UNISYS

This Library Memo announces the release and availability of the *System 80 OS/3 - UNIX Connectivity Operating Guide*, UP-14207.

This guide is a standard library item (SLI). It is part of the standard library provided automatically with the purchase of the product.

OS/3-UNIX connectivity lets your Operating System/3 (OS/3) and your UNIX operating system communicate with each other to process your data more effectively. There are four ways to achieve this connectivity:

- UNISCOPE® emulation lets you configure terminals on your UNIX system as either terminals or workstations, emulating UNISCOPE devices by:

    - Using the UNIX UNISCOPE Emulator (UE) program product installed on your UNIX operating system

    - Using the UNIX IS/5000 product operating in interactive mode

- The file transfer utility is used to transfer files between the OS/3 distributed data processing facility (DDP) and your UNIX IS/5000

- Remote batch processing (RBP) lets you send jobs and receive output between OS/3 and your UNIX operating system using a bisynchronous communications (BSC) protocol. To Integrated Communications Access Method (ICAM), the UNIX operating system is a 2780/3780 terminal.

- OS/3 UNIX passthrough lets an OS/3 workstation or terminal user access a UNIX operating system application, using the UNIX operating system system access module (UNXSAM) program product

This guide describes each of these four methods, specifies the hardware and software each one requires, and lists the documents Unisys supplies to help you set up and use them.

Additional copies may be ordered through your local Unisys representative.

UNIX is a registered trademark of AT&T Information Systems.
UNISCOPE is a registered trademark of Unisys Corporation.

LIBRARY MEMO ONLY	LIBRARY MEMO AND ATTACHMENTS	THIS SHEET IS
Mailing Lists MBZ, MCZ, MMZ, MDE, MGZ, and MHA	Mailing Lists MBW, MB00, and MB20 (31 pages plus Memo)	Library Memo for UP-14207
		RELEASE DATE: October 1988

UNISYS

System 80
OS/3-UNIX®
Connectivity
Operating Guide

UNiSYS

System 80
OS/3-UNIX®
Connectivity

Operating Guide

PAGE STATUS SUMMARY
ISSUE: UP-14207
RELEASE LEVEL: 12.0 FORWARD

Part/Section	Page Number	Update Level
Cover		
Title Page/Disclaimer		
PSS	iii	
About This Guide	v thru viii	
Contents	ix thru xiii	
1	1 thru 5	
2	1 thru 4	
3	1, 2	
4	1 thru 3	
5	1 thru 3	
User Comments Form		
Back Cover		

Part/Section	Page Number	Update Level

Part/Section	Page Number	Update Level

About This Guide

Purpose

This guide presents an overview of the connectivity process and the four program products that connect your Operating System/3 (OS/3) and your UNIX® operating systems. The discussion offers basic, conceptual information, lists the special hardware and software each system needs for each program product, and directs you to the manuals in which you can find specific information about setting up and using the products.

Scope

This guide describes the four ways to connect your OS/3 and UNIX operating systems:

- UNISCOPE® emulation

- OS/3-UNIX file transfer

- Remote batch processing (RBP)

- OS/3-UNIX operating system passthrough

Audience

This guide is intended for site administrators and workstation or terminal users.

Prerequisites

Anyone using this guide should understand the basic concepts, functionality, and configurations of both OS/3 and your UNIX operating system.

How to Use This Guide

Read the entire guide to familiarize yourself with the basic concepts it presents; then use it for reference as needed.

UNIX is a registered trademark of AT&T Information Systems.
UNISCOPE is a registered trademark of Unisys Corporation.

Organization

This document contains five sections:

Section 1. Introduction

This section explains what OS/3-UNIX connectivity is, lists the software you need to run all the program products, and shows which manuals contain the information necessary to set up and use the four program products that create OS/3-UNIX connectivity.

Section 2. Accessing OS/3 Software from UNIX via UNISCOPE Emulation

This section shows how OS/3 and your UNIX operating system can be connected to allow a device physically connected to one operating system be used by the other; it includes a discussion of both the UNISCOPE Emulation (UE) software, and the IS/5000 used in interactive mode.

Section 3. Transferring Files Between Your OS/3 and UNIX Operating Systems

This section describes the utility that enables OS/3 and UNIX operating system to create, copy, transfer, and remove files between the two systems by pairing UNIX IS/5000 software with OS/3 distributed data processing (DDP) software.

Section 4. Remote Batch Processing (RBP)

This section describes the remote batch processing (RBP) software that enables users of a UNIX operating system to submit batch jobs to System 80 and receive output at remote terminals.

Section 5. Accessing Your UNIX Operating System from OS/3 Via OS/3-UNIX Passthrough (UNXSAM)

This section explains how OS/3-UNIX passthrough causes the OS/3 device to emulate a UNIX device and describes the UNIX operating system system access module (UNXSAM).

Related Product Information

The following Unisys documents may be useful in understanding and implementing OS/3-UNIX connectivity.

Note: *Throughout this guide, when we refer you to another manual, use the version that applies to the software level at your site.*

Distributed Data Processing Programming Guide (UP-8811)

This guide describes distributed data processing (DDP) and explains the DDP transfer facility.

Installation Guide (UP-8839)

This guide describes the SYSGEN process in detail, including the parameters related to a communications environment.

Integrated Communications Access Method (ICAM) Technical Overview (UP-9744)

This overview gives a general overview of ICAM, including a list of utilities Unisys supplies.

Integrated Communications Access Method (ICAM) Operations Guide (UP-9745)

This guide describes how to define an ICAM network, create a communications symbiont, and start up ICAM terminals.

Integrated Communications Access Method (ICAM) Utilities Programming Guide (UP-9748)

This guide describes remote batch processing (RBP) and UNIX operating system system access module (UNXSAM).

Operations Guide (UP-8859)

This guide describes the hardware configuration of each System 80 model, presents procedures for initializing the system, and presents the operator commands.

System Messages Reference Manual (UP-8076)

This reference manual is designed for operators and programmers. It contains a listing of the system messages, with remedial actions or responses if applicable.

OS/3 To UXIX O/S Connectivity System Enhancement, 10.0 SE (UP-11902.6)

This manual describes the OS/3 UNIX O/S Access Module (UNXSAM).

3780 BSC System Enhancement, 10.0 SE (UP-11902.9)

This manual explains 3780 BSC support and explains how it is installed.

OS/3 To UXIX O/S File Transfer System Enhancement, 10.0 SE (UP-11902.5)

This manual describes OS/3 UNIX O/S file transfer, lists the parameters, and explains the changes in ICAM configuration.

Contents

Figures

Tables

Section 1
Introduction

What is OS/3-UNIX Connectivity?

OS/3-UNIX connectivity lets your OS/3 operating system and your UNIX operating system communicate with each other to process your data more effectively.

This connectivity lets you do a number of important things. You can initiate procedures from your UNIX operating system and have them run on OS/3. You can transfer files from one operating system to the other, controlling the transfer from either system. You can initiate batch procedures on OS/3 from either operating system and receive output on printers using either operating system. The UNIX system access module (UNXSAM) lets you access your UNIX operating system from OS/3 as if the workstation or terminal were directly connected to your UNIX operating system.

Unisys offers four different ways to achieve OS/3-UNIX connectivity (see Figure 1-1). Each one is different, so be sure to get the connectivity product that best meets your needs. This guide will discuss each in the following sections.

UNISCOPE
Emulation

File Transfer

Remote Batch
Processing

OS/3 to UNIX
Passthrough

System 5000   System 5000
60/80/90   20/40/50

OS/3
System 80
• Model 3 - 6
• Model 8
• Model 10
• Model 15
• Model 20
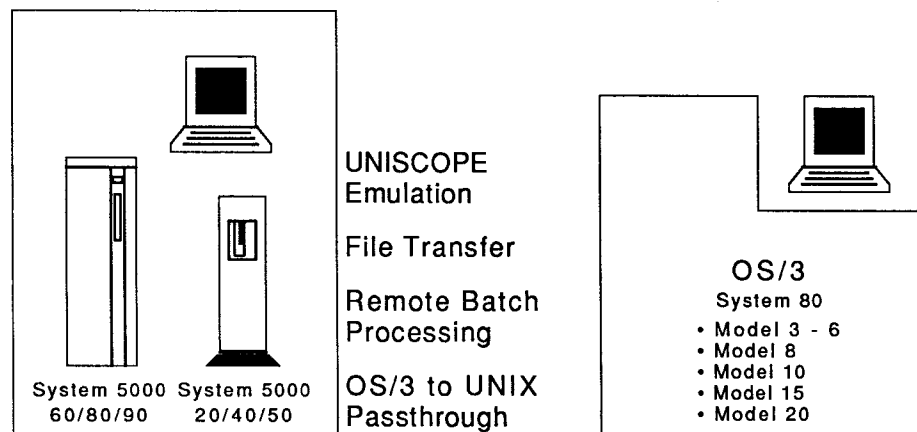
Figure 1-1. The Four Connectivity Methods

Figure 1-2 shows the logical representation of OS/3-UNIX connectivity:

- UNISCOPE emulation lets you configure the terminals on your UNIX system so they appear to OS/3 as either terminals or workstations, emulating UNISCOPE devices. You can do this by:

  - Using the UNIX UNISCOPE Emulator (UE) program product installed on your UNIX operating system.

  - Using the UNIX IS/5000 product operating in interactive mode.

- The file transfer utility is used to transfer files between the OS/3 distributed data processing facility (DDP) and your UNIX IS/5000.

- Remote batch processing (RBP) lets you send jobs and receive output between OS/3 and your UNIX operating system. To ICAM, the UNIX operating system is a 2780/3780 BSC terminal.

- OS/3-UNIX passthrough lets an OS/3 workstation or terminal user access a UNIX operating system application. To use OS/3-UNIX passthrough, you must install the UNIX operating system system access module (UNXSAM) on your OS/3 system.

Notes:

1. *Any standard UNISCOPE terminal or workstation (local or remote) can access your UNIX operating system, but due to terminal/workstation differences, some UNIX applications may not execute properly.*

2. *OS/3 reads all file names as uppercase, regardless of how they are entered. Your UNIX operating system does distinguish between uppercase and lowercase. With it, you could create two files with the same name, one uppercase and one lowercase.*
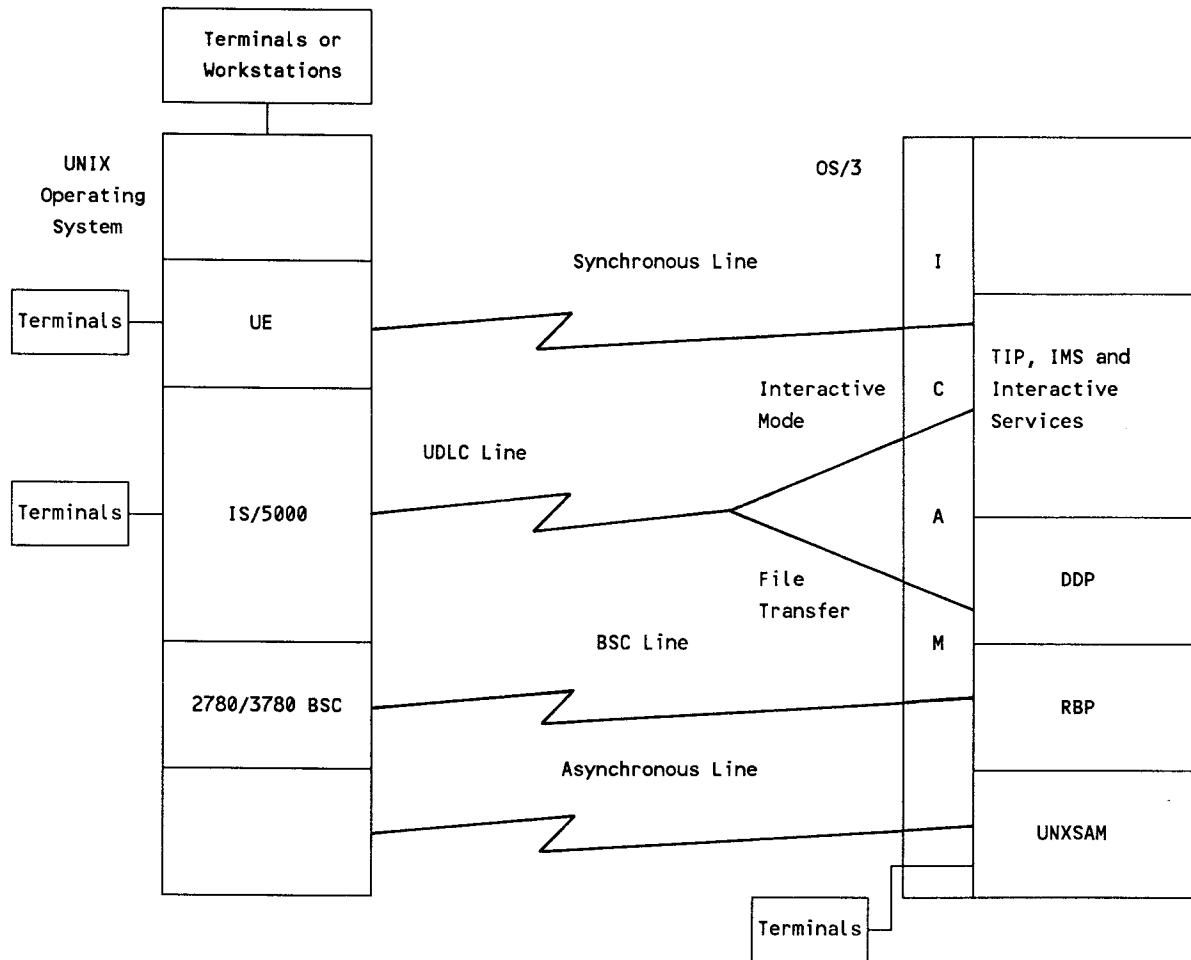
Figure 1-2. The Logical Representation of OS/3-UNIX Connectivity

You need the following software for all four OS/3-UNIX connectivity methods:

- Integrated communications access method (ICAM) terminal support facility, F6231-00

- Extended system software (ESS), F6211-xx

The hardware required for each method varies. It is discussed in the following sections of this guide, and is listed in Table 1-2.

Documentation Summary

Table 1-1 shows the documents Unisys provides to help you set up and use each of the four program products.

Table 1-1. The Documentation for Each Program Product

Program Product	Document Number
UNISCOPE Emulation Software (UE)	UP-9745
UNISCOPE Emulation Using the IS/5000 in Interactive Mode	UP-9745
File Transfer	UP-8811 UP-9744 UP-9745
Remote Batch Processing (RBP)	UP-9745 UP-9748
OS/3-UNIX Passthrough	UP-8076 UP-9745 UP-9748

Hardware and Software Summary

Table 1-2 summarizes the hardware and software requirements for each program product. *As noted earlier in this section, ICAM and ESS are required for all four.*

Table 1-2. Summary of Hardware and Software Requirements

Program Product	OS/3 Hardware	Software	UNIX Hardware	Software
UNISCOPE Emulation				
UE	An SLCA-1 (F2788-02) with a max. speed of 9.6 kb or an SLCA-3 (F2798-06) with a max. speed of 19.2 kb	—	A PCC A multibus adapter for some UNIX systems A synchronous communications line	The UNISCOPE emulation programs
IS/5000 in Interactive Mode	An SLCA-3 (F2798-00) half-duplex, with a max. speed of 4.8 kb	The NRM-UNIX file transfer program product (F8789-00)	—	IS/5000 (F2798-00)
File Transfer	An SLCA-3 (F2798-06) half-duplex, with a max. speed of 4.8 kb	The NRM-UNIX file transfer program product (F8789-00) The DDP transfer facility	—	IS/5000 (F2798-00)
Remote Batch Processing	An SLCA-1 (F2788-02) with a max. speed of 9.6 kb	—	—	A 2780/3780 bisynchronous emulator
OS/3-UNIX Pass-through	An SLCA-2 (F2799-00) full-duplex, with a max. speed of 4.8 kb; the line can be dial up or direct	UNXSAM (F8784-00)	—	—

Section 2
Accessing OS/3 Software from UNIX via UNISCOPE Emulation

Introduction

UNISCOPE emulation lets you configure asynchronous devices attached to your UNIX operating system, such as a PC or video terminal (UVT 1210 and UVT 1220), so they appear to OS/3 as either terminals or workstations, emulating UNISCOPE devices. (A workstation can use system mode, but a terminal cannot. System mode is supported only if the UNISCOPE emulation software version 1R2 is installed.) This enables you to access and use OS/3 facilities, such as:

- Interactive services

- Information Management System (IMS)

- TIP

- User-written STDMCP communications applications programs

Terminals connected to your UNIX operating system are defined to ICAM as UTS 20 terminals.

Notes:

1. *UNISCOPE emulation is not possible on Unisys 7000 family systems.*

2. *The products required to support UNISCOPE emulation on the Unisys 5000 family systems operate only with the Series 5000 UNIX System V Release 2.0 operating system.*

3. *Terminals must be configured as terminals, not as workstations.*

The two ways you can achieve UNISCOPE emulation are:

- Using the UNISCOPE Emulation (UE) software

- Using the IS/5000 in interactive mode

Both program products run on your UNIX operating system.

UNISCOPE Emulation (UE) Software

UNISCOPE emulation (UE) software is valuable to someone who uses both OS/3 and a UNIX operating system heavily.

Because UE emulates a terminal as a UNISCOPE device, you do not need to purchase both. UE provides flexibility because you can use it with other Unisys product lines.

When using UE, you do not need to specify special parameters for ICAM generation. The line can be defined as either a remote workstation or UNISCOPE line.

The two systems must be connected via a synchronous line using UNISCOPE protocol.

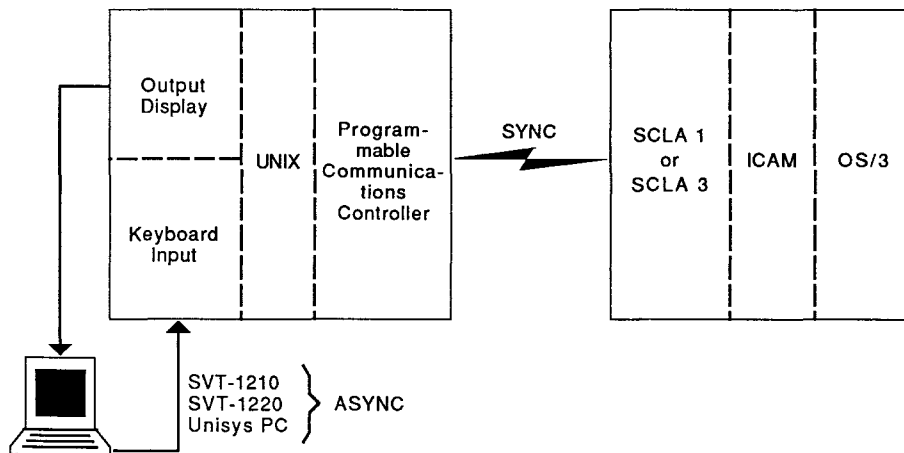Figure 2-1 shows the logical representation of the UNISCOPE emulation using UE software.

Figure 2-1. The Logical Representation of UNISCOPE Emulation Using the UE Software

For more information, see the *Integrated Communications Access Method (ICAM) Operations Guide* (UP-9745).

Software Requirements for UE

Using UE for UNISCOPE emulation requires the following software components:

- Integrated communications access method (ICAM) terminal support facility, F6231-00

- Extended system software (ESS), F6211-xx

- The UNISCOPE emulation software (T7777-01) installed on your UNIX operating system

Hardware Requirements for UE

UE requires the following hardware components:

- A programmable communications controller (PCC) installed on your UNIX operating system (T777-01)

  UNISCOPE emulation changes asynchronous terminal input to your UNIX operating system to synchronous UNISCOPE protocol to OS/3. It similarly converts synchronous input to the UNIX O/S to asynchronous output to the terminal.

  For Series 5000 models 60/80, you can order F4693-99, which includes a multibus adapter (F4704-00) and the PCC (F4693-01).

- A multibus adapter (F4704-00). It is not required for Series 5000 models 60/80.

  The following field change orders (FCOs) are required for proper operation of the multibus adapter.

Model	Serial Number	FCO	
5000/60	1010001 to 1010282	T3106-001	For Feature 4518-00
		T3106-002	For additional feature 4518's
5000/80	2010001 to 3010146	T3108-001	For feature 4518-00
		T3108-002	For additional feature 4518's

- A synchronous communications line connecting your UNIX operating system to a single line communications adapter (SLCA)

- An SLCA-1 (F2788-02) with a maximum line transmission speed of 9.6 kb or an SLCA-3 (F2798-06) with a maximum line transmission speed of 19.2 kb

The IS/5000 in Interactive Mode

Usually, you will use the IS/5000 for transferring files (see Section 3). However, in interactive mode, you can use it for UNISCOPE emulation.

In this case, your systems must be connected through a point-to-point universal data line control (UDLC) line.

No support is provided for system mode.

Software Requirements for IS/5000 in Interactive Mode

Using the IS/5000 for UNISCOPE emulation requires the following software components:

- Integrated communications access method (ICAM) terminal support facility, F6231-00

- Extended system software (ESS), F6211-xx

- The IS/5000 installed on your UNIX operating system

- The NRM-UNIX file transfer program product (F8789-00) installed on your Unisys System 80 host

Hardware Requirements for IS/5000 in Interactive Mode

The IS/5000 requires an SLCA-3 (F2798-00) half-duplex with a maximum line transmission speed of 4.8 kb, installed on a Unisys System 80 host.

Section 3
Transferring Files Between Your OS/3 and UNIX Operating Systems

Introduction

OS/3-UNIX operating system file transfer pairs OS/3 Distributed Data Processing (DDP) with information services (IS/5000) on your UNIX operating system. This enables you to transfer files from your UNIX operating system to OS/3 or from OS/3 to your UNIX operating system.

By entering commands at your OS/3 workstation, system console, or terminal, you can create a file on your UNIX operating system host, copy a file from an OS/3 host to your UNIX operating system host, copy a file from your UNIX operating system host to the same host or to another host in your DDP network, or remove a file from your UNIX operating system host. OS/3-UNIX file transfer is good for transferring large numbers of files.

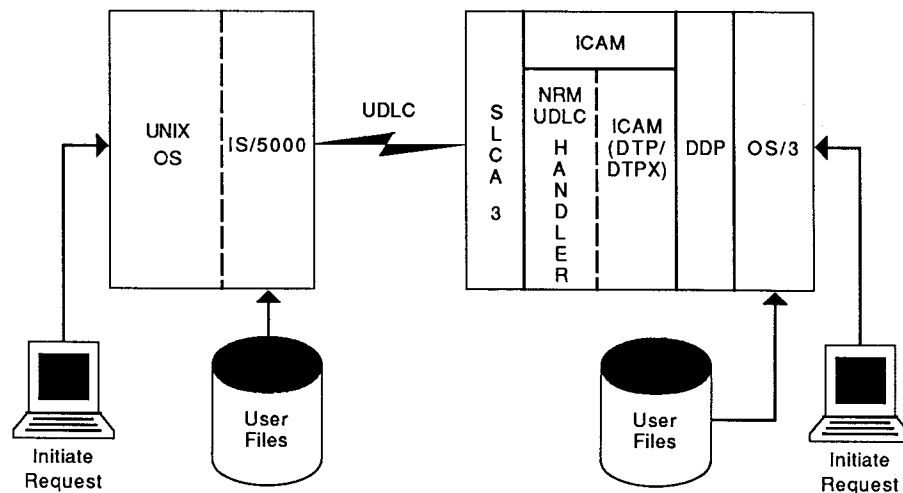Figure 3-1 shows the logical representation of OS/3-UNIX operating system file transfer.

Figure 3-1. OS/3-UNIX File Transfer

Standard DDP commands are available for OS/3-UNIX file transfer. On your UNIX operating system, the data entry looks like the OS/3 type ins. For more information on DDP, refer to *Distributed Data Processing Programming Guide* (UP-8811).

Your UNIX operating system network is defined as a remote host to ICAM across a universal data link control (UDLC)/normal response mode (NRM) remote host.

The systems must be via a point-to-point universal data line control (UDLC) line.

When you use a point-to-point dedicated line, it must be defined as half-duplex (default) and the line speed must not exceed:

- 4800 baud for Series 5000 models 60, 80, and 90

- 9600 baud for Series 5000 models 30, 40, and 50

For more information, see the *Integrated Communications Access Method (ICAM) Operations Guide* (UP-9745), and the *OS/3 System Enhancement OS/3 to UNIX O/S File Transfer* (UP-11902.5).

Software Requirements for File Transfer

OS/3-UNIX operating system file transfer requires the following software components:

- Integrated communications access method (ICAM) terminal support facility, F6231-00

- Extended system software (ESS), F6211-xx

- IS/5000 (F2798-00) on your UNIX operating system

- The NRM - UNIX file transfer program product (F8789-00) on OS/3

- Distributed data processing (DDP) transfer facility on OS/3

Section 4
Remote Batch Processing (RBP)

Introduction

Remote batch processing (RBP) software lets you do the following:

- Initiate jobs from your UNIX operating system and

    - Send output to a printer running OS/3

    - Send output to both a printer running your UNIX operating system and a printer running OS/3

    - Receive output at a printer running your UNIX operating system

    - Receive no output

- Initiate jobs from OS/3 and

    - Send output to a printer running your UNIX operating system

    - Send output to both a printer running your UNIX operating system and a printer running OS/3

You can, of course, still write STDMCP programs to run on the 2780/3780 bisynchronous (BSC) emulator.

Notes:

1. *RBP is not possible on Unisys 5000 models 60 and 80 and 7000 family systems.*

2. *The products required to support RBP on the Unisys 5000 models 20 and 40 family systems operate only with the Series 5000 UNIX System V Release 2.0 operating system.*

Figure 4-1 shows a UNIX system connected to OS/3 with RBP. A synchronous communications line using BSC protocol connects your UNIX operating system to OS/3 by a single line communications adapter (SLCA). To ICAM, the UNIX operating system is 2780/3780 terminal and is an RBP user.
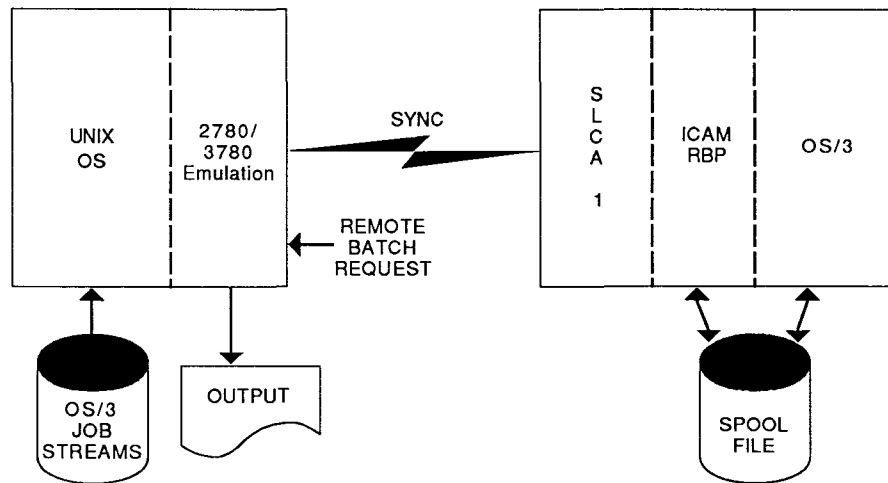
Figure 4-1. Remote Batch Processing from UNIX O/S

Refer to the *Integrated Communications Access Method (ICAM) Utilities Programming Guide* (UP-9748) for information on how to set up and use RBP.

Your UNIX operating system has a powerful command called CHRON that causes a series of actions to occur at a specific time. Teamed with a user-written application, data can be constructed and inserted into an OS/3 job control stream and scheduled for transmission to the System 80 host without operator intervention. Conversely, returned output can be scheduled for printing at a specific time, again without operator intervention.

For more information, see the *Integrated Communications Access Method (ICAM) Operations Guide* (UP-9745), and the *OS/3 System Enhancement 3780 Binary Synchronous Communications (BSC)* (UP-11902.9).

Hardware Requirements for Remote Batch Processing

Remote batch processing requires an SLCA-1 (single line communications adapter, F2788-02) with a maximum line transmission speed of 9.6K baud installed on a Unisys System 80 host.

Note: *Series 5000 models 20/40 require 2780/3780 RJE emulation (T6983-01)*

Software Requirements for Remote Batch Processing

Remote batch processing requires the following software components:

- Integrated communications access method (ICAM) terminal support facility, F6231-00

- Extended system software (ESS), F6211-xx

- A 2780/3780 bisynchronous emulator installed on your UNIX operating system.

OS/3 RBP is already included in the ICAM-TSF program product; you do not need to order it separately.

Section 5
Accessing Your UNIX Operating System from OS/3 via OS/3-UNIX Passthrough (UNXSAM)

Introduction

The first three OS/3-UNIX connectivity items discussed in this manual allow a UNIX based terminal user or operating systems to interact with OS/3 applications and files. UNISCOPE emulation and 2780/3780 bisynchronous (BSC) emulator provide a way to activate and interface with OS/3 applications programs while UNIX file transfer permits files to be transferred in either direction.

These three items primarily use your UNIX operating system and occasionally access OS/3. The OS/3-UNIX passthrough takes the opposite point of view. It allows an OS/3 workstation or terminal user to occasionally use a UNIX operating system application without requiring both a UNISCOPE and asynchronous terminal.

OS/3-UNIX passthrough uses the UNIX operating system system access module (UNXSAM) to:

- Allow a terminal running OS/3 to emulate a terminal running your UNIX operating system

- Allow a terminal running OS/3 to access your UNIX operating system to run shell commands and UNIX applications with a single field entry per transmission (UNIX applications process data one screen line at a time), as if you were directly connected to your UNIX operating system

OS/3 software converts data entered at a terminal or workstation (local or remote) to the necessary protocol acceptable by your UNIX operating system. Conversely, data transmitted from your UNIX operating system is converted into a format acceptable for display on a UNISCOPE type device. The OS/3 device emulates asynchronous UVT 1210 and UVT 1220 terminals. To your UNIX operating system, the OS/3 user appears to be directly connected to its communications port.

Note: *When you use an OS/3 local workstation (UTS/20D, UTS40D, or SVT1122) with UNXSAM, control G does not cause a bell to sound as expected when you use the UVT 1220 or 1210 terminal.*

For more information, see the *Integrated Communications Access Method (ICAM) Operations Guide* (UP-9745), and the *OS/3 System Enhancement OS/3 to UNIX O/S Connectivity* (UP-11902.6).

Figure 5-1 shows the logical representation of OS/3-UNIX passthrough.
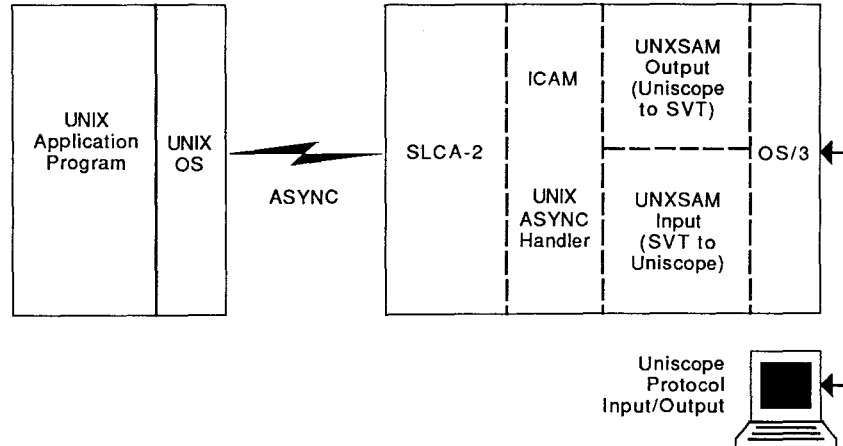
Figure 5-1. The Logical Representation of OS/3-UNIX Passthrough

To use OS/3-UNIX passthrough, log on to Interactive Services and initiate the UNXSAM job control stream. Once connected to your UNIX operating system through UNXSAM and ICAM, your remote terminal or workstation is logically connected to your UNIX operating system and you can log onto your UNIX operating system.

The OS/3 administrator must define the ICAM generation parameters, with one asynchronous line for each concurrent active user; no more than ten users can operate at the same time.

Refer to the *ICAM Utilities Programming Guide* (UP-9748) for information on using UNXSAM. UNXSAM informational and error messages are documented in the *System Messages Reference Manual* (UP-8076).

Hardware Requirements for OS/3-UNIX Passthrough

OS/3-UNIX passthrough requires a SLCA-2 (single line communications adapter, F2799-00), full-duplex, with a maximum speed of 4.8K baud installed on your System 80 host. The line can be either a dial up or direct connect.

Software Requirements for OS/3-UNIX Passthrough

In addition to the software specified in Section 1, OS/3-UNIX passthrough requires UNXSAM (F8784-00), a program product available from Unisys.

A UNIX operating system program product is not needed to run UNXSAM.

UNISYS

USER COMMENTS

We will use your comments to improve subsequent editions.

NOTE: Please do not use this form as an order blank.

_____

(Document Title)

_____   _____   _____

(Document No.)   _(Revision No.)_   _(Update Level)_

Comments:

From:

_____

(Name of User)

_____

(Business Address)

Fold on dotted lines, and mail. (No postage is necessary if mailed in the U.S.A.)
Thank you for your cooperation

FOLD

BUSINESS REPLY MAIL
FIRST CLASS   PERMIT NO. 21   BLUE BELL, PA.

POSTAGE WILL BE PAID BY ADDRESSEE

Unisys Corporation
E/MSG Product Information Development
PO Box 500 — E5-114
Blue Bell, PA 19422-9990

FOLD