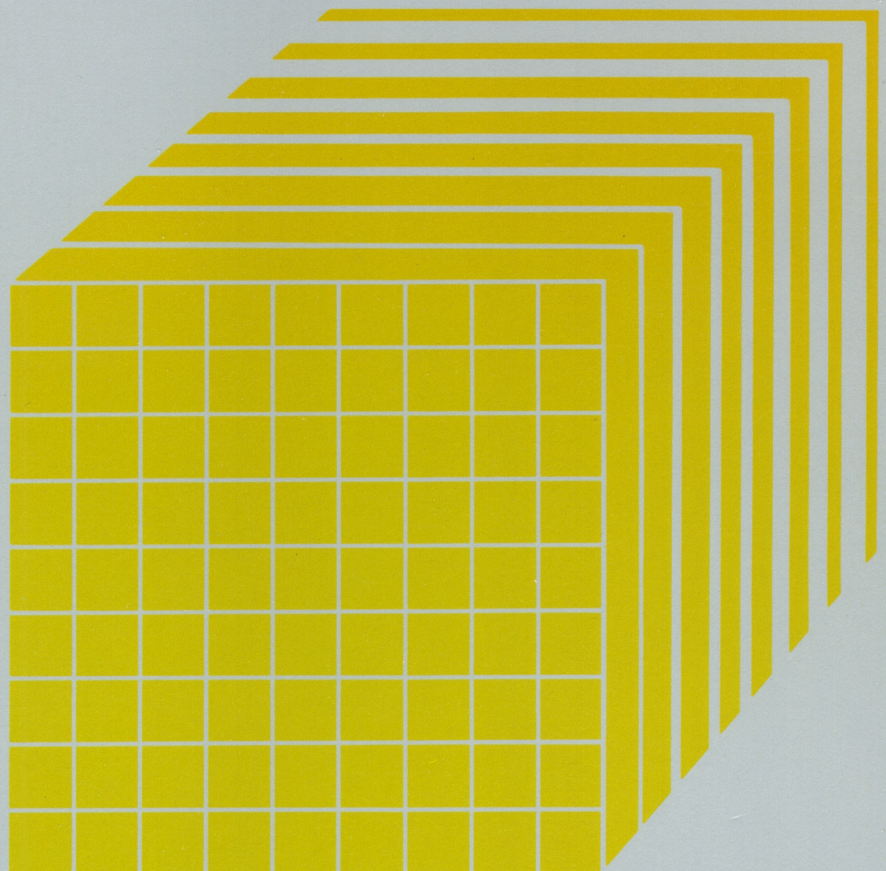




Virtual Machine/
System Product

**Remote Spooling
Communications
Subsystem Networking
Program Reference
and Operations Manual**

SH24-5005-2





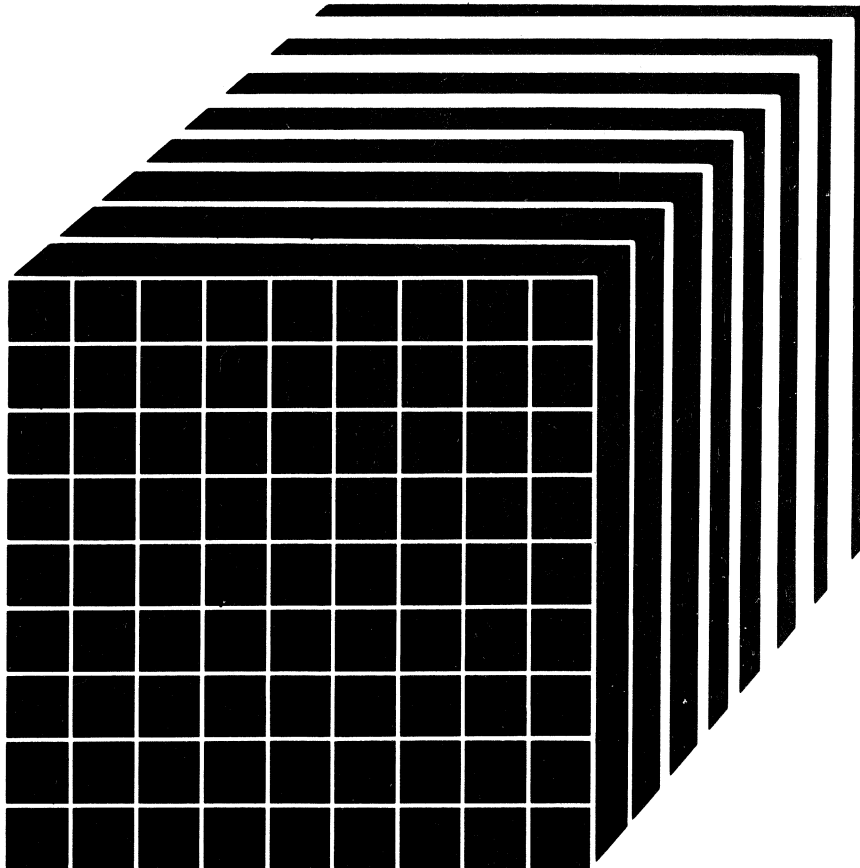
Virtual Machine/
System Product

**Remote Spooling
Communications
Subsystem Networking
Program Reference
and Operations Manual**

Program Number 5748-XP1

Release 3

SH24-5005-2



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 this manual before attempting to install RSCS. Appendix H describes:

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

Third Edition (April, 1982)

This edition, with Technical Newsletter SN24-5747-1 added, applies to Release 3 of Remote Spooling Communications Subsystem Networking program product (Program Number 5748-XP1) and to all subsequent versions and modifications until otherwise indicated in new editions or Technical Newsletters. It is a major revision of, and supercedes, SH24-5005-1.

Information in this publication is subject to change. Any such changes will be published in new editions or technical newsletters. Before using this publication in connection with the operation of IBM systems, consult the latest IBM System/370 and 4300 Processors Bibliography, GC20-0001, and the Technical Newsletters that amend that Bibliography, for the editions and Technical Newsletters that are applicable and current.

The Program Product described in this manual, and all licensed materials available for it, are provided by IBM under the terms of the License Agreement for IBM Program Products. Your local IBM office can advise you regarding the ordering procedures.

Summary of Changes

See page iii for a detailed list of changes made in this edition.

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

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Summary of Changes
for SH24-5005-2
RSCS Networking Release 3
Updated by Technical Newsletter SN24-5747-1

This edition documents support of RSCS Networking, Release 3, by the VM/XA Migration Aid. The support includes Appendix H, which describes:

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

Summary of Changes
for SH24-5005-2
RSCS Networking Release 3

This edition documents support included in RSCS Networking, Release 3. The support includes the following:

- Allowing virtual 3800 files that were created on a VM/SP system to be transmitted to another VM/SP system for printing. Transmission may be through either intermediate JES2/NJE or VSE/POWER Version 2 systems, or VM/SP systems that are using Release 3 of RSCS.
- Accepting for printing, on VM/SP Release 2, 3800 print files that were created on a non-VM/370 NJI/NJE system.
- Control of the RSCS virtual machine or of individual links is now permitted to an authorized alternative operator on another virtual machine or at another node in the network.
- An RSCS operator can now specify which print spool files, based on their form name, are to be printed on a particular remote workstation printer.
- The RSCS TRACE command has been extended to print details of each transmission over a link, including (optionally) the entire contents of the data buffer. Trace output can be routed to another virtual machine or remote system.
- RSCS can now use the CP MSGNOH command when sending messages to users. This improves message readability by eliminating blank lines and CP MESSAGE command headers.
- The maximum transmission buffer size for the DMTVMB line driver has been increased to 4072 bytes.
- RSCS now allows overprinting on those 3270 Information Display System Printers and control units that support the CR (carriage return) order.
- RSCS now allows a CP VMDUMP command to be issued in case of an RSCS failure.

In addition, in this publication:

- "Part 2: Installation" has been substantially revised to reflect significant changes in the RSCS installation procedure, including the installation of the VM/Interactive Problem Control System Extension program product,
- message destination keys have been included, when appropriate, in the discussion of the individual messages, and
- a number of other editorial changes have been made to increase the usability of this manual.

**Summary of Changes
for SH24-5005-1
RSCS Networking Release 2**

This edition documents support included in RSCS Networking, Release 2. The support includes the following:

- A new networking line driver, DMTRPT, extends the VM/370 spooling capabilities to support the IBM 3270 Information Display System printers. These are the IBM 3284, 3286, 3287, 3288, 3289, and the IBM 3262, Models 3 and 13 Printers (when appropriately attached to the IBM 3271, 3272, 3274, and 3276 control units). Features supported include Data Analysis-APL, APL/Text, and Vertical Forms Control.
- Use of the IBM 3380 DASD as an RSCS system disk.
- Allowing FORM and 3800 printer spool file attributes, and LOAD FCB, FOLD, and UNFOLD CCWs for 3211 print files to be transmitted between a VM/370 node and either another VM/370 node or a non-VM/370 NJI/NJE node, and to allow querying and modifying the spool file attributes.
- A new keyword has been added to the workstation SIGNON card for the DMTNPT line driver to allow suppressing the header page.
- The maximum buffer size for the DMTNJI line driver has been increased to 3976 bytes.

In addition, in this publication:

- A new installation procedure is described, and
- A new appendix has been added that describes user exits in RSCS Networking.

| This publication is for the VM/SP system programmer installing the Remote Spooling Communications Subsystem Networking program product (called RSCS in this manual), the RSCS operator, and the VM/SP virtual machine user who is using RSCS. It describes:

- The characteristics and components of RSCS
- How to install RSCS
- How to operate RSCS
- | • How a VM/SP virtual machine user uses RSCS.

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.

The publication contains five major parts.

Part 1: Introduction contains two sections:

"RSCS Overview" describes the requirements of RSCS and operation of a VM/SP virtual machine using RSCS as the operating system.

"Components of RSCS" describes the functions and relationships of the major components of RSCS.

Part 2: RSCS Installation contains three sections:

"Preparing VM/SP For RSCS" describes the VM/SP requirements for RSCS and how to define them.

"Installing RSCS" describes the RSCS data and control files on the distribution tape and illustrates the steps for actually installing RSCS on a VM/SP system.

"The RSCS Directory" describes the definition of the RSCS virtual machine's view of its place in an RSCS network.

Part 3: RSCS Operation contains two sections:

"Operation Description" discusses general operation, the operator commands, and the operator messages.

"Operation Procedures" describes how to start, stop, change, and control RSCS.

Part 4: VM/SP User Guide explains the commands and messages available to the VM/SP user who uses RSCS.

Part 5: Appendixes contains the appendixes:

"Appendix A: RSCS Commands" describes in detail the commands available to the RSCS operator. The subset of those commands available to the remote station operator and the general RSCS system user is also identified.

"Appendix B: RSCS Messages" describes all the RSCS messages and lists all the RSCS messages and responses tabulated by the command or function that initiated the message. A key to the distribution of each message or response is also included.

"Appendix C: RSCS Networking User Exits" describes several routines, which are specifically designed for user exits, and their use.

"Appendix D: Remote Terminals and Stations" contains a section on nonprogrammable remote terminals and programmable (Spool Multi-Leaving) remote stations supported by RSCS.

"Appendix E: VSE/POWER Remote System Connection" is an example of connecting a basic VSE/POWER, version 1, system to RSCS Networking.

"Appendix F: Base Tape Contents" contains a list of the contents of the base tape.

"Appendix G: Abbreviations" defines abbreviations used in this publication.

PREREQUISITE PUBLICATIONS

- | IBM Virtual Machine/System Product:
Remote Spooling Communications Subsystem Networking General Information,
GH24-5004
- | Introduction, GC19-6200

COREQUISITE PUBLICATIONS

FOR THE VM/SP SYSTEM:

- | IBM Virtual Machine/System Product:
 - | Introduction, GC19-6200
 - | Planning and System Generation Guide, SC19-6201
 - | Operator's Guide, SC19-6202
 - | System Programmer's Guide, SC19-6203
 - | System Messages and Codes , SC19-6204
 - | Terminal User's Guide, SC19-6206
 - | Library Guide and Master Index, GC19-6207
 - | CMS Command and Macro Reference, SC19-6209
 - | CMS User's Guide, SC19-6210
 - | CP Command Reference for General Users, SC19-6211

FOR THE VM/370 SYSTEM:

- | IBM Virtual Machine Facility/370:
 - | Planning and System Generation Guide, GC20-1801
 - | System Programmer's Guide, GC20-1807
 - | System Messages, GC20-1808

Terminal User's Guide, GC20-1810

CP Command Reference for General Users, GC20-1820

CMS User's Guide, GC20-1819

CMS Command and Macro Reference, GC20-1818

RELATED PUBLICATIONS

| **FOR THE RSCS NETWORKING PROGRAM PRODUCT:**

| IBM Virtual Machine/System Product: Remote Spooling Communications Subsystem Networking Logic, LY24-5203.

Remote Spooling Communications Subsystem Networking Reference Summary, SX24-5119

FOR THE NETWORK JOB ENTRY FACILITY FOR JES2:

System Programmer's Library: Network Job Entry Facility for JES2, SC23-0003.

Operator's Library: Network Job Entry Facility for JES2, Commands, SC23-0011.

Installation Reference Material: Network Job Entry Facility for JES2, SC23-0012.

Logic: Network Job Entry Facility for JES2, LY24-6001.

MVS/System Product Release 2 Installation, Initialization, and Tuning: JES2 Component, SC23-0046

MVS/System Product Release 2 User Exits and Macros: JES2 Component, SC23-0047

MVS/System Product Release 2 Operator's Library: JES2 Component Commands, SC23-0048

MVS/System Product Release 2 Logic: JES2 Component, LY24-6006

| **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 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

VSE/POWER Program Logic Manual, Part 1, LY12-5027
Part 2, LY12-5028
Part 3, LY12-5034

FOR TELECOMMUNICATIONS TERMINOLOGY:

Vocabulary for Data Processing, Telecommunications, and Office Systems,
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 3270 Information Display System Operator's Guide, GA27-2742

IBM 3287 Printer Operator's Guide, GA18-2002

IBM 3289 Line Printer Model 1 and 2 Operator's Guide, GA27-3147

FOR THE INTERACTIVE PROBLEM CONTROL SYSTEM EXTENSIONS PROGRAM PRODUCT:

VM/Interactive Problem Control System Extension:

General Information, GC34-2019

User's Guide and Reference, SC34-2020

Logic, LY25-0005

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PART 1: INTRODUCTION

Part 1 introduces RSCS by presenting:

- Overview of RSCS
- Components of RSCS

RSCS OVERVIEW

RSCS is a single-purpose operating system for a virtual machine, dedicated to:

- Accepting files spooled to it and transmitting these files to the destinations specified by the files' submitters, and
- Accepting files transmitted to it and either spooling these files to the appropriate local VM/SP users or re-transmitting these files to the destinations specified by the files' submitters.
- Transmitting commands and messages.

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

Line drivers perform the actual data transmission functions for all communication links. The line drivers enable RSCS to manage different communication lines concurrently for a number of remote nodes of the various supported types; the maximum number depends on the virtual storage size of the RSCS virtual machine.

Once RSCS has been initialized, the RSCS operator may disconnect his console and run RSCS in disconnected mode; RSCS normally operates without regular operator intervention. An automatic command execution facility aids an RSCS operator in issuing repeated sequences of RSCS commands. Other commands allow an RSCS operator to reconfigure the network during normal operations. Automatic logon, IPL, and startup facilities simplify the operation of RSCS.

RSCS enables manual workload leveling. An RSCS operator can change the destination of a job from an overloaded processor to another with open time.

RSCS generates an accounting record for each file received or transmitted. These records contain information on the origin, destination, and record count of each file.

An RSCS system programmer uses the Conversational Monitor System (CMS) to maintain RSCS.

Internally, RSCS consists of a multitasking supervisor, system service tasks, and line driver tasks. The system service tasks provide common services to the line driver tasks and provide communication with the RSCS operator. Each line driver task manages the transmission of files to and from a single adjacent node and provides a communication path for remote node operator commands.

RSCS provides Remote Job Entry into a VM/370 system and allows a VM/370 system to participate in a network of computer systems that support the Network Job Interface/Network Job Entry (NJI/NJE) protocol.

RSCS is the successor to both the RSCS component of VM/370 and the VM/370 Networking (VNET) PRPQ (Program Number 5799-ATA). It is a functional superset of both of these earlier programs.

RSCS is a complete virtual machine subsystem that operates independently of other virtual machines running under the VM/370 Control Program. Together with the Control Program, RSCS controls communication input/output devices and lines used to transfer files between:

- VM/370 users on different VM/370 systems
- VM/370 users and remote NJI/NJE type batch systems
- VM/370 users and remote VSE/POWER (version 1) batch systems
- VM/370 users and remote stations
- Remote stations and other remote stations
- Remote stations and NJI/NJE type batch systems
- Remote stations and a CMS batch virtual machine

- One NJI/NJE system and another NJI/NJE system

RSCS employs the same system interfaces with which VM/370 users are familiar. RSCS does not take away any existing capabilities of VM/370, the RSCS component of VM/370, or VNET.

RSCS IN A NETWORK

In the context of this publication, a network is any set of two or more processors or workstations that are inter-connected in such a way as to permit the transmission of data between them. RSCS can provide this interconnection, as long as there is at least one processor that is running VM/SP in the network.

When participating in an RSCS network, a processor or workstation is referred to as a node, while a link is the connection, or ability to communicate, between two adjacent nodes in the network. In an RSCS network, any two nodes are considered to be "remote" from one another, because they are connected only by one or more RSCS links. When more than one link is required to establish a connection between two nodes, the set of required links is called a path or route. In Figure 1-1, nodes A and C are adjacent and are directly connected by link-1. Nodes A and B are not adjacent and are indirectly connected through node C over a route composed of the links link-1 and link-2.

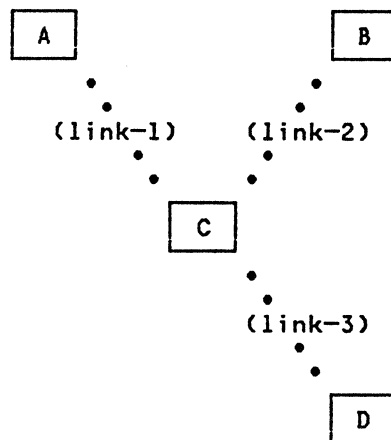


Figure 1-1. Nodes and Links in a Simple Network

A node is either a system node or a station node. In RSCS context, a system node is an NJI/NJE or Binary Synchronous Communication (BSC) host system, while a station node is any workstation, either programmable or non-programmable, on the other end of the link with the RSCS virtual machine. RSCS appears as a peer to an NJI/NJE system, but as a remote job entry workstation to a BSC host system. Programmable workstations, such as the IBM System/3 and System/370, are processing systems with attached 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/370, can function either as remote terminals or as host batch systems using RSCS as a remote job entry workstation. System and station nodes appropriate to an RSCS network are listed in Figure 1-2.

System nodes can be connected either directly or indirectly but station nodes can be connected only through a system node. In Figure 1-1, A, B, or D can represent either station or system nodes, but C must be a system node.

System Nodes	
RSCS is a peer to NJI/NJE systems:	RSCS is a remote job entry workstation to BSC host systems:
Any system capable of running: RSCS Program Product MVS/SP - JES2 MVS/VS - JES3 VSE/POWER Version 2	Any system capable of running: VSE/POWER program product, (version 1) with MLI RES component of OS/VS1, Release 2 and above JES2 component of OS/VS2, Release 2 and above JES3 component of OS/VS2 HASP II Versions 3.1 or 4 ASP Version 3.2

Station Nodes	
RSCS is a host to programmable terminals:	RSCS is a host to nonprogrammable terminals:
Any system programmed to provide the MULTI-LEAVING line protocol, such as: System/360 Model 20 and above System/370 Model 115 and above 1130 System/3 Model 6 and above 2922 3777 as a System/360 Model 20 System/32 8100 System/34 System/38 5280	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 1-2. Nodes with which RSCS Can Communicate

HOW RSCS WORKS

Figure 1-3 is an overview of RSCS operations in a simple network. (Not all nodes in a network must be VM/370 RSCS nodes; this figure simply shows types of operations that RSCS supports.) Every node in the network is assigned a unique name, which is a one- to eight-character alphanumeric location identification, such as HOUSTON, DEPT14, BLDG76, ACCNTNG, or FLOOR1. In the following file-handling example, node names are VM1, VM2, and VM3. In Figure 1-3 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.

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 control program (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 first to VM2. RSCS1 sends the spool file, including its destination information, to VM2. RSCS2 on VM2 receives the file, stores it temporarily under 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.

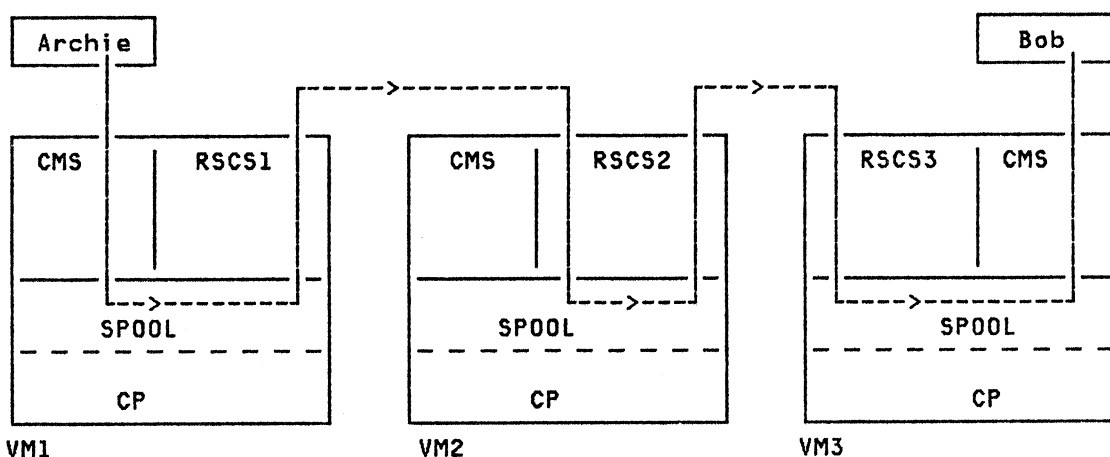


Figure 1-3. RSCS File Handling Example

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. In the file-handling example, the command

```
TAG DEV PUNCH VM3 BOB
```

directs RSCS to transmit virtual punch files to user-id BOB at node VM3.

To transmit a file, the submitter issues commands that cause the output from the originating device to be given to RSCS. In the file handling example, the commands

```
SPPOOL PUNCH TO RSCS1
and
PUNCH PLANXYZ SCRIPT
```

direct CP to punch the SCRIPT-type file named PLANXYZ to the virtual punch, and then to spool the virtual punch output to RSCS. Then, RSCS (not the submitter) determines, from the spool file tag, that 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. See the discussions on the SPOOL and TAG commands in "Part 4: VM/SP User's Guide".

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 named "RSCS DIRECT"; changes in network definition can be made easily by the RSCS operator or the RSCS system programmer.

COMMUNICATION LINKS AND ROUTES

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 adjacent node's name and other information about the transmission path, such as the type of line driver to be used, and the class(es) and form(s) 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 first (adjacent) link that a file is to use to reach a destination node that is not adjacent to the local system.

When presented with a file from a remote node in the network, RSCS checks the node name in the file's tag to see if the file is destined 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.

Links and routes are defined "permanently" in the RSCS directory; the permanent definitions are changed by altering the RSCS DIRECT file. The link and route definitions can be changed temporarily by means of the RSCS operator commands DEFINE, DELETE, and ROUTE. These temporary definitions remain in effect until they are again redefined by the operator or until the next time that RSCS is IPLed. When RSCS is re-IPLed, the permanent definitions come into effect again. For details, see the section "Dynamic Reconfiguration", starting on page 3-26.

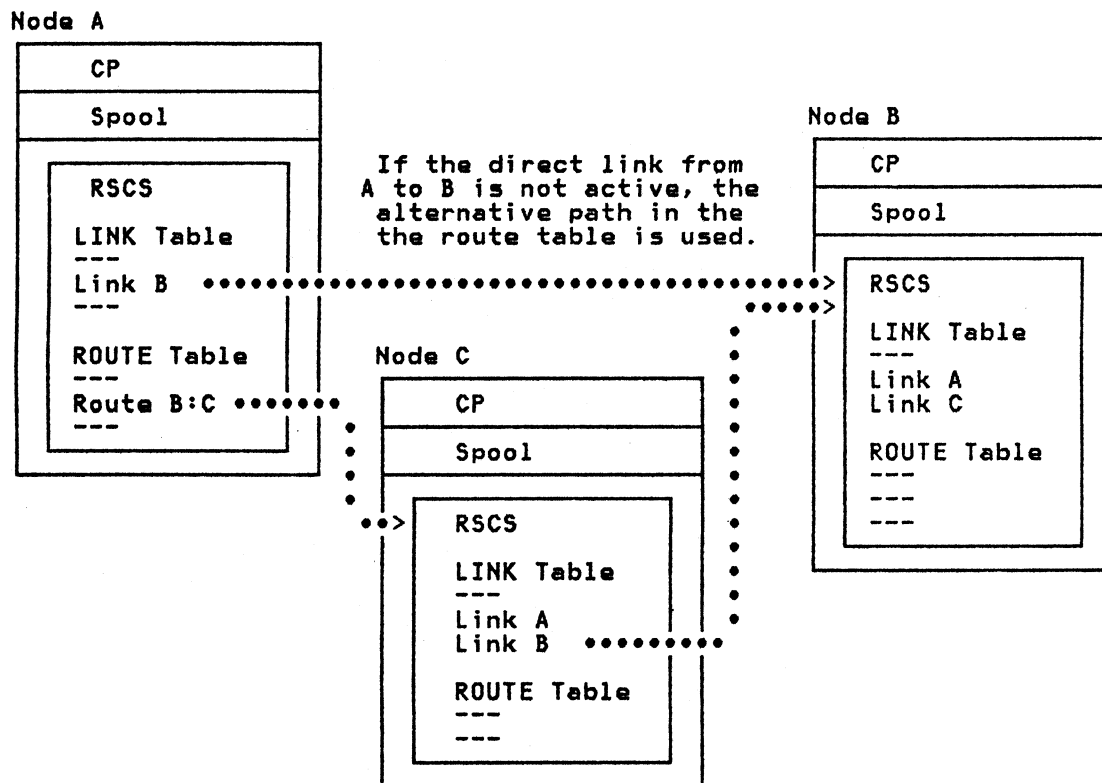


Figure 1-4. Alternative Path Facility

By using the route definitions and the directory, RSCS can automatically bypass a link that is inactive. For instance, in the simple network pictured in Figure 1-4, Node A would normally transmit material to Node B over Link B. If Link B is inactive, Node A's RSCS virtual machine inspects the route table, sees that an alternative path to Node B exists via Link C through Node C, and transmits the file to Node C. Node C then re-transmits the file to its ultimate destination at Node B, and the inactive link between nodes A and B has been bypassed. For further discussion of the RSCS Directory and the alternative path facility, see the section "RSCS Directory Examples", starting on page 2-22.

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.

COMPONENTS OF RSCS

RSCS consists of a multitasking supervisor, system service tasks, and line driver tasks. Figure 1-5 shows these major components.

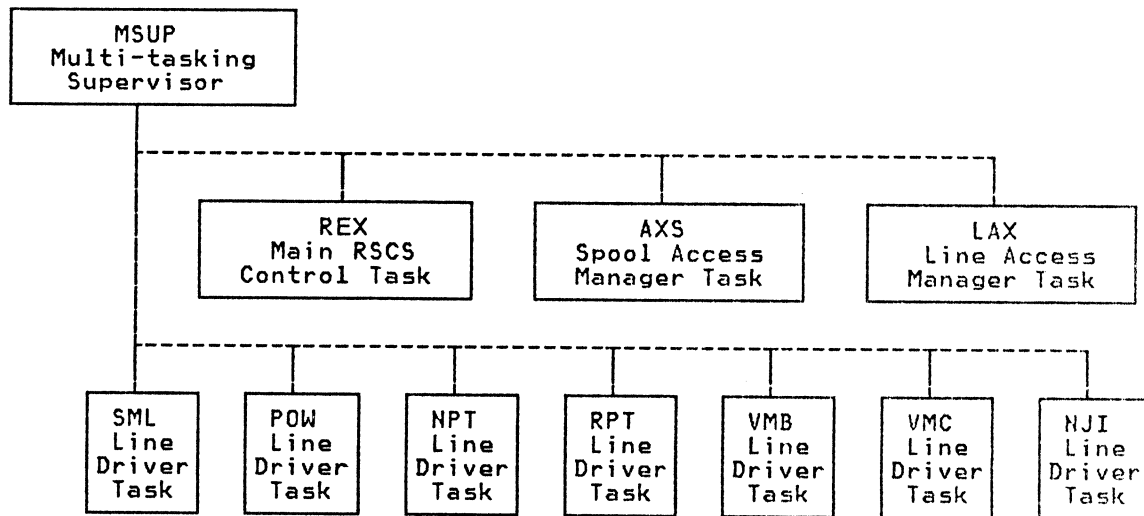


Figure 1-5. Components of RSCS

RSCS SUPERVISOR

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

RSCS SYSTEM SERVICE TASKS

The RSCS service tasks (REX, AXS, and 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 or workstation 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.

LINE DRIVER SELECTION

RSCS manages many differing protocols among different links. The line driver used on a particular link must be compatible with the protocol used by the remote node.

Line Driver Designation	Type of Communication
SML	<p>VM/370 host to programmable remote stations via binary synchronous lines (using the spool MULTI-LEAVING communication technique)</p> <p>VM/370 workstation to RES, JES2, JES3, HASP II, and ASP BSC host systems via binary synchronous lines.</p> <p>Remote job entry of jobs into batch systems not supporting a job networking interface.</p>
POW	VM/370 workstation to VSE/POWER (version 1) host systems via binary synchronous lines
NPT	VM/370 host to nonprogrammable terminals as remote workstations to RSCS via binary synchronous lines.
RPT	Permits VM/370 to spool files to local or remote 3270 Information Display System printers.
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.

Figure 1-6. RSCS Line Drivers and their Roles

SPOOL MULTI-LEAVING (SML) LINE DRIVER

MULTI-LEAVING is the name of the communication technique used by the SML line driver operating under RSCS. Basically, physical records input to MULTI-LEAVING are reduced to a series of character strings of two basic types: a variable length non-identical series of characters, and a variable number of identical characters. The segmentation of physical records into these character strings takes advantage of identical character compression. Multiple physical records (now in the form of character strings) are grouped into a single transmission block. MULTI-LEAVING enables a bidirectional interleaved exchange of transmission blocks, each containing multiple data streams.

When acting as a host, the DMTSML line driver supports a workstation configuration having a maximum of one reader, one printer, and one punch. This allows for a single transmission stream (either print or punch output, depending on the current file being transmitted) to a remote workstation, and the reception of a single input (job) stream from a remote workstation. When acting as a workstation, the DMTSML line driver supports a single transmission stream (job) to a remote system, and the simultaneous reception of one print output and one punch output stream from a remote system.

For a detailed description of MULTI-LEAVING see the RSCS Networking Logic manual.

The SML line driver, operating as a task under RSCS provides VM/370 with support of MULTI-LEAVING, binary synchronous communications (BSC) line protocol for programmable remote stations. This enables:

- VM/370 users to have remote job entry access to HASP/ASP-type batch processing systems.
- Remote stations to submit source decks, data, and jobs, on cards, into the VM/370 spool system.
- VM/370 to send spooled output of virtual machine sessions to remote card punches and printers.
- Transmission of card decks between two remote stations supported by RSCS.

- Remote stations to send job streams to a CMS Batch virtual machine (operating under the same VM/370 as RSCS) and have the output returned to the originating or another remote station.
- Remote stations to submit source decks, data, and jobs, on cards, to another remote location running a HASP/ASP-type batch processing system.
- Remote stations to submit data files or a job to any system in the network and receive job output at the remote station.
- The RSCS and workstation operators to control printing of a file, based on the name of the printer form that it requires.

The following systems support MULTI-LEAVING RJE operation:

HASP II Version 4 (370H-TX-001)
 ASP Version 3.2 (360A-CX-15X)
 JES2 Component of VS2 Release 2 and above
 JES3 Component of VS2
 RES Component of VS1 Release 2 and above

Hardware Products Supported

The following systems are supported by the SML line driver as remote job entry stations into VM/370:

IBM System/360, Models 20 and above
 IBM System/370, Models 115 and above, plus the 30xx and 4300 Processors
 IBM 1130 System
 IBM System 3 Models 6, 8, 10, 12, and 15
 IBM 2922 Programmable Terminal
 IBM 3777 Communication Terminal Model 2 (as a System/360 Model 20
 MULTI-LEAVING Workstation)
 IBM System/32
 IBM 8100
 System/34
 System/38
 5280

Supported Functions

The SML line driver operates under the control of the RSCS supervisor in one of two modes, specified when the line driver task is initialized:

RJE Mode: The SML line driver functions as a job entry workstation to a remote HASP/ASP-type processor.

HOST Mode: The SML line driver functions as the host to a remote MULTI-LEAVING programmable station.

Each SML line driver task controls a single communication line, or link. The task is started by the RSCS operator, identified with a destination name, and provided with a leased or switched telephone line. The communication line is identified by the RSCS operator in the START command or derived from a table entry in RSCS. On a switched line, a dial-up procedure from either end of the line establishes the connection.

The SML line driver operates with a slightly modified protocol depending on its mode. In RJE mode, the type of remote host system, as designated in the START command or link parameter information in the RSCS directory, determines the protocol to be used. In HOST mode, the SML line driver follows a common protocol for all remote stations.

RSCS OPERATOR FUNCTIONS: The RSCS operator can:

- Start and stop the SML line driver task
- Control the spool files enqueued on the RSCS virtual reader in much the same way as the VM/370 system operator controls the spooling functions of VM/370
- Exchange messages with remote stations controlled by the SML line driver
- Use the TRACE command to monitor activity on the communications line and have that data logged on the operator's console

- Use the CMD command to send allowable workstation commands to the remote host system processing the data, if the SML line driver is in RJE mode.

REMOTE STATION OPERATOR FUNCTIONS: When the remote station is a HASP/ASP system (SML line driver in RJE mode), its functions with respect to the SML line driver are the same as they would be for any other HASP/ASP remote workstation. It accepts job streams for batch processing or commands affecting the processing from the SML line driver and directs job output, in punch or printer format, back to the SML line driver.

When SML is in HOST mode, the remote station operator can:

- Issue commands to the SML line driver to change the operation of that remote station
- Provide a batch service, transmitting jobs to and receiving output from a batch virtual machine (OS, CMS BATCH, VM/370)
- Transmit and receive card decks through the SML line driver to and from another remote station supported by RSCS and attached to the same VM/370 system
- Transmit jobs and commands to a remote batch system through RSCS using the Network Job Interface (NJI), and
- Direct job output to any node or remote station in the network.

VIRTUAL MACHINE USER FUNCTIONS: When the SML line driver is in RJE mode, the VM/370 user can submit job streams to a remote HASP/ASP type batch system. Punch and/or printer output, returned to the SML line driver, is directed to the real printer and punch.

When the SML line driver is in HOST mode, the VM/370 user can route the output of his virtual unit-record devices to a remote MULTI-LEAVING programmable station. He can also have a card deck entered at a remote station and have it directed to his virtual machine reader.

I/O CONTROL: The SML line driver uses the RSCS supervisor I/O services to perform I/O operations on the BSC line to the remote terminal and to control the virtual reader and punch. The SML line driver uses the RSCS supervisor console support facility to write messages to and receive commands and information from the RSCS operator.

SML line driver I/O communications comprises five separate operations:

- Control of the line when the task is idle
- Transmission procedure for sending files to the remote station
- The procedure for receiving files from the remote station
- Error analysis and recovery while transmitting to the remote station
- Error analysis and recovery while receiving from the remote station.

All I/O operations are executed following the 270x BSC protocol for the type, configuration, and features of the remote station as determined at task initialization time.

LINE ALLOCATION: The Line Allocator in the RSCS supervisor allocates an appropriate line to the SML line driver during execution of the RSCS START command. The line has either been designated by the operator in a START command, found in the RSCS link table that contains the valid link definitions, or selected by the Line Allocator from a pool of switched lines set up at RSCS system generation. When the SML line driver task requests termination, the RSCS supervisor automatically indicates that the line can be reassigned, effectively deallocating it.

POW LINE DRIVER

The POW line driver (DMTPOW), operating as a task under RSCS, provides VM/370 with binary synchronous communication (BSC) line protocol for remote VSE/POWER

(version 1) systems. This allows:

- VM/370 users to have remote job entry access to VSE/POWER systems.
- VM/370 users to route spooled output to unit-record local devices at the DOS/VSE system, RJE devices attached to the VSE/POWER system, or unit-record local devices attached to the directly coupled VM/370 node.

Program Products Supported

Version 1 of the VSE/POWER program product with MLI is supported as a remote system.

Supported Functions

The POW line driver functions as a job entry workstation to a remote VSE/POWER (version 1) system. Each POW line driver task controls a single communication line, or link. The task is started by the RSCS operator, identified with a destination name, and provided with a leased or switched telephone line. The communication line is identified by the RSCS operator in the START command or derived from a table entry in RSCS. On a switched line, a dial-up procedure from either end of the line establishes the connection.

RSCS OPERATOR FUNCTIONS: The RSCS operator can:

- Start and stop the POW line driver task
- Exchange messages with the remote system connected to the POW line driver
- Use the TRACE command to monitor activity on the communications line.
- Use the CMD command. to send allowable version 1 VSE/POWER commands to the remote system
- Control the spool files enqueued on the RSCS virtual reader in much the same way as the VM/370 system operator controls the spooling functions of VM/370.

VIRTUAL MACHINE USER FUNCTIONS: The POW line driver enables the VM/370 user to route the output of his virtual unit-record devices (a job to be executed) to a remote VSE/POWER (version 1) system. The JECL statements in that job determine the later routing of the job output. That is, output from the job is routed according to the control statements in the job itself. These statements cause the output to be routed to either:

- Unit record devices locally or remotely attached to the VSE/POWER system, or
- Unit record devices attached to the VM/370 system on which the submitting RSCS virtual machine resides.

I/O CONTROL: The POW line driver uses the RSCS supervisor I/O services to perform I/O operations on the BSC line to the remote terminal and to control the virtual reader and punch. The POW line driver uses the RSCS supervisor console support facility to write messages to and receive commands and information from the RSCS operator.

POW line driver I/O communications comprises five separate operations:

- Control of the line when the task is idle.
- Transmission procedure for sending files to the remote system
- The procedure for receiving files from the remote system
- Error analysis and recovery while transmitting to the remote system
- Error analysis and recovery while receiving from the remote system

All I/O operations are executed following the 270x BSC protocol for the type, configuration, and features of the remote system as determined at task initialization time.

LINE ALLOCATION: The Line Allocator in the RSCS supervisor allocates an appropriate line to the POW line driver during execution of the RSCS START command. The line has either been designated by the operator in a START command, found in the RSCS link table that contains the valid link definitions, or selected by the Line Allocator from a pool of switched lines set up at RSCS

system generation. When the POW line driver task requests termination, the RSCS supervisor automatically indicates that the line can be reassigned, effectively deallocating it.

NPT LINE DRIVER

The NPT line driver (DMTNPT), operating as a task under RSCS, provides VM/370 with support of binary synchronous communication (BSC) line protocol for nonprogrammable remote terminals. This allows:

- Remote users of VM/370 to enter source decks, data, and jobs, on cards, into the VM/370 spool system.
- VM/370 to send spooled output of virtual machine sessions to remote card punches and printers.
- Remote stations to transmit card decks to one another.
- Remote stations to send job streams to a CMS Batch virtual machine operating under the same VM/370 and have the output returned to the remote station.
- Remote stations to submit jobs or commands to any node in the network and to direct the job output to any node or remote station in the network.
- The RSCS and workstation operators to control printing of a file, based on the name of the printer form that it requires.

Hardware Products Supported

The following devices are supported by the NPT line driver as remote nonprogrammable terminals:

- IBM 2770 Data Communication System with the 2772 Multipurpose Control Unit.
- IBM 2780 Data Transmission Terminal, Models 1 and 2.
- IBM 3770 Data Communication System (nonprogrammable models) operating in 2770 BSC mode. Note: The 3770 keyboard is not supported.
- IBM 3780 Data Communications Terminal.

Supported Functions

NPT is a line driver task operating under the control of the RSCS supervisor. Each NPT task drives one remote nonprogrammable station. In other words, each NPT task controls a single point-to-point communications line. The task is started by the RSCS operator, identified with a destination name, and provided with a leased or switched telephone line. The communications line is either identified by the operator or derived from a table entry within RSCS. The line is then activated and the type of remote station and its configuration details are obtained from the SIGNON card entered at the remote station. After this initialization is done, the terminal may then be used to submit files via the card reader and receive files on the punch and printer.

The remote station operator can control I/O activity via control cards and standard station procedures. The RSCS operator controls the operation with commands from his console. The virtual machine user retrieves files sent to his virtual machine by using normal virtual card reader management programs and directs output to the appropriate station using the SPOOL and TAG commands of VM/370.

NPT operates with variations of the basic BSC protocol for each of the stations listed. The protocol is based upon the station identification information provided in a SIGNON card read at task initialization time.

RSCS OPERATOR FUNCTIONS: The RSCS operator can:

- Start and stop the NPT line driver task.
- Control the spool files enqueued on the RSCS virtual reader in much the same way as the VM/370 system operator controls the spooling functions of VM/370.
- Exchange messages with remote terminals controlled by the NPT line driver.
- Use TRACE to monitor line activity.

Activity on the communications line controlled by the NPT line driver is logged on the RSCS operator's console.

REMOTE TERMINAL OPERATOR FUNCTIONS: The remote terminal operator can:

- Issue commands to the NPT line driver to change the operation of his terminal
- Provide a batch service, transmitting jobs to and receiving output from a batch virtual machine such as CMS BATCH
- Transmit and receive card decks, through the NPT line driver, to and from another terminal supported by RSCS and attached to the same VM/370 system
- Transmit jobs, data files, or commands to any node on the network and direct job output to any node or workstation on the NJI network.

VIRTUAL MACHINE USER FUNCTIONS: The virtual machine user can:

- Route the output of his virtual unit-record devices to a remote nonprogrammable terminal
- Have a card deck entered at a remote nonprogrammable terminal and have it queued on his virtual machine reader
- Submit a job through RSCS from his terminal and have the output directed back to a remote station.

I/O CONTROL: NPT uses the RSCS supervisor I/O services to perform I/O operations on the BSC line to the remote terminal and to control the virtual reader and punch. NPT uses the RSCS supervisor console support facility to write messages to and receive commands and information from the RSCS operator.

NPT communications I/O comprises five separate operations:

- Control of the line when the task is idle.
- Transmission procedure for sending commands and files to the remote station
- The procedure for receiving commands and files from the remote station
- Error analysis and recovery while transmitting to the remote station
- Error analysis and recovery while receiving from the remote station

All I/O operations are executed following the 270x BSC protocol for the type, configuration, and features of the remote terminal as determined at task initialization time. Separate send and receive buffers provide for the interruption of long output files to allow the input of cards or commands. When the input transmission is completed, output transmission is resumed from the point of interruption. If the transparency feature is available, transmission to a remote punch device is performed in transparency mode. Transmission to a remote printer is always performed in nontransparency mode with elimination of trailing blanks in each record. Print files are always translated in order to eliminate illegal characters that would force a transparent wait state on a teleprocessing control unit in nontransparency mode.

LINE ALLOCATION: The Line Allocator in the RSCS supervisor allocates an available line to NPT as part of the execution of the RSCS START command. The line has either been designated in the START command, found in the RSCS link table, or selected by the Line Allocator from a pool of switched lines set up at system generation of RSCS. When the NPT task requests termination, the RSCS supervisor automatically indicates that the line can be reassigned, effectively deallocating it.

RPT LINE DRIVER

The RPT line driver (DMTRPT) provides spooling support for the IBM 3270 Information Display System printers, which can be attached to a host CPU either locally or at a remote node. The printers are identified to RSCS as virtual devices either by the CP operator issuing the NETWORK ATTACH command, or by means of the DEDICATE statement in the VM/370 directory entry for the RSCS virtual machine.

DMTRPT performs the general functions of a line driver task, such as managing I/O to the printer's virtual device address, managing spool file data transmissions, and executing command alert elements.

DMTRPT converts VM/370 spool files to 3270 data streams before transmitting them to the printer. This involves:

- Prefixing each buffer that is to be transmitted with a WCC (Write Control Characters) SBA (Set Buffer Address) sequence.
- Moving each data record from the spool file to the 3270 buffer, and following it with a sequence (depending on the CCW op-code) of New Line (X'15') characters.
- Translating unprintable characters to blanks, and removing blank strings and converting them to RA (Repeat to Address) orders.
- Locating and adjusting APL or Text compound characters to print correctly on the particular printer in use.
- Inserting a CR (carriage return) order following those data lines where overprinting is indicated by the CCW operation code.

Hardware Products Supported

DMTRPT supports the following devices (or their equivalents) as IBM 3270 Information Display System printers:

- IBM 3284 Printer, Models 1 and 2
- IBM 3286 Printer, Models 1 and 2
- IBM 3287 Printer, Models 1, 2, 1C, and 2C
- IBM 3288 Line Printer, Model 2
- IBM 3289 Line Printer, Models 1 and 2
- IBM 3262 Printer, Models 3 and 13

Note: For the 3287, models 1C and 2C, only the base color is supported.

Features Supported

The following features are supported when installed on the applicable control unit and/or printer:

- 1066 Data Analysis-APL (3284 Model 2, 3286 Model 2, 3287)
- 1120 APL/Text (3287)
- 9550 Page Length Control
- 9850 Vertical Forms Control

Note: The 10 graphic plot characters available on the 3287 Models 1 and 2 with the APL/Text feature are not supported since there are no EBCDIC equivalents for these characters defined by VM/370.

VM/370 LINE DRIVER

The VMB line driver (DMTVMB) is for transmitting VM/370 spool files between VM/370 systems over BSC lines. DMTVMB communicates with another copy of itself using the file address specified on the VM/370 TAG command (location and userid) to determine the recipient virtual machine. DMTVMB supports both print and punch file transmission between users operating on two different VM/370 machines or transmission from a VM/370 user to a real unit-record device on a remote VM/370 machine. DMTVMB requires no special operating instructions and supports the full RSCS command language except for BACKSPAC, HOLD IMMED, FWDSPACE, and READY commands.

VMC LINE DRIVER

The VMC line driver (DMTVMC) is for transmitting VM/370 spool files between VM/370 systems over channel-to-channel adapters (CTCAs). DMTVMC passes VM/370 4K spool page buffers to another copy of itself, using a specially designed protocol to optimize utilization of the CTCA without creating heavy I/O activity. The 4K block is read from the VM/370 spool system, transmitted across the CTCA, and then written into the receiving machine's spool system with minimal SIO execution. Like DMTVMB, DMTVMC requires no special operating instructions, and supports the full RSCS command language except for BACKSPAC, HOLD IMMED, FWDSPACE, and READY commands.

NJI LINE DRIVER

The DMTNJI line driver is for use between RSCS and NJI/NJE compatible subsystems using BSC lines or CTCAs. These subsystems include JES2/NJE, JES3/NJE, and VSE/POWER, Version 2. DMTNJI supports the same types of file transmissions as DMTVMB. It also requires no special operating instructions and supports the full RSCS command language except for BACKSPAC, HOLD IMMED, FWDSPACE, and READY commands.

VMB/VMC/NJI COMMON FACTORS

These line drivers, operating as RSCS tasks, provide for communication between RSCS and NJI/NJE compatible subsystems, as well as between RSCS and other VM/370 systems using RSCS, over BSC lines and CTCAs. This enables VM/370 users to:

- Submit jobs to a remote batch processor for execution
- Direct the output from a job to any remote system or back to the user's virtual machine reader
- Route output to a remote batch system for processing and use special forms and output processing routines available at that system.

Program Products Supported

The following program products are supported as remote systems:

VM/370 RSCS Networking Program Product 5748-XP1
 JES2/NJE
 JES3/NJE
 VSE/POWER, Version 2

Supported Functions

The NJI/VMB/VMC line driver tasks operate under the control of the RSCS supervisor. Each task can communicate with one remote system; that is, each task controls one communication adapter, either a BSC line or a CTCA.

NOTE: Only one Channel-to-Channel Adapter path may exist between any two real channels, as RSCS does not support configurations that provide more than one Channel-to-Channel Adapter path.

RSCS OPERATOR FUNCTIONS: The RSCS operator can:

- Start and stop the line driver task
- Control the spool files enqueued on the RSCS virtual reader in much the same way as the VM/370 system operator controls the spooling functions of VM/370
- Send commands and/or messages to any other remote system connected via the line driver.
- Use the TRACE command to monitor line activity.

REMOTE SYSTEM OPERATOR FUNCTIONS: The remote system operator can issue commands to effect the operation of the file transfer to his location at the directly connected system.

VIRTUAL MACHINE USER FUNCTIONS: The virtual machine user can:

- Route the output of his virtual unit-record output devices to any remote system for processing
- Submit a file to execute as a job at a remote batch system
- Receive a file entered at a remote system's real card reader into his virtual machine reader
- Have output from a job executed at a remote batch system returned to his virtual machine reader, under user control, when this function is supported by the remote batch system.

PART 2: RSCS INSTALLATION

Part 2 describes the elements involved in installing and starting up an RSCS virtual machine. The prior requirements and the planning for installation are discussed, as well as the actual installation process.

Installing and initializing RSCS is basically a three-step process. It includes:

- Preparing your VM/SP operating system to accept RSCS. This includes calculating and reserving disk space to be used by the RSCS system minidisk and VM/SP maintenance minidisks, and authorizing the RSCS virtual machine.
- Loading the contents of the RSCS base product tape, updating the VM/SP directory, and loading and building the RSCS system.
- Creating the RSCS directory, which defines the local RSCS system and its view of the network in which it participates.

After these steps are accomplished, the RSCS virtual machine operator can IPL the RSCS system disk and start RSCS operations.

PREPARING VM/SP FOR RSCS

REQUIREMENTS OF RSCS

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

PROGRAMMING SYSTEMS

RSCS is designed for, and uses, VM/System Product (VM/SP). For Release 3 of RSCS, use of the Extended 3800 portion of the 3800 printer enhancements requires Release 2 of VM/SP, but the remainder of the new functions 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.

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

STORAGE

RSCS Virtual Machine (Userid = 'RSCS')

MDISK VIRTUAL ADDRESS	DEVICE TYPE							
	2314	3330	3340	3350	3375	3380	3310	3370
191 ¹	6	4	8	2	3	2	1536	
----- Cylinders							FBA Blocks	

¹191 disk is defined for your RSCS virtual machine.

VM/SP Maintenance Virtual Machine (Userid = 'MAINT')

MDISK VIRTUAL ADDRESS	DEVICE TYPE							
	2314	3330	3340	3350	3375	3380	3310	3370
19E ¹	<1	<1	<1	<1	<1	<1	<512	
29E ²	3	2	4	1	3	1	1024	
39E ³	79	45	112	21	32	20	18944	
49E ⁴	6	3	9	2	3	2	1536	
----- Cylinders							FBA Blocks	

¹19E disk is defined for the RSCS texts to support IPCS, if you also have the IPCS program product.

²29E disk is defined to store RSCS service, only if you have also received a service tape along with a base tape.

³39E disk is defined to store RSCS source.

⁴49E disk is defined to store RSCS text.

Figure 2-1. DASD Storage Required by RSCS

Adequate CMS DASD storage must be provided and formatted to contain the RSCS system and maintenance minidisks. The approximate amount of DASD storage required is shown in Figure 2-1. RSCS adapts to a virtual storage size of 384K or greater.

PROCESSORS

Release 3 of RSCS runs on any processor that is supported by VM/SP.

DEFINING YOUR RSCS VIRTUAL MACHINE TO VM/SP

The RSCS virtual machine must have at least:

- 384K of virtual storage
- An operator's console
- A virtual printer
- DASD storage for the RSCS operating system, as selected from Figure 2-1.

UPDATING THE VM/SP DIRECTORY

You must include entries in your VM/SP directory for the system and maintenance disks and for the virtual machines that use them. For information on the VM/SP directory, and for details of the directory program control statements necessary to update it, refer to the VM/SP Planning and System Generation Guide, listed in the Preface.

```
USER RSCS password 512K 2M BG1
ACCOUNT NUMBER BIN172
OPTION ACCT2
IPL 1913
CONSOLE 009 3215
SPOOL C 2540 READER A
SPOOL D 2540 PUNCH A
SPOOL E 1403 A
LINK CMSSYS 190 190 R
MDISK 191 3330 cyl 4 volid W rpassword wpassword 4
DEDICATE 078 078
DEDICATE 079 079
DEDICATE 07A 07A
DEDICATE 570 570
DEDICATE NET 390 1001
```

¹ If you wish to use the MSGNOH option to omit headers on messages, the RSCS directory class must be specified as BG. Otherwise, specify class G.

² If you specify the ACCT option, RSCS accounting records will be generated along with other CP accounting card records. If you don't want RSCS accounting information, exclude the ACCOUNT and OPTION statements from the directory entry when defining the RSCS virtual machine.

³ If you don't want automatic IPL upon LOGON, remove the IPL directory control statement. If you want automatic IPL and the RSCS system disk is at an address other than 191, code the IPL statement to specify the virtual disk address to be used.

⁴ For illustrative purposes, the underscored values were selected from Figure 2-1. If your system disk resides on other than a 3330, select the appropriate number of cylinders or FBA blocks. You must determine, and supply, the appropriate beginning address ('cyl') and volume identifier ('volid') for your RSCS system minidisk.

Figure 2-2. Sample VM/SP Directory Entry for the RSCS Virtual Machine

Use a CMS editor to add the RSCS virtual machine directory entry to the existing VM/SP directory file (default fileid: VMUSERS DIRECT), and load the new VM/SP directory by executing the DIRECT command. A sample VM/SP directory entry for an RSCS virtual machine is shown in Figure 2-2.

RSCS needs a virtual storage size of 384K or greater. The larger the specified virtual storage, the greater the number of line drivers that may be concurrently active, and the greater the number of default tag slots that will be generated when RSCS is initialized.

A tag slot is needed for each file enqueued for transmission in the RSCS machine's virtual card reader, for each file being received from a remote location, and for each log file initiated by the RSCS TRACE command. The table shown in Figure 2-3 lists the number of line drivers that may be started and the number of tag slots that will be allocated for various virtual storage sizes. The right side of the table shows the same data after RSCS is requested to allocate the maximum number of tag slots for a given virtual storage size by means of the TAGS directory statement. The number of line drivers and tag slots shown is an estimate. Since each line driver uses a different amount of virtual storage, the maximum number of line drivers that are able to run concurrently may be less than indicated. The number of tag slots actually generated may also vary slightly.

Virtual Storage Size	Default		TAGS nnnn	
	Maximum Line Drivers	Tag Slots	Maximum Line Drivers	Maximum Tag Slots
384K	8	228	7	391
512K	11	275	10	531
768K	19	415	17	787
1024K	26	531	23	1043
1280K	33	671	30	1299
1536K	40	787	36	1555
1792K	48	927	43	1811
2048K	55	1043	49	2067

Figure 2-3. Line Driver and Tag Slot Allocation for Various Virtual Storage Sizes

The ECMODE option is not required and not recommended for the RSCS virtual machine. Privilege class G must be specified; others, except class D, may also be specified. However, if the MSGNOH option is to be used, class B must be added.

If you wish to generate and run the VM/SP RSCS Networking program product and the RSCS component of VM/370 concurrently, take care to isolate the installation and maintenance files of the two subsystems on two separate user disks. Module names, libraries, and update procedures are similar for the two subsystems. If their data areas are not kept separate, the results are unpredictable.

INSTALLING RSCS

RSCS PRODUCT DISTRIBUTION TAPES

The RSCS Networking program product is distributed on either one or two tapes that contain the data and control files needed to build RSCS Networking. You will always receive a base tape; you may also receive a service tape, if one is available at the time you ordered the product.

The RSCS Networking base tape contains six files:

1. An installation EXEC to load the rest of the base tape, a sample RSCS directory, a sample RSCS profile, a sample CP directory entry for the RSCS virtual machine, and an erase EXEC to clean up the MAINT 191 disk.
2. All data and tools required to generate and run RSCS. This includes a nucleus loadlist, a control file, and text decks.
3. The tools required for servicing and making local updates to RSCS.
4. All RSCS module source code.
5. RSCS macro library.
6. All RSCS macro and copy source code.

An RSCS Networking service tape contains eight files:

1. Memo to user.
2. Product information, and a service EXEC to load the rest of the service tape.
3. Auxiliary files
4. Update files.
5. Source code for modules or macro/copy files that are not on the RSCS base tape.
6. Complete replacement of RSCS macro library if macro/copy file updates exist.
7. Replacement TEXT files.
8. New or updated tools for servicing RSCS.

The following system generation procedure for RSCS assumes you have the MAINT virtual machine (supplied with the VM/SP starter system) defined in your VM/SP directory.

GENERATING RSCS

Before you generate RSCS, be sure you have:

- The RSCS product distribution tapes.
- A VM/SP directory entry for your RSCS virtual machine.
- A 191 disk defined for your RSCS virtual machine.
- A VM/SP directory entry for the MAINT virtual machine as provided in the VM/SP starter system directory. The MAINT virtual machine and its 191 disk are used when the RSCS system is built.
- A 49E disk defined for the MAINT virtual machine to keep RSCS text.

- A 39E disk defined for the MAINT virtual machine to keep RSCS source.
- A 29E disk defined for the MAINT virtual machine to keep RSCS service, only if you have also received a service tape along with a base tape.
- A 19E disk defined for the RSCS texts to support IPCS, if you also have the IPCS program product.

STEP 1. LOGON AS MAINT AND IPL CMS

To build the RSCS nucleus, LOGON the "MAINT" system support virtual machine and IPL the CMS system:

```
LOGON MAINT
IPL CMS
```

Files 1 and 2 of the RSCS base tape contain all the files necessary to construct a standard RSCS. No assemblies are required to install RSCS unless you want to make local modifications. The instructions on the following pages describe the simplified installation procedure for an unmodified RSCS. If you want to include local modifications in your RSCS system, use this description and the section "Updating RSCS."

STEP 2. ATTACH THE RSCS TAPE

Mount the RSCS base tape, and ATTACH the tape drive to your CMS virtual machine (MAINT) in the following manner:

```
CP ATTACH 'cuu' TO MAINT AS 181      ('cuu' is a convenient
                                     tape drive )
CP REWIND 181
```

With the MAINT 191 disk accessed read/write as MAINT's C-disk, rewind and load the first file on the base tape:

```
ACC 191 C
TAPE LOAD * * C
```

This puts the EXEC (for loading the rest of the tape), the sample profile (PROFILE RSCSSAMP C1), the RSCS sample directory (RSCSSAMP DIRECT), the sample CP directory (RSCSCP DIRECT), and the clean-up EXEC (RSCSCLR EXEC) on the MAINT 191 disk.

CMS responds with the following message:

```
LOADING...
RSCSBASE EXEC
RSCSSAMP DIRECT
PROFILE RSCSSAMP
RSCSCP DIRECT
RSCSCLR EXEC
END-OF-FILE OR END-OF-TAPE
```

STEP 3. LINK TO THE RSCS MINI DISK

If you use the sample VM/SP directory entry for the RSCS virtual machine, your CP LINK command is:

```
LINK TO RSCS 191 AS 495 W PASS= wpassword
```

This makes the RSCS system disk (address 191 in the RSCS virtual machine) available at virtual address 495 in the MAINT virtual machine. Remember the address you specify for MAINT. You must use this same virtual address later when you build the RSCS nucleus in Step 9.

If an RSCS system disk has already been defined and formatted, access it as your A-disk (ACCESS 495 A) and then skip to step 4. Otherwise, format the RSCS system disk using the following command:

```
FORMAT 495 a [BLKSIZE nnnn]
```

Note: The option [BLKSIZE nnnn] may be included in the FORMAT command to obtain a blocksize of 800, 2048, or 4096 bytes. The default is 1024 bytes.

The system then issues the message:

FORMAT WILL ERASE ALL FILES ON DISK 'A(495)'.
DO YOU WISH TO CONTINUE? (YES|NO):

Reply:

YES

The system then issues the message:

ENTER DISK LABEL:

Reply with the label to be assigned to the RSCS system disk, such as

RSCSA

The system then issues the messages:

FORMATTING DISK 'A'.
'n' {CYLINDERS|BLOCKS} FORMATTED ON 'A(495)'.

This signifies that the initial formatting of the RSCS system disk is finished.

Next, format the RSCS system disk again, using the "recompute" option of the FORMAT command to reserve the last cylinders (or FBA blocks) of the RSCS system disk for the RSCS nucleus, and to make them unavailable to the CMS file system. If the RSCS system disk is a 2314 or 3340, the last two cylinders are needed for the nucleus. For a 3330, 3350, 3375, or 3380, only the last cylinder is needed. For a 3310 or 3370, 512 blocks are needed for the nucleus.

The FORMAT command for an RSCS system disk is:

FORMAT 495 a n (RECOMP

where n is selected from the table in Figure 2-4, according to the DASD type used as the RSCS system disk.

	2314	3330	3340	3350	3375	3380	3310	3370
total mdisk space*	6	4	8	2	3	2	1536	
nucleus space needed	2	1	2	1	1	1	512	
495 <u>n</u> RECOMP value	4	3	6	1	2	1	1024	
Cylinders							FBA Blocks	

* RSCS' 191 disk linked as MAINT's 495 disk.

Figure 2-4. RSCS Cylinder and Block Reservation Values

STEP 4. MODIFY THE SUPPLIED RSCS DIRECTORY

Note: Steps 4, 5, and 6 may be skipped if your RSCS system disk already has a directory and profile.

A sample RSCS directory (RSCSSAMP DIRECT C1), which defines a local RSCS system, is supplied on the product distribution tape. You can use a CMS editor to modify the supplied directory to describe your local RSCS configuration. The format of the entries in the directory are described in the section "The RSCS Directory," starting on page 2-15. The sample directory supplied on the distribution tape is shown in Figure 2-5.

STEP 5. MODIFY THE SUPPLIED SAMPLE RSCS PROFILE

A sample RSCS profile (PROFILE RSCSSAMP C1), which is a set of commands that is issued when RSCS is IPL-ed, is supplied on the RSCS distribution tape. You can use a CMS editor to modify the supplied sample profile to automatically issue any sequence of RSCS commands. Any valid RSCS command may be present in the command sequence. A dash (-) as the first character of a command line in an RSCS automatic execution file suppresses the printing on the RSCS operator console of the DMTREX679I message, which includes the command line, as the command executes. This feature is used to suppress the printing of comment lines and password information supplied in the parameter fields of START commands included in automatic execution RSCS command sequences.

The default profile sample supplied on the RSCS distribution tape is:

```
-*****  
-*          DEFAULT CP COMMAND SETTINGS          *  
-*****  
CP SET IMSG OFF  
CP SET EMSG ON  
CP SPO CON START
```

STEP 6. MOVE THE RSCS DIRECTORY AND PROFILE TO THE RSCS SYSTEM DISK

After the necessary local modifications have been made to the sample directory and profile, copy them to the RSCS system disk by using the following commands:

```
COPY RSCSSAMP DIRECT C RSCS DIRECT A  
COPY PROFILE RSCSSAMP C PROFILE RSCS A
```

Note: This step also renames these files to the names required by RSCS.

```

*****
*                               RSCS LOCAL NODE-ID SPECIFICATION                               *
*****
*                               LOCAL      GMT                                         *
*                               NODE-ID   OFFSET                                       *
*    LOCAL      HOME      5                                         *
*                               NODE-ID NAME = HOME                                         *
*                               GMT OFFSET   = 5 (EASTERN STANDARD TIME)                   *
*****
*                               RSCS OPERATOR FORM NAME SPECIFICATION                   *
*****
*                               OPERATOR                                         *
*                               FORM NAME                                       *
*    OPFORM      STANDARD                                         *
*****
*                               RSCS LINK-ID SPECIFICATIONS                           *
*****
*                               LINE      VIRTUAL TIME TASK SPOOL KEEP               *
*                               *          *          *          *          *          *
*                               LINK-ID   DRIVER   ADDRESS  ZONE   ID   CLASS  SLOTS
*    LINK      NPTTEST   DMTNPT   *          5   NPTT   *          2
*    LINK      SMLTEST   DMTSML   081      5   SMLT   *          2
*    LINK      NJITEST   DMTNJI   082      8   NJIT   *          2
*    LINK      VMBTEST   DMTVMB   083      6   VMBT   *          2
*    LINK      VMCTEST   DMTVMC   310      5   VMCT   *          2
*    LINK      POWTEST   DMTPOW   087      5   POWT   *          2
*    LINK      RPTTEST   DMTRPT   210      5   RPTT   *          2
*****
*                               RSCS PARM SPECIFICATIONS                             *
*****
*                               LINK-ID   PARM TEXT
*    PARM      SMLTEST   M01 B400
*    PARM      POWTEST   C001
*****
*                               RSCS AUTHORIZED OPERATOR SPECIFICATIONS               *
*****
*                               *          *          *          *          *          *
*                               LINK-ID   USERID   LOCATION   CP
*    AUTH      RPTTEST   USER1   VMCTEST
*    AUTH      NPTTEST   USER1   VMCTEST
*    AUTH      NPTTEST   USER2   *
*    AUTH      *          USER3   NJITEST   CP
*    AUTH      *          USER4   *
*****
*                               RSCS ROUTE SPECIFICATIONS                             *
*****
*                               LOC-ID   LINK-ID   COMMENTS
*    ROUTE      ROUTTEST   VMBTEST   PASS FILES FOR ROUTTEST TO VMBTEST
*****
*                               RSCS BISYNC DIAL PORT DEFINITIONS                     *
*****
*                               VIRTUAL
*                               ADDRESS
*    PORT      080
*****
*                               RSCS SUPERVISOR SPECIFICATIONS                       *
*****
*                               COMMENTS
*    TAGS      384      NUMBER OF TAG SLOTS TO GENERATE
*    DUMP      VM      IPCS1      DUMP TYPE AND USERID TO SEND IT TO
*    MSGNOH    SPECIFY NO HEADER (RSCS MUST BE
*                               PRIVILEGE CLASS B TO USE THIS)
*****

```

Figure 2-5. Sample Supplied RSCS Directory (RSCSSAMP DIRECT)

STEP 7. MAKE SURE STAGING DISKS ARE DEFINED

Staging disks are minidisks used to keep the text and source code distributed by IBM. Separate staging disks are recommended for text, source code, and service updates. Typically, the text of several IBM products is kept on a common text staging disk, the source of several IBM products is kept on a different common source staging disk, and the service updates for several IBM products are kept on still another service staging disk.

It is recommended that:

- the common text staging disk for RSCS be defined with a virtual disk address of 49E,
- the common source staging disk be defined as 39E,
- the common service staging area be defined as 29E, and
- the system disk extension for the IPCS program product be defined as 19E.

If you choose other disk addresses, you must respond to the prompt from the RSCSBASE build EXEC with the appropriate disk address.

The amount of DASD space recommended for the RSCS staging areas, in addition to that required by other program products, is shown in Figure 2-1, on page 2-2.

Note: the total service staging requirements may vary greatly, depending on the amount of service activity for all program products.

STEP 8. LOAD THE RSCS SYSTEM

If everything has been set up as recommended, you may now issue the EXEC provided for loading the RSCS product by issuing the following:

```
RSCSBASE NORESP
```

The RSCSBASE EXEC, as specified, will do the following:

- Access the source staging disk (39E) as the A-disk.
- Access the RSCS text staging disk (49E) as the B-disk.
- Load the base RSCS text and source to their respective disks.
- Access the IPCS system disk (19E) as the Y-disk.
- Copy the RSCS texts that run under IPCS to the IPCS program product system disk.

(You have the option to by-pass these last two steps.)

The installation EXEC will type informational messages on the console to tell you how it is progressing. You will see the following messages (among others) on your console:

```
LOADING FILE 2 (RSCSNET TEXT) ...
```

```
:
```

```
LOADING FILE 6 (RSCSNET MACRO SOURCE) ...
```

```
COPYING RSCS TEXTS FOR IPCS FUNCTION TO SYSTEM DISK  
EXTENSION.
```

```
YOU HAVE NOW LOADED ALL FILES OFF THE TAPE.  
TO COMPLETE THE INSTALLATION, YOU MUST ENTER 'RSCSBASE BUILD'.
```

Note: If you received a service tape, obtain the memo-to-user, as follows:

- mount and rewind the tape
- issue
VMFPLC2 LOAD 5748XP1 MEMO A

Read the memo and apply the service as directed.

STEP 9. BUILD THE RSCS SYSTEM

If everything has been loaded as recommended, you may now again issue the RSCSBASE exec to build the RSCS system disk and to create an IPL-able RSCS nucleus :

RSCSBASE BUILD NORESP

The RSCSBASE EXEC, as specified, will do the following:

- Access the RSCS system disk (495) as the A-disk.
- Copy the RSCS line drivers and supervisor tasks to the RSCS system disk.
- Build and IPL the RSCS nucleus.

The installation EXEC will type informational messages on the console to tell you how it is progressing. You will see the following messages (among others) on your console:

COPYING RSCSNET DISK RESIDENT TEXT ...

PUNCHING RSCSNET NUCLEUS ...

SYSTEM LOAD DECK COMPLETE

PUN FILE 4904 TO MAINT COPY 001 NOHOLD

IPL'ING 00C ...

If your virtual console address is not X'009', you must generate an attention interrupt (for example, press ENTER on a 3277).

When the new RSCSNET system is built, issue the following command to print the load map:

CLOSE PRT

You will then receive (and must respond to) the following messages. (Responses are shown to the right of the messages.)

DMTINI411R SYSTEM DISK ADDRESS = 495

Note: 495 is the address of the RSCS system disk in this example; it is the same number that you specified in the FORMAT command in Step 3.

DMTINI412R REWRITE THE NUCLEUS ? yes

DMTINI413R NUCLEUS CYL/BLK ADDRESS = nnnn

Note: If you have defined DASD storage as recommended in the section "Defining Your RSCS Virtual Machine to VM/SP" on page 2-3, use the following values for nnnn:

nnnn = 004 for a 2314
003 for a 3330
006 for a 3340
001 for a 3350 or 3380
1024 for a 3310 or 3370
002 for a 3375

If you have used other than those recommended values, increase (or decrease) the value of nnnn accordingly.

After a brief pause, you will have written an IPL-able RSCS nucleus to the RSCS system disk, as indicated by the message:

DMTINI410I NUCLEUS WRITE COMPLETE
CP ENTERED; DISABLED WAIT PSW '00020000 00000012'

You may now LOGON the RSCS virtual machine, IPL the RSCS system disk, and start your RSCS operations.

STEP 10. CLEAN UP THE MAINT 191 DISK.

To clean up the MAINT 191 disk, execute the RSCSCLR exec by entering:

RSCSCLR

which will erase the following files:

- RSCSBASE EXEC
- RSCSSAMP DIRECT
- PROFILE RSCSSAMP
- RSCSCP DIRECT
- RSCSCLR EXEC

THE RSCSBASE EXEC

The installation EXEC has options that will allow you to alter the installation procedure described above. The options of this EXEC are designed specifically to have the same name as and to perform the same function as the options defined in the VMSERV EXEC used in the VM/SP Program Update Tape (PUT) process.

The command format is:

RSCSBASE [BUILD] [NORESP] [?]

where:

- BUILD** causes the RSCSNET system disk to be built. This includes copying the line driver and supervisor tasks, and creating and IPLing the RSCS nucleus. No tapes are used when this option is chosen.
- NORESP** turns off the prompting of the user for DASD device addresses of the RSCS staging areas and system disk. The following default staging area addresses will be used:
- 495 for RSCSNET system disk
 - 19E for system disk extension for IPCS program product
 - 29E for RSCSNET service staging area
 - 39E for RSCSNET source staging area
 - 49E for RSCSNET text staging area
- ?** displays information about the RSCSBASE exec to the user.

USAGE NOTES:

1. The RSCSBASE EXEC and the service EXEC must run from the C-disk.
2. The following self-explanatory messages may be issued during the installation procedure:
*** ERROR READING INSTALL TAPE OR WRITING TO DISK 'cuu' ***
*** ERROR CREATING THE RSCSNET NUCLEUS ***
*** ERROR ACCESSING DISK 'cuu' ***
*** ERROR COPYING RSCSNET DISK RESIDENT TEXT ***
*** INVALID OPTION, PLEASE RE-ENTER ***
*** ERROR COPYING RSCS TEXT FOR IPCS FUNCTION TO IPCS PROGRAM PRODUCT DISK ***
*** CANNOT OBTAIN WRITE ACCESS TO cuu ***
*** ENSURE THAT IT IS LINKED 'WRITE' BEFORE YOU RESPOND ***
3. Return codes used by the RSCSBASE EXEC are:
 - 0 - Normal exit
 - 4 - Exit requested by user
 - 8 - Error: invalid option or unable to obtain write access to desired disk
 - 16 - Error: unable to access required disk(s), unable to read tape, exec not on C-disk.
4. The following shows the effect of specifying the BUILD option, or no option, to the RSCSBASE EXEC:

Parameter	BUILD	none
Load All Files	NO	YES
Copy Text	YES	NO
Punch Nucleus	YES	NO
IPL the Nucleus	YES	NO

5. Once you have loaded the tape by issuing the exec with either no options or with only the NORESP option, issue it again with the BUILD option in order to build and punch the nucleus. The EXEC will spool your reader class I before punching the nucleus. When you are ready to IPL the RSCS machine, spool your reader class I and IPL 00C (your virtual reader). To print the load map, close your virtual printer:

CLOSE PRT

6. You can override the default DASD disk addresses used by not entering the NORESP option. You will then receive the following instructions and prompts:

YOU WILL BE REQUIRED TO REPLY TO QUESTIONS REGARDING THE INSTALLATION OF RSCS NETWORKING. THE ACCEPTABLE RESPONSES WILL BE SHOWN IN PARENTHESES. A RESPONSE SHOWN WITHIN DASHES, E.G. -49E-, IS THE DEFAULT, AND MAY BE SELECTED WITH A NULL RESPONSE.

REMINDER: THE MINIDISKS USED FOR THE RSCS NETWORKING PROGRAM PRODUCT SHOULD BE DIFFERENT FROM THE MINIDISKS USED BY THE RSCS COMPONENT OF VM/370 OR OTHER RSCSN RELEASES, IF YOU WISH TO KEEP MORE THAN ONE VERSION OF THIS PRODUCT.

ENTER RSCSNET BASE TEXT STAGING AREA ADDR (-49E-|cuu|QUIT)
ENTER RSCSNET BASE SOURCE STAGING AREA ADDR (-39E-|cuu|QUIT)
ENTER RSCSNET SYSTEM DISK ADDRESS (-495-|cuu|QUIT)
ENTER IPCS PROGRAM PRODUCT SYSTEM DISK ADDRESS (-19E-|cuu|QUIT|PASS)

UPDATING RSCS

Use standard VM/SP updating procedures to update RSCS. You can invoke VMFASM to assemble any RSCS source module using the supplied RSCS control file. Use loadlist DMTLOAD and the VMFLOAD program when regenerating the RSCS nucleus.

The DMTNJI line driver is a multi-module line driver distributed with RSCS. Use the CMS PRELOAD command to construct DMTNJI TEXT from its component modules:

PRELOAD DMTNJI RSCS

Where 'DMTNJI' specifies an IBM-supplied EXEC file loadlist and 'RSCS' specifies the IBM-supplied CNTRL control file to be used.

The spool access manager DMTAXS is also a multi-module task. Use the PRELOAD command to construct DMTAXS TEXT from its component modules:

PRELOAD DMTAXS RSCS

Where 'DMTAXS' specifies an IBM-supplied EXEC file loadlist and 'RSCS' specifies the IBM-supplied CNTRL control file to be used.

Note: All PRELOAD input files must be located on the user's A-Disk or read-only extension.

For information about the PRELOAD command, see the IBM VM/SP Planning and System Generation Guide, listed in the Preface.

THE RSCS DIRECTORY

This section describes the RSCS directory, which defines your local RSCS system and its view of the network in which it participates.

Each RSCS location must specify the local definitions and options for its operation. To do so, the RSCS system programmer builds a directory file with filename and filetype of RSCS DIRECT. This file must reside on the RSCS system disk when RSCS is IPLed. As part of its initialization procedure, RSCS reads the RSCS DIRECT file and builds its system control blocks accordingly. Installation-variable information need not be specified with an RSCS system load.

An installation may need to make minor changes to its RSCS directory on a normal day-to-day basis. It might be convenient to allow multiple write access to the RSCS system disk to update the RSCS directory (and the PROFILE RSCS initial command file), taking precautions to avoid concurrent multiple access while writing the RSCS system disk. Because RSCS never writes its system disk, and RSCS reads its system disk only during execution of operator commands, the directory may be updated during production RSCS operation, and tested by simply IPLing the RSCS system disk in the virtual machine that is used for editing the updates. When this is done, the changes become effective on the next RSCS virtual machine IPL. (Link and route definitions may normally be made immediately effective by use of the RSCS operator DEFINE, DELETE, and ROUTE commands.)

INITIALIZING RSCS

RSCS maintains information about directly connected locations in its link table entries, and about each indirectly connected location and its next direct link in routing table entries. RSCS builds link and routing tables during initialization, according to the directory specifications. RSCS also generates sixteen empty link entries and route entries, which you may use to dynamically define links and routes during RSCS operation by use of the DEFINE and ROUTE commands.

RSCS accepts and enqueues a file for transmission if an empty TAG queue element, or "tag slot," is available; otherwise, the file is left pending and cannot be managed through the RSCS command language. Pending files increase operating overhead and are awkward to deal with in general. The provision for pending files is to manage an abnormal situation as gracefully as possible; a location should seek to avoid that operating circumstance.

RSCS builds its tag slots during its initialization. The number of tag slots built is at least as great as the sum of the tag slots reserved for exclusive use by links in the keep operands of the LINK directory control statements. More extra tag slots may be generated, up to a limit that depends on the size of the RSCS virtual machine's virtual storage. This limit is computed as one tag slot per 1024 bytes of virtual storage. Extra tag slots may be requested by means of the TAGS directory control statement. The number of extra tag slots requested on the TAGS statement is added to the sum of the links' reserved tag slots, up to the virtual storage limit. If no TAGS statement is included in the directory, a default request of one extra tag slot per 2048 bytes of virtual storage is assumed.

RSCS DIRECTORY CONTROL STATEMENTS

RSCS directory control statements must be in the following formats, with one or more blanks as operand delimiters. All operands are positional from left to right. If any operand is omitted, all operands to the right of that operand in the statement must be omitted also. Operands may be entered in columns 1 through 71. All data entered to the right of column 71, and all data entered to the right of the last possible operand are ignored. No continuation of RSCS directory control statements is provided. RSCS ignores entirely blank records and records having an asterisk (*) in column 1, allowing these lines to be used for comments and print formatting.

Statement	Number Required	Purpose	Sequence
LOCAL	1	Defines the local installation's location identifier (localid).	First, before any others.
OPFORM	0 or 1	Defines the operator form name to be other than "STANDARD".	If present, immediately follows the LOCAL statement.
LINK	0 or more (Req'd if AUTH, PARM or ROUTE present)	Defines the attributes of the links attached to the local installation.	After OPFORM (or LOCAL) statement.
PARM	0 or more	Defines the line driver initialization default parameters.	If present, immediately follows LINK.
AUTH	0 or more	Defines the nodeid and userid of authorized alternative operators.	Follows LINK. (or PARM).
ROUTE	0 or more	Defines the first link to be used for indirect routing.	Follows LINK (PARM, or AUTH) statements.
PORT	0 or more	Defines the allocatable switchable telecommunication ports attached to the local installation.	Follows LINK (PARM, AUTH, or ROUTE) statements.
TAGS	0 or 1	Defines the number of extra tag slots to be reserved.	Follows LINK (PARM, AUTH, ROUTE, or PORT) statements.
DUMP	0 or 1	Defines type and recipient of RSCS dumps.	If present, anywhere after LOCAL.
MSGNOH	0 or 1	Specifies that RSCS is to use the CP MSGNOH command when issuing messages.	

Figure 2-6. RSCS Directory Control Statements

See Figure 2-6 for a summary of the directory control statements. Note that the LOCAL directory control statement is required; all others are optional. For purposes of illustrating their proper sequence, however, we will discuss them as if all were to be included when defining the directory.

The directory control statements must be grouped sequentially by type, for example:

```
* DEFINE RSCS INSTALLATION VARIABLES
LOCAL  RSCSSYS  7

| OPFORM  PAYCHECK

LINK   CAMBRIDG  DMTVMB   084  5
LINK   TDCSYS1   DMTVMB   096  5      TDC1 *      8
LINK   WORKSTA1  DMTSML   *    7      WSL  *      4

PARM   WORKSTA1  M1

AUTH   RSCSSYS   NETMASTR  *          CP
AUTH   CAMBRIDG  PAYCLERK  PALOALTO

ROUTE  PALOALTO  CAMBRIDG
ROUTE  TDCSYS2   TDCSYS1
ROUTE  WCCSYS11  CAMBRIDG

PORT   086
PORT   087

TAGS   512

DUMP   VM        RSCSDBG

MSGNOH
```

If a directory control statement is found to be in error during RSCS initialization, RSCS displays the erroneous statement and a diagnostic error message on the RSCS operator's console, ignores the erroneous statement, and continues initialization.

AUTH Control Statement

AUTH statements tell the system to accept one or more alternative RSCS operators. The linkid specified in the AUTH statement must have been previously defined in a preceding LINK or LOCAL control statement.

AUTH	< [linkid] > userid [locid [CP]]
	[*] [*] [*]

- linkid** is the one- to eight-character link identifier for which the user identified by userid (and optionally, locid) is allowed RSCS operator privileges. The authorized operator in this case is allowed to use those RSCS commands identified as being valid for a remote workstation operator. If the local location identifier or "*" is specified, the user identified by userid (and optionally, locid) is allowed RSCS operator privileges for the entire RSCS virtual machine. All RSCS commands are allowed except the RSCS CP command (unless explicitly authorized for CP).
- userid** is the one- to eight-character user identifier of the authorized operator.
- locid** is the one- to eight-character location identifier of the user identified by userid. If omitted, or if specified as *, locid defaults to the identifier of the local system.
- CP** specifies that the authorized operator identified by userid and locid can use the RSCS CP command. The linkid field in this case must specify the local location identifier or "*".

Note: More than one operator can be authorized for the RSCS virtual machine or for any given link. The same alternative operator can be authorized for more than one link but not as both the RSCS operator and a link operator. Note also

that specifying the userid of the local RSCS virtual machine ('rscsid') as the userid, for instance:

AUTH * 'rscsid'

will produce error message DMTIRX471E.

DUMP Control Statement

DUMP specifies the type of dump to be taken in case of an RSCS failure, and the recipient of such a dump.

The DUMP statement may be specified only once or omitted.

DUMP	< $\left[\begin{array}{c} \text{CP} \\ \text{VM} \end{array} \right]$ > [userid]
------	---

CP the default, specifies that all dumps taken in RSCS are to be taken by means of the CP DUMP command.

VM specifies that all dumps taken in RSCS are to be taken by means of the CP VMDUMP command.

userid is the one- to eight-character userid that is to receive all RSCS dumps. If no userid is specified, the dumps will be sent to:

- the RSCS virtual printer, if the CP DUMP is specified (or defaulted to), or
- the userid specified in the CP SYSOPR macro, if a CP VMDUMP is specified.

Note: If no DUMP statement is present in the directory, the default dump option is a CP DUMP. You must specify "VM" (to obtain a CP VMDUMP) in order to use the IPCS Extension program product. For details on IPCS, see the RSCS Networking Logic manual.

LINK Control Statement

LINK defines the default attributes of a single RSCS link. Link attributes thus defined apply to the link when it is activated, unless overridden by START command parameters.

The LINK statement follows the LOCAL statement, an OPFORM statement that may be present, or another LINK statement. A LINK statement is required if an AUTH, PARM, or ROUTE statement is to be included.

LINK	linkid $\left[\begin{array}{c} \text{driverid} \\ * \end{array} \right] \left[\begin{array}{c} \text{cuu} \\ * \end{array} \right] \left[\begin{array}{c} \text{zone} \\ * \end{array} \right] \left[\begin{array}{c} \text{task} \\ * \end{array} \right] \left[\begin{array}{c} \text{class} \\ * \end{array} \right] \left[\begin{array}{c} \text{keep} \\ * \end{array} \right] \right]$
------	--

linkid is the one- to eight-character link identifier for the link being defined.

driverid specifies the name of the line driver to be used for communication on the link. driverid is the one- to eight-character CMS file name of the TEXT file to be loaded and executed as the link's line driver program (such as DMTNJI, DMTNPT, DMTPOW, DMTRPT, DMTSML, DMTVMB, or DMTVMC). The proper line driver to use with the link depends on the type of remote telecommunications system involved. If driverid is not specified, or is specified as *, a default value of undefined is assumed, and the line driver type must be specified when the link is activated by a START command.

cuu specifies the virtual device address of a permanent telecommunications port to be used for communication on the link being defined. Valid virtual device addresses are hexadecimal 2 through 5FF. If cuu is not specified, or is specified as *, a default value of undefined is

assumed, and the port address must be specified when the link is activated. RSCS treats virtual channel 0 as a byte multiplexor channel, and virtual channels 1 through 5 as selector channels. All devices attached to RSCS should be on virtual channel 0, except Channel to Channel Adapters, which must be on one of the virtual selector channels. Devices should not be on the same virtual channel as the RSCS system disk (channel 1). Since only one I/O operation at a time may be outstanding on a selector channel, placing multiple devices on any selector channel may result in severe performance degradation.

For a 3270 Information Display System Printer attached to RSCS via a Binary Synchronous Communication (BSC) line, the port specification must be the same as the "cuu" operand of the DEDICATE NETWORK CP directory statement or the the CP NETWORK ATTACH command. For details of the CP NETWORK command, refer to the VM/SP Operator's Guide. For details of the DEDICATE directory statement, refer to the VM/SP Planning and System Generation Guide.

NOTE: Only one Channel-to-Channel Adapter path may exist between any two real channels, as RSCS does not support configurations that provide more than one Channel-to-Channel Adapter path.

- | | |
|-------|--|
| zone | specifies the number of time zone boundaries between the link's remote location and Greenwich to the east, the International Date Line being considered as a time zone boundary. The zone number is used to convert System/370 Time-Of-Day to date and time for use in messages to the remote location. Valid zone numbers range from decimal zero through 24. If zone is not specified, or is specified as *, a default value of zero (Greenwich Mean Time) is assumed. |
| task | specifies a task name for use by the line driver program. Each RSCS task must have a unique task name while it is active. Attempts to activate a link using a task name identical to the task name of a concurrently active task will fail with an error diagnostic message. Valid task names are one- to four-character alphameric names. Task names reserved for RSCS system control tasks are REX, AXS, and LAX. If task is not specified, or is specified as *, the task name defaults to the first four characters of the specified linkid. |
| class | restricts the classes of files that may be transmitted by the link. A valid class specification is a one- to four-character word, each character of which is one of the VM/SP spool classes A through Z or 0 through 9. Files will be transmitted in class order, left to right. If class is not specified, or is specified as *, a default class of * is assumed, allowing files of all classes to be transmitted. |
| keep | specifies the number of virtual storage file tag slots to be reserved for exclusive use by the link. Valid keep specifications are decimal numbers from zero to sixteen. If keep is not specified, or is specified as *, a default keep specification of 2 is assumed. |

Note: In order to reduce table-search time, place those linkid's that are used most frequently at the beginning of the group of LINK control statements.

LOCAL Control Statement

LOCAL defines the location identifier and time zone of the local RSCS system.

LOCAL must appear before all other control statements in the RSCS directory, and it must appear exactly once.

LOCAL	localid [zone *]
-------	-----------------------

localid is the one- to eight-character location identifier used to address the local RSCS installation. It must be unique among all potentially interconnected locations.

zone specifies the number of time zone boundaries between the local location and Greenwich to the east, the International Date Line being

considered as a time zone boundary. The zone number is used to convert local date and time to and from System/370 Time-Of-Day format. Valid zone numbers range from decimal zero through 24. If zone is not specified, or is specified as *, a default value of zero (Greenwich Mean Time) is assumed.

MSGNOH Control Statement

MSGNOH specifies that RSCS is to use the CP MSGNOH command when issuing messages.

The MSGNOH statement may be specified only once or omitted.

MSGNOH	
--------	--

There are no operands on this statement. The USER statement in the CP directory entry for the RSCS virtual machine must add the privilege class of "B" if this statement is included in the RSCS directory.

OPFORM Control Statement

OPFORM allows the RSCS installation to specify the default operator form name for print files, and is analogous to the DEFPRT keyword of the VM/SP SYSFORM macro.

The OPFORM statement (if present) must immediately follow the LOCAL statement and precede any other statement.

OPFORM	opfrmnam
--------	----------

opfrmnam is the default one- to eight-character operator form name for print files and should be the same as that specified in the CP SYSFORM macro.

Note: If the OPFORM statement is omitted, the default form name is STANDARD. When specifying the default form name, the operator form name must be specified -- the default form name specified with the DEFPRT keyword of the CP SYSFORM macro is actually the user form name; CP obtains the operator form name from a list of user/operator form name pairs. While it is possible to specify any form name as the operand of the OPFORM statement, it is recommended that for consistency of operational characteristics between VM/SP and RSCS that the names agree.

PARM Control Statement

PARM defines a default parameter string of arbitrary text information to be made available to a line driver when a link is activated by a START command. The parameter string is generally used to specify processing modes or other options to a line driver; its format and content depend on the type of line driver. The parameter string specified in the PARM statement may be overridden by the PARM parameter on the START command.

The PARM statement refers to a link that must have been defined by a previous LINK statement, and only one PARM statement may be included in the RSCS directory for a particular link.

PARM	linkid	[parmtext]
------	--------	------------

linkid is the one- to eight-character identifier of the previously defined link to which the parameter string is to apply.

parmtext is any arbitrary character string, bounded by the leftmost and rightmost nonblank characters, which provides initialization information to a line driver at link activation time.

PORT Control Statement

PORT specifies a single switched BSC port that can be dynamically allocated for communication with a remote location at link activation time. Telecommunication ports may be defined for use with a particular link in a LINK statement in the RSCS directory, or as the object of a LINE keyword in a START command. If the port is not defined by either means, RSCS searches for an available switched port that has been defined by the PORT control statement in the RSCS directory. If one is found RSCS assigns it to the newly activated link, and notifies the operator of the assignment.

PORT	cuu
------	-----

cuu specifies the virtual device address of a switched (dial-able) telecommunications port that can be dynamically allocated for communication to a remote location to which no leased line connection exists. Valid virtual device addresses are hexadecimal 002 through 5FF. Refer to the description of 'cuu' on the LINK control statement for considerations in selecting a virtual device address.

ROUTE Control Statement

ROUTE defines a remote location with which the local RSCS installation can communicate indirectly through one or more interconnected locations. A ROUTE statement specifies the location ID for a single remote location, and the link ID of the link on which transmissions destined for that remote location are to be made.

The link ID specified in the ROUTE statement must have been defined in a preceding LINK statement.

ROUTE	locid linkid
-------	--------------

locid is the one- to eight-character location identifier of the remote location that is being defined for indirect communication.

linkid is the one- to eight-character link identifier of the link on which transmissions destined for the remote location are to be made. This link must have been defined by a preceding LINK statement.

Note: In order to reduce table-search time, place those locid's that are used most frequently at the beginning of the group of ROUTE control statements.

TAGS Control Statement

TAGS allows the RSCS installation to request extra tag queue elements, or "tag slots," to be used to enqueue files for transmission. When RSCS receives more files for transmission than can be enqueued in its available tag slots, the files are made pending. Pending files cannot be managed through the RSCS command language.

The maximum number of tag slots that can be generated is computed as the size of the RSCS virtual machine's virtual storage divided by decimal 1024 (one tag slot per K of virtual storage). The sum of the tag slots specified to be kept in link definitions plus the number of extra tag slots requested in the TAGS control statement are generated at RSCS initialization, up to the maximum number of tag slots. If the number of extra tag slots requested in the TAGS statement exceeds the maximum, RSCS generates the maximum number of tag slots and issues a diagnostic error message. Otherwise, if the sum of the link keep specifications plus the request from the TAGS statement exceeds the allowable maximum, RSCS generates the maximum number of tag slots, but issues no diagnostic error message.

A TAGS statement may be specified only once or omitted.

TAGS	nnnnn
------	-------

nnnnn specifies the decimal number of extra tag slots requested to be generated at RSCS initialization time. This number represents the

greatest number of files that may be concurrently enqueued in addition to those enqueued using tag slots specified to be kept in LINK control statements, assuming RSCS virtual storage is sufficiently large to avoid truncation of tag slot generation. Valid requests for extra tag slots range from decimal 1 through 16384. A fixed-length block of virtual storage must be reserved for each tag slot generated at RSCS initialization.

RSCS DIRECTORY EXAMPLES

To aid in the definition of your RSCS system this section illustrates minimum RSCS directory examples for three simple networks. Each example presents the directory contents as viewed by each node in the network.

- Figure 2-7 shows the simplest form of a job network consisting of two VM/SP systems connected via a teleprocessing line. This network contains two locations, CHICAGO and BUFFALO. The directory at CHICAGO shows a LOCAL entry defining the location and the relative time zone of CHICAGO to Greenwich Mean Time (GMT). The LINK statement shows a direct communication path to BUFFALO. This statement also defines the line driver type to be used for communication with BUFFALO. Note that this must match the line driver type shown on the LINK CHICAGO defined at BUFFALO. The directory at BUFFALO reflects a mirror image of the directory at CHICAGO, showing a LOCAL entry of BUFFALO and a direct communication path (LINK) to CHICAGO.

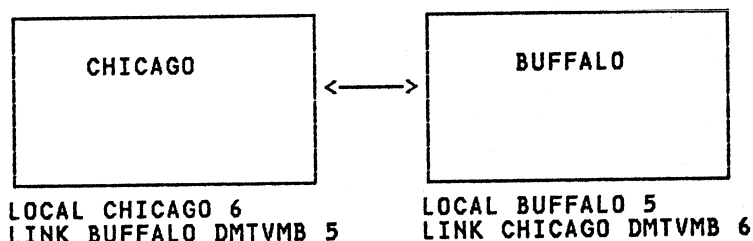


Figure 2-7. Two-Node Simple Network

- Figure 2-8 shows a three-node network consisting of three VM/SP RSCS systems interconnected via two telecommunications lines. Files that originate at CHICAGO and are destined for MIAMI must be stored and forwarded through ATLANTA. The view of the network at CHICAGO shows one direct communications path (LINK) to ATLANTA and one indirect communication path (ROUTE) to MIAMI through ATLANTA. The view of the network from ATLANTA shows direct paths (LINKS) to both CHICAGO and MIAMI, so no ROUTE statements are necessary. MIAMI shows a direct path to ATLANTA and an indirect path to CHICAGO through ATLANTA.

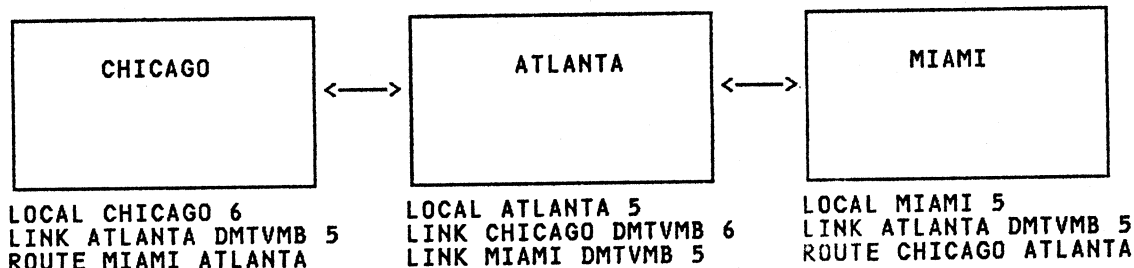


Figure 2-8. Three-Node Store and Forward Network

- Figure 2-9 shows a four-node VM/SP network interconnected via four links, and illustrates alternative paths between two nodes in a network. RSCS provides for the definition of a direct path plus one indirect path to a given location. However, use caution in specifying the network definitions when multiple paths exist: specify the indirect path only on one end of the network connection.

For example, assume the CHICAGO directory contains an alternative path (ROUTE) to BOSTON via TORONTO and the TORONTO directory contains a route to BOSTON via CHICAGO. If the CHICAGO-BOSTON and TORONTO-BOSTON direct links become inactive, a file destined for BOSTON would begin to loop. It would be continually

transmitted between CHICAGO and TORONTO until a link from either location to BOSTON became active. Therefore as shown in Figure 2-9, the indirect path (ROUTE) to BOSTON is specified only at CHICAGO.

Similar examples could be shown for other paths in the sample network. Close coordination is necessary among the individual installations when defining a multisystem network.

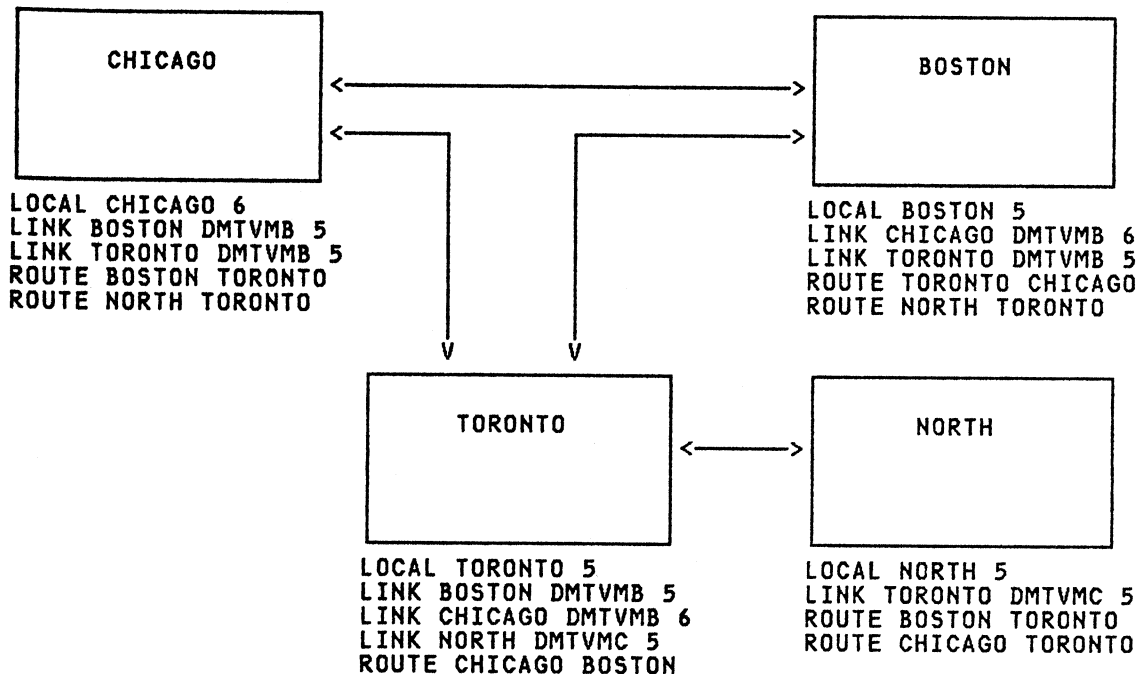


Figure 2-9. Multinode Mesh-Connected Network

USE OF TWO-LEVEL REMOTE ADDRESSING

The destination address structure in RSCS allows for the use of a two-level network address. This feature allows for a locally defined link to be addressed from other locations without having to be defined throughout the network. When a file is received at a destination RSCS location, the userid parameter on the initial user TAG command is first checked against valid links defined at that location. If a matching link ID is found, the file is then routed to that locally defined link. If no link ID match is found, the file will be spooled to the specified virtual machine user ID.

Note: If a user ID is identical to a link ID at its RSCS location, any attempt to address a file to that user ID causes the file to be transmitted on the link and produced as real output at the directly connected remote station.

PART 3: RSCS OPERATION

Part 3 describes the operation of RSCS, and is a guide for the central or alternative operator who needs to control RSCS. The main areas included are:

- A general description of the operation of RSCS.
- A description of the specific procedures to operate RSCS.

OPERATION DESCRIPTION

- | The RSCS operator typically controls the local RSCS facility; the operator can:
- | • Alter the status, transmission priority, class, form, and order of files owned by the RSCS virtual machine.
 - Start, suspend, or stop transmission of files to remote terminals and stations.
 - Reposition or restart files being transmitted.
 - Send messages to remote terminals, stations, and other nodes in the network.
 - Send commands to remote batch processing systems.
 - Query file, link, or system information.
 - Monitor link activity for any directly connected remote location.

RSCS OPERATOR COMMANDS

File attributes and the parameters describing them in the RSCS command language have maximum and default values identical to those of the VM/370 command language. Because many RSCS operator commands are available to remote station operators and alternative operators authorized for a link, only brief descriptions of the commands that apply to the RSCS virtual machine are included in this section. The commands are grouped in a general chronological sequence as an operator would use them. A complete description of all commands, with detailed format, is in "Appendix A: RSCS Commands".

Commands available to the RSCS operator fall into four general classifications: link and line control, file control, communication, and miscellaneous.

LINK AND LINE CONTROL COMMANDS

The RSCS operator commands to manage the links and lines used for file transmission are:

DEFINE	FORCE	READY	START
DELETE	FREE	ROUTE	
DRAIN	HOLD	SHUTDOWN	

DEFINE

Use DEFINE to temporarily add a new link entry to the list of valid links (link table) for the local RSCS installation, or to temporarily redefine an existing link definition. (Permanent link definitions or redefinitions can only be made by modifying the RSCS Directory.) A link definition, with a link identifier equal to the location identifier of a remote station, must exist in the RSCS link table before any transmission of files, to or from that remote station, can occur.

DELETE

Use DELETE to temporarily delete a link definition from the RSCS link table. (Permanent link deletions can only be made by deletion from the RSCS Directory.) The link to be deleted must be inactive (drained or not started), and must have no unprocessed files addressed to it. Files later addressed to a deleted or undefined link are purged from the system.

DRAIN

Use DRAIN to deactivate an active link. If the link is currently processing a file, the link is deactivated when the current file has completed processing. If no file is being processed, the link is deactivated immediately.

FORCE

Use FORCE if the DRAIN command fails to deactivate a link. FORCE immediately deactivates the specified link and terminates its line driver task regardless of the status of file processing.

FREE

Use FREE to resume transmission on a link previously in HOLD status.

HOLD

Use HOLD to temporarily suspend file transmission on an active link without deactivating it. Transmission is suspended at the end of the file currently being processed unless a keyword is entered signifying that transmission is to be halted immediately. In either case, transmission is restarted at the interrupted point when FREE is issued.

ROUTE

Use ROUTE to define, modify, or delete an entry in the RSCS routing table. Files are automatically reenqueued following execution of a ROUTE command, so that transmission of rerouted files can begin immediately.

SHUTDOWN

Use SHUTDOWN to terminate RSCS operation normally. SHUTDOWN effectively issues a DRAIN command to each currently active link.

READY

Use READY to provide for communication between the workstation operator and RSCS when using AUTO or SETUP mode forms selection. READY is analogous to the function performed by making the printer ready in CP forms support. This command provides for two functions:

- If issued after a pending mount request in AUTO mode, normal printing of the file proceeds.
- If issued after a pending mount request in SETUP mode, the printing of the setup page takes place.

START

Use START to activate an inactive link. Certain keyword options may also be entered to temporarily override the link definition in the link table. This command may be issued to an active link solely for the purpose of altering the class of files to be processed on that link, resetting a DRAIN operation before it has completed, or altering forms name or mode.

FILE CONTROL COMMANDS

Files sent to the RSCS virtual machine for transmission are put into the file queue assigned to the particular link to which the file is addressed. Files waiting in a queue to be transmitted are called inactive files; those being transmitted are called active files. The RSCS operator uses different commands for each kind of file:

For Inactive Files	For Active Files
CHANGE ORDER PURGE REORDER TRANSFER	BACKSPAC CLOSE FLUSH FWDSPACE

CHANGE

Use CHANGE to alter one or more attributes of a file owned by the RSCS virtual machine, enqueued on some link's file queue, and not currently active.

ORDER

Use ORDER to reorder the files enqueued on a link's file queue. This redefines the sequence in which particular files are processed. An active file cannot be reordered.

REORDER

Use REORDER to cause all inactive files controlled by RSCS to be reaccepted and routed. REORDER is normally not used by the operator but by RSCS during internal operations. See command descriptions for details of REORDER usage.

TRANSFER

Use TRANSFER to redirect specified inactive files enqueued on a link to a new destination. This causes RSCS to dequeue them from the specified link and enqueue them on the link associated with the new destination.

PURGE

Use PURGE to remove all or specified files, enqueued on a link, from the system before being processed. An active file cannot be purged.

FLUSH

Use FLUSH to discontinue processing the current file on a specified link. The discontinued file is either purged or held and link processing continues with the next file enqueued for transmission on that link. If the COPY attribute for the file specified multiple copies, only that current copy is discontinued unless the discontinuance of all copies for the file is also specified.

CLOSE

Use CLOSE to clear the files if a link unexpectedly becomes inactive while processing active files. Active input files are reenqueued as inactive and later retransmission begins at the start of each input file. Active output files are purged.

BACKSPAC

Use BACKSPAC to restart or reposition, in a backward direction, the file currently being processed on the specified link.

FWDSpace

Use FWDSpace to reposition, in a forward direction, the file currently being processed on the specified link.

COMMUNICATION COMMANDS

The RSCS operator can communicate with a remote station via the CMD or MSG commands. CMD is for sending a command to a remote system. MSG is for sending a message to a remote operator or user.

CMD

Use CMD to control functions performed by a remote system such as a HASP or ASP type batch processor, a remote RSCS, a remote VSE/POWER system, or a remote NJI-compatible system.

RSCS does not process the command text; RSCS transmits the text to the remote system specified (except for VSE/POWER, version 1, commands). The functional meaning of the command text depends on the nature of the remote system that receives the command.

For information on the allowable commands, refer to the appropriate manuals listed in the Preface.

CMD is also available to the virtual machine user via the CP SMSG command; refer to the discussion starting on page &smgpa..

MSG

Use MSG to send a message (as opposed to a command) to a remote station operator, remote RSCS operator, remote NJI system operator, remote VSE/POWER (version 1) operator, or remote virtual machine user. The text portion is made available to the line driver for the specified link. MSG is also available to the virtual machine user via the CP SMSG command; refer to the discussion starting on page &smgpa..

MISCELLANEOUS COMMANDS

Other commands are available to the RSCS system programmer and operator to monitor and control the local network. They are:

* (comment)	DISCONN	QUERY
CP	EXEC	SET
CPQUERY	HT	TRACE

* (comment)

Use the * command to place comments or notations on the RSCS operator's console listing. It is accepted by the command processor but performs no function.

CP

Use CP to pass any permitted commands to the VM/370 Control Program without leaving the RSCS environment. (This command is available to an authorized operator only under certain conditions. See the AUTH directory statement, page &authstp..)

CPQUERY

Use CPQUERY only in a CMD command to request remote CP status information to be printed on the RSCS operator's console. The operator can request the following:

- Indications of processor usage and contention
- Indications of main storage usage and contention
- Log messages of the day
- Userid and real address of each user logged on
- The current real clock time:
 - Time of day
 - Time zone
 - Day of week
 - Calendar day
- Connect time of the RSCS virtual machine
- Number of users logged on
- Number of users logically connected to other virtual machines
- Userid and terminal address of a specified user

CPQUERY is also available to the virtual machine user via the CP SMSG command. Refer to page &msgspa. for details.

DISCONN

Use DISCONN to disconnect the RSCS operator's console from the VM/370 system while RSCS continues to operate. An optional userid may be entered in the command line to specify the virtual machine that is to receive all RSCS operator console output lines. If no virtual machine is specified, the RSCS console output lines are discarded without being printed.

EXEC

Use EXEC to execute frequently used sequences of RSCS commands. The commands are stored in a CMS file on the RSCS system disk with a file type of RSCS.

HT

Use HT to suppress the printing of any unwanted messages stacked for output to the RSCS operator's console.

QUERY

Use QUERY to request RSCS status information to be printed on the RSCS operator's console or remote station printer. The information requested can be for a particular link, a specific file, or for RSCS in general.

For a particular link, the operator can request status, activity, default, file, or queue information.

For a specific file, the operator can request status information, RSCS-related file attributes, or VM/370 spool-related attributes.

The RSCS operator can request a brief description of each inactive link, active link, port, non-zero queue, or route currently defined in the system.

QUERY is also available to the virtual machine user via the CP SMSG command. Refer to page &msgspa. for details.

SET
Use SET to request or disable console message routing. Use of the SET command is permitted only to an authorized alternative RSCS or link operator.

TRACE
Use TRACE to monitor line activity on a specified link. The trace information message includes the total number of communication line transactions (write/read combinations), the number of communication line transactions ending with a line error indication, and the number of timeouts that occurred on the line.

The line activity indicators are constantly accumulated by an active line driver, but printing of the results on the RSCS operator's console is initiated only through the TRACE command. The TRACE command with the LOG or ALL operand results in the creation of a printer spool file containing a detailed log of every I/O transaction on a link. The TO operand allows the log output to be routed to a specified remote location.

RSCS MESSAGES

RSCS issues messages in response to commands, and during execution. The response message is delivered to the associated command originator, generally the RSCS local or remote operator, or both, depending on the availability of the remote station printer to serve as an operator console output medium. When RSCS is operating in disconnected mode, it issues unsolicited messages to another virtual machine console or to the VM/370 operator's console by means of the VM/370 MESSAGE or MSGNOH commands, if specified in the DISCONN command. Console spooling can also be used to record messages issued to the RSCS operator's console when the RSCS virtual machine is operating in disconnected mode. If these options are not taken, these messages are discarded.

Certain unsolicited messages are issued to virtual machine users via the VM/370 MESSAGE or MSGNOH commands when the message pertains to a file originated by or destined for the user.

For a detailed listing and description of all RSCS messages, see "Appendix B: RSCS Messages".

RSCS message codes conform to VM/370 standards. The first three characters in all RSCS message codes are "DMT". The origin of each message is encoded as the fourth, fifth, and sixth characters of each message code. The seventh, eighth, and ninth characters are the message number. The tenth character is the message severity code; the possible codes are R (response), I (information), E (error), S (severe error), and T (termination of RSCS processing). Printing of the ten-character message codes may be suppressed by the RSCS operator by use of the CP SET EMSG TEXT command.

RSCS uses the Diagnose function of CP to handle console functions such as DEFINE and DETACH. Use of these VM/370 commands by RSCS results in two confirming messages being printed on the operator's console for each file processed by RSCS. The RSCS operator can issue the CP command SET IMSG OFF to suppress informational messages.

If an unrecoverable error occurs, RSCS enters a disabled wait state. If either the DMTREX090T or DMTREX091T message is displayed on the RSCS operator's console, an automatic virtual storage dump is also taken. Otherwise, issue either the CP VMDUMP command (to use IPCS) or the CP DUMP command.

ELIMINATING CP MESSAGE HEADERS

If the RSCS directory contains a MSGNOH statement, and if your RSCS virtual machine is running with a CP privilege class of B, RSCS will use the CP MSGNOH command (instead of the CP MESSAGE command) when issuing messages to a user. When the CP MSGNOH command is used, the standard message header and time stamp do not accompany the text. This improves the readability of the user's console by producing a more succinct message and (when a group of them are issued), they are not separated by blank lines. For example, consider the following response to the command "CP SMSG NET1 QUERY PRINT QUEUE":

Response with CP MSG command:

08:46:26

MSG FROM NET1 : DMTCMX654I LINK PRINT S=0 R=0 Q=1 P=0

08:46:26

MSG FROM NET1 : DMTCMX655I FILE 7370 (7370) PRINT SYSTEM CL A PR 3 REC
00000149 NOH

Response with CP MSGNOH command:

DMTCMX654I LINK PRINT S=0 R=0 Q=1 P=0
DMTCMX655I FILE 7370 (7370) PRINT SYSTEM CL A PR 3 REC 00000149 NOH

COMMUNICATING WITH NON-VM/370 NJI/NJE SYSTEMS

RSCS supports a subset of the full NJI protocol defined by the Network Job Entry Facility for JES2. For details of the full NJI protocol refer to Logic: Network Job Entry For JES2, LY24-6001. The following points must be considered when communicating with any non-VM/370 NJI/NJE system:

- The DMTNJI line driver supports the predefined connection protocol used by JES2/NJE. Therefore, any connection between RSCS and JES2/NJE must be predefined by the JES2 system using a CONNECT statement in the JES2 initialization deck. Failing to include the CONNECT statement produces unpredictable results at link connection time. Additional CONNECT statements must be added to the JES2 initialization deck for any locations receiving files from JES2 through the predefined RSCS connection.
- The DMTNJI line driver uses a single transmission stream (either job or output) to a remote system. It supports the simultaneous reception of one job stream and one output stream.
- When a file with multiple destinations is received by DMTNJI, the file is stored and forwarded by RSCS as separate files. When a job output file containing files with different attributes is processed by RSCS (such as an output file containing both print and punch files), it is stored and forwarded as separate files.
- Only certain fields present in commands and messages that are destined for another node are stored and forwarded through an RSCS node. These fields include the originating and destination user-ID and node names and the command or message texts. Fields that are not stored and forwarded include the originating and destination node qualifiers, console identifiers, and logical routing information. For a description of these fields, see "Section 5: Data Areas - NJI Header Formats" in the RSCS Logic book.
- RSCS modifies certain types of output stream data:
 - When records containing ASA control characters are received by DMTNJI, the control characters are converted to machine control characters before being placed in the CP spool system. Upon any subsequent retransmission to another node, the characters are sent as machine control.
 - Print records that were received without any carriage control have a Write-Space 1 (X'09') carriage control character added before they are placed in the CP spool system. These records are then forwarded to another node as machine carriage control records with the added characters still attached.
- RSCS has limitations on the data that it stores and forwards. The limitations are:

- Trailing blanks are always truncated on all records received by RSCS and such blanks are lost when the records are forwarded to another remote system.
- RSCS will not accept job stream files that contain any records longer than 80 characters. This restriction includes records within SYSIN files in the job stream. Files containing such records are rejected by sending a receiver cancel RCB (X'B0') to the sending system.
- RSCS will truncate characters in an output stream record that is longer than is allowed for the file type used to store the file in the CP spool system. Such characters are not restored if the file is forwarded to another system. For example, if RSCS stores a file in the CP spool system as a 3211 file, no record longer than 150 characters will be forwarded intact.
- Data records destined for a 3800 printer, which can be up to 204 bytes long, will be truncated to 150 unless the file is sent with the OPTCD=J parameter specified. If RSCS is running on VM/SP Release 1, the records are always truncated to 150 bytes.
- RSCS does not support spanned records with ASA carriage control when it acts as an end node in an NJI/NJE network.
- RSCS will reject a file, if it contains data of a type it cannot process, by sending a receiver cancel RCB (X'B0') to the sending system. Message DMTNCM956E is sent to the RSCS operator when this occurs, but none is sent to the sending system. An example of a file that might be rejected is one containing spanned records, when RSCS does not have enough free storage to process them.
- If RSCS finds an error in a file that it is transmitting, it immediately stops transmission, sends an immediate termination SCB (X'40') to the receiving system, and issues a DMTNCM580I message to the RSCS operator.
- NJE global commands not destined for the local node are stored and forwarded to the final destination system in the normal manner. Global commands directed to the local RSCS system by DMTNJI are translated into the appropriate RSCS commands. If the final transmission link to the local RSCS system is not through the DMTNJI line driver, global commands are not processed by RSCS.

ID CARD FORMAT FROM REMOTE STATIONS

The ID card is entered at the beginning of a deck of cards from a remote terminal to specify the network destination of the file being entered. The format of a single-parameter ID card is:

```

ID      userid
|      |
1      10

```

userid specifies the destination user at the directly connected RSCS location to which the file following the ID card is addressed.

The format of a two-parameter ID card is:

```

ID      locid userid
|      |
1      10

```

locid and userid specify the destination location and user address to which the file following the ID card is addressed. userid may be replaced by the keyword SYSTEM if the file is to be produced as real unit record output at the destination location, and by the keyword JOB if the file is to be entered as a job at the destination batch processing system via the Network Job Interface (NJI).

HEADER CARD FORMATS FOR THE VM/370 REAL READER

Files or jobs may be submitted through the VM/370 real card reader to RSCS for transmission. The data deck to be transmitted must be preceded by an ID card to direct it to the RSCS virtual machine and a 'tagtext' card to specify destination. The formats of these cards are:

ID	userid	CLASS	n	<	<table border="1"><tr><td>filename</td><td>filetype</td></tr><tr><td>dsname</td><td></td></tr></table>	filename	filetype	dsname		>
filename	filetype									
dsname										

ID is a mandatory keyword.

userid specifies the name of the RSCS virtual machine.

CLASS is an optional keyword.

n specifies the file class. The options are A-Z and 0-9. The default is A.

filename specifies the label on the input data.
dsname

filetype specifies the type of file if filename is used.

The punching must start in card column one and each field must be separated by a blank column.

The second card contains the tagtext portion of the TAG command used when submitting a file from a virtual machine user console.

tagtext

Punching starts in card column one and all fields are separated by a blank column. A sample job file submitted through the real card reader to RSCS for transmission to the node HOUSTON is:

ID RSCS	First card (ID card)
HOUSTON JOB	Second card (tagtext card)
//xxxxxxxxxx	Job file to be transmitted
//xxxxxxxxxx	to HOUSTON by RSCS.
//xxxxxxxxxx	

OPERATION PROCEDURES

SYSTEM START-UP

Normally starting RSCS requires no operator action after the RSCS virtual machine IPL. The route and link tables are created during the system initialization from the RSCS directory on the RSCS system disk. The line drivers are normally started by the automatic execution of the PROFILE RSCS file. (All required START commands for the line drivers are placed in the PROFILE RSCS file by the system programmer at system generation time.)

Additional line drivers may be started individually, if required, by using the START command formats shown in the following descriptions of starting the various line driver types.

Any temporary changes desired in the link and route definitions can be made using the commands described under "Dynamic Reconfiguration", on page 3-26.

SYSTEM SHUT-DOWN

Operation of the RSCS virtual machine is terminated when the RSCS operator issues the SHUTDOWN command. This effectively issues a DRAIN command to each active link. Any link that is currently processing a file will complete that file and then deactivate. A link that is not processing a file deactivates immediately. When all links have reported successful deactivation, the RSCS operator may logoff his RSCS virtual machine.

Any files waiting for transmission at the time of system shutdown will be retained by the VM/370 spooling facility. These files will be reaccepted and enqueued to the appropriate links when the RSCS virtual machine is started again.

USING WORKSTATION FORMS CONTROL

Print file selection by form name allows the central RSCS operator (or an authorized alternative operator) to specify which group(s) of spool files is to be printed on a remote workstation printer. Print file selection by form name in RSCS is compatible with the forms selection in the VM/System Product, within the constraints imposed by the local and remote spooling operations.

The operator can individually specify each type of form to be printed, or can direct RSCS to select the types, based on the form names of the files that are contained in the queue for a particular link. The line drivers DMTNPT (for BSC workstations), DMTRPT (for 3270 Information Display System Printers), and DMTSML (for BSC multileaving workstations) are eligible for forms control.

In the following discussion, the terms "user form name" and "operator form name" refer to the form naming conventions introduced in VM/SP. The user form name is the form name given to the file by the virtual machine user by means of the CP SPOOL and CLOSE commands. Optionally, the installation can associate a corresponding operator form name with each user form name, by use of the CP SYSFORM macro when the CP system is generated. The SYSFORM macro creates a table of pairs of form names. The user can then create a spool file with the form name specified in terms that are useful to him (for instance, "MEMO" or "TAXFORM"), while the CP operator can likewise refer to the file's form name in terms that are meaningful to him (such as "TN6N" for TN print train, 6 lines per inch, narrow paper). If no table is specified with SYSFORM, or if a user form name has no entry in the table, the operator form name is assumed to be the same as the user name.

Print file selection by form name is accomplished by means of the OPFORM RSCS directory statement, and the START, CHANGE, and READY commands.

RSCS initialization [see "Part 2: RSCS Installation"] includes the creation of the RSCS directory, which defines the local RSCS system and its view of the network in which it participates. The OPFORM directory statement allows the

local system to specify the default operator form name. The form name is analogous to, and should agree with, the value of the DEFPR parameter of the VM/SP SYSFORM macro. Omitting the OPFORM statement produces a default operator form name of "STANDARD". [See page &opfstp. for details of the OPFORM directory statement.]

By using the START command to activate a link to a remote workstation printer, an RSCS operator can

- request and verify that a particular printer form has been mounted on the remote workstation printer,
- transmit a setup page to the workstation printer, if requested by the workstation printer operator,
- transmit to the printer files with either
 - a specified operator form name,
 - all operator form names, but of a specified class.

In the latter case, automatic messages prompting the workstation operator to change print forms are produced when a different group of files that have the same form name is first encountered.

[See the material in "Appendix A: RSCS COMMANDS", and on starting SML, NPT, and RPT line drivers later in this section for details of the START command.]

By using the CHANGE command, the RSCS operator can change the user form name (as well as other attributes) of a file that is in an inactive link's file queue. [See "Appendix A: RSCS Commands" for details of the CHANGE command.]

The READY command is used by the remote workstation operator to indicate to RSCS that the operator

- has responded to a prompting message that requested a printer form change, or
- is requesting that a set-up page be printed.

[See "Appendix A: RSCS Commands" for a discussion of the READY command.]

FILE SELECTION EXAMPLES

The following illustrates use of the RSCS START and READY commands.

No Form Selection:

```
START 'linkid' CLASS ABCD FORM * MANUAL
```

All files of classes A, B, C, or D are transmitted to the workstation. Forms are ignored; no forms-change messages are produced.

Manual Form Selection for Any Class:

```
START 'linkid' CLASS * FORM 12345 MANUAL
```

All files with form "12345" will be transmitted to the workstation, regardless of class.

Manual Form Selection for Specific Classes:

```
START 'linkid' CLASS DCBA FORM 12345 MANUAL
```

All files with form "12345" will be transmitted to the workstation. Class D files are transmitted before class C, etc.

Automatic Form Selection:

```
START 'linkid' CLASS * FORM FORM1 AUTO
```

- The first file in the queue for 'linkid' with the form name "FORM1" is selected. If there are none, the first file in the queue is selected.
- RSCS sends a prompting message to the workstation:
DMTAXM113I LINK 'linkid' PRINT MOUNT REQUIRED CLASS * FORM 'form' AUTO
where 'form' is the operator form name of the selected file; in this case, it is probably "FORM1". The operator now has four choices:
 - Accept the forms-mount request. This is done by mounting the required form on the workstation printer and responding either START 'linkid' or READY 'linkid'.
 - Ask RSCS for a different form, or terminate AUTO mode. This is done by entering the START command with a different form name or with the MANUAL option. A new file may be selected.
 - Drain the link by issuing the DRAIN 'linkid' command. The mount request will be canceled and the link will be drained.
 - Start processing the next file by issuing a FLUSH command. (If there are no other files with the same form name, the file will be re-transmitted.)
- RSCS starts transmitting the file to the workstation. The operator may issue the QUERY 'linkid' ACTIVE command to see how many records are left to be transmitted, or the FLUSH command to stop transmitting the file.
- When the active file has been transmitted, it is purged from the queue and a search is made for another file with the same form name. If one is found, it is transmitted immediately. If none are found, a search for a new form name is made and the prompting message is issued.

Automatic Form Selection With Set-up Pages:

START 'linkid' CLASS * FORM FORM1 SETUP

As in the preceeding example, the prompting message is issued:

DMTAXM113I LINK 'linkid' PRINT MOUNT REQUIRED CLASS * FORM 'form' SETUP

Note, however that the word "SETUP" has replaced the word "AUTO". If the operator accepts the form request by mounting the required form and issuing a READY command, RSCS starts transmitting the file in SETUP mode. That is, only one page is transmitted at a time, and the data is masked by translating numbers to 9's and letters to X's. After the page prints, the operator can manually adjust the workstation printer alignment and (to verify alignment) either issue a READY command to print the next page, or issue BACKSPAC and READY commands to reprint the same page. When the forms are properly aligned, the START 'linkid' command is issued and the file is transmitted normally, beginning with the first page.

As in the previous example, when the file has been transmitted,

- other files with the same form name are transmitted and printed,
- enqueued files with other form names are located,
- forms-mount request messages (and setup pages) are transmitted, and
- the process repeats until the queue is emptied.

As in the preceeding example, if the operator does not accept the forms-mount request, he has the options of asking for a different form, terminating the (SETUP) mode, draining the link, or flushing the file.

STARTING LINE DRIVERS

Line drivers manage the transmission of files between the RSCS virtual machine and a particular class of remote nodes, terminals, or stations. Seven line drivers are supplied with RSCS designated as DMTSML, DMTPOW, DMTNPT, DMTRPT, DMTVMB, DMTVMC, and DMTNJI. See the section on "Line Drivers" in "Part 1: Introduction" for a detailed description of the function of each line driver.

The RSCS operator initiates a line driver for a particular link by issuing the START command. If the previously defined link definition is still valid, only

START linkid

need be specified. If any of the link attributes must be changed for this communication session, the START command with appropriate operands is used. For example, if the link to HOUSTON had been defined with a line address of 0B1 and a class of G, and the current session is to handle class S output on line address 0B3, the START command would be:

START HOUSTON CLASS S LINE 0B3

For this session only, the HOUSTON link processes only class S output and uses the line port with virtual address 0B3. Output other than class S remains queued on Houston's link and is not transmitted until the class attribute is changed.

Since more than one link can require the same line driver, multiple copies of a line driver can be active simultaneously. Each copy is assigned a task name when the link is defined; otherwise, a default task name is generated by RSCS when the link is activated.

After the line driver is activated during system start-up or by the RSCS operator, the link for a leased line is ready for a remote station to "sign on" with its identification and station characteristics. A link using a switched line must first complete a line connection by a dial-up procedure from either end of the link. The sign-on procedure varies by line driver and is covered in the following line driver discussions.

STARTING AN SML LINE DRIVER (DMTSML)

Before a remote station can sign on to SML, the appropriate task for that link must have been started during system start-up or by the RSCS operator. The START command for SML and the variables to be specified are:

STAr	linkid [TYPE DMTSML] [LINE vaddr] Parm < <table><tr><td>Hrn</td></tr><tr><td>Rrn</td></tr><tr><td>Arn</td></tr><tr><td>Mrrn</td></tr></table> > [Bnnnn] <table><tr><td>password</td></tr><tr><td>user/pwd</td></tr></table>	Hrn	Rrn	Arn	Mrrn	password	user/pwd
Hrn							
Rrn							
Arn							
Mrrn							
password							
user/pwd							

linkid is the location identifier of the remote station.

DMTSML is the name of the line driver to be used. This specification overrides the driver name which may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in a link definition.)

Parm is a keyword signifying that one or more parameters follow.

Hrn sets SML mode, indicating that SML operates as a remote job entry system into a remote HASP or JES2 system as remote number rn.

- Rrn** sets SML mode, indicating that SML operates as a remote job entry station into the Remote Entry Subsystem (RES) of OS/VSI as remote number rn.
- Arn** sets SML mode, indicating that SML operates as a remote job entry system into a remote ASP or JES3 system as remote name rn.
- Mrn** sets SML mode, indicating that SML operates as host to a remote programmable station signing on as remote number rn.
- Bnnnn** indicates the telecommunication buffer size. The maximum value of nnnn is 1017. If the operand is omitted, the buffer size defaults to 400. If the optional password operand is specified, the buffer size must be entered.
- password** is an optional operand, used by the DMTSML line driver to validate the start of a terminal session as follows:
- In RJE mode, the specified identification is passed along to the remote system as part of the SIGNON record.
If the remote system is HASP, ASP, or JES, the identification consists of a one- to eight-character line password.
If the remote system is RES, the identification consists of a one- to eight-character userid followed by a slash character followed by a one- to eight-character password for a maximum of 17 characters.
 - In HOST mode, the identification consists of a one- to eight-character password that the remote station must supply on its SIGNON card in order to connect to RSCS. If no password is entered on the START command, or has been supplied to the RSCS directory by means of the PARM directory control statement, none is required from the remote station.

For a general description of the START command (including additional operands), refer to "Appendix A: RSCS Commands".

If the operator has initialized the appropriate SML task, contact may be established by dialing the other location from either end of the link. If the line specified is a leased line, or if the above contact procedure has been successfully accomplished, the sign-on procedure is then executed.

Signing On in RJE Mode

If SML is operating in RJE mode, the SML task signs on to the remote HASP/ASP system. Using information from the START command and standard HASP/ASP protocol, SML builds a SIGNON record and submits it to the remote system. When the remote system accepts the SIGNON record, SML is notified and communication on the link is initiated.

Signing On in HOST Mode

If SML is operating in HOST mode, the remote station must submit the sign-on information. Because remote programmable stations are loaded with Remote Terminal Processor (RTP) programs to communicate with RSCS, the SML SIGNON card or its equivalent is included in the program deck. A password for system security may also be included. The format of the SIGNON card is:

1	16	25
/xSIGNON	REMOTErn	password

The value of rn following the keyword REMOTE must match the terminal number specified in the Mrn operand of the START command.

A password is required only if the START command specified a password operand, or if a password was part of the link definition in the RSCS link table. If the password option is in effect, the password entered must match that in the START command or link table for the sign-on procedure to be completed.

The SIGNON card must be completely processed (end-of-file generated) before commands or input card decks can be submitted.

File Processing in RJE Mode

SML, operating in RJE mode, transmits files consisting of job control records and data to remote MULTI-LEAVING batch systems such as HASP and ASP. These files can originate from:

- VM/370 users spooling files to RSCS
- Remote terminals submitting card decks, through an NPT line driver with valid destination information in the ID card
- Remote stations submitting card decks, through an SML line driver operating in HOST mode, with valid destination information in the ID card
- Remote NJI/NJE systems submitting card decks.

When the remote batch system has processed the data, printer and/or punch output is transmitted back to SML. This output is then printed or punched on the appropriate real I/O device at the directly connected location.

Input File Processing in HOST Mode

The remote station submits input to the RSCS machine through the remote card reader. This input can be directed to the virtual reader of a VM/370 user or to another remote terminal or location. Output processing at the remote station can usually be interrupted at any point to allow the transmission of input data. The specific procedure for interrupting output processing varies according to the remote hardware being used; this is explained in the "Operating Procedures" for the specific remote station. When the input has been processed, output processing can be resumed from the point of interruption.

A control card is placed in front of the deck to be sent from the remote station to the virtual machine card reader of a user or to another node, remote terminal or station. The format of this card is described under "ID Card Format from Remote Stations" in the preceding "Operation Description" section.

Output File Processing in HOST Mode

When printer and punch files are transmitted to a remote terminal, a header line is created on the output to identify the originating userid, date, and time of transmission. Card decks punched at the remote terminal contain the source header information on the first card punched; the rest of the card is filled with asterisks. Printer files use a carriage control tape with channel 1 signifying the first print line.

In addition to header information, printer files are separated from one another by separator pages which may be seen by the operator, at the edge of the unburst paper, to allow the operator to separate printed output. The separator page format is:

- page eject
- skip 61 lines
- 5 lines of 130 asterisks per line
- 1 line of 130 underscores
- 5 lines of 130 asterisks per line
- 2 blank lines
- the source header line
- page eject
- the print file

The card and print file header information is:

<u>Col</u>	<u>Field</u>	<u>Meaning</u>
1	llllllll	file origin location
13	vmvmvmvm	file origin virtual machine
25	xx/xx/xx	file origin date
37	yy:yy:yy	file origin time
47	x.x.t.	time zone
55	WAS THE ORIGIN	

Remote Station Operator Commands

The remote station operator, under control of SML in HOST mode, is allowed to use a subset of the RSCS commands. In general, the remote operator can issue commands that affect only his specific link. The RSCS commands are described in "RSCS Operator Commands". A complete description of all commands is in "Appendix A: RSCS Commands".

Note: With the exception of the MSG and CMD commands, the linkid operand is not to be entered by a remote station operator when submitting commands to RSCS.

SML Messages

A subset of RSCS operator messages are printed on the remote station console. Generally, they are responses to commands originating at the remote station. For a key to the distribution of messages, see "Appendix B: RSCS Messages".

STARTING A POW LINE DRIVER (DMTPOW)

Before a remote VSE/POWER system can sign on to POW, the appropriate task for that link must have been started during system start-up or by the RSCS operator. The START command for POW and the variables to be specified are:

STArt	linkid [TYPE DMTPOW] [LINE vaddr] [Parm [Cnnn][password]]
-------	--

linkid is the location identifier of the remote station.

DMTPOW is the name of the line driver to be used. This specification overrides the driver name which may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in a link definition.)

Cnnn sets the remote CPUID number, indicating that POW will operate as a remote system to VSE/POWER with global remote ID of nnn. The valid range of nnn is 1-200 and corresponds to the REMOTE= definition on the PRMT macro specified in the VSE/POWER sysgen. If omitted, the default is 001.

password is an optional operand preceded by a "/". The connection to VSE/POWER is validated by comparing the one- to eight-character password with the one supplied by the VSE/POWER operator during the sign-on procedure. The identification consists of a one- to eight-character password that the remote VSE/POWER system must supply in its PSTART RJE command in order to connect to RSCS. If a password is not entered on the START command or was not supplied to the RSCS directory by means of the PARM directory control statement, none is required at sign-on.

For a general description of the START command (including additional operands), refer to "Appendix A: RSCS Commands".

Signing On

The remote node (the VSE/POWER system) must initiate the sign-on procedure. This requires that the VSE/POWER system has been generated with the POW2 parameter of the PLINE macro equal to YES, and the global remote ID specified on REMOTE of the PRMT macro equal to the Cnnn specification on the START command.

Password verification is performed by comparing the password specified on the START command to the password supplied by the VSE/POWER operator. If a password is not supplied, it is assumed to be blanks. The passwords must match for the sign-on procedure to be completed.

Upon completion of the sign-on procedure, POW and VSE/POWER begin hand-shaking with each other. POW issues the messages:

```
DMTPOW142I LINK 'linkid' LINE 'vaddr' CONNECTED
DMTPOW905I SIGN-ON OF LINK 'linkid' COMPLETE
```

File Processing

RSCS accepts files assumed to be VSE/POWER jobs and transmits them to the VSE/POWER system for execution. When the VSE/POWER system has completed its processing, it uses the routing information in the JECL records in the job to determine where to route the output.

Job type input from the VSE/POWER system is not supported and is ignored.

STARTING AN NPT LINE DRIVER (DMTNPT)

Before a remote terminal can sign on to NPT, the appropriate task for that link must have been started during system start-up or by the RSCS operator. The START command for NPT and the variables to be specified are:

START	linkid [TYPE DMTNPT] [LINE vaddr] [Parm [password]]
-------	--

linkid is the location identifier of the remote terminal.

DMTNPT is the name of the line driver to be used. This specification overrides the driver name that may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in the link definition.)

Parm is a keyword signifying that one or more parameters follow.

password is an optional operand of one to eight characters which designates a password that the remote station must supply to be allowed to connect to RSCS. If a password is not entered on the START command or supplied to the RSCS directory by means of the PARM directory control statement, the remote station is not required to supply a password at sign-on time.

For a general description of the START command (including additional operands), refer to "Appendix A: RSCS Commands".

Signing On to NPT

After the operator has initialized the appropriate NPT task, contact may be established on a switched line by dialing the other location from either end of the link. If the line specified is a leased line, or if the above contact procedure has been successfully accomplished, a SIGNON card must then be entered via the card reader at the remote terminal. The SIGNON card must precede all other cards, and is used only once in each session. The SIGNON card must be completely processed (end-of-file generated) before commands or input card decks can be submitted. If the line drops, the SIGNON card must be re-entered via the card reader to restart the line. The SIGNON card designates the type of terminal, its features, and other information:

SIGNON	linkid type [Bnnn] [CMPR] [Pnnn] [TRSx] [PCHx] [LPRT] [PWD= passwd] [TEXT] [HDRx]
--------	--

linkid is the location identifier of the remote terminal. If this does not match the NPT task linkid of the START command, the SIGNON card is not accepted.

type indicates the terminal type (2770, 2780, 3770, or 3780).

Bnnn specifies the line buffer size in terms of the number of bytes (nnn) depending on the terminal type:

<u>Terminal</u>	<u>Acceptable Values</u>	<u>Default</u>
2770	128, 256, or 512	128
2780	170 or 400	170
3770	256	256
3780	512	512

CMPR specifies that the blank compression feature is present on the 2770, 3770, or 3780.

Pnnn specifies the number of print positions (nnn) available at the remote printer, depending on the terminal type:

<u>Terminal</u>	<u>Acceptable Values</u>	<u>Default</u>
2770	120, 132, or 144	120
2780	120 or 144	120
3770	132	132
3780	120 or 144	120

TRsx is entered as TRSY if the remote terminal has the transparency feature and TRSN if it does not. The default is TRSN.

PCHx is entered as PCHY if a punch is available at the remote terminal and PCHN if it is not. The default is PCHN.

LPRT specifies that all print files are to be directed to the line printer. This keyword is valid only when a terminal type of 3770 has been specified. If the keyword is omitted, the default print device is the console printer.

PWD=passwd is a password that must match the password entered by the operator in the START command or contained in the RSCS link table. If no password was entered in the START command or supplied to the RSCS directory by means of the PARM directory control statement, this operand is not needed.

TEXT specifies that all characters contained on a TN text printing chain are allowed to be transmitted to the remote printer.

HDRx is entered as HDRN if no header page is wanted on printed output; the default, HDRY, specifies that a header page is wanted.

Input File Processing

The remote terminal submits input to the RSCS machine via its card reader. This input can be directed to the virtual reader of a VM/370 user or to another remote terminal or location. Output processing at the remote terminal can be interrupted at any point to allow the transmission of input data. When the input has been processed, the output processing can be resumed from the point of interruption.

A control card is placed in front of the deck to be sent from the remote terminal to the virtual machine card reader of a user or to another node or remote station. The card's format is described under "ID Card Format from Remote Stations" in the preceding "Operation Description" section.

| If the userid on the ID card is invalid, RSCS purges the incoming file.

Output File Processing

When print and punch files are transmitted to a remote terminal, a header line is created on the output to identify the originating userid, date, and time of transmission. Card decks punched at the remote terminal contain the source header information on the first card punched; the rest of the card is filled with asterisks. Printer files use a carriage control tape with channel 1 signifying the first print line.

In addition to header information, printer files are separated from one another by header pages, which may be seen by the operator at the edge of the unburst paper, to allow the operator to separate printed output. The format of the separator page is:

- page eject
- skip 61 lines
- 5 lines of 130 asterisks per line
- 1 line of 130 underscores
- 5 lines of 130 asterisks per line
- 2 blank lines
- the source header line
- page eject
- the print file.

The card and print file header information is:

Col	Field	Meaning
1	11111111	file origin location
13	vmvmvmvm	file origin virtual machine
25	xx/xx/xx	file origin date
37	yy:yy:yy	file origin time
47	x.x.t.	time zone
55	WAS THE ORIGIN	

Remote Terminal Operator Commands

The remote terminal operator may use a subset of the RSCS commands. The commands are punched on cards, beginning in column 1, one per card, and are read on the remote card reader. Command cards must precede the ID control card for an input file. In general, the remote operator can issue commands that affect only his specific link. The commands are described under "RSCS Operator Commands". A complete description of all commands is in "Appendix A: RSCS Commands".

Note: With the exception of the MSG command, the linkid operand must not be entered by a remote terminal operator when submitting commands to RSCS.

NPT Messages

A subset of the RSCS operator messages is printed on the remote terminal printer. DMTNPT provides a message queue for workstations that have no separate console printer for messages. When the remote printer has completed processing an output file, the enqueued messages are transmitted and printed. Refer to "Appendix B: RSCS Messages" for a key to the distribution of messages.

STARTING AN RPT LINE DRIVER (DMTRPT)

Before a VM/370 file can be spooled to an IBM 3270 Information Display System printer, an RPT line driver task must be started, either automatically during system start-up or by the RSCS operator. The START command for RPT, and the variables to be specified are:

START	linkid	[TYPE DMTRPT]	[LINE vaddr]
	Parm	[DA-APL DA-TEXT AT-APL AT-TEXT [Bnnnn] [Pnnn] [Lnn] [VFC] [NOSEP] [NOCOMP] [NOOVP] [XNL]	

where:

linkid is the one-to-eight-character name of the 3270 printer to be activated or modified.

TYPE DMTRPT indicates that the DMTRPT line driver is to be used.

LINE vaddr designates the virtual device address (vaddr) of the line port to be used by the link.

Parm is a keyword signifying that one or more parameters follow. A combination of parameters can be given in any order. Note that DA-APL, DA-TEXT, AT-APL, and AT-TEXT are mutually exclusive. Any parameters not specified will assume the default value indicated below.

DA-APL specifies that the printer is equipped with the Data Analysis-APL feature and that all files containing internally represented EBCDIC special APL characters are to be translated to the appropriate two-byte I/O interface codes. Specifying either PRT=TEXT or PRT=NOTR on a CP TAG command will override the DA-APL keyword specified on the START command for all files controlled by that TAG command. All other files will default to the APL translation.

DA-TEXT specifies that the printer is equipped with the Data Analysis-APL feature and that all files containing internally represented EBCDIC special Text characters are to be translated to the appropriate two-byte I/O interface codes. Specifying either PRT=APL or PRT=NOTR on a CP TAG command will override the DA-TEXT keyword specified on the START command for all files controlled by that TAG command. All other files will default to the Text translation.

AT-APL specifies that the printer is equipped with the APL/Text feature and that all files containing internally represented EBCDIC special APL characters are to be translated to the appropriate two-byte I/O interface codes. Specifying either PRT=TEXT or PRT=NOTR on a CP TAG command will override the AT-APL keyword specified on the START command for all files controlled by that TAG command. All other files will default to the APL translation.

AT-TEXT specifies that the printer is equipped with the APL/Text feature and that all files containing internally represented EBCDIC special Text characters are to be translated to the appropriate two-byte I/O interface codes. Specifying either PRT=APL or PRT=NOTR on a CP TAG command will override the AT-TEXT keyword specified on the START command for all files controlled by that TAG command. All other files will default to the Text translation.

Note: If neither DA-APL, DA-TEXT, AT-APL, or AT-TEXT is specified, the normal one-byte EBCDIC translation is performed.

Bnnnn is the buffer size in the 3271, 3272, 3274, or 3276 control unit. The following buffer sizes are valid: 480, 960, 1920, 2560, 3440, and 3564. The correct buffer size has to be specified on the START command to match the buffer size on the control unit being used. If this operand is omitted, the buffer size defaults to 1920.

Pnnn specifies the maximum number of print positions available on the 3270 printer. This value may be either 120, 126, or 132, depending on the actual printer (as shown below). If this parameter is omitted, the number of print positions defaults to 132.

3284	120, 126, 132 positions
3286	120, 126, 132 positions
3287	132 positions
3288	132 positions
3289	132 positions
3262	132 positions

Lnn specifies the number of lines per page on the type of form inserted in the 3270 printer. The value may be from 0 to 99. A value of 0 indicates that no page ejects will be done by the line driver. If this parameter is omitted, the length of a page defaults to 66.

VFC specifies that the printer has the vertical forms control feature. When the VFC operand is specified, the page length must be set manually on the printer. If the VFC operand is omitted, the default is no vertical forms control, and vertical spacing is achieved through multiple New Line operations. The VFC operand is valid only for those printers and control units that also support the CR (carriage return) order.

NOSEP specifies that there will be no header and separation page between files. If this operand is omitted, the default is to print a header and separation page.

NOCOMP specifies that the line driver will not perform blank compression. If this operand is omitted, the default is to compress occurrences of five or more blanks. This operand should be specified for locally attached printers.

NOOVP	specifies that the line driver will not allow overprinting to occur (for instance, underscored words in text). This operand must be specified for those printers and control units that do not support the CR (Carriage Return) order.
XNL	specifies that the line driver will include an extra NL (New Line) order following each line that is as long as the maximum number of print positions. This operand must be specified for those printers (such as the 3289) that do not generate an extra new line function for a maximum length line.

Note: For a general description of the START command, (including additional operands), refer to "APPENDIX A: RSCS COMMANDS".

Printer Operational Characteristics

The paper in the printer should be positioned one line below the perforation in the continuous form paper to initially set the top of a page. The DMTRPT line driver assumes that the paper is in position to be printed on the very first line of the page. Alignment should be done with the Power ON/OFF switch in the OFF position or with the HOLD PRINT switch depressed to prevent the possibility that printing might begin while the paper is being moved.

When a file is ready to be printed, the following will take place:

1. The header will print, beginning on the top line.
2. Spacing will be performed to position the printer at the top of the next page.
3. The contents of the file will be printed.
4. At the end of the file, the printer will skip to the top of the next page.

The Vertical Forms Control feature (VFC) allows the user to manually set the forms length on printers started with the VFC parameter. DMTRPT will then issue a Forms Feed to skip to the top of the next page. It is the user's responsibility to align the vertical form control with the top of a page when changing forms or at initial setup, and to ensure the Lnn PARM operand matches the VFC setting. Refer to the appropriate Operator's Guide (see "Related Publications" in the Preface) for instructions on how to set the VFC control for a particular printer.

If the Power ON/OFF switch on the printer is turned OFF while printing is taking place, no error condition is sent to VM/370, therefore its occurrence cannot be detected by the DMTRPT line driver. When the switch is put back on, only a normal device-end condition will be generated. DMTRPT will send the next buffer to be printed, and several lines of data and line position may be lost.

If for any reason the cover on the printer (Models 3284, 3286, and 3288 only) is raised with the switch turned ON, an intervention required condition will be generated. DMTRPT will detect this condition and wait for the cover to be lowered. When the cover is back in proper position, DMTRPT will resend the entire buffer, but line position may be lost and some lines may be duplicated. If the cover is raised more than twice on the same buffer, the file will be flushed and line position may be lost. The end of one buffer and the start of the next can sometimes be detected by the slight pause between lines.

Based on these considerations, the following procedures can be used to flush a file on the 3270 printer.

FLUSHING FILES ON A 3270 PRINTER

An alternative operator who is authorized for either the entire RSCS system or for a particular link can flush files by issuing the FLUSH command. See page &flushp. for details.

Users other than authorized alternative operators should use the following procedures:

1. While the printer switch is on, and the printer is printing, raise and lower the printer cover two times.
2. Raise and lower the cover once more, and observe the line that prints.

3. Either the header line from the next file will print, or if no more files are queued all printing will cease.
4. In either case raise the cover once more. While the cover is in the up position, adjust the paper to a new page to recover printing synchronization for the next file.
5. Lower the cover and printing will resume at the beginning of the next file. If the header line has already printed, it will be reprinted and then the contents of the file will print.

Note: This procedure assumes that the cover was never raised on the present print buffer. The only difference if it was raised, will be fewer number of cover raises before the file is flushed. If printing is being done on a remote printer, wait a few seconds before lowering the print cover.

Flushing Short Files on a 3270 Printer

1. While printing is going on, turn the printer switch off and then on.
2. Observe the line that prints.
3. If it is not the beginning of a header line, the current file is not finished flushing. Go to step 1.
4. If it is the beginning of a header line, flushing is complete and a new file is about to print. Go to step 6.
5. If no printing occurs, the flushing is complete and there are no other files waiting to be printed. Go to step 6.
6. In either case 4 or 5 raise the printer cover. While the cover is in the up position, adjust the paper to a new page to recover printing synchronization for the next file.
7. Lower the cover and printing will resume at the beginning of the next file. If the header line was already printed, it will be reprinted and then the contents of the file will print.

Note: If printing is being done on a remote printer, wait a few seconds between powering the printer off and on.

STARTING A VMB LINE DRIVER (DMTVMB)

Before communication with a remote VM/370 system can begin via BSC lines, the VMB line driver task for the associated link must be started. This may be done automatically during system start-up or manually by the RSCS operator. The START command for VMB and the variables to be specified are:

STArt	linkid [TYPE DMTVMB] [LINE vaddr] <div style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 10px; margin: 0 10px;"> Parm [TPass=password] [RPass=password] [Buff=nnnn] [V3800={Yes|No}] </div>
-------	--

linkid is the location identifier of the remote system.

DMTVMB is the name of the line driver to be used. This specification overrides the driver name that may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in the link definition.)

Parm is a keyword signifying that one or more parameters follow.

TPass=password
specifies a one- to eight-character password to be transmitted during the sign-on sequence. If RPASS is specified but TPASS is not, a default TPASS value the same as RPASS results.

RPass=password
specifies a one- to eight-character password that must be received from the remote system before file transfer is initiated. If TPASS is specified and RPASS is not, a default RPASS value the same as TPASS results.

Buff=nnnn
specifies the transmission buffer size for the link. nnnn may range from 824 to 4072 bytes, with a default of 824. If you are communicating with a Release 2 (or earlier) version of RSCS, the default buffer size must be used.

V3800={Yes|No}
specifies whether virtual 3800 files will (or will not) be allowed to be transmitted over the link. If the V3800 keyword is not specified, the default is YES. Virtual 3800 files cannot be sent to an earlier release of RSCS. RSCS in this case must be started with the V3800=NO option specified. If this option is not used, and a virtual 3800 file transmission is attempted, the results are unpredictable.

Note: For compatibility with earlier releases of RSCS, the positional forms of TPASS and RPASS are accepted. However, it is not recommended that positional and keyword PARM forms be mixed in the same START command. If the positional form of TPASS is specified, any keyword can be specified except TPASS=. Likewise, if the positional forms of both TPASS and RPASS are specified, any keyword can be specified except TPASS= and RPASS=. If any positional parameters are specified, they must be the first parameters specified. Up to two non-keyword parameters found prior to any keyword parameters will be taken as the positional parameters TPASS and RPASS.

Other START command options can also be specified, but the FORM, MANUAL, AUTO, and SETUP keywords are ignored. For a general description of the START command (including additional operands), refer to "APPENDIX A: RSCS Commands".

STARTING A VMC LINE DRIVER (DMTVMC)

To establish communication with a remote VM/370 system linked through a channel-to-channel adapter, a VMC line driver task must be started. This may be done automatically during system start-up or manually by the RSCS operator. The START command for VMC and the variables to be specified are:

START	linkid [TYPE DMTVMC] [LINE vaddr] [Parm [V3800={Yes|No}]]
-------	--

linkid is the location identifier of the remote node.

DMTVMC is the name of the line driver to be used. This specification overrides the driver name that may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in the link definition.)

Parm is a keyword signifying that a parameter follows.

V3800={Yes|No}
specifies whether virtual 3800 files will be allowed to be transmitted over the link. If the V3800 keyword is not specified, the default is YES. Virtual 3800 files cannot be sent to an earlier release of RSCS. RSCS in this case must be started with the V3800=NO option specified. If this option is not used, and a virtual 3800 file transmission is attempted, the results are unpredictable.

Note: Other START command options can also be specified, but the FORM, MANUAL, AUTO, and SETUP keywords are ignored.

For a general description of the START command, (including additional operands), refer to "Appendix A: RSCS Commands".

STARTING AN NJI LINE DRIVER (DMTNJI)

Communication with systems other than VM/370 is typically managed by the NJI line driver. The NJI line driver task for the desired link may be started automatically during system start-up or manually by the RSCS operator. The START command for NJI and the variables to be specified are:

STArT	linkid [TYPE DMTNJI] [LINE vaddr] [Parm [Buff=nnnn] [Rest=nnnn] [RLPass=password] [RNPass=password] [TLPass=password] [TNPass=password] [V3800={Yes|No}]]
Any combination of the parameters following the Parm keyword may be entered, separated from each other by blanks.	

linkid is the location identifier of the remote station.

DMTNJI is the name of the line driver to be used. This specification overrides the driver name which may have been previously defined for the link. If no driver was previously defined for the link, this field must be specified.

vaddr is the virtual address of the communications line port. (vaddr is used only if the line port is to be other than one previously specified in a link definition.)

Parm is a keyword signifying that one or more parameters follow.

Buff=nnnn
specifies the maximum size record that this link can accept from the communications adapter. This may range from 300 to 3976 bytes, with a default of 400.

Rest=nnnn
specifies the partial nodal resistance of this NJI connection. This number may range from 2 to 2000, with a default of 200. See System Programmer's Library: Network Job Entry Facility for JES2, SC23-0003.

RLPass=password
specifies the line password required from the remote system before the transmission of data is initiated. The password may range from one to eight characters. If the correct password is not received at line connection time, RSCS deactivates the link and issues error message DMTNCM914E.

RNPass=password
specifies the node password required from the remote system before the transmission of data is initiated. The password may range from one to eight characters. If the correct password is not received at line connection time, RSCS deactivates the link and issues error message DMTNCM914E.

TLPass=password
specifies the line password to be transmitted to the remote system at line connection time. The password may range from one to eight characters.

TNPass=password

specifies the node password to be transmitted to the remote system at line connection time. The password may range from one to eight characters.

V3800={Yes|No}

specifies whether virtual 3800 files will be allowed to be transmitted over the link. If the V3800 keyword is not specified, the default is YES.

Usage Note: A virtual 3800 file is created when the user defines his virtual printer as a 3800. These files are intended for processing on VM/SP systems that are running RSCS Release 3 only. These files can be transmitted through VM/SP systems that are running RSCS Release 3 or through non-VM/370 NJI/NJE systems that are capable of handling spanned records, such as MVS/JES2 or VSE/POWER Version 2.

The V3800=NO PARM on the START command is provided to allow the installation to prevent virtual 3800 files from entering through the network node specified as the linkid. This should be done if the installation cannot assure that other nodes in the network are capable of handling that type of file. Sending virtual 3800 files to or through a node that is not capable of handling it can result in unpredictable results.

Note: Other START command options can also be specified, but the FORM, MANUAL, AUTO, and SETUP keywords are ignored.

For a general description of the START command (including additional operands), refer to "Appendix A: RSCS Commands".

RESTARTING A LINE DRIVER

Normally a line driver will need to be restarted only if it has been deactivated by a DRAIN or FORCE command. Under these conditions issuing the START command for the line driver in question reactivates it.

If a problem occurs in a link's telecommunication facility, the procedure required depends on the line driver type.

The three RSCS line drivers that use the MULTI-LEAVING protocol (DMTSML, DMTPOW, and DMTNJI) call the restart exit facility when 40 consecutive three-second timeouts occur on the telecommunications adapter, while the DMTNPT line driver calls the restart exit if an intervention required condition occurs. When these conditions occur, RSCS deactivates the link and causes the execution of an exec file that has a

- filename identical to the linkid of the link being deactivated and
- a filetype of 'RSCS'.

This (user generated) exec would normally contain a START command for the link just deactivated, as well as any other valid RSCS commands. For example, an exec file to automatically restart the NEWYORK link could be this one-line file, NEWYORK RSCS:

START NEWYORK

Issuing a DRAIN or FORCE command to a MULTI-LEAVING link does not cause the link's automatic restart execution file to be executed.

The VMB and VMC line drivers do not deactivate when transmission line problems occur. If a line fails, RSCS issues a LINK DISCONNECTED or LINK DISABLED message, depending on the problem. The line driver then temporarily suspends transmission and tries to reinitialize and reenables the line automatically.

If the problem is momentary, RSCS issues the READY FOR CONNECTION TO LINK and LINK DATASET READY messages as the line is reestablished. Transmission of files then resumes.

If the problem persists, the operator should check for any obvious problem in the data set or modem in the case of a leased line. For a dial-up line the operator should redial to reestablish the line connection. Transmission of files then resumes at the point of interruption.

- | The RPT line driver deactivates when a severe line interruption occurs. In this case the line problem must be resolved. After reestablishing a functioning transmission line, the RSCS operator must issue a START command to the line drivers to reestablish the link.

DYNAMIC RECONFIGURATION

Commands enable the RSCS operator to dynamically alter the RSCS configuration. Entries in the link and routing tables can be added, deleted, or modified while the system is running. This enables the RSCS operator to respond immediately to changes in the operating environment of his node. If the normal transmission path for a link becomes unavailable, the RSCS operator can alter the routing table to send files via another link that provides a path to the destination. If it becomes necessary to process a particular class of files first, the RSCS operator can redefine a link in the link table to access only the specified class of file for transmission.

CHANGING THE ROUTING TABLE

To change an entry in the routing table, issue a ROUTE command from the RSCS operator's console. Specify the location ID for the remote location whose routing is to be modified or redefined. Also specify "TO linkid" defining the link to process the files directed to the remote location. RSCS issues a message in response to the ROUTE command, reporting the result. Files awaiting transmission are automatically reenqueued following execution of a ROUTE command. For a detailed description of the ROUTE command, see "Appendix A: RSCS Commands".

Changes to the routing table remain in effect until the next RSCS IPL. Permanent changes can only be made by altering the RSCS directory.

CHANGING THE LINK TABLE

To change an entry in the link table, issue a DEFINE or DELETE command from the RSCS operator's console. Before altering or deleting an entry for an active link, first make the link inactive by issuing a DRAIN command to that link.

The DEFINE command creates temporary new link entries, redefines an entry that was deleted, or alters an existing entry in the link table. The DELETE command makes a link temporarily unavailable to RSCS.

RSCS issues messages in response to both the DEFINE and DELETE commands. For a detailed description of the DEFINE and DELETE commands, see "Appendix A: RSCS Commands".

Changes to the link table remain in effect until the next RSCS IPL. Permanent changes can only be made by altering the RSCS directory.

OPERATING DIFFERENCES FROM EARLIER PROGRAMS

RSCS Networking can coexist on the same processor with the RSCS component of VM/370 provided that each has its own system disk.

Command improvements were made in the VNET PRPQ, which have been carried forward in RSCS Networking. These create minor differences for the operator accustomed to running the RSCS component of VM/370:

- The LOG and NOLOG options on the CMD command in the RSCS component of VM/370 have been moved to the TRACE command in RSCS Networking, where they more logically belong.

- The operands ERROR and END on the TRACE command have been replaced by the operands SUM and NOSUM. The END operand is equivalent to the NOSUM operand. The ERROR operand has been dropped because the information it provided is contained in that provided by the ALL operand, which has been re-defined.
- The STAT option on the QUERY "linkid" operand has been dropped. This information is provided by the QUERY "locid" operand. In the RSCS component of VM/370, the concept of "linkid" and "locid" are the same. In RSCS Networking, "locid" refers to the identifier of the final destination to which data is sent, while "linkid" refers to the identification of the next destination to which the data is sent.

The syntax of the following command has been changed in RSCS Networking from that of the VNET PRPQ:

QUERY FILE spoolid VNET

has been changed to

QUERY FILE spoolid RSCS

Changes have been made for Release 3 of RSCS Networking that cause it to differ from Release 2:

- The transmit and receive passwords for the DMTVMB line driver are now specified via keywords rather than by positional parameters.
- The DMTRPT line driver now allows overprinting on the attached 3270 Information Display System printer. If the printer does not have this capability, the NOOVP parameter must be specified when starting the line driver.
- If an attempt is made to create a counterfeit "S&F" (store-and-forward) tag on a spool file by retagging a file received from RSCS and transferring it back to the RSCS virtual machine, the file will be rejected if RSCS is running on VM/SP Release 2.
- When receiving files originated by a non-VM/370 NJI/NJE system, the DMTNJI line driver now uses the SYSOUT class for the CP spool file class and the FORM name as the CP spool file form name. Previously, all files were forced to be class A unless a one-character FORM name was specified, in which case the FORM name was used to override the default class.
- When transmitting files to a remote non-VM/370 NJI/NJE system, the DMTNJI line driver now uses the CP spool file class as the SYSOUT class. Previously, all print files were sent as class A and all punch files as class B.

PART 4: VM/SP USER'S GUIDE

Part 4 is a guide for the VM/SP user who needs to use the network. Part 4 covers:

- The commands needed to use RSCS for file transmission.
- Examples of transmitting files via RSCS.
- How to use the SMSG command to send commands and messages to RSCS.

USER COMMANDS

As a VM/SP user, you request file transmission services by using the VM/SP CP SPOOL and TAG commands and then passing one or more files to RSCS. You may also use the VM/SP CP SMSG command to send special messages via RSCS to remote virtual machines or to request status information about RSCS or about remote systems.

CP SPOOL COMMAND

All files to be transmitted via RSCS must be spooled to the RSCS virtual machine. The basic form of the CP SPOOL command you use with RSCS is:

SPool	<div><div><div>Printer PRT PUnch PCH CONsole vaddr</div><div>< ></div></div><div>[T0] rscsid [Class c] (options...*)</div><div>*You may include one or more of the following options:</div><div>[COpY [*]nnn] [FOrm cccccccc] [CHars name1 [...CHars name4]] [Flash name nnn] [MOfify name trc] [FCB name]</div></div>
-------	--

Printer denotes all printer class device output.
PRT

PUnch denotes all punch class device output.
PCH

CONsole denotes all console class device output.

vaddr denotes all output from the specified virtual device address.

rscsid is the identifier of the RSCS virtual machine.

Class c specifies the spool class of the device; c is a one-character alphameric field whose value can be A through Z, or 0 through 9.

COpY [*]nnn specifies the number of copies to be made of the file. The maximum value of nnn (number of copies) is 255 (leading zeros are optional). The optional asterisk (*) can be specified on print files to be spooled to a 3800 printer to perform the file duplication internally one page at a time. This option prevents retransmission of the print file to the virtual output device every time a copy is desired.

FORM cccccccc specifies the one- to eight-character user form name for the file.

CHars name1 [...CHars name4] specifies the character arrangement table/s used when printing a file. The name/s must be from one to four characters. It determines which writable character generation module (WCGM) is used for printing on the 3800. The character arrangement table names specified on any given invocation of the SPOOL command completely replace all existing names associated with the spool device.

Note: If you are using a VM/SP Release 2 system, multiple CHARS specifications is valid and CHARS may be specified up to four times. However, if you are using a VM/SP Release 1 system, only one specification of the CHARS option is allowed.

| Flash name nnn

signifies that a forms overlay contained in the 3800 printer be superimposed onto certain pages of the output. The name, one to four characters, identifies the forms overlay to be used in the projection. The number (nnn) specifies that the first nnn pages of output are to be superimposed. Its maximum value is 255. The default, 0, indicates that no superimposing is desired.

| MOfify name trc

assigns a copy modification module to be used when printing a file on the 3800. This function makes it possible to alter text either by preventing printing of certain information or by adding labels to output. The name must be one to four characters. If the name is omitted, the file prints normally without modification.

trc is the table reference character (0, 1, 2, or 3) used to select one of the character arrangement tables (specified with the CHARS operand) to be used for the copy modification text. The values of 0, 1, 2, or 3 correspond to the order in which the table names have been specified. If trc is not specified, reference character 0 is assumed. If you are using a VM/SP Release 1 system, trc cannot be specified.

FCB name controls the vertical spacing of output on a page. The name must be from one to four characters.

You can nullify any previous or existing settings of the CHARS, MODIFY, or FCB options by specifying NULL in the name field of these operands. The specification of NULL cannot be combined with any other CHARS options. The FLASH setting can be nullified by specifying a flash count of zero. In this case, the Flash name is meaningless. In each of these cases, CP changes the CHARS, MODIFY, FCB, or FLASH names to blanks.

In the case of FORM, there is always a default name present even if you do not explicitly specify one. When spooling a file to RSCS for transmission to a remote system (for subsequent printing), the FORM name can be nullified by specifying NULL in the name field. In this case, CP keeps the name as "NULL" rather than changing it to blanks, although RSCS recognizes this special form name and causes the default name at the remote system to be used for the actual printing of the file.

Note: You can specify additional options; see the CP Command Reference for General Users for details.

CP TAG COMMAND

Use the CP TAG command to enter or query data in the file tag. The command has three functional formats; you can:

- Prespecify the tag for all output files from a particular category of output devices or from a single output device
- Replace the tag for an existing closed spool file
- Display the tag for a closed output file.

The TAG command syntax is:

TAG	$ \begin{aligned} & \left[\begin{array}{l} \left[\begin{array}{l} \text{DEv device} \\ \text{File spoolid} \end{array} \right] > \left[\begin{array}{l} \text{locid} \left[\begin{array}{l} \text{userid} \left[\begin{array}{l} \text{priority} \left[\text{JOB} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] > \\ & \text{QQuery} < \left[\begin{array}{l} \text{DEv device} \\ \text{File spoolid} \end{array} \right] > \end{aligned} $
-----	--

The first operand specifies the function to be performed; the other operands provide additional details. The optional locid, userid, priority, and JOB operands for the TAG DEV and TAG FILE functions make up the tag data. The entire command line to the right of the second operand (beginning with the leftmost non-blank character to a maximum of 136 characters) becomes the new tag for the specified device, device class, or spool file. If no tag data is specified, the tag is set to blanks.

| **DEv device** allows you to initialize, replace, or delete the tag data associated with an output device. All spool files generated by the device specified in the second operand will contain the tag data specified in the following operands. If there are no following operands, the tag is set to blanks.

Printer denotes all printer class devices.
PRT

PUnch denotes all punch class devices.
PCH

CONsole denotes all console class devices.

vaddr is the virtual device address of a virtual unit record device or console.

File allows you to replace the entire tag of any spool file queued on your virtual reader. The spool file is identified by the second operand and the new tag is specified in the following operands. This allows you to correct the tag of a file returned to your reader by RSCS because of an invalid address in the tag. If there are no following operands, the tag is set to blanks.

| **QQuery DEv device** allows you to display the current setting of the tag associated with the output device or device class specified in the third operand.

| **QQuery File spoolid** allows you to display the tag of any closed spool file. The particular file is specified by the third operand.

spoolid is the identification number assigned to a spool file by the VM/370 spooling facility. The numbers range from 1 to 9900.

locid identifies the destination location for output generated by the virtual device.

userid identifies the remote virtual machine, work station, or 3270 printer at the specified location that is to receive the output generated by this device. If userid is not applicable (as in NPT, POW, RPT, and SML support), or if the output is destined for the system unit record device at the specified location and priority is to be specified, you must specify a dummy userid, such as "SYSTEM".

priority is the requested transmission priority (a decimal number 0-99, defaulting to 50); a lower numerical value signifies a higher priority.

JOB indicates that the output of this device is to be transmitted as a job.

TAG QUERY COMMAND RESPONSES

TAG QUERY DEV < $\left[\begin{array}{c} \text{PRINTER} \\ \text{PRT} \\ \text{PUNCH} \\ \text{PCH} \\ \text{CONSOLE} \end{array} \right] >$

Displays the tag associated with each device of the specified class as:

$\left\langle \left[\begin{array}{c} \text{PRT} \\ \text{PUN} \\ \text{CONS} \end{array} \right] \right\rangle \text{ vaddr TAG:}$ repeated for each device in the specified class
tagtext.....
if a tag exists

TAG NOT SET
if there is no tag associated with that device.

TAG QUERY DEV vaddr

Displays the tag associated with the specified device as:

$\left\langle \left[\begin{array}{c} \text{PRT} \\ \text{PUN} \\ \text{CONS} \end{array} \right] \right\rangle \text{ vaddr TAG:}$
tagtext.....
if a tag exists

TAG NOT SET
if there is no tag associated with that device.

TAG QUERY FILE spoolid

Displays the tag of the specified file as:

tagtext.....
if a tag exists

(TAG BLANK)
if the tag is all blanks

(TAG MISSING)
if the file did not contain a tag (for instance, because it was an input file from the real card reader).

TAG DEV COMMAND FOR 3270 PRINTER FILES

When a file is to be printed on an IBM 3270 Information Display System printer via RSCS, the syntax of the TAG command is:

Tag	Dev vaddr locid [userid [priority [PRT=option]]]
-----	--

The PRT keyword can be used to override any specification of DA-APL, DA-TEXT, AT-APL, or AT-TEXT on the RSCS START command for the DMTRPT line driver. If no APL- or Text-related PARM operands were specified when the line driver was

started, the PRT keyword is ignored. If the PRT keyword is not specified, the default translation specified on the RSCS START command will be used.

The "option" operand of the PRT keyword can be one of the following:

- APL specifies that internally represented EBCDIC special APL characters will be translated to the appropriate two-byte I/O interface codes.
- TEXT specifies that internally represented EBCDIC special Text characters will be translated to the appropriate two-byte I/O interface codes.
- NOTR specifies that internally represented EBCDIC special APL or Text characters will not be translated to the two-byte I/O interface codes.

TAG DEV COMMAND FOR OUTPUT FILES GOING TO NON-VM/370 NJI/NJE SYSTEMS

Additional parameters may be placed on the TAG command when interfacing to a non-VM/370 NJI/NJE system for the transmission of output (not jobs).

TAG	<pre>Dev vaddr locid [userid [priority [options...*]]]</pre> <p>*You may include one or more of the following options:</p> <pre> FCB[C]=buffername FORMS[F]=formsname UCS[T]=charset INDEX[I]=offset EXTWTR[W]=writername SYSOUT=outclass DEST=remoteid BURST[B]={Y|N} OPTCD=J CHARS[X]=tablename COPYG[G]=nnn FLASH[O]=overlay FLASHC[Q]=nnn MODIFY[Y]=modify MODTRC[M]=n </pre>
<p><u>Note:</u> Before specifying any of the optional parameters in this last group, be sure the subsystem at the output location supports these features. You may specify any combination of these parameters, separated by blanks, up to a total tag length of 136 characters. The accepted abbreviation for each keyword is shown enclosed in [].</p>	

The basic parameters are as defined in the preceding description; the optional parameters are:

- FCB= indicates the forms control buffer for printing the output of this device. This specification can be from 1 to 8 characters.
- FORMS= indicates the special forms for printing the output of this device. This specification can be from 1 to 8 characters.
- UCS= indicates the universal character set for printing the output of this device. This specification can be from 1 to 8 characters.
- INDEX= indicates the data set indexing position offset for a 3211 printer. This value may range from 1 to 31.
- EXTWTR= indicates the external writer to process the output of this device when it is printed or punched at a remote location.
- SYSOUT= indicates the output class at the receiving node. This specification is one character and represents a valid output class at the receiving node.

DEST= indicates the name of a remote workstation at the receiving node.

You can specify the following parameters if the receiving subsystem is to print the data on an IBM 3800 printer:

BURST= indicates whether the output from this device should be threaded into the Burster-Trimmed-Stacker on a 3800 printer. This parameter must be either Y or N.

OPTCD=J indicates that each line of data produced by this device contains a table reference character for a 3800 printer.

CHARS= indicates the names of character arrangement tables, which define the characters for printing on a 3800 printer. This specification can be from 1 to 8 characters; you may specify it up to four times (once for each table).

COPYG= indicates the copy grouping for the output of this device when printed on a 3800 printer. Each group can range from 1 to 255. You may specify it up to eight times, indicating eight copy groups.

FLASH= indicates the name of the forms overlay frame to be used when printing the output of this device on a 3800 printer. This specification can be from 1 to 8 characters.

FLASHC= indicates the number of the total copies of the output of this device on which the forms overlay is to be printed on a 3800 printer. This parameter can range from 1 to 255.

MODIFY= indicates the copy modification module to be used in modifying the data produced by this device when printed on a 3800 printer. This specification can be from 1 to 8 characters.

MODTRC= indicates the table reference character for selecting the character arrangement table that is to be used when printing the copy modification text on a 3800 printer. This parameter can be 0, 1, 2, or 3.

RSCS ignores the remainder of the 136-byte tag.

Note: Certain of the above parameters are equivalent to options on the CP SPOOL command and can be specified on either the TAG or SPOOL commands for files that are destined for non-VM/370 NJI/NJE systems. These are:

TAG command	SPOOL command
CHARS=	CHARS
FLASH/FLASHC=	FLASH
MODIFY/MODTRC=	MODIFY
FCB=	FCB
COPYG=	COPY [*]nnn
FORMS=	FORM

If any of these parameters are specified on both the TAG and SPOOL commands, the TAG command operands will override the corresponding SPOOL command operands.

Also, it should be noted that the support provided in VM/SP for the specification of character arrangement table names (CHARS) and copy groups (COPY [*]nnn) is different than that provided in an NJI/NJE system such as MVS. VM/SP Release 1 provides for one CHARS name and one copy group, VM/SP Release 2 provides for four CHARS names and one copy group, while MVS provides for four CHARS names and eight copy groups. If you are running on a VM/SP Release 1 system and if multiple CHARS names are required, then they must be specified on the CP TAG rather than the CP SPOOL command. Multiple copy groups must always be specified on the CP TAG command.

SMSG COMMAND

A virtual machine user may use the CP SMSG (special message) command to send messages via RSCS to remote virtual machines or to request status information about the local RSCS, a remote RSCS, or a remote VM/370 system. The text of a SMSG command can be an RSCS MSG command, an RSCS CMD command, or command text for local RSCS status information; the text of that CMD command can be an RSCS QUERY command or an RSCS CPQUERY command.

The syntax of SMSG used with RSCS is:

SMsg	$\left[\begin{array}{l} \text{rscsid} < \left[\begin{array}{l} < \text{MSG} > \\ \text{M} \end{array} \right] \text{locidm} \text{userid} \text{message text} \\ \text{CMD} \text{locidc} \text{command text} \\ \text{command text} \end{array} \right]$
------	---

- | rscsid is the identifier of the local RSCS virtual machine.
- {M|MSG} signifies that the following operands are RSCS MSG command operands.
- locidm is the one- to eight-character location identifier of the location to receive the specified message text line.
- userid is the one- to eight-character identifier of a user at the specified location, or the identifier "RSCS" for a remote RSCS operator's console. If the message is to be sent to a remote batch terminal, the userid field is ignored, but a dummy entry must be included to avoid deletion of the first word of the message.
- message text is a string of alphameric characters comprising the message to be presented to the specified location and user. The maximum length of this string is 120 characters. (see page 5B-1 for an explanation of message truncation.)
- CMD signifies that the following operands are RSCS CMD command operands.
- locidc is the one- to eight- character location identifier of the remote system that is to receive and execute the command specified in the command text.
- command text is any command up to 120 characters acceptable to the system that is to receive the command. Any text greater than 120 characters will be truncated. (see page 5B-1 for an explanation of message truncation.) RSCS commands such as QUERY and CPQUERY are acceptable as command text. For details on these commands, refer to "Appendix A: RSCS Commands".

USER EXAMPLES

Following are several examples of RSCS usage for file transmission. The examples presented here provide samples of the types of facilities available. However, they do not show complete examples of using RSCS, nor are they intended to be copied and used exactly as illustrated. As each installation is unique, the examples must be altered to fit the appropriate circumstances. If you use a mixed environment of NJI/NJE subsystems, refer, for guidance, to the related publications listed in the Preface.

SIMPLE SPOOLING AND TAGGING

To specify that all subsequent printer output is to be transmitted to Houston, you would enter the commands:

```
tag dev printer houston
spool printer to net
```

where HOUSTON is the location identifier of the receiving station and NET is the userid of the originating RSCS virtual machine. You may enter the commands in either order.

If a particular output device is to have its output transmitted to Palo Alto with a priority of 10 and no userid specified, you would enter:

```
tag dev 00d palalto system 10
spool 00d to net
```

where 00D is the virtual output device address, PALOALTO is the location of the receiving station, SYSTEM is a dummy userid entry, 10 is the priority value, and NET is the userid of the originating RSCS virtual machine.

SPECIFYING DESTINATION OF VM/370 VIRTUAL OUTPUT

Assume you are a CMS user on a VM/370 system known as CHICAGO and you want to print your PROFILE EXEC file on the BOSTON system printer. Assume the network configuration shown in Figure 2-9 in Part 2 of this manual.

Assume that NET is the userid of the RSCS virtual machine in the CHICAGO system and that the CHICAGO to BOSTON link is temporarily inactive. The following illustrates your console:

```
spool printer to net
R;
```

```
tag dev printer boston system
R;
```

```
pr profile exec
PRT FILE 0150 TO NET      COPY 001 NOHOLD
R;
```

```
12:59:26
MSG FROM NET : SENT FILE 0150 (0150) ON LINK
                TORONTO TO BOSTON SYSTEM
```

```
12:59:36
MSG FROM NET : FROM TORONTO: SENT FILE 0386 (0150)
                ON LINK BOSTON TO BOSTON SYSTEM
```

Note that the spool ID assigned at the originating system by VM/370 is returned in each network response message as the file proceeds through the network. Also, the path the file took to its final destination was determined by RSCS. You specified only the final destination.

Avoiding SPOOL and TAG Commands

A number of new (for Release 2 of VM/SP) CMS commands permit CMS users to easily communicate among themselves without the need to specify SPOOL and TAG commands. See the IBM VM/SP: CMS Command and Macro Reference for details of these new commands, which include:

NAMES	creates or alters a "youruserid NAMES" file that is a collection of information (including nicknames, user-ids, and location-ids) about other remote system users with whom you wish to communicate. The nicknames are used as operands in the NOTE, SENDFILE, and TELL commands.
NOTE	prepares a communication of the type usually performed by a letter. You supply the name and address (or nickname, only) of the recipient.
SENDFILE	transmits one or more files or "notes" to one or more remote system users. The recipients can be denoted by using their nicknames.
TELL	transmits a message to one or more remote system users, who may be denoted by their nicknames.
RECEIVE	moves, from your virtual reader onto your disk storage, one of the files that were sent to you by other remote system users.

RSCS JOB SUBMISSION TO AN MVS JES2/NJE BATCH PROCESSOR

This example illustrates a CMS user (JONES) at location NEWYORK submitting a job to an MVS system running JES2/NJE in BUFFALO. Output returning from a batch job submitted through RSCS will be processed by the real unit record devices (printers and punches) attached to VM/370 unless overridden by the user's JCL.

User JONES wants a source deck assembled, link edited, and executed at BUFFALO and the resultant listing, object deck, and message data set returned to his virtual machine reader. The output from his program execution will be printed on the IBM 3800 Printing Subsystem at NEWYORK. He could use the following JCL:

```
//EXAMPLE JOB 1,'JONES/926',CLASS=A
/*JOBPARM LINES=1,CARDS=100,TIME=1
/*NOTIFY NEWYORK.JONES
/*ROUTE PRINT NEWYORK.JONES
/*OUTPUT PRTA DEST=NEWYORK,COPIES=2,COPYG=2,CHARS=GT12
/*OUTPUT * FLASH=MEMO,FLASHC=1,MODIFY=INTU,FCB=FRM1
/*OUTPUT PUNB DEST=(NEWYORK.JONES)
//S EXEC PROC=ASMFCLG
//ASM.SYSPRINT DD SYSOUT=A
//ASM.SYSPUNCH DD SYSOUT=(B,,PUNB)
//ASM.SYSIN DD *
START CSECT
END
/*
//GO.SYSPRINT DD SYSOUT=(A,,PRTA)
//
```

The NOTIFY control statement causes any JES2 messages produced by the batch system to be returned by the network to JONES' terminal. The ROUTE control statement causes all printed output that is not specifically routed via the OUTPUT statement to be directed to JONES' virtual reader. The OUTPUT control statements provide specific routing for the object deck (SYSPUNCH) and program execution output (SYSPRINT) data sets. In the case of SYSPRINT, two copies are specified, with the copies being made internally in the 3800. The character arrangement table name specified is GT12. The first copy will be printed with a forms overlay name of MEMO. Modifications to the printed output will be made by copy modification module INTU. Finally, vertical spacing will be determined by forms control buffer FRM1. For details, the user should refer to OS/VS2 MVS JCL (GC28-0692).

The following illustrates the terminal session for the job:

```
tag dev pun buffalo job
R;
```

```

sp pun to net
R;

punch compile job (noh)
PUN FILE 8921 TO NET          COPY 001 NOHOLD
R;

16:56:47
MSG FROM NET : SENT FILE 8921 (8921) ON LINK BUFFALO
                TO BUFFALO JOB

16:58:00
MSG FROM NET : FROM BUFFALO: 16.57.55 JOB 8921 $HASP165
                EXAMPLE ENDED AT BUFFALO

PRT FILE 8923 FROM NET          COPY 001 NOHOLD

16:58:02
MSG FROM NET : FILE (8921) SPOOLED TO JONES -- ORG
                BUFFALO (SYSTEM) 04/01/80 16:57:59 E.D.T.

PUN FILE 8925 FROM NET          COPY 001 NOHOLD

16:58:05
MSG FROM NET : FILE (8921) SPOOLED TO JONES -- ORG
                BUFFALO (SYSTEM) 04/01/80 16:58:01 E.D.T.

```

RSCS JOB SUBMISSION TO A VSE/POWER VERSION 1 BATCH PROCESSOR

This example illustrates a CMS user at location NEWYORK submitting a job to a VSE/POWER Version 1 system in BOSTON. Output returning from a batch job submitted through RSCS will be processed by the real unit record devices (printers and punches) attached to VM/SP unless overridden by the user's JECL.

The user wants a source deck assembled at Boston and the resultant listing data sets returned to New York. He wants the object deck to be punched at the local unit record device in Boston. In this example, the RSCS system at New York is labeled REMOTE 1 and the VSE/POWER Version 1 system at Boston is global remote ID 2. He could use the following jobstream:

```

* $$ JOB RUNXYZ
* $$ LST REMOTE=1
* $$ PUN REMOTE=0
// JOB RUNXYZ
// EXEC XYZ
/*
/&
* $$ EOJ

```

VSE/POWER Version 1 permits only numeric values of 1 to 200 (decimal) to be used to identify work stations connected to it. These numeric identifiers are set when the VSE/POWER Version 1 system is generated. The job submitter must know the numeric identifiers and include them in the LST and PUN statements as appropriate. The LST statement indicates that the job's printed output is to be routed to system 1 (the VM/370 system). The PUN statement indicates that the job's punched output is to be processed in Boston.

The following illustrates the terminal session for the job:

```

tag dev pu boston
R;

sp pu to net
R;

pun runxyz job (noh)
PUN FILE 6645 TO NET          COPY 001 NOHOLD
R;

16:57:47
MSG FROM NET : SENT FILE 6645 (6645) ON LINK
                BOSTON TO BOSTON SYSTEM

```

Thus, as a CMS user on a VM/370 system, you have the ability to do the following to the output created by the execution of a job in a VSE/POWER Version 1 system:

- Receive output back and have it printed or punched on the VM/370 system printer or punch. This is the default option. You are not required to include LST and PUN statements.
- Route output to a remote station linked to the VSE/POWER Version 1 system. To do this, you must use either a LST card or a PUN card with REMOTE=(x,y), where x is the CPUID specified on the POWER macro for the VSE/POWER Version 1 system and y is the ID of the remote station.
- Route output to be printed on the VSE/POWER system printer or punch. To do this, you may use an LST card or a PUN card with REMOTE=0, where 0 specifies VSE/POWER Version 1 system local unit record processing.

In transmitting a job, RSCS does not alter your file in any respect. The job must be in the form required for execution in a VSE/POWER system. (For details, refer to the VSE/POWER Remote Job Entry User's Guide, SH12-5328.)

Note: RSCS will not accept jobs from a remote VSE/POWER, Version 1 system for execution in a VM/370 virtual machine.

RSCS OUTPUT TRANSMISSION USING SPECIAL FORMS

This example illustrates sending spool output from a VM/370 system to a remote batch system that has special forms capability. This CMS user wants the output from his virtual printer directed to BUFFALO to be printed on white paper using a text (TN5) print train. The device address of his virtual printer is the customary 00E. NET is the userid of the local RSCS virtual machine. The following illustrates the user's console:

```
sp e to net
R;

tag dev e buffalo system 50 f=white t=text
R;

print planxyz script
PRINT FILE 0118 TO NET      COPY 001 NOHOLD
R;

12:55:49
MSG FROM NET : SENT FILE 0118 (0118) ON LINK
                BUFFALO TO BUFFALO SYSTEM
```

RSCS OUTPUT TRANSMISSION TO AN IBM 3270 INFORMATION DISPLAY SYSTEM PRINTER

This example illustrates sending spool output from a VM/370 system to a remote 3270 Information Display System printer. This CMS user wants the output from his virtual printer directed to APL3286 at node NEWYORK. It is assumed that this printer has the Data Analysis-APL feature and that link APL3286 was started with either DA-TEXT or DA-APL specified in the PARM keyword of the START command. NET is the userid of the local RSCS virtual machine. The following illustrates the user's console:

```
sp prt to net
R;

tag dev prt newyork apl3286 50 prt=apl
R;

print console listing
PRINT FILE 0026 TO NET      COPY 001 NOHOLD
R;

12:21:02
MSG FROM NET : SENT FILE 0026 (0026) ON LINK NEWYORK
                TO NEWYORK APL3286
```

TRANSMITTING 3800 OUTPUT FILES (FROM VM/SP)

A user may send 3800 output to RSCS for transmission to a remote system for printing in several ways. In the following examples, it is assumed that the CMS file \$OUTPUT SCRIPT contains carriage control and table reference character (TRC) bytes.

SENDING VIRTUAL 3800 FILES TO ANOTHER VM/SP SYSTEM

A virtual 3800 file is created when the user defines his virtual printer as a 3800. These files are intended for processing on VM/SP systems running RSCS Release 3 only. These files can be transmitted through non-VM/370 NJI/NJE systems that are capable of handling spanned records, such as MVS/JES2 or VSE/POWER Version 2.

Virtual 3800 output using CMS SETPRT command:

```
CP DEFINE 3800 00E
CP SPOOL 00E NET1
CP TAG DEV 00E REMOTE SYSTEM
SETPRT CHARS GT12 GB12
PRINT $OUTPUT SCRIPT (CC TRC)
```

In this example, the SETPRT command causes the character arrangement tables (defined as GT12 and GB12) to be stored in the CP spool. Therefore, the receiving (remote) system does not have to have those tables defined at its location, as they are sent over the network as spanned records. See the section on output considerations, following, to see what will happen if the remote system is not a VM/SP system.

Virtual 3800 output using CP SPOOL command:

```
CP DEFINE 3800 00E
CP SPOOL 00E NET1 CHARS GT12 GB12
CP TAG DEV 00E REMOTE SYSTEM
PRINT $OUTPUT SCRIPT (CC TRC)
```

In this example, the character arrangement tables to be used to print the file are specified on the CP SPOOL command. This information is passed to the receiving (remote) system, which must have these tables defined at its location. As there are no spanned records associated with this file, it can be sent to a non-VM/370 NJI/NJE system for printing on a 3800.

Output Considerations

It is the responsibility of the file originator (for example, a CMS user) to ensure that the destination system can print the file correctly. A virtual 3800 file created with the CMS SETPRT command will not print at a non-VM/370 NJI/NJE system, such as MVS/JES2 NJE, exactly as it would on the originating VM/SP system. 3800-related data in the NJI SYSOUT stream will be interpreted by the output writers as printable data rather than as 3800 attribute information. 3800-related data includes control records that are sent as

- print records with machine carriage control (such as LOAD WCGM), and
- spanned records (such as LOAD GRAPHIC CHARACTER MODIFICATION).

Any 3800 attributes (CHARS, COPIES, COPYNR, FCB, FLASH, or MODIFY) specified with the CMS SETPRT command are stored as data in the CP SPOOL and therefore have no effect. The file is printed with the defaults that were set at subsystem (JES2 or JES3) initialization time. For information on 3800 defaults, refer to IBM 3800 Printing Subsystem Programmer's Guide, (GC26-3846).

If 3800 attributes are specified using both the CMS SETPRT command and the CP SPOOL command, the SETPRT values override the SPOOL values if the file is printed at the local VM/SP system or transmitted to a remote VM/SP system. If the file is transmitted to a non-VM/370 NJI/NJE system, the SPOOL values override the SETPRT values.

Virtual 3800 output can be sent to any workstation that is supported by RSCS Release 3. In this case, any 3800-related CCWs and data in the file are removed

before transmission to the workstation printer. Any printable data is truncated to the maximum print line length of the workstation printer.

SENDING 3800 FILES TO A NON-VM/370 NJI/NJE SYSTEM

Files can be sent to a non-VM/370 NJI/NJE system for printing on a 3800 by defining the printer as any CP-supported virtual printer except 3800 and by specifying the 3800 attributes on either the CP TAG command or on the CP SPOOL command as follows:

```
CP DEFINE 1403 00E
CP SPOOL 00E NET1
CP TAG DEV 00E REMOTE SYSTEM 50 CHARS=GT12 CHARS=GB12 OPTCD=J
PRINT $OUTPUT SCRIPT (CC)
```

or

```
CP DEFINE 1403 00E
CP SPOOL 00E NET1 CHARS GT12 CHARS GB12
CP TAG DEV 00E REMOTE SYSTEM 50 OPTCD=J
PRINT $OUTPUT SCRIPT (CC)
```

In these examples, 3800 files are sent with the TRC bytes still contained in the file. The first example shows the character arrangement tables specified on the TAG command while, in the second example, they are specified on the SPOOL command.

These methods will work properly only if the ultimate destination of the output is a non-VM/370 NJI/NJE system; in this case, the output writer at the remote system (e.g. MVS/JES2 NJE) converts the TRC bytes. Otherwise, the intact TRC bytes are printed as data.

RECEIVING 3800 FILES FROM A NON-VM/370 NJI/NJE SYSTEM

When running under VM/SP Release 2, RSCS can receive 3800 files from a non-VM/370 NJI/NJE system, if they have OPTCD=J specified for them. A non-VM/370 NJI/NJE system passes 3800 attribute data to RSCS in a special header. RSCS passes these attributes to CP by means of an internally generated CP SPOOL command, and will create a virtual 3800 file for CP.

Note: CP does not support the 3800 BURST attribute that is defined in a non-VM/370 system, nor does it accept more than one of the eight copy group (COPYG) attributes that a non-VM/370 system can specify. All copy groups are summed into one group for printing on a VM/SP system.

DEVICE TYPE DETERMINATION FOR FILES ORIGINATED BY A NON-VM/370 NJI/NJE SYSTEM

RSCS uses information supplied by the remote system to determine if a received SYSOUT file is print or punch output. If this information is not available, RSCS uses the SYSOUT class to determine the output device type -- class B files are assumed to be punch, all other class files are assumed to be print. For print files, a device type of 1403 is assumed for all files that have a record length less than or equal to 132 bytes. A device type of 3211 is assumed for all files that have a record length greater than 132 bytes. If RSCS is running on a VM/SP Release 2 system, a device type of 3800 is assumed for all files that have the OPTCD=J option specified.

HANDLING OUTPUT FILES RECEIVED FROM RSCS

If an output spool file is sent to your virtual card reader by RSCS, you can read it in via the CMS READCARD or MOVEFILE commands (or the RECEIVE command, if you are running on VM/SP Release 2), view it via the CMS PEEK command (if you are running on VM/SP Release 2), or print (or punch) the file by transferring it to your virtual printer (or punch) via the CP TRANSFER command.

If you choose to read the file in, a fixed format CMS file will be created with the record length dependent on the virtual output device which created the spool file, as shown below.

PUN	80 bytes
PRT	132 bytes
1403	132 bytes
1443	132 bytes
3203	132 bytes
3211	150 bytes
3262	132 bytes
3289E	132 bytes
3800	204 bytes

If you wish to print the CMS file using the CMS PRINT command, your virtual printer (00E) must be capable of handling records at least as long as the record length of the file. Thus, if your virtual printer is defined as a 3211, you can print files that have a record length up to 150 bytes long. It does not matter if your location does not have a real printer that is the same type as your virtual printer, as CP will truncate your output (if necessary) to match its system printer.

MANAGING A FILE REJECTED BY RSCS BECAUSE OF AN INCORRECT ADDRESS

RSCS rejects any file whose tag does not contain a destination address that matches an entry in the local RSCS route or link tables. RSCS returns the file to the virtual reader queue of the originating local virtual machine user, who must correct the file tag and resubmit it to RSCS. The following example with the RSCS virtual machine ID of "NET" shows how this is done:

1. Suppose you direct a print file to RSCS for transmission by issuing the TAG and SPOOL commands:

```
    TAG DEV 00E HOYSTON
    SPOOL 00E TO NET
```

But the destination address "HOYSTON" is incorrect.

2. You issue a PRINT command for a file.
3. VM/370 responds with the message "PRT FILE 6783 TO NET". The spoolid of the file is 6783.
4. RSCS examines the file tag and finds no match for "HOYSTON" in its route and link tables. RSCS returns the file to your virtual machine reader.
5. VM/370 issues a message to you "RDR FILE 6783 TRANSFERRED FROM NET". RSCS issues a message to you "MSG FROM NET: FILE 6783 REJECTED -- INVALID DESTINATION ADDRESS".
6. You must then correct the tag and resubmit the file. Correct the tag by issuing a TAG FILE command "TAG FILE 6783 HOUSTON". Resubmit the file by issuing a TRANSFER command "TRANSFER 6783 TO NET".
7. RSCS accepts the file and enqueues it on the link required to reach the destination "HOUSTON".

Before sending other files, correct the tag for your virtual printer by reissuing the TAG DEV command with the correct location identifier "HOUSTON".

EXAMPLES OF SMSG USE

The following examples assume that the local RSCS virtual machine is identified as "NET" and that "BOSTON" is the location identifier of the remote system of interest. Responses from the remote VM/370 system are the same type as you would get from the local VM/370 system, except that each line of the response is displayed as a message prefaced with "MSG FROM NET: FROM BOSTON:".

Sending a Message to a VM/370 User on a Remote System

smsg net msg boston tcsmith i will send the required file soon

Displaying (via CPQUERY) the Log of a Remote VM/370 System

smsg net cmd boston cpq log

Displaying (via CPQUERY) the Names of Users Logged On a Remote VM/370 System

smsg net cmd boston cpq names

Displaying (via CPQUERY) the Status of a Particular User on a Remote VM/370 System

smsg net cmd boston cpq u tcsmith

Displaying (via QUERY) the Route Definitions in the Local RSCS

smsg net q sys routes

Displaying (via QUERY) the Link Definitions in the Local RSCS

smsg net q sys links

Authorized Operator Starting a Link

smsg net start boston

Authorized Operator Starting a Remote Link

smsg net cmd boston start prtlink

Authorized Operator Readyng a Link

smsg net ready wslink

PART 5: APPENDIXES

Appendixes contain detailed descriptions of all commands and messages, plus reference information on communicating with remote stations and terminals. The appendixes are:

- A RSCS Commands
- B RSCS Messages
- C RSCS Networking User Exits
- D Remote Terminals and Stations
- E VSE/POWER Remote System Connection
- F Base Tape Contents
- G Abbreviations

Here is a detailed description of the RSCS commands, including the messages resulting from the use of each command.

NOTATIONAL CONVENTIONS

The notation used to define the command syntax in this manual is:

1. Truncations and abbreviations of commands:

Where truncation of a command name is permitted, the shortest acceptable version of the command is represented by uppercase letters. (Remember, however, that RSCS commands may be entered with any combination of upper and lowercase letters.) For example, the format specification for the BACKSPAC command is:

Backspac

This representation means that BA, BAC, BACK, BACKS, BACKSP, BACKSPA, and BACKSPAC are all valid specifications for this command name, as are any of those combinations in which lower case characters are substituted for their upper case equivalents.

Operands and options are specified in the same manner. Where truncation is permitted, the shortest acceptable version of the operand or option is represented by uppercase letters in the command format box. If no minimum truncation is noted, the entire word (represented by all capital letters) must be entered.

2. The following symbols define the command format and should never be typed when the actual command is entered.

underscore		brackets	[]
braces	{ }	ellipsis	...

3. Uppercase letters and words, and the following symbols, should be entered as specified in the format box.

asterisk	*	parentheses	()
comma	,	period	.
hyphen	-	colon	:
equal sign	=		

4. Lowercase letters, words, and symbols in the command format box represent variables for which specific information should be substituted. For example, in the BACKSPAC command, linkid represents a variable link identifier, such as NEWYORK.

5. Choices are represented in the command format boxes by stacking:

A
B
C

6. An underscore indicates an assumed (default) option. If an underscored choice is selected, it need not be specified when the command is entered. For example,

A
B
C

indicates that A, B, or C may be selected. If B is selected, it need not be specified. B is assumed if nothing is specified.

7. The use of brackets denotes choices, one or more of which may be selected. For example,

A
[B]
[C]

indicates that you must specify A, and that you may specify either, both, or neither B or C.

8. The use of braces with options denotes choices, one of which must be selected. For example, {A|B|C} or

< [A]
[B]
[C] >

indicates that you must specify either A, or B, or C.

9. The use of brackets with options denotes choices, one of which may be selected. For example, [A|B|C] or

[A
B
C]

indicates that you may enter A, B, or C, or you may omit the field.

10. An ellipsis indicates that the preceding item or group of items may be repeated more than once in succession. For example,

(options ...)

indicates that more than one option may be coded within the parentheses.

OPERATOR COMMAND USAGE

The commands described in this appendix can be issued by either an RSCS operator (including an alternative operator authorized for the entire RSCS virtual machine), or the remote station operator (or an alternative operator authorized for a particular link), with the following exceptions:

- CLOSE, CP, DEFINE, DELETE, DISCONN, EXEC, FORCE, REORDER, ROUTE, SHUTDOWN, TRACE, and TRANSFER commands may be executed only by an RSCS operator. (Note that the CP command may be executed by an authorized operator only if he is specifically authorized to do so. See the AUTH directory statement on page 2-17.)
- The SET command may be issued only by an authorized alternative operator.
- START has limited functional capabilities when issued by a remote station operator. (See the START command description.)
- Commands issued by a remote station operator affect only the status of that station's link. Except for the MSG and QUERY commands, The linkid operand must not be specified in a remote station command line unless the command is issued by an alternative operator authorized for the link.

A virtual machine user may use the CP SMSG (Special Message) command to send messages via RSCS to remote virtual machines or to request status information about a local or remote RSCS or about a remote VM/370 system. The text of an SMSG command can be an RSCS MSG command or an RSCS CMD command.

File attributes that are those of the VM/370 spool system, and the operands describing them in the RSCS command language, have maximum values and default values identical to those of the VM/370 command language and system. Command names and keywords may be specified by typing any part of the command name or keyword from the minimum truncation to the full name. The minimum truncation in each situation is indicated by upper case letters.

Command Name	Function	User
*	Comment following asterisk prints out on the user's console, but no function is performed.	A
BACKSPAC	Restarts or repositions in a backward direction the file currently being transmitted.	B
CHANGE	Alters one or more attributes of a file owned by RSCS.	B
CLOSE	Deactivates partially processed files on an inactive link. Discards output (incoming) files. Reenqueues active input files as inactive files.	C
CMD	Forwards a command line to a remote system for execution	A
CP	Executes a command line as a VM/370 Control Program (CP) console function.	C ¹
CPQUERY	Requests status information from CP, similar to a VM/370 CP QUERY command.	A
DEFINE	Temporarily adds a new link definition to the RSCS link table, or temporarily alters an existing link definition.	C
DELETE	Temporarily deletes a link definition from the RSCS link table.	C
DISCONN	Places RSCS in disconnect mode and optionally directs RSCS operator console output to another virtual machine.	C
DRAIN	Quiesces file transfer and deactivates an active communication link.	B
EXEC	Executes series of RSCS commands contained in the specified user-built CMS file (filetype: RSCS).	C
FLUSH	Discontinues processing the currently active file on the specified link.	B
FORCE	Immediately deactivates an active link, without quiescing file transfer.	C
FREE	Resumes transmission on a communication link previously in HOLD status.	B
FWDSPACE	Repositions in a forward direction the file currently being transmitted.	B
HOLD	Suspends file transmission on an active link without deactivating the link.	B
HT	Flushes out all messages presently awaiting printing on the RSCS operator console or remote station operator console.	B
MSG	Sends a console message line to a local or remote operator or user.	A
ORDER	Reorders files enqueued on a specific link.	B
PURGE	Removes and discards all or specified inactive files from a link.	B
QUERY	Requests system information for a link, a file, or for the system in general.	A

Figure 5A-1. (Part 1 of 2) RSCS Commands and Their Functions

Command Name	Function	User
READY	Notifies RSCS that a forms mount has been satisfied, or that a setup page is wanted.	B
REORDER	Sorts and reorders all files enqueued for all links.	C
ROUTE	Adds, deletes, or alters an RSCS routing table entry.	C
SET	Requests or disables console message routing.	B ²
SHUTDOWN	Issues DRAIN to all active links.	C
START	Activates a specified communication link.	B
TRACE	Monitors line activity on a specified link.	B
TRANSFER	Changes the destination address for specified files.	C
<p>A General user of RSCS, plus B and C, following. B Workstation operator or link-authorized alternative operator, plus C, following. C RSCS central operator or system-authorized alternative operator.</p> <p>¹ An authorized alternative operator requires additional authorization to use the CP command. ² Authorized alternative operator, only.</p>		

Figure 5A-1. (Part 2 of 2) RSCS Commands and Their Functions

RSCS COMMANDS

* (COMMENT)

The * command enables the RSCS operator to annotate console listings. It performs no function, but is accepted by the RSCS command processor. It may be entered directly from the RSCS operator's console or from a command EXEC procedure.

*	[any comment text]
---	--------------------

Responses:

None.

BACKSPAC

BACKSPAC causes the current file being transmitted to be restarted or repositioned backward.

This command is supported by the DMTSML, DMTNPT, and DMTRPT line drivers, only. In addition, the DMTRPT line driver must be in HOLD status or must be in a forms mount wait state for the BACKSPAC command to have effect.

Backspac	[linkid] [<u>File</u> nnn]
----------	---------------------------------

linkid is the one- to eight-character link identifier for the link on which the current file being transmitted is to be repositioned. If the

command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

File specifies that the file being transmitted is to be restarted from the beginning.

nnn is the number of data units to be backspaced. For a print file, data unit refers to printer pages, which are counted in the same way as for the analogous VM/370 spooling command. For a punch file, data unit refers to file records which include any write type command code.

Response:

```
DMTCMY204E INVALID KEYWORD 'keyword'
DMTxxx510I FILE 'spoolid' BACKSPACED
DMTxxx511E NO FILE ACTIVE ON LINK 'linkid'
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION TAKEN
```

CHANGE

CHANGE alters one or more attributes of an inactive spool file owned by the command originator. No link may be actively processing this file.

CHange	<div data-bbox="339 800 1195 905"> [linkid] spoolid (options...*) <div> <div> Name < <div> fn [ft] dsname </div> > </div> </div> </div> <div data-bbox="402 940 898 989"> * At least one of the following options must be selected: </div> <div data-bbox="613 1010 1133 1247"> <div> <div> [PRIority nn] [Class c] [COpy [*]nnn] [DIst distcode] [HOld|NOHold] [FLash name nnn] [MOdify name [trc]] [CHars name1 [CHars name2 ...]] [FCB name] [FOrm cccccccc] </div> </div> </div>
--------	--

linkid is the one- to eight-character link identifier for the link on which the file to be changed is enqueued. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

spoolid is the numeric spool file identifier for the file to be changed.

PRIority nn designates the new transmission priority for the file. nn is a decimal number from 0-99 with 0 signifying the highest priority.

Class c designates the new class for the file. c is a one-character alphameric field from A to Z or from 0-9.

COpy [*]nnn alters the number of copies to be made of the file. The maximum value of nnn (number of copies) is 255 (leading zeros are optional). The optional asterisk (*) can be specified on print files to be spooled to a 3800 printer to perform the file duplication internally one page at a time. This option prevents retransmission of the print file to the virtual output device every time a copy is desired.

DIst distcode changes the distribution code of the specified file. distcode is a one- to eight-character identification to be associated with the file.

HOLD prevents the processing of the file until it is released by a **CHANGE** command specifying **NOHOLD**.

NOHOLD releases the specified file if was in **HOLD** status.

Flash name nnn signifies that a forms overlay contained in the 3800 printer be superimposed onto certain pages of the output. The name, one to four characters, identifies the forms overlay to be used in the projection. The maximum value of **nnn** (specifying that the first **nnn** pages of output are to be superimposed) is 255 when you are using a VM/SP host system, and 99 for all others (leading zeros are optional). The default, 0, indicates that no superimposing is desired.

MODify name [trc] assigns a copy modification module to be used when printing a file on the 3800. This function makes it possible to alter text either by preventing printing of certain information or by adding labels to output. The name must be one to four characters. If the name is omitted, the file prints normally without modification.

trc is the table reference character (0, 1, 2, or 3) used to select one of the character arrangement tables specified with the **CHARS** keyword to be used for the copy modification text. The values of 0, 1, 2, or 3 correspond to the order in which the table names have been specified. If **trc** is not specified, reference character 0 is assumed.
Note: Your system must be operating on Release 2 of VM/SP in order for the **trc** parameter to be valid.

CHars name1 [...CHars name4] specifies the character arrangement table/s used when printing a file. The name/s must be from one to four characters. It determines which writable character generation module (WCGM) is used for printing on the 3800. The character arrangement table names specified on any given invocation of the **CHANGE** command completely replace all existing names associated with the spool file. The RSCS operator can nullify any previous or existing setting of the **CHARS** option by specifying "NULL". The specification of "NULL" cannot be combined with any other **CHARS** options.

Note: If your system is operating on Release 2 of VM/SP, multiple **CHars** specifications is valid and **CHARS** may be specified up to four times. However, if RSCS is running on Release 1 of VM/SP, only one specification of the **CHARS** option is allowed.

FCB name controls the vertical spacing of output on a page. The name must be from one to four characters.

F0rm ccccccc specifies the one- to eight-character user form name for the file.

NAme fn [ft]
NAme dsname changes the name of the specified file. If specified, this operand must be the last entry in the command line.

Note: The RSCS operator can nullify any previous or existing settings of the **MODify**, **FCB**, **F0rm**, or **CHars** options by specifying 'NULL' in the name field of these operands. The **Flash** option can be nullified by specifying a count of zero, in which case the **Flash** name is meaningless. A **CHars** NULL specification nulls all previous **CHars** specifications. Including 'NULL' in a multiple specification of **CHARS** is not permitted, and an error message is produced.

Responses:

```
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX205E CONFLICTING KEYWORD 'keyword'
DMTCMX206E INVALID OPTION 'keyword' 'option'
DMTCMX207E CONFLICTING OPTION 'keyword' 'option'
DMTCMX211E INVALID OPTION 'keyword' 'option1' 'option2'
DMTAXM520I FILE 'spoolid' CHANGED
DMTAXM521I FILE 'spoolid' HELD FOR LINK 'linkid'
```



```
DMTAXM522I FILE 'spoolid' RELEASED FOR LINK 'linkid'
DMTAXM523I LINK 'linkid' QUEUE REORDERED
DMTAXM524E FILE 'spoolid' ACTIVE -- NO ACTION TAKEN
DMTAXM525E FILE 'spoolid' IS FOR LINK 'linkid' -- NO ACTION TAKEN
DMTAXM526E FILE 'spoolid' NOT FOUND -- NO ACTION TAKEN
DMTxxx911E INVALID BUFFER SIZE SPECIFIED -- LINK 'linkid' NOT ACTIVATED
DMTxxx913E INVALID PASSWORD PARAMETER SPECIFIED-- LINK 'linkid' NOT ACTIVATED
```

CLOSE (FOR RSCS OPERATOR ONLY)

CLOSE deactivates one or more active files on an inactive link. Active input files are reenqueued as inactive files, and later retransmission begins at the start of each input file. Active output files (which are normally incomplete) are discarded.

Close	linkid	<div> <div>ALL</div> <div>Input</div> <div>OUTput</div> <div>spoolid</div> </div>
Only one option may be entered. If no option is entered, a default of ALL is assumed.		

linkid is the one- to eight-character link identifier for the link on which the files to be closed are enqueued. The specified link must be inactive when CLOSE is issued.

ALL specifies that all active input and output files are to be deactivated. Active input files are deactivated and reenqueued. Active output files are deactivated and purged.

Input specifies that all active input files for the specified link are to be deactivated and reenqueued.

OUTput specifies that all active output files for the specified link are to be deactivated and purged.

spoolid ... specifies particular input file(s) to be deactivated and reenqueued.

Responses:

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX302E LINK 'linkid' IS NOT DEFINED
DMTAXM500I nn FILE(S) CLOSED ON LINK 'linkid'
DMTAXM501E LINK 'linkid' ACTIVE -- NO FILE(S) CLOSED
DMTAXM502E FILE 'spoolid' INACTIVE -- NO ACTION TAKEN
```

CMD

CMD passes a command to a remote system. The local RSCS system does not check the command for validity (except as noted below); it simply sends the command to the remote system specified.

CMD thus enables operators and users to execute query and control functions at remote systems.

CMD is available to the virtual machine user via the CP SMSG command. Refer to page 4-8 for details.

CMD	locid	command text
-----	-------	--------------

locid is the one- to eight-character location identifier of the remote system to receive and execute the command text.

command text is a string of up to 120 alphameric characters to be presented to the remote location as a system command. Format requirements for this string depend on the type of remote system implied by locid.

The CMD command interface is extended for the VSE/POWER, Version 1, link to allow only the RSCS operator to forward the following VSE/POWER, Version 1, commands to the DOS/VSE node for execution:

<div style="text-align: center;">START S STOP P</div>	LST [,class(es)] PUN
---	-------------------------

where:

START or S initiate a writer task in the VSE/POWER system for list or punch output.

STOP or P terminates an active writer task in the VSE/POWER system.

LST specifies a writer task for punched output.

class(es) is an optional parameter for specifying up to four output classes for list or punch output. Classes may be specified as A-Z. If omitted, the default is class A.

VSE/POWER commands may only be issued by the RSCS operator. For example:

CMD POWER START LST,ABC

All VSE/POWER commands will be checked for validity by DMTPOW before they are forwarded to the DOS/VS system.

Responses:

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX210E INVALID LOCATION 'locid'
DMTCMX303E LINK 'linkid' IS NOT ACTIVE
DMTCMX310E LOCATION 'locid' IS NOT DEFINED
DMTCMX320E LINK 'linkid' NOT CONNECTED
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION
          TAKEN
DMTPOW941E LINK 'linkid' INVALID 'CMD' SPECIFICATION
DMTPOW942E LINK 'linkid' POWER COMMAND SPECIFIED INVALID OR NOT
          SUPPORTED
DMTPOW943E LINK 'linkid' POWER COMMAND OPERAND SPECIFIED INVALID OR
          NOT SUPPORTED
```

CP (FOR RSCS OPERATOR ONLY)

The CP command transmits commands to the VM/370 Control Program without leaving the RSCS command environment. This command is available to an authorized RSCS operator only under certain conditions. See the AUTH directory statement, page 2-17.

CP	command text
----	--------------

command text is any CP command permitted for the command privilege of the RSCS virtual machine. The omission of this field will produce error message DMTCMX204E.

Note: CP commands should be used carefully. Any CP command that alters the virtual machine environment (such as DEFINE STORAGE, DEFINE CHANNEL, IPL, and LOGOFF,) will cause abnormal termination of the RSCS system. CP commands that

alter devices owned by RSCS or alter spool files enqueued by RSCS (such as DETACH, DEFINE, CHANGE, and CLOSE) can cause the RSCS system to function unpredictably.

Responses:

DMTCMX173I CP: (command response)
DMTCMX204E INVALID KEYWORD 'keyword'

CPQUERY

When used within an RSCS CMD command, CPQUERY allows the RSCS operator to inquire about the status of a remote VM system.

CPQUERY is also available to any other virtual machine user via the CP SMSG command. Refer to "Part 4: VM/SP User's Guide" for details.

CPQuery	$\left[\begin{array}{l} \text{INDicate} \\ \text{LOGmsg} \\ \text{Names} \\ \text{Time} \\ \text{Users [userid]} \end{array} \right]$
---------	--

INDicate displays the processor use, processor contention, main storage use, and main storage contention.

LOGmsg displays the log messages of the day.

Names lists all the users logged on and the terminal device address to which each is connected. If a user is disconnected, DSC is printed instead of the line address.

Time displays the current real clock time in hours:minutes:seconds format, the time zone (for example, EST), the day of the week, the calendar date in month/day/year format, and the connect and processor time for the RSCS virtual machine.

Users displays the number of users logged on and the number of users logically connected to other virtual machines.

Users userid displays the user identification and the terminal device address of the specified user if that user is logged on. If that user is not logged on, a message to this effect is issued by CP. The response from this command is returned to the issuer via the CP message command.

The CPQUERY command can be used in the command text operand of the CMD command in the following manner to obtain remote VM system status information. Some examples are:

```
SMSG rscsid CMD locid CPQ LOG
SMSG rscsid CMD locid CPQUERY NAMES
SMSG rscsid CMD locid CPQ USERS
SMSG rscsid CMD locid CPQUERY USER userid
SMSG rscsid CMD locid CPQUERY INDICATE
SMSG rscsid CMD locid CPQ TIME
```

Responses:

DMTCMX172I CPQ: (command response)
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX208E INVALID USER ID 'userid'

DEFINE (FOR RSCS OPERATOR ONLY)

DEFINE causes a new link to be temporarily added to the set of valid links for the local RSCS, or causes an existing inactive link definition to be temporarily redefined. Permanent link definitions and changes can only be made by modifying the RSCS directory. Files addressed to the remote station whose location ID is identical to the link ID may be processed after the link has been defined and started. Up to sixteen new links may be temporarily defined.

DEFine	linkid	[	Class	c]
		[	KEEP	holdslot]
		[	LINE	vaddr]
		[	TASK	name]
		[	TYPE	driverid]
		[	ZONE	zoneid]

linkid is the one- to eight-character link identifier for the new link to be defined, or for the existing link to be redefined.

Class c specifies the classes of files which may be processed by the active link. c can be either *, meaning all file classes may be processed, or from one to four classes (single characters with no intervening blanks). If no classes are specified, the default is *.

KEEP holdslot specifies the number of virtual storage file tag slots to be reserved for exclusive use by the link being defined. "holdslot" is a decimal number from zero to sixteen. If the KEEP parameter is omitted, a default value of two is assumed.

LINE vaddr designates the virtual device address (vaddr) of a permanent telecommunications port to be used for processing files for the affected link. If this parameter is omitted, the LINE definition defaults to undefined.

TASK name designates a task name for the line driver for the link. name is a one- to four-character alphameric identifier. If this parameter is omitted, the task definition defaults to undefined.

TYPE driverid designates the kind of line driver for the link. driverid is a one- to eight-character name of the line driver to be used (DMTSML, DMTPOW, DMTNPT, DMTRPT, DMTNJI, DMTVMB, or DMTVMC). The type of line driver for a link depends on the type of remote telecommunications system involved. (See "Line Driver Selection" in Part 2 of this manual.) If a new link is being defined and this operand is not specified, the type definition defaults to undefined.

ZONE zoneid specifies the number of time zone boundaries between the remote location and Greenwich to the east, the International Date Line being included as a time zone boundary. If the ZONE parameter is omitted, a default of 0 (Greenwich Mean Time) is assumed.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY205E CONFLICTING KEYWORD 'keyword'
DMTCMY206E INVALID OPTION 'keyword' 'option'
DMTCMY540I NEW LINK 'linkid' DEFINED
DMTCMY541I LINK 'linkid' REDEFINED
```

```
DMTCMY542E LINK 'linkid' ACTIVE -- NOT REDEFINED
DMTCMY543E LINK 'linkid' NOT DEFINED -- LINK LIMIT REACHED
DMTCMY653I LINK 'linkid' DEFAULT 'task' 'type' 'vaddr' c Z=z R=r
```

DELETE (FOR RSCS OPERATOR ONLY)

DELETE causes a previously defined link to become temporarily undefined. Permanent deletion of a link can only be made by deleting the entry from the RSCS directory. The link to be deleted must be inactive and must have no files enqueued or pending when the DELETE command is issued. Files addressed to an undefined link are rejected as invalidly addressed.

DELEte	linkid
--------	--------

linkid is the one- to eight-character link identifier for the link to be undefined.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY550I LINK 'linkid' NOW DELETED
DMTCMY551E LINK 'linkid' ACTIVE -- NOT DELETED
DMTCMY552E LINK 'linkid' HAS A FILE QUEUE -- NOT DELETED
```

DISCONN (FOR RSCS OPERATOR ONLY)

DISCONN disconnects the RSCS operator console from the VM/370 system while RSCS continues to operate. The RSCS DISCONN command operates like the VM/370 DISCONN command, except that another userid may be specified to receive all RSCS operator's console output lines. If no userid is specified, the RSCS console output lines are discarded without being printed. For the RSCS operator to reconnect his console, he must log on to the system again.

DISConn	[userid]
---------	----------

userid is the one- to eight-character ID for the currently logged-on virtual machine that is to receive subsequent RSCS operator console output lines. The userid specified must be that of a virtual machine that is logged on to the local system at the time this command is issued and is capable of receiving messages. Otherwise, the DISCONN command is rejected.

Responses:

```
DMTCMX208E INVALID USER ID 'userid'
DMTCMX560I RSCS NETWORKING DISCONNECTING
DMTCMX561E USERID 'userid' NOT RECEIVING
```

DRAIN

DRAIN deactivates the specified link after the file currently being processed is completed. The link is deactivated immediately if no file is being processed when the DRAIN command is issued. An inactive link is activated by a START command. If a START command is issued for the link before final file processing is complete, the link is not deactivated and normal processing is continued.

DRain	[linkid]
-------	----------

linkid is the one- to eight-character link identifier for the link to be deactivated. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY205E CONFLICTING KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx570I LINK 'linkid' NOW SET TO DEACTIVATE
DMTxxx571E LINK 'linkid' ALREADY SET TO DEACTIVATE
```

EXEC (FOR RSCS OPERATOR ONLY)

EXEC executes a sequence of RSCS commands contained in a CMS file on the RSCS system disk.

EXec	filename
------	----------

filename is the filename of a file containing one or more RSCS commands to be executed. The filetype of the file must be 'RSCS', and the file must contain fixed-length 80-character records.

RSCS exec files may contain any valid RSCS command except another EXEC command. Each line of the exec file is interpreted as a single RSCS command line; no conditionals or substitution variables are permitted.

At Initial Program Load, RSCS normally searches its system disk for a file named 'PROFILE RSCS', and executes the file as an exec file if it is found. This function may be suppressed by IPLing RSCS using the 'NOPROF' parameter as follows:

```
Ipl vaddr PARM NOPROF
```

Responses:

```
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX206E INVALID OPTION 'keyword' 'option'
DMTCMX675E EXEC 'filename' NOT FOUND ON DISK 'vaddr' -- COMMAND FILE NOT
EXECUTED
DMTCMX676E FATAL ERROR READING FROM 'vaddr' -- EXEC 'filename' PROCESSING
TERMINATED
DMTCMX677E EXEC 'filename' FILE FORMAT INVALID -- EXEC NOT EXECUTED
DMTCMX678E EXEC 'filename' IN EXECUTION -- NEW EXEC COMMAND IGNORED
DMTRET679I EXECUTING 'filename' COMMAND: (command line)
```

FLUSH

FLUSH halts processing of a file currently being transmitted on a link. The file is either purged or held, and link processing continues with the next file enqueued for transmission on the link.

Note: This command is not supported by the DMTPOW line driver.

Flush	[linkid] < [spoolid] > [ALL * HOLD]
-------	---

linkid is the one- to eight-character link identifier for the link on which the file to be flushed is being transmitted. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

spoolid is the numeric spool file identifier for the file to be flushed. This field is provided to assure that an operator does not inadvertently destroy the wrong file through a timing error.

***** specifies that the file currently being transmitted is to be flushed.

Note: This option is only available to the remote operator.

ALL specifies that all copies of the file being transmitted are to be deleted. If this option is not specified, only the current copy is deleted and the next copy, if any, is processed.

HOLD specifies that the file being transmitted is not to be purged, but rather is to be saved and placed in system hold status. Processing of the file may be restarted after the file has been taken out of hold status by a CHANGE command.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY203E INVALID SPOOL ID 'spoolid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY205E CONFLICTING KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION TAKEN
DMTxxx580I FILE 'spoolid' PROCESSING TERMINATED
DMTxxx581E FILE 'spoolid' NOT ACTIVE
```

FORCE (FOR RSCS OPERATOR ONLY)

FORCE immediately deactivates the specified link and terminates its line driver task.

FORCE	linkid
-------	--------

linkid is the one- to eight-character link identifier of the link to be deactivated.

FORCE should be used only when the DRAIN command fails to deactivate the link. Note that the DRAIN command allows files in active transmission to complete before deactivation of the link.

Responses:

```
DMTrex002I LINK 'linkid' DEACTIVATED
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
```

FREE

FREE resumes file transmission for a particular link. The hold status for each of the files enqueued on the link is not affected. FREE has no effect on a link for which file transmission was not suspended by a HOLD command.

Free	[linkid]
------	----------

linkid is the one- to eight-character link identifier for the link on which file transmission is to be resumed. If the command is issued by the

RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx590I LINK 'linkid' RESUMING FILE TRANSFER
DMTxxx591E LINK 'linkid' NOT IN HOLD STATUS
```

FWDSPACE

FWDSPACE causes the file currently being transmitted to be repositioned forward.

Note: This command is supported by the DMTSML, DMTNPT, and DMTRPT line drivers, only. In addition, the DMTRPT line driver must be in HOLD status or must be in a forms mount wait state for the FWDSPACE command to have effect.

Fwdspace	[linkid] [nnn]
----------	----------------

linkid is the one- to eight-character link identifier of the link on which the file currently being transmitted is to be repositioned. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

nnn is the number of data units to be forward spaced (if none is specified, a default of 1 is assumed). For a print file, data unit refers to printer pages, which are counted in the same way as for the VM/370 BACKSPAC command. For a punch file, data unit refers to file records that include any write type command code. If nnn is greater than the number of data units remaining to be processed, FWDSPACE acts as a FLUSH command, except when done in a forms mount wait in SETUP mode. In this case, it acts as a BACKSPAC 'linkid' FILE command.

Responses:

```
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx511E NO FILE ACTIVE ON LINK 'linkid'
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION
          TAKEN
DMTxxx600I FILE 'spoolid' FORWARD SPACED
```

HOLD

HOLD temporarily suspends file transmission for a particular link, without deactivating the link. Transmission is suspended when the currently active file is completed, or, optionally, it may be suspended immediately, and later resumed from that point by a FREE command. The HOLD command does not affect the hold status of any file enqueued for transmission on the link.

HOLD	[linkid] [IMMED]
------	------------------

linkid is the one- to eight-character link identifier of the link for which file transmission is to be suspended. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

IMMED specifies that active file transmission, if any, is to be suspended immediately.

Note: The IMMED operand is not supported by the DMTVMB, DMTVMC, DMTPOW, or DMTNJI line drivers.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION
          TAKEN
DMTxxx610I LINK 'linkid' TO SUSPEND FILE TRANSMISSION
DMTxxx611I LINK 'linkid' FILE TRANSMISSION SUSPENDED
DMTxxx612E LINK 'linkid' ALREADY IN HOLD STATUS
```

HT

HT suppresses the printing of any messages stacked for output to the RSCS operator console. HT has no effect on the execution of any other commands in progress or pending. If entered from a remote station console, HT purges any messages pending in that link's message stack.

HT	
----	--

Responses:

```
| DMTxxx204E INVALID KEYWORD 'keyword'
```

MSG

MSG causes a line of arbitrary text to be forwarded to a remote station and presented to a user or operator as a message. When sending messages to a VSE/POWER system, use of MSG is restricted to the RSCS operator.

MSG is available to the virtual machine user via the CP SMSG command. Refer to "Part 4: VM/370 User's Guide" for details.

Msg	locid < <table border="1"><tr><td>userid</td></tr><tr><td>RSCS</td></tr></table> > [msgtext]	userid	RSCS
userid			
RSCS			

locid is the one- to eight-character location identifier of the location to receive the specified text line. If the message is for a local VM/370 user, this operand is specified as the local RSCS location ID.

userid is a one- to eight-character identifier of a user at that location. If the message is to be sent to a remote batch terminal, the userid field is ignored, but a dummy entry must be included to avoid deletion of the first word of the message text.

RSCS specifies the remote RSCS operator's console.

msgtext is an arbitrary string of up to 120 alphameric characters composing the message to be sent. Refer to page 5B-1 for an explanation of message truncation.

Responses:

```
DMTCMX170I FROM 'locid': (message text)
DMTCMX171I FROM 'locid'('userid'): (message text)
DMTCMX208E INVALID USER ID 'userid'
DMTCMX210E INVALID LOCATION 'locid'
DMTCMX303E LINK 'linkid' IS NOT ACTIVE
DMTCMX310E LOCATION 'locid' IS NOT DEFINED
DMTCMX320E LINK 'linkid' NOT CONNECTED
DMTRGX330E USERID MISSING OR INVALID
DMTRGX331E 'userid' NOT LOGGED ON
DMTRGX332E 'userid' NOT RECEIVING
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION
```

TAKEN

ORDER

ORDER causes the file queue for a particular link to be reordered as specified. The effect of the command is to redefine the order in which particular files are to be processed on the link. The specified files are placed at the start of the link queue in the specified order, and the file priority attribute is automatically set to zero (top priority) for each specified file.

ORder	[linkid] spoolid1 [spoolid2 ...]
-------	------------------------------------

linkid is the one- to eight-character link identifier for the link on which the file queue is to be reordered. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

spoolid1 specifies the affected file(s), and defines the new order
... in which they are to be enqueued.

Responses:

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX302E LINK 'linkid' IS NOT DEFINED
DMTAXM523I LINK 'linkid' QUEUE REORDERED
DMTAXM524E FILE 'spoolid' ACTIVE -- NO ACTION TAKEN
DMTAXM525E FILE 'spoolid' IS FOR LINK 'linkid' -- NO ACTION TAKEN
DMTAXM526E FILE 'spoolid' NOT FOUND -- NO ACTION TAKEN
```

PURGE

PURGE causes specified inactive files for a particular link to be removed from the system before they are processed on the link. Any file may be purged, regardless of its status, as long as it has not been selected for transmission.

PURge	[linkid] < [ALL [spoolid1 spoolid2 ...]] >
-------	---

linkid is the one- to eight-character link identifier for the link on which the files to be removed are enqueued. If the command is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

ALL specifies that the entire queue of files for the link is to be removed from the system.

spoolid1 specifies the particular file(s) to be removed from the
... system.

Responses:

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX302E LINK 'linkid' IS NOT DEFINED
DMTAXM524E FILE 'spoolid' ACTIVE -- NO ACTION TAKEN
DMTAXM525E FILE 'spoolid' IS FOR 'linkid' -- NO ACTION TAKEN
DMTAXM526E FILE 'spoolid' NOT FOUND -- NO ACTION TAKEN
DMTAXM640I 'nn' FILE(S) PURGED ON LINK 'linkid'
```

QUERY

QUERY displays linkid, file, or RSCS status information. If the command is issued by the RSCS operator, the response is sent to the RSCS operator's console. If the command is issued by a remote operator, the response is printed on the remote station printer. For the information returned by each option of the QUERY command, refer to the appropriate message text in "Appendix B: RSCS Messages".

QUERY is also available to any other virtual machine user via the CP SMSG command. Refer to "Part 4: VM/SP User's Guide" for details.

Query	<div> <div>locid</div> <div> <div>linkid</div> <div> <div>Active</div> <div>Def</div> <div>Files</div> <div>Queue</div> <div>Sum</div> </div> </div> <div> <div>File</div> <div>spoolid</div> <div> <div>STAT</div> <div>RSCS</div> <div>VM</div> </div> </div> <div> <div>SYstem</div> <div> <div>Active</div> <div>Links</div> <div>Ports</div> <div>Queue</div> <div>Routes</div> </div> </div> </div>
Only one item: a linkid, a file, or the system, may be queried at any one time, and only one keyword may be specified.	

locid requests information pertaining to the active attributes and status of the link specified by the one- to eight-character locid. Status information includes activity status, type of line driver, line address, classes of files to be processed, HOLD status, DRAIN status, TRACE status, current form name and mode, number of files in queue, and number of files waiting to be queued. (See the descriptions of messages DMTCMX636I, DMTCMX651I, and DMTCMX652I.)

linkid Active requests information pertaining to the active file descriptors for the link specified by the one- to eight-character linkid. Activity information includes the VM/370 spool file ID, originating VM/370 spool file ID, destination location and user ID, spool file class, file transmission priority, number of file records left to transmit, user and operator form names, and total records, of the file currently being transmitted. (See the descriptions of messages DMTCMX656I and DMTCMX665I.)

linkid Def requests information pertaining to the defined default attributes of the link specified by the one- to eight-character linkid. Default information includes task name, type of line driver, line address, classes of files to be processed, time zone identifying digit, and number of virtual storage file tag slots reserved for the link. (See the description of message DMTCMX653I.)

linkid Files requests information pertaining to the file status of the link specified by the one- to eight-character linkid. File information includes the number of files being transmitted, the number of files being received, the number of files accepted and in the queue, and the number of files pending. (See the description of message DMTCMX654I.)

linkid Queue

requests a list of brief descriptions of each inactive file enqueued for transmission, in the current queue order, on the link specified by the one- to eight-character linkid. Queue information includes the number of files in the queue and the number waiting to be entered in queue. In addition, for each file currently in the queue, an additional response is issued containing the spool file identification number, origin location, destination location, destination user ID (if any), spool file class, current transmission priority, the number of records in the file, user and operator form names, and the file hold status. (See the descriptions of messages DMTCMX654I and DMTCMX655I.)

linkid Sum

requests summary information about the transaction and error counters maintained by the line driver concerning activity on the communications adapter. (See the description of message DMTxxx149I.)

File spoolid STAT

requests certain information pertaining to the particular file specified by the numeric spoolid. Status information includes activity status and the linkid of the link on which the file is queued or being transmitted. (See the descriptions of messages DMTCMX660I, DMTCMX661I, and DMTCMX664E.)

File spoolid RSCS

requests a description of the RSCS control related attributes and status of the file specified by spoolid. RSCS-related attributes include originating location and user ID, originating VM/370 spool ID, date and time of creation, time zone reference for time of day, and the destination location and user ID. (See the descriptions of messages DMTCMX662I and DMTCMX664E.)

File spoolid VM

requests a description of the VM/370 spool system related attributes of the file specified by spoolid. VM/370 spool-related attributes include transmission priority, spool file class, number of copies requested, HOLD status, distribution code, filename and type, user and operator form names, and data set name. (See the descriptions of messages DMTCMX663I, DMTCMX664E, and DMTCMX666I.)

SYstem Active

requests information pertaining only to active links. Active link information includes link identification, link status, line driver type, line address, and hold status, drain status, and trace status. (See the descriptions of messages DMTCMX670I, DMTCMX672I, and DMTCMX673I.)

SYstem Links

requests brief descriptions of each link currently defined in the system. Inactive link information includes link identification, activity status, default line driver type, and default line address. Active link information includes link identification, link status, line driver type, line address, and hold status, drain status, and trace status. (See the descriptions of messages DMTCMX670I, DMTCMX671I, and DMTCMX673I.)

SYstem Ports

DMTxxx204E INVALID KEYWORD 'keyword' requests a brief description of entries in the switchable port table. Port information includes port availability status and identification of ports in use by link ID and port address. (See the descriptions of messages DMTCMX625I, DMTCMX626I, and DMTCMX627I.)

SYstem Queue

requests that message DMTCMX654I be issued for each link with a non-zero queued or pending file count. Queue information includes the number of files being transmitted and received, the files accepted and enqueued, and the files pending for each link ID with a non-zero queue. (See the descriptions of messages DMTCMX654I and DMTCMX674I.)

SYstem Routes

requests a brief description of entries in the routing table. Route descriptions show the link ID for each route definition in the RSCS

routing table. (See the descriptions of messages DMTCMX634I and DMTCMX636I.)

Responses:

QUERY 'locid':

DMTCMX636I 'locid' ROUTED THROUGH LINK 'linkid'
DMTCMX651I LINK 'linkid' INACTIVE
DMTCMX652I LINK 'linkid' {CONNECT|ACTIVE} 'task' 'type' 'vaddr' c
 {HO|NOH}{DR|NOD} {NOT|TRS|TRL|TSL} [form-name form-mode]

QUERY 'linkid' ACTIVE:

DMTCMX656I FILE 'spoolid' ('orgid') 'locid' 'userid' CL FO uuuuuuuu ffffffff a
 PR pp LEFT mmmmmmmm OF nnnnnnnn
DMTCMX665I NO FILE ACTIVE

QUERY 'linkid' DEF:

DMTCMX653I LINK 'linkid' DEFAULT 'task' 'type' 'vaddr' c Z=z R=r

QUERY 'linkid' FILES:

DMTCMX654I LINK 'linkid' S=s R=r Q=q P=p

QUERY 'linkid' QUEUE:

DMTCMX654I LINK 'linkid' S=s R=r Q=q P=p
DMTCMX655I FILE 'spoolid' ('orgid') 'locid' 'userid' CL FO uuuuuuuu ffffffff a
 PR pp REC nnnnnnnn {HO|NOH}

QUERY 'linkid' SUM:

DMTCMX149I LINK 'linkid' LINE ACTIVITY; TOT=mmmmmmmm; ERRS=nnnnnnnn;
 TMOUITS=pppppppp

QUERY FILE 'spoolid' STAT:

DMTCMX660I FILE 'spoolid' INACTIVE ON LINK 'linkid'
DMTCMX661I FILE 'spoolid' ACTIVE ON LINK 'linkid'
DMTCMX664E FILE 'spoolid' NOT FOUND

QUERY FILE 'spoolid' RSCS:

DMTCMX662I FILE 'spoolid' ORG 'locid1' 'userid1' ORGID 'orgid' mm/dd/yy hh:mm:ss
 z.z.z. TO 'locid2' 'userid2'
DMTCMX664E FILE 'spoolid' NOT FOUND

QUERY FILE 'spoolid' VM:

DMTCMX663I FILE 'spoolid' PR pp CL a FO uuuuuuuu ffffffff CO [*]nnn {HO|NOH} DI
 'distcode', NA {'fn ft'}{'dsname'}
DMTCMX664E FILE 'spoolid' NOT FOUND
DMTCMX666I FILE 'spoolid' FL ffff nnn MO mmmm t CH ccc0 ccc1 ccc2 ccc3 FCB bbbb

QUERY SYSTEM ACTIVE:

DMTCMX670I LINK 'linkid' {CONNECT|ACTIVE} -- LINE 'vaddr' {HO|NOH} {DR|NOD}
 {NOT|TRS|TRL|TSL}
DMTCMX672I NO LINK ACTIVE
DMTCMX673I NO LINK DEFINED

QUERY SYSTEM LINKS:

```
DMTCMX670I LINK 'linkid' {CONNECT|ACTIVE} -- LINE 'vaddr' {HO|NOH} {DR|NOD}
          {NOT|TRS|TRL|TSL}
DMTCMX671I LINK 'linkid' INACTIVE
DMTCMX673I NO LINK DEFINED
```

QUERY SYSTEM PORTS:

```
DMTCMX625I NO PORTS AVAILABLE
DMTCMX626I PORT 'vaddr' AVAILABLE
DMTCMX627I PORT 'vaddr' IN USE BY LINK 'linkid'
```

QUERY SYSTEM QUEUE:

```
DMTCMX654I LINK 'linkid' S=s R=r Q=q P=p
DMTCMX674I NO FILES QUEUED
```

QUERY SYSTEM ROUTES:

```
DMTCMX634I NO LOCATIONS ROUTED
DMTCMX636I 'locid' ROUTED THROUGH LINK 'linkid'
```

QUERY ... (general)

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX206E INVALID OPTION 'keyword' 'option'
DMTCMX310E LOCATION 'locid' IS NOT DEFINED
```

READY

READY (which is valid only for NPT, RPT, and SML line drivers) allows communication between the workstation operator and RSCS when using AUTO or SETUP mode forms selection. READY specifies that a form mount has been satisfied if in AUTO mode, or, if in SETUP mode, that the printing of a setup page is desired.

Ready	linkid
-------	--------

linkid is the one- to eight-character link identifier of the link whose pending mount request has been satisfied.

If READY is issued when no mount is pending, message DMTxxx750E is issued, and no further action is taken.

Responses:

```
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION TAKEN
DMTxxx750E LINK 'linkid' ALREADY ACTIVE -- NO ACTION TAKEN
```

REORDER (FOR RSCS OPERATOR ONLY)

REORDER causes all inactive files currently owned by the RSCS virtual machine to be reaccepted and routed. REORDER is not normally issued by the RSCS operator, but is issued internally by RSCS during processing of CLOSE, DEFINE, DELETE, ROUTE, or START commands, and following any link deactivation.

REORDER

Execution of this command will never adversely affect RSCS operations. However, in case of abnormal occurrences, files presented to RSCS might not be immediately accepted and transmitted automatically. REORDER forces RSCS to inspect its input files, and can initiate transmission of a "hung" file.

Responses:

DMTAXM109I FILE QUEUE REORDERED
DMTCMX204E INVALID KEYWORD 'keyword'

ROUTE (FOR RSCS OPERATOR ONLY)

ROUTE defines, modifies, or deletes an entry in the RSCS routing table. RSCS uses its routing table to determine which link is to receive files, commands, and messages that cannot be transmitted to their destination location on a direct link. A direct link and an indirect route may be concurrently defined for the same remote location, using a single locid. In this case, indirect routing is used only when the indirect link is active and the direct link is not. Files are reenqueued following execution of a ROUTE command, so that transmission of rerouted files can begin immediately.

ROUTE	locid < <table border="1"><tr><td>TO linkid</td></tr><tr><td>OFF</td></tr></table> >	TO linkid	OFF
TO linkid			
OFF			

locid is the one- to eight-character identifier for the remote location whose routing is to be modified.

TO linkid specifies the link through which files, commands, and messages addressed to the specified remote location are to be routed.

OFF cancels indirect routing for the specified locid.

Responses:

DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY210E INVALID LOCATION 'locid'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY630I 'locid' NOW ROUTED THROUGH LINK 'linkid'
DMTCMY631I INDIRECT ROUTING FOR 'locid' DEACTIVATED
DMTCMY632E 'locid' INVALID ROUTE SPECIFIED
DMTCMY633E 'locid' NOT ROUTED -- ROUTE LIMIT REACHED
DMTCMY637E 'locid' NOT ROUTED
DMTCMY638E LOCATION 'locid' HAS A FILE QUEUE -- INDIRECT ROUTING NOT DEACTIVATED

SET (FOR AUTHORIZED ALTERNATIVE OPERATOR ONLY)

SET allows an authorized alternative operator to request or disable console message routing. The default message routing provides for only command response messages to be returned to an authorized alternative operator. Messages that are caused by the normal running of the system, such as informational and error messages, are sent only to the central RSCS operator's console. If an alternative operator wishes to see RSCS console messages, he must request a copy of them by issuing a SET 'linkid' MSG command. Link-authorized alternative operators will receive messages associated with only their link, while system-authorized operators will receive all appropriate console messages. Console message routing can be turned off at any time by issuing a SET 'linkid' NOMSG command.

SET	linkid {MSG|NOMsg}
-----	--------------------

linkid is the one- to eight-character link identifier for which console message routing is to be initiated or disabled. The SET command originator must be authorized for the specified link. If the command originator is authorized for the entire RSCS virtual machine, the linkid field is ignored, but a dummy entry, such as *, must be specified.

MSG specifies that console message routing is to be initiated for the specified link.

NOMsg specifies that console message routing is to be disabled for the specified link.

Note: If an alternative operator logs off the system while console message routing is in effect, RSCS will automatically disable message routing for the specific linkid/userid combination. If the alternative operator disconnects, messages will continue to be sent to him to account for the fact that his virtual machine may have console spooling in effect. RSCS can detect a logged-off alternative operator only if he is at the same location as the RSCS virtual machine that owns his authorization table entry.

Responses:

DMTxxx204E INVALID KEYWORD 'keyword'
DMTxxx205E CONFLICTING KEYWORD 'keyword'

SHUTDOWN (FOR RSCS OPERATOR ONLY)

SHUTDOWN effectively issues a DRAIN command to each currently active link. SHUTDOWN is the means for gracefully terminating RSCS operations.

SHUTDOWN	
----------	--

Responses:

DMTCMY204E INVALID KEYWORD 'keyword'
DMTxxx570I LINK 'linkid' NOW SET TO DEACTIVATE
DMTxxx571E LINK 'linkid' ALREADY SET TO DEACTIVATE

START

START, issued by an RSCS operator, can activate a specified inactive link. It can also be used by either an RSCS or remote operator to cause an active link to begin processing files of a specified set of classes or forms, or to reset a pending deactivation due to a DRAIN command.

STArt	<div>linkid</div> <div>[Class c] [Parm [...]]</div> <div>[LINE vaddr]</div> <div>[TASK name]</div> <div>[TYPE driverid]</div> <div>[FOrm name]</div> <div>[<u>MAnual</u></div> <div>Auto</div> <div>SETup</div>
-------	--

linkid is the one- to eight-character link identifier for the inactive link to be activated, or for the active link on which file processing is to

be altered. If START is issued by the RSCS operator, this operand must be specified; if issued from a remote station, it must be omitted.

Class c specifies classes of files which may be processed after execution of the command. c can be either *, meaning all file classes may be processed, or from one to four classes (single characters with no intervening blanks). If * is specified, no other classes may be specified. If multiple classes are specified for a link, files are processed in the order that the classes are specified, and in priority order within each particular class. If * is specified, files are processed in priority sequence only. If no classes are specified, the definition of class in the link's link table entry is used.

LINE vaddr designates the virtual device address (vaddr) of the line port to be used by the newly activated link. The value specified overrides a device address which may have been previously defined for the link. If no line port address is specified, the previously defined address is used. If no address was previously defined and no address is specified, an available switched port is selected for use, and the operator is informed of that selection. This keyword option is valid only when activating an inactive link.

Note: If the type of device connected to RSCS at vaddr does not match the type of device supported by the line driver that is being initiated by the START command, the results are unpredictable.

Refer to the description of 'cuu' on the LINK directory control statement for considerations in selecting a virtual device address.

TASK name designates a task name for use by the line driver to be initialized, which overrides the name which may have been previously defined for the link. name is a one- to four-character alphanumeric identifier. If this field is not specified, the name previously defined for the link is used. If no name was previously defined for the link, an appropriate descriptive default task name is generated and used. This keyword option is valid only when activating an inactive link.

TYPE driverid designates the name of the line driver to be used for the link to be activated. driverid is a one- to eight-character name. This keyword option is valid only when activating an inactive link. (See the topic "Line Driver Selection" in Part 2 of this manual for determining which line driver to use for a given application.) This specification overrides the driver name which may have been previously defined for the link.

Form name specifies the operator form name of files that may be processed after execution of the command. The "name" can be one to eight characters in length. Specifying an "*" for the name allows processing of any file regardless of form.

Manual specifies that only files with the current form name are to be processed. If the form name is "*", files with any form are processed.

Auto specifies that RSCS is to process files with any form, with automatic prompting messages for forms changes.

SETup specifies that RSCS is to process files with any form, with automatic prompting messages for forms changes. In addition, the workstation operator is allowed to check and adjust forms alignment when changing forms.

Note: If FORM is not specified on the START command, the current form for the link remains in effect. The current form is maintained if the link is drained and restarted. When a link is started for the first time, or if the link has been deleted and redefined, the default operator form name specified on the OPFORM directory statement is used. If neither MANUAL, AUTO, or SETUP is specified, the previous mode setting remains in effect. The previous mode is maintained if the link is drained and restarted. When the link is started for the first time, or if the link has been deleted and redefined, the default mode

is MANUAL. Starting a link with "FORM * MANUAL" specified on the START command means no forms control.

Parm causes the remainder of the command line to the right of the Parm keyword to be made available to the newly activated line driver. No further interpretation is performed on the command line after a Parm keyword is encountered, so it must always be the rightmost keyword specified. If no information is supplied after the Parm keyword, any PARM directory control statement is effectively negated. For a description of the Parm operands for each line driver, see the sections on starting line drivers in Part 3 of this manual.

Responses:

DMTxxx204E INVALID KEYWORD 'keyword'
DMTxxx205E CONFLICTING KEYWORD 'keyword'
DMTxxx206E INVALID OPTION 'keyword' 'option'
DMTCMY700I ACTIVATING LINK 'linkid' 'task' 'type' 'vaddr' c
DMTCMY701E NO SWITCHED LINE AVAILABLE -- LINK 'linkid' NOT ACTIVATED
DMTCMY702E LINE 'vaddr' IS IN USE BY LINK 'linkid1' -- LINK 'linkid2' NOT ACTIVATED
DMTCMY703E DEV 'cuu' IS NOT A LINE PORT -- LINK 'linkid' NOT ACTIVATED
DMTCMY704E LINE 'vaddr' CC=3 NOT OPERATIONAL -- LINK 'linkid' NOT ACTIVATED
DMTCMY705E DRIVER 'type' NOT FOUND ON DISK 'vaddr' -- LINK 'linkid' NOT ACTIVATED
DMTCMY706E FATAL ERROR LOADING FROM 'vaddr' -- LINK 'linkid' NOT ACTIVATED
DMTCMY707E DRIVER 'type' FILE FORMAT INVALID -- LINK 'linkid' NOT ACTIVATED
DMTCMY708E VIRTUAL STORAGE CAPACITY EXCEEDED -- LINK 'linkid' PROCESSING TERMINATED
DMTCMY709E TASK NAME 'task' ALREADY IN USE -- LINK 'linkid' NOT ACTIVATED
DMTCMY710E MAX ('nn') ACTIVE -- LINK 'linkid' NOT ACTIVATED
DMTCMY750E LINK 'linkid' ALREADY ACTIVE -- NO ACTION TAKEN
DMTCMY751I LINK 'linkid' ALREADY ACTIVE -- NEW CLASS(ES)/FORM SET AS REQUESTED
DMTxxx752I LINK 'linkid' STILL ACTIVE -- DRAIN STATUS RESET
DMTSML901E INVALID SML MODE SPECIFIED -- LINK 'linkid' NOT ACTIVATED
DMTPOW903E PASSWORD SUPPLIED ON LINK 'linkid' IS INVALID
DMTxxx906E INVALID BUFFER PARAMETER -- LINK 'linkid' NOT ACTIVATED
DMTPOW908E INVALID 'PARM' PARAMETER 'parmvalue' SPECIFIED
DMTxxx911E INVALID NJI BUFFER SIZE SPECIFIED -- LINK 'linkid' NOT ACTIVATED
DMTxxx912E INVALID NJI NODAL RESISTANCE SPECIFIED -- LINK 'linkid' NOT ACTIVATED
DMTxxx913E INVALID PASSWORD PARAMETER SPECIFIED -- LINK 'linkid' NOT ACTIVATED
DMTxxx915E INCOMPATIBLE BUFFER SIZES -- LINK 'linkid' IS BEING DEACTIVATED
DMTPOW946E INVALID POWER CPUID SPECIFIED -- LINK 'linkid' NOT ACTIVATED

TRACE

TRACE enables the operator to verify that the line service is working properly or to generate documentation useful in problem determination.

TRACE causes the specified active link to start or stop reporting (on the operator's console) line activity summary information consisting of the number of successful transactions, unsuccessful transactions, and time-outs since the last similar message or since the link was activated. (See the description of message DMTxxx149I.)

TRACE can also be used to start or stop logging of each line I/O transaction on a link. While log trace is active for a link, a record of each line I/O transaction is written to a spool print file. Each record contains the channel program executed, the CCW and its address, the CSW, the ending sense data if any, and data from each buffer used. The spool file is queued for real printer output, or directed according to the TO keyword, when the log trace is deactivated for the link.

TRace	linkid	[SUM NOSum]	[ALL LOG NOLog]	[TO userid [locid]]
	linkid	[OFF]		
If keywords are not entered, a default of SUM is assumed.				

linkid is the one- to eight-character link identifier of the link for which tracing is to be started or stopped.

SUM specifies that the link's line driver is to report all line activity in a standard format. It is the default if only linkid, and no other operand, is specified.

NOSum specifies that the link's line driver is to cease reporting line activity. This is the initial state at RSCS start-up.

OFF stops the reporting of line activity, stops the logging of I/O activity (and initiates the automatic printout of the log data), and resets the routing of the log output. It is equivalent to specifying TRACE linkid NOSUM NOLOG TO SYSTEM.

ALL starts the full-buffer logging of I/O activity on the link.

LOG starts the partial-buffer logging of I/O activity on the link. Only the first 14 and last 6 bytes in the data buffer are logged.

NOLog stops the logging of I/O activity and initiates the automatic printout of the log data. This is the initial state at RSCS start-up.

TO userid [locid] specifies the routing of the log output to a specified location. userid identifies the virtual machine that is to receive the output; locid identifies the destination location. When userid is specified in conjunction with locid, it can identify a virtual machine, work station, or 3270 printer at the specified remote location. If the destination of the log output is the system unit record device at the specified location, userid must be specified as "SYSTEM". If the TO parameter is not specified, the default is the printer on the local system. If the TO parameter is specified, it must be the right-most parameter.

Note: Since the SML line driver in workstation mode and the POW line driver are intended to handle only job data, they will not handle trace information, which will be purged if you attempt to route it via a POW or SML line driver. Specification of ALL after logging has been started with the LOG option results in the log output switching from partial-buffer mode to full-buffer mode, and vice-versa. The routing specified by the TO option takes place only when the log output file is closed by the specification of OFF or NOLOG. Thus, the routing can be changed after log activity is started, since only the last routing that was specified is used.

Responses:

```
DMTxxx149I LINK 'linkid' LINE ACTIVITY: TOT=mmmmmmmm;
          ERRS=nnnnnnnn; TMOU=pppppppp
DMTCMY202E INVALID LINK 'linkid'
DMTCMY204E INVALID KEYWORD 'keyword'
DMTCMY205E CONFLICTING KEYWORD 'keyword'
DMTCMY206E INVALID OPTION 'keyword' 'option'
DMTCMY210E INVALID LOCATION 'locid'
DMTCMY302E LINK 'linkid' IS NOT DEFINED
DMTCMY303E LINK 'linkid' IS NOT ACTIVE
DMTxxx801I LINK 'linkid' LOG ACTIVATED
DMTxxx802I LINK 'linkid' LOG DEACTIVATED
DMTxxx803I LINK 'linkid' SUM REPORTING DEACTIVATED
DMTxxx810I LINK 'linkid' LOG ALREADY ACTIVE
DMTxxx811I LINK 'linkid' LOG NOT ACTIVE
```

```
DMTxxx812I LINK 'linkid' SUM REPORTING ALREADY ACTIVE
DMTxxx813I LINK 'linkid' SUM REPORTING NOT ACTIVE
```

TRANSFER (FOR RSCS OPERATOR ONLY)

TRANSFER redirects inactive files specified by 'spoolid' to a new destination. RSCS removes the files from 'linkid' and enqueues them on the link for the path to the new 'locid'.

TRANSfer	linkid spoolid1 [spoolid2 ...] TO locid [userid]
----------	--

linkid is the one- to eight-character link identifier of the link from which files are to be transferred.

spoolid1 specifies the particular file(s) to be transferred from
... the specified link.

locid is the one- to eight-character location identifier of the new destination for the files.

userid is a one- to eight-character identifier specifying the new destination userid for the files. This userid defaults to 'system' if it is not specified.

Responses:

```
DMTCMX202E INVALID LINK 'linkid'
DMTCMX203E INVALID SPOOL ID 'spoolid'
DMTCMX204E INVALID KEYWORD 'keyword'
DMTCMX205E CONFLICTING KEYWORD 'keyword'
DMTCMX208E INVALID USER ID 'userid'
DMTCMX302E LINK 'linkid' IS NOT DEFINED
DMTAXM524E FILE 'spoolid' ACTIVE -- NO ACTION TAKEN
DMTAXM525E FILE 'spoolid' IS FOR LINK 'linkid' -- NO ACTION TAKEN
DMTAXM526E FILE 'spoolid' NOT FOUND -- NO ACTION TAKEN
DMTAXM645I 'nn' FILE(S) TRANSFERRED ON LINK 'linkid'
```


APPENDIX B: RSCS MESSAGES

Appendix B contains a detailed description of the RSCS messages and wait state codes.

RSCS messages are issued in response to commands and spontaneously during system execution. Messages in response to commands are issued to the command originator and, in certain cases, to the RSCS local operator. Spontaneous messages are issued to the RSCS local operator whenever error or informational conditions arise during system operation. Certain spontaneous messages are issued to virtual machine users when they apply to files originated by or destined for the users. The destination key indicates the possible destination(s) of each message. The keys are:

- C - VM/SP CP operator
- O - Command or file originator*
- R - RSCS local operator*
- V - Virtual machine user

* Generally, an authorized alternative operator receives only those messages with a routing key of 'O'. However, if a SET linkid MSG command has been issued, he will also receive messages (other than initialization messages) with a key of 'R'.

MESSAGE FORMAT

The message identifiers conform to VM/SP standards. The first three characters (DMT) denote RSCS. The next three characters denote the module origin of each message. Some messages can be issued by more than one module. These messages appear in this appendix with the fourth, fifth, and sixth characters encoded as xxx. However, when the message is issued, xxx is replaced with the appropriate module code. The next three characters contain the message number. The last character is a message severity code:

E	Error message
I	Informational message
R	Response message
S	Severe error message
T	Termination of RSCS due to error

The message identifier (DMTAXM101I for example) is included in the message line if a CP SET EMSG ON command has been issued by the RSCS virtual machine. This command is contained in the PROFILE RSCS file supplied with the RSCS system. If a message is sent from a remote system, an additional header (see messages DMTRGX170I and DMTRGX171I) is added by the receiving RSCS virtual machine. Since the maximum length message that RSCS can issue is 120 bytes long (including the message identifier), possible truncation of message text can occur depending on the number of message identifiers and headers added to the message and the length of the message text itself.

MESSAGE DESCRIPTIONS IN ORDER BY MESSAGE NUMBER

DMTIRX000I RSCS NETWORKING VERSION vv, RELEASE nn, mm/dd/yy READY

Explanation: This message signals the completion of RSCS initialization, including the activation of the AXS and LAX tasks. VERSION vv and RELEASE nn specify the Version and Release of RSCS in use. mm/yy/dd specifies the date on which the RSCS nucleus in use was generated.

System Action: The system begins normal processing by accepting files and commands.

Operator Action: Normally, activate one or more links.

Destination Keys: R

DMTCMX001I FREE STORAGE = 'nn' PAGES

Explanation: This message is issued automatically when the number of pages of unallocated virtual storage available to RSCS increases or decreases by a certain increment. The new number of available free pages is denoted by 'nn'.

System Action: Normal processing continues.

Operator Action: This information helps the operator understand the state of RSCS processing. Knowledge of virtual storage utilization helps the operator decide whether to activate or deactivate links, and helps the system programmer decide an appropriate virtual storage size for the RSCS virtual machine.

Destination Keys: R

DMTREX002I LINK 'linkid' DEACTIVATED

Explanation: The link identified by 'linkid' was deactivated as a result of the execution of a previous DRAIN or FORCE command, or as the result of a line driver terminal error.

System Action: The link's line driver task is deleted, all storage allocated to the task is made free, and the link table entry is updated. The link remains inactive until it is reactivated by a START command.

Operator Action: If the link deactivation was spontaneous (that is, not as the result of a DRAIN command) restart the link using a START command. If spontaneous deactivations recur, notify local RSCS support personnel.

Destination Keys: R

DMTCMX003I LINK 'linkid' EXECUTING: (command line text)

Explanation: The RSCS command described by (command line text) was forwarded by a directly connected remote station for local execution. The link identifier of the originating remote station is specified by 'linkid'.

System Action: The command is executed, and the resulting response is automatically returned to the originating remote station.

Operator Action: None.

Destination Keys: R

DMTCMX004I LOCATION 'locid' EXECUTING: (command line text)

Explanation: The RSCS command described by (command line text) has been forwarded by the operator at a remote location for local execution. The location identifier for the originating remote location is identified by 'locid'.

System Action: The command is executed, and the resulting response is automatically returned to the originating remote operator.

Operator Action: None.

Destination Keys: R

DMTCMX005I LOCATION 'locid'('userid') EXECUTING: (command line text)

Explanation: The RSCS command described by (command line text) has been forwarded by an interactive user at a remote location for local execution. The command originator's location and user identifiers are specified by 'locid' and 'userid'.

System Action: The command is executed if it is a valid command for user execution, and the resulting response is automatically returned to the originating remote interactive user.

Operator Action: None.

Destination Keys: R

DMTxxx070E I/O ERROR cuu SIOCC cc CSW csw SENSE sense CCW ccw

Explanation: A message of this format is issued by any task in RSCS that detects an uncorrectable hardware or system error during an I/O operation. The causes of such an error vary, depending on the particular device type and command code.

cuu - the virtual device address of the I/O device on which the error occurred.
cc - the condition code resulting from the issuing of the SIO command on the device for the operation which was in error.
csw - the composite CSW associated with the operation in error. The composite CSW is a logical ORing of the CSW information associated with the SIO or the interrupts from the device while the I/O operation was active.
sense - the sense information associated with the I/O operation in error if the I/O operation ends with unit check set on.
ccw - the first CCW of the I/O operation in error if it failed to start, or the last CCW fetched by the channel before the I/O operation terminated with an error indication.

System Action: The error is logged, and appropriate recovery procedures are taken. The exact effect of the I/O error condition depends on the conditions existing when it occurs. The system may continue processing normally, the link may be automatically deactivated, or RSCS may shut down.

Operator Action: This message may indicate a serious system or hardware error, or it may indicate common conditions such as intervention required. If the message is issued unexpectedly, notify local RSCS support personnel. An intervention required condition on a virtual output device indicates that the CP spool space is exhausted. This results in the termination of the line driver that has issued this message, or the termination of line transaction logging if the error is associated with the log virtual output device. If this problem occurs frequently, notify CP support personnel to provide for the definition of additional spool space.

Destination Keys: R

DMTrex080E PROGRAM CHECK -- LINK 'linkid' DEACTIVATED

Explanation: A program check interrupt occurred while the line driver for the link identified by 'linkid' was executing. There are no normal cases in which this situation arises, and it probably reflects either a software or system generation error in either RSCS or CP.

System Action: A dump of RSCS virtual storage is automatically taken and queued for real spool print output. The affected link is automatically deactivated. Normal RSCS operation for other links is not affected.

Operator Action: Retrieve hard copy RSCS console output leading up to the program check, if possible, and attach it to the RSCS virtual dump when it has printed. Submit the dump and the console output to local RSCS support personnel.

Destination Keys: R

DMTrex090T PROGRAM CHECK IN SUPERVISOR -- RSCS NETWORKING SHUTDOWN

Explanation: A program check interrupt has occurred during the execution of MSUP, the RSCS supervisor, or during execution of one of the RSCS system control tasks, REX, AXS, or LAX. There are no normal cases in which this situation arises, and it probably reflects either a software or system generation error in either RSCS or CP.

System Action: A dump of RSCS virtual storage is automatically taken and queued for real spool print output. Messages queued for operator output are written to the operator console, and RSCS terminates by loading a masked off wait state PSW with wait state code X'001'.

Operator Action: When this situation arises immediately following RSCS IPL, retrieve hard copy RSCS console output leading up to the program check, if possible, and attach it to the RSCS virtual dump when it has printed. Submit the dump and the console output to local RSCS support personnel. Re-IPL RSCS and restart and reconnect the dialable links.

Destination Keys: R, C

DMTrex091T INITIALIZATION FAILURE -- RSCS NETWORKING SHUTDOWN

Explanation: An unrecoverable error occurred during the initial loading of the supervisor components, MSUP, REX, AXS, and LAX.

System Action: A virtual storage dump is automatically taken, and a masked off wait state PSW is loaded, terminating system operation.

Operator Action: Retrieve hard copy RSCS operator console output, if possible, attach it to the RSCS storage dump after it has been printed, and submit it to local RSCS support personnel. Retry the RSCS IPL.

Destination Keys: R, C

DMTAXM101I FILE 'spoolid' ('orgid') ENQUEUED ON LINK 'linkid'

Explanation: This message is issued when the file identified by 'spoolid', origin spoolid 'orgid', has arrived at the RSCS virtual machine, and has been successfully accepted and enqueued on the link identified by 'linkid'. This message is also issued when a previously pending file is accepted after a tag slot has become available.

System Action: The newly accepted file is made available to the link's line driver for future transmission. If the line driver is waiting for a file to transmit, it is notified that the new file is available.

Operator Action: None.

| Destination Keys: V

DMTAXM102I FILE 'spoolid' ('orgid') PENDING FOR LINK 'linkid'

Explanation: The file identified by 'spoolid', origin spoolid 'orgid', has arrived at the RSCS virtual machine, but has not been enqueued on the link 'linkid' to which it is addressed, because no tag slot is available.

System Action: The link's pending count is incremented, and the file will be automatically accepted when a tag slot becomes available.

Operator Action: If RSCS repeatedly exhausts its available tag slots in normal operation, generate more extra tag slots by using the 'TAGS' directory control statement, or by increasing the RSCS virtual machine's virtual storage size.

| Destination Keys: V

DMTAXM103E FILE 'spoolid' ('orgid') REJECTED -- INVALID DESTINATION ADDRESS

Explanation: The file identified by 'spoolid' origin spoolid 'orgid' has arrived at the RSCS virtual machine bearing a destination address which is invalid, or which specifies a location ID that is not defined in the local RSCS as either a link or an indirect route.

System Action: If the file originated from a local VM/370 user, it is transferred back to the originator along with this message. If the file originated at a remote location, it is purged and this message is sent to the originator.

User Action: If the file is transferred back from RSCS, correct the tag on the file to be transmitted by using the VM/370 TAG FILE 'spoolid' command to reflect a correct destination; then transfer the file back to the RSCS virtual machine by using the TRANSFER 'spoolid' TO 'vmid' command. If the file is purged because it arrives at a location which does not have the destination location ID defined, report the situation to local RSCS support personnel.

| Destination Keys: V

| DMTAXM104I FILE ('orgid') SPOOLED TO 'userid1' -- ORG 'locid' ('userid2')
mm/dd/yy hh:mm:ss z.z.z.

Explanation: A file has been received from a remote location, acknowledged, written to the VM/370 spool system, closed, and spooled to the local virtual machine to which the file was addressed.

orgid - the originating VM/370 spool ID, or the origin job number, of the file.

userid1 - the ID of the local virtual machine to which the file has been spooled.

locid - the location identifier of the file's originator.

userid2 - the name of the file originator's system or device at the remote location.

mm/dd/yy - the date of the file's origination at the remote location.

hh:mm:ss - the time of day of the file's origination at the remote location.

z.z.z. - the time zone

| System Action: The virtual output device used to process the file is detached and normal processing continues.

| Operator Action: None.

| Destination Keys: R, V

DMTAXM105I FILE 'spoolid' PURGED

Explanation: The file identified by 'spoolid' has been purged from the system as a result of normal processing.

System Action: The file's virtual storage tag is dequeued and its slot is freed. If another file is pending, it is accepted. All system tables are updated, and normal processing continues.

Operator Action: None.

Destination Keys: R

DMTAXM106I FILE 'spoolid' MISSING -- DEQUEUED FROM LINK 'linkid'

Explanation: The file identified by 'spoolid' could not be located in the RSCS virtual machine spool input file queue during an attempt to open the file for the link identified by 'linkid'. This situation can arise when a user retrieves a file from the the RSCS spool queue using the VM/370 "TRANSFER 'spoolid' FROM 'vmid'" command.

System Action: The file's virtual storage tag is dequeued and its slot is freed. If another file is pending, it is accepted. The link table entry is updated, and normal processing continues.

Operator Action: No action is necessary. This message does not indicate an error condition.

Destination Keys: R

DMTAXM107I 'nn' PENDING FILES FOR LINK 'linkid' MISSING

Explanation: A number ('nn') of pending files for the link identified by 'linkid' have been found to be missing from the RSCS virtual machine spool input queue during an attempt to accept a pending file. This situation can arise when a user retrieves a file from the RSCS spool queue using the VM/370 "TRANSFER 'spoolid' FROM 'vmid'" command.

System Action: The link table entry is updated to reflect the proper pending file status, and normal processing continues.

Operator Action: No action is necessary. This message does not indicate an error condition.

Destination Keys: R

DMTxxx108E SYSTEM ERROR READING SPOOL FILE 'spoolid'

Explanation: A return code reflecting a VM/370 system error has been received in response to a read to the file identified by 'spoolid'.

System Action: The error is logged, the identified file is placed in a HOLD status, and link processing continues.

Operator Action: This message indicates a VM/370 system error. Notify local system support personnel.

Destination Keys: R, C

DMTAXM109I FILE QUEUE REORDERED

Explanation: As the result of an RSCS CLOSE, DEFINE, DELETE, REORDER, ROUTE, or START command, or as the result of a link deactivation, the inactive file queue has been reordered to reflect the updated status of RSCS.

System Action: Each file enqueued by RSCS is reexamined and, if appropriate, rerouted in light of changed system status.

Operator Action: None

Destination Keys: R

DMTAXM110E FILE 'spoolid' REJECTED -- INVALID DEVICE TYPE

Explanation: The file identified by 'spoolid' has arrived at the RSCS virtual machine for transmission. The AXS task has determined that the file was produced on a virtual spool device that is not supported by RSCS. Valid spool device types are PRT, 1403, 1443, 3211, 3203, 3289E, 3262, 3800, PUN, 2540P, and 3525.

System Action: The file is transferred back to the originator along with this message.

User Action: If possible, redefine the spool device that produced the file and resend the file to RSCS.

Destination Keys: V

DMTAXM111I USER 'userid' NOT IN CP DIRECTORY -- FILE ('orgid') SPOOLED TO SYSTEM

Explanation: A file received by RSCS was addressed to a local user 'userid' which is not in the local VM/370 system directory. The file had an origin spool ID of 'orgid'.

System Action: The received file is spooled to a real unit record device at the receiving location.

Operator Action: None.

Destination Keys: 0

DMTAXM112E FILE 'spoolid' ('orgid') REJECTED BY RSCS ACCOUNTING EXIT

Explanation: The file identified by 'spoolid' origin spoolid 'orgid' has arrived at the RSCS virtual machine for transmission. The installation accounting exit has determined that the file should not be transmitted.

System Action: If the file originated from a local VM/370 user, it is transferred back to the originator along with this message. If the file originated at a remote location, it is purged and this message is sent to the originator.

User Action: Check your local installation operating procedures to determine what factors are considered for rejecting a file and alter the file if possible. For example, the local installation may restrict file transmission from certain classes of users or files which are larger than some predetermined size.

Destination Keys: V

DMTAXM113I LINK 'linkid' PRINT MOUNT REQUIRED CLASS cccc FORM ffffffff
{AUTO|SETUP}

Explanation: The link has been started with AUTO or SETUP form selection specified and RSCS requires a form to be mounted on a workstation printer. The following descriptors are provided:

linkid	- the link identifier of the workstation printer
cccc	- the class(es) that the link is currently processing
fffffff	- the file's operator form name
AUTO	- file selection is in AUTO mode
SETUP	- file selection is in AUTO mode, and a setup page will be printed, if desired

System Action: The line driver that issued the above message will wait for the workstation operator to satisfy the mount request, ask for a different form to be processed, or print a setup page. If the mount request is satisfied, the active file for the link is printed and purged from the system, and a search is made for another file with the same form name as the file that just finished printing. If one is found, it will be transmitted to the workstation immediately, with no prompting message. If not, a search for a new form is made, and the prompting message is issued.

Operator Action: If the prompting message specified AUTO, there are four choices of action:

- Accept the forms mount request. This is done by mounting the required forms on the workstation printer and responding either READY 'linkid' or START 'linkid'.
- Ask RSCS for a different form, or terminate AUTO mode. This is done by entering the START command with a different form name or with the MANUAL or SETUP option. A new file may be selected.
- Drain the link with the DRAIN 'linkid' command. The mount request will be canceled and the link will be drained.
- Flush the file that is waiting for the forms-mount request, by using the command:

FLUSH 'linkid' 'spoolid'

This may result in a new mount request if other files are waiting for selection.

If the prompting message specified SETUP, there are also four choices of action:

- Accept the forms setup request. This is done by mounting the required forms on the workstation printer and responding READY 'linkid'. A setup page will now print, after which the forms may be manually adjusted and aligned in the workstation printer. The READY 'linkid' command can be again entered to verify forms alignment. After the alignment process has been completed satisfactorily, normal printing of the file can be resumed by entering the START 'linkid' command.
- Ask RSCS for a different form, or terminate SETUP mode. This is done by entering the START command with a different form name or with the MANUAL or AUTO option. A new file may be selected.
- Drain the link with the DRAIN 'linkid' command. The mount request will be canceled and the link will be drained.
- Flush the file that is waiting for the forms-mount request, by using the command:

FLUSH 'linkid' 'spoolid'

This may result in a new mount request if other files are waiting for selection.

Destination Keys: 0¹

DMTAXM114E OPEN {INPUT|OUTPUT} ERROR ON LINK 'linkid' -- NO VIRTUAL STORAGE AVAILABLE

Explanation: During normal link processing, the RSCS spool manager task, AXS, was unable to satisfy a spool file open request from the line driver controlling the link identified by 'linkid' because there was insufficient virtual storage available for allocation by the RSCS supervisor.

¹ This message is always routed to the workstation at 'linkid' and to the last issuer of a START or READY command for 'linkid'.

System Action: If the open request was for an input spool file, the affected line driver is placed in a wait state. If the open request was for an output spool file, the affected line driver is terminated. If the open request was for an output spool file needed for the processing of a TRACE 'linkid' LOG or ALL command, the trace request is ignored and normal link processing continues.

Operator Action: If the line driver is in a wait state because of a failure to open an input file, the link may be reactivated by issuing a START 'linkid' command without any other operands. If the line driver was terminated (failure to open an output file), attempt to restart the link later, when more virtual storage may be available. If an output file could not be opened for TRACE command processing, reissue the command. If this situation occurs regularly, it should be corrected by increasing the size of the RSCS virtual machine's storage prior to RSCS IPL.

Destination Keys: R

DMTAXM115E OPEN OUTPUT ERROR ON LINK 'linkid' -- NO TAG SLOTS AVAILABLE

Explanation: During normal link processing, the RSCS spool manager task, AXS, was unable to satisfy a spool file open request from the line driver controlling the link identified by 'linkid' because there were no tag slots available for allocation by the RSCS supervisor.

System Action: The affected line driver is terminated, unless the open request was for an output spool file needed for the processing of a TRACE 'linkid' LOG or ALL command, in which case the trace request is ignored and normal link processing continues.

Operator Action: If the line driver was terminated, attempt to restart the link later, when more tag slots may be available. If an output file could not be opened for TRACE command processing, reissue the command. If this situation occurs regularly, it should be corrected by increasing the size of the RSCS virtual machine's storage prior to RSCS IPL, which will increase the number of tag slots available, or by specifying additional tag slots by means of the RSCS TAGS directory statement.

Destination Keys: R

DMTxxx141I LINE 'vaddr' READY FOR CONNECTION TO LINK 'linkid'

Explanation: This message is issued by a line driver to inform the operator that the line identified by 'vaddr' is being enabled for communications processing to the link identified by 'linkid'. Normally, this is the first message issued by a line driver after link activation, and it may be issued during active processing after a line becomes disconnected.

System Action: The line driver begins an enable operation on the line and waits for completion, signalling a completed connection. If the line identified by 'vaddr' is a non-switchable line, the connection completes automatically when the telecommunications hardware is properly configured and functional. Normal RSCS processing continues.

Operator Action: No response is needed if the line identified by 'vaddr' is a non-switchable line, or if it is a switchable line with auto-answer and the remote station is to complete the connection. If the line is a switchable line, complete the connection to the location identified by 'linkid' (typically, dial and establish the connection).

Destination Keys: R

DMTxxx142I LINK 'linkid' LINE 'vaddr' DATASET READY

Explanation: This message signals completion of the line connection for the link identified by 'linkid' on the line port address identified by 'vaddr'. This message is issued automatically when a non-switchable line is enabled, and it is issued when a connection is completed for a switchable line. This message does not necessarily indicate that any successful interaction with the remote station has taken place on the connected line.

System Action: Normal exchange of files, commands, and messages automatically begins if the telecommunication hardware and remote system are properly initialized and functioning correctly.

Operator Action: None.

Destination Keys: R

DMTxxx143I LINK 'linkid' LINE 'vaddr' DISABLED

Explanation: The virtual line port address identified by 'vaddr' and associated with the active link identified by 'linkid' is now disconnected, having been connected prior to the message. This may be the result either of an apparent line disconnection due to line errors, or of a remote station disconnection, or of the execution of a disabling sequence by the local line driver during link deactivation.

System Action: If the link is not in the process of deactivating, the line driver will automatically attempt to reestablish the line connection. Exchange of files, commands, and messages is suspended until the line reconnection is completed.

Operator Action: If the link is not being deactivated, perform installation procedures for reconnecting the line.

Destination Keys: R

DMTxxx144I RECEIVING FILE ('orgid') ON LINK 'linkid' FROM 'locid' 'userid', REC
nnnnnnnn

Explanation: This message indicates that reception of a new file from the remote location identified by 'locid' and user at that location identified by 'userid' (if any) has begun. The file being received has an origin spoolid indicated by 'orgid' and contains the number of records indicated by 'nnnnnnnn'.

System Action: File processing continues, and the new file is written to the VM/370 spool system as it is received.

Operator Action: None.

Destination Keys: R

DMTxxx145I RECEIVED FILE ('orgid') ON LINK 'linkid' TO 'locid' 'userid'

Explanation: A new file has been completely received and acknowledged on the link identified by 'linkid'. The originating spoolid or job number of the new file is identified by 'orgid'. The file received is addressed to the location identified by 'locid' and the to the user at that location identified by 'userid'.

System Action: If the file is addressed to the local location, it is spooled to the receiving user or queued for real output. If the file is addressed to another location, it is enqueued for transmission on the next link of its path. Normal link processing continues.

Operator Action: None.

| Destination Keys: R

DMTxxx146I SENDING FILE 'spoolid' ('orgid') ON LINK 'linkid' FROM 'locid' 'userid', REC nnnnnnnn

Explanation: This message indicates that transmission of a file from the remote location identified by 'locid' and user at that location identified by 'userid' (if any) has begun. The file being transmitted has an origin spoolid indicated by 'orgid' and contains the number of records indicated by 'nnnnnnnn'. The identified file has become active.

System Action: Transmission of the file will normally continue to completion. If the file transmission is interrupted by a system failure or telecommunication hardware failure, the file will be retained and retransmitted, either from the point of interruption or from the beginning, depending on variable system characteristics and error conditions.

Operator Action: None.

| Destination Keys: R

DMTxxx147I SENT FILE 'spoolid' ('orgid') ON LINK 'linkid' TO 'locid' 'userid'

Explanation: Transmission of the active file identified by 'spoolid' on the link identified by 'linkid' has been successfully completed and acknowledged by the remote station. The file is addressed to the location identified by 'locid', and to the user identified by 'userid' at that location. The file's originating spoolid or job number is identified by 'orgid'.

System Action: Disposition of the identified file follows, according to the status of the file. Normally the file would be purged, unless multiple copies of the file are being sent to a remote terminal. Normal link processing continues.

Operator Action: None.

| Destination Keys: R, 0

| DMTVMB148I ACTIVE FILE 'spoolid' SENDING RESUMED ON LINK 'linkid'

Explanation: Transmission of the file identified by 'spoolid' on the link identified by 'linkid' has been resumed from the point at which transmission had previously been interrupted. File transmission may have been interrupted as the result of a telecommunication hardware failure, an unexpected terminal error in the link's line driver, a remote system failure, or entry of the link into immediate hold status.

System Action: Normal link processing continues.

Operator Action: None.

| Destination Keys: R

DMTxxx149I LINK 'linkid' LINE ACTIVITY: TOT= mmmmmmmm; ERRS= nnnnnnnn; TMOUTS= pppppppp

Explanation: This message is issued in response to a QUERY 'linkid' SUM command or a TRACE 'linkid' SUM command, and occasionally thereafter while trace sum mode is in effect for the specified link. The message is reissued when any one of the trace values reaches its incremental threshold, normally 20.

mmmmmmmm - the total number of successful transactions that have taken place on the identified link since the last similar

- message was issued, or since the link was initially activated.
- nnnnnnnn - the total number of transactions that have ended in error since the last similar message was issued, or since the link was initially activated.
- pppppppp - the total number of time-outs that have occurred while waiting for response from the remote station since the last similar message was issued, or since the link was initially activated.

System Action: Normal RSCS processing continues.

Operator Action: The trace function provides information concerning communications on the link, for use in diagnosing and correcting problems with communication hardware. If the trace information seems to indicate serious malfunctioning, take corrective action such as dropping and redialing a switchable telecommunication port, deactivating and restarting a link using a different port, or reporting the difficulty to support and maintenance personnel.

Destination Keys: R

DMTAXM150E UNABLE TO SEND FILE 'spoolid' ('orgid') ON LINK 'linkid' TO 'locid' 'userid'

Explanation: The file identified by 'spoolid' and origin spoolid 'orgid' has arrived at the RSCS virtual machine for transmission to the destination 'locid' 'userid'. The file cannot be transmitted because the link identified by 'linkid' has been started with the V3800=NO option.

System Action: If the file originated from a local VM/370 user, it is transferred back to the originator along with this message. If the file originated at a remote location, it is purged and this message is sent to the originator.

User Action: Check your local installation operating procedures to determine if virtual 3800 files can be sent on the link identified by 'linkid'. If your location is connected to an earlier release of RSCS, virtual 3800 files cannot be transmitted.

Destination Keys: 0

DMTxxx170I FROM 'locid': (message text)

Explanation: The character string included in the message as (message text) has been received from the remote location identified by 'locid', and is addressed to the recipient. The message originated either from automatic remote system processing, or from the remote RSCS operator.

System Action: Normal RSCS processing continues.

Operator Action: If the message originated from a remote RSCS operator and you wish to respond, address the response message as: MSG 'locid' RSCS (response message text).

Destination Keys: V

DMTxxx171I FROM 'locid'('userid'): (message text)

Explanation: The character string included in the message as (message text) has been received from a user identified by 'userid' at the location identified by 'locid', and is addressed to the message recipient. The special keyword RSCS appears as the 'userid' field when the message origin is RSCS operator console.

System Action: Normal RSCS processing continues.

Operator Action: None.

| Destination Keys: V, R (except link-authorized operator)

DMTCMX172I CPQ: (command response)

Explanation: The character string included in the message as (command response) has been received from a remote location and is addressed to the recipient. The message was generated as the result of a CPQUERY command execution.

System Action: Normal RSCS processing continues.

Operator Action: None.

| Destination Keys: 0

DMTCMX173I CP: (command response)

Explanation: The character string included in the message as (command response) has been received by RSCS and is addressed to the recipient. The message was generated as the result of a CP command execution.

System Action: Normal RSCS processing continues.

Operator Action: None.

| Destination Keys: 0

DMTxxx190E INVALID SPOOL BLOCK FORMAT ON FILE 'spoolid'

Explanation: VM/370 spool control or data information contained in the file identified by 'spoolid' has been found to be in error at the local installation.

System Action: The error is logged, the identified file is purged or placed in a HOLD status (depending on the affected line driver), and link processing continues.

Operator Action: Notify local VM/370 system support personnel of this error.

| Destination Keys: R

DMTCMX200I RSCS NETWORKING

Explanation: This message is issued in response to a null line entered as an RSCS command. A null line contains no characters.

System Action: If a command entered from an RSCS operator's console contains no characters as the result of console input line editing, this message is not issued and another console read is started. Normal RSCS processing continues.

Operator Action: None.

| Destination Keys: 0

DMTCMX201E INVALID COMMAND 'command'

Explanation: The character string identified by 'command' was entered as an RSCS command. The command either is prohibited for use by the command originator, or is not a defined RSCS command.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: 0

DMTxxx202E INVALID LINK 'linkid'

Explanation: The character string identified by 'linkid' was entered as an RSCS link ID in a console command input string, and it does not conform to syntactical requirements for RSCS link IDs (it is not one to eight alphanumeric characters), or, if entered by an authorized alternative operator, it does not match a link ID for which the alternative operator is authorized.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: 0

DMTxxx203E INVALID SPOOL ID 'spoolid'

Explanation: The character string identified by 'spoolid' was entered as a spool file ID in a console command input string, and it does not conform to syntactical requirements for VM/370 spool file IDs (one to four decimal digits, 1-9900).

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: 0

DMTxxx204E INVALID KEYWORD 'keyword'

Explanation: The character string identified by 'keyword' was entered as a keyword in a console command input string, and it is not a valid keyword for the command issued.

System Action: The command is ignored, and normal processing continues.

Operator Action: Consult RSCS command documentation to determine command syntax and restrictions. Retry the command if it was incorrect.

Destination Keys: 0

DMTxxx205E CONFLICTING KEYWORD 'keyword'

Explanation: The keyword identified by 'keyword' was used in the preceding command in an invalid way. The keyword may have been entered more than once in the same command line, or the keyword may be invalid because another mutually exclusive keyword was entered in the same command.

System Action: The command is ignored, and normal processing continues.

Operator Action: Consult RSCS command documentation to determine command syntax and restrictions. Retry the command if it was incorrect.

Destination Keys: 0

DMTxxx206E INVALID OPTION 'keyword' 'option'

Explanation: The combination of a keyword and its option identified by 'keyword' 'option' was entered in a console command line, and it is not a valid combination for the command issued.

System Action: The command is ignored, and normal processing continues.

Operator Action: Consult RSCS command documentation to determine command syntax and restrictions. Retry the command if it was incorrect.

Destination Keys: 0

DMTCMX207E CONFLICTING OPTION 'keyword' 'option'

Explanation: The combination of a keyword and its option identified by 'keyword' 'option' was used in the preceding command in an invalid way. The presence of another keyword or keyword-and-option combination in the same command may preclude specification of the identified keyword-and-option combination.

System Action: The command is ignored, and normal processing continues.

Operator Action: Consult RSCS command documentation to determine command syntax and restrictions. Retry the command if it was incorrect.

Destination Keys: 0

DMTCMX208E INVALID USER ID 'userid'

Explanation: The operand identified by 'userid' was entered in an RSCS command as an interactive user ID, and is invalid as such. Valid interactive user IDs contain one to eight nonblank valid EBCDIC characters.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: 0

DMTCMX209E RESTRICTED COMMAND 'command'

Explanation: An attempt was made to execute the command identified by 'command' which is not authorized for execution by the originating remote operator or user.

System Action: The command has no effect, and normal processing continues.

Operator Action: Retry the command if it was incorrect. Direct questions concerning authorization for command execution to local RSCS support personnel. Contact the RSCS operator for any special line, file, or routing requests.

Destination Keys: 0

DMTCMX210E INVALID LOCATION 'locid'

Explanation: A previously entered command specified as its object a location ID identified by 'locid' which was not valid. The invalid location ID may have contained more than eight characters, or may have contained no characters at all, or may not be defined to the local RSCS system.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: 0

DMTCMX211E INVALID OPTION 'keyword' 'option1' 'option2'

Explanation: The combination of a keyword and its options identified by 'keyword' 'option1' 'option2' was entered in a console command line, but it is not a valid combination for the command issued.

System Action: The command has no effect and normal processing continues.

Operator Action: Consult the RSCS command documentation and enter a valid command.

Destination Keys: 0

DMTxxx301E REJECTED BY TASK 'task' -- PREVIOUS COMMAND ACTIVE

Explanation: The preceding console command has been processed by the RSCS syntax scanner and first level semantic processor. A command element has been built and made available to the task named 'task', but that task was unable to accept the command element for further processing because a previously issued command was still being actively processed.

System Action: The command execution is terminated, the command has no effect, and normal processing continues.

Operator Action: Retry the command. Command execution will be successful when previous command processing is complete.

Destination Keys: 0

DMTxxx302E LINK 'linkid' IS NOT DEFINED

Explanation: The syntactically valid link ID identified by 'linkid' was entered in the preceding console command, but no such link is defined with that ID and the command issued requires a defined link ID.

System Action: The command execution is terminated, the command has no effect, and normal processing continues.

Operator Action: Check to see if the link ID was specified as intended. If it was incorrectly typed, retry the command with a correct link ID. If it was correctly typed, you must define the specified link in an RSCS DEFINE command or in a LINK statement in the RSCS directory before the command can be executed.

Destination Keys: 0

DMTxxx303E LINK 'linkid' IS NOT ACTIVE

Explanation: The link identified by 'linkid' was specified in the preceding command, but the link is inactive and the command requires specification of an active link.

System Action: The command execution is terminated, the command has no effect, and normal processing continues.

Operator Action: Verify that the command was entered as intended. Retry the command if it was incorrectly entered, or activate the specified link prior to retrying the command.

Destination Keys: 0

DMTxxx304E REJECTED BY TASK 'task' -- NOT RECEIVING

Explanation: Processing of the preceding command could not be completed because the second level processing task named 'task' refused to accept the command service request from the REX task.

System Action: The command is ignored, and normal processing continues.

Operator Action: Repeated occurrences of this message indicate a system error; notify local RSCS support personnel in this case.

Destination Keys: 0

DMTCMX310E LOCATION 'locid' IS NOT DEFINED

Explanation: A previously entered command specified as its object a location ID identified by 'locid' which was valid, but which was not defined as a direct link or an indirect route at the time of command processing.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect. A DEFINE command may be executed to temporarily define a new link, or a ROUTE command may be executed to temporarily define a new indirectly routed location. Corresponding LINK and ROUTE entries should be made to the RSCS DIRECT file for permanent directory definitions.

Destination Keys: 0

DMTxxx320E LINK 'linkid' NOT CONNECTED

Explanation: A previous MSG or CMD command was addressed by its originator such that it would have been transmitted on the link identified by 'linkid'. This means either that the command's destination location address was the link's location (identified by 'linkid'), or that the destination location was routed by the local or intermediate RSCS via that link. When the command was presented to the link's line driver for transmission, the line driver was unable to successfully communicate with the remote station due to a malfunction in the telecommunications hardware or the remote station, or because that link or an intermediate link was not started.

System Action: The message or command is discarded, and normal processing continues.

Operator Action: Inspect the link's telecommunications hardware for indications of line disconnection or malfunction; start the necessary link or have RSCS personnel start the necessary link(s). When the problem has been corrected, normal processing will begin, and the response message to a QUERY 'locid' command will say 'CONNECT' rather than 'ACTIVE'. Retry the CMD or MSG command when the link has been reconnected.

Destination Keys: 0

DMTRGX330E USERID MISSING OR INVALID

Explanation: In a preceding RSCS MSG command the userid was not supplied or was invalid at its destination location.

System Action: The message is discarded undelivered.

User Action: Retry the MSG command if it was entered in error.

Destination Keys: 0

DMTRGX331E 'userid' NOT LOGGED ON

Explanation: The user identified by 'userid' which was specified in an RSCS MSG command could not receive the message because the user was not logged on.

System Action: The message is discarded undelivered.

User Action: Retry the MSG command later.

Destination Keys: 0

DMTRGX332E 'userid' NOT RECEIVING

Explanation: The user identified by 'userid' which was specified in an RSCS MSG command could not receive the message either because the user's console is disconnected or because the user has set messages off by using the CP SET command.

System Action: The message is discarded undelivered.

User Action: Retry the MSG command later.

Destination Keys: 0

DMTIRX400I RSCS DIRECT mm/dd/yy hh:mm, nn MAX ACTIVE LINKS, tt TAGS

Explanation: This message is generated at system initialization immediately after the initial RSCS message DMTIRX000I. The directory file (RSCS DIRECT) used to initialize RSCS was last modified at the date and time specified by mm/dd/yy hh:mm.

nn is the maximum number of links that may be active at one time. This number is calculated based on the virtual storage size of the RSCS virtual machine.

tt indicates the total number of available tag slots. This number also depends on available virtual storage size.

System Action: Initialization proceeds with the execution of the PROFILE RSCS command file, if any, and normal RSCS processing begins.

Operator Action: Verify the version of the RSCS directory used for initialization.

Destination Keys: R

DMTINI410I NUCLEUS WRITE COMPLETE

Explanation: The RSCS nucleus has been successfully written to the RSCS system disk.

System Action: A masked off wait state PSW is loaded with a wait state code of X'12'.

Operator Action: Test the newly loaded RSCS by IPLing the RSCS system disk onto which the nucleus was written.

Destination Keys: R

DMTINI411R SYSTEM DISK ADDRESS = {cuu}

Explanation: The RSCS loader is prompting the operator for the virtual device address of the disk onto which the RSCS nucleus is to be written. This disk becomes the RSCS system disk.

System Action: If an invalid device address is entered, message DMTINI481E INVALID DEVICE ADDRESS - REENTER is issued. Message DMTINI411R is then reissued, and a valid RSCS system disk virtual device address may be entered.

If the IPL device designated is not currently defined, is not in read/write status, or is an unsupported device type, message DMTINI484E IPL DEVICE ERROR - REENTER is issued. Message DMTINI411R is then reissued.

Operator Action: Normally, enter the virtual device address of the disk to become the RSCS system disk. If your initial entry was rejected, enter CP console function mode by signalling attention, and determine the status of the designated device by entering the CP command:

QUERY VIRTUAL cuu

Take corrective action to define the device for the RSCS virtual machine, or to access it in read/write status. Reenter RSCS by issuing the CP command:

BEGIN

Enter the RSCS system device address in response to this message.

After the IPL device address is accepted, message DMTINI412R is issued.

Destination Keys: R

DMTINI412R REWRITE THE NUCLEUS ? {YES|NO}

Explanation: The RSCS loader is prompting the operator for a decision as to whether or not the RSCS nucleus is to be rewritten to the system disk.

System Action: If a response other than "yes" or "no" is given, message DMTINI483E INVALID REPLY - ANSWER "YES" OR "NO" is issued. Message DMTINI412R is reissued and a valid response may be entered.

If "no" is entered, the remaining questions pertaining to the writing of the RSCS nucleus are skipped, and initialization is immediately begun by the RSCS system which has been loaded into virtual storage.

If "yes" is entered, message DMTINI413R is issued.

Operator Action: Enter "yes" or "no", as described above.

Destination Keys: R

DMTINI413R NUCLEUS CYL/BLK ADDRESS = n

Explanation: The RSCS loader is prompting the operator for the cylinder or block address on the designated RSCS system disk to which the RSCS nucleus is to be written. 'nnn' is to be entered in decimal, and normally is the number of the first cylinder or block beyond the area of the disk in use for CMS files. (The block number must be a multiple of 256.) This number will normally be the same as the number of cylinders or blocks previously specified in the CMS command:

FORMAT cuu mode n (RECOMP

System Action: If a valid decimal cylinder or block number is not entered, message DMTINI482E INVALID CYL/BLK NUMBER - REENTER is issued, followed by reissue of message DMTINI413R.

If the cylinder or block specified is not greater than the number of cylinders or blocks already in use on the device for CMS files (as specified in a preceding CMS FORMAT command), the message DMTINI485E NUCLEUS CYL/BLK SPECIFICATION UNACCEPTABLE, ERROR 'x' is issued. Message DMTINI413R is then immediately reissued.

When the nucleus cylinder address is correctly entered, message DMTINI410R is issued.

Operator Action: Normally, enter the cylinder or block number as described above. If your initial entry was rejected, proceed as follows: Reenter the cylinder or block number correctly if it was entered in error. If the cylinder or block number was entered correctly, the cylinder or block number is not valid and you must determine a valid number. Use the CMS command:

QUERY DISK mode

to determine the number of cylinders or blocks formatted for use by the CMS file system. Use the CP command:

QUERY VIRTUAL vaddr

to determine the total number of cylinders or blocks on the virtual disk. If the number of cylinders or blocks in use for CMS is less than the total number available on the disk, use the number of cylinders or blocks in use for CMS files as the RSCS nucleus cylinder or block address when you retry the RSCS load. If the number of cylinders or blocks in use for CMS files equals the total number available on the disk, use the CMS command:

FORMAT cuu mode n (RECOMP

to reduce the number of cylinders or blocks in use by CMS, as described in the RSCS installation procedures in Part 2 of this manual. Select n from Figure 2-4 on page 2-7.

Destination Keys: R

DMTIRX449I MAX TAGS REQUEST OF 1 PER VIRTUAL STORAGE K ASSUMED

Explanation: The RSCS directory contained a valid TAGS entry requesting more than the maximum number of tag slots allowed for the virtual storage size in use. The referenced TAGS statement is typed immediately preceding this statement. The maximum number of extra tag slots is one for each 1024 bytes of virtual storage.

System Action: The maximum number of extra tag slots is generated, and normal initialization proceeds.

Operator Action: Verify that the correct RSCS directory is in use and that the RSCS virtual machine has the intended virtual storage size. If both are the case, modify the TAGS entry in the RSCS directory to request a number of extra tag slots no greater than the allowed maximum for the virtual storage size in use.

Destination Keys: R

DMTIRX450E INVALID DIRECTORY ENTRY

Explanation: During initialization, the RSCS directory was found to contain a record which was neither a comment nor a valid directory entry. The referenced record is typed immediately preceding this message.

System Action: The record is ignored and normal initialization processing continues.

Operator Action: Update the directory to correct the desired entry or to eliminate the invalid record.

Destination Keys: R

DMTIRX451E DIRECTORY ENTRY OUT OF ORDER

Explanation: During initialization, an RSCS directory entry was recognized in a position which either precedes a prerequisite entry or follows a valid entry which it is required to precede. The referenced entry is typed immediately preceding this message.

System Action: The entry is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to correct the erroneous order of entries.

Destination Keys: R

DMTIRX452E LOCAL PREVIOUSLY SPECIFIED

Explanation: During initialization, an RSCS directory entry describing the local location ('LOCAL') was recognized after the acceptance of a previous valid LOCAL entry. The referenced entry is typed immediately preceding this entry.

System Action: The first LOCAL entry remains in effect, the subsequent LOCAL entry is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to include only one LOCAL entry.

Destination Keys: R

DMTIRX453E PARM PREVIOUSLY SPECIFIED FOR LINK

Explanation: During initialization, the RSCS directory was found to contain an entry specifying a default START parm ('PARM') on a link for which a previous valid PARM entry had been encountered. The referenced entry is typed immediately preceding this message.

System Action: The subsequent PARM entry is ignored, the first PARM entry encountered for the link remains in effect, and normal initialization processing continues.

Operator Action: Update the RSCS directory to remove multiple PARM entries which specify the same link.

Destination Keys: R

DMTIRX454E STATEMENT PREVIOUSLY SPECIFIED

Explanation: During initialization, the RSCS directory was found to contain more than one tag slots entry ('TAGS'), MSGNOH entry ('MSGNOH'), operator form name entry ('OPFORM'), or dump entry ('DUMP'). This message is produced each time a TAGS, MSGNOH, OPFORM, or DUMP entry is encountered after a valid previous TAGS, MSGNOH, OPFORM, or DUMP record was processed. The subsequent entry is typed immediately preceding this message.

System Action: The first valid TAGS, MSGNOH, OPFORM, or DUMP entry encountered in the RSCS directory remains in effect. The subsequent TAGS, MSGNOH, OPFORM, or DUMP entries are ignored and normal initialization processing continues.

Operator Action: None, or, update the RSCS directory to contain a single valid TAGS, MSGNOH, OPFORM, or DUMP entry.

| Destination Keys: R

DMTIRX455E DUPLICATE LOCATION ID

Explanation: During initialization, the RSCS directory was found to contain a routing entry ('ROUTE') which specified a destination location ID which had been specified in a valid previous ROUTE entry. The subsequent ROUTE entry is typed immediately preceding this message.

System Action: The original ROUTE entry remains in effect, the subsequent ROUTE entry is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain no more than one ROUTE entry for a single, unique destination location ID.

| Destination Keys: R

DMTIRX456E DUPLICATE LINK ID

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') specifying a link ID which had been specified in a valid previous LINK entry. The subsequent LINK entry is typed immediately preceding this message.

System Action: The preceding LINK entry remains in effect, the subsequent LINK entry is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to include no more than one LINK entry which specifies a single, unique link ID.

| Destination Keys: R

DMTIRX457E DUPLICATE PORT ADDRESS

Explanation: During initialization, the RSCS directory was found to contain more than one switchable port entry ('PORT') which specified the same port address. The subsequent PORT entry is typed immediately preceding this message.

System Action: The preceding PORT entry remains in effect, the subsequent PORT entry is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain no more than one PORT entry for a single, unique port address.

| Destination Keys: R

DMTIRX458E UNDEFINED LINK ID

| Explanation: During initialization, the RSCS directory was found to contain a default parameter entry ('PARM'), a routing entry ('ROUTE'), or an authorization entry ('AUTH') specifying a link ID for which no link had been defined. The referenced entry is typed immediately preceding this message.

| System Action: The PARM, ROUTE, or AUTH entry is ignored, and normal initialization processing continues.

| Operator Action: Update the RSCS directory so that all link IDs specified in PARM, ROUTE, or AUTH entries have been defined by previous LINK entries.

| Destination Keys: R

DMTIRX461E LOCATION ID MISSING OR INVALID

Explanation: During initialization, the RSCS directory was found to contain a local definition entry ('LOCAL'), a routing entry ('ROUTE'), or an authorization entry ('AUTH') specifying a local or destination location ID which was too long or contained invalid characters, or (for 'LOCAL' or 'ROUTE') the location ID was not specified at all. The referenced LOCAL, ROUTE, or AUTH entry is typed immediately preceding this message.

System Action: The entry in error is ignored, and normal initialization processing continues.

Operator Action: None, or update the RSCS directory to contain the valid location IDs desired by the installation.

Destination Keys: R

DMTIRX462E LINK ID MISSING OR INVALID

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK'), a default parm entry ('PARM'), a routing entry ('ROUTE'), or an authorization entry ('AUTH') specifying a link ID which was too long, contained invalid characters, was identical to the previously defined local location ID, or which did not specify a link ID at all. The referenced LINK, PARM, ROUTE, or AUTH entry is typed immediately preceding this message.

System Action: The entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid link IDs desired by the installation.

Destination Keys: R

DMTIRX463E INVALID DRIVER SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') specifying a driver type (CMS filename) which was too long, or which contained invalid characters. The referenced LINK entry is typed immediately preceding this message.

System Action: The entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid line driver type desired by the installation.

Destination Keys: R

DMTIRX464E PORT ADDRESS MISSING OR INVALID

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') or switchable port entry ('PORT') specifying a port address which contained invalid characters or which was out of the valid port address range (X'002'-X'5FF'); or the port address was not specified at all on a PORT entry. The referenced LINK or PORT entry is typed immediately preceding this message.

System Action: The LINK or PORT entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid port address desired by the installation.

| Destination Keys: R

DMTIRX465E INVALID ZONE SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a local location definition entry ('LOCAL') or a link definition entry ('LINK') specifying a time zone number which contained invalid characters, or which was not within the range of valid time zone numbers. The time zone number is defined as the number of time zone boundaries between the location and Greenwich to the east, the International Date Line being included as a time zone boundary; and the valid range of time zone numbers is 0 to 24 decimal. The referenced LOCAL or LINK entry is typed immediately preceding this message.

System Action: The LOCAL or LINK entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid time zone number desired by the installation.

| Destination Keys: R

DMTIRX466E INVALID TASK SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') specifying a default task name which contained more than four characters, or invalid characters. The referenced LINK entry is typed immediately preceding this message.

System Action: The LINK entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid task name desired by the installation.

| Destination Keys: R

DMTIRX467E INVALID CLASS SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') specifying a default class which contained more than four characters, or invalid characters. The referenced LINK entry is typed immediately preceding this message.

System Action: The LINK entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid class specification desired by the installation.

| Destination Keys: R

DMTIRX468E INVALID KEEP SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a link definition entry ('LINK') specifying a keep number which contained invalid characters, or which was not within the range of valid keep numbers (0 to 16 decimal). The keep number specifies the minimum number of tag slots which are to be kept available for exclusive enqueueing of files on the link being defined. The referenced LINK entry is typed immediately preceding this message.

System Action: The LINK entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid number of tag slots desired by the installation to be reserved for

the link to be defined.

Destination Keys: R

DMTIRX469E TAGS COUNT MISSING OR INVALID

Explanation: During initialization, the RSCS directory was found to contain a tag slot request entry ('TAGS') which specified an extra tag slot count containing invalid characters, or which was not within the valid range for extra tag slot requests (1 to 16384 decimal). The referenced TAGS entry is typed immediately preceding this message.

System Action: The TAGS entry in error is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to specify the valid keep number of extra tag slots desired by the installation.

Destination Keys: R

DMTIRX470E INVALID DUMP TYPE SPECIFICATION

Explanation: During initialization, the RSCS directory was found to contain a dump type definition statement that specified a type of other than VM (for VMDUMP) or CP (for CP DUMP).

System Action: The DUMP statement is ignored, and normal initialization processing continues.

Operator Action: Update the RSCS directory to contain the valid DUMP statement dump type.

Destination Keys: R

DMTIRX471E INVALID USERID

Explanation: During initialization, the RSCS directory was found to contain an authorization entry ('AUTH') or a dump entry ('DUMP') specifying a userid that was too long or contained invalid characters. The AUTH or DUMP entry is typed immediately preceding this message.

System Action: The entry in error is ignored, and normal initialization processing continues.

Operator Action: None or update the RSCS directory to contain the valid userids desired by the installation.

Destination Keys: R

DMTIRX472E MSGNOH IGNORED, RSCS VIRTUAL MACHINE NOT PRIVILEGED

Explanation: During initialization, the RSCS directory was found to contain a MSGNOH entry. An attempt was made to use the CP MSGNOH command and an error return code resulted, indicating that the RSCS virtual machine does not have CP privilege class "B". The MSGNOH entry is typed immediately preceding this message.

System Action: The MSGNOH entry is ignored, and normal initialization processing continues.

Operator Action: None, or, contact the VM/370 system programmer to update the CP directory entry for the RSCS virtual machine, or, remove the MSGNOH entry from the RSCS directory.

Destination Keys: R

DMTIRX473E USER MAY NOT BE AUTHORIZED AS BOTH RSCS AND LINK OPERATOR

Explanation: During initialization, the RSCS directory was found to contain an authorization entry ('AUTH') authorizing a particular user as an alternate RSCS operator. This same user has already been authorized as a link operator (or vice versa). The conflicting AUTH entry is typed immediately preceding this message.

System Action: The AUTH entry is ignored, and normal initialization processing continues.

Operator Action: None, or, update the RSCS directory to contain the valid authorization entries desired by the installation.

Destination Keys: R

DMTIRX474E INVALID AUTHORIZATION ENTRY OPTION

Explanation: During initialization, the RSCS directory was found to contain an authorization entry ('AUTH') having an invalid option field. The only valid option is "CP". The AUTH entry is typed immediately preceding this message.

System Action: The AUTH entry is ignored, and normal initialization processing continues.

Operator Action: None, or, update the RSCS directory to contain the valid authorization entries desired by the installation.

Destination Keys: R

DMTIRX475E CP OPTION NOT ALLOWED

Explanation: During initialization, the RSCS directory was found to contain an authorization entry ('AUTH') having an option field specifying "CP" and the linkid field did not specify "RSCS". An alternate operator can only be given the "CP" option if he has operator privileges for the entire RSCS virtual machine. The AUTH entry is typed immediately preceding this message.

System Action: The AUTH entry is ignored, and normal initialization processing continues.

Operator Action: None, or, update the RSCS directory to contain the valid authorization entries desired by the installation.

Destination Keys: R

DMTIRX476E FORM NAME MISSING OR INVALID

Explanation: During initialization, the RSCS directory was found to contain an operator form name entry ('OPFORM') without an operator form name or having a form name longer than eight characters. The OPFORM entry is typed immediately preceding this message.

System Action: The OPFORM entry is ignored, and normal initialization processing continues.

Operator Action: None, or, update the RSCS directory to contain the valid operator form name entry desired by the installation.

Destination Keys: R

DMTINI481E INVALID DEVICE ADDRESS - REENTER

Explanation: The device address entered was not correct. It either included at least one character which is not a valid hexadecimal digit (0-9, A-F) or it was not within the range of valid device addresses (X'001'-X'5FF').

System Action: Message DMTINI411R is reissued.

Operator Action: See the description of message DMTINI411R.

Destination Keys: R

DMTINI482E INVALID CYL/BLK NUMBER - REENTER

Explanation: Either zero or an invalid decimal number was entered.

System Action: Message DMTINI413R is reissued.

Operator Action: See the description of message DMTINI413R.

Destination Keys: R

DMTINI483E INVALID REPLY - ANSWER "YES" OR "NO"

Explanation: The only valid responses to the query are 'yes' or 'no'. Neither was entered.

System Action: Message DMTINI412R is reissued.

Operator Action: See the description of message DMTINI412R.

Destination Keys: R

DMTINI484E IPL DEVICE ERROR - REENTER

Explanation: The virtual device address entered as the address of the RSCS system disk was not defined (attached) for the RSCS virtual machine, or the disk was not in write/read status, or the device at the entered address is not supported.

System Action: Message DMTINI411R is reissued.

Operator Action: See the description of message DMTINI411R.

Destination Keys: R

DMTINI485E NUCLEUS CYL/BLK SPECIFICATION UNACCEPTABLE, ERROR 'x'.

Explanation: The specified nucleus cylinder or block number was not acceptable for the reason indicated by error code 'x':

x	Error Explanation
1	Would cause over-write of CMS files
2	Not enough blocks formatted
3	Block number not a multiple of 256
4	Not enough blocks on device

System Action: Message DMTINI413R is reissued.

Operator Action: See the description of message DMTINI413R.

Destination Keys: R

DMTIRX490T UNSUPPORTED SYSTEM RESIDENCE DEVICE TYPE

Explanation: The VM/370 device type code for the I/O device from which RSCS was IPLed was not recognized as a DASD device type supported by RSCS as a system residence device.

System Action: RSCS initialization is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Reload RSCS to a DASD supported by RSCS as a system residence device.

Destination Keys: R

DMTIRX491T FATAL ERROR READING RSCS DIRECT

Explanation: An unrecoverable I/O error occurred during initialization on the RSCS system residence device. The most likely cause of this error is the absence of the RSCS directory file (RSCS DIRECT) from the system residence device. Other possible causes include VM/370 sysgen or directory errors involving the RSCS system residence device, CMS or editor system errors in writing the RSCS DIRECT file, incompatible CMS file system update levels, or machine malfunctions on the associated real I/O device.

System Action: RSCS initialization is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Retry the RSCS IPL. If the error condition persists, investigate the possible causes listed in the explanation above, and correct any specification errors found. If the error condition continues to persist, or if it arises intermittently, dump RSCS using the CP command:

DUMP 0-

If you have the IPCS program product, dump RSCS using the CP command:

VMDUMP 0:END FORMAT RSCSNET TO 'userid'

where 'userid' is the userid of the virtual machine designated to receive RSCS dumps.

Submit the resulting dump to local RSCS support personnel.

Destination Keys: R

DMTIRX492T FATAL ERROR LOADING DMTAXS

Explanation: An unrecoverable I/O error occurred during the initial loading of the RSCS DMTAXS module. The most likely causes of this error are the absence of the DMTAXS TEXT file from the RSCS system residence device, or the incorrect naming of the file as DMTAXS TXTxxxx. Other possible causes include CMS or assembler system errors in writing the DMTAXS TEXT file, incompatible CMS file system update levels, or machine malfunctions on the associated real I/O device.

System Action: RSCS initialization is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Retry the RSCS IPL. If the error condition persists, investigate the possible causes listed in the explanation above and correct any specification errors found. If the error condition continues to persist, or if it arises intermittently, dump RSCS using the CP command:

DUMP 0-

If you have the IPCS program product, dump RSCS using the CP command:

VMDUMP 0:END FORMAT RSCSNET TO 'userid'

where 'userid' is the userid of the virtual machine designated to receive RSCS dumps.

Submit the resulting dump to local RSCS support personnel.

Destination Keys: R

DMTIRX493T FATAL ERROR LOADING DMTLAX

Explanation: An unrecoverable I/O error occurred during the initial loading of the RSCS DMTLAX module. The most likely causes of this error are the absence of the DMTLAX TEXT file from the RSCS system residence device, or the incorrect naming of the file as DMTLAX TXTxxxx. Other possible causes include CMS or assembler system errors in writing the DMTLAX TEXT file, incompatible CMS file system update levels, or machine malfunctions on the associated real I/O device.

System Action: RSCS initialization is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Retry the RSCS IPL. If the error condition persists, investigate the possible causes listed in the explanation above and correct any specification errors found. If the error condition continues to persist, or if it arises intermittently, dump RSCS using the CP command:

DUMP 0-

If you have the IPCS program product, dump RSCS using the CP command:

VMDUMP 0:END FORMAT RSCSNET TO 'userid'

where 'userid' is the userid of the virtual machine designated to receive RSCS dumps.

Submit the resulting dump to local RSCS support personnel.

Destination Keys: R

DMTIRX494T LOCAL LOCATION DEFINITION MISSING

Explanation: During initialization, no valid local location definition entry ('LOCAL') was encountered in the RSCS directory. The local location definition must be included as the first non-comment entry in the RSCS directory. No directory entry is accepted until a valid LOCAL entry has been processed.

System Action: RSCS initialization processing is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Update the RSCS directory to contain a valid LOCAL entry as the first non-comment directory entry.

Destination Keys: R

DMTIRX495T VIRTUAL STORAGE SIZE INSUFFICIENT FOR INITIALIZATION

Explanation: During initialization, it was determined that the RSCS virtual machine size was less than 384K.

System Action: RSCS initialization processing is terminated, and a masked-off wait state PSW code of x'001' is loaded.

Operator Action: Redefine the RSCS virtual machine size to 384K (or greater) by using the CP DEFINE command:

DEFINE STORAGE 384K

and re-IPL RSCS.

Destination Keys: R

DMTINI498S IPL DEVICE WRITE I/O ERROR

Explanation: An uncorrectable I/O error occurred while writing the RSCS nucleus.

System Action: RSCS load processing is halted, and a masked-off wait state PSW of code X'012' is loaded.

Operator Action: See the description of message DMTINI413R. Verify that the nucleus cylinder or block number entered in response to message DMTINI413R is not larger than the total number of cylinders or blocks on the specified RSCS system disk, and verify that the RSCS system disk is in write/read mode. If no error can be determined, notify local RSCS support personnel.

Destination Keys: R

DMTINI499T IPL DEVICE READ I/O ERROR

Explanation: An uncorrectable I/O error occurred while reading the RSCS nucleus from the RSCS system disk during RSCS initialization.

System Action: RSCS loads the WAIT PSW. Since RSCS runs disabled for all interrupts during initialization, the loading of this PSW (with a code of x'011') causes RSCS to enter a hard wait state.

Operator Action: Check the device, recreate the RSCS system disk if necessary, and re-issue the IPL command.

Destination Keys: R

DMTAXM500I 'nn' FILE(S) CLOSED ON LINK 'linkid'

Explanation: A number of files denoted by 'nn' that were active on the inactive link identified by 'linkid' have been deactivated either in response to an RSCS CLOSE command, or as an automatic result of link deactivation.

System Action: Previously active input files are reenqueued for complete retransmission. Previously active output files are normally incomplete, and are therefore purged.

Operator Action: None.

Destination Keys: R

DMTAXM501E LINK 'linkid' ACTIVE -- NO FILE(S) CLOSED

Explanation: The RSCS operator attempted to issue a CLOSE command to an active link specified by 'linkid'.

System Action: CLOSE command processing is suppressed and file status remains unchanged.

Operator Action: Reissue the command after the link has been deactivated.

Destination Keys: R

DMTAXM502E FILE 'spoolid' INACTIVE -- NO ACTION TAKEN

Explanation: The file identified by 'spoolid' is already inactive. The action requested by the preceding command could not be performed.

System Action: The preceding command has no effect, and normal processing continues.

Operator Action: Verify the spool file ID used in the preceding command. If it was incorrect, retry the command with a corrected spool file ID. If it was correct, and the file is inactive, the preceding command was not valid for inactive files.

Destination Keys: R

DMTxxx510I FILE 'spoolid' BACKSPACED

Explanation: The file identified by 'spoolid' has been backspaced according to the request in the previous BACKSPAC command.

System Action: File transmission continues, beginning from the new file position.

Operator Action: None.

Destination Keys: 0

DMTxxx511E NO FILE ACTIVE ON LINK 'linkid'

Explanation: A valid command for active files was issued to the link identified by 'linkid', but no file was being actively transmitted on the link at the time of command execution.

System Action: Normal link processing continues, and the command has no effect.

Operator Action: Retry the command if it was entered in error.

Destination Keys: 0

DMTAXM520I FILE 'spoolid' CHANGED

Explanation: The file identified by 'spoolid' has been altered as requested in the processing of the preceding command. The new file status remains in effect until it is changed again through operator command processing.

System Action: All appropriate action implied by the change of status is performed. This might include reordering a link queue if a file priority was changed, notifying a waiting line driver if a file class was changed, and so on. Normal RSCS processing continues.

Operator Action: None.

Destination Keys: 0,R

DMTAXM521I FILE 'spoolid' HELD FOR LINK 'linkid'

Explanation: The file identified by 'spoolid' has been placed in hold status as the result of processing of the preceding command. The file will be kept in hold status and will not be transmitted until it is removed from hold status by command processing.

Operator Action: None.

Destination Keys: 0,R

DMTAXM522I FILE 'spoolid' RELEASED FOR LINK 'linkid'

Explanation: The file identified by 'spoolid' and enqueued on the link identified by 'linkid' has been released from hold status as a result of the processing of the preceding command. The file is now eligible for transmission on the link.

System Action: The released file will be selected for transmission according to the normal rules of file priority. The link's line driver is asynchronously notified of the file's availability for transmission if the line driver had been waiting for a file to transmit. Normal RSCS processing continues.

Operator Action: None.

Destination Keys: 0,R

DMTAXM523I LINK 'linkid' QUEUE REORDERED

Explanation: The file tag queue in RSCS virtual storage for the link identified by 'linkid' has been reordered in response to execution of a command. The new order of the queue represents the order of file transmission for the link.

System Action: The files reordered to the beginning of the queue are given a priority of zero (highest), and normal processing continues

Operator Action: None.

Destination Keys: R, 0

DMTAXM524E FILE 'spoolid' ACTIVE -- NO ACTION TAKEN

Explanation: The file identified by 'spoolid' is actively being read and transmitted on a link, and the action requested in the preceding command cannot be performed on active files.

System Action: The preceding command has no effect, and normal processing continues.

Operator Action: If desired, deactivate the file by means of a FLUSH 'linkid' 'spoolid' HOLD command, and retry the preceding command.

Destination Keys: R, 0

DMTAXM525E FILE 'spoolid' IS FOR LINK 'linkid' -- NO ACTION TAKEN

Explanation: The file identified by 'spoolid' is enqueued on the link identified by 'linkid', which is different from the linkid specified in the preceding command.

System Action: The action requested in the preceding command is not performed, and normal processing continues.

Operator Action: Verify that the specified spool file ID and link ID are correct. If an error is found, retry the preceding command.

Destination Keys: R, 0

DMTAXM526E FILE 'spoolid' NOT FOUND -- NO ACTION TAKEN

Explanation: The file identified by 'spoolid' which was specified in the preceding command is not owned by RSCS, or is pending.

System Action: The preceding command has no effect, and normal processing continues.

Operator Action: Verify the spool file ID used in the preceding command. If it was incorrect, retry the command with a corrected spool file ID. If it was correct, and the file is pending at the RSCS virtual machine, you may manipulate the file through the use of VM/370 CP spooling commands.

Destination Keys: R, 0

DMTxxx531I INVALID LINE DRIVER COMMAND FOR LINK 'linkid' -- NO ACTION TAKEN

Explanation: A line driver-type RSCS command has been recognized for the link specified by 'linkid'. The command is invalid for the particular line driver that is controlling this link.

System Action: Normal RSCS processing continues.

Operator Action: None.

| Destination Keys: R, 0

DMTCMY540I NEW LINK 'linkid' DEFINED

Explanation: The link identified by 'linkid' is now defined as the result of RSCS DEFINE command processing. Attributes of the newly defined link are determined by the specified and default DEFINE command options. Users may begin addressing files, commands, and messages to the newly defined link.

System Action: The RSCS file queue is reordered. Files may be enqueued on the newly defined link. The new link definition will remain in effect until RSCS is restarted, or until it is removed by an RSCS DELETE command.

| Operator Action: Add to the RSCS directory a LINK statement defining the new link to cause the link to be permanently defined after an RSCS restart.

| Destination Keys: R,0

DMTCMY541I LINK 'linkid' REDEFINED

Explanation: The previously defined link, identified by 'linkid', has had its definition changed as the result of command processing, according to the specified keyword options.

System Action: The changes in the link definition become effective immediately.

Operator Action: None.

| Destination Keys: R,0

DMTCMY542E LINK 'linkid' ACTIVE -- NOT REDEFINED

Explanation: The previously defined link, identified by 'linkid', has not been redefined because the link was active at the time of command processing.

System Action: Command execution is terminated, the command has no effect, and normal processing continues.

Operator Action: Retry the command after the link has been deactivated.

| Destination Keys: 0

DMTCMY543E LINK 'linkid' NOT DEFINED -- LINK LIMIT REACHED

Explanation: An attempt was made to define a new link, but the maximum allowable number of defined links had already been reached.

System Action: Command execution is terminated, the command has no effect, and normal processing continues.

Operator Action: Check the command line to see if it was accurately typed. If an existing link definition was to have been altered, retry the command with a corrected command line. If a new link was to be defined, temporarily remove another link from RSCS by means of the RSCS DELETE command before retrying the command.

| Destination Keys: 0

DMTCMY550I LINK 'linkid' NOW DELETED

Explanation: The previously defined link, identified by 'linkid', is now temporarily deleted as a result of RSCS DELETE command processing. Files, commands, and messages can no longer be handled

through the previously defined link.

System Action: Spool files addressed to the deleted link's location ID are no longer accepted, and are rejected as invalidly addressed. Such files may be returned to local originating users, or are purged if they are not of local origin. The deleted link can no longer be activated.

Operator Action: None.

Destination Keys: R,0

DMTCMY551E LINK 'linkid' ACTIVE -- NOT DELETED

Explanation: An attempt was made to temporarily delete the link identified by 'linkid' from RSCS by the RSCS DELETE command. The attempt was unsuccessful because the specified link was active at the time of command processing.

System Action: The link remains defined and active, the command has no effect, and normal processing continues.

Operator Action: Retry the command after the link has been deactivated.

Destination Keys: 0

DMTCMY552E LINK 'linkid' HAS A FILE QUEUE -- NOT DELETED

Explanation: An attempt was made to temporarily delete the link identified by 'linkid' by an RSCS DELETE command. The attempt was unsuccessful because the specified link had at least one file enqueued on it at the time of command processing.

System Action: The link remains defined, the command has no effect, and normal processing continues.

Operator Action: Before the link can be deleted, all files enqueued on it and pending for it must be purged, either by console command execution or through normal file transmission.

Destination Keys: 0

DMTCMX560I RSCS NETWORKING DISCONNECTING

Explanation: The RSCS virtual machine console is disconnected as a result of command execution. If a different virtual machine was specified to receive RSCS output messages, that virtual machine will begin receiving the console messages through the VM/SP message function.

System Action: RSCS continues processing normally without a main operator console.

Operator Action: Reconnect the RSCS main virtual machine console through the normal VM/SP LOGON procedure.

Destination Keys: R,0

DMTCMX561E USERID 'userid' NOT RECEIVING

Explanation: An attempt was made to disconnect the main RSCS virtual operator console with a secondary virtual machine ID identified by 'userid' specified to receive RSCS console output messages. The specified virtual machine either was not receiving messages or was not logged on at the time of command processing.

System Action: The command processing is terminated, the command has no effect, and normal processing continues.

Operator Action: Retry the command with a different virtual machine ID specified, or with no virtual machine ID specified. The same virtual machine ID can be specified after it has been logged on and set to receive messages.

Destination Keys: 0

DMTxxx570I LINK 'linkid' NOW SET TO DEACTIVATE

Explanation: In response to the DRAIN command, the link identified by 'linkid' has set drain status and will be deactivated. If the RSCS operator issues the START command before the link is deactivated, drain status will be reset and processing will continue on the link.

System Action: If the line driver is not in active communication with the remote station at the time of DRAIN command execution, the link is deactivated immediately. Otherwise, action is taken to quiesce line activity. This includes the finishing of transmission for an active file if one exists, and it may include the signaling to the remote station of an impending termination. File reception is completed for a file which is being actively received. No new files are activated for transmission or accepted for reception while the link is in drain status. When line activity is quiesced, the link deactivates.

Operator Action: If the DRAIN command fails to deactivate the link within a reasonable period of time, issue a FORCE command to deactivate the link unconditionally, regardless of actual line activity.

Destination Keys: R, 0

DMTxxx571E LINK 'linkid' ALREADY SET TO DEACTIVATE

Explanation: A DRAIN command was executed specifying the link identified by 'linkid', which was already in drain status as the result of a previous DRAIN command.

System Action: The line driver continues its attempts to quiesce the line, and the command has no effect.

Operator Action: If the DRAIN command fails to deactivate the link within a reasonable period of time, issue a FORCE command to immediately deactivate the link, regardless of line activity.

Destination Keys: R, 0

DMTxxx580I FILE 'spoolid' PROCESSING TERMINATED

Explanation: Transmission of the active file identified by 'spoolid' has been terminated before the completion of file processing. This message is issued either in response to a FLUSH command, or when a remote system is restarted. This message is also issued by the DMTNJI line driver when there is insufficient free storage or when an error is detected in a file that has been partially sent to a remote system.

System Action: Disposition of the identified file is made according to the status of the file. The file may be purged from the system, or the file may be held for future retransmission. If a FLUSH command was entered, the next copy of the file may begin transmission if multiple copies remain and 'ALL' was not specified. Normal link processing continues. If insufficient storage exists, or if an error was detected in a partially transmitted file, an immediate termination SCB (X'40') is sent to the remote system and the file is saved and put in HOLD status.

Operator Action: If the message occurs for DMTNJI when no FLUSH command has been issued, wait until the system is less loaded and send the file again. If the message still occurs, the file probably

contains bad data. If the problem persists or occurs with other files, notify local support personnel.

Destination Keys: R, 0

DMTxxx581E FILE 'spoolid' NOT ACTIVE

Explanation: This message is in response to an RSCS command which requires specification of an active file as the command's object. At the time of command processing, the spoolid specified in the command ('spoolid') was not active.

System Action: The command has no effect, and normal link processing continues.

Operator Action: You may determine the status of a file by issuing a QUERY FILE 'spoolid' command. Retry the command if it was entered in error.

Destination Keys: 0

DMTxxx590I LINK 'linkid' RESUMING FILE TRANSFER

Explanation: The active link identified by 'linkid' was in hold status, and has been removed from hold status in response to FREE command processing.

System Action: File transmission on the identified link resumes when a file eligible for transmission is available.

Operator Action: None.

Destination Keys: R, 0

DMTxxx591E LINK 'linkid' NOT IN HOLD STATUS

Explanation: The link identified by 'linkid' was not in hold status when a FREE command was processed requesting that the link leave hold status.

System Action: The command is ignored, and normal link processing continues.

Operator Action: None.

Destination Keys: R, 0

DMTxxx600I FILE 'spoolid' FORWARD SPACED

Explanation: The file identified by 'spoolid' has been forward spaced as requested by a preceding FWDSPACE command.

System Action: File transmission continues, beginning from the new file position.

Operator Action: None.

Destination Keys: 0

DMTxxx610I LINK 'linkid' TO SUSPEND FILE TRANSMISSION

Explanation: The link identified by 'linkid' has entered hold status. File transmission has not been suspended because at the time of command processing a file was being actively transmitted, and the 'IMMED' option was not specified.

System Action: The link remains in hold status. File transmission will be suspended when the processing of currently active output files has been completed.

Operator Action: None.

| Destination Keys: R, 0

DMTxxx611I LINK 'linkid' FILE TRANSMISSION SUSPENDED

Explanation: This message is in response to HOLD command processing. The link identified by 'linkid' has entered hold status, and file transmission has been halted. Either no file was being actively transmitted at the time of command processing, or the link had been in hold status and its active file transmission has completed, or an active file was being transmitted and the 'IMMED' operand was specified.

System Action: The link remains in hold status, and file transmission remains suspended until the link is explicitly freed from hold status. If active file transmission was interrupted, the transmission of the active file resumes from the point at which transmission was interrupted, when the link is removed from hold status. The link continues to process files received from the remote station normally while in hold status.

Operator Action: None.

| Destination Keys: R, 0

DMTxxx612E LINK 'linkid' ALREADY IN HOLD STATUS

Explanation: This message is issued in response to HOLD command processing. The command requested that the link specified by 'linkid' be placed in hold status. The link was already in hold status at the time of command processing.

System Action: The link remains in hold status, and the command has no effect.

Operator Action: None.

| Destination Keys: R, 0

DMTCMX625I NO PORTS AVAILABLE

Explanation: This message is issued in response to a QUERY SYSTEM PORTS command. At the time of command execution, no switchable ports had been defined to RSCS. Switchable ports are defined to RSCS by the PORT entry in the RSCS directory (RSCS DIRECT).

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX626I PORT 'vaddr' AVAILABLE

Explanation: This message is issued in response to a QUERY SYSTEM PORTS command. Either this message or message DMTCMX627I is issued once for each switchable port defined by a PORT entry in the RSCS directory (RSCS DIRECT). The switchable port identified by its virtual device address 'vaddr' was not in use by an active link at the time of command processing.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX627I PORT 'vaddr' IN USE BY LINK 'linkid'

Explanation: This message is issued in response to a QUERY SYSTEM PORTS command. Either this message or message DMTCMX626I is issued once for each switchable port defined by a PORT entry in the RSCS directory (RSCS DIRECT). The switchable port identified by its virtual device address 'vaddr' was in use by the active link identified by 'linkid' at the time of command execution.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMY630I 'locid' NOW ROUTED THROUGH LINK 'linkid'

Explanation: In response to an RSCS ROUTE command, file, command, and message transmission to the location identified by 'locid' may be indirectly routed through the link identified by 'linkid'.

System Action: The RSCS routing table has been updated to reflect the new indirect route. A direct link and an indirect route may be concurrently defined for the same remote location, using a single locid. In this case, files, commands, and messages may be transmitted directly or indirectly, depending upon dynamic system status.

Operator Action: Add to the RSCS directory a ROUTE statement defining the new path to cause the link to be permanently defined after an RSCS restart.

Destination Keys: R,0

DMTCMY631I INDIRECT ROUTING FOR 'locid' DEACTIVATED

Explanation: In response to a ROUTE command, files, commands, and messages addressed to the location identified by 'locid' will no longer be indirectly routed.

System Action: The RSCS routing table has been updated to reflect the routing change. Files addressed to the identified location are rerouted for direct transmission (if a link is defined), or are rejected as invalidly defined. Such files may be returned to local originating users, or are purged if they are not of local origin.

Operator Action: None.

Destination Keys: R,0

DMTCMY632E 'locid' INVALID ROUTE SPECIFIED

Explanation: An invalid indirect route for the location identified by 'locid' was specified on a preceding ROUTE command.

System Action: The command is ignored and normal processing continues.

Operator Action: Retry the ROUTE command with a valid route specification.

Destination Keys: 0

DMTCMY633E 'locid' NOT ROUTED -- ROUTE LIMIT REACHED

Explanation: An attempt was made to define a new route by means of the ROUTE command, but the maximum allowable number of indirect route definitions had already been reached.

System Action: The command processing is suppressed, the command has

no effect, and normal processing continues.

Operator Action: Delete an existing route definition before retrying the command.

| Destination Keys: 0

DMTCMX634I NO LOCATIONS ROUTED

Explanation: This message is in response to a QUERY SYSTEM ROUTES command. No indirect routing was defined to RSCS.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX636I 'locid' ROUTED THROUGH LINK 'linkid'

Explanation: This message is in response to a QUERY 'locid' command. Files, commands, and messages addressed to the location identified by 'locid' may be enqueued for indirect transmission on the link identified by 'linkid'.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMY637I 'locid' NOT ROUTED

Explanation: This message is in response to a ROUTE 'locid' OFF command. The specified 'locid' was not defined for indirect routing at the time of command processing.

System Action: No action is taken, and normal processing continues.

Operator Action: Retry the command if it was entered in error.

| Destination Keys: 0

DMTCMY638E LOCATION 'locid' HAS A FILE QUEUE -- INDIRECT ROUTING NOT DEACTIVATED

| Explanation: This message is in response to a ROUTE 'locid' OFF command. The specified location identified by 'locid' has files queued for it on the link it is routed through.

System Action: No action is taken, and normal processing continues.

Operator Action: Retry the command if it was entered in error. If correct, use the transfer, purge or define commands to remove the queued files from the link the 'locid' is routed through, and retry the command.

| Destination Keys: 0

DMTAXM640I 'nn' FILE(S) PURGED ON LINK 'linkid'

Explanation: The number of files denoted by 'nn' which were enqueued on the link specified by 'linkid' have been purged from the system in response to a PURGE command.

System Action: The files' virtual storage tags are dequeued and the tag slots are released. Pending files for the link are accepted if a sufficiently large number of free tag slots results.

Operator Action: None.

Destination Keys: R, 0

DMTAXM645I 'nn' FILE(S) TRANSFERRED ON LINK 'linkid'

Explanation: The number of files denoted by 'nn' which were enqueued on the link specified by 'linkid' have been re-addressed to a new destination in response to a TRANSFER command.

System Action: The destination address for the file or files is permanently changed, and the files are reenqueued to their new destination by a file queue reorder performed by TRANSFER command processing.

Operator Action: None.

Destination Keys: R,0

DMTCMX651I LINK 'linkid' INACTIVE

Explanation: This message is issued in response to a QUERY 'locid' command. The location specified in the command was defined for direct connection, and its link identified by 'linkid' was not active at the time of command processing.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX652I LINK 'linkid' {CONNECT|ACTIVE} 'task' 'type' 'vaddr' c {HO|NOH}
{DR|NOD} {NOT|TRS|TRL|TSL} [formname] [SETUP|AUTO|MANUAL]

Explanation: This message is issued in response to a QUERY 'locid' command. The location specified in the command was defined for direct connection, and its link identified by 'linkid' was active at the time of command processing. The CONNECT keyword indicates that the line driver successfully received a satisfactory response from the remote station on the last attempted exchange. The ACTIVE keyword implies that the line driver's last attempted exchange failed due to line or remote system failure, or that local telecommunications equipment has not been dialed or is not properly set.

task	- is the task name of the line driver task.
type	- is the name of the line driver in use for the active link.
vaddr	- is the virtual device address of the line port in use by the active link.
c	- is the class or classes of files that may be processed by the active link.
HO	- indicates that the active link is in hold status.
NOH	- indicates that the active link is not in hold status.
DR	- indicates that the active link is in the process of draining, and will terminate when line activity is quiesced.
NOD	- indicates that the active link is not in the process of draining.
NOT	- indicates that no trace option is active for the link.
TRS	- indicates that the trace sum option is active for the link, and that the trace log option is inactive.
TRL	- indicates that the trace log option is active for the link, and that the trace sum option is inactive.
TSL	- indicates that both the trace sum and trace log options are active for the link.

For workstation links, only:

formname - current operator form name

- MANUAL - specifies that only files with the current form name are to be processed. If the form name is "x", files with any form are processed.
- AUTO - specifies that RSCS is to process files with any form, with automatic prompting messages for forms changes.
- SETUP - specifies that RSCS is to process files with any form, with automatic prompting messages for forms changes. In addition, the workstation operator is allowed to check and adjust forms alignment when changing forms.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX653I LINK 'linkid' DEFAULT 'task' 'type' 'vaddr' c Z=z R=r

Explanation: This message is in response to a QUERY 'linkid' DEF command, and is issued when a new link is defined or when an existing link definition is modified by means of the DEFINE command. The link identified by 'linkid' was defined at the time of command processing, and the default attributes listed in the message pertain to that definition. The message does not indicate whether the link was active or inactive at the time of command processing, and the default attributes listed may be different from those actually in use with the link if it was active.

- task - the default task name to be associated with the defined link's line driver task when the link is activated.
- type - the name of the default line driver defined for the link.
- vaddr - the default virtual device address of a line port to be used by the link when it is activated.
- c - the default class or classes of files which may be processed by the link when it is active.
- z - the number designating the terrestrial time zone number in which the remote location is defined to reside. This is the number of time zone boundaries between the remote location and Greenwich to the east, the International Date Line being included as a time zone boundary.
- r - the number of virtual storage file tag slots reserved for exclusive use by this link.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX654I LINK 'linkid' S=s R=r Q=q P=p

Explanation: This message is issued in response to a QUERY 'linkid' QUEUE command, and is issued in response to a QUERY SYSTEM QUEUE once for each link on which at least one file is either enqueued or active. The status of the file queue for the link identified by 'linkid' is described.

- s - the number of files being actively transmitted (sent) on the link.
- r - the number of files being actively received on the link.
- q - the number of files accepted and enqueued for transmission on the link.
- p - the number of files pending but not yet accepted for the active link.

System Action: In response to a QUERY 'linkid' QUEUE command, an additional message (DMTCMX655I) is issued for each file accepted and enqueued on the link, describing the status of each such file.

Operator Action: None.

Destination Keys: 0

DMTCMX655I FILE 'spoolid' ('orgid') 'locid' 'userid' CL a FO uuuuuuuu ffffffff
PR pp REC nnnnnnnn {HO|NOH}

Explanation: A message of this form is issued for each file accepted and enqueued for transmission on the link specified by 'linkid' in the preceding QUERY 'linkid' QUEUE command.

spoolid - the VM/370 spool file ID for the file.
orgid - the originating VM/370 spool file ID, or the origin job number, of the file.
locid - the destination location ID to which the file is addressed.
userid - the destination user ID (if any) to which the file is addressed.
a - the spool file class.
uuuuuuuu - the file's user form name
ffffffff - the file's operator form name
pp - the file's current transmission priority.
nnnnnnnn - the total number of records in the file.
HO - indicates that the file is in hold status.
NOH - indicates that the file is not in hold status.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX656I FILE 'spoolid' ('orgid') 'locid' 'userid' CL a FO uuuuuuuu ffffffff
PR pp LEFT mmmmmmmmm OF nnnnnnnn

Explanation: This message is issued in response to a QUERY 'linkid' ACTIVE command. The response describes the state of the file that was being actively transmitted on the link specified by 'linkid' when the QUERY command was executed.

spoolid - the VM/370 spool file ID for the active file.
orgid - the originating VM/370 spool file ID, or the origin job number, of the file.
locid - the destination location ID to which the file is addressed.
userid - the destination user ID (if any) to which the file is addressed.
a - the spool file class.
uuuuuuuu - the file's user form name
ffffffff - the file's operator form name
pp - the file's current transmission priority.
mmmmmmmm - the number of records in the file which remain to be transmitted.
nnnnnnnn - the total number of records in the file.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX660I FILE 'spoolid' INACTIVE ON LINK 'linkid'

Explanation: This message is issued in response to a QUERY FILE 'spoolid' STAT command. At the time of command processing, the file identified by 'spoolid' was inactive, and was enqueued for transmission on the link identified by 'linkid'.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX661I FILE 'spoolid' ACTIVE ON LINK 'linkid'

Explanation: This message is issued in response to a QUERY FILE 'spoolid' STAT command. At the time of command processing, the file identified by 'spoolid' was active, and was being transmitted on the link identified by 'linkid'.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX662I FILE 'spoolid' ORG 'locid1' 'userid1' ORGID 'orgid' mm/dd/yy hh:mm:ss z.z.z. TO 'locid2' 'userid2'

Explanation: This message is in response to the RSCS command QUERY FILE 'spoolid' RSCS. The RSCS control related attributes of the file identified by 'spoolid' are described.

locid1 - the location ID of the location at which the file originated.
userid1 - the user ID of the originator of the file.
orgid - the originating VM/370 spool ID, or the origin job number, of the file.
mm/dd/yy - the file creation date.
hh:mm:ss - the file creation time of day.
z.z.z. - the time zone with reference to which the time of day is expressed.
locid2 - the destination location ID to which the file is addressed.
userid2 - the destination user ID (if any) to which the file is addressed.

System Action: None.

Operator Action: None.

| Destination Keys: 0

| DMTCMX663I FILE 'spoolid' PR pp CL a F0 uuuuuuuu ffffffff CO [*]nnn {HO|NOH} DI 'distcode', NA {'fn ft'|'dsname'}

Explanation: This message is issued in response to the RSCS command, QUERY FILE 'spoolid' VM. The VM/370 spool system related attributes of the file identified by 'spoolid' are described.

pp - the file's priority.
a - the file's spool file class.
uuuuuuuu - the file's user form name
ffffffff - the file's operator form name
[*]nnn - The file's copy count; the * indicates copies will be made internally in the 3800 printer.
HO - indicates that the file is in hold status.
NOH - indicates that the file is not in hold status.
distcode - the file's distribution code.
fn ft - the file's filename filetype.
dsname - the file's data set name.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX664E FILE 'spoolid' NOT FOUND

Explanation: This message is issued in response to a QUERY FILE 'spoolid' command. The file identified by 'spoolid' could not be found by RSCS, meaning either that the file is not owned by the RSCS virtual machine, or that the file is pending and has not yet been accepted by RSCS.

System Action: None.

Operator Action: Verify that the spool file ID was correctly typed. If it was not, retry the command with the correct spool file ID. If it was correctly typed, retry the command after some time has elapsed to allow the file to move from pending to enqueued status.

Destination Keys: 0

DMTCMX665I NO FILE ACTIVE

Explanation: This message is issued in response to a QUERY 'linkid' ACTIVE command. At the time of QUERY command processing, no file was being actively transmitted on the specified link.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX666I FILE 'spoolid' FL ffff nnn MO mmmm t CH ccc0 cccl ccc2 ccc3 FCB bbbb

Explanation: This message, in addition to message DMTCMX663I, is issued in response to the RSCS command 'QUERY FILE spoolid VM' if the file contains any 3800 attributes. The 3800-related attributes of the file identified by 'spoolid' are described.

ffff	- The file's 3800 forms overlay name
nnn	- The file's 3800 forms overlay count
mmm	- The file's 3800 copy modification module name
t	- The file's 3800 copy modification TRC
ccc0	- The file's 3800 character arrangement table name 0
cccl	- The file's 3800 character arrangement table name 1
ccc2	- The file's 3800 character arrangement table name 2
ccc3	- The file's 3800 character arrangement table name 3
bbbb	- The file's 3800 FCB name

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX670I LINK 'linkid' {CONNECT|ACTIVE} -- 'type' LINE 'vaddr' {H0|NOH}
{DR|NOD} {NOT|TRS|TRL|TSL}

Explanation: This message is issued in response to a QUERY SYSTEM command, or to a QUERY SYSTEM ACTIVE command. One such message is produced for each active link in the RSCS facility at the time of command processing. The active link described by the message is identified by 'linkid'. The CONNECT keyword indicates that the line driver successfully received a satisfactory response from the remote station on the last attempted exchange. The ACTIVE keyword implies that the line driver's last attempted exchange failed due to line or remote system failure, or that local telecommunications equipment has not been dialed or is not properly set, or the link has not been started at the other end.

type	- the name of the line driver in use by the active link.
vaddr	- the virtual device address of the line port in use by the active link.
H0	- indicates that the active link is in hold status.

NOH	- indicates that the active link is not in hold status.
DR	- indicates that the active link is in the process of draining, and will terminate when line activity is quiesced.
NOD	- indicates that the active link is not in the process of draining.
NOT	- indicates that no trace option is active for the link.
TRS	- indicates that the trace sum option is active for the link, and that the trace log option is inactive.
TRL	- indicates that the trace log option is active for the link, and that the trace sum option is inactive.
TSL	- indicates that both the trace sum and trace log options are active for the link.

System Action: This message is issued for each active link in the system.

Operator Action: None.

Destination Keys: 0

DMTCMX671I LINK 'linkid' INACTIVE -- DEFAULT 'type' LINE 'vaddr'

Explanation: This message is issued in response to a QUERY SYSTEM command. One such message is produced for each inactive link in the RSCS facility at the time of command processing. The inactive link is identified by 'linkid'; its default line driver type is identified by 'type', and its default line port virtual address is identified by 'vaddr'.

System Action: This message is issued for each inactive link in the system.

Operator Action: None.

Destination Keys: 0

DMTCMX672I NO LINK ACTIVE

Explanation: This message is issued in response to a QUERY SYSTEM ACTIVE command. RSCS had no active link at the time of command processing.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX673I NO LINK DEFINED

Explanation: This message is issued in response to a QUERY SYSTEM command. RSCS had no link defined at the time of command processing.

System Action: None.

Operator Action: None.

Destination Keys: 0

DMTCMX674I NO FILES QUEUED

Explanation: This message is in response to a QUERY SYSTEM QUEUE command. No files were active, and no files were queued or pending in the RSCS input file queue at the time of the command processing.

System Action: None.

Operator Action: None.

| Destination Keys: 0

DMTCMX675E EXEC 'filename' NOT FOUND ON DISK 'vaddr' -- COMMAND FILE NOT EXECUTED

Explanation: An attempt was made to execute the RSCS operator command exec file identified by 'filename'. The exec file was not found on the RSCS system disk identified by 'vaddr'.

System Action: EXEC command processing is suppressed, the EXEC command has no effect, and normal processing continues.

Operator Action: Verify that the filename was correctly entered on the EXEC command line, and that the specified exec file has a filetype of 'RSCS'. If an error is found, retry the EXEC command. If no error is found and the condition persists, notify local RSCS support personnel.

| Destination Keys: 0

DMTCMX676E FATAL ERROR READING FROM 'vaddr' -- EXEC 'filename' PROCESSING TERMINATED

Explanation: In the process of executing the RSCS exec file identified by 'filename', an uncorrectable I/O error was encountered in reading the file from the RSCS system disk identified by 'vaddr'.

System Action: EXEC command processing is terminated at the point of error.

Operator Action: Retry the command if appropriate. If the error condition persists, notify local RSCS support personnel.

| Destination Keys: 0

DMTCMX677E EXEC 'filename' FILE FORMAT INVALID -- EXEC NOT EXECUTED

Explanation: An attempt was made to execute the RSCS operator command exec file identified by 'filename'. In the process of reading the file from the RSCS system disk, an invalid file format was encountered.

System Action: EXEC command processing is terminated at the point of error.

Operator Action: Verify that the EXEC command filename was correctly specified. If appropriate, retry the command. If the error condition persists, notify local RSCS support personnel.

| Destination Keys: 0

DMTCMX678E EXEC 'filename' IN EXECUTION -- NEW EXEC COMMAND IGNORED

Explanation: While executing commands from the RSCS exec file identified by 'filename', another EXEC command was encountered.

System Action: The subsequent EXEC command processing is suppressed, and the original EXEC command processing continues.

Operator Action: Notify local RSCS support personnel.

| Destination Keys: 0

DMTrex679I EXECUTING 'filename' COMMAND: (command line)

Explanation: The RSCS command included in the message as (command line) has been read from the RSCS exec file identified by 'filename', and will be executed.

System Action: The specified command is executed, and EXEC command processing continues.

Operator Action: None.

Destination Keys: 0

DMTCMY700I ACTIVATING LINK 'linkid' 'task' 'type' 'vaddr' 'c'

Explanation: The link identified by 'linkid' was inactive and has become active as a result of command processing. The message describes the variable attributes in effect for this active link.

task - the task name associated with the activated link's line driver.
type - the name of the line driver in use by the activated link.
vaddr - the virtual device address of the line port in use by the activated link.
c - the class or classes of files that can be processed by the activated link.

System Action: The activated link remains active, and the listed attributes remain in effect, until the link is deactivated or the attributes are explicitly modified. The link is activated whether or not a line connection is complete to the remote location. Active exchange of files, commands, and messages will begin as soon as the remote station has been appropriately initialized and the data line has been established.

Operator Action: None.

Destination Keys: R,0

DMTCMY701E NO SWITCHED LINE AVAILABLE -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid' with no specified line port virtual device address. The link had no defined default line port address, and no common switched line ports were available at the time of command processing.

System Action: The command processing is terminated, the link remains inactive, and normal processing continues.

Operator Action: Retry the command with a specified line port address, or retry it when a common switched line port becomes available.

Destination Keys: 0

DMTCMY702E LINE 'vaddr' IS IN USE BY LINK 'linkid1' -- LINK 'linkid2' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid2'. The line port virtual device address specified in the request to activate the link, identified by 'vaddr', was found to be in use by another active link, identified by 'linkid1', at the time of command processing.

System Action: Command processing is terminated, the command has no effect, and normal processing continues.

Operator Action: Retry the command with a specified line port address not in use by another active link; or retry it with no line port address specified, in which case RSCS will try to reserve and utilize a valid line port.

Destination Keys: 0

DMTCMY703E DEV 'cuu' IS NOT A LINE PORT -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid' with a line port address identified by 'cuu'. A virtual device at address 'cuu' exists, but it is not a usable line port type device.

System Action: Command processing is terminated, the link remains inactive, and normal processing continues.

Operator Action: Retry the command with a specified line port address that is valid and available; or retry it with no line port address at all, in which case RSCS will try to select and reserve a common switchable line port.

Destination Keys: 0

DMTCMY704E LINE 'vaddr' CC=3 NOT OPERATIONAL -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid' with a line port address identified by 'vaddr'. Either no device was defined for the RSCS virtual machine at virtual address 'vaddr', or the device at that address was logically disconnected from the I/O system.

System Action: Command processing is terminated, the link remains inactive, and normal processing continues.

Operator Action: Retry the command with a specified line port address that is valid and operational; or retry it with no line port address at all, in which case the system will try to select and reserve a common switchable line port.

Destination Keys: 0

DMTCMY705E DRIVER 'type' NOT FOUND ON DISK 'vaddr' -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid' using a line driver name of 'type'. The specified line driver was not found on the RSCS system disk.

System Action: Command processing is terminated, the link remains inactive, and normal processing continues.

Operator Action: Verify that the driver name used was correctly typed. If it was not, retry the command with a corrected line driver type specification. If the command was correctly typed, notify local RSCS support personnel. Verify that the intended line driver resides on the RSCS system disk with a filename of 'type' and a filetype of 'TEXT'.

Destination Keys: 0

DMTCMY706E FATAL ERROR LOADING FROM 'vaddr' -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid'. In the process of loading the link's line driver from the disk identified by 'vaddr', an uncorrectable I/O error was encountered.

System Action: Loading is abandoned, the error is logged, the command processing is terminated, and the link remains inactive.

Operator Action: Retry the command. If the error condition persists, notify local RSCS support personnel.

Destination Keys: 0

| DMTCMY707E DRIVER 'type' FILE FORMAT INVALID -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt was made to activate the link identified by 'linkid', with a line driver type specification of 'type'. In the process of reading the driver file and loading the driver into virtual storage, the loader detected an invalid data format in the driver file.

System Action: Loading is abandoned, the command processing is terminated, and normal processing continues.

Operator Action: Verify that a correct line driver type specification has been used. If an improper driver type was used, retry the command with a correct driver type specification. If the proper driver type was used, notify local RSCS support personnel.

| Destination Keys: 0

| DMTxxx708E VIRTUAL STORAGE CAPACITY EXCEEDED -- LINK 'linkid' PROCESSING TERMINATED

Explanation: During link activation (via the START command), or during normal link processing, a virtual free storage request could not be met for the link identified by 'linkid' because there was insufficient virtual storage available for allocation by the RSCS supervisor.

System Action: START command processing or the affected line driver is terminated. Other RSCS supervisor and line driver processing continues.

Operator Action: Attempt to restart the link later, when more virtual storage may be available. Deactivating another link will increase available virtual storage. If this situation occurs regularly, it can be corrected by increasing the size of the RSCS virtual machine's virtual storage prior to RSCS IPL.

| Destination Keys: R,0

| DMTCMY709E TASK NAME 'task' ALREADY IN USE -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt to activate the link 'linkid', in response to a START command, failed because the task name 'task' specified for use was in use by another task in the system.

System Action: The START command is suppressed, and normal processing continues.

Operator Action: Retry the START command specifying a different task name by use of the 'TASK' keyword, or retry the START command after the line driver with the conflicting task name has been deactivated.

| Destination Keys: 0

| DMTCMY710E MAX ('nn') ACTIVE -- LINK 'linkid' NOT ACTIVATED

Explanation: An attempt to activate the link 'linkid', in response to a START command, failed because the maximum allowable number 'nn' of concurrent active links had already been reached.

System Action: The START command is ignored, and normal processing continues.

Operator Action: Retry the START command after one or more links have been deactivated.

| Destination Keys: 0

DMTCMY750E LINK 'linkid' ALREADY ACTIVE -- NO ACTION TAKEN

Explanation: A START or READY command was issued specifying the link identified by 'linkid'. The link was already active at the time of command processing, or was not waiting for a pending forms mount condition to be satisfied, and no modifiable attributes were changed from their previous settings.

System Action: The START or READY command is ignored, and normal processing continues.

Operator Action: None.

Destination Keys: R, 0

DMTCMY751I LINK 'linkid' ALREADY ACTIVE -- NEW CLASS(ES)/FORM SET AS REQUESTED

Explanation: A START command was issued specifying the link identified by 'linkid'. The link was already active at the time of command processing, and the new class and/or form specification for the link has been accepted.

System Action: The link begins processing files bearing the newly specified class(es) and/or form if they are enqueued on the link.

Operator Action: None.

Destination Keys: R, 0

DMTxxx752I LINK 'linkid' STILL ACTIVE -- DRAIN STATUS RESET

Explanation: A START command was issued specifying the link identified by 'linkid'. The link was active at the time of command processing, but it was in the process of terminating as the result of a previous DRAIN command.

System Action: The link remains active with the same attributes that had previously been in effect, except that the link's drain status is reset. Normal RSCS processing continues.

Operator Action: None.

Destination Keys: R, 0

DMTxxx801I LINK 'linkid' LOG ACTIVATED

Explanation: This message is issued in response to a TRACE 'linkid' LOG or ALL command. The specified link's log trace had been inactive prior to command processing, but now has been activated. This message is also issued if the link's log trace had been in partial-buffer mode (LOG) and the full-buffer mode (ALL) is now requested, or vice-versa.

System Action: The log trace is activated or its mode is switched. Normal processing continues.

Operator Action: None.

Destination Keys: R

DMTxxx802I LINK 'linkid' LOG DEACTIVATED

Explanation: This message is issued in response to a TRACE 'linkid' NOLOG or OFF command. The specified link's log trace had been active prior to command processing, and now has been deactivated.

System Action: Logging of each line I/O transaction is terminated, and the spool print file log is closed and enqueued for real printer processing or as directed by the routing (if any) of a previous TRACE command.

| Operator Action: None.

Destination Keys: R

DMTxxx803I LINK 'linkid' SUM REPORTING DEACTIVATED

| Explanation: This message is issued in response to a TRACE 'linkid' NOSUM or OFF command. The specified link had been in sum trace mode prior to command processing, and has now left sum trace mode.

System Action: No further sum trace messages will be issued, and normal link processing continues.

Operator Action: None.

| Destination Keys: R

| DMTxxx810I LINK 'linkid' LOG ALREADY ACTIVE

| Explanation: This message is issued in response to a TRACE 'linkid' LOG or ALL command. The command requested that the specified link enter log trace mode, and the link had already been in log trace mode at the time of command processing.

System Action: The link remains in log trace mode, the command has no effect, and normal link processing continues.

Operator Action: None.

| Destination Keys: 0

| DMTxxx811I LINK 'linkid' LOG NOT ACTIVE

| Explanation: This message is issued in response to a TRACE 'linkid' NOLOG or OFF command. The command requested that the specified link leave log trace mode, and the link had not been in log trace mode at the time of command processing.

System Action: Log trace remains inactive for the link, the command has no effect, and normal link processing continues.

Operator Action: None.

| Destination Keys: 0

| DMTxxx812I LINK 'linkid' SUM REPORTING ALREADY ACTIVE

Explanation: This message is issued in response to a TRACE 'linkid' SUM command. The command requested that the specified link enter sum trace mode, but the link had already been in sum trace mode at the time of command processing.

System Action: The link remains in sum trace mode, the command has no effect, and normal link processing continues.

Operator Action: None.

| Destination Keys: 0

| DMTxxx813I LINK 'linkid' SUM REPORTING NOT ACTIVE

| Explanation: This message is issued in response to a TRACE 'linkid' NOSUM or OFF command. The command requested that the specified link leave sum trace mode, and the link had not been in sum trace mode at the time of command processing.

System Action: Sum trace remains inactive for the link, the command has no effect, and normal link processing continues.

Operator Action: None.

Destination Keys: 0

DMTSML901E INVALID SML MODE SPECIFIED -- LINK 'linkid' NOT ACTIVATED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid mode specification.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid mode. If the problem persists, notify local RSCS support personnel.

Destination Keys: R

DMTxxx902E NON-SIGNON CARD READ ON LINK 'linkid'

Explanation: The link identified by 'linkid' had not been signed on, and a record received from the remote station was not a SIGNON record contrary to line driver operational requirements.

System Action: The link remains active but not signed on, and file, command, and message exchange for the link remains suspended pending successful sign-on.

Operator Action: Correct any errors present on the sign-on card, and retry the sign-on procedure.

Destination Keys: 0, R

DMTxxx903E PASSWORD SUPPLIED ON LINK 'linkid' IS INVALID

Explanation: An attempt to sign-on a remote station has failed because the password entered on the SIGNON record does not match the password specified by the operator when the remote station's link, identified by 'linkid', was started.

System Action: The link remains active but not signed on, and file, command, and message exchange for the link remains suspended pending successful sign-on.

Operator Action: Correct any errors present on the SIGNON record and retry the sign-on procedure. If the problem persists, the operations personnel at both ends of the link should establish an agreed-upon password.

Destination Keys: R, 0

DMTxxx904E SIGNON PARAMETER='parm' ON LINK 'linkid' INVALID

Explanation: A sign-on record for the link identified by 'linkid' contained the invalid parameter identified by 'parm'.

System Action: The link remains active but not signed on, and file, command, and message exchange for the link remains suspended pending successful sign-on.

Operator Action: Correct any errors present on the sign-on card and retry the sign-on procedure.

Destination Keys: 0

DMTxxx905I SIGNON OF LINK 'linkid' COMPLETE [,BUFFSIZE='nnnn']

Explanation: A valid SIGNON record has been received on the link identified by 'linkid', and the link sign-on procedure has been successfully completed. When issued by the DMTNJI line driver task,

nnnn specifies the TP buffer size selected.

System Action: Exchange of files, commands, and messages is begun on the identified link.

| Operator Action: None.

| Destination Keys: R, 0

DMTxxx906E INVALID BUFFER PARAMETER -- LINK 'linkid' NOT ACTIVATED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid buffer specification.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid buffer request. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTNPT907E SIGNON TYPE PARAMETER MISSING

Explanation: The sign-on record previously entered did not include a TYPE parameter specifying the type of remote terminal in use.

System Action: The link remains active but not signed on, and file, command, and message exchange for the link remains suspended pending successful sign-on.

Operator Action: Correct any errors present on the sign-on card, include the TYPE parameter on the sign-on card, and retry the sign-on procedure.

| Destination Keys: 0

DMTxxx908E INVALID 'PARM' PARAMETER 'parmvalue' SPECIFIED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid parameter specification.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid PARM parameter request. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTNHD910E INVALID NJI PARAMETER 'parm' ON TAG -- PARAMETER IGNORED

Explanation: In the scanning of file tag specified by the local originating user, an invalid parameter identified by 'parm' was encountered.

System Action: The invalid parameter is ignored, its applicable default applies, and file processing continues.

Operator Action: None.

| Destination Keys: 0

| DMTxxx911E INVALID BUFFER SIZE SPECIFIED -- LINK 'linkid' NOT ACTIVATED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid buffer size request.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid buffer size. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTNIT912E INVALID NJI NODAL RESISTANCE SPECIFIED -- LINK 'linkid' NOT ACTIVATED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid nodal resistance specification.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid nodal resistance. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTxxx913E INVALID PASSWORD PARAMETER SPECIFIED -- LINK 'linkid' NOT ACTIVATED

Explanation: During initial processing immediately following link activation, the line driver encountered an invalid password specification.

System Action: The specified link is deactivated.

Operator Action: Retry the START command, specifying a valid password. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTxxx914E INCORRECT PASSWORD RECEIVED ON LINK 'linkid'

Explanation: A valid password parameter received in a SIGNON record from the remote system did not match the local link password in effect at the time.

System Action: The line driver executes its disconnect sequence. Depending on the line driver in use, the line may be re-enabled or the link may be deactivated.

Operator Action: Notify system support personnel at the remote location. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTVMB915E INCOMPATIBLE BUFFER SIZES -- LINK 'linkid' IS BEING DEACTIVATED

Explanation: The connection control information received from the remote system specifies a different buffer size than that specified at the local location.

System Action: The affected line driver executes its disconnect procedure, and the link is deactivated.

Operator Action: Notify system support personnel at the remote location. If the problem persists, notify local RSCS support personnel.

| Destination Keys: R

DMTNCM916E INVALID NJI SIGNON CONNECTION RECORD RECEIVED -- LINK 'linkid' IS
BEING DEACTIVATED

| Explanation: An invalid sign-on or sign-on response record has been
received from the remote system.

System Action: The affected line driver executes its disconnect
procedure, and the link is deactivated.

Operator Action: Notify local RSCS support personnel.

| Destination Keys: R

DMTNHD917I NJI LINK 'linkid': {JOB|OUTPUT} ('orgid'), JOBNAME 'job', PGMR 'user'

Explanation: This message is issued each time the NJI line driver for
the active link identified by 'linkid' encounters a job header record
in the data stream being received from the remote system. The job
header defines the beginning of a job or job output in the data
stream being received. The substitution parameters in the message
specify the following:

JOB	- denotes the beginning of reception of a job file.
OUTPUT	- denotes the beginning of reception of a job output file.
orgid	- identifies the job file's origin spool ID or job number.
job	- identifies the job name of the job or output file being received.
user	- identifies the originating user's programmer name or user ID.

System Action: The job or output file is written to the VM/370 spool
system as it is received, and it is forwarded to the next link on its
path, delivered to a local user, or processed on a local real spool
output device, depending on its destination address.

Operator Action: None.

| Destination Keys: R

DMTxxx918E LINK 'linkid' DOES NOT MATCH REMOTE LOCATION 'locid'

| Explanation: A sign-on record received from the remote system
specified a location ID 'locid' which was not the same as the link ID
'linkid' for the line driver in use at the local location. The link
ID is defined as the location ID of the directly connected remote
location.

System Action: The line driver executes its disconnect sequence.
Depending on the line driver in use, the line may be re-enabled or
the link may be deactivated.

Operator Action: Notify local RSCS support personnel.

| Destination Keys: R

DMTxxx919E SIGNON SEQUENCE ON LINK 'linkid' FAILED

Explanation:

- Data was received from the remote system before a SIGNON record
was successfully received and accepted,
- An unrecoverable line error occurred during sign-on sequence,
- An incorrect password or location ID was detected at the remote
system, or

- The remote system is incompatible with the line driver in use.

System Action: The line driver executes its disconnect sequence. Depending on the line driver in use, the line may be re-enabled or the link may be deactivated.

Operator Action: Notify local RSCS support personnel.

Destination Keys: R

DMTNCM920E DUPLICATE SIGN-ON RECORD RECEIVED -- LINK 'linkid' BEING DEACTIVATED

Explanation: A sign-on or sign-on response record has been received on the link identified by 'linkid' and the complete sign-on sequence had already been completed.

System Action: The specified link is deactivated, and control is given to the restart exit for the link.

Operator Action: If a restart EXEC was defined for the link, the link will be restarted automatically. Otherwise, use the START command to restart the link if it is desired to resume file transmission. If the problem persists, notify local RSCS support personnel and support personnel at the remote system.

Destination Keys: R

DMTRPT921I PRINTER ON LINK 'linkid' LINE 'vaddr' DISABLED -- INTERVENTION OR MAINTENANCE REQUIRED

Explanation: A printer described by 'linkid' and 'vaddr' detected an I/O error condition while a file was printing. Any further action has to be initiated by the operator

System Action: The line driver tries to resend the print buffer three times. On the third try, the message is printed and the line driver waits for operator intervention.

Operator Action: HOLD the link, then FLUSH the file with any option desired. When the file is purged or re-enqueued, the link can be DRAINEd and restarted. If I/O errors persist, call your local customer engineer.

Destination Keys: R

DMTRPT922I INTERVENTION REQUIRED ON PRINTER LINK 'linkid' LINE 'vaddr'

Explanation: A printer described by 'linkid' and 'vaddr' needs operator intervention.

System Action: The line driver tried to make the initial connection or send a print buffer to a non-working printer. The line buffer waits for operator intervention on the device or console command execution.

Operator Action: Turn the printer on, fix printer paper, or enter the console commands to DRAIN the link or FLUSH the file.

Destination Keys: R

DMTRPT923E LINE OR CHANNEL I/O ERROR -- MAINTENANCE REQUIRED ON LINK 'linkid' LINE 'vaddr'

Explanation: A printer described by 'linkid' and 'vaddr' detected an I/O error condition while a file was printing. Any further action has to be initiated by the operator.

System Action: The line driver tries to resend the print buffer ten times. On the tenth try, the message is printed and the line driver terminates.

Operator Action: HOLD the link, then FLUSH the file with any option desired. When the file is purged or re-enqueued, the link can be DRAINED and/or restarted. If I/O errors persist, call your local customer engineer.

| Destination Keys: R

DMTRPT924E NONRECOVERABLE PROGRAM ERROR ON LINK 'linkid' LINE 'vaddr'

Explanation: A printer described by 'linkid' and 'vaddr' detected an I/O error condition while a file was printing.

System Action: The line driver tried to send the print buffer but, because of a non-recoverable hardware programming error, an I/O error message is produced and the line driver ends.

Operator Action: If I/O errors persist, call your local customer engineer.

| Destination Keys: R

DMTRPT925I FILE PURGED BY USER ON PRINTER 'linkid' LINE 'vaddr'

Explanation: On the printer described by 'linkid' and 'vaddr', the user raised the cover three times (with the same print buffer), which caused the line driver to purge the file.

System Action: Every time the printer cover is lowered, the line driver tries to resend the print buffer. On the third try the file is purged and the message is sent to the user who sent the file. The line driver then prints the next file in the queue or waits for one to be enqueued.

Operator Action: None.

| Destination Keys: R

DMTxxx934E ID CARD MISSING ON LINK 'linkid' -- INPUT FILE PURGED

Explanation: A file has been entered at a remote station without an ID card specifying the destination.

| System Action: The input file is purged, and normal processing continues.

Operator Action: Place an ID card at the beginning of the input file deck, or correct errors in an existing ID card, and retry the file input operation. Consult operational procedures for the remote terminal and line driver in use to determine format requirements for the input file ID card.

| Destination Keys: 0

DMTSML935E LINK 'linkid' IN RJE MODE -- PRINT FILE 'spoolid' PURGED

Explanation: An attempt was made to transmit a print file on a link that was operating as a workstation submitting jobs to a remote batch system. When operating in this mode, print file cannot be transmitted.

System Action: The specified file is purged.

Operator Action: None.

| Destination Keys: R, V

DMTNPT936E NO REMOTE PUNCH AVAILABLE ON LINK 'linkid' -- FILE 'spoolid' PURGED

Explanation: An attempt was made to transmit a punch file to a remote terminal which was not equipped to produce punched output.

System Action: The specified file is purged.

Operator Action: None.

Destination Keys: R, V

DMTxxx937E DECOMPRESSION ERROR ON LINK 'linkid'

Explanation: In a multi-leaving line driver, DMTSML or DMTNJI, an SCB has been encountered in a record that, when expanded, causes the record to overflow the length of a 'tank' (an intermediate processing buffer). This error has occurred because of invalid input sent by the remote system, or because of errors on the transmission line.

System Action: The affected line driver is deactivated.

Operator Action: Retry. If the error recurs, notify local RSCS support personnel.

Destination Keys: R, 0

DMTPOW940E LINK 'linkid' IN POWER MODE - PRINT FILE 'spoolid' PURGED

Explanation: An attempt was made to transmit a print file on a link that was operating as a workstation submitting jobs to a remote VSE/POWER batch system. When operating in this mode, print files cannot be transmitted.

System Action: The specified file is purged.

Operator Action: None.

Destination Keys: R, V

DMTPOW941E LINK 'linkid' INVALID 'CMD' SPECIFICATION

Explanation: No command text was entered for the CMD command.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command.

Destination Keys: R, V

DMTPOW942E LINK 'linkid' POWER COMMAND SPECIFIED INVALID OR NOT SUPPORTED

Explanation: The VSE/POWER command specified is invalid or not supported.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command if it was incorrect.

Destination Keys: R, V

DMTPOW943E LINK 'linkid' POWER COMMAND OPERAND SPECIFIED INVALID OR NOT SUPPORTED

Explanation: A supported VSE/POWER command was recognized, but the subsequent operands specified were found invalid or not supported.

System Action: The command is ignored, and normal processing continues.

Operator Action: Retry the command.

Destination Keys: R, V

DMTPOW944I POWER COMMAND FROM 'linkid' IGNORED: (command text)

Explanation: The character string included in the message as command text has been received from the remote VSE/POWER location identified by 'linkid'.

System Action: Normal RSCS processing continues.

Operator Action: None.

Destination Keys: R, 0

DMTPOW945I LINK 'linkid' DEACTIVATION INITIATED BY POWER

Explanation: The link identified by 'linkid' was deactivated as a result of the execution of a PSTOP or PEND command in the VSE/POWER system.

System Action: The link's line driver task is deleted, all storage allocated to the task is made free, and the link table entry is updated. The link remains inactive until it is reactivated by a START command.

Operator Action: To reestablish connection, restart the link using the START command.

Destination Keys: R

DMTPOW946E INVALID POWER cpuid SPECIFIED -- LINK 'linkid' NOT ACTIVATED

Explanation: The global remote CPU identifier (cpuid) was not a value between 1 and 200.

System Action: The specified link is deactivated.

Operator Action: Reissue the START command specifying a valid CPUID parameter.

Destination Keys: R

DMTNCM950I INITIAL BSC BID SEQUENCE RECEIVED -- LINK 'linkid' BEING DEACTIVATED

Explanation: The BSC character sequence "SOHENQ" was received from the remote system on the link identified by 'linkid'. This sequence means that the other system is attempting to restart and new sign-on records must be exchanged. This message may be indicative that the remote system abnormally terminated and is now trying to reestablish communications.

System Action: The specified link is deactivated, and control is given to the restart exit for the link.

Operator Action: If a restart EXEC was defined for the link, the link will be restarted automatically. Otherwise, use the START command to restart the link if it is desired to resume file transmission.

Destination Keys: R

DMTxxx951I SIGN-OFF RECORD RECEIVED -- LINK 'linkid' BEING DEACTIVATED

Explanation: A sign-off record was received from the remote system on the link identified by 'linkid'. This message usually indicates that the remote system is deliberately stopping transmission because of operator request and not due to an error condition.

System Action: The specified link is deactivated.

Operator Action: No action is required. The START command may be used to restart the link. Since the remote system signed off, it must be restarted also if file transmission is to resume.

Destination Keys: R

DMTxxx952E BLOCK SEQUENCE ERROR ON LINK 'linkid' -- LINK BEING DEACTIVATED

Explanation: An error in sequencing data has occurred on the link identified by 'linkid'. If the message was issued by the DMTNJI line driver, the remote system has sent a "BCB Sequence Error" RCB. Some data may have been lost.

System Action: The specified link is deactivated, and control is given to the restart exit for the link. Files that were in the process of being transmitted to the remote system are closed and reenqueued for transmission. Files that were being received are closed and purged, since the remote system will resend them if the link is reconnected.

Operator Action: If a restart EXEC was defined for the link, the link will be restarted automatically. Otherwise, use the START command to restart the link if it is desired to resume file transmission. This message is usually the result of problems with the telecommunications line or telecommunications controllers. If the problem persists, notify local RSCS support personnel and support personnel at the remote system.

Destination Keys: R

DMTxxx953E TIMEOUT THRESHOLD REACHED ON LINK 'linkid' -- LINK BEING DEACTIVATED

Explanation: More than 40 consecutive timeouts have occurred on the BSC telecommunications line for the link identified by 'linkid'.

System Action: The specified link is deactivated, and control is given to the restart exit for the link.

Operator Action: If a restart EXEC was defined for the link, the link will be restarted automatically. Otherwise, use the START command to restart the link if it is desired to resume file transmission. This message is usually the result of problems with the telecommunications line or telecommunications controllers. It is also possible that the remote system has abnormally terminated and is no longer issuing I/O requests to the telecommunications controller. If the problem persists, notify local RSCS support personnel and support personnel at the remote system.

Destination Keys: R

DMTNCM954E FILE 'spoolid' REJECTED ON LINK 'linkid'

Explanation: The file identified by 'spoolid' could not be sent on the link identified by 'linkid' because the remote system would not accept it.

System Action: The file is closed and placed in a HOLD status so it will not automatically be sent again. In order to resend that particular file, the operator must change its status to NOHOLD.

Operator Action: There are several possible conditions which may cause this error to occur. If the indicated file contains unusually large records, it might be rejected because the remote system does not have sufficient storage to process it. It is also possible that a previous file has been flushed or otherwise abnormally terminated before transmission is complete and the remote system has not yet reinitialized its processing to accept a new file. If the same thing happens to each file sent, the link should be held by means of the HOLD command until the cause of the problem is determined. If only a single file is rejected, continue with normal file transmission for awhile and then CHANGE the rejected file's hold status to NOHOLD and allow the system to attempt to send it again. If the problem persists, notify local RSCS support personnel and support personnel at the remote system.

Destination Keys: R

DMTNCM955I FILE ('orgid') FLUSHED BY REMOTE SYSTEM ON LINK 'linkid'

Explanation: The remote system connected to the link identified by 'linkid' abnormally terminated the sending of the specified incoming file before sending an end-of-file. 'orgid' is the file's origin spool ID or job number at the remote system.

System Action: The incoming file is closed and purged. Normal link processing continues.

Operator Action: None.

Destination Keys: R

DMTNCM956E FILE ('orgid') ON LINK 'linkid' CANNOT BE PROCESSED -- FILE REJECTED

Explanation: The incoming file identified by 'orgid' (the file's origin spool ID or job number at the remote system) on the link identified by 'linkid' cannot be processed at this time due to a lack of resources on the local system. The file will be rejected by means of transmission protocol. This message might be produced when RSCS does not have enough unit record devices to handle the file or, if the file contains large records, there might not be enough storage to process it. This message can occur both before and after message DMTNCM144I which indicates that a new file is being received.

System Action: The link waits for the remote system to acknowledge its rejection of the file. Until the remote system acknowledges, no new incoming files can be received. After acknowledgement, normal file transmission is resumed.

Operator Action: If the problem persists, notify local RSCS support personnel.

Destination Keys: R

RSCS WAIT STATE CODES

When RSCS enters a wait state, the RSCS operator is notified via the CP message:

DMKDSP450W CP ENTERED; DISABLED WAIT PSW 'psw'

issued to the RSCS operator's console. The three rightmost hexadecimal characters of the PSW indicate the error condition.

001 Explanation: If no RSCS message was issued, a program check interrupt occurred during the execution of the program check handler. The probable cause is a programming error. If the RSCS message:

DMTrex091T INITIALIZATION FAILURE -- RSCS NETWORKING SHUTDOWN

was issued, RSCS operation was terminated because of an error in loading DMTAXS or DMTLAX. A dump of virtual storage is automatically taken. Verify that CMS files DMTAXS TEXT and DMTLAX TEXT are correctly written and resident on the RSCS system residence device. If the RSCS message:

DTMREX090T PROGRAM CHECK IN SUPERVISOR -- RSCS NETWORKING SHUTDOWN

was issued, the program check handler terminated RSCS due to a program check interrupt in other than a dispatched line driver. The probable cause is a programming error. The wait state code is loaded by DMTREX at RSCS termination or automatically during program check handling.

Operator Action: If neither of the above two messages was issued, use the VMDUMP command to dump the contents of virtual storage. IPL to restart. If the problem persists, notify local RSCS system support personnel.

- 007 Explanation: A program check interrupt occurred during initial processing, before the program check handler could be activated. This may be caused by a programming error or by an attempt to load RSCS into an incompatible virtual machine. The latter case can occur if the virtual machine has an incomplete instruction set, or does not have the required VM/370 Diagnose interface support. The wait state code is loaded automatically during the initial loading and execution of the RSCS supervisor, DMTINI, DMTREX, DMTAXS, and DMTLAX.

Operator Action: Verify that the RSCS virtual machine configuration was correctly specified and that the "retrieve subsequent file description" function of DIAGNOSE code X'14' is supported. If the problem persists, dump RSCS by using the CP command:

DUMP 0-

If you have the IPCS program product, dump RSCS by using the CP command:

VMDUMP 0:END FORMAT RSCSNET TO 'userid'

where 'userid' is the userid of the virtual machine designated to receive RSCS dumps. Submit the resulting dump to the local RSCS support personnel.

- 011 Explanation: An unrecoverable error occurred while reading the RSCS nucleus from DASD storage. This may be caused by a DASD hardware malfunction. It may result from (1) an incorrect virtual DASD device definition, (2) an attempt to use a system residence device unsupported by RSCS, (3) incorrect RSCS system generation procedures, or (4) the subsequent overwriting of the RSCS nucleus on the system residence device. The wait state code is loaded by DMTINI after an attempt, successful or not, to issue the message:

DMTINI402I IPL DEVICE READ I/O ERROR

Operator Action: Verify that the RSCS system residence device was properly defined as a virtual DASD device and that the real DASD device is mounted and operable. If the problem persists, dump RSCS using the CP command:

DUMP 0-

If you have the IPCS program product, dump RSCS using the CP command:

VMDUMP 0:END FORMAT RSCSNET TO 'userid'

where 'userid' is the userid of the virtual machine designated to receive RSCS dumps. Submit the resulting dump to the local RSCS support personnel.

The RSCS system residence device may have to be restarted or RSCS may have to be regenerated.

- 012 Explanation: The RSCS nucleus was successfully written to the RSCS system disk. This wait state code occurs at the end of RSCS system generation following the message:

DMTINI410I NUCLEUS WRITE COMPLETE

Operator Action: Test the newly loaded RSCS system by IPLing from the disk that contains the new nucleus.

APPENDIX C: RSCS NETWORKING USER EXITS

The CP spool interface routine, the AXS task, consists of two CSECTs, DMTAXM and DMTAXA. DMTAXA contains entry points to several routines, specifically designed for user exits, that are all called from DMTAXM. DMTAXA also contains code that creates VM/370 account records.

The routines contained in DMTAXA are:

DMTAXAAC entered when a file is accepted and enqueued for transmission.

DMTAXASE entered when all copies of a file have been successfully sent.

DMTAXAPU entered when a file is deleted as a result of the PURGE command.

DMTAXARE entered when a file has been received and written to the VM/370 spool system for real unit record processing, for delivery to a local virtual machine userid, or for forwarding on the network (as determined by the file's destination address).

DMTAXATA entered when a file is ready to be enqueued with the priority value (TAGPRIOR) in the TAG.

When entering the above routines, the register contents are as follows:

Register 2 = address of TAG slot for file
Register 14 = return address
Register 15 = entry point address

The TAG dsect contains the following information (the fields that can be altered are marked "x"):

TAGINLOC	*	originating location
TAGLINK		next location for transmission
TAGINTOD	*	time of file origin
TAGINVM	*	originating virtual machine
TAGRECNM		number of records in file
TAGRECLN		maximum file data record length
TAGINDEV		device type of originating device
TAGCLASS	*	file output class
TAGID		VM/370 current spool file id
TAGCOPY	*	number of copies requested
TAGFLAG		VM/370 SFBLOCK control flags
TAGFLAG2		VM/370 SFBLOCK control flags
TAGORGID	*	VM/370 spool id at origin locid
TAGNAME	*	file name
TAGTYPE	*	file type
TAGDIST	*	file distribution code
TAGTOLOC	*	destination location id
TAGTOVM	*	destination virtual machine id
TAGPRIOR	*	transmission priority
TAGDEV		active file's virtual device address
TAGCNTRL		network control record format
TAGRECLT		number of records left in file
TAGSPARE		spare fullword
TAGFORMN	*	user's form name
TAGFLSHN	*	3800 flash name
TAGMODN	*	3800 copy modification module name
TAGCHARN	*	3800 character arrangement table name 0
TAGFCBN	*	3800 fcb name
TAGFLC	*	3800 flash count
TAGFLAG3	*	3800 flag byte
TAGRESV		reserved
TAGCHAR1	*	3800 character arrangement table name 1
TAGCHAR2	*	3800 character arrangement table name 2
TAGCHAR3	*	3800 character arrangement table name 3
TAGMODTR	*	3800 modification TRC
TAGFLAG4		VM/370 SFBLOCK flag
TAGPGLEN		3800 page length
TAGRESV2		reserved
TAGFORMO	*	operator's form name

For a detailed layout of the TAG DSECT, refer to RSCS Networking Logic.

The following example shows the code at a typical user exit in DMTAXA:

```
DMTAXATA EQU      *
          USING    DMTAXATA,R15      GET TEMP ADDRESSABILITY
          STM      R0,R15,AXASAVE     SAVE REGISTERS
          DROP     R15
          USING    DMTAXATA,R12      GET RIGHT ADDRESSABILITY
          LR       R12,R15           AND UPDATE R12
          ...      (insert user code here)
          ...
          LM       R0,R15,AXASAVE     RESTORE REGISTERS
          BR       R14               RETURN TO CALLER
```

Below is a fuller description of the current function (if any) of each of the entry points and of the sort of additional use to which they may be put.

DMTAXAAC: This routine is entered whenever a file has been received from the CP spool system for transmission (which includes all files being store-and-forwarded). On return to DMTAXM, the file is accepted only if a zero value is returned in register 15; otherwise, it is rejected. The current code clears register 15 and returns immediately. If the file is selected to be rejected (a non-zero value in register 15), message DMTAXM112E FILE 'spoolid' ('orgid') REJECTED BY RSCS ACCOUNTING EXIT is sent to the originator. If the originator is a local VM/370 user, the file is transferred to that user's virtual reader. Files that do not originate on the local VM/370 system are purged. Additional code could be added here to determine whether a file should be transmitted based upon any suitable criteria (e.g. maximum record count, unauthorized or authorized users, etc.).

DMTAXASE: This routine is entered when all copies of a file have been successfully transmitted on a link. Only if the file originated on the local VM/370 system is an account record produced (via Diagnose X'4C'). The standard account record contains the following information:

- The local RSCS userid
- The originating userid
- The date and time of accounting record creation
- The origin spool file id
- The local spool file id
- The originating location id
- The destination location id
- The spool file class
- The originating device type
- The record count for the file
- The local system id
- An account code (X'01' for SEND)

The routine can be modified to record different information if required by adding the necessary code and changing the account record layout which is defined at label ACNTBUFF.

For a detailed layout of the accounting record, refer to RSCS Networking Logic.

DMTAXAPU: This routine is entered after a file has been deleted by the PURGE command. Currently it performs an immediate return, but code can be added to create an account record containing information about the deleted file or perform any other suitable function.

DMTAXARE: This routine is entered whenever a file has been received over the network and written to the VM/370 spool system. It currently creates an account record of identical format to that created on file receipt (except that the

account code is X'02'). The routine can be modified to record different information or perform any suitable function at file arrival time.

DMTAXATA: This routine is entered when a file TAG is ready to be enqueued with the priority value contained in TAGPRIOR. Currently no function is performed in this routine, but code could be added to ensure that the priority option is not misused (e.g. priority 1 for a 20,000 record file), or an automatic priority scheme can be implemented by having this exit set a priority value based on some information in the tag, such as the record count, the originating userid, location ID, etc.

Refer to subsection "UPDATING RSCS" in section "Installing RSCS" in this manual for information on rebuilding the AXS task after making any modifications to DMTAXA.

APPENDIX D: REMOTE TERMINALS AND STATIONS

This appendix contains general operational information for remote nonprogrammable terminals, which are supported by the NPT line driver, and for remote programmable MULTI-LEAVING stations, which are supported by the SML line driver operating in HOST mode under RSCS. These remote stations and terminals are listed in Figure 1-2, on page 1-4.

Information is also provided on the use of the RSCS virtual machine as a Remote Job Entry workstation that is communicating with a JES2/HASP-type batch processor.

Operational information for the RSCS-supported remote terminals and stations can be obtained from the publications pertaining to the particular devices in use at your installation. For detailed information, refer to the latest editions of those publications, which can be obtained through your local IBM representative.

NONPROGRAMMABLE REMOTE TERMINALS

OPERATIONAL NOTES FOR REMOTE TERMINALS

Establishing the connection with RSCS is the same for all nonprogrammable terminals and is covered in "Part 3: RSCS Operation" under "Starting NPT" and "Signing on to NPT".

ENTERING COMMANDS

The remote terminal operator submits commands to RSCS through:

- the console, or
- the remote card reader in the same manner as he enters card files.

The card-entered commands are punched, one per card, starting in column 1. One or more commands may be submitted at any one time. Commands are accepted only before the ID card of an input card deck or after an input card deck has been completely processed (end-of-file generated).

TERMINATING A SESSION

To terminate a session, the remote terminal operator issues the DRAIN command. The link is deactivated after the file currently being processed is completed, or after a /XSIGNOFF card is read.

Error Recovery for a Line Drop

If for any reason a line drop occurs, all activity at the remote terminal halts. If the terminal was receiving, the printer or punch stops. If the terminal was transmitting, the reader stops and RSCS closes the partially transmitted file.

To restart, you must redial the line and reenter your SIGNON card. When the SIGNON card is accepted by RSCS, normal line activity resumes. If receiving, activity restarts from the point of interruption. If transmitting, you can either restart from the file that was interrupted or you can send the rest of the data as a separate file.

If some other user dials in on the disconnected line before you do and submits his own SIGNON card, RSCS recognizes the new linkid as being different from the one in effect when the line dropped. The new user is terminated and the link is deactivated. If your terminal was receiving, the printer or punch file is placed at the end of the queue for your link and is put into HOLD status.

To restart under these circumstances, you must first have the RSCS operator reactivate your link via the START command. You can then redial the line and resubmit your SIGNON card. When the SIGNON card is accepted, line activity resumes. Transmission can be either continued or restarted. Printer or punch output resumes with the file following the one that was active when the line dropped. To process the interrupted file, you must change its status from HOLD to NOHOLD via the CHANGE command.

PROGRAMMABLE (SPOOL MULTI-LEAVING) REMOTE STATIONS

JES2/RTP REMOTE TERMINAL PROCESSOR PROGRAMS

Special programs for the IBM programmable remote stations allow them to operate as remote workstations for MULTI-LEAVING operating systems such as JES2 and ASP. The programs' names are RTPxxx or RMTxxx, where "xxx" depends on the particular remote station being controlled. For this discussion, we will refer to these programs collectively as "RTP". For details on generating the appropriate workstation program, see the publication MVS/System Product Release 2 Installation, Initialization, and Tuning: JES2 Component, listed in the preface. An IBM system under control of this program and communicating with RSCS can be viewed as a logical extension of the VM/SP spool system. RTP performs input, output, and communication functions.

RTP can read, print, and punch data concurrently, depending on the options selected by the installation and the capabilities of the unit record devices.

Because of the use of blocking and character compression to minimize line transmission time, the speed at which the various unit record devices operate is dependent on the data being transmitted and the number of concurrent functions.

Input Functions

RTP provides the following input functions at the remote station:

- Reads from the attached card reader(s)
- Recognizes operator requests, and reads from the attached console
- Identifies, compresses, and blocks card images and commands for transmission to RSCS
- Queues blocked records for transmission to RSCS.

Output Functions

RTP provides the following output functions at the remote station:

- Dequeues blocked records received from RSCS
- Identifies the device required for output of the records
- Deblocks and decompresses output records, queueing the images for printing, punching, or typing
- Prints, punches, and types the output records, as required
- Sets status flags, indicating backlog conditions on the output devices.

Communication Functions

RTP provides the following communication functions at the remote station:

- Establishes and maintains synchronization with RSCS
- Dequeues blocked input requests and transmits them to RSCS (upon request from RSCS)
- Provides backlog status flags, indicating the station's ability to receive the various output streams from RSCS
- Receives output from RSCS and queues the blocked records for processing.

OPERATIONAL NOTES FOR REMOTE STATIONS

The following sections provide information for initiating and operating the RTP program during the remote job stream processing session.

Initiating a Session

The initiation of a remote job stream processing session involves initial program loading of the RTP program deck, establishment of the communication

lines, and exchange of initial control information between RSCS and the RTP program. The initial control sequence ends with the passing of the sign-on information from the remote station.

Terminating a Session

To terminate remote processing, the remote station operator should enter a DRAIN command or a /*SIGNOFF card, which prevents RSCS from initiating any more remote output and releases the communication line when the current print and punch streams are finished. The operator should determine whether printing and punching of output streams have successfully terminated and should press STOP on the CPU. To start a new session, the operator must perform the steps described previously, starting with the Initial Program Load of RTP.

RSCS AS A REMOTE JOB ENTRY STATION

The RSCS virtual machine, through an SML line driver operating in RJE mode, can act as a MULTI-LEAVING workstation. In this capacity, RSCS accepts job files that are either spooled to it by VM/370 virtual machines or received from other nodes in the network. It then transmits the job files, via the SML line driver, to the remote batch system for processing. Output received from the remote system is sent to the real printer or punch of the directly connected VM/370 system.

CONFIGURATION SPECIFICATIONS

Any of the System/370 Models 135 or above, a 30xx, or 4300, with at least 512K of processor storage and equipped with a transmission control unit that is supported by RSCS, can be used as a remote job entry station to access a remote batch processor. The supported transmission control units are:

- Integrated Communications Adapter with Synchronous Data Adapter Type II
- IBM 2701 Data Adapter Unit with Synchronous Data Adapter Type II
- IBM 2703 Transmission Control Unit with Synchronous Terminal Control
- IBM 3704 Communications Controller in emulation mode only
- IBM 3705 Communications Controller in emulation mode only.

SML AS THE REMOTE TERMINAL PROCESSOR (RTP) PROGRAM

For a system or device to function as a MULTI-LEAVING workstation, a Remote Terminal Processor (RTP) program must be loaded to provide the software functions of input, output, and communication according to the protocol established by the host batch processor. An SML line driver task, operating in RJE mode, provides these functions for RSCS when it is to act as a workstation for a remote batch system.

Input Functions

The SML line driver, operating in RJE mode, provides the following input functions at the RSCS virtual machine:

- Accesses job files received by RSCS from VM/370 virtual machines or remote stations (either workstations or remote NJI/NJE systems)
- Accepts batch system commands entered at the RSCS operator's console (RJE mode only)
- Compresses and blocks card images and commands into transmission records according to the protocol requirements of the batch system
- Transmits the blocked records to the remote batch system.

Output Functions

The SML line driver, operating in RJE mode, provides the following output functions at the RSCS virtual machine:

- Deblocks and decompresses transmission records received from the remote system
- Identifies the device required for output
- Spools the output to the real printer and/or punch, as well as to the virtual machine specified in the output, for RJE mode
- Directs messages from the remote batch system to the RSCS operator's console.

OPERATING PROCEDURES

Starting the SML Line Driver

After the RSCS virtual machine is logged on and RSCS is loaded, the RSCS operator can start the SML line driver.

Issue the START command for the link to the remote batch system.

If the link attributes in the link table are appropriate for this session, the START command can be issued as:

START	linkid	Parm	<table border="1"><tr><td>Hrn</td></tr><tr><td>Rrn</td></tr><tr><td>Arn</td></tr></table>	Hrn	Rrn	Arn	>	[Bnnnn]	[password]
Hrn									
Rrn									
Arn									

A description of the START command operands, including those that override previous definitions, is in the section "Starting an SML Line Driver (DMTSML)", "Part 3: RSCS Operation".

The Hrnn, Rrnn, and Arnn operands specify the type of remote batch system (HASP, RES, or ASP) and the workstation number or name that was assigned to RSCS when the remote system was generated.

For HASP (or JES2), rn is a number from 1 through 99; the entry could look like: H3, H20, or H43.

For RES, rn is also a number from 1 through 99; the entry could look like: R2, R50, or R77.

For ASP (or JES3), rn is a five-character alphanumeric name; the entry could look like: ANEWYK, ABURL5, APOK16, or A62121.

Successful execution of the START command results in the message:

DMTSML141I LINE 'vaddr' READY FOR CONNECTION TO LINK 'linkid'

Establishing a Communication Line

If the line identified by vaddr in the previous message is a nonswitched line, the line connection is automatically completed. If the line is a switched line, the operator should activate the dataset and hang up immediately. In either case, the following message is issued:

DMTPOW142I LINK 'linkid' LINE 'vaddr' DATASET READY

When requested by the remote system, the SML line driver begins the initial control sequence. When the initial sequence is complete, the sign-on procedure is performed.

Signing On to the Remote System

In RJE mode the SML line driver builds a sign-on (or log-on) record from information in the RSCS START command. This record is then sent to the remote system for validation. When accepted, the SML line driver "handshakes" with the remote system until processing of job streams and output data actually begins.

APPENDIX E: VSE/POWER REMOTE SYSTEM CONNECTION

The RSCS virtual machine, through the POW line driver, provides a connection to a remote DOS/VSE batch system that is running version 1 of VSE/POWER, by using the POWER MULTI-LEAVING line protocol. In this capacity, RSCS accepts job files that are either spooled to it by VM/370 virtual machines or received from other nodes in the network. It then transmits the job files, via the POW line driver, to the remote batch system for processing. Output received from the remote system is sent to the real printer or punch of the directly connected VM/370 system.

GENERATING VERSION 1 OF VSE/POWER FOR THE RSCS CONNECTION

The following is an example of DOS/VSE JCL that generates and catalogs a basic VSE/POWER (version 1) system for connection to an RSCS system. Refer to the VSE/POWER Installation and Operations Guide, SH12-5329, for details of the VSE/POWER generation procedure.

Sample Job:

```
// JOB POWGEN
// OPTION CATAL
// EXEC ASSEMBLY
    POWER CPUID=2           (see note 1)
    PLINE ADDR=X'028',POW2=YES (see note 2)
    PRMT TYPE=POWER,REMOTE=1 (see note 3)
    END
/*
// EXEC LNKEDT
/*
/ &
```

Notes:

1. Specifies 2 as the remote CPUID of the VSE/POWER system.
2. POW2=YES is required for connection to RSCS on the line specified by ADDR=.
3. Specifies 1 as the remote CPUID of the RSCS system. This corresponds to the Cnnn parameter of the RSCS START command for DMTPOW.

CONFIGURATION SPECIFICATIONS

The following transmission control units are supported for the connection between processors running VM/370 with RSCS and DOS/VSE with VSE/POWER, version 1:

- IBM 2701 Data Adapter Unit with Synchronous Data Adapter Type II
- IBM 2703 Transmission Control Unit with Synchronous Terminal Control
- IBM 3704 Communications Controller in emulation mode only
- IBM 3705 Communications Controller in emulation mode only.

INPUT FUNCTIONS

The POW line driver provides the following input functions at the RSCS virtual machine:

- Accesses job files received by RSCS from local virtual machine users or remote nodes in the network.
- Compresses and blocks card images, messages, and commands into transmission records according to the protocol requirements of the batch system.
- Transmits the blocked records to the remote batch system.

OUTPUT FUNCTIONS

The POW line driver provides the following output functions at the RSCS virtual machine:

- Deblocks and decompresses transmission records received from the remote VSE/POWER system.
- Identifies the output requirements (for example, device type, output class, number of copies).
- Spools the output to the real printer and/or punch.
- Directs messages from the remote batch system to the RSCS operator's console.

OPERATING PROCEDURES

To establish the connection to the VSE/POWER version 1 system, the RSCS operator must:

- Establish the connection by issuing the START command to initiate the signon procedure.
- Provide for return of job output from the VSE/POWER system by issuing the CMD command to cause activation of VSE/POWER writer tasks.

Having established the connection, the RSCS operator interacts with the line driver via existing RSCS operator commands.

STARTING THE POW LINE DRIVER

After the RSCS virtual machine is logged on and RSCS is loaded, the RSCS operator can start the POW line driver.

Issue the START command for the link to the remote batch system.

If the link attributes in the link table are appropriate for this session, the START command can be issued as:

START linkid [Parm [Cnnn] [/password]]
--

A description of the START command operands, including those that override previous definitions, is in the section "Starting a POW Line Driver (DMTPOW)", starting on page 3-16.

Successful execution of the START command results in the message:

DMTPOW141I LINE 'vaddr' READY FOR CONNECTION TO LINK 'linkid'

ESTABLISHING A COMMUNICATION LINE

If the line identified by vaddr in the previous message is a nonswitched line, the line connection is automatically completed. If the line is a switched line, the operator should activate the dataset and hang up immediately. In either case, the following message is issued:

DMTPOW142I LINK 'linkid' LINE 'vaddr' DATASET READY

The POW line driver then begins the initial control sequence. When the initial sequence is complete, the sign-on procedure is performed.

SIGNON PROCEDURE FOR THE REMOTE VSE/POWER (VERSION 1) SYSTEM

The POW line driver internally interacts with the VSE/POWER, version 1, system to perform the sign-on procedure. When completed, the following message is issued:

DMTPOW905I SIGNON OF LINK 'linkid' COMPLETE

The POW line driver then "handshakes" with the remote system until processing of job streams and output data actually begins.

RETURN OF JOB OUTPUT TO RSCS

Since version 1 of VSE/POWER does not provide for the unsolicited return of job output, the RSCS operator must request transmission of listings and punched output from the DOS/VSE system. In order to accomplish this, a START command for the appropriate POWER output tasks must be issued.

After message DMTPOW905I (SIGNON COMPLETE) has been issued, the RSCS operator can start the LST or PUN output tasks with the CMD command. The RSCS operator can stop the transmission of output from version 1 of VSE/POWER and/or change the output class by using the POWER START and/or STOP commands.

The CMD command (for linkid POWER) is issued as follows:

CMD POWER	[START]	LST	[,class(es)]
		S			
		STOP			
		P			

where:

- START or S initiate a writer task in the VSE/POWER, version 1, system for list or punch output.
- STOP or P terminates an active writer task in the VSE/POWER version 1 system.
- LST specifies a writer task for printed output.
- PUN specifies a writer task for punched output.
- class(es) is an optional parameter for specifying up to four output classes for list or punch output. Classes may be specified as A-Z. If omitted, the default is class A.

Note: These correspond to the classes supported at the local VM/370 system.

TERMINATION OF THE VSE/POWER (VERSION 1) CONNECTION

To terminate the connection to the remote VSE/POWER system, the RSCS operator issues the DRAIN or SHUTDOWN command for the link. This causes the POW line driver to send an internal command to the VSE/POWER system to stop its RJE input task. The POW line driver then deactivates itself.

If the DOS/VSE system operator stops the RJE task on the VSE/POWER system, or issues a PEND to terminate VSE/POWER, an internal command is sent to the POW line driver causing the following message to be issued:

DMTPOW945I LINK 'linkid' DEACTIVATION INITIATED BY POWER

The POW line driver is then deactivated.

APPENDIX F: BASE TAPE CONTENTS

The following describes the contents of the RSCS Base Tape. The contents of the service tapes vary depending upon service activity. Therefore, you should refer to the user memo on the service tape (the second file) for current information.

1. Base Tape Loading EXEC

FILENAME	FILETYPE	FUNCTION
RSCSBASE	EXEC	Load other files from the tape
RSCSSAMP	DIRECT	Sample RSCS Directory
PROFILE	RSCSSAMP	Sample RSCS Profile
RSCSCP	DIRECT	Sample CP directory for RSCS virtual machine
RSCSLR	EXEC	Exec to clean up 191 MAINT

2. Required Data

FILENAME	FILETYPE	FUNCTION
DMTLOAD	EXEC	Loadlist for RSCS Nucleus
LDT	DMTINIW	Indicates Where to Start Loading
RSCS	CNTRL	Control File for use with VMFASM or VMFLOAD
DMTAK	TEXT	Task Communication - Take Module
DMTASK	TEXT	Task Supervision - Create & Delete
DMTASY	TEXT	Task Supervision - Task Asych. Exits
DMTAXA	TEXT	Accounting
DMTAXM	TEXT	CP SPOOL Interface Module
DMTAXS	TEXT	Preloaded Spooling Task Manager
DMTCMX	TEXT	Commands - Routing
DMTCMY	TEXT	Commands - Routing (Part 2)
DMTCOM	TEXT	Routines - Reent.: GETPAGE, FREEPAGE, GETLINK
DMTCRE	TEXT	Task Supervision - Create New Tasks
DMTCVT	TEXT	List of pointers to reentrant service routines
DMTDSP	TEXT	Dispatcher
DMTEXT	TEXT	Interrupt Handler - Exteranl
DMTGIV	TEXT	Task Communication - Give Module
DMTINI	TEXT	Initialization
DMTIOM	TEXT	I/O & I/O Interrupt Handler
DMTIRX	TEXT	Initialization - Non-MSUP, Transient
DMTLAX	TEXT	Line Allocation Task
DMTLOG	TEXT	Standardized log processing
DMTMGX	TEXT	Message Processing
DMTMIN	TEXT	Initialization - MSUP
DMTMSG	TEXT	Messages - No Code
DMTNCM	TEXT	Line Driver - NJE/NJI on BSC or CTC
DMTNHD	TEXT	Network Routines - Commands, MSGS, Header Rtns
DMTNIT	TEXT	Line Driver Init. - For DMTNJI
DMTNJI	TEXT	Preloaded NJI Line Driver
DMTNPT	TEXT	Line Driver - 2770, 2780, 3770, AND 3780
DMTPOW	TEXT	Line Driver - MLI to VSE/POWER
DMTPST	TEXT	Task Supervision - Post Routine
DMTQRQ	TEXT	MSUP Status Queue Manager
DMTRDR	TEXT	Read input spool file
DMTRES	TEXT	REX Supervisor Task-PC'S, Lock Mgr, Timer, ROUTE
DMTRGX	TEXT	Commands - CMD & MSG Routing Processor
DMTRPT	TEXT	Line Driver - 3270 Information Display
		System Printers
DMTSIG	TEXT	Task Communication - Task Alert Exit
DMTSM	TEXT	Line Driver - RJE Work Sta. With MULTI-LEAVING
DMTSTO	TEXT	Storage Mgt - Reserves Pages of Free Storage
DMTSVC	TEXT	Interrupt Handler - SVC
DMTURO	TEXT	Builds chained CCW sequences and schedules I/O
DMTVEC	TEXT	Low Storage Def. from X'200'

2. Required Data (Continued)

FILENAME	FILETYPE	FUNCTION
DMTVMB	TEXT	Line Driver - BSC CP SPOOL File Transmission
DMTVMC	TEXT	Line Driver - CTC CP SPOOL File Transmission
DMTWAT	TEXT	Task Supervision - Wait Module
DMTZDS	TEXT	Provide IPCS command functions for the RSCS dumps created via VMDUMP.
DMTZEX	TEXT	RSCS extraction process for IPCS.
DMTZIO	TEXT	IOQUE subcommand of IPCS' DUMPSCAN.
DMTZLI	TEXT	LINKS subcommand of IPCS' DUMPSCAN.
DMTZMP	TEXT	Compresses RSCS' nucleus load map into IPCS' required format.
DMTZRO	TEXT	ROUTES subcommand of IPCS' DUMPSCAN.
DMTZSV	TEXT	SVECTOR subcommand of IPCS' DUMPSCAN.
DMTZTG	TEXT	TAGQUE subcommand of IPCS' DUMPSCAN.
DMTZTS	TEXT	TASKQUE subcommand of IPCS' DUMPSCAN.
HELP	RSCSNET	Help-file for IPCS subcommands

3. Tools for Servicing RSCS

FILENAME	FILETYPE	FUNCTION
DMTMAC	EXEC	Loadlist to build DMTMAC MACLIB
DMTAXS	EXEC	Loadlist to preload DMTAXS TEXT
DMTNJI	EXEC	Loadlist to preload DMTNJI TEXT

4. RSCS Module Source Code

FILENAME	FILETYPE	FUNCTION
DMTAK	ASSEMBLE	Task Communication - Take Module
DMTAS	ASSEMBLE	Task Supervision - Create & Delete
DMTAX	ASSEMBLE	Task Supervision - Task Asych. Exits
DMTAXM	ASSEMBLE	Accounting
DMTCMX	ASSEMBLE	CP SPOOL Interface Module
DMTCMY	ASSEMBLE	Commands - Routing
DMTCOM	ASSEMBLE	Commands - Routing (Part 2)
DMTCRE	ASSEMBLE	Routines - Reent.: GETPAGE, FREEPAGE, GETLINK
DMTCVT	ASSEMBLE	Task Supervision - Create New Tasks
DMTDSP	ASSEMBLE	List of pointers to reentrant service routines
DMTEXT	ASSEMBLE	Dispatcher
DMTGIV	ASSEMBLE	Interrupt Handler - Exteranl
DMTINI	ASSEMBLE	Task Communication - Give Module
DMTIOM	ASSEMBLE	Initialization
DMTIRX	ASSEMBLE	IOS & IO Interrupt Handler
DMTLAX	ASSEMBLE	Initialization - Non-MSUP, Transient
DMTLOG	ASSEMBLE	Line Allocation Task
DMTMGX	ASSEMBLE	Standardized log output
DMTMIN	ASSEMBLE	Message Processing
DMTMSG	ASSEMBLE	Initialization - MSUP
DMTNCM	ASSEMBLE	Messages - No Code
DMTNHD	ASSEMBLE	Line Driver - NJE/NJI on BSC or CTC
DMTNIT	ASSEMBLE	Network Routines - Commands, MSGS, Header Rtns
DMTNPT	ASSEMBLE	Line Driver Init. - For DMTNJI
DMTPOW	ASSEMBLE	Line Driver - 2770, 2780, 3770, AND 3780
DMTPST	ASSEMBLE	Line Driver - MLI to VSE/POWER
DMTQRQ	ASSEMBLE	Task Supervision - Post Routine
DMTRDR	ASSEMBLE	MSUP Status Queue Manager
DMTRET	ASSEMBLE	Read input spool file
DMTRGX	ASSEMBLE	REX Supervisor Task
DMTRPT	ASSEMBLE	Commands - CMD & MSG Routing Processor
		Line Driver - 3270 Information Display
		System Printers
DMTSIG	ASSEMBLE	Task Communication - Task Alert Exit
DMTSML	ASSEMBLE	Line Driver - RJE Work Sta. With MULTI-LEAVING
DMTSTO	ASSEMBLE	Storage Mgt - Reserves Pages of Free Storage
DMTSVC	ASSEMBLE	Interrupt Handler - SVC
DMTURO	ASSEMBLE	Builds chained CCW sequences and schedules I/O
DMTVEC	ASSEMBLE	Low Storage Def. from X'200'
DMTVMB	ASSEMBLE	Line Driver - BSC CP SPOOL File Transmission
DMTVMC	ASSEMBLE	Line Driver - CTC CP SPOOL File Transmission
DMTWAT	ASSEMBLE	Task Supervision - Wait Module

4. RSCS Module Source Code (continued)

FILENAME	FILETYPE	FUNCTION
DMTZDS	ASSEMBLE	Provide IPCS command functions for the RSCS dumps created via VMDUMP.
DMTZEX	ASSEMBLE	RSCS extraction process for IPCS.
DMTZIO	ASSEMBLE	IOQUE subcommand of IPCS' DUMPSCAN.
DMTZLI	ASSEMBLE	LINKS subcommand of IPCS' DUMPSCAN.
DMTZMP	ASSEMBLE	Compresses RSCS' nucleus load map into IPCS' required format.
DMTZRO	ASSEMBLE	ROUTES subcommand of IPCS' DUMPSCAN.
DMTZSV	ASSEMBLE	SVECTOR subcommand of IPCS' DUMPSCAN.
DMTZTG	ASSEMBLE	TAGQUE subcommand of IPCS' DUMPSCAN.
DMTZTS	ASSEMBLE	TASKQUE subcommand of IPCS' DUMPSCAN.

5. RSCS Macro Library

FILENAME	FILETYPE	FUNCTION
DMTMAC	MACLIB	RSCS Macro Library

6. RSCS Macro and Copy Source Code

FILENAME	FILETYPE	FUNCTION
\$NCC	MACRO	Network Connection Control Record
\$NHD	MACRO	Network Job and Data set Header Records
\$NMR	MACRO	Network Message Record
FREESTOR	MACRO	Frees Storage
FREEZE	MACRO	Stops Tasks and Saves Status
GETSTOR	MACRO	Gets Storage
LOG	MACRO	Sets up parameter list for DMTLOG
MLX1REC	MACRO	VSE/POWER MLX1 Format
MLX2REC	MACRO	VSE/POWER MLX2 Format
MLX3REC	MACRO	VSE/POWER MLX3 Format
RDR	MACRO	Sets up parameter list and calls DMTRDR
RSCSDIAG	MACRO	Diagnose Interface to VM/370
RSCSM5G	MACRO	Generates RSCS Messages
RSCSRLOC	MACRO	Sets up entry point addressability
SETCC	MACRO	Sets specified condition code
TRTAB	MACRO	Creates Translate Tables
URO	MACRO	Sets up parameter list and calls DMTURO
ASYN	COPY	Asynch Interrupt Request Element
AUTHBLOC	COPY	Authorization Table Entry
A2ALERT	COPY	Format A2 Alert Element
BQELM	COPY	Message and Command Queue Element
BUFF	COPY	Telecommunications Buffer
CMSACCES	COPY	CMS Read Access Method Table
RSCSDTYP	COPY	VM/SP Device Type Equates
FREEE	COPY	Free Queue Element
GIVEE	COPY	Give Request Element
IOE	COPY	I/O Element
IOTABLE	COPY	I/O Table
LINKTABL	COPY	Link Table Entry
L3ALERT	COPY	Format L3 Alert Element
NJEEQU	COPY	NJI Line Driver Equates
RCMELM	COPY	Message and Command Routing Element
ROUTE	COPY	Routing Table Entry
RSSEQU	COPY	RSCS and CP Equate Symbols
RSCSPOOL	COPY	VM/SP SFBLOK and SPLINK
SVECTORS	COPY	Low Core Definitions
TAG	COPY	TAG
TANK	COPY	Unit Record Tank
TAREA	COPY	Task Save Area
TASKE	COPY	Task Element
TCT	COPY	Task Control Table

APPENDIX G: ABBREVIATIONS

Abbreviations used in this manual are:

ASP	Asymmetric Multiprocessing System
BSC	Binary Synchronous Communication
BSCA	Binary Synchronous Communication Adapter
CMS	Conversational Monitor System
CP	Control Program (in VM/370 and VM/SP)
CPU	Central Processing Unit
CR	Carriage Return
CSW	Channel Status Word
CTCA	Channel-to-Channel Adapter
DASD	Direct Access Storage Device
EBCDIC	Extended Binary-Coded Decimal Interchange Code
HASP	Houston Automatic Spooling System
I/O	Input/Output
IPL	Initial Program Load
JCL	Job Control Language
JECL	Job Entry Control Language
JES	Job Entry Subsystem
MLI	Multi-Leaving Interface of VSE/POWER, Version 1
MVS	Multiple Virtual Storage
MVS/SP	Multiple Virtual Storage System Product
NJE	Network Job Entry
NJI	Network Job Interface
NL	New Line
OS	Operating System
OS/VS1	Operating System/Virtual Storage 1
OS/VS2	Operating System/Virtual Storage 2
PUT	Program Update Tape
PLC	Program Level Change
PRPQ	Programming Request for Price Quotation
RES	Remote Entry Services
RJE	Remote Job Entry
RSCS	Remote Spooling Communications Subsystem
RTP	Remote Terminal Processor
SIO	Start Input/Output
VM/SP	Virtual Machine/System Product
VFC	Vertical Forms Control
VSE	Virtual Storage Extended
VSE/POWER	Virtual Storage Extended/Priority Output Writers, Execution Processors, and Input Readers

APPENDIX H: RSCS SUPPLEMENT FOR VM/XA MIGRATION AID USERS

This appendix is intended only for VM/XA Migration Aid users of RSCS. It describes restrictions that apply to them, and describes publications that can help a user of the VM/XA Migration Aid install and operate RSCS.

Note:

The RSCS Release 3 capabilities provided to VM/XA Migration Aid users are not the same as the capabilities provided to VM/SP users. VM/XA Migration Aid users of RSCS should read this appendix before attempting to use RSCS.

INTRODUCTION

A VM/XA Migration Aid installation can use the Remote Spooling Communication Subsystem (RSCS) Networking Release 3 Program Product (Program Number 5748-XP1) to:

- Enable users to transmit dumps and other files to remote systems (for example, remote systems that have high speed printers).
- Enable users to receive files from users working on other systems at remote locations.

The VM/XA Migration Aid, however, does not support all RSCS functions. A VM/XA Migration Aid installation cannot, for example, use RSCS to provide FORMS support or to send messages and commands to other systems.

Also note that the VM/XA Migration Aid should not be used as an intermediary node in an RSCS store-and-forward network. This is because the VM/XA Migration Aid ignores such file attribute data as FORMS and 3800 characteristics. When the VM/XA Migration Aid prints files that previously contained FORMS or 3800 characteristics, the FORMS and 3800 characteristics are ignored. When the VM/XA Migration Aid forwards to other VM systems files that previously contained FORMS or 3800 characteristics, the FORMS and 3800 characteristics are lost.

INSTALLATION

Before installing RSCS under the VM/XA Migration Aid, you must create a VM/XA Migration Aid user directory entry for an RSCS virtual machine. For Release 2 of the VM/XA Migration Aid, see VM/XA Migration Aid Installation, GC19-6217-1. For Release 1, see VM/XA Migration Aid System Generation and Service Application Guide, GC19-6217-0. These books describe how to create directory entries for virtual machines; they also contain sample directory entries for RSCS virtual machines.

Once you have created a directory entry for an RSCS virtual machine, you can install RSCS. For further information on installing RSCS with the VM/XA Migration Aid, see the VM/XA Migration Aid Program Directory. The VM/XA Migration Aid Program Directory contains notes about how to install RSCS; it also contains a console file from a successful RSCS installation.

RSCS OPERATIONS

Again, please note that the VM/XA Migration Aid does not support all of the RSCS capabilities described elsewhere in this manual. The next section describes the restrictions that apply to VM/XA Migration Aid users of RSCS.

COMMUNICATING WITH REMOTE 3270 PRINTERS

The VM/XA Migration Aid supports communications between RSCS and remote 3270 printers in a different manner than does VM/SP. In VM/SP, you can use either the NETWORK ATTACH command or the DEDICATE NETWORK directory statement to dedicate remote 3270 printers to RSCS. The VM/XA Migration Aid, however, does not support either the NETWORK ATTACH command or the DEDICATE NETWORK directory statement. Therefore, in a VM/XA Migration Aid environment, you must perform the following tasks to define remote printers for RSCS.

STEP 1. INSTALL

the Remote 3270 Display Option program product (Program Number 5664-183), and Release 2 of the VM/Pass-Through Facility program product (Program Number 5748-RC1).

STEP 2. DEFINE

in the Pass-Through Virtual Machine Configuration file:

- Remote 3270 lines from the remote 3270 printers to the pass-through virtual machine. (Use the LINK record.)
- 3270 cluster control units on the remote lines. (Use the CLUSTER record.)
- The remote 3270 printers you want to connect to RSCS. (Use the CLPORT record.) Note that for the **vmid vaddr** parameters you should
 - a) specify the RSCS virtual machine userid as **vmid** and
 - b) use the same **vaddrs** that you use when you define the remote printers to RSCS.

STEP 3. START UP THE PASS-THROUGH VIRTUAL MACHINE

Make sure that:

- The RSCS virtual machine is logged on,
- you attach the remote 3270 lines to the pass-through virtual machine (use the CP ATTACH command), and
- you start the remote 3270 lines to the pass-through virtual machine (use the Remote 3270 Display Option START command). Note: you can either manually start the remote 3270 lines to the pass-through virtual machine, or you can create a file called PROFILE PVM to start them automatically.

Once you have started a remote 3270 line to the pass-through virtual machine, the Remote 3270 Display Option attaches the remote printers that are defined in the VM Pass-Through Configuration File to the RSCS virtual machine. Note that RSCS handles these devices as if they were locally attached.

STEP 4. THE RSCS OPERATOR MUST:

- Define the remote printers to RSCS as **LOCALLY** attached 3270 display printers. (Use the RSCS DEFINE command, or a LINK Directory control statement in the RSCS DIRECT file).

Note: When you define the remote printers to RSCS, use the same virtual address as was used on the CLPORT record in the VM Pass-Through virtual machine configuration file.

- Start the printers. (Use the RSCS START command.)

For more information on how to perform tasks 1-3, see VM/XA Migration Aid Remote 3270 Display Option User's Guide and Reference, GC28-1329.

For more information on using these program products, see the following publications:

VM/System Product: VM/Pass-Through Facility General Information Manual, GC24-5206-2

VM/System Product: VM/Pass-Through Facility Guide and Reference, SC24-5208-1

VM/XA Migration Aid Remote 3270 Display Option General Information Manual, GC28-1328.

VM/XA MIGRATION AID RESTRICTIONS FOR RSCS USERS

In general, references to VM/SP and VM/370 in RSCS publications also apply to the VM/XA Migration Aid. However, this section describes restrictions with which the VM/XA Migration Aid user of RSCS must be familiar.

FORMS options

The VM/XA Migration Aid does not support RSCS functions relating to FORMS control. When the VM/XA Migration Aid prints files that contain FORMS characteristics, the FORMS characteristics are ignored. When the VM/XA Migration Aid forwards files that contain FORMS characteristics to another VM system, the FORMS characteristics are lost. Also, do not use the OPFORM control statement in the RSCS Directory.

RSCS START command

See V3800 Parm option.

3800 options

The VM/XA Migration Aid does not support the specification of 3800 options on any CP commands; nor does the VM/XA Migration Aid support the printing of files that contain virtual 3800 characteristics. When the VM/XA Migration Aid forwards files that contain 3800 characteristics to another VM system, the 3800 characteristics are lost.

V3800 Parm option

V3800={Yes|No} is a parameter on the RSCS START command. It specifies whether or not a link will transmit V3800 files. Because the VM/XA Migration Aid does not support the printing of files that contain virtual 3800 data, users sending files from other VM systems to the VM/XA Migration Aid MUST specify V3800=NO.

3375, 3380 DASDs

Release 1 of the VM/XA Migration Aid supports 3375 or 3380 DASDs only as dedicated devices. Therefore, the RSCS system disk cannot be a 3375 or a 3380 DASD. For a complete list of hardware restrictions see the VM/XA Migration Aid General Information Manual, GC19-6213, or (for Release 1) VM/XA Migration Aid System Generation and Service Application Guide, GC19-6217-0.

If you are using Release 2 of the VM/XA Migration Aid, this particular restriction does not apply, and you can use a 3375 or 3380 DASD as the RSCS system disk. For Release 2 hardware restrictions, see the General Information Manual or VM/XA Migration Aid Installation, GC19-6217-1.

IPCS/E

The VM/XA Migration Aid does not support interfaces to the Interactive Problem Control System Extension program product. However, the Dump Viewing Facility of Release 2 of the VM/XA Migration Aid supports virtual machine dumps for CMS, VM/Pass-Through, and RSCS. To obtain an RSCS dump, include a DUMP VM RSCS Directory control statement when you initialize RSCS.

Release 1 of the VM/XA Migration Aid does not support the Dump Viewing Facility. If you are running Release 1 of the the VM/XA Migration Aid, do not use the DUMP VM RSCS Directory control statement.

Line Driver RPT

To provide a communications link between a central VM/XA Migration Aid system and remote 3270 devices, use Release 2 of the VM/Pass-Through Facility program

product (Program Number 5748-RC1), and the Remote 3270 Display Option program product (Program Number 5664-183). See "Communicating with Remote 3270 Printers" on page 5H-2.

RSCS Directory control statements

Do not use the OPFORM or MSGNOH RSCS Directory control statements. In addition, if you are using Release 1 of the VM/XA Migration Aid, do not use the DUMP VM RSCS Directory control statement.

CP COMMANDS

This manual refers to a number of VM/SP CP commands. The VM/XA Migration Aid and VM/SP, however, do not support identical sets of CP commands. The following entries describe VM/XA Migration Aid CP commands that differ from VM/SP CP commands.

For complete information about VM/XA Migration Aid CP commands and how these commands differ from VM/SP CP commands, see VM/XA Migration Aid CP Command and DIAGNOSE Code Reference, GC19-6215.

CHANGE -- See SPOOL command restrictions.

CLOSE -- See SPOOL command restrictions.

IPL CMS -- The VM/XA Migration Aid does not support named systems. Therefore, you must IPL the address of the disk on which CMS resides, for example IPL 190.

MSGNOH -- The VM/XA Migration Aid does not support the MSGNOH command. Therefore, do not use the MSGNOH RSCS Directory control statement.

NETWORK -- The VM/XA Migration Aid does not support the NETWORK command. Therefore, you cannot use the DEDICATE NETWORK directory statement or the NETWORK ATTACH command to define a remote 3270 system printer for RSCS. To provide a communications link between a central VM/XA Migration Aid system and Remote 3270 devices, use Release 2 of the VM/Pass-Through Facility program product (Program Number 5748-RC1), and the Remote 3270 Display Option program product (Program Number 5664-183). See "Communicating with Remote 3270 Printers" on page 5H-2.

SMSG -- The VM/XA Migration Aid does not support the SMSG command. VM/XA Migration Aid users cannot use RSCS to send messages and commands to other systems, nor can VM/XA Migration Aid users be designated as authorized alternative operators for any RSCS machine or link.

SPOOL -- The VM/XA Migration Aid CP SPOOL, CHANGE, and CLOSE commands do not include the following VM/SP command options:

CHARS	FLASH
COPY	FORM
FCB	MODIFY

The VM/XA Migration Aid ignores these options if they are used. For information on the format of the VM/XA Migration Aid CP SPOOL, CHANGE, and CLOSE commands, see VM/XA Migration Aid CP Command and DIAGNOSE Code Reference, GC19-6215.

TAG QUERY -- The VM/XA Migration Aid CP TAG command does not include the QUERY operand. Use the VM/XA Migration Aid QUERY TAG command instead. For information on the format of the VM/XA Migration Aid QUERY TAG command, see VM/XA Migration Aid CP Command and DIAGNOSE Code Reference, GC19-6215.

VMDUMP -- Release 1 of the VM/XA Migration Aid does not support the VMDUMP command. Therefore, you should not use the DUMP VM RSCS Directory control statement if you are using Release 1 of the VM/XA Migration Aid.

CMS COMMANDS

The VM/XA Migration Aid and VM/SP do not support the same releases of CMS. The CMS component of the VM/XA Migration Aid provides a tool for the installation

and service of the VM/XA Migration Aid. The VM/XA Migration Aid does not support CMS for general interactive use by end users, nor does it support the following CMS commands mentioned on page 4-10.

NAMES	TELL
NOTE	RECEIVE
SENDFILE	

For complete information about VM/XA Migration Aid CMS commands, see VM/XA Migration Aid CMS Command Reference for Installation and Service, GC19-6231-0, for Release 1 of VM/XA Migration Aid. For Release 2, see VM/XA Migration Aid CMS Command Reference, GC19-6231-1.

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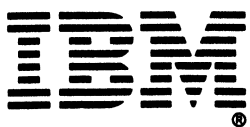
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VM/SP: RSCS Networking Program Reference and Operations (File No. S370/4300-30) Printed in U.S.A. SH24-5005-2