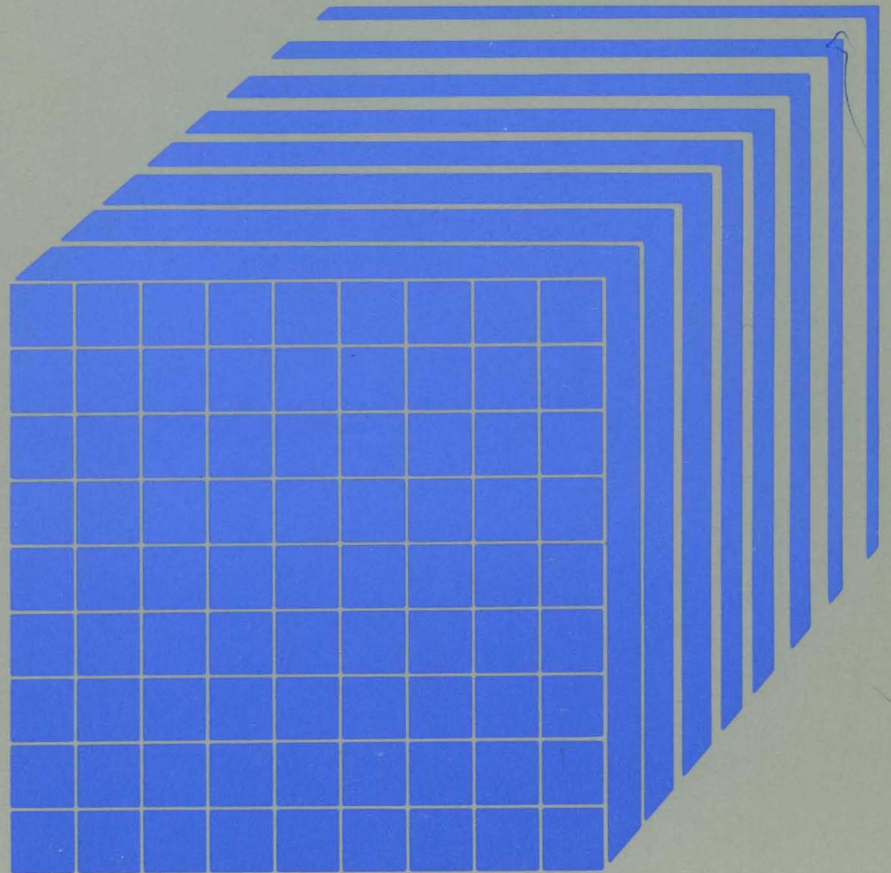




Virtual Machine/
System Product

**Remote Spooling
Communications
Subsystem Networking
General Information**

Program Number 5748-XP1
Release 3

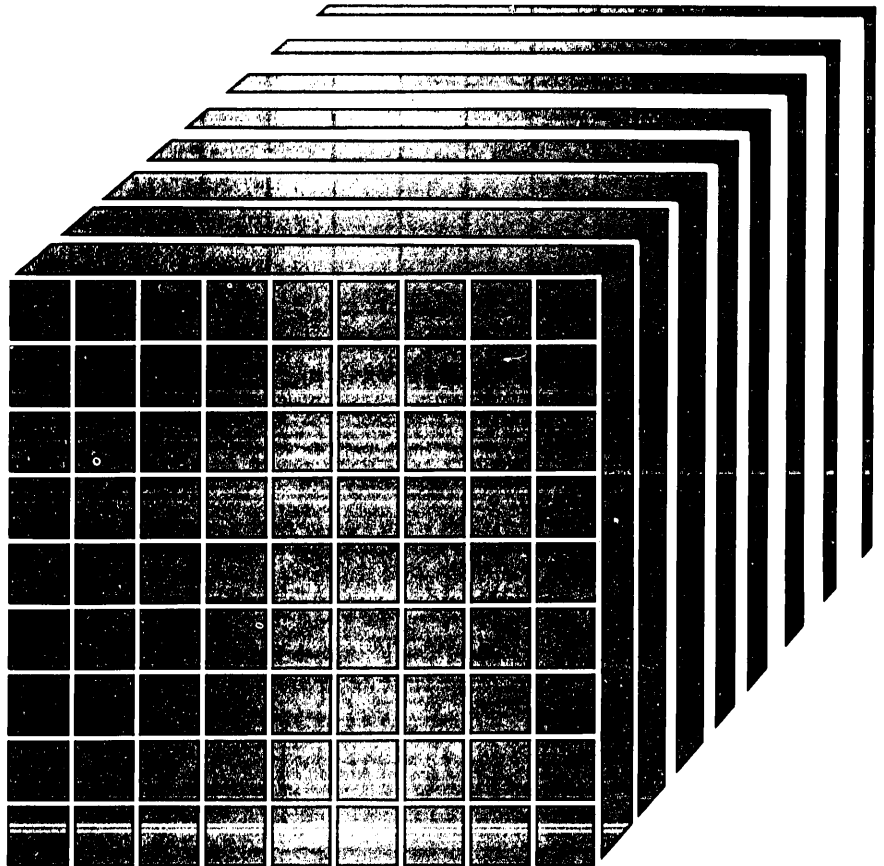




Virtual Machine/
System Product

**Remote Spooling
Communications
Subsystem Networking
General Information**

**Program Number 5748-XP1
Release 3**



Note: Release 3 of the Remote Spooling Communications Subsystem program product can be used with the VM/XA Migration Aid. However, the RSCS capabilities available to the VM/XA Migration Aid user are reduced, compared to those available to the VM/SP user. For details, see Appendix H in the *Remote Spooling Communications Subsystem Networking Program Reference and Operations Manual* (form number SH24-5005-2, with Technical Newsletter SN24-5747 added) before attempting to install RSCS. This appendix describes:

- restrictions that apply to VM/XA users of RSCS, and
- publications that can help VM/XA users to install and operate RSCS.

Fifth Edition (December 1983)

This edition, GH24-5004-4, is a major revision and applies to Release 3 of the Remote Spooling Communications Subsystem Networking program product (program number 5748-XP1) and to subsequent modifications unless otherwise indicated in new editions or Technical Newsletters. Changes are continually made to the information herein; before using this publication in connection with the operation of IBM systems, consult the latest *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, for the editions that are applicable and current.

Changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

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Preface

This publication contains overview and introductory information relative to the Remote Spooling Communications Subsystem Networking program product. It is intended to provide general information about RSCS to installation managers and systems programmers, and data processing managers and executives.

Note: In this manual the term "RSCS" refers to the Remote Spooling Communications Subsystem Networking program product. It does not refer to the Remote Spooling Communications Subsystem component of VM/370. Where these two different programs are discussed together, the difference is made clear. This publication contains six major sections.

1. Introduction
This section shows what the RSCS Networking program product does, and how it differs from the RSCS Component of VM/370.
2. Functional Description
This section shows how RSCS works.
3. Requirements of RSCS
This section describes the resources needed by RSCS, including hardware, operating systems environment and storage.
4. RSCS Program Summary
This section summarizes general information about the RSCS program product.
5. Abbreviations
6. Glossary

Supporting Publications

Supporting publications which are available with the Remote Spooling Communications Subsystem Networking program product follow:

IBM Virtual Machine/System Product:

Remote Spooling Communications Subsystem Networking Specifications, GH24-5003

Remote Spooling Communications Subsystem Networking General Information, SH24-5004

Remote Spooling Communications Subsystem Networking Program Reference and Operations Manual, SH24-5005

Remote Spooling Communications Subsystem Networking Reference Summary (card), SX24-5119

Remote Spooling Communication Subsystem Networking Logic, LY24-5203

[In addition, a loose-leaf binder and an RSCS binder label are available, as form numbers SH24-5129 and SX24-5136, respectively.]

Related Publications

Related publications to which the reader may want to refer are:

For the VM/SP System:

IBM Virtual Machine/System Product:

Introduction, GC19-6200

Planning and System Generation Guide, SC19-6201

System Programmer's Guide, SC19-6203

System Messages and Codes, SC19-6204

Terminal User's Guide, GC19-6206

CMS Command and Macro Reference, SC19-6209

CMS User's Guide, SC19-6210

CP Command Reference for General Users, SC19-6211

For the RSCS Component of VM/370:

IBM Virtual Machine Facility/370: Remote Spooling Communication s Subsystem (RSCS) User's Guide, GC20-1816.

For the Network Job Entry Facility for JES2:

System Programming Library: JES2 Installation, Initialization, and Tuning, SC23-0046

System Programming Library: JES2 User Exits and Macros, SC23-0047

Operator's Library: JES2 Commands, SC23-0048

Operator's Library: JES2 Command Syntax, SX23-0008

For the Network Job Entry Facility for JES3:

JES3 Introduction, GC23-0039

JES3 Overview, SC23-0040

JES3 System Programming Library: Installation, Planning, and Tuning, SC23-0041

JES3 System Programming Library: User Modifications and Macros, SC23-0042

JES3 Logic, LY24-6005

JES3 Operator's Library, SC23-0045

For the VM/Interactive Problem Control System Extension program product:

VM/Interactive Problem Control System Extension General Information, GC34-2019

VM/Interactive Problem Control System Extension User's Guide and Reference, SC34-2020

For VSE/POWER:

VSE/POWER General Information Manual, GH12-5128

VSE/POWER Messages, SH12-5520

VSE/POWER Installation and Operations Guide, SH12-5329

VSE/POWER Reference Summary Local Processing, SH12-5435

VSE/POWER Remote Job Entry User's Guide, SH12-5328

VSE/POWER Reference Summary Remote Processing, SH12-5434

For Telecommunications Terminology:

IBM Data Processing Glossary, GC20-1699

For Nonprogrammable Terminals:

System Components: IBM 2770 Data Communication System, GA27-3013

IBM 2780 Data Transmission Terminal - Component Description, GA27-3005

Operating Procedures Guide: IBM 3774 and 3775 Communication Terminals, GA27-3094

Component Information for the IBM 3780 Data Communication Terminal, GA27-3063

For Spool Multi-leaving Stations:

IBM System/360 and System/370 Attached Support Processor System (ASP) Version 2 Console Operator's Manual, GH20-0321

IBM System/360 and System/370 ASP Version 3 Asymmetric Multiprocessing System Operator's Manual, GH20-1289

OS/VS1 RES Workstation User's Guide, GC28-6879

OS/VS2 HASP II Version 4 System Programmer's Guide, GC27-6992

OS/VS2 HASP II Version 4 Operator's Guide, GC27-6993

IBM System/3 Card System Operator's Guide, GC21-7513

IBM System/32 Operator's Guide, GC21-7591

For 3270 Information Display System Printers:

IBM 3270 Data Stream Programmer's Reference, GA23-0059

IBM 3274 Control Unit Description and Programmer's Guide, GA23-0061

IBM 3276 Control Unit Display Station Description and Programmer's Guide, GA18-2081

IBM 3271 Control Unit, 3272 Control Unit, 3275 Display Station Description and Programmer's Guide, GA23-0060

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Introduction

VM/370 remote spooling is enhanced for the general user by the Remote Spooling Communications Subsystem (RSCS) Networking program product, which provides communication capability for VM/370 systems that require access to other systems in distributed and networking environments. The RSCS Networking program product is a functional superset of both the RSCS Component of VM/370 and the VM/370 Networking PRPQ (5799-ATA). The RSCS Networking program product, using the existing VM/370 spool file system, allows spooling of data between any virtual machine and 2770, 2780, 3770 (except 3772) as a 2770; 3780, 3776 and 3777-1 as a 3780; 3270 Information Display System printers; HASP supported work stations; main processors running HASP, ASP, RES, VSE/POWER, JES2 or JES3; and NJI/NJE nodes running JES2 (NJE), JES3 (NJE), or RSCS Networking.

RSCS is a multi-tasking supervisor supporting multiple concurrent remote spooling operations while running in a single VM/370 virtual machine. It is designed so that a separate task supports the specific characteristics of each remote terminal, workstation, or node attached to the RSCS virtual machine via a teleprocessing line. The RSCS supervisor provides each task with a common access method to the VM/370 spool file system and an Execute Channel Program (EXCP) level interface for I/O to the teleprocessing line.

Printer or punch files that any VM/370 virtual machine user (e.g. a CMS user) wants to have transmitted to a supported remote destination need only be spooled to the RSCS virtual machine with the destination designated via the CP TAG command. The proper task for the remote destination will be initiated and the files will be sent. When RSCS receives a file from a remote connection it produces a VM/370 spool file. The spool file, depending on what was specified by the sending user, may then be forwarded to another remote destination, spooled to the VM/370 system unit record devices, or placed in the virtual reader of a virtual machine identified to the VM/370 system.

Roles Performed by RSCS

RSCS can perform four different communication roles:

- Peer system for NJI/NJE systems
- Remote job entry workstation for BSC host systems
- Host system for programmable terminals
- Host system for nonprogrammable terminals.

These four roles are reflected in Figure 1 on page 3.

RSCS Highlights

The RSCS Networking program product is a superset of both the RSCS Component of VM/370 and the VM/370 Networking PRPQ. Significant new features as compared to the RSCS Component of VM/370 include:

Networking

This product allows VM/370 systems to operate as a full member of an NJI/NJE job network. It includes those functions common to all NJI/NJE compatible systems such as:

- Compatible Network Protocol
- Store and Forward Facilities
- Routing by Means of Destination Tables
- Operator Commands

Simplified and Improved System Operation

Additional operator commands are provided to make it easier for the RSCS operator¹ to control the RSCS virtual machine operations.

A simple EXEC function is provided that allows the RSCS operator to call out frequently used series of commands through one EXEC command.

VM/370 accounting records for each file transmitted or received are maintained.

A dynamic directory is provided that allows the RSCS operator to permanently update the RSCS link and route identifiers without having to re-sysgen RSCS. Operator commands are provided to temporarily modify the link and route identifiers in storage so that changes can be made without having to re-IPL RSCS.

Files or jobs may be submitted through the VM/370 real card reader to RSCS for transmission.

CMS users may send special messages to the RSCS virtual machines requesting RSCS to send messages or commands to other nodes on the network.

Enhanced Coexistence

In addition to being able to communicate with Nonprogrammable Terminals and Programmable Terminals, RSCS can now communicate with VSE/POWER, and can participate in NJI/NJE networks. This allows a VM/370 system running RSCS Networking to coexist and communicate with a diverse number of communications terminals and host systems, as shown in Figure 1 on page 3 .

3270 Information Display System Printer Support

This support extends the spooling capabilities of VM/370 to include the IBM 3270 Information Display System printers. These printers can be either locally attached to the CPU or on a BSC remote cluster.

¹ The RSCS machine can run without operator intervention. The normal and recommended way to run an RSCS virtual machine is to run it disconnected (i.e. with no operator's terminal) and to send RSCS messages to the system operator.

Remote System Nodes	
RSCS is a peer to NJI/NJE Systems:	RSCS is a workstation to BSC Host Systems:
Any system capable of running: RSCS Program Product	Any system capable of running: VSE/POWER Program Product of DOS/VSE RES component of OS/VS1 Release 2 and later
JES2/NJE Program Product	JES2 component of OS/VS2 Release 2 and later
JES3 Networking PRPQ	JES3 component of OS/VS2 HASP II Versions 3.1 or 4 ASP Version 3.2

Remote Station Nodes	
RSCS is a Host to Programmable:	RSCS is a Host to Nonprogrammable:
Any system programmed to provide the MULTI-LEAVING line protocol: System/360 Model 20 and above System/370 Model 115 and above 1130 System/3 Model 6 and above 2922 3277 as a System/360 Model 20 System/32 8100	2770 Data Communication System with the 2772 Multipurpose Control Unit 2780 Data Transmission Terminal Models 1 and 2 3770 Data Communication System in 2770 BSC Mode 3780 Data Communications Terminal 3270 Information Display System Printers

Figure 1. Remote Nodes With Which RSCS Can Communicate

Spooling Enhancements

This support allows the new spool file attributes added to the VM/370 environment in VM/370 Release 6 and in the VM/System Product, to be preserved when files are transmitted between VM/370 nodes or between VM/370 and non-VM/370 NJI/NJE nodes.

The RSCS command language is extended to allow the RSCS operator to change these spool file attributes for any spool file enqueued to the RSCS virtual machine.

Release 3 Highlights

Release 3 RSCS Networking provides the following features in addition to those of previous releases of RSCS Networking:

3800 Networking Enhancements

The use of an IBM 3800 Printing Subsystem on a VM/SP Release 2 system in a networking environment is enhanced by the following facilities in RSCS Release 3:

- *Virtual 3800 support:* RSCS supports the networking and transmission of virtual 3800 printer files, created on one VM/SP system, to another VM/SP system for printing. These files may be transmitted through intermediate VM/SP systems that are using Release 3 of RSCS, or through JES2/NJE systems.
- *Extended 3800 support:* RSCS now accepts for printing on a VM/SP Release 2 system 3800 print files that were created on a non-VM/370 NJI/NJE system, and which have multiple Character Arrangement Tables specified, and which contain print control and table reference character bytes preceding each data record.

Authorized Operator

The RSCS virtual machine or individual links can now be controlled by an authorized operator on another virtual machine or at another node in the network. This permits greater user flexibility in operating an RSCS network.

For example, since an authorized operator can now be specified for a particular link, an output-only workstation (such as an IBM 3270 Information Display System printer) can be controlled by someone other than the RSCS central operator. This permits use of a terminal to control a nearby workstation printer, both of which can be at a location that is remote from the central operator.

Workstation Printer Form Control

An RSCS central operator (or an authorized operator) can now specify which print spool files, based on their form name, are to be printed on a particular remote workstation printer. The form name can be either selected manually for each type of form to be printed, or selected automatically by RSCS as a function of the files in the queue for a particular link. Special form set up and alignment are provided for, as with local forms control of VM/SP.

Interactive Problem Control System (IPCS)

RSCS Networking can now utilize features of VM/Interactive Problem Control System Extension, an IBM program product. IPCS provides an interactive on-line facility for reporting and diagnosing program failures and for managing problem information and status. This expedites and reduces the cost of obtaining program servicing for RSCS. Utilizing the IPCS support, the user can:

- Create automatically IPCS problem reports from a VMDUMP of the RSCS virtual machine.
- Use IPCS APAR creation and status tracking facilities with the problem reports.

- Use general IPCS and specific RSCS subsystem commands to interactively analyze a VMDUMP of the RSCS virtual machine.
- Use the IPCS HELP facilities to list RSCS subsystem commands and their parameters and options.

Extended Log

To aid in resolving problems related to communications links, the capability of the RSCS TRACE command has been extended to print details of each transmission that takes place over the link, including (optionally) the entire contents of the data buffer. You can also optionally specify that the log output be routed to another user or node.

Elimination of CP Message Headers

You can now specify that RSCS is to use the CP MSGNOH command to improve the readability of RSCS messages, by eliminating blank lines and CP message headers, sent to a user on a local system.

Advantages and Potential Uses

This product is valuable to the customer who has a need to have VM/370 communicate with remote job entry workstations, or with other IBM systems in distributed and networking environments. This capability assists users who have a requirement to direct work to systems other than the one on which the jobs are entered. Some of the reasons for such a requirement are:

- The required application program may be resident on another system.
- The required data sets may be available only on another system.
- Special configurations may be required.
- A special output device may be required.
- A need to execute the job on the system with the shortest work queue.

RSCS satisfies this need by providing Remote Job Entry into a VM/370 system, by allowing VM/370 to be a remote job workstation to a BSC Host system, and by making it possible for a VM/370 system to participate in a network of computer systems that support the NJI/NJE protocol.

Distributed Data Processing

As VM/370 systems are utilized for distribution of processing to remote locations, the role of RSCS as a peer is expanded to incorporate host-to-node system relationships. As such, RSCS can provide communication capabilities from an RSCS system to another RSCS system (or other system utilizing NJI/NJE protocols) for:

- transmission of programs
- transmission of data
- transmission of messages and commands.

When utilized in conjunction with the programmable operator facilities of VM/SP and the VM/Pass-Through Facility program product, RSCS can be used for the remote operation and control of multiple VM/370 systems from a central site.

Customer Responsibilities

The customer is responsible for installing this program product. The customer is responsible for understanding the user interfaces to the systems and communications terminals that he wants to communicate with and telling his users of these interfaces. The customer is responsible for assuring that all teleprocessing linkages are properly set up and is responsible for properly identifying links and routes to this program.

The VM/XA Migration Aid partially supports Release 3 of RSCS. Note, however, that the RSCS capabilities available to the VM/XA Migration Aid user are reduced, compared to those available to the VM/SP user. Customers who use the VM/XA Migration Aid are responsible for understanding these reduced capabilities, and should read Appendix H in the *Remote Spooling Communications Subsystem Networking Program Reference and Operations Manual* (form number SH24-5005-2, with Technical Newsletter SN24-5747 added) before attempting to install RSCS. This appendix describes:

- restrictions that apply to VM/XA users of RSCS, and
- publications that can help VM/XA users to install and operate RSCS.

Functional Description

RSCS is an Operating System

RSCS is a single-purpose operating system for a virtual machine, designed for communication in distributed and networking environments, and dedicated to:

- Accepting files spooled to it and transmitting these files to the destination specified by the files' submitters.
- Accepting files transmitted to it and either spooling them to appropriate local VM/370 users or transmitting them to the destination specified by the files' submitters.

Transmission is via binary synchronous communication lines or channel-to-channel adapters. Telecommunications facilities must be attached to the RSCS virtual machine either permanently or temporarily.

Once RSCS has been initialized, the RSCS operator may disconnect this console and run RSCS in disconnected mode. RSCS operates normally without regular operator intervention.

Components of RSCS

RSCS consists of a multitasking supervisor, system control tasks, and line driver tasks. Figure 2 shows these major components.

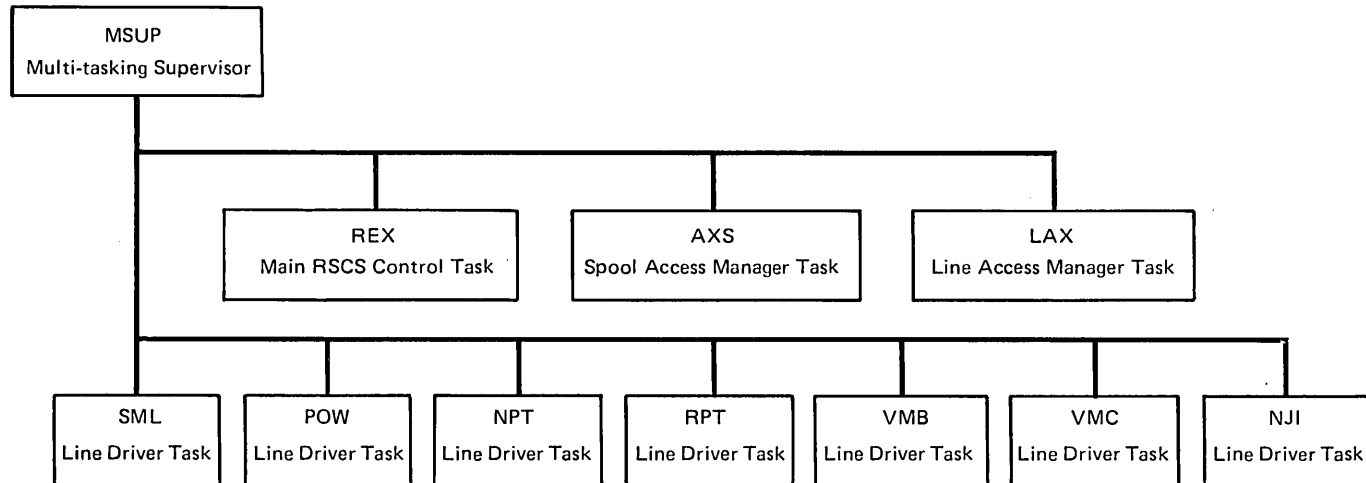


Figure 2. Components of RSCS

RSCS Supervisor

The RSCS supervisor (MSUP) supports multiple RSCS control tasks and line driver tasks that may be active at any one time. This supervision involves multitask dispatching, devices used by RSCS, and management of virtual storage for each task.

RSCS Control Tasks

The RSCS control tasks (REX,AXS,LAX) provide communication with the RSCS operator and common services to the line driver tasks. These services include command execution, message distribution, program check handling, VM/370 spool system interface, and communication line allocation.

RSCS Line Drivers

Each line driver task manages the transmission of files to and from a single remote node and provides a communication link for remote operator commands. Because of functional and hardware differences in remote system and terminal equipment, each line driver is written to support a specific class of remote node (See Figure 3).

RSCS manages communication lines concurrently for a number of remote nodes of the various supported types; the number depends on the virtual storage size of the RSCS virtual machine.

Line Driver Designation	Type of Communication
SML	VM/370 to programmable remote stations via binary synchronous lines (using the spool MULTI-LEAVING communication technique). VM/370 workstation to RES, JES2, JES3, HASPII, and ASP BSC host systems via binary synchronous lines.
POW	VM/370 workstation to VSE/POWER host systems via binary synchronous lines.
NPT	VM/370 to nonprogrammable terminals via binary synchronous lines.
VMB	VM/370 to VM/370 via binary synchronous lines.
VMC	VM/370 to VM/370 via channel-to-channel adapters.
NJI	VM/370 to non-VM/370 NJI/NJE systems via binary synchronous lines or channel-to-channel adapters.
RPT	VM/370 to 3270 Information Display System printers locally attached to the CPU or on a BSC remote cluster.

Figure 3. RSCS Line Drivers and Their Roles

How RSCS Works

Figure 4 on page 9 is an overview of RSCS operations in a simple network. (Not all network nodes must be VM/370 RSCS nodes; this figure simply shows types of operations that RSCS supports).

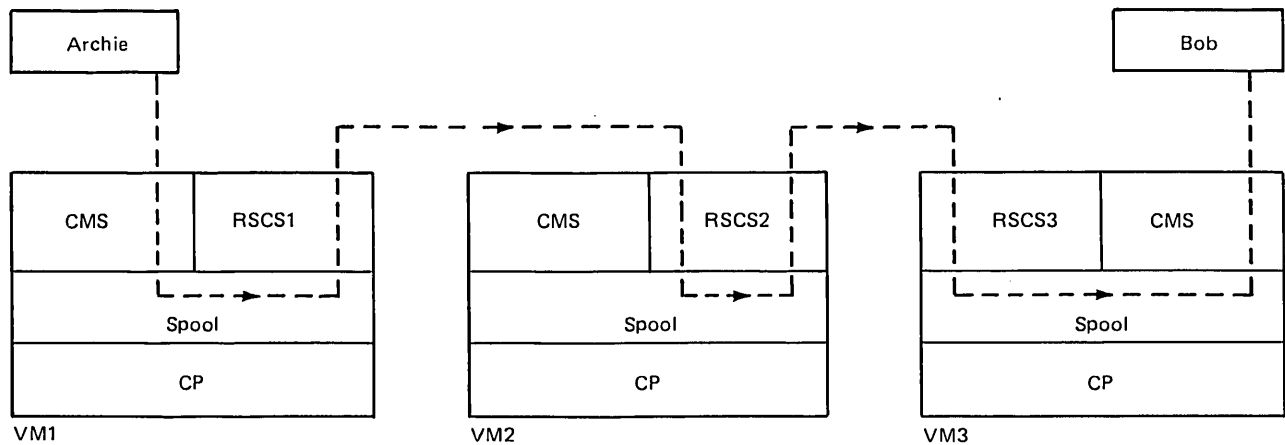


Figure 4. RSCS File Handling Example

User Archie on the CMS system at VM1 sends file PLANXYZ SCRIPT to user Bob on the CMS system at VM3 by issuing the commands:

```
SPOOL PUNCH TO RSCS1
TAG DEV PUNCH VM3 BOB
PUNCH PLANXYZ SCRIPT
```

VM1's CP spools Archie's virtual punch output to RSCS1. RSCS1 may have any number of links to the other network nodes, but it has locally-specified tables that indicate that files for VM3 are to go through VM2. RSCS1 sends the spool file, including its destination information, to VM2. RSCS2 on VM2 receives the file, stores it by spooling it to its own userid, and then forwards it to VM3. RSCS3 at VM3 recognizes that the file is for its own location and spools it to userid Bob.

RSCS Directory

RSCS's primary file is its directory, which defines the local RSCS subsystem and its view of the network in which it participates. The RSCS directory is a CMS file, maintained on disk, so that changes in network definition can be made easily by the RSCS operator or the RSCS system programmer.

Spool File Tags

Each VM/370 output spool file contains an information field called the spool file tag. At the point of origin, the submitter (typically a VM/370 user operating a CMS virtual machine) specifies the file's destination location in the spool file tag. The submitter can also specify the file's transmission priority on a scale of 0 - 99, with 50 as the default.

To transmit a file, the submitter issues a command that causes the output from the originating device to be given to RSCS. Then, RSCS (not the submitter) determines how the file is to be routed to the specified destination. The submitter receives a message indicating every move of a file from one node to another on the way to its destination.

Network Nodes

A node is a remote station or a remote system connected to RSCS, either directly or indirectly. For example, in Figure 4 on page 9, node VM3 is directly connected to node VM2 and indirectly connected to node VM1; nodes VM2 and VM3 are remote systems with respect to node VM1. Every node in the network is assigned a unique name. (The name is a one- to eight-character alphanumeric location identification, such as HOUSTON, DEPT14, BLDG76, ACCNTNG, or FLOOR1).

Communication Links

A link is the transmission path between the local RSCS virtual machine and any directly connected (adjacent) node in the network. A link definition consists of the remote node's name and other information about the transmission path, such as the type of line driver to be used and the class(es) of files that may be transmitted on the link. Link definitions are maintained in each RSCS machine's directory, and provide the basis for the tables that RSCS uses to route files.

RSCS uses two tables in routing files: the link table, which specifies the link to each adjacent node in the network, and the routing table, which specifies the next link that a file is to use to reach a destination node not adjacent to the local system.

When presented with a file (from either a local VM/370 user or a remote node in the network), RSCS checks the node name in the file's tag to see if the file is for the local node. If the file is for the local node, RSCS transfers it accordingly within the local VM/370 system. If the file is destined for some other node, RSCS searches its link table (and routing table, if necessary) to find the node name that matches the node name specified in the file's tag. RSCS then uses the associated link definition to begin transmission.

Once transmission of a file from one system to another has been completed, the receiving system is responsible for the integrity and recovery of the file in the event of a network or system failure. This is done via the system's spool file facility, thus utilizing each system's provisions for integrity and recovery.

Remote Stations

A remote station in RSCS context is any workstation on the other end of the link with the RSCS virtual machine. RSCS supports both programmable and nonprogrammable workstations, as indicated in Figure 1 on page 3. Nonprogrammable workstations, such as the IBM 2780, are hard-wired to provide the line protocol for them to function as remote stations.

Programmable workstations, such as the IBM System/3 and System/370, are processing systems with attached binary synchronous communications (BSC) adapters. These systems must be programmed to provide the MULTI-LEAVING line protocol necessary for their I/O devices to act as remote stations. This programming support is provided by a Remote Terminal Processor (RTP) program generated according to HASP workstation protocol and tailored to the system's hardware configuration. Some programmable workstations, like the System/3, can only be programmed to function as remote terminals. Others, like the System/360 and System/370, can function either as remote terminals or as host batch systems using RSCS as a remote job entry workstation.

Remote Systems

A remote system in RSCS context is any NJI/NJE system or BSC Host system as listed in Figure 1 on page 3. RSCS appears as a peer to NJI/NJE systems. RSCS appears as a remote job entry workstation to a BSC Host system.

Requirements of RSCS

RSCS's requirements for programming systems, auxiliary storage, and hardware products are as follows:

Programming Systems

RSCS runs in a single virtual machine as a telecommunications subsystem for the VM/370 system, and uses the VM/370 spooling facility. It requires a standard VM/370 virtual machine with telecommunications facilities attached to that virtual machine. Normal operation can be conducted without operator intervention and RSCS can be run disconnected.

RSCS is designed for, and uses, VM/System Product (VM/SP). (For RSCS Release 3, the Extended 3800 portion of the 3800 printer enhancements requires Release 2 of VM/SP, but the remainder of the new functions listed in "Release 3 Highlights" will run with Release 1 of VM/SP). In addition, the RSCS support of IPCS requires the latest level of the VM/Interactive Problem Control System Extension (IPCS) program product.

Auxiliary Storage

Adequate CMS formatted disk space must be provided to contain the RSCS system disk, the RSCS text staging area, and the RSCS source staging area. The approximate amount of DASD space required is shown in the following table:

DASD	System Disk	Base Text Staging Area	Base Source Staging Area
2314	6 cylinders	7 cylinders	67 cylinders
3330	3 cylinders	4 cylinders	35 cylinders
3340	8 cylinders	9 cylinders	98 cylinders
3375	3 cylinders	3 cylinders	26 cylinders
3350/3380	2 cylinders	3 cylinders	18 cylinders
3310/3370	1536 blocks	1792 blocks	14592 blocks

Virtual Storage

RSCS adapts to a virtual storage size of 384K or greater.

Processors and Real Storage

RSCS runs on any processor supported by VM/370 Release 6. The processor must meet the minimum real storage requirements defined by VM/370 Release 6.

Remote Nodes

RSCS's main function is to communicate with remote nodes across telecommunication facilities in binary synchronous mode, and across channel-to-channel adapters. All support for the communication is within the RSCS virtual machine. RSCS can communicate with the remote nodes listed in Figure 1 on page 3.

Compatibility

If an installation wants to run RSCS Networking and the RSCS Component of VM/370 concurrently, care must be taken to isolate the installation and maintenance files of these systems on separate user disks. Module names, libraries, and update procedures are, for the most part, identical. Therefore, if these systems' DASD areas are not kept separate, the results are unpredictable.

Files can be successfully transmitted from an RSCS Release 2 system to a Release 3 system. However, when files are transmitted from an RSCS Release 3 system to either a Release 2 system or an RSCS Release 3 system that is running on VM/SP Release 1, any of the new spool file attributes that may be present will be lost. Virtual 3800 files cannot be successfully transmitted to an RSCS Release 2 system.

RSCS Program Summary

Program Number

5748-XP1

Description

RSCS is a single-purpose operating system for a virtual machine, designed for communication in distributed and networking environments, and dedicated to:

Accepting files spooled to it and transmitting these files to destinations specified by the files' submitters.

Accepting files transmitted to it and either spooling them to appropriate local VM/370 users or transmitting them to the destination specified by the files' submitters.

Transmission is via binary synchronous communication lines or channel-to-channel adapters. Telecommunications facilities must be attached to the RSCS virtual machine either permanently or temporarily.

RSCS runs in a single virtual machine as a telecommunications subsystem for the VM/370 system, and uses the VM/370 spooling facility. It requires a standard VM/370 virtual machine with telecommunications facilities attached to that virtual machine. Normal operation can be conducted without operator intervention and RSCS can be run disconnected.

Testing Period

The testing period is one month.

License

A separate license is required for each designated machine on which the licensed program materials will be used except as otherwise provided by IBM.

Program Services

Central Service will be available until discontinued by IBM upon six months written notice. Local Service is available on a per call basis at an hourly charge or under a separate Software-Service contract.

Warranty

The Remote Spooling Communications Subsystem Networking program product is warranted to conform to its Licensed Program Specification when shipped to the customer if properly used in the Specified Operating Environment.

Licensed Program Specifications may be updated from time to time and such updates may constitute a change in specifications.

Following the discontinuance of all program services, this program will be distributed on an AS IS basis without warranty of any kind either express or implied.

Note: Any other documentation with respect to this licensed program, including this manual and any documentation referenced herein, is provided for information purposes only and does not extend or modify the Licensed Program Specification.

Availability of Licensed Program

The Release 3 estimated availability date at PID (Program Information Department) is June, 1982. Estimated availability at EPL (European Program Library) and other WT area Program Libraries is one month later.

Note: IBM does not represent or warrant that the estimated availability dates will be met.

Abbreviations

The abbreviations used in this manual are:

ASP	Asymmetric Multiprocessing System	NPT	Nonprogrammable Terminal
BSC	Binary Synchronous Communication	OS	Operating System
CMS	Conversational Monitor System	OS/VS1	Operating System/Virtual Storage 1
CP	Control Program (in VM/370)	OS/VS2	Operating System/Virtual Storage 2
DASD	Direct Access Storage Device	PRPQ	Programming Request for Price Quotation
DOS/VSE	Disk Operating System/Virtual Storage Extended	RES	Remote Entry System
HASP	Houston Automatic Spooling System	RJE	Remote Job Entry
I/O	Input/Output	RSCS	Remote Spooling Communications Subsystem
IPL	Initial Program Load	RTP	Remote Terminal Processor
JES	Job Entry Subsystem	SCP	System Control Program
MVS	Multiple Virtual Storage	SIO	Start Input/Output
NJE	Network Job Entry	SML	Spool MULTI-LEAVING
NJI	Network Job Interface	SVS	Single Virtual Storage
		VSE/POWER	Virtual Storage Extended/Priority Output Writers, Execution Processors, and Input Readers

Glossary

asymmetric multiprocessing system (ASP). An extension to the IBM System/360 Operating System that provides increased automation of computer operations for large-scale data processing installations. See also JES3.

binary synchronous communications (BSC). Data transmission in which synchronization of characters is controlled by timing signals generated at the sending and receiving stations.

command. A request from a terminal for the performance of an operation or the execution of a particular program.

distributed data processing. Data processing in which processing, storage, and control functions, in addition to input and output operations, are distributed among remote locations.

facility. A service provided by an operating system, for a particular purpose.

host system. (1) A data processing system that is used to prepare programs and the operating environments for use on another computer or controller.

(2) The data processing system to which a communication system is connected and with which the system can communicate.

Houston automatic spooling program (HASP). A computer program that provides supplementary job management, and task management functions such as control of job flow, ordering tasks, and spooling. See also JES2.

input stream. The sequence of job control statements and data submitted to an operating system on an input unit especially activated for this purpose by the operator. Synonymous with input job stream, job input stream.

JES2. A functional extension of the HASP II program that receives jobs into the system and processes all output data produced by the job.

JES3. A functional extension of the ASP program that receives jobs into the system and processes all output data produced by the job.

job entry subsystem (JES). A system facility for spooling, job queuing, and managing I/O. See also JES2, JES3.

line control. The scheme of operating procedures and control signals by which a telecommunication system is controlled.

multiple virtual storage (MVS). An alternative name for OS/VS2, release 2.

MULTI-LEAVING. Fully synchronized two-directional transmission of a variable number of data streams between terminals and a computer using BSC facilities.

network job entry facility (NJE). A functional extension of JES2 that receives jobs into the system and processes all output data produced by the job.

OS/VS1. A virtual storage operating system that is an extension to OS/MFT.

OS/VS2. A virtual storage operating system that is an extension to OS/MVT.

remote entry services (RES). In OS/VS1, the set of functions added to the job entry subsystem that allows jobs and their associated data to be entered from remote devices, processed at the central system, and then transmitted back to remote devices.

remote job entry (RJE). Submission of a job through an input unit that has access to a computer through a data link.

remote spooling communication subsystem (RSCS). A virtual machine subsystem of VM/370 that transfers spool files between VM/370 users, remote stations, and remote and local batch systems via HASP-compatible telecommunication facilities.

remote terminal. A terminal attached to a system through a data link.

spooling (simultaneous peripheral operations online). (1) The use of auxiliary storage as a buffer storage to reduce processing delays when transferring data between peripheral equipment and the processors of a computer.

(2) Synonymous with concurrent peripheral operations.

virtual machine. In VM/370, a functional equivalent of an IBM System 370 computing system. Each virtual machine is controlled by a suitable operating system. VM/370 controls the concurrent execution of multiple virtual machines on a single system/370.

workstation. One or more input/output devices from which jobs can be submitted to a host system for processing or to which completed jobs can be returned.



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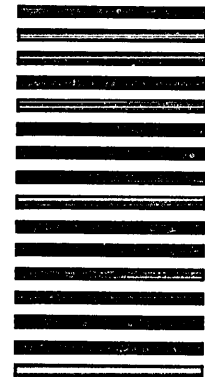


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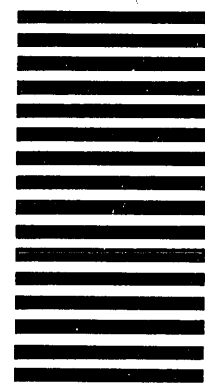
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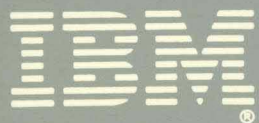
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