provided equipment or customer premise equipment
CPU	Central processing unit
CSU	Channel service unit

D

dB	Decibels
DBMS	Database Management System
DC	Direct current
DCE	Data Communications Equipment
DCP	Digital Communications Protocol
DIO	Disk Input and Output Process
DIP	Data interface process
DNIS	Dialed Number Identification Service
DSP	Digital Signal Processor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency

E

EBCDIC	Extended binary Coded Decimal Interexchange Code
EIA	Electronic Industries Association
EISA	Extended Industry Standard Architecture
ESDI	Extended Serial Data Interface
ESS	Electronic Switching System

F

FACE	Framed Access Command Environment Interface
FDD	Floppy disk drive
FEP	Front end processor
foos	Facility out-of-service state

H

HDD	Hard disk drive

hwoos	Hardware out-of-service state
Hz	Hertz

I

IBM	International Business Machines
ID	Identification
IE	Information Element
inserv	In-service state
IPC	Inter-Process Communication
IPCI	Integrated personal computer interface
ISDN	Integrated Services Digital Network
ITAC	International Technical Assistance Center
IVP4	Integrated Voice Processing card with 4 analog channels
IVP6	Integrated Voice Processing card with 6 analog channels

K

Kbps	Kilobite per second
Kbyte	Kilobyte

L

LAN	Local Area Network
LED	Light-emitting diode
LU	Logical unit

M

manoos	Manually out-of-service state
MAP/100	Multi-Application Platform 100
MAP/100C	Multi-Application Platform 100C

MAP/40	Multi-Application Platform 40
Mbyte	Megabyte
ms	Millisecond
msec	Millisecond
MHz	Megahertz
MTC	Maintenance process

N

NCP	Network Control Program
netoos	Network out-of-service state
nonex	Non-existent state
NRZ	Non Return to Zero
NRZI	Non Return to Zero Inverted

P

PBX	Private Branch Exchange
PC	Personal computer
PCB	Printed circuit board
PCM	Pulse Code Modulation
PEC	Price element code
PRI	Primary Rate Interface

R

RAM	Random Access Memory
RDBMS	ORACLE relational database management system
RMB	Remote maintenance circuit card

S

SBC	Sub-band coding

SCCS	Switching Control Center System
SCSI	Small Computer System Interface
SDLC	Synchronous Data Link Control
SIMM	Single Inline Memory Module
SNA	Systems Network Architecture
SP	Signal Processor card
SPIP	Signal Processor Interface Process
SPPLIB	Speech Processing Library
SQL	Structured Query Language
sysgen	System generation

T

TCC	Technology Control Center
TCP/IP	Transmission Control Protocol/Internet Protocol
TDM	Time Division Multiplexing
TE	Terminal emulator
TLP	Transmission level plan
T/R	Tip/Ring card
TRIP	Tip/Ring Interface Process
TSC	AT&T Technical Services Center
TSO	Time Share Operation
TSM	Transaction State Machine
TTS	Text-to-Speech
TWIP	T1 Interface Process

U

UK	United Kingdom

V

VIS	CONVERSANT Voice Information System
VPC	Voice processing co-marketer
VRU	Voice response unit
VROP	Voice Response Output Process

Glossary

3270 interface
A link between one or more VIS machines and a host mainframe. In CONVERSANT Voice Information System (VIS) documentation, the 3270 interface means the link between one or more VIS machines and an IBM host mainframe.

4ESS
A large, AT&T central office switch used to route calls through AT&T's telephone network.

ACD
See "Automatic Call Distributor."

ADPCM
See "Adaptive Differential Pulse Code Modulation."

Adaptive Differential Pulse Code Modulation
A means of encoding analog voice signals into digital signals by adaptively predicting future encoded voice signals. This adaptive modulation method reduces the number of bits required to encode voice. See also "Pulse Code Modulation."

adjunct products
Products (for example, Adjunct/Switch Application Interface) that the CONVERSANT Voice Information System (VIS) administers via cut-through access to the inherent management capabilities of the product itself; this is in opposition to CONVERSANT VIS's ability to administer the switch directly.

Adjunct/Switch Application Interface
An optional feature package that provides an Integrated Services Digital Network-based interface between AT&T PBX's and adjunct processors.

affiliate
A business organization that AT&T controls or which with AT&T is in partnership.

Alarm Relay Unit
A unit used in central office telecommunication arrangements that transmits warning indicators from telephone communications equipment (like the CONVERSANT VIS) to audio

alerter
A system process which responds to patterns of events logged by the "logdaemon" process.

analog
An analog signal, such as voice or music, that varies in a continuous manner. An analog signal may be contrasted with a digital signal, which represents only discrete states.

application
Made of several components which provides an automated version of the communication between a caller and an attendant.

application administration
The component of the VIS that provides access to the applications currently available on your system and helps you to manage and administer them.

application installation
A two-step process in which the VIS invokes the TSM script assembler for the specific application name and files are moved to the appropriate directories.

application verification
A process in which the VIS verifies that all the components needed by an application are complete.

ASCII
An acronym for American Standard Code for Information Interchange, a standard for data representation. ASCII code represents alphanumeric characters as binary numbers. The code includes 128 upper- and lower-case letters, numerals, and special characters. Each alphanumeric and special character has an ASCII code (binary) equivalent that is one byte long.

asynchronous communication
A method of data transmission in which bits or characters are sent at irregular intervals and bits or characters are spaced by start and stop bits and not by time. See also “synchronous communication.”

asynchronous data unit
An electronic communications device that allows computer systems to communicate over asynchronous lines more than 50 feet in length.

AUDIX Voice Power
A complete voice-mail messaging system accessed and operated by touch-tone telephones and integrated with a switch or “Private Branch Exchange.”

Automatic Call Distributor
A phone system that recognizes and answers incoming calls and completes these calls based on a set of instructions contained in a database. The Automatic Call Distributor can send the call to an operator or group of operators as soon as the operator has completed a previous call or after the system has played a message to the caller.

Automatic Number Identification
A method of identifying the calling party by automatically receiving a string of digits that identifies the calling station of a particular customer.

back up
To preserve a copy of the information in a file in a different location, so that the data will not be lost in the event of hardware or system failure.

backing up an application
A utility that makes an archive copy of a completed application or makes an interim copy of an application in progress. The backup copy can be restored to the VIS if the online version is damaged, or if you make revisions and wish to go back to the previous version.

barge-in
A capability provided by WholeWord Speech Recognition that allows a caller to speak their response to the VIS prompt and have that response recognized before the prompt has finished playing.

batch file
A file containing one or more lines, each of which is a command executable by the UNIX shell.

Binary Synchronous Communications
A character-oriented synchronous link protocol.

blind transfer protocol
A protocol in which a call is completed as soon as the extension is dialed, without having to wait to see if the phone is busy, or if the caller answered.

BSC
See “Binary Synchronous Communications.”

bundle
In the context of the Enhanced File Transfer package, this term is used to denote a single file, a group of files (package), or a combination of both.

byte
A unit of storage in the computer. On many systems, a byte is eight bits (binary digits), the equivalent of one character of text.

Call Classification Analysis
An optional feature package that allows application developers to classify the disposition of originated and transferred calls.

call data event
A parameter that specifies a list of variables that are appended to a call data record at the end of each call.

Call Data Handler process
A software process that accumulates generic call statistics and application events.

Called Party Number
The number dialed by someone making a telephone call. It can be used by telephone switching equipment to selectively route an incoming call to a particular department or agent.

call progress tones
Standard telephony sounds that indicate the status of the call. These sounds include busy, fast busy, ringback, reorder, etc.

card cage
An area within a CONVERSANT VIS platform that contains and secures all of the standard and optional circuit cards used in the system.

cartridge tape drive
A high-capacity data storage/retrieval device that can be used to transfer large amounts of information onto high-density magnetic cartridge tape based on a predetermined format. This tape can be removed from the system and stored as a backup, or used on another system.

caution
An admonishment used when there is a possibility of a service interruption.

CCA
See “Call Classification Analysis.”

CDH
See “Call Data Handler process.”

central office
An office or location in which large telecommunication machines such as telephone switches and network access facilities are maintained. These locations follow strict installation and operation requirements.

Central Processing Unit
A component of the VIS that is based on either the Multi-Application Platform 100 (MAP/100), the Multi-Application Platform 40 (MAP/40), or the Multi-Application Platform 100C (MAP/100C).

CICS
See “Customer Information Control System.”

cluster controller
A bisynchronous interface that provides a means of handling remote communication processing.

command
An instruction or request given by the user to the VIS software to perform a particular function. An entire command consists of the command name and options.

CompuLert/SCCS Interface
An optional feature that enables remote or console monitoring of error messages generated from the CONVERSANT VIS. Compulert is a centralized maintenance system for monitoring minicomputers, computer mainframes, etc. The Switching Control Center System (SCCS) is similar to the Compulert system but is used to support 4ESS local switching systems.

configuration
The arrangement of the software and hardware of a computer system or network. The CONVERSANT Voice Information System configuration includes either a standard or custom processor, peripheral equipment (for example, printers, modems), and software applications. Configuration also refers to the way the switch network is set up; that is, the types of products that are in the network and how those products communicate.

configuration management
The component of the VIS that allows you to manage the current configuration of voice channels, host sessions, and database connections, assign scripts to run on specific voice channels or host sessions assign functionality to SP and T1 cards, and perform various maintenance functions.

Converse Data Return (conv_data)
A Script Builder action that supports the DEFINITY **call vectoring** (routing) feature by enabling the switch to retain control of vector processing the VIS environment. It supports the DEFINITY “converse” vector command to establish a two-way routing mechanism between the switch and the VIS to facilitate data passing and return.

controller circuit card
A circuit card used on a computer system that controls its basic functionality and makes the system operational. These cards are used to control magnetic peripherals, video monitors, and basic system communications.

copying an application
A utility in which information from a source application is directed into the destination application.

co-residency
The ability of two products or services to operate and interact with each other on a single hardware platform. An example of this is the co-residency of AUDIX Voice Power on a CONVERSANT VIS platform.

CPU
See “Central Processing Unit.”

crash
An interactive utility for examining the operating system core and for determining if system parameters are being exceeded.

custom speech
Unique words or phrases to be used in CONVERSANT VIS voice prompts that are recorded for a customer on a custom basis.

custom vocabulary
A specialized package of unique words or phrased crated on a pre-customer basis and used by WholeWord or FlexWord Speech Recognition purposes.

Customer Information Control System
Considered part of the operating system that manages resources for running applications (for example, IND$FILE). Note that TSO and CMS provide analogous functionality in other host environments.

danger
An admonishment used when there is a possibility of personal injury.

data interface process
A software process that communicates with Script Builder applications.

database
A structured set of files, records, or tables.

database fields
Used to extract values from a local database and form the structure upon which a database is built.

database table
A structure, made up of columns and rows, that holds information in a database. Database tables provide a means of storing information that change too often to “hard-code,” or permanently store, in the transaction outline.

debug
The process of locating and correcting errors in computer programs. This process is also referred to as troubleshooting.

default
The way a computer will perform a task in the absence of other instructions.

diagnose
The procedure used to perform diagnostics on Tip/Ring, T1, or SP cards or a bus.

Dialed Number Identification Service
A service that allows incoming calls to contain information about the phone number for which it is destined.

directory
A type of file used to group and organize other files or directories.

DNIS
See “Dialed Number Identification Service.”

DIP
See “data interface process.”

display errdata
A command that displays system errors sent to the logger.

DSO
Digital Service Level 0 (64,000 bps).

DTMF
See “Dual Tone Multi-Frequency.”

Dual 3270 Links
A feature that provides an additional physical unit (PU) to allow a cost-effective means of connecting to two host computers. The customer can connect a VIS to two separate FEPs or to a single FEP shared by one or more host computers. Each link supports a maximum of 32 LUs.

Dual Tone Multi-Frequency
A touch tone.

dump space
An area of the disk that is fixed in size and should equal the amount of RAM on the system. The operating system “dumps” an image of core memory upon system crashes. The dump can be fetched after rebooting for analysis of what may have caused the crash.

Earth recall
A method of call transfer used by some PBXs outside of the U.S. Special considerations must be taken when identifying and tuning some communication protocol parameters before attempting to interface another machine to a system that uses this method of call transfer.

Enhanced Serial Data Interface
A software- and hardware-controlled method used to store data on magnetic peripherals.

error message
A message on the screen indicating that something is wrong and possibly suggesting how to correct it.

Error Tracker Process
See “etStub.”

Ethernet
Another name for a local area network that uses 10BASE5 or 10BASE2 coaxial cable and InterLan signaling techniques.

etStub
A system process which processes pre-Version 3.1 error message logging requests. These requests are transformed and passed on to the “logdaemon” process.

external actions
Specific tasks and interfaces controlled by CONVERSANT VIS software that allow a Script Builder application script to invoke processes and interact with other products or services. For example, a CONVERSANT VIS application script can invoke AUDIX Voice Power functionality through the used of an external action within an application script.

FACE
See “Framed Access Command Environment.”

feature
A function or capability of a product or an application within the CONVERSANT VIS.

feature package
An optionally purchased package that may contain both hardware and software resources, which provides additional functionality to a standard system.

featuretst
A standard CONVERSANT VIS software program that allows a VIS user to perform self-tests of critical hardware and software functionality.

field
A “slot” in a VIS window that holds one column of information in a row.

file
A collection of data treated as a basic unit of storage.

file transfer
An option that allows you to transfer files interactively or directly to and from UNIX. File transfer is performed either interactively or directly using the File Transfer System.

filename
Alphabetic characters used to identify a particular file.

Form Filler Plus
An optional feature package that provides the capability for application scripts to record caller’s responses to prompts for later transcription and review.

Framed Access Command Environment
An interface that enables you to execute a variety of administrative procedures including, disk operations, user login setup, and peripherals setup.

function key
A key, labeled F1 through F8, on your keyboard to which the CONVERSANT VIS software gives special properties for manipulating the user interface.

Graphical Speech Editor
A window-driven, X Windows/Motif based, graphical user interface (GUI) that can be accessed to perform different functions associated with the creation and editing of speech files to be used by VIS applications.

hard disk drive
A high-capacity data storage/retrieval device that is located inside a computer platform. A hard disk drive stores data on non-removable high-density magnetic media based on a predetermined format for retrieval by the system at a later date.

hardware
The physical components of a computer system. The central processing unit, disks, tape and floppy drives, etc., are all hardware.

host computer
A computer linked to a network providing a range of services, such as database access and computation. The host computer operates in a time-sharing manner with other computers linked to it via the network.

iCk
The system integrity checking process.

IND$FILE
The standard SNA file transfer utility that runs as an application under CICS, TSO, and CMS. IND$FILE is independent of link-level protocols such as BISYNC and SDLC.

indexed table
A table that, unlike a non-indexed table, may be searched via a field name that has been indexed.

initialize
To start up the system for the first time.

Integrated Services Digital Network
A network that provides end-to-end digital connectivity to support a wide range of voice and data services.

Integrated Voice Processing card
The IVP4 or IVP6 card.

intelligent transfer protocol
A transfer protocol that monitors the line after dialing is complete to determine whether a busy, reorder (fast busy), or other failure has been encountered. It also recognizes when the extension is answered or if the extension is not answered after a specified number of rings.

interface
The access point of a system. With respect to the VIS, the interface is designed to provide you with easy access to the software's capabilities.

ipcs
A command that reports interprocess communication facilities status.

ISDN
See "Integrated Services Digital Network."

keyboard mapping
In emulation mode, this feature enables the keyboard to send 3270 keyboard codes to the host according to a configuration table set up during installation.

keyword spotting
A capability provided by WholeWord Speech Recognition that allows the VIS to recognize a single word in the middle of an entire phrase spoken by a caller in response to a prompt.

LAN
See "local area network."

Line Side T1
A digital method of interfacing a CONVERSANT VIS to a PBX or switch using T1-related hardware and software.

listfile
An ASCII catalog that lists the contents of one or more talkfiles. Each application script is typically associated with a separate listfile. The listfile maps speech phrase strings used by application scripts into speech phrase numbers.

local area network
A data communications network in a limited geographical area. The local area network provides communications between computers and peripherals.

local database
A database residing on the VIS.

logical unit
A type of SNA Network Addressable Unit.

logdaemon
System information and error logging process.

logger
See "logdaemon"

logging on/off
Entering or exiting the CONVERSANT Voice Information System software.

LU
See “logical unit.”

magnetic peripherals
Data storage devices that use magnetic media to store information. Such devices include hard disk drives, floppy disk drives, and cartridge tape drives.

main screen
The CONVERSANT VIS VERSION 4.0 screen, from which you are able to enter FACE or Voice System Administration.

maintenance process
A software process that runs temporary diagnostics.

Manual Configurator Program
A software program that resolves or blocks the allocation of CPU and memory resources for controlling and optional circuit cards.

master
A board that provides clock information to the TDM bus.

megabyte
A unit of memory equal to 1,048,576 bytes (1024 x 1024). It is often rounded to one million.

Microsoft
A company that manufactures software products, primarily for IBM-compatible computers.

mirroring
A method of data backup that allows all of the data transactions to the primary hard disk drive to be copied and maintained on a second identical drive in near real time. If the primary disk drive crashes or becomes disabled, all of the data stored on it (up to 1.2 billion bytes of information) is accessible on the second mirrored disk drive.

MS-DOS
A personal computer DOS operating system developed by the Microsoft Corporation.

MTC
See “maintenance process.”

NetView
An optional feature package that transmits high priority (major or critical) messages to the host as Operator-Generated Alerts (OGAs) over the 3270 host link. The NetView Alarm feature package does not require a dedicated LU.

non-indexed table
A table that may be searched only in a sequential manner and that may not be searched via a field name.

note
An admonishment used to supply supplementary information for the topic being discussed.

null value
An entry containing no value. A field containing a null value is normally displayed as blank and is different from a field containing a value of zero.

on-line help
Messages or information that appear on the user's screen when a "function key" (F1 through F8) is pressed.

Operator Generated Alerts
System monitoring messages transmitted from the CONVERSANT VIS or other computer system to an IBM host computer that are classified as critical or major.

option
An argument used in a command line to modify program output by modifying the execution of a command. When you do not specify any options, the command will execute according to its default options.

ORACLE
A company that produces Relational Database Management software. It is also used as a generic term that identifies a database residing on a local or remote system that is created and maintained using an ORACLE RDBMS product.

PBX
See "Private Branch Exchange."

PCM
See "Pulse Code Modulation."

peripheral (device)
Equipment such as printers or terminals that is in addition to the basic processor.

phoneme
A single basic sound of particular spoken language. The English language contains 40 phonemes that represent all basic sounds used with the language. As an example, the word "one" can be represented with three phonemes, "w" - "uh" - "n." Phonemes vary between languages because of guttural and nasal inflections, and syllable constructs.

phrase tag
A string of up to 50 characters that identify the contents of a speech phrase used by an application script.

poll
A message sent from a central controller to an individual station on a multi-point network inviting that station to send if it has any traffic to send.

polling
A network arrangement whereby a central computer asks each remote location whether they wish to send information. This arrangement enables each user or remote data terminal an opportunity to transmit and receive information on shared facilities.

Primary Rate Interface
An optional feature package that provides a digital interface capable both of receiving and originating telephone calls directly from/to an AT&T 4ESS switch.

Private Branch Exchange
A private switching system, either manual or automatic, usually serving an organization, such as a business or government agency, and usually located on the customer's premises.

processor
In CONVERSANT Voice Information System documentation, the computer on which the UNIX Operating System and CONVERSANT Voice Information System software runs. In general, the part of the computer system that processes the data. Also known as the "central processing Unit."

ps
A command that shows active processes. This command displays the process table and can be used to determine which processes are consuming large amounts of system resources, such as CPU time.

Pulse Code Modulation
A digital modulation method of encoding voice signals into digital signals. See also “Adaptive Differential Pulse Code Modulation.”

raw mode
Conveys data from a terminal to a user without processing the data.

recovery
The process of using copies of the VIS software to reconstruct files that have been lost or damaged. See also “restore.”

remote database
The component of the VIS that provides access to information not currently on the VIS.

remote maintenance circuit card
A CONVERSANT VIS circuit card that is equipped standard with all new Version 4.0 purchases. This card, available with or without a built-in modem, allows remote personnel (for example, field support) to access all CONVERSANT VIS machines with a standard simplified process.

reports administration
The component of the VIS that provides access to system reports, including VIS call classification reports, call data detail reports, call data summary reports, message log reports, and traffic reports. In addition, if AUDIX Voice Power R2.1.1 is installed on your system, the reports administration component gives you access to AUDIX Voice Power reports.

restore
The process of recovering lost or damaged files by retrieving them from available backup tapes or from another disk device. See also “recovery.”

restore application
A utility that replaces a damaged application or restores an older version of an application.

roll back
To cancel changes to a database since the point at which changes were last committed.

rollback segment
A portion of the database which records actions which should be undone under certain circumstances. rollback segments are used to provide transaction rollback, read consistency, and recovery.

root space
An area of the disk that houses the UNIX Operating System, all VIS executables and data files, Script Builder application files, and the database.

sar
A command that is associated with the system activity report package.

screen pop
A method of delivering a screen of information to a telephone operator at the same time a telephone call is delivered. This is accomplished by a complex chain of tasks that include identifying the calling party number, using that information to access a local or remote ORACLE database, and pulling a “form” full of information from the database using an ORACLE database utility package.

Script Builder
An optional software package that provides a menu-oriented interface designed to assist in the development of custom voice response applications on the VIS.

SCSI
See “Small Computer System Interface.”

shared database table
Using the same database table in more than one application.

shared speech
Speech that is a part of more than one application.

shared speech pools
A parameter that allows the user of a voice application to share speech components with other applications.

Single Inline Memory Modules
A method of containing Random Access Memory (RAM) chips on narrow circuit card strips that attach directly to sockets on the CPU circuit card. Multiple SIMMs are sometimes installed on a single CPU circuit card.

slave
A board that depends on the TDM bus for clock information.

Small Computer System Interface
A disk drive control technology in which a single SCSI adapter card plugged into a PC slot is capable of controlling as many as seven different hard disks, optical disks, tape drives, etc.

software
The set or sets of programs that instruct the computer hardware to perform a task or series of tasks -- for example, the UNIX operating system software and the VIS Version 4.0 software.

speech energy
The amount of energy in a audio signal. Literally translated, it is the output level of the sound in every phonetic utterance.

speech envelope
The linear representation of voltage on a line. It reflects the sound wave amplitude at different intervals of time. This envelope can be plotted on a graph to represent the oscillation of an audio signal between the positive and negative extremes.

speech file
A file containing an encoded speech phrase.

speech file-system
A collection of several talkfiles. The file-system is organized into 16-Kbyte blocks for efficient management and retrieval of talkfiles. The CONVERSANT VIS speech file-system is not consistent with standard UNIX file-systems, and can not be referenced with standard UNIX commands such as “ls,” “cat,” etc.

speech modeling
Creating WholeWord Speech Recognition algorithms by collecting thousands of different speech samples of a single word and comparing them all to obtain a statistical average of the word. This average is then used by a WholeWord Speech Recognition program to recognize a single spoken word.

speech phrase
A continuous speech segment encoded into a digital string.

Speech Recognition
An optional feature that provides speaker independence, connected digit recognition, key word spotting, prompt interrupt, and DTMF support functionality.

speech space
An area that contains all digitized speech used for playback in the applications loaded on the system.

standard speech
The speech package containing simple words and phrases produced by AT&T for use with a CONVERSANT VIS. This package includes digits, numbers, days of the week, and months, each spoken with initial, medial, and falling inflection. The speech is in digitized files stored on the hard disk to be used in the voice prompts played by the VIS.

standard vocabulary
A standard package of simple word speech models provided by AT&T and used for WholeWord Speech Recognition purposes. These phrases include the digits “zero” through “nine,” “yes,” “no,” and “oh.”

string
A contiguous sequence of characters treated as a unit. Strings are normally bounded by white spaces, tabs, or a character designated as a separator. A string value is a specified group of characters symbolized by a variable.

Structured Query Language
A standard data programming language used with data storage and data query applications.

swap space
An area of the disk that is fixed in size depending on the amount of Random Access Memory (RAM) that is on the system. This area is used to temporarily store programs (swap in and out) that are competing for CPU time and cannot remain in core memory due to size constraints.

switch
A software and hardware device that controls and directs voice and data traffic. A customer-based switch is known as a “Private Branch Exchange.”

switch hook
The device at the top of most telephones which is depressed when the handset is resting in the cradle (on hook). The device is raised when the handset is picked up (the phone is off hook).

switch hook flash
A signaling technique in which the signal is originated by momentarily depressing the “switch hook.”

switch interface administration
The component of the VIS that enables you to define the interaction between the VIS and switches by allowing you to establish and modify switch interface parameters and protocol options for both analog and digital interfaces.

switch network
Two or more interconnected switching systems.

synchronous communication
A method of data transmission in which bits or characters are sent at regular time intervals, rather than being spaced by start and stop bits. See also “asynchronous communication.”

System 75
An advanced digital switch supporting up to 800 lines that provides voice and data communications for its users.

System 85
An advanced digital switch supporting up to 3,000 lines that provides voice and data communications for its users.

system administrator
The person assigned the responsibility of monitoring all VIS software processing, performing daily system operations and preventive maintenance, and troubleshooting errors as required.

system architecture
The manner in which the CONVERSANT Voice Information System software is structured.

system message
An event or alarm generated by either a VIS or end user process.

system monitor
A component of the VIS in which tests are performed to verify that each incoming telephone line and its associated tip/ring or T1 card is functional. Through the “System Monitor” component, you are able to see displays of the Voice Channel and Host Session Monitors.

T1
A digital transmission link with a capacity of 1.544 Mbps.

table
A collection of records that are logically grouped together.

talkfile
An ASCII file that contains the speech phrase tags and phrase tag numbers for all the phrases of a specific application. The speech phrases are organized and stored in groups. Each talkfile may contain up to 65535 phrases and the speech file-system may contain multiple talkfiles.

TDM
See “Time-Division Multiplex.”

Terminal Emulator
Software which allows the VIS to temporarily transform itself into a “look alike” of an IBM 3270 terminal. In addition to providing full 3270 functionality, the Terminal Emulator enables you to transfer files to and from UNIX.

Text-to-Speech
An optional feature that allows an application to play speech directly from ASCII text by converting that text to synthesized speech. The text may be used for prompts or for text retrieved from a database or host, and can be spoken in an application with prerecorded speech. Text-to-Speech application development is supported through Script Builder.

ThickNet
A 10-millimeter (10BASE5) coaxial cable used to provide InterLan communications.

ThinNet
A 5-millimeter (10BASE2) coaxial cable used to provide InterLan communications.

Time-Division Multiplex
A method of serving a number of simultaneous channels over a common transmission path by assigning the transmission path sequentially to the channels, each assignment being for a discrete time interval.

Tip/Ring
A term used to denote analog telecommunications using four-wire media.

trace
A command that can be used to monitor the execution of a script.

traffic
The flow of information or messages through a communications network for voice, data, or audio services.

transaction
Comprised of the exchanges between the caller and the voice system.

Transaction State Machine process
A software process that controls transactions via script execution and commands. The Transaction State Machine Process manages interaction with the network, manages interaction with other parts of the Voice System, allocates and frees devices and channels, and executes script language programs.

troubleshoot
The process of locating and correcting errors in computer programs. This process is also referred to as debugging.

TSM
See “Transaction State Machine process.”

TTS
See “Text-to-Speech.”

UNIX Operating System
A multi-user, multitasking computer operating system developed by Bell Telephone Laboratories division of AT&T.

UNIX shell
The command language that provides a user interface to the UNIX operating system.

usr space
An area of the disk that houses user home directories and files, and is used at installation time to temporarily load some feature packages. This is also a file system which is fixed in size once the system is partitioned at installation.

vi editor
A screen editor used by the VIS to create and change electronic files.

virtual channel
A channel that is not associated with an interface to the telephone network (Tip/Ring, T1, or PRI). Virtual channels are intended to run “data only” applications which do not interact with callers but may interact with DIPs. Voice or network functions (for example, coding or playing speech, call answer, origination or transfer) will not work on a virtual channel. Virtual channel applications may be initiated only by a “virtual seizure” request to TSM from a DIP.

VIS
See “Voice Information System.”

vocabulary
A collection of words that a VIS is able to recognize using either WholeWord or FlexWord Speech Recognition.

voice channel
A channel that is associated with an interface to the telephone network (Tip/Ring, T1, or PRI). Any VIS application may run on a voice channel. Voice channel applications may be initiated by being assigned to particular voice channels or dialed numbers to handle incoming calls or they may be initiated by a “soft seizure” request to TSM from a Data Interface Process (DIP) or the **soft_szr** command.

Voice Information System
A computer connected to a telephone network that handles touch-tone input, voice response, and line transfer. The Voice Information System uses a screen-based, menu-driven user interface to interact with the system operator or administrator.

Voice Processing Co-Marketer
A company licensed to purchase voice processing equipment, such as the CONVERSANT VIS, to market and sell based on their own marketing strategies.

Voice Response Output Process
A software process that transfers digitized speech between system hardware (for example, Tip/Ring and SP cards) and data storage devices (that is, hard disk, etc.)

Voice System Administration
The means by which you are able to administer both voice and non-voice related aspects of the system.

VROP
See “Voice Response Output Process.”

warning
An admonishment used when there is a possibility of equipment damage.

wink signal
An interruption of current to a busy lamp indicating that there is a line on hold.

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