



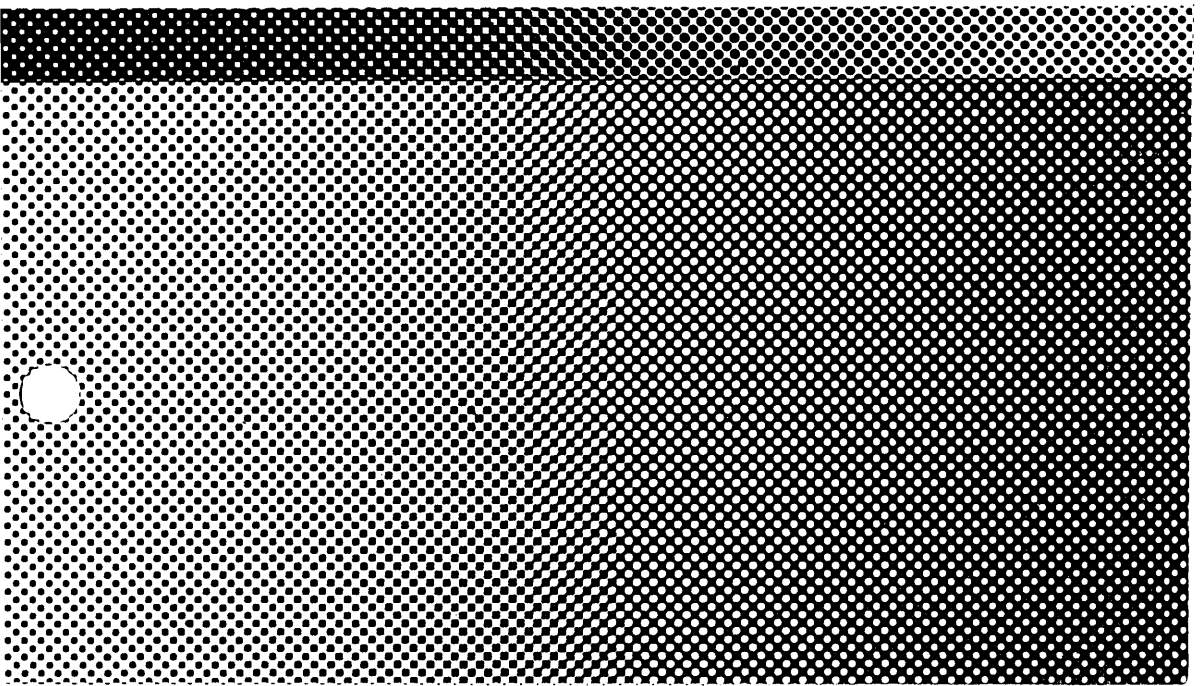
AT&T

**AT&T 3270 Emulator +
ESCORT™ Overview**



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AT&T 3270 Emulator + ESCORT™ Overview



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Introduction

Welcome to ESCORT

Welcome to the world of ESCORT™; AT&T 3270 Emulator+ ESCORT, a high-level programming language.

Let the power of ESCORT solve your connectivity problems and increase the versatility of your AT&T 3B departmental processor.

ESCORT is easy to learn and use. It is a high-level, structured language, using English-like commands and is simpler than other programming languages.

ESCORT provides you with the ability to access multiple host and local sessions. Three modes of operation of the language are designed to provide different interfaces between the operator and the application.

ESCORT can provide such benefits as concurrent access to multiple host computers through user-friendly screens, shared data between applications, and bulk record updating; as well as improving the quality of system tests through mechanized regression testing and prototyping of host applications.

Who can use ESCORT; is it complicated to learn? How does it work, and what are the hardware and software requirements? Read the following sections for an overview of AT&T 3270 Emulator+ ESCORT.

Who Can Use ESCORT?

ESCORT is easy to learn and use. It is a high-level, structured language, using English-like commands and is simpler than other programming languages.

ESCORT is designed for use on a UNIX® operating system (System V Release 2.0 or higher) based AT&T 3B computer. Anyone who is familiar with applications running on synchronous or asynchronous host computers can use ESCORT.

ESCORT can be used by people with all levels of computer expertise:

- Staff without programming experience can use an ESCORT program to access any application on a host computer. The program may simulate entries that would otherwise be entered manually on either an IBM® 3278 terminal or a DEC® VT100™ terminal.
- Novice programmers can use ESCORT utilities and features, such as the Automatic Script Generation facility and the Local Screen Generator Utility program, to develop programs to automate and simplify existing manual procedures.
- Experienced programmers will enjoy the powerful script features of ESCORT. They will be able to develop, quickly and economically, sophisticated programs that will provide, for instance, concurrent access to multiple host systems, user-friendly front-end interfaces, and the sharing of data between disparate host systems and other UNIX applications.

How ESCORT Works

ESCORT can access multiple computer applications, called *sessions*, in various *modes* of operation. Review this section to understand how ESCORT can help you solve your host computer connectivity access needs.

Multiple Sessions

ESCORT provides you with the ability to access up to ten concurrent sessions from a single program (or script). Sessions are either *host* or *local*.

Host Sessions

Host sessions are accessed using either synchronous or asynchronous communications. ESCORT can access up to eight host applications, of which four may be synchronous and four may be asynchronous.

ESCORT allows for interactive or program-controlled switching between sessions without the necessity of logging off, and for the exchange of data between applications.

For example, your ESCORT program logs you into two applications; one application resides on a synchronous host computer, and the other on an asynchronous machine. The program searches for data on one application and writes the captured data to the other application. The whole procedure is performed automatically by the program without manual intervention and without the necessity of logging on and off applications.

Local Sessions

Local sessions provide a UNIX operating system-based, front-end interface, for data entry or display, to interact with a host application. Up to two local sessions can be connected from an ESCORT program.

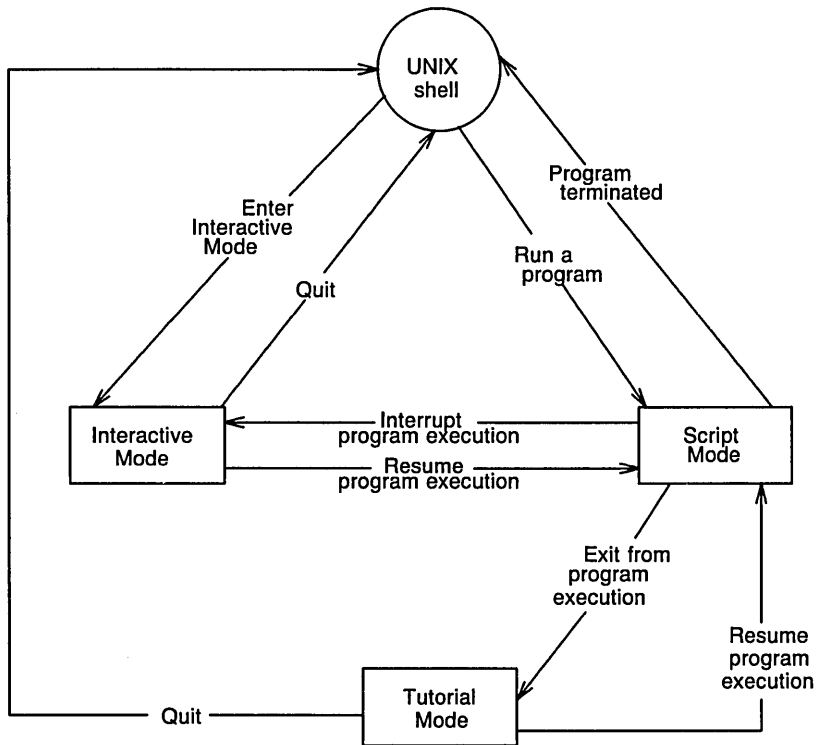
Extending the previous example, your ESCORT script now opens a local session and displays a well-designed, easily understood input screen. Data entered onto the local screen is verified, edit checks are performed automatically by the program, and if correct, ESCORT enters the data into the correct input fields on the appropriate host application. The host application has now been updated with verified data. Your only interaction has been with a simple, front-end screen; you have not been concerned with complex host screens and access procedures, since these have been selected and performed for you by the ESCORT program.

Modes of Operation

ESCORT has three modes of operation designed to provide different interfaces between the operator and the application. The three modes are *Interactive Mode*, *Script Mode*, and *Tutorial Mode*.

The following diagrams illustrate the relationship between Script, Interactive and Tutorial modes.

FIGURE 1-1



Interactive Mode

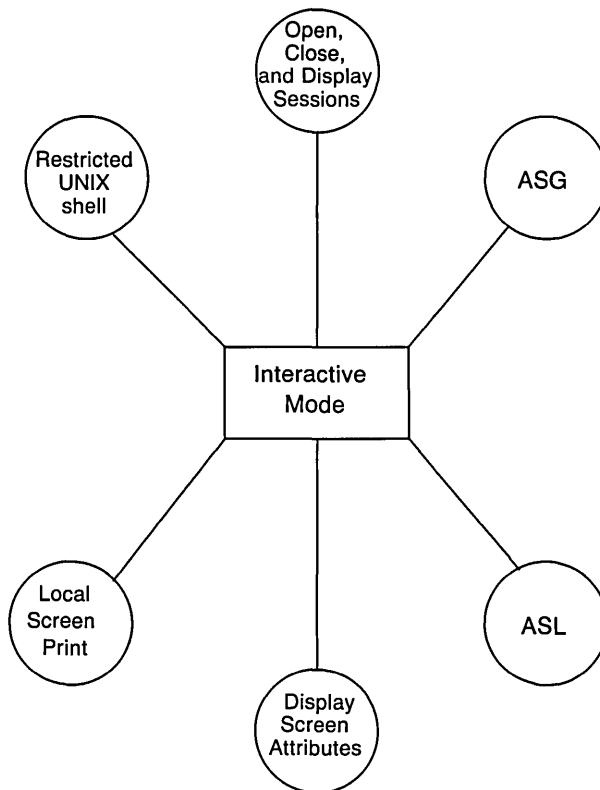
This mode provides simultaneous access to multiple host applications. In Interactive mode, you can access your applications interactively just as if you were entering data on an IBM 3278 synchronous terminal or a DEC VT100 asynchronous terminal.

The following details some of the special ESCORT features available in this mode:

- Automatic Script Generation (ASG)
- Automatic Screen Logging (ASL)
- Local Screen Printing
- Escape to the UNIX shell
- Open, close and display sessions
- Display Screen Attributes

The following diagram summarizes the Interactive mode special features available in ESCORT.

FIGURE 1-2



Script Mode

This mode allows you to simulate a user entering data at a terminal. Script mode is the most powerful feature of ESCORT; over 100 commands and functions are available, providing flexible program design.

ESCORT simulates a user by executing the instructions contained in the program. While in Script mode, ESCORT accepts data from a script instead of from the keyboard. ESCORT also provides you with the ability to switch between Script and Interactive modes.

Run ESCORT programs in Script mode to automate complex operations, such as multiple host updates and shared data access, or simple tasks, such as host login procedures.

Tutorial Mode

Tutorial mode provides a useful method of developing on-line tutorial packages to train new personnel in specific applications.

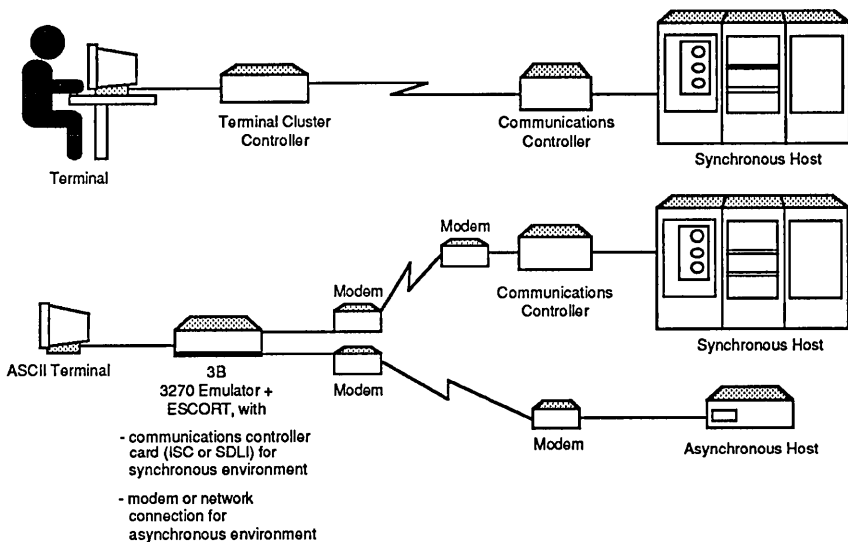
Tutorial mode is similar to Interactive mode. However, in this mode instructions can be issued to an operator, through display windows.

An ESCORT script can be used to verify the data entered and to perform edit checks. The combination of program-controlled data verification and operator prompting, through Tutorial mode, provides an efficient method of ensuring correct operator input and response.

Conceptual View

As the following diagram illustrates, 3270 Emulator+ ESCORT, installed on the 3B computer, simulates a user operating a terminal. Instead of having a person perform repetitive data entry tasks at a terminal, you can let ESCORT do the work for you. ESCORT can enter data, check for errors, and communicate information to the various host applications.

FIGURE 1-3

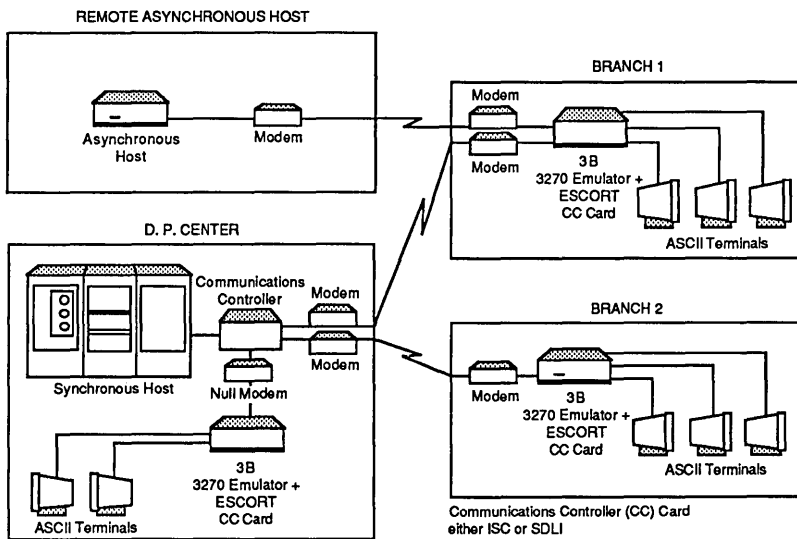


Typical Configuration

The diagram below depicts a typical configuration for a company with two branches.

A synchronous host computer operates out of a centralized data processing center. An asynchronous host is located in a second remote location. Communication between the synchronous host and terminals is achieved through Intelligent Serial Controller cards, or Synchronous Data Link Interface cards, providing IBM 3274 cluster controller emulation. Communication between the asynchronous host and terminals is achieved through the use of modems.

FIGURE 1-4



Features and Benefits

The features of ESCORT allow you to:

- **Develop simple end-user interfaces.** You can develop end-user interfaces quickly and economically by using ESCORT's local session feature and the Local Screen Generator Utility program. You can create prototypes of interfaces before committing to expensive host application changes and you can also provide individualized interfaces for different users. These interfaces can simplify for the user otherwise complicated host applications.
- **Interact with multiple applications.** The multiple session feature of ESCORT allows you to control, either interactively or via a script, several synchronous and asynchronous host sessions, and local sessions. Switching back and forth between sessions is also accomplished interactively or by script control.

Any session can be displayed while other sessions execute in the background through the flexible *display* and *activate* features of ESCORT.

- **Exchange data.** Data can be entered from your keyboard when connected to either host or local sessions. You can also capture data from any host or local session and use it subsequently in any other session or application.
- **Interact with local UNIX applications.** Through its flexible interactive and script command features, ESCORT allows you to interact with local UNIX applications when connected to either host or local sessions.

ESCORT's comprehensive features provide many benefits. They will enable you to:

- **Mechanize routine tasks in computer operations or data processing.** ESCORT can send keystrokes to the various host systems for data entry, cursor positioning, or any function a user performs at a terminal.
- **Reduce data entry errors.** An ESCORT script can be used to perform local editing and to send a message to the operator if invalid data is detected. By validating data entry locally, you ensure the integrity of the host application data base.
- **Generate reports.** ESCORT can capture data from any host application and generate reports tailored to specific requirements. Reports are easily customized, as information requirements change.
- **Share data.** The interactive and program-controlled switching features of ESCORT, together with the ability to interface with host applications using different communication protocols, allows you to share data between host applications. Your operation benefits by reducing the quantity of data entry and by speeding up the execution process.
- **Execute jobs overnight.** Use ESCORT local screens for data input and an ESCORT program to collect and verify data, and to simulate on-line data entry at non-peak periods. These features provide benefits such as reduced host overhead during peak day-time periods and improved system response time.
- **Perform regression testing.** ESCORT can improve the quality and quantity of your testing in an on-line program development environment by automating your testing packages.

Review the following section to see how these benefits have been realized in conventional applications.

ESCORT Applications

Consider the following applications:

- Bolton Industries Inc., a major manufacturer of machined parts. The company management decided to purchase equipment it currently leases, for all of its manufacturing plants. The mainframe computer records detailing the leased items must be reviewed, pertinent financial information extracted, leased items closed out, and similar purchase and fixed asset computer system records updated with the relevant purchase cost and depreciation information for each cost center in each plant. The correct price code, from a possible list of over 300, must be determined.

Management has also requested exception reports to monitor the progress of the operation. Initial estimates indicate that at least 15 temporary clerks will need to be employed for some four weeks, to manually complete the mainframe record updating.

How can the critical information be gathered with the necessary accuracy and in a timely fashion?

The solution — an ESCORT program, written, tested and installed in a matter of days, performed the 60,000 necessary transactions over a 72-hour period.

The benefit to management — a major financial cost saving in clerical time, reduced data entry errors, and ensured database integrity. The procedure, completed quickly, provided valuable and timely information reports to management.

ESCORT makes such bulk update procedures easy. An ESCORT program can perform any user function at a terminal with a greater degree of accuracy and in far less time than is possible manually.

- Recently, the management of the Titanium Metals Co. asked their MIS data management group to help plan and implement a major expansion and reorganization program. The critical information had to be accurate and timely if the expansion plans were to succeed. How could the computer services/MIS departments provide senior management, most of whom access the mainframe applications rarely if at all, with the flexibility to generate reports tailored to their requirements, on a timely basis?

The solution — an ESCORT program, providing a user-friendly, front-end interface between the executive user and the mainframe applications, allowed management to select report types from a simple menu. The ESCORT program subsequently performed all of the laborious tasks: signing onto the mainframe application, collecting data from the appropriate data sets and presenting management with screen- and hard-copy reports, tailored to their up-to-the-minute requirements. A similar programming effort to make the mainframe more user-friendly, accessible and flexible, may well have required many man-months of intensive programming effort.

The front-end screens, designed using the ESCORT screen generation utility and the main ESCORT program, were developed and installed in a matter of days.

Typically, time is of the essence when providing management with information that is accurate and can be used effectively. ESCORT provided the Titanium management with the benefit of flexible, individualized interfaces, and with information reports tailored to specific requirements, all without committing to expensive mainframe application changes.

- The personnel department of the Fidelity Trust Bank maintain their payroll, personnel and manpower planning information on separate mainframes. Common information is entered three times on three mainframe applications. The first two are maintained on host computer systems using synchronous communications; the manpower planning data is maintained on an asynchronous host computer.

Separate synchronous and asynchronous terminals are needed to access the various applications. One synchronous application must complete its processing before the other application can be accessed so processing delays are common. With so much repetition, errors are frequent, resulting in further delays in processing payroll. Accurate manpower planning is difficult since the department manager is never quite sure that employee data is identical across the three systems.

The department manager has no alternative other than to purchase more terminals and to hire additional staff to handle the increasing burden of maintaining employee records.

The solution — enter data once, update all three systems with common data and provide the ability for one application to be addressed while the other two applications execute in the background.

Data is entered once onto an ESCORT screen, providing a simple, front-end interface. Edit checks are performed on the data entered before it is sent to the hosts. The ESCORT program interacts with the multiple mainframe applications, switches back and forth between applications automatically, updates the data bases, and provides for the sharing of data between applications. Data is also extracted automatically by the program from one application and used in another, all without operator intervention. Accuracy is now guaranteed.

In addition, one terminal is used to access multiple synchronous and asynchronous host applications. The ESCORT program controls the execution of the host applications in the background, thus freeing the terminal for use, for example, in generating manpower planning forecasts.

Multiple system interfaces using various protocols, shared data access, and interactive or program-controlled switching between hosts are easy using the power of the ESCORT scripting language. User-friendly, front-end interface screens are quickly developed using the ESCORT local screen generator utility.

- Some common problems shared by businesses with hard-pressed computer support staff and limited mainframe resources: everyone is complaining about the mainframe; it's too slow during peak operating periods; the input screens are difficult to understand and not particularly well laid out; training new employees is time consuming; and the time frame for requesting improvements or changes to host applications through the computer support department runs into months.

Many companies are utilizing ESCORT to solve these complex programming problems. Front-end screens, designed to suit particular requirements, are developed quickly and easily by novice programmers. Many variations of input screens can be developed and used as prototypes until the most suitable format is determined. The front-end screens are used to collect data during peak daytime operating periods.

More experienced programmers, meanwhile, develop ESCORT programs designed to collect input data. ESCORT performs edit checks and verification procedures on the data entered and automatically updates the mainframe applications during the night by simulating on-line data entry. Shifting daytime on-line transactions to non-peak periods improves system response time. An ESCORT program also reviews overnight batch output, verifies completion and generates reports on the progress of the process for analysis the next day.

The combination of custom-designed screens and responses generated by ESCORT based on input, provides a powerful training tool. New employees are quickly trained and do not require a knowledge of mainframe application procedures, such as logging in, to become productive. Their access to applications and data can be limited or expanded as necessary by providing operator control through ESCORT programs.

These features of ESCORT provide such benefits as savings in employee time, improved input with reduced errors, faster system response time, and quality training directed at specific needs. More importantly, the benefits are achieved without committing to expensive mainframe application changes.

- Finally, consider the problem faced by any mainframe software development group. How can the quality of regression testing be improved?

ESCORT programs can be developed to perform mechanized testing. These tests can be executed repeatedly to provide reliable and deterministic results. The ESCORT program also monitors the output for expected and exceptional responses.

Development groups benefit from the improved quality and quantity of on-line program testing.

The examples in this section are taken from actual situations where ESCORT has been used to solve everyday application problems. If your business needs include

- user-friendly, front-end interfaces,
- multi-system access,
- synchronous and asynchronous access,
- shared data across multiple systems,
- bulk/production updating,
- enhanced prototyping capabilities,
- improved regression testing,

then you can benefit from ESCORT.

Operating Requirements

Outlined below is the required hardware for several possible configurations.

Synchronous Host Sessions

AT&T 3B2 Configuration

- AT&T 3B2 series computer.
- Intelligent Serial Controller (ISC) card.
(A separate ISC card is required for each concurrent BSC or SNA/SDLC communication link.)

AT&T 3B5/3B15 Configuration

- AT&T 3B5 or 3B15 computer.
- Input/Output Accelerator (IOA) processor card.
- Synchronous Data Link Interface (SDLI) card.
(Separate IOA and SDLI cards are required for each concurrent BSC or SNA/SDLC communication link.)

AT&T 3B4000 Configuration

- AT&T 3B4000 computer.
- Adjunct Communication Processor (ACP).
(Note that software can reside on one ACP only.)
- Intelligent Serial Controller (ISC) card.
(A separate ISC card is required for each concurrent BSC or SNA/SDLC communication link.)

Common Hardware

- 2 megabytes of memory.
- Bisynchronous (BSC) or Synchronous Data Link Control (SDLC) connection to a host computer, using either a switched telephone network or a leased or private line, and a synchronous modem. The modem must be compatible with the host system modem. 3270 Emulator+ supports up to 9600 baud for BSC and 19.2 kilobaud for SNA/SDLC operation.
- ASCII terminal. ESCORT supports all terminal types defined in the UNIX operating system *terminfo* terminal information files. Refer to these files to determine whether your particular terminal is supported.

Asynchronous Host Sessions

Select the following hardware configuration to support asynchronous host sessions using 3270 Emulator+ ESCORT:

- AT&T 3B series computer.
- 2 megabytes of memory.
- Asynchronous ports card.
- Asynchronous modem or network connection to an asynchronous host computer.
- ASCII terminal. ESCORT supports all terminal types defined in the UNIX operating system *terminfo* terminal information files.

Software Requirements

The minimum software requirements are listed below for the installation of 3270 Emulator+ ESCORT on the 3B computer.

- AT&T 3270 Emulator+ software.
- UNIX System V core package, Release 2.0 or higher.
- Inter-Process Communications Utilities.
- Terminal Information Utilities.
- System Administration Utilities.
- Editing Utilities.
- Shell Programming Utilities.
- Basic Network Utilities
(for asynchronous host sessions).

What Is Included in ESCORT?

ESCORT is used in conjunction with AT&T 3270 Emulator+ software. The following documentation is available in the AT&T 3270 Emulator+ ESCORT package:

- **AT&T 3270 Emulator+ ESCORT User's and Programmer's Guides**
AT&T publication number 308-402.
This binder contains the following three documents:
 - **ESCORT Overview**
This document provides an introduction to ESCORT, gives a brief overview of the many capabilities of the language and provides examples of how ESCORT is being used to solve connectivity problems.
 - **ESCORT User's Guide**
The *ESCORT User's Guide* contains information you need to know to use ESCORT. Use of the modes of operation, accessing multiple sessions, and the special features of the language are presented in this guide.
 - **ESCORT Programmer's Guide**
All of the information on programming in ESCORT is presented in the *ESCORT Programmer's Guide*. The rules and conventions of the language are described and a reference manual conveniently lists all ESCORT commands and functions. Sample programs and utilities are described in detail to help you begin programming as quickly as possible.
- **ESCORT Quick Reference Card and Key Sequence Card**, AT&T publication number 308-389.
The Quick Reference Card is a reference tool to help you remember how to enter and execute an ESCORT script and the correct format for ESCORT commands and functions.

The Key Sequence Card lists the special key sequences used in ESCORT for a standard ASCII terminal. Space is provided to allow you to list your own key sequences should these be amended on your system.

Note that the *ESCORT Installation Diskettes* and *ESCORT Release Notes* are included in the AT&T 3270 Emulator+ documentation package. Refer to this package for information on installing and customizing ESCORT for your system.

Other Available Information

Below is a partial list of other helpful documentation:

- AT&T UNIX System V Release 3.1 User's Reference Manual*, published by AT&T, publication number 307-012.
- User's Guide for your AT&T 3B processor.
- AT&T 3B2 Computer Intelligent Serial Controller Manual*, published by AT&T, publication number 305-531.
- User's Guide for your ASCII terminal.
- User's Guide for your text editor.
- 3278 terminal user's guide.
- VT100 terminal user's guide.
- Basic Network Utilities Guide.

To order AT&T documentation, call the AT&T Customer Information Center at 800-432-6600, or write to the following address:

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