AT&T

CONVERSANT Voice Information System FAX Attendant Co-residency

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About This Book

Purpose

This book, *CONVERSANT Voice Information System FAX Attendant Co-residency,* 585-350-210, describes the procedures for installing and administering the FAX Attendant package when it is resides on the same platform as the CONVERSANT VIS Version 4.0 software.

Intended Audiences

This book is intended primarily for the customer. Secondary audiences include the following: field support, customer support, and factory assemble, load, and test (ALT) personnel.

How This Book Is Organized

This book is organized into the following chapters:

■ Chapter 1, "Introduction to FAX Attendant Co-Residency", provides an overview of the FAX Attendant feature and its different capabilities.

■ Chapter 2, "Installing the Software", details two different software configurations, as well as how to install each configuration. In addition, there are procedures for installing the Script Builder FAX Actions package. There are also procedures for removing the software.

■ Chapter 3, "Installing the Hardware", describes the process of installing the necessary hardware for FAX Attendant.

■ Chapter 4, "Using the Script Builder FAX Actions", describes how to administer, or to set up, the FAX Attendant software so that it can work with the switch, as well as specific information need to use the Script Builder FAX Actions package.

- Chapter 5, "Troubleshooting Script Builder FAX Actions", contains information on how to troubleshoot and lists error messages for failed actions.

- The "Index" section provides an alphabetical listing of principal subjects covered in this book.

Conventions Used in This Book

The following conventions are used in this book:

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

     Press (ENTER).

- The word "enter" means to type a value and press (ENTER).

     For example, an instruction to type y and press (ENTER) is shown as follows:

     Enter **y** to continue.

- 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 two separate rounded boxes connected together by "and". For example, an instruction to press and hold (ALT) while typing the letter d is shown as follows:

     (ALT) and (D)

- Commands and text you type or enter appear in **bold**.

- Values, instructions, and prompts that appear on the screen are shown in traditional typewriter type as `constant-width`

- The number zero is shown in this book as 0 when you are asked to enter the number zero.

Trademarks and Service Marks

The following trademarked products are mentioned in this book:

- CONVERSANT® is a registered trademark of AT&T.

- AUDIX® and Voice Power™ are registered trademarks of AT&T.

- UNIX® is a registered trademark of Novell, Inc.

Related Resources

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

- *MAP/100 Voice Processing Hardware Installation*, 585-350-107

- *MAP/100C Voice Processing Hardware Installation*, 585-350-108

- *MAP/40 Voice Processing Hardware Installation*, 585-350-109

- *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112

- *CONVERSANT VIS Version 4.0 Software Installation*, 585-350-111

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Introduction to FAX Attendant Co-Residency

<div style="text-align: right; font-size: 3em; font-weight: bold;">1</div>

What is FAX Attendant?

Facsimile (FAX) communications involve transmitting graphic and textual images between FAX machines and other devices via standard telecommunications networks.

The AT&T FAX Attendant System is a product available from AT&T that provides telephone-based FAX services and the operational environment in which to administer and maintain these services. The product, consisting of software, circuit cards, and documentation, can be installed on a variety of hardware platforms including those supported by CONVERSANT VIS.

In CONVERSANT VIS Version 4.0, there are two ways to configure the FAX Attendant System. They are as follows:

> VIS4.0 + FAX Attendant

> VIS4.0 + AUDIX Voice Power + FAX Attendant

⇒ NOTE:
Fairly extensive system and telephony/PBX administration is sometimes necessary when using all the power and functionality of the AT&T FAX Attendant System. For example, mailboxes must be created and subscriber profiles and system parameters must be defined. It is useful to note, however, that you may use the Script Builder FAX Actions without performing most of this administration. Script Builder FAX Actions are described later in this.

Refer to the *AT&T FAX Attendant System Release 4.0 System Manager's Guide* for further descriptions of FAX Attendant administration.

FAX Attendant Features

The AT&T FAX Attendant System software supports FAX mail, FAX Call Answer, FAX Response Service, and additional transmitting and reporting services. These features are detailed in the following sections.

FAX Mail

FAX mail is a subscriber-based service that allows subscribers to send and receive FAX messages from their mailbox. It can be thought of as the FAX analog to the voice mail service available via AT&T's AUDIX and AUDIX Voice Power products.

When installed on the same hardware platform as AUDIX Voice Power, the FAX Attendant System supports an integrated voice/FAX mailbox, so users can call a single number and retrieve both voice and FAX messages. When the FAX Attendant System is installed without AUDIX Voice Power, it supports a FAX mailbox only and contains no voice messaging capabilities. In either configuration, the user is notified of new messages in their mailbox via outcalling to telephones or pagers or via Message Waiting Lamps on their telephones.

The FAX mail service also supports the following features:

- FAX broadcasting to both subscribers and non-subscribers

- Group mailing lists

- Remote retrieval of FAX messages to any FAX machine

- Printing of FAX messages to an attached laser printer

- Delivery reports listing all intended recipients of a FAX message, and whether or not they received the FAX

- Optional automatic printing of FAXes from the user's mailbox to either a FAX machine or a laser printer

FAX Call Answer

The FAX call answer service provides coverage for the user's FAX machine. If the user's FAX machine is busy or out of paper, the FAX call answer service accepts incoming FAX messages and places them in the intended recipient's mailbox. The subscriber can then locally or remotely retrieve the FAX.

The FAX call answer service can also provide subscribers with the "appearance" of a private FAX machine when none exists. To callers, this "virtual" FAX machine appears like a real FAX machine except that it can have an optional personal greeting. The service also allows a group of users to share a virtual FAX machine.

FAX Response Service

The FAX Response Service is a user defined "FAX-on-demand" vehicle.The AT&T FAX Attendant window-based administrative capabilities are used to create a FAX-on-demand service, which allows callers to request and to send FAX information based upon their touch-tone response to the prompts defined in the service.

An example FAX Response Service might present the caller with the following options: "To receive a FAX of our latest product brochure, press 1. To receive a FAX of our maintenance updates, press 2. To hear our latest marketing announcement, press 3. To talk to a sales agent, press 4." This service can be thought of as a FAX analog to the Automated Attendant service offered with the AUDIX Voice Power product. The FAX Response Service and the administrative capabilities used to define it provide the following options:

■ Callers can receive multiple FAXes on a single call.

■ Callers can be transferred to other extensions/departments.

■ Automatic transfers to an operator/attendant can be performed if the caller calls from a non-Touch Tone telephone or if the caller requests it.

■ FAXes can be transmitted to either the FAX machine from which the caller is making the requests or to a caller specified telephone number.

■ Optional password-only access for secured information is available.

■ Automatic optional collection of voice numbers for follow-up/marketing efforts can be used.

■ An optional system-wide coversheet that can be attached to all outgoing Fax Response FAXes is available.

■ You can load and view those FAXes that callers have the option to request. This feature is useful when used in conjunction with the Script Builder FAX Actions package and will be described later.

■ You can record prompts to be used with the service.

> **NOTE:**
>
> It's possible to define applications which are identical to the FAX Response services by using Script Builder or a native script language, but it's much more complex to do so. FAX Response provides a simple way to do this quickly.

The Fax Response Administration windows are used to administer the graphical images sent to callers from both the Fax Response service and any application that uses the Script Builder FAX_Send action. The Fax Response service that you define does not have to be "active" (that is, installed and verified). It can be developed simply as a "holding bin" for FAXes to be sent via the Script Builder "FAX_Send Action", if desired. For more detailed information about the "FAX_Send Action", see Chapter 4, "Using the Script Builder FAX Actions".

Additional Features

In addition to the services FAX mail, FAX call answer, and FAX Response system, the following system-wide features apply to one or more of the those services:

■ *Automatic transmission retry*. If a FAX transmission fails because, for example, the intended recipient FAX machine was busy, out of paper, or otherwise out of service, the FAX Attendant System will automatically retry the transmission for a user defined period of time up to 99 hours.

■ *Optional economy delivery*. FAXes can be delivered immediately or at a specified time, for example, when the phone rates are lower.

■ *Comprehensive system reporting*. System reports include mailbox usage reports, FAX resource utilization reports, a report that lists how many times each Fax Response FAX was requested, and the telephone number of the caller requesting them.

■ *FAX Transmission Control*. You can view the FAX transmission queue and cancel any transmission that is waiting to be delivered.

■ *User-level and administrative integration with AUDIX Voice Power*. When AUDIX Voice Power is installed with FAX Attendant, the two products effectively "merge" into a single interface for both the user and the caller. From the caller's perspective, they may send and receive both voice and FAX messages on a single call. From the user's perspective, the administrative screens are integrated into a single administrative interface for convenient administration of both products without having to navigate among various screens.

FAX Hardware

FAX transmission is performed using the Integrated FAX Processing IFP4 (4 channel) cards. These cards are installed as part of the AT&T FAX Attendant System and are used in conjunction with the Script Builder FAX Actions package. The cards are connected via Tip/Ring lines to the PBX. When a FAX delivery occurs, a FAX channel goes off-hook, dials the delivery number, then delivers the FAX as any FAX machine would. Refer to the *AT&T FAX Attendant System Release 4.0 Installation and Maintenance* document for more information about the FAX hardware.

What is the Script Builder FAX Actions Package?

The CONVERSANT VIS Script Builder FAX Actions package provides the means for including FAX communications in any Script Builder application. Using the Script Builder FAX Actions, an application can perform the following actions:

- Transmit to the caller a pre-stored graphical image

- Transmit to the caller a dynamically created text image (file)

- Dynamically create a text file for transmission to the caller

- Create customized cover pages

What is Script Builder?

Script Builder is the application generator for the CONVERSANT VIS. With it, users can quickly and easily create, test, and make active applications using all the power and capabilities of the CONVERSANT VIS. Script Builder is menu driven, and the user interacts with it using intuitive windows, forms, and keys. For example, actions the application should perform when the caller reaches it such as answer the phone and play an announcement, are selected from a menu of "Action Choices". During the definition of the application, the user can record any speech or enter any database information associated with the application.

How the Script Builder FAX Actions Work

The Script Builder FAX Actions package relies on and extends the capabilities of AT&T FAX Attendant System and Script Builder. Therefore, it cannot be used in systems that do not contain both the AT&T FAX Attendant System and Script Builder. The Script Builder FAX Actions package consists of two primary components: a Data Interface Process (DIP) and several External Actions.

The DIP, called the "faxingDip," processes requests from the script that it transmit FAX messages or execute UNIX commands. The External Actions appear like any other actions in the Script Builder Actions List. When selected and added to an application, they may be defined to transmit graphical images or text files to the caller. The faxingDip schedules FAX transmission with the appropriate AT&T FAX Attendant System processes. Graphical images can be loaded, viewed, and printed with the AT&T FAX Attendant System by using the AT&T FAX Attendant System administrative windows.

Uses of Script Builder FAX Actions in Applications

The following list gives several Script Builder FAX Actions sceneries:

■ Company Brochures

A caller interacts with an application to request product brochures by FAX transmission.   The product brochures may be sent immediately (or at a later timer when the telephone rates are lower). An interested caller can leave a voice mail message for the sales staff during the same call.

■ Bank Account Records

A caller enters an account number and then receives a FAX of that account status including a list of the last 20 checks that were cleared through the account.

■ FAXing Electronic Mail

A caller begins to listen to their electronic mail via text-to-speech, then decides that she/he would like to receive the e-mail as a FAX instead.

■ Real Estate Information

Prospective home buyers notice a sign in the front yard of a house they are interested in purchasing. They call the number on the sign, enter the house identification code, then receive a FAX of the house data sheet including a floor plan, asking price, and the name of the real estate agent. They can then leave the real estate agent a voice mail message.

■ Company Savings Plan Records

An employee calls the automated administrator of her/his company savings plan and requests the most current account statement. The the latest account statement is immediately received via FAX, instead of waiting until the next quarterly statement.

■ Medical Records

A group of physicians call a single telephone number and listen via text-to-speech to up-to-date records supplied by the hospital, pharmacy, and laboratory. The physicians can then have the medical records FAXed to them in their automobile or at their office.

■ Customer Service Information

Customers call an application that allows them to receive FAXes about product/system maintenance issues and the resolutions to those issues. They can listen to the issue resolutions via audiotext or text-to-speech or can request a FAX of the issue resolution. If they want immediate attention, they can transfer to a customer service agent or leave the agent voice mail and/or fax mail.

■ Hotel/Hospitality Services

Hotel guests send and receives FAX mail in their rooms and receive voice mail while staying at a hotel. Two weeks after the guests leave their hotel room, they decide they need a duplicate of their hotel bill. They call the hotel's hospitality application that FAXes the duplicate bill to the former, and, hopefully future guest.

■ Hotel/Conference Services

A hotel, simultaneously hosting two industry conferences, can provide an automated service to organizers of both conferences. These services allow conference attendees to automatically register and pay for the conference, receive a FAX of their confirmed reservation, and receive a FAX of a map that provides instructions on how to get to the hotel. The service also allows attendees to hear conference agendas and descriptions of technical sessions, receive FAXes of both conferences, register for technical tutorials, receive a FAXed registration confirmation, and listen to a replay of the conference keynote speech which is automatically added to their room charge.

■ Tax Form Distribution

Corporate and individual tax payers call into an application that allows them to receive tax forms and directions for their use.

■ Callers Queued in ACD

Callers who reach a service bureau are placed in an automatic call distributor (ACD) queue awaiting the availability of an organization representative. While in the ACD, callers listen to information about new products and services and can elect to receive information about these products and services via FAX.

■ Benefits Registration

Company employees call a voice response application to register their selections for the company's menu of benefits. After the employee registers, they are FAXed a confirmation of their selections.

■ Travel/Airline Reservations

An airline or travel agency offers customers the option of receiving a FAX of all flights that are consistent with their travel needs. Once a reservation is made, the customer can receive a FAXed confirmation of the travel arrangement.

■ News/Wire Service

Subscribers to a newspapers, other publications, and wire service can receive late-breaking news reports via FAX by dialing a voice response application.

■ Product Support/Maintenance

Customers and field support personnel dial a central voice response application and request a maintenance update letter via FAX. The maintenance update letter describes recently discovered problems/bugs with the product and provides solutions or workarounds. Also provided is a schematic drawing of a component referenced in the update. Callers can scan the available information using text-to-speech and listen if they wish to hear information via text-to-speech. While on the call, they can leave a product suggestion in the product manager's voice mail mailbox, or they can be transferred to a support person.

■ Directory/White/Yellow Pages

A phone company offers callers from a distant area code a touch-tone service which allows the caller to receive FAXes containing listing information. For example, a prospective widget buyer from New York could be sent the yellow pages entry to all the widget manufacturers in Silicon Valley.

■ Shareholder Services

A shareholder service offers its callers a voice response service that allows the caller to vote for the company's slate of officers. The service also allows callers to receive a FAX of the company's latest financial statement and prospectus.

■ Brokerage Services

A brokerage house offers its callers a voice response service that allows the caller to buy and sell stocks and bonds. The caller receives a FAX confirming the transaction.

■ Shipping

Shipping company customers dial a voice response application and request a FAX with the latest status information about their shipping job and/or a duplicate of their "bill of landing."

■ Order Entry/Verification

A manufacturer contacts a supplier via the supplier's voice response application and requests several spare parts. They receive a FAX with the order confirmation and can also leave a message in their contact's voice mailbox.

Benefits of Script Builder FAX Actions

Script Builder FAX Actions allows you to do the following:

- Implement and develop applications which were previously difficult to create

- Integrate FAX capabilities into existing CONVERSANT VIS applications

- Transmit graphical images and text images

- Utilize FAX capabilities in combination with other system capabilities: text-to-speech, speech recognition, database access, and host interfaces

- Save money, since it requires no additional hardware or investment beyond the AT&T FAX Attendant System

- Automatically retry numbers if the FAX machine called is busy

- Optionally transmit FAXes when toll rates are lower, for example, after 5 p.m.

- Support both tip ring (T/R) and T1 callers

- Transmit multiple FAXes to callers

- Create customized coversheets dynamically

When Would I Use the FAX Attendant Services Instead of the Script Builder FAX Actions?

The AT&T FAX Attendant System provides a rich set of features that can be used with no customizing beyond the usual administration.   Instead of "re-inventing" them using the Script Builder FAX Actions, they can be used directly. Below are situations in which you might choose to use the FAX Attendant System instead of the Script Builder FAX Actions:

- When mailbox/subscriber based services are needed

- When FAXes need to be received into the system

- When a single FAX Response or FAX-on-demand service is required with no need for other CONVERSANT capabilities such as speech recognition, text to speech, database access, or host connectivity.

- When FAX broadcasting is needed

- When FAX delivery on the current call is required

> ### ⇒ NOTE:
> You may use CONVERSANT capabilities, speech recognition, text-to-speech, database access, or host connectivity, as a foundation to using the FAX Response service by defining the FAX Response service using AT&T's FAX Attendant System, then starting the service

from within a Script Builder application using the FAX Response action to be described later. The limitation is that once the Fax Response service is started, the caller cannot easily get back to the Script Builder application that started it.

When Would I Use the Script Builder FAX Actions
Instead of the Fax Attendant Services?

When you need to define an application that requires additional flexibility beyond the existing FAX Attendant System services, consider using the Script Builder FAX Actions. Below are listed situations in which you might consider using the Script Builder FAX Actions:

- When you need multiple FAX Response or FAX-on-demand services, perhaps based upon number dialed, channel reached, or caller-entered information

- When you need to use other CONVERSANT capabilities in conjunction with the FAX-on-demand service, for example speech recognition, text-to-speech, database access, and/or host connectivity

- When you want to send the caller dynamically created FAXes, for example, FAXes created based upon information entered by the caller.

Installing the Software

2

What's in This Chapter

This chapter details the procedures needed to install the software for CONVER-SANT VIS Version 4.0 FAX Attendant which includes:

- ■ "Overview to Installing Software"

- ■ "Installing the FAX Attendant Non Co-Resident Software"

- ■ "Installing the FAX Attendant Co-Resident Software"

- ■ "Installing the Script Builder FAX Actions Package"

Overview to Installing Software

As discussed briefly in Chapter 1, there are two different supported configurations of the CONVERSANT VIS with FAX Attendant.

Configuration 1 = VIS 4.0 + FAX Attendant + Script Builder FAX Actions

Configuration 2 = VIS 4.0 + AUDIX Voice Power + FAX Attendant + Script Builder FAX Actions

Depending on your configuration, software needs to be installed in the following order:

1. CONVERSANT VIS Version 4.0 Application Package

2. CONVERSANT VIS Version 4.0 Script Builder

3. AUDIX Voice Power (Configuration 2)

4. FAX Attendant Software

5. One switch integration package (optional)

6. Script Builder FAX Actions

Terminology

When the term "co-resident" is used in the package names, it means the FAX Attendant package is situated on top of AUDIX Voice Power. The term "stand-alone" means the FAX Attendant package is *not* situated on top of AUDIX Voice Power, or is non co-resident.

Installing the FAX Attendant Non Co-Resident Software

You need to assemble the following packages when installing FAX Attendant Non co-resident software (Configuration 1):

■   FAX Attendant software

AT&T FAX Attendant Non-co-resident Application Software R2.1.1 V2

■   Switch Integration software (one of the following depending on the switch)

AT&T FAX Attendant S75/DEFINITY Non-co-resident Integration Software R2.1.1 V2
AT&T FAX Attendant S85/DEFINITY Non-co-resident Integration Software R2.1.1 V2

To install the FAX Attendant stand-alone software, following these steps:

1. If you are not already logged in, do so now.

    a. At the prompt: `Welcome to the AT&T 386 UNIX System`

        Enter **root**

    System response:

        `Password:`

    b. Enter your password. You will 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].

    System response:

        ```
        Insert the floppy disk.

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

4. Insert the first floppy disk and press [ENTER].

    System response:

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

    The system will prompt you when the next floppy disk needs to be inserted.

⚠ **WARNING:**
Make sure that the light on the floppy disk drive is off before removing any floppies.

5. The system prompts you to select the interrupt level for the IFP card(s). Refer to the output form the configuration program to determine what number to use. Type in the number and press [ENTER].

    The system responds with a confirmation message.

6. The system prompts you to select the login id of the Voice System Administrator. Enter **audix**

    The system responds with a confirmation message.

2-3

After several messages display to the screen, the UNIX system is rebuilt. This takes approximately 2 minutes to complete.

When the system has finished installing the package, you will receive the system response:

```
The installation of the FAX Attendant Non co-resi-
dent package is now complete.
```

7. Make sure that the light on the floppy disk drive is off. When it is off, remove the floppy disk.

8. Press ENTER to shutdown and reboot the system.

9. Go to "Installing the Script Builder FAX Actions Package" found later in this chapter.

Installing the FAX Attendant Co-Resident Software

You need to assemble the following packages when installing FAX Attendant Co-resident software (Configuration 2):

■ AUDIX Voice Power software:

AUDIX Voice Power Application Software R2.1.1: Speech
AUDIX Voice Power Application Software R2.1.1: Software
AUDIX Voice Power Application Software R2.1.1: Update 2

■ FAX Attendant software

AT&T FAX Attendant Co-resident Application Software
R2.1.1 V2

■ Switch Integration software (one of the following depending on the switch)

AT&T FAX Attendant S75/DEFINITY Co-resident Integration Software
R2.1.1 V2
AT&T FAX Attendant S25 Co-resident Integration Software R2.1.1 V2

To install the FAX Attendant co-resident software, follow these steps:

1. If you are not already logged in, do so now.

   a. At the prompt: `Welcome to the AT&T 386 UNIX System`, Enter **root**.

   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⬚.

   System response:

   ```
   Insert the floppy disk.

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

4. Insert the first floppy disk and press ⬚ENTER⬚.

   System response:

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

   In the case that your existing application is using talkfiles 40, 56, or 57, the package prompts you to allow it to continue with the installation. By continuing the installation, the program will overwrite the existing talkfiles. A bug sometimes causes this notice to be displayed even if no speeck exists in these talk files.

   The system will prompt you when the next floppy disk needs to be inserted.

⚠ **WARNING:**

   Make sure that the light on the floppy disk drive is off before removing any floppies.

5. The system prompts you to select the interrupt level for the IFP card(s). Refer to the output form the configuration program to determine what number to use. Type in the number and press ⬚ENTER⬚.

   The system responds with a confirmation message.

   After several messages display to the screen, the UNIX system is rebuilt. This take approximately 2 minutes to complete.

   When the system has finished installing the package, you receive the system response:

   ```
   The installation of the FAX Attendant Non co-resi-
   dent 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. Press ⬚ENTER⬚ to shutdown and reboot the system.

8. Go to "Installing the Script Builder FAX Actions Package".

Installing the Script Builder FAX Actions Package

If you are installing the Script Builder FAX Actions feature package on a running system, follow the procedure, "Stopping the Voice System," in the chapter, "Common Maintenance Procedures," in *CONVERSANT VIS Version 4.0 Maintenance,* 585-350-112, then load the software.

Before installing the Script Builder FAX Action Package, make sure that AT&T's FAX Attendant System and Script Builder are installed on your system. If either of these packages are not installed, the installation of the Script Builder FAX Actions package will not be successful.

For more information about how to install Script Builder, refer to Chapter 3 of the *CONVERSANT VIS Version 4.0 Software Installation,* 585-350-111.

⟹ NOTE:
The FAX Actions package is approximately 1Mbyte. Make sure there is enough space in the root (/) directory on your system before beginning the installation.

To install the Script Builder FAX Actions software, adhere to the following procedure:

1. If you are not already logged in, do so now.

   a. At the prompt: `Welcome to the AT&T 386 UNIX System` prompt, enter **root**

   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.

   System response:

   ```
   Insert the floppy disk.
   ```

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

4. Insert the Script Builder FAX Actions floppy disk and press ENTER.

System response:

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

When the system has finished installing the Script Builder FAX Actions, you receive the system response:

```
The installation of the AT&T CONVERSANT VIS -
Script Builder FAX Actions Package is now com-
plete.
```

5. Make sure that the light on the floppy disk drive is off. When it is off, remove the floppy disk. The following prompt will be displayed:

```
The voice system is currently runing.
Is it OK to STOP the voice system? [y/n]
```

Answer **y** and press ENTER.

Removing the FAX Attendant Software

To remove the FAX Attendant software (Non co-resident and Co-resident), use the following steps:

1. Stop the VIS using the procedure, "Stopping the Voice System," in the chapter "Common Maintenance Procedures," in *CONVERSANT VIS Version 4.0 Maintenance,* 585-350-112.

2. From the system prompt, enter **removepkg**

   The system responds by displaying a numbered list of installed packages.

3. Enter the number associated with the FAX Attendant software package.

   System response:

   ```
   Do you want to save the fax database files, fax mail,
   greetings, and name phrases for subscribers? y/n
   ```

4. Enter **y** if you want to save these files, and likewise, enter **n** if you do not want to save them.

   The UNIX system is now rebuilt. This take approximately 2 minutes to complete.

   When the system has finished rebuilding the UNIX system, you receive the system response:

   ```
   The removal of the FAX Actions Package is now complete.
   ```

5. Press (ENTER) to shutdown and reboot the system.

Removing the Script Builder FAX Actions Package

Before you remove the Script Builder FAX Actions software, make sure that the Script Builder FAX Actions functionality is not used by any scripts running on the system. If it is, those scripts will not function correctly once the Script Builder FAX Actions package is removed. Either take the affected scripts out of service or remove the FAX functionality from them before proceeding.

Stop the VIS using the procedure "Stopping the Voice System" located in the chapter, "Common Maintenance Procedures" of *CONVERSANT VIS Version 4.0 Maintenance*, 585-350-112, then remove the software.

1. Enter **removepkg**

   The system responds by displaying a numbered list of installed packages.

2. Enter the number associated with the Script Builder FAX Actions software package.

3. When the prompt is returned, the Script Builder FAX Actions software package has been removed.

Installing the Hardware

3

What's in This Chapter

This chapter details the following information:

- "Installing the FAX Attendant Circuit Card"

- The "Jumper Settings for the FAX Attendant Card"

- The "Switch Settings for the FAX Attendant Card"

Installing the FAX Attendant Circuit Card

The platform can support up to three FAX Attendant circuit cards. Follow the steps under "General Steps for Card Installation" in Chapter 6, of your hardware installation guide. Also, refer to the information below for switch and jumper settings.

One FAX cable supports two phone lines, and the circuit card provides modular jacks for two cables. Each cable has an RJ14C connector on one end which plugs into the FAX Attendant card. An RJ11 single-line connector on the other end of the cable plugs into the phone line.

⚠ WARNING:
Observe proper electrostatic discharge precautions when handling computer components. Wear a ground wrist strap against your bare skin and connect to an earth ground.

The following figure depicts the FAX attendant (IFP4) circuit card. Note that the jumpers are in two locations: top center and bottom right. The top center block of jumpers are not used.

➡ NOTE:
If you use FAX Attendant Services (FAX mail, FAX call answer, FAX response), you may need a voice card, for example, a IVP6 tip ring card.
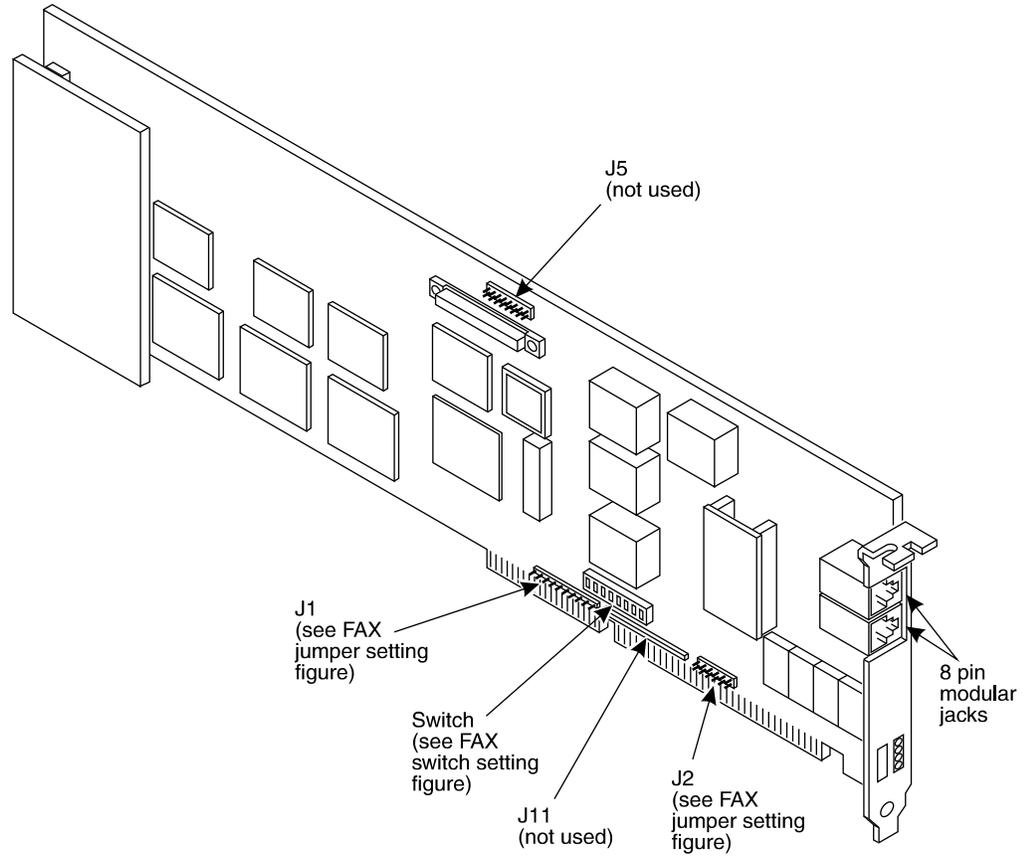
Figure 3-1.   FAX Attendant Card—Switch and Jumper Locations

Jumper Settings for the FAX Attendant Card

See Figure 3-2 for diagrams of J1 and J2. Interrupt numbers are located beneath the jumper blocks.

J1

○	○	○	○	○	○	○	○	○	○

15   14   12   11   10   1

J2
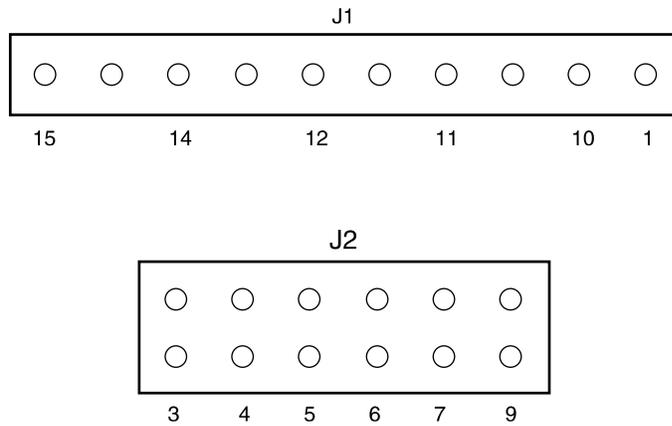
Set jumpers according to the software configurator.

Figure 3-2.   Jumper Settings

Switch Settings for the FAX Attendant Card

Refer to the following figure to set the switches on the card. The switch bank is located to the left of the bottom bank of jumpers. The first switch indicates settings for the first card installed, the second switch for the second card installed, and so on.

⇒ NOTE:

Switch 2 does not effect the base I/O address. It enables an interrupt pull-up. This switch must be **on** on one and only one TR114 line card.

Switch 1, which does not affect the base I/O address, is used for internal testing and must be **off** on all TR114 line cards.

FAX Attendant Card - No. 1
0X200
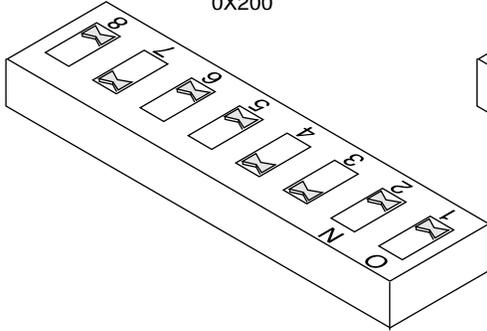
FAX Attendant Card - No. 2
0X240

FAX Attendant Card - No. 3
0X260
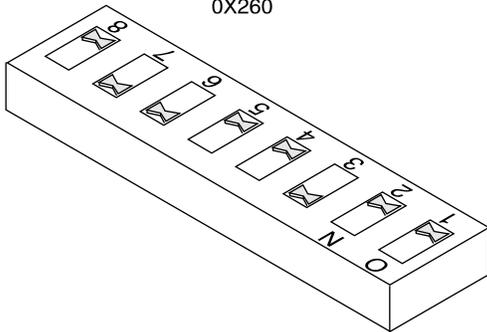
Figure 3-3. FAX Attendant Card Switch Settings

Using the Script Builder FAX Actions

4

What's in This Chapter

This chapter contains:

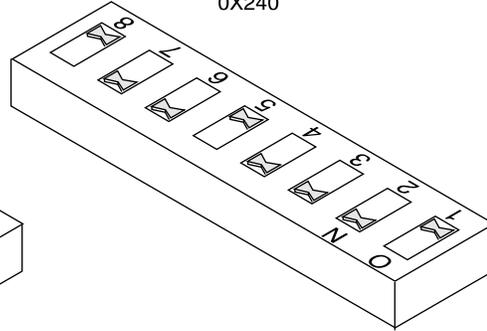- Descriptions of the **"FAX_Send Action", "FAX_CovrPage Action"**, **"FAX_Combine Action", "FAX_Response Action"**, and **"Exec_UNIX Action"** Script Builder actions

- Instructions and tips for writing scripts using the Script Builder FAX Actions

- Overview of FAX Attendant administration required to implement Script Builder FAX applications

- Information and suggestions for optimizing the performance of applications that use the Script Builder FAX Actions

- Discussion of "Advanced Considerations" that can be performed in conjunction with the Script Builder FAX Actions

- An "Example Application" using the Script Builder FAX Actions

Script Builder FAX Actions Choices

When the Script Builder FAX Actions Package is installed on a system that has both CONVERSANT VIS and the AT&T FAX Attendant System, five additional actions appear in the Script Builder Action Choices window. The Action Choices window of Script Builder contains all the Script Builder Actions available to the application developer such as Answer Phone, for answering the phone and beginning the application; Prompt and Collect, for requesting caller input; and Announce, for playing a voice announcement to the caller.(See Figure 4-1.)
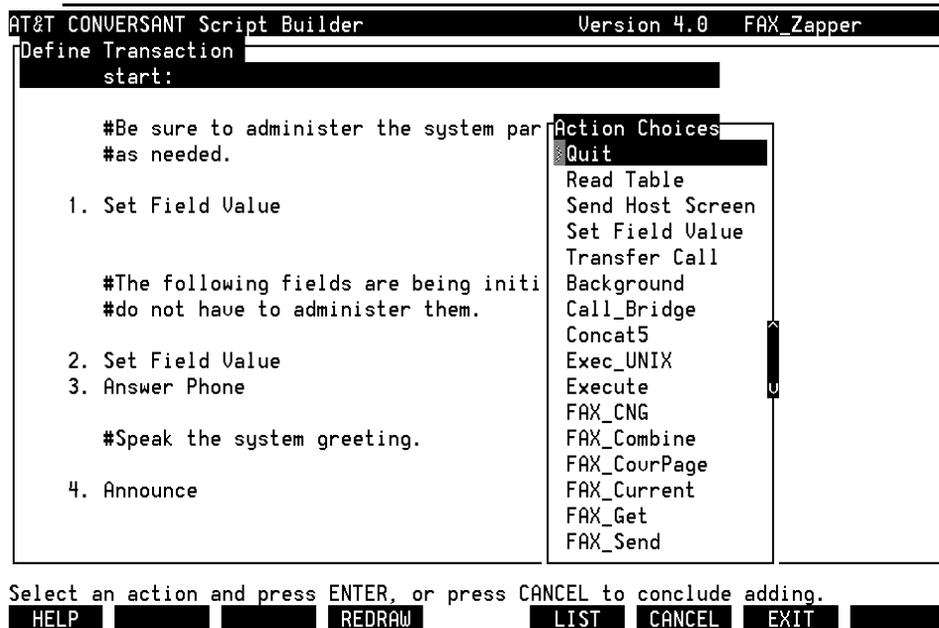
```
AT&T CONVERSANT Script Builder              Version 4.0   FAX_Zapper
Define Transaction
        start:

        #Be sure to administer the system par Action Choices
        #as needed.                            Quit
                                               Read Table
   1. Set Field Value                          Send Host Screen
                                               Set Field Value
                                               Transfer Call
        #The following fields are being initi  Background
        #do not have to administer them.       Call_Bridge
                                               Concat5
   2. Set Field Value                          Exec_UNIX
   3. Answer Phone                             Execute
                                               FAX_CNG
        #Speak the system greeting.            FAX_Combine
                                               FAX_CovrPage
   4. Announce                                 FAX_Current
                                               FAX_Get
                                               FAX_Send

Select an action and press ENTER, or press CANCEL to conclude adding.
 HELP                      REDRAW            LIST   CANCEL   EXIT
```

Figure 4-1.   Script Builder Action Choices Window

The additional actions provided by the Script Builder FAX Actions package may be used like any other actions in any Script Builder application. The following sections describe how to use them.

FAX_Send Action

> ⇒ **NOTE:**
> Callers can't use the FAX_Send action unless you appropriately administer the AT&T FAX Attendant System. Refer to the "FAX Attendant Administration" section of this document for more details.

FAX_Send directs the system to transmit to the designated FAX telephone number and the graphical image or text file specified. The **FAX_Send** Script Builder action communicates with the faxingDip to schedule the FAX for delivery.

This action can be used to schedule a FAX transmission to the FAX machine number entered by the caller. The transmission is scheduled like any other FAX Attendant FAX transmission, and the FAX Attendant retry strategy is enacted. That is, if the transmission fails, it will be retried until it is successfully transmitted or until the administered retry interval is exceeded. These issues will be discussed later in this chapter.

The **FAX_Send** Script Builder action is specified in the same manner as any other Script Builder action:

1. Select **FAX_Send** from the Action Choices menu in the Transaction Definition screen.

2. Press (CANCEL) to get back to the transaction definition window.

3. Highlight **FAX_Send** in the transaction and press (DEFINE).

An example of the FAX_Send window is shown in Figure 4-2. Examples illustrating how the FAX_Send action might be defined appear in Figure 4-3.
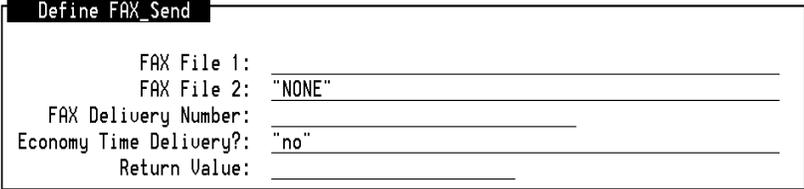
```
┌─ Define FAX_Send ──────────────────────────────────────────┐
│                                                            │
│          FAX File 1:  _____ │
│          FAX File 2:  "NONE"_____ │
│   FAX Delivery Number:  _____           │
│ Economy Time Delivery?:  "no"_____ │
│         Return Value:  _____                │
│                                                            │
└────────────────────────────────────────────────────────────┘
```

Figure 4-2.   Define FAX_Send Action Window

⚠ **CAUTION:**
*Throughout this chapter, the directory **/tmp** is used for examples. Be advised files in the **/tmp** directory are removed when the UNIX system is rebooted. If you want to save your files, use a directory other than **/tmp** which contains a string constant. To enter a Fax Response ID, use the identification number that you used when defining FAX messages in your Fax Response service, for example, "fax1 through fax999." The system knows where Fax Response FAXes, for example, "fax1 reside." Therefore, full path names are not required.*

The 5 arguments to the **FAX_Send** Script Builder action are as follows:

1. **FAX File 1** is either the Fax Response ID of a FAX image entered into the Fax Response Workspace or the full path of the file that you want to transmit to the caller. This is a required field. Valid entries for FAX File 1 are a character constant, for example, **/tmp/junkfile**, or a field name.

> ⟹ **NOTE:**
> Remember to include the quotation marks when specifying FAX File 1. The quotation marks must also be used if FAX File 1 entries of the form faxN are used. If character fields are used for FAX File 1, the quotation marks must be included when the field value is set. You do **not** need to enter quotation marks into local data base fields, however.

Refer to the section in this chapter, "How to Load and View Graphical FAX Images", for procedures on how to view those FAX files which are available to send to the caller and for procedures detailing how to load these files into the system. When loaded into the system, they automatically appear at the end of the list that appears when the (CHOICES) key is pressed.

2. **FAX File 2** is the second FAX to transmit to the caller. The same rules apply to this field as apply to the previous field. It is a required field. Enter: **NONE** if no second FAX is desired.

3. **FAX Delivery Number** is the telephone number to which the FAX message will be delivered. Most often it will be entered by the caller, but you can obtain this number in other ways as well, including database lookup and host access.

4. **Economy Delivery** is useful if you want to avoid sending FAXes during the time when long distance rates are the highest. Enter **yes** if you want the FAX requested by the caller to be delivered during the system-wide defined Economy Time Period. If you want the FAX delivered immediately, enter **no**.

Refer to the *AT&T FAX Attendant System Release 4.0 System Manager's Guide* for procedures on how to administer the Economy Time Period.

5. **Return Value** contains the Job ID associated with the FAX transmission. The system provides the contents of this field; however, you must specify the field in which the system will put the contents of the field. FAXes are transmitted using the FAX Attendant transmission scheduler. The FAX associated with this Job ID appears in the FAX Attendant Fax Transmission Control window until the FAX transmission is completed. For information on how to use the Fax Transmission Control window, refer to the *AT&T FAX Attendant System Release 4.0 System Manager's Guide*.

A negative Return value indicates that a problem was encountered, and the caller will not receive the FAX they requested. You might check the return value and inform the caller of this fact if it occurs. Refer to Chapter 5, "Troubleshooting Script Builder FAX Actions", for possible return codes and their explanations.

FAX_Send Action Tips

■ Be sure to check the return value, and if it is an unexpected value, perform some retry function or alert the caller that she/he will not be receiving the FAX.

■ You might want to speak the Job ID back to callers so that they can keep these numbers for their records. Then, if they do not receive the FAX, you can determine what happened by looking in the FAX Attendant Fax Transmission Control window for the Job ID.

■ Part of the function of this action is to convert text files into a format suitable for FAX transmission. Therefore, the larger the text file that you are transmitting, the longer it will take to complete this action. You should ask the caller to "Please wait" if this delay is noticeable. Test the application to determine whether or not delays are noticeable. There should be no noticeable delays when sending FAX files since no conversion takes place.

■ You may send multiple text files to the caller by ordering them one after another in a single file (using "Exec_UNIX Action"), then by using FAX_Send to transmit the file to the caller. To combine text and FAX files, use the "FAX_Combine Action".

Examples of how FAX_Send actions can be defined are shown in Figure 4-3.

```
┌─────────────────┐─────────────────────────────────────────────┐
│ Define FAX_Send │                                             │
└─────────────────┘                                             │
│                                                               │
│           FAX File 1:  cover_page_____│
│           FAX File 2:  combine_FAX_____│
│   FAX Delivery Number:  $CI_VALUE_____              │
│ Economy Time Delivery?:  "no"_____│
│         Return Value:  FAX_Send_return_____                │
│                                                               │
└───────────────────────────────────────────────────────────────┘
```

Figure 4-3.   Defining FAX_Send Actions

FAX_Combine Action

The **FAX_Combine** action directs the system to combine the contents of two or three files into a single FAX file. This combined FAX is considered to be a single FAX and can be transmitted to the caller using the FAX_Send action.

By itself, FAX_Send can transmit two FAXes to the caller. When FAX_Send is used to send a FAX created using the FAX_Combine action, an unlimited number of FAXes can be sent to the caller. An example of the FAX_Combine window is shown in Figure 4-4. Examples illustrating how the FAX_Combine action might be defined appear in Figure 4-5.
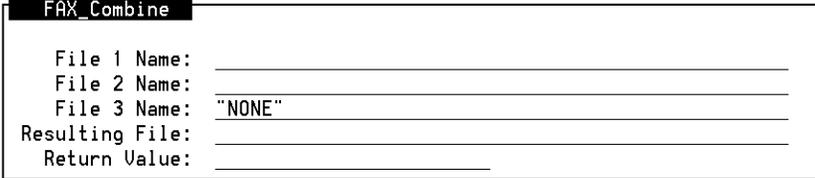
```
 ┌─ FAX_Combine ─────────────────────────────────────────────┐
 │                                                            │
 │    File 1 Name:   _____ │
 │    File 2 Name:   _____ │
 │    File 3 Name:   "NONE"_____  │
 │ Resulting File:   _____ │
 │   Return Value:   _____              │
 │                                                            │
 └────────────────────────────────────────────────────────────┘
```

Figure 4-4.   Define FAX_Combine Window

The 5 arguments to the **FAX_Combine** Script Builder action are as follows:

1. **File 1 Name** is the full path where the first file which is to be combined into a single FAX can be found. This is a required field. Valid entries for the File 1 Name are full path names of text or FAX files; Fax Response IDs, for example, *fax1*; or fields containing full path names of text files, FAX files, or Fax Response IDs.

   Remember to include the quotation marks when entering the File 1 Name.

2. **File 2 Name** is the full path of the second file to be combined into a single FAX. This is a required field. Like File 1 Name, valid entries for the File 2 Name are full path names of text or FAX files; Fax Response IDs, for example *fax1*; or fields containing full path names of text files, FAX files, or Fax Response IDs.

3. **File 3 Name** is the the full path of the third file to be combined into a single FAX. This is a required field. Valid entries for the File 3 Name are full path names of text or FAX files; Fax Response IDs, for example, *fax1*; or fields containing full path names of text files, FAX files, or Fax Response IDs. If no third FAX is desired, enter **NONE**.

4. **Resulting File** is the full path of the file containing the combined FAX. This is a required field. Valid entries for the Resulting File field are full path names of the desired file enclosed in quotation marks or fields containing full path names of the desired file enclosed in quotation marks.

5. **Return Value** contains the return value from the operation. If the return value is less than zero, an error has occurred. Refer to Chapter 5, "Troubleshooting Script Builder FAX Actions", for information about possible error conditions.

FAX_Combine Action Tips

■   If certain FAXes are frequently requested together, consider entering them already combined into the Fax Response Workspace. This will eliminate the need for file conversion and cut delays.

■   Be sure to check the return value for this function. If it is an unexpected value, perform some retry/recovery function.

Use the UNIX **cat** command to order text files one after another. Figure 4-5 shows examples of how the FAX_Combine action can be defined.

```
┌─────────────────────────────────────────────────────────────┐
│ ▌FAX_Combine▐───────────────────────────────────────────     │
│                                                               │
│    File 1 Name:  "/att/trans/sb/SBFAX_demo/Spch_recog_FAX"    │
│    File 2 Name:  "/att/trans/sb/SBFAX_demo/TTS_FAX"           │
│    File 3 Name:  "NONE"                                        │
│ Resulting File:  combine_FAX                                  │
│   Return Value:  FAX_Combine_return                           │
│                                                               │
└─────────────────────────────────────────────────────────────┘
```

Figure 4-5.   Defining FAX_Combine Actions

FAX_CovrPage Action

The **FAX_CovrPage** action directs the system to join two files into a single FAX file. This action is especially useful for joining graphical images with text information in order to create customized cover sheets with company letter head and logos combined with the address of the intended recipient. The **Exec_UNIX** action can be used to create the text portion of the cover sheet. Once the joined FAX is created, it can be transmitted to the caller using the **FAX_Send** action. Examples illustrating how the FAX_Combine action might be defined appears in Figure 4-5. An example of a FAX_CovrPage Action window appears below in Figure 4-6.

.


```
 Define FAX_CovrPage
    File 1 Name:   _____
    File 2 Name:   _____
   Fill The Page?: "yes"_____
   Resulting File: _____
    Return Value:  _____
```

Figure 4-6. Define FAX_CovrPage Action Window

The 5 arguments to the **FAX_CovrPage** Script Builder action are as follows:

1. *File 1 Name* is the the full path of the file to appear at the top of the cover page. This is a required field. Valid entries for the File 1 Name are full path names of text or FAX files; Fax Response IDs, for example, *fax1*; or fields containing full path names of text files, FAX files, or Fax Response IDs.

   ⇒ **NOTE:**
   Remember to include the quotation marks when entering the File 1 Name.

2. *File 2 Name* is the full path of the file to appear at the bottom of the cover page. This is a required field. Like File 1 Name, valid entries for the File 2 Name are full path names of text or FAX files; Fax Response IDs, for example *fax1*; or fields containing full path names of text files, FAX files, or Fax Response IDs.

3. *Fill the Page?*, if set to **yes**, the joined FAX file will fill an entire 8.5 inch by 11 inch page. Otherwise, it might not. If the combined length of the two joined files is greater than 11 inches long, the result with also be longer than 11 inches. That is, the page will not be compressed. If the combined length of the two joined files is less than 11 inches, the result will also be less than 11 inches unless the Fill The Page? parameter is set to **yes**. (The default value is **yes**.) Take care to ensure that the page is the length desired.

4. *Resulting File* is the full path of the file containing the cover page. This is a required field. Valid entries for Resulting File are full path names of the desired file or fields containing appropriate strings.

5. *Return Value* contains the return value from the operation. If the return value is less than zero, an error has occurred. Refer to Chapter 5, "Troubleshooting Script Builder FAX Actions", for information about possible error conditions.
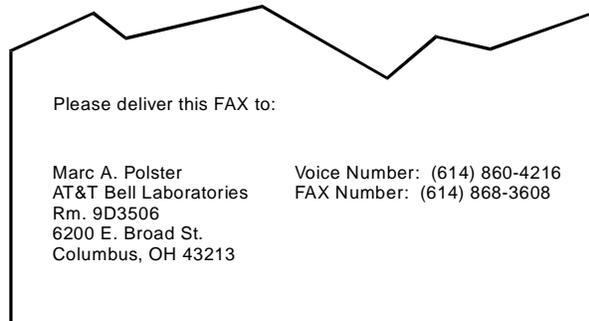
FAX_CovrPage Action Tips

■ Be sure to check the return value for this function. If it is an unexpected value, perform some retry/recovery function.

■ If the two inputs are text, use the UNIX command **cat** to concatenate them together. This avoids file conversion. If both are FAX files, consider entering them combined into the Fax Response Workspace.

Figure 4-7 illustrates how the **FAX_CovrPage** action can be used to create custom cover pages consisting of both graphics and text information.

File 1 Name is a graphic image, "fax1", entered into the FAX Loading, Viewing, and Printing form.
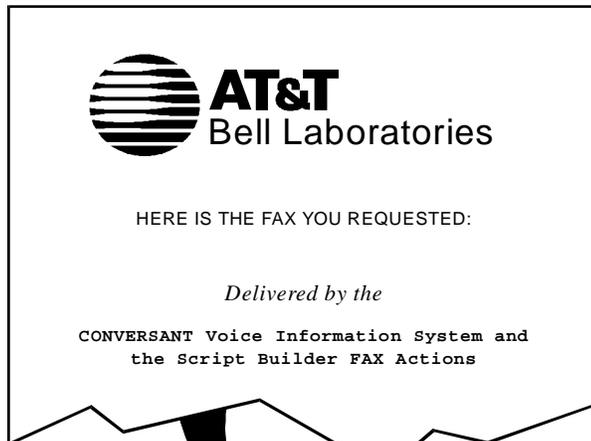
File 2 Name is a text file ("/tmp/addr.out") produced dynamically using the Exec_UNIX action which performs a database query and formats the output into the form shown below.

AT&T
Bell Laboratories

HERE IS THE FAX YOU REQUESTED:

Delivered by the

**CONVERSANT Voice Information System and
the Script Builder FAX Actions**

Please deliver this FAX to:

Marc A. Polster
AT&T Bell Laboratories
Rm. 9D3506
6200 E. Broad St.
Columbus, OH 43213

Voice Number: (614) 860-4216
FAX Number: (614) 868-3608

This is how to define the FAX_CovrPage action to produce the customized cover page below.

Define FAX_CovrPage

File 1 Name: **"fax1"**
File 2 Name: **"/tmp/addr.out"**
Fill the Page?: **"yes"**
Resulting File: **"/tmp/coverpage"**
Return Value: **return_value**
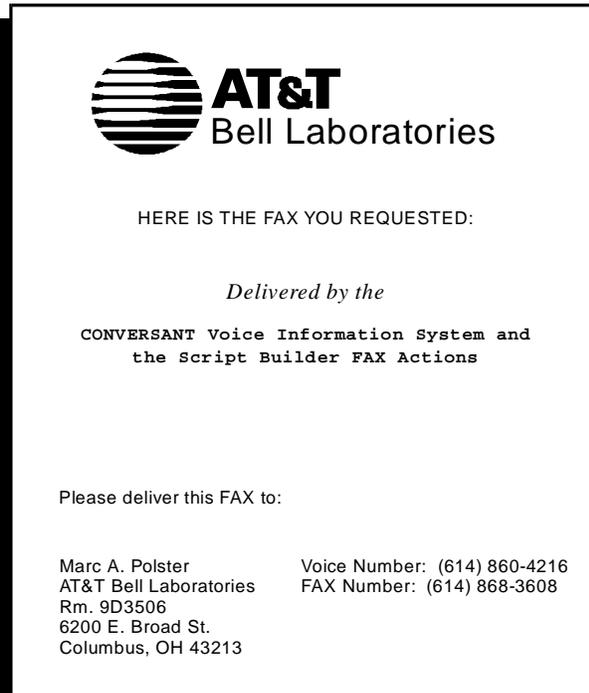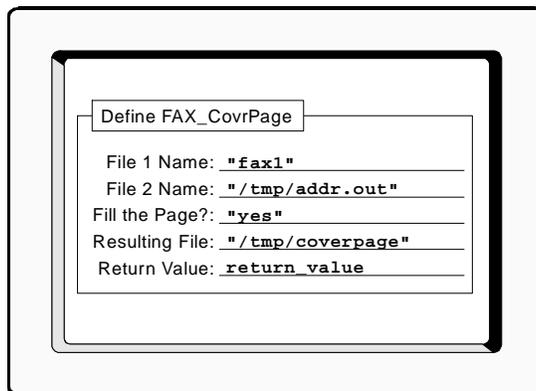
This is the resulting 8½" x 11" customized cover page placed in the file "/tmp/coverpage" that will accompany the FAX requested by the caller. Use the FAX_Send action to send the cover page and

AT&T
Bell Laboratories

HERE IS THE FAX YOU REQUESTED:

Delivered by the

**CONVERSANT Voice Information System and
the Script Builder FAX Actions**

Please deliver this FAX to:

Marc A. Polster
AT&T Bell Laboratories
Rm. 9D3506
6200 E. Broad St.
Columbus, OH 43213

Voice Number: (614) 860-4216
FAX Number: (614) 868-3608

Figure 4-7.   Example to Illustrate the Use of the FAX_CovrPage Action

Exec_UNIX Action

The **Exec_UNIX** action directs the system to execute a UNIX command or shell script. This action is useful for creating text files to transmit to the caller. For example, if a callers enter their account numbers, a shell script can be executed to perform a database query that creates a formatted text file comprising the caller's account statement. The account statement can then be FAXed to the caller using the **FAX_Send** action. An example of an Exec_UNIX window is shown in Figure 4-8. Examples illustrating how the FAX_Combine action might be defined appear in Figure 4-9.
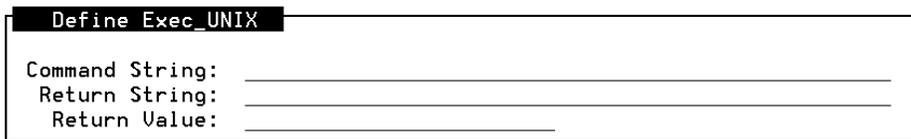
```
  ┌─ Define Exec_UNIX ──────────────────────────────────────────────────┐
  │                                                                      │
  │ Command String:    _____ │
  │  Return String:    _____ │
  │   Return Value:    _____                  │
  │                                                                      │
  └──────────────────────────────────────────────────────────────────────┘
```

Figure 4-8.   Define Exec_UNIX Action Window

⚠ **CAUTION:**
Like operating at the system console, you may execute ANY command or shell script using the **Exec_UNIX** *action, including commands that are harmful to the system. Use care when specifying the command to execute. Thorough testing of your command or shell script is recommended before executing it from within a Script Builder application.*

The 3 arguments to the **Exec_UNIX** Script Builder action are as follows:

1. The ***Command String*** is the full path of the command that you want to execute. This is a required field. Valid entries for the Command String are a character constant, for example, "banner hello world > **/tmp/junkfile**", or a field name which contains a string constant.

> ⇒ **NOTE:**
> Remember to include the quotation marks when entering the Command String.

2. ***Return String*** is an optional field that will contain the return string that results from execution of the Command String. For example, if the file **/ tmp/junkfile** contains the text "hello world" and the Command String is "grep hello /tmp/junkfile", the Return String will contain "hello world". If the file **/tmp/junkfile** does not contain the word "hello", then the Return String will be empty. The system will read into the Return String all characters (up to a maximum of 127) that are encountered before any new-line character appears or before an end of file condition occurs. The Return String will be automatically null terminated.

3. ***Return Value*** contains the return value from the UNIX command execution. Refer to Chapter 5, "Troubleshooting Script Builder FAX Actions", for information about possible error conditions.

> ⇒ **NOTE:**
> The faxingDip, which actually executes the command, possesses the root environment and profile. Make sure that you specify in your command or shell script any PATH information the command or shell might need to successfully execute if that information is not already in the root environment or profile. When in doubt, include and export necessary environmental values in your shell script.

Exec_UNIX Action Tips

■ Avoid executing those commands with long execution times that might introduce call delays. You should ask the caller to "Please wait" if this delay is noticeable.

■ When using Exec_UNIX with text-to-speech, execute a command that returns text. Then speak the text to the caller using the returned text as input for an Announce action.

■ You may embed other Script Builder variables within the command line by constructing the command line using the **concat** external function. For example, your transaction might prompt and collect the caller's phone number, then execute a shell script that creates a nicely formatted FAX cover page that contains the caller's fax machine number and address and instructs the recipient to "Please deliver this FAX to John Doe." To produce this coversheet, the shell script you create must perform a database lookup that retrieves the caller's fax machine number and address using the phone number entered by the caller as a key. It can then format the output into the form you want and attaches the "Please deliver..." instructions and puts the result in a text file called **/tmp/cover**.

Assume that the shell script just described is called **mkcv** and that it is stored on the hard disk in the directory **/att/trans/sb/SBFAX_demo**. The full path name of this command is then **/att/trans/sb/SBFAX_demo/mkcv**. Assume also that it takes as input, a phone number. The proper command line might be **/att/trans/sb/SBFAX_demo/mkcv $CI_VALUE** where $CI_VALUE contains the phone number entered by the caller. This command line may NOT be entered into the Exec_UNIX Command String field directly. However, it can be constructed using the **concat** external function to concatenate the string **/att/trans/sb/SBFAX_demo/mkcv** to the field $CI_VALUE, putting the resulting string in the variable **command_line**, which has been defined as a char type field of length 50. Then the **command_line** variable can be entered directly into the Exec_UNIX Command String field. **Exec_UNIX** will now execute the command string **/att/trans/sb/SBFAX_demo/mkcv $CI_VALUE**. The resulting file, **/tmp/cover** can now be sent to the caller using the FAX_Send Action.

This type of operation is done in the example presented later in this chapter. The example application uses the FAX_CovrPage action to create a customized cover page. The top of the cover page is a graphical image and the bottom of the cover page is text containing the FAX delivery number. The bottom of the cover page is created dynamically using Exec_UNIX to execute the shell script **mkcv** which takes as input the caller's FAX delivery number and the channel on which the transaction occurs.

■ Be sure to check the return value for this function. If it is an unexpected value, perform some retry/recovery function.

Examples of how to define the Exec_UNIX Action are shown in Figure 4-9.

```
┌─────────────────────────────────────────────────────────────────┐
│ ████████████████                                                  │
│ █ Define Exec_UNIX █                                              │
│ ████████████████                                                  │
│                                                                   │
│ Command String:  "rm -rf /tmp/cover* /tmp/combine*"_____  │
│  Return String:  _____ │
│   Return Value:  _____                           │
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-9. Defining the Exec_UNIX Action

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FAX_Response Action

The **FAX_Response** action directs the system to execute the Fax Response service defined using the AT&T FAX Attendant System. This action is different from the other FAX Actions in that there is no definition form to complete. The Fax Response service will start at the point in the application where this action is placed. Refer to the *AT&T FAX Attendant System Release 4.0 System Manager's Guide* for information about how to define the Fax Response service.

FAX Attendant Administration

The Script Builder FAX Actions work cooperatively with the AT&T FAX Attendant System. There are certain FAX Attendant administrative parameters that should be defined so that the Script Builder FAX Actions perform correctly.

⇒ NOTE:

It is worth repeating that fairly extensive system and telephony/PBX administration is required when using all the power and functionality of the AT&T FAX Attendant System. For example, mailboxes must be created and subscriber profiles and system parameters must be defined. It is useful to note, however, that you may use the Script Builder FAX Actions without performing most of this administration.

A thorough description of FAX Attendant administration can be found in *AT&T FAX Attendant System Release 4.0 System Manager's Guide*. For the convenience of the reader, the highlights of the specific administrative parameters that should be administered to support the Script Builder FAX Actions are listed here. They are as follows:

■ ***Dial String For Outside Call***: This parameter appears on the Voice System Administration/Application Package Administration/Fax Attendant/Fax System Parameter Administration/General Fax Parameters Administration window and tells the system what digits to dial when delivering FAXes in order to access an outside line from whatever PBX the system is configured behind. This value is specific to your environment. A frequently used outside dial string is 9.

■ ***FAX board extensions***: Each FAX board channel is connected to a tip ring line on your PBX. Each channel has a unique extension assigned to it. In order to load FAXes into the system, you must inform the AT&T FAX Attendant System about the extension assignments of the FAX channels. This is done in the Voice System Administration/Application Package Administration/Fax Attendant/Fax Equipment Operations/Fax Channel Administration form.

Press the (LINES) key there to assign extensions to each FAX channel. Refer to the *AT&T FAX Attendant System Release 4.0 System Manager's Guide* for more detailed information.

How to Load and View Graphical FAX Images

Graphical FAX images (as opposed to text files), as the term implies, can contain graphics. They are actually stored on the system as TIFF Class F files. Text files contain only text.

The graphical images are entered into the system through the FAX Attendant Fax Response Workspace Administration windows. Use these windows to load, print, and view graphical images that will be sent to callers. Complete procedures for administering FAX images can be found in the *AT&T FAX Attendant System Release 4.0 System Manager's Guide*. Only the highlights of this process will be described here.

> **NOTE:**
> Graphical images are pre-stored. They contain static information that will be transmitted to callers in its present form--the information in them cannot be changed. FAX_Send can be used to transmit either pre-stored or dynamic information.

The steps to administering graphical FAX images are as follows:

1. Go to the FAX Response Administration/Fax Response Workspace Administration/Edit Workspace window or the Fax Response Administration/View Fax Response Service.

2. Create a FAX Response application that contains the FAXes you want to use in your Script Builder application. FAXes are entered either as Objects to the Fax Response **Sendfax** Action or as entries on a FAX Response FAXmenu and are always of the form "fax1, fax2, . . . fax999." A maximum of 999 graphical FAX images may be stored on the system.

> **NOTE:**
> The FAX Response Administration windows are used to load and view the graphical images sent to callers from both the Fax Response service and any application that uses the Script Builder FAX_Send action. The Fax Response service that you define does not have to be active (that is, installed and verified). It can be developed simply as a holding bin for FAXes to be sent via the Script Builder FAX_Send action.

3. Load a FAX using the **FAX-ADM** function key available from the Voice System Administration/Application Package Administration/Fax Attendant/Fax Response Administration/Fax Response Workspace Administration window. You must administer the tip ring lines connected to the FAX circuit boards before you can actually load the FAX.

You may view the FAXes loaded using the **VIEW-FX** function key which is available after pressing the **FAX-ADM** function key. The FAXes loaded may now be referenced by the "FAX_Send Action" and will appear on the (CHOICES) key for the FAX_Send FAX File 1 and FAX File 2 fields as well as the similar fields for the "FAX_CovrPage Action" and "FAX_Combine Action".

Application Performance Considerations

The following information and suggestions will be useful when optimizing the performance of applications that use the Script Builder FAX Actions. As an application developer, you are responsible for making sure your application is logically correct and as pleasurable for the caller to use as possible. Thorough testing, including testing under load, is recommended before any application is made "live".

■ Make sure that any commands, programs or shell scripts that you execute via the **"Exec_UNIX Action"** do not have excessive execution times. The longer the execution time, the longer the potential delay to the caller. If delays are unavoidable, be sure to ask the caller to "Please wait." If necessary, limit the number of channels on which the service is running.

■ Use FAX files entered via Fax Response Workspace Administration when possible. Sending these FAX files using "FAX_Send Action" requires no file conversion and results in no call delays.

■ Sending text files is more processing intensive than sending FAX images because the text file must first be converted to FAX format before transmission can occur. File conversions increase the likelihood of introducing delays to the caller. Be economical when using text files with the Script Builder FAX Actions. If you find yourself using the same text file repeatedly throughout a single call, throughout a single application, or among several applications, consider entering the text file onto the system as a FAX image via the Fax Response Workspace. Use text files only when they involve dynamic information. Avoid using large text files whenever possible.

■ The "FAX_Combine Action" and "FAX_CovrPage Action" employ file conversions for both FAX and text files. Use "FAX_Send Action" without "FAX_Combine Action" and "FAX_CovrPage Action" when possible.

■ If Combining text files only, use the Unix **cat** command instead of "FAX_Combine Action".

Advanced Considerations

The following information is provided to facilitate advanced operations that an application developer might want to incorporate into her/his application. They are intended to be used by developers who are relatively comfortable working with UNIX and should be avoided by those who are not. The information provided contains details about the internal structure of the FAX Attendant and its supporting files and directories.

⚠ CAUTION:

Users should exercise caution when interacting with the internal FAX Attendant structures. Mistakes could impact the performance and functionality of the FAX Attendant System.

Retrieving FAXes from and Inserting FAXes into FAX Attendant Mailboxes

FAX Attendant mailboxes are organized on the system under the **/usr/faxdb** directory. In that directory there are 100 directories each of the form "mailXY", where XY is a two-digit integer from 00 to 99. The two digits refer to the last two digits of a subscriber's extension. Individual subscriber FAX "mailboxes" are created as needed in these directories. For example, if FAX mail exists for subscriber 4216, the directory **/usr/faxdb/mail16/4216** will exist, and there will be FAX files in that directory. As another example, if FAX mail exists for subscriber 60291, the directory **/usr/faxdb/mail91/60291** will exist, and there will be FAX files in that directory.

The FAX files that are present in the mailboxes are data files containing information coded in TIFF Class F format. The names of the FAX files contain the following information about the FAX message:

■ **The time/date** that the FAX was delivered is contained in the first 8 digits coded in UNIX time.

■ **The channel** the message was received on is contained in the next 2 digits.

■ **The message type** is coded in the last character.

 Valid message types are as follows:

       R   = Received FAX

       F   = Failed Print Report

       N   = Delivery Report. Since delivery reports are generated by the system and not received on the FAX channel, the channel field is always set to 99

You may retrieve FAXes from mailboxes and transmit them using FAX_Send by entering into the Define FAX_Send form the appropriate full path name of the FAX mail message as in the format described above.

You may place FAXes in subscriber mailboxes as long as you follow these rules:

■ To name files, adhere to the file naming convention described above.

■ To reduce confusion, place the file in the correct directory.

■ To lessen extraneous information, remove the mailbox directory (for example, the directory 4216) when there is no mail left.

■ To view any FAX file at the system console, use the tool **/fax/admin/procs/ faxview <filename>** where <filename> is a TIFF Class F file. This tool is intended for field support personnel and is not documented in the FAX Attendant documentation.

■ To increase the maximum number of FAX files on the system, following this procedure. Since the maximum number of FAX files that can be referenced by the Fax Response service is 999, without special intervention, your system can reference at most 999 FAX files (fax1 through fax999). If you need more FAX files, you may simply enter the FAX into the Fax Response Workspace, then copy the resulting file to a different location. This is what was done in the example application discussed later in this chapter. This results in the ability to use an unlimited number of FAX files. When entered through the Fax Response Workspace, a FAX file is placed either in the **/ usr/faxdb/FR/WORKFAX** directory or in the **/usr/faxdb/FR/EDITFAX** directory in a filename of the form *faxN* (for example, fax1 through fax999).

■ To use FAX Actions capabilities within non-Script Builder applications, or "native script" applications, simply use the code fragments generated by the FAX Actions as models.

■ To define the sytem's waiting time, use the Script Wait Parameter. The FAX Actions use the standard Script Builder **nwitime** parameter which defines how long the system will wait before it continues. For example, the system will wait at most <nwitime> seconds to get a response from the fax- ingDip. There is no limit by default. To impose limits, the nwitime parameter can be used using native script language or an external function within Script Builder.

Example Application

An example of a Script Builder application using the five Script Builder FAX Actions is below. This example prompts the caller for his/her FAX telephone number. It then transmits a three-page FAX to the number entered. The first page of the FAX is a cover page, which contains a graphical image at the top and the caller's FAX telephone number at the bottom.

For the sake of simplicity, and to make the example usable for all users, the example does not use local data base, host, text-to-speech or speech recognition operations. However, this example can be used as a starting point for such an application. A more sophisticated application might store the caller's name and address in a local database then use that information to create a cover page that contains not only the caller's FAX telephone number, but also her/his name and address.

To install and use this example application, follow these steps:

1. Make sure you have the floppy disks containing the example application.

2. Use the Script Builder ADD NEW APPLICATION capability to add an application named SBFAX_demo.

3. RESTORE via Script Builder the application using the SBFAX_demo name.

⚠ **CAUTION:**
If you do not use the name SBFAX_demo, the application will not work properly because it will not be able to find needed files where it expects to find them. You may rename the application if desired once it is RESTORED via Script Builder. If you do, be sure to change the references to SBFAX_demo in the application as appropriate.

4. VERIFY and INSTALL the application using Script Builder.

5. Make sure at least one FAX channel is in service. Use Fax Board Diagnostics or Fax Channel Administration to get the channel in service if necessary. The application is as follows:

start:

```
#This application illustrates how the Script
#Builder FAX Actions can be used. It prompts
#the caller for a FAX telephone number, then
#delivers a prestored FAX to the number entered.
#A customized coversheet is attached to the
#FAX which contains the telephone number entered
#by the caller.
```

1. Answer Phone

> #Say hello.

2. Announce

> Speak With Interrupt
> Phrase: "Hello."
> Phrase: "Welcome to the Script Builder FAX Actions demo."
> #Get the caller's FAX number.

3. Prompt & Collect

> Prompt
>
>> Speak With Interrupt
>>
>> Phrase: "Enter your FAX telephone number."
>> Phrase: "You may terminate your input with a pound sign."
>
> Input
>
>> Min Number Of Digits: 03
>> Max Number Of Digits: 11
>> TT Terminator Code Value:"#"
>
> Checklist
>
>> Case: "Input Ok"
>> Speak With Interrupt
>> Phrase: "You entered..."
>> Field: $CI_VALUE As C
>> Phrase: "If this is correct, press 1."
>> Phrase: "If this is not correct, press 2."
>
> Confirm 1
>
>> Case: "Initial Timeout"
>
> Reprompt
>
>> Case: ""Too Few Digits"
>
> Reprompt
>
>> Case: "No More Tries"
>
> Quit
> End Prompt & Collect

> #Create the FAX coversheet.

4. Announce

Speak With Interrupt
Phrase: "Your FAX cover page will now be created."

#Create a command line for Exec_UNIX that has
#"embedded" values entered by the user/system.
#The command line will look like:
#"mkcv <phone number> < channel number>"

#The shell script "mkcv" takes the phone
#number and channel number as input and creates
#a text file called "/tmp/cover_bottomX" where
#X is the channel number. You may look at this
#shell script if desired. It is stored in
#/att/trans/sb/SBFAX_demo.

#From this point on, the files used by the FAX
#Actions are named according to the channel
#the transaction is occurring on. This prevents
#one channel's temporary files from overwriting
#another channel's temporary files.
#For example, the cover page that is FAXed to the
#caller is named "/tmp/cover_pageX" where X is the
#channel number on which the transaction occurs.
#This file name is stored in the string variable
#"cover_page".

5. External Function

Function Name: concat
Use Arguments: command_line "/att/trans/sb/SBFAX_demo/mkcv "
$CI_VALUE 0
#Put a space between the shell script arguments.

6. External Function

Function Name: concat
Use Arguments: command_line command_line " " 0

7. External Function

Function Name: concat
Use Arguments: command_line command_line
$CHANNEL_NUMBER 0

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8. External Action: Exec_UNIX

    command: command_line
    reply: number_of_pages
    Return Field: Exec_UNIX_return
    End External Action

9. Evaluate

    If Exec_UNIX_return < 0

10. Goto Trouble

    End Evaluate

    #Create a filename to feed FAX_CovrPage that
    #contains the bottom half of the cover page.

11. External Function

    Function Name: concat
    Use Arguments: cover_page_bottom "/tmp/cover_bottom"
    $CHANNEL_NUMBER 0

12. External Function

    Function Name: concat
    Use Arguments: cover_page "/tmp/cover_page"
    $CHANNEL_NUMBER 0

13. External Action: FAX_CovrPage

    file1: "/att/trans/sb/SBFAX_demo/cover_page_top"
    file2: cover_page_bottom
    fill_the_page: "yes"
    resulting_file: cover_page
    Return Field: FAX_CovrPage_return
    End External Action

14. Evaluate

    If FAX_CovrPage_return < 0

15. Goto Trouble

    End Evaluate

    #Combine two more FAXes to transmit to the caller.

16. Announce

    Speak With Interrupt
    Phrase: "Your FAX will now be created."

17. External Function

>   Function Name: concat
>   Use Arguments: combine_FAX "/tmp/combine_FAX"
> $CHANNEL_NUMBER 0

18. External Action: FAX_Combine

>   file1: "/att/trans/sb/SBFAX_demo/Spch_recog_FAX"
>   file2: "/att/trans/sb/SBFAX_demo/TTS_FAX"
>   file3: "NONE"
>   resulting_file: combine_FAX
>   Return Field: FAX_Combine_return
>   End External Action

19. Evaluate

>   If FAX_Combine_return < 0

20. Goto Trouble

>   End Evaluate

>   #Send the FAX to the caller.

21. Announce

>   Speak With Interrupt
>   Phrase: "Your FAX will now be scheduled for delivery."

22. External Action: FAX_Send

>   FAX_file1: cover_page
>   FAX_file2: combine_FAX
>   delivery_num: $CI_VALUE
>   economy: "no"
>   Return Field: FAX_Send_return
>   End External Action

>   #If the FAX_Send action was successful, tell the
>   #caller that his/her FAX will be delivered.

23. Evaluate

>   If FAX_Send_return > 0
>   #We know that the pre-stored FAXes have 2 pages.
>   #The final page count will be 2 plus however many
>   #pages are in the cover page (one in this case).

24. Set Field Value

> Field: final_pages = number_of_pages + 2

25. Announce

> Speak With Interrupt
> Phrase: "Your..."
> Field: final_pages As C
> Phrase: "...page FAX will now be delivered to..."
> Field: $CI_VALUE As C
> Phrase: "Your FAX Job ID is..."
> Field: FAX_Send_return As Nrmf
> Phrase: "Keep this number for your records."
> Phrase: "Goodbye."

26. Quit

> Else

> #If the FAX_Send action was not successful,
> #tell the caller to try again later.

27. Announce

> Speak With Interrupt
> Phrase: "We're sorry."
> Phrase: "We are experiencing technical problems."
> Phrase: "You will not be receiving the FAX requested."
> Phrase: "Please call back later."
> Phrase: "Goodbye."

28. Quit

> End Evaluate

> #Terminate if we have any problems. Look in the
> #error log to see what problems we had.

> Trouble:

29. Announce

> Speak With Interrupt
> Phrase: "We're sorry."
> Phrase: "We are experiencing technical problems."
> Phrase: "You will not be receiving the FAX requested."
> Phrase: "Please call back later."
> Phrase: "Goodbye."

30. Quit

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Troubleshooting Script Builder FAX Actions

5

What's in this Chapter

This chapter contains troubleshooting information related to use of the Script Builder FAX Actions. For the most part, the Script Builder FAX Actions package is self-documented. The information contained here is identical to the information contained in the package HELP, error log and explain components.

How to Troubleshoot

The CONVERSANT VIS, AT&T FAX Attendant System and Script Builder provide diagnostic and troubleshooting information in several of the following basic forms:

- **HELP Screens**. HELP screens can be accessed by pressing the (HELP) key when defining any action.

- **Error Log Reports**. Refer to the *CONVERSANT VIS Command Reference* and the *CONVERSANT VIS Maintenance Guide* for more information about how to access error log information.

- **Explain Text**. Refer to the *CONVERSANT VIS Command Reference* and the *CONVERSANT VIS Maintenance Guide* for more information about how to access explain information.

- **Script Builder Action Return Values**. Problems related to using the Script Builder actions including the Script Builder FAX Actions can generally be diagnosed using the values returned by the actions (return values). For the most part, negative return values indicate problems. If a negative return value is received, refer to the HELP screens associated with the action which returned it or the explain text associated with any resulting error log entries for information about how to interpret the return value and actions necessary to remedy the problem.

- **Tracing**. The tracing utility allows each step of a running application to be monitored including any DIP interactions that occur. Refer to the *CONVERSANT VIS Command Reference* for more information about how to trace an application. Error indications in trace output can frequently be used to identify problems.

- **FAX Transmission Control**. The form that appears in the FAX Attendant Fax Transmission Control window provides a list of and information about the FAXes currently in the transmission queue. There, FAXes can be removed from the transmission queue, if desired. For information on how to use the FAX Transmission Control window, refer to the *AT&T FAX Attendant System Release 2.1.1 System Manager's Guide*.

- **FAX Board Diagnostics**. This utility appears in the FAX Attendant Fax Board Diagnostics window and provides FAX diagnostics that can be executed on a per channel or per board basis without service interruption. For information on how to use the Fax Transmission Control window, refer to the *AT&T FAX Attendant System Release 2.1.1 System Manager's Guide*.

The above capabilities can be used to successfully diagnose problems that might arise. The remainder of this chapter provides descriptions of the error conditions that could arise in using the Script Builder FAX Actions. All information provided here is also included on-line in the form of explain text accessible by using the explain feature. It is included here simply as a handy off-line reference. Each of

the following sections refers to one of the seven error messages that are generated by the system.

ASCII to TIFF Conversion Failed

<< SBFAX006 SBF_ASCTOTIFF_FAILED >>

➡ NOTE:
The << SBFAX006 SBF_ASCTOTIFF_FAILED >> line above and similar lines throughout this chapter are explain message identifiers and mnemonics that can be used as arguments to the explain function which is used to obtain the explain text associated with the error message. For example, to obtain the information below, enter at the UNIX shell prompt the command **explain SBFAX006**.

The script made a request to transmit a text file to the caller. Before the text file can be sent, it must be converted into the appropriate format. This conversion failed for the text file specified.

Most likely, the file requested is not suitable for transmission. Check to make sure the file is either a text file or a FAX file entered through the Fax Response Workspace.

FAX_Combine Failed

<< SBFAX008 SBF_FAXCOMBINE_FAILED >>

The system attempted to combine two or three files into a single FAX file. This operation failed. For this operation to be completed, file conversions are performed to get the information into a form suitable for transmission.

Most likely, one or more of the files requested are not suitable for transmission. Check to make sure the files requested are either text files or FAX files entered through the Fax Response Workspace.

FAX_CovrPage Failed

<< SBFAX009 SBF_FAXCOVRPAGE_FAILED >>

The script request to join two files into a single FAX file (possibly for use as a cover page) failed. For this operation to be completed, file conversions are performed to get the information into a form suitable for transmission.

Most likely, one or both of the files requested are not suitable for transmission. Check to make sure the files requested are either text files or FAX files entered through the Fax Response Workspace.

FAX File Not Found

<< SBFAX004 SBF_FAXFILE_NOTFOUND >>

The script request to transmit a FAX file to the caller failed because the FAX file requested could not be found. Verify that the FAX file exists either in the Fax Response Workspace or at the full path specified in the script.

The caller did not receive the FAX requested. Consider manually transmitting the FAX message requested by the caller using the delivery number contained in the error message.

Text File Not Found

<< SBFAX003 SBF_FILE_NOTFOUND >>

The script request to transmit a file to the caller failed because the file requested could not be found. Verify that the file exists and was specified in the script with the appropriate path.

The caller did not receive the FAX they requested. Consider transmitting it manually to the caller using the delivery number contained in the error message.

FAX_Send Failed

<< SBFAX010 SBF_FAXSEND_FAILED >>

The script request to transmit one or two FAX messages to the caller failed. The return code reported in the error message indicates the result of the delivery request.

This error may be the result of the failure of earlier FAX Actions. For example, if another FAX Action failed and the script did not check its return value, it is likely that the associated FAX_Send action would also fail. Consult the list below to determine the source of the problem.

-6003FAX file missing
-6105FAXMGR not running/FAX channels not in service/No phone lines attached

Exec_UNIX Command Failed

<< SBFAX007 SBF_UNIXCMD_FAILED >>

The script request to execute a UNIX command or shell script failed.

Most likely, the problem is with the command or shell script. Check that the command or shell script that was attempted works when executed manually. If it does, make sure that its full path name is provided to the script.

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