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APPLICATION NOTE

Remote Synchronous Terminal Control Program

This document describes how the Remote
Synchronous Terminal Control Program
(RSTCP) allows a Nova line computer with
peripherals to operate as a remote in-
telligent data terminal.

NOTICE

Original Release   -   May 1973

INTRODUCTION

The Remote Synchronous Terminal Control Program (RSTCP) is an application program that lets a Data General computer system act as a programmable remote job entry terminal. It operates in IBM's Binary Synchronous Communications (BISYNCH) code, and it can communicate on a point-to-point basis with an IBM System 360/370 computer or with another RSTCP-equipped Data General computer system.

The program operates under Data General's Real Time Operating System (RTOS), designed for small core-only configurations, and the Real Time Disk Operating System (RDOS), a powerful, disk-based real-time system allowing a single or multiprogramming environment.

Under RSTCP, the Data General computer system, using a Bell 201 or equivalent synchronous data set adapter, maintains communication with its host system via switched or dedicated voice-grade telephone lines. The system operates in half duplex mode, using two-wire lines. Four-wire private lines may be used to reduce the time required to reverse the direction of transmission.

RSTCP's functions include:

> Inputting jobs, forming transmission blocks, and transmitting jobs to a remote computer or another terminal;

> Receiving transmission blocks from a remote computer or another terminal, formatting output records, and putting them on an output device;

> Providing formatting and operator console functions to control the operation of the system; and

> Providing peripheral-to-peripheral operation (card-to-disk, card-to-printer, etc.), when supported by hardware.

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CHAPTER 1

SYSTEM DESCRIPTION

The Remote Synchronous Terminal Control Program (RSTCP) allows a Data General Nova computer with peripherals to act as programmable terminal system capable of emulating various remote job entry terminal configurations via a software/hardware package. It operates in compliance with IBM's Binary Synchronous Communication (BSC) discipline and can communicate on a point-to-point basis with an IBM 360/370 computer or another similarly equipped Nova computer system.

The program operates in conjunction with one of the standard Data General Operating Systems: the Real Time Operating System (RTOS) designed for small core only configurations, and the Real Time Disk Operating System (RDOS) designed as a powerful disk-based real-time system allowing a single or multi-programming environment.

The remote terminal software performs the following functions:

> Input jobs (program source, data, and job control language) via a card reader or other legal input file such as a disk file, form transmission blocks, and transmit to a remote CPU or another terminal.

> Receive transmission blocks from a remote CPU or another terminal, format output records, and print on the line printer (or record output on another legal output device, such as a tape or disk file).

> Provide operator console functions necessary to control the operation of the system.

> Provide card-to-printer or other peripheral-to-peripheral operation, e.g., card-to-disk, when supported by hardware.

> Provide in an off-line system mode, a very powerful Real Time Disk Operating system (RDOS) for local program development and execution capability.

The communications discipline used by this program is incompatible with the interleaving line protocol used by certain types of RJE work stations.

CHAPTER 2

PROGRAM FEATURES

The package supports the following as standard features:

- Printer horizontal and vertical format control

- Multiple-record transmission

- EBCDIC/ASCII transparency

- Transmission Checking

- Automatic turnaround

- 80 or 132 character line printer

- Buffered operation of card reader and line printer

- Operator controlled options

- Off-line and on-line file listing capability

- Two-wire or four-wire operation

- Disk-based receive and transmit operations if hardware is available

- Extended retry

PRINTER HORIZONTAL FORMAT CONTROL

This feature provides a tab simulation function for the printer similar to the tab
function on a typewriter. This greatly increases the throughput of the terminal by
eliminating the necessity to transmit spaces within the text to format a record. When
used, a format record is transmitted as the first record in a transmission. It is re-
tained in storage until a new format is received.

When used in conjunction with the 132 column line printer, it allows formatting over
the entire carriage length even though the transmitted record length may be restrict-
ed to 80 data characters (i.e., terminal-to-terminal operations).

PRINTER HORIZONTAL FORMAT CONTROL (Cont'd)

The horizontal tabulation character (HT) is used in three ways:

- When the HT character follows the ESC character at the beginning of a record, it signifies that the remainder of the record is a printer horizontal format control record that is to be stored in the program.

- When an HT character appears within a printer horizontal format control record, it causes a tab stop to be indicated to the control program. Each HT character within the horizontal format control record sets up a tab stop, thereby establishing the horizontal format control for the printing of subsequent records.

- When the HT character appears within subsequent records, it causes the data following the HT character to be printed, starting at the next tab stop that was set by the preceding horizontal format control record.

PRINTER VERTICAL FORMAT CONTROL

The program checks for an ESC character - control character sequence at the beginning of each print line for printer vertical format control. If the escape sequence is found, the remaining characters in the line are printed and the action specified by the control sequence is executed. If no ESC code is present at the beginning of a line, or if a control character not listed in the table below is found, a single line feed results.

ACTION	EBCDIC	ASCII
Double space	ESC S	ESC R
Triple space	ESC T	ESC S
Form feed	ESC A	ESC A

MULTIPLE RECORD TRANSMISSION/RECEPTION

The system operates in multiple-record mode. The package allows the user to define the size of the transmission buffer by specifying the maximum number of 80-byte records that will be transmitted in a block before line turnaround occurs. If unmodified by the user at system-build time, the system will allow up to four 80-byte records.

The size of the receiving buffer is also a system-build parameter with the default case being 400 bytes.

BUFFERED OPERATION OF PERIPHERALS

Buffers for peripheral I/O are provided for by the program. In general, up to 80 text characters are accommodated for the card reader, and up to 132 characters for the line printer.

TRANSPARENCY

The terminal may operate in either the normal or transparent mode. In the normal mode, the software responds to certain codes as control characters. In transparent mode, all 256 codes may be transferred as data. Transparency mode is selectable from the operator's console.

Transparency permits the unrestricted use of all bit patterns within each transmission-code type to be transmitted and received as strictly a binary bit stream. A special procedure provides for control-character recognition. Within the several transmission codes, transparent-text mode is useful in transmitting messages in:

- fixed data
- logical information
- encrypted data
- grouping short messages
- code-conversion operations
- unedited information
- source-program information
- object-program information
  etc.

TRANSMISSION CHECKING

A redundancy check is performed on all data which traverses the terminal. Two checks are supported by the RSTCP package -- CRC or a combination of VRC and CRC.

The cyclic redundancy check (CRC) is an error detection method that uses a polynomial and treats the transmitted message as a binary number. It performs modulo 2 division operations on this binary number. Sending and receiving stations generate this value individually from the data to be transferred. The remainder from the modulo 2 division is transmitted to the receiving station, where it is compared with the remainder generated from the received data. Equal remainders indicate an accurate transmission.

VRC is a transmission-error-detection method of appending a parity bit on each transmitted character which is checked at the receiving station end.

TRANSMISSION CHECKING (Cont'd)

VRC/CRC is an error-detection method combining the vertical redundancy check (parity bit) on each character and the cyclic redundancy check (block check word) on the complete message.

The block check character generated by CRC or CRC/VRC is appended to each block of data transmitted. The received block check character is compared with a block check character generated from the received data. Comparison of the block check characters determines the validity of the received message block. Transmissions have the block check character appended to the data block. If the check character comparisons do not agree, an error has occurred and the data block will be retransmitted.

AUTOMATIC TURNAROUND

This feature enables the terminal to automatically switch to receive mode without operator intervention after completing a transmitted message.

TWO-WIRE/FOUR-WIRE OPERATION

This allows the synchronous line adapter to transmit and receive data using synchronous data sets interfaced for four-wire as well as two-wire operation. In a four-wire operation, the receiver and transmitter remain on, minimizing the time delay in switching from a Transmit to a Receive mode.

EXTENDED RETRY

The number of retry operations on detection of a transmission or reception error can be specified by the user.

CHAPTER 3

OPERATING PROCEDURES

The console device of the system allows the operator to select and control the terminal operations. A log of system messages indicating the status of the program and communications facilities is also output to the console device.

When the control program has been loaded and started, one of the following two messages will appear on the console

"READY"

or

"DATASET NOT READY"

The ready state is the resting or idling state of the program and implies that:

1.   The dataset is ready for service.

2.   The line is being monitored for any incoming messages. No operator action is required to place the terminal in the receive mode.

3.   The program will accept and attempt to process any of the console commands.

The "DATASET NOT READY" message appears whenever the dataset ready lead is off. The program can be put into the ready state simply by completing the connection to the remote CPU. In the not ready state, only the immediate action console commands (described below) can be processed. Any command requesting transmission of data will not be serviced until the ready state appears.

If the remote CPU bids for control of the line, and the bid is accepted by the control program, a

"R OPEN"

message will be typed on the console indicating that the receiver is open and active. Incoming data will be automatically transferred to the output file, normally the line printer, and the end of reception will be signaled by a new "READY" message appearing on the console. If an error occurs during reception, the control program will type

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"LINE FAILED DURING RECEIVE"

indicating that the data just received is probably incomplete.

CONSOLE COMMANDS

A variety of console commands are available to the user of the Terminal Control Program. The following comments apply to the commands available:

1. A command is entered by typing the command code letter, the file name if required, and a carriage return. The RUBOUT key will delete the previous character typed and Shift L will erase the entire line.

2. The program will type "??" if the command is not understood and "FILE ERROR" if the file name given is illegal. "FILE ERROR" will appear whenever the control program encounters trouble using an input or output file.

3. Certain commands, described below, are "immediate action" commands. If the console command processor encounters such a command it will immediately abort any transmission or reception activity occurring and will start to process the command. Only immediate action commands will be serviced when the dataset is not ready, that is, when the terminal is in an off-line mode.

4. Command input lines can be typed in ahead of time for future use by the console command processor. Thus, several file transfers or file transmissions can be typed in at once, and the control program will process these requests sequentially. The one restriction remains that if an immediate action command follows a transmission command, the transmission command will be prematurely aborted.

5. Standard file names for the common peripherals are:

Name		Peripheral
$LPT	-	Line Printer
$CDR	-	Card reader
$PTR	-	Paper tape reader
$PTP	-	Paper tape punch
MT0:0, MT0:1, etc.	-	Magnetic tape files
Any-Name	-	Disk files

The commands available are divided into three groups:

1. Terminal initialization and termination

2. File transfer commands (peripheral-to-peripheral)

3. Transmission commands (peripheral-to-transmission line)

TERMINAL INITIALIZATION AND TERMINATION COMMANDS

Command	Meaning
T	- Set mode to transparent transmission. This is the default mode for transmission, and this command need not be issued if the mode is not changed.
N	- Set mode to non-transparent transmission. The user must insure that no data link control characters (STX, ETX, etc.) are in the data to be transmitted.
H	- Return to the operating system (disk-based systems only). This command causes an immediate halt to any transmission or reception, the synchronous hardware is reset, and control is passed to the command language interpreter (CLI).
O FILE-NAME	- The old output file is closed and FILE-NAME becomes the new output file. The output file initially is set to be $LPT, the line printer. All data received over the transmission line, and the output from the L and X commands (see below) are transferred to the output file. The O command was intended primarily for the user who might need to redirect incoming data to disk or tape. It may also be used to load a disk or tape file with card images through use of the L or X command. This is an immediate action command.

FILE TRANSFER AND TRANSMISSION

The following comments apply to the file handling commands:

1. The transmission line code (EBCDIC OR ASCII) used is determined at system-build time and is not affected by any console command.

FILE TRANSFER AND TRANSMISSION (Cont'd)

2.   Two types of files are used to handle the code sets:

> ASCII files are variable length files and are handled with read-line, write-line (RDL, WRL) system processing.

> EBCDIC files are fixed length (80 bytes), binary sequential files handled via the read-sequential, write-sequential (RDS, WRS) mode of processing.

ASCII data will be converted to EBCDIC for transmission on an EBCDIC transmission line, and EBCDIC will be converted to ASCII for printing. EBCDIC may be sent over an ASCII transmission link only through use of transparent transmission.

3.   The following notation is used to denote these types of files:

CDR-E	--	A card file punched in EBCDIC card codes. All 256 card code punches are legal.
CDR-A	--	A card file punched in ASCII card codes. All 128 card code punches are legal.
DISK-E	--	A disk or tape file containing 80-byte binary records, typically, EBCDIC card images.
DISK-A	--	A disk or tape file containing variable length ASCII records.
OUTPUT-A	--	The control program output file, always ASCII, and set to be $LPT by default.

File Transmission Commands

Command	Meaning
C	- Send EBCDIC cards down the transmission line
E FILE-NAME	- Send EBCDIC file FILE-NAME down line
S FILE-NAME	- Send ASCII file FILE-NAME down line

File Transmission Commands (Con't)

Whenever the control program is in the ready state, the operator can type in one of the three commands above to initiate transmit operations. Take the typical case of sending EBCDIC cards down an EBCDIC transmission link. The operator types

C

or

E $CDR   (see summary chart at end of chapter)

The transmission mode (transparent or not) is determined by the most recent setting of the transparency option (T or N command). As soon as the command is entered, the control program attempts to bid for control of the transmission link. If the bid is successful,

"T OPEN"

is typed by the program, indicating that the transmission line is open. If the remote CPU does not respond, or does not accept the bid,

"LINE NOT OPEN"

will appear. The control program will <u>always</u> inform the operator of the success or failure of a given transmit request. The maximum time between a failure and the appearance of a message is 3 x NUMBER OF RETRIES in seconds. The default number of retries is ten, and so any line failure will be noted within thirty seconds. When the last record has been sent, acknowledged, and the line closed,

"T END"

and

"READY"

will be typed by the control program. Should <u>any</u> failure occur during transmission, the message

"TRANSMISSION FAILURE"

will inform the operator that the file must be retransmitted.

In the C and E commands EBCDIC data is taken from the peripheral unit and transmitted, without any code conversion, down the transmission line. All 256 codes are legal when transparent transmission is used, thus allowing the user to send

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File Transmission Commands (Cont'd)

object decks, binary data, special codes, etc., on the transmission line. If the S
command is used, ASCII to EBCDIC conversion occurs if the transmission line is
defined to be EBCDIC.

The end-of-file card is a card with every hole punched in column 1. It must be
used to indicate the end of the card input data.

File Transfer Commands

      Command   Meaning

      D FILE-NAME   - EBCDIC cards to disk file

      L FILE-NAME   - EBCDIC file FILE-NAME to output file

      X FILE-NAME   - ASCII file FILE-NAME to output file

The file transfer commands are useable when the terminal is on or off-line.

The D command is used for loading EBCDIC cards onto a disk file for future trans-
mission.

The L and X commands are used for obtaining listings of EBCDIC or ASCII files.

The X command may also be used to store card images on a disk or tape file. The
following sequence illustrates how this is done.

        O FILE-NAME   Open some new file
        X $CDR   Transfer cards from card reader
        O $LPT   Close FILE-NAME, open $LPT

Of course, under RDOS the XFER command serves the same function and is easier
to use.

The end-of-file card is a card with every hole punched in column 1. It must be
used to indicate the end of the card input data.

Upon successful completion of a file transfer command an "*" is printed on the
console terminal.

REVERSE INTERRUPT PROCESSING

If the remote, receiving CPU is unwilling to take any more data, it may send a re-
verse interrupt to the terminal control program. This event is indicated by a

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REVERSE INTERRUPT PROCESSING (Cont'd)

"RVI"

message being typed on the console.   There are two possible ways of handling this situation:

> Operator Intervention Required - Transmission ceases immediately, and the operator must type "R" on the console to resume sending the rest of the interrupted file.   This is the default condition.

> Automatic Restart - The control program waits for the receipt of the reverse message and then automatically continues to transmit the remainder of the file.   This option can be selected at system-build time.

COMMAND SUMMARY

The following tables summarize the console commands discussed above.

Utility Command Summary

COMMAND	USE	EXAMPLE	IMMEDIATE ACTION
H	RETURN TO SYSTEM	H	YES
T	TRANSPARENT MODE	T	NO
N	NON-TRANSPARENT MODE	N	NO
R	RESUME AFTER RVI	R	NO
O	{ NEW OUTPUT FILE	O FILE-NAME	YES
	{ STANDARD OUTPUT FILE	O $LPT	YES

File Transfer and Transmission Command Summary

SOURCE	DESTINATION	COMMAND	IMMEDIATE ACTION
CDR-E	LINE	C (same as E $CDR)	NO
CDR-E	DISK-E	D FILE-NAME	YES
CDR-E	LINE	E $CDR	NO
DISK-E	LINE	E FILE-NAME	NO
CDR-E	OUTPUT-A	L $CDR	YES
DISK-E	OUTPUT-A	L FILE-NAME	YES
CDR-A	LINE	S $CDR	NO
DISK-A	LINE	S FILE-NAME	NO
CDR-A	OUTPUT-A	X $CDR	YES
DISK-A	OUTPUT-A	X FILE-NAME	YES

NOTES: 1. The OUTPUT FILE (OUTPUT-A) is $LPT unless changed by an "O" command.

2. -E denotes EBCDIC; -A denotes ASCII file structures.

CHAPTER 4

SYSTEM CONFIGURATIONS

The Remote Synchronous Terminal Control Program (RSTCP) operates with the Real Time Disk Operating System (RDOS) or its compatible subset, the Real Time Operating System (RTOS).

HARDWARE REQUIRED/SUPPORTED

The minimum hardware configuration to support the RSTCP program is the following:

> Nova Computer
> 8K words main memory
> Real Time Clock
> Card Reader
> Line Printer
> Teletype Console
> 4074 Synchronous Line Adapter

This configuration would be supported by RTOS. To utilize the Real Time Disk Operating System, an additional 4K words of main memory and either a fixed or moving head disk would be required with the above minimum configuration.

Additional hardware that is supported by the operating systems includes

> Additional fixed or moving head disks
> Magnetic tapes
> Cassette tapes
> High speed paper tape reader and punch
> Plotters
> Asynchronous multiplexor

SOFTWARE REQUIRED

> Operating System
>
> > Real Time Disk Operating System (RDOS)
> > Real Time Operating System (RTOS)
>
> Synchronous Communication Software Package
>
> Remote Synchronous Terminal Control Program

CUSTOMER SUPPLIED COMPONENTS

The customer must provide all transmission facilities including modems, leased private communication lines (or access to a switched network), and termination of the transmission facility to the appropriate IBM hardware/software interface. In addition, the customer must ensure that the IBM 360/370 software necessary to talk to a remote terminal is provided and/or the basic RSTCP is modified, if necessary, to perform communication with the host IBM 360/370 computer.

CHAPTER 5

SYSTEM GENERATION PROCEDURES

In order to change any of the standard options of the RSTCP package or to create a
save file for running the program under RDOS, the user must assemble and reload
modules of the RSTCP package. This section explains what these modules are and
how to build a new system.

SOFTWARE COMPONENTS

RSTCP Software Components

RSTOP.SR   -   This source tape contains parameter information which defines
                 the default conditions to be used by the main RST program during
                 run time. The line code to be used, type of error checking, re-
                 ceive and transmit buffer sizes, device code, and other variables
                 are defined in this program. It also allocates space for the line
                 table and line control block required by the synchronous commun-
                 ications software. It must be assembled by the user before being
                 loaded.

RST.RB   -   The main program is contained within this relocatable binary
                 module. Control of reception and transmission, interpretation of
                 console commands, and error condition handling are all done
                 within this program. It initializes the RSTCP package with the
                 default conditions specified by RSTOP.

RSTRD.RB   -   This is a subroutine used by the main program. Its function is to
                 read cards punched in EBCDIC and convert them to an 80-byte
                 EBCDIC card image.

RSTCD.RB   -   This subroutine handles the output channel in an RDOS environ-
                 ment. The RSTCP package relies on the spooling facility to buffer
                 data going to the line printer or other output device. This pro-
                 gram also defines the number of tasks and channels used by RST.

RSTCT.RB   -   This subroutine handles the output channel in an RTOS environ-
                 ment. In this non-disk system the output buffering is handled by
                 the Buffered I/O Package. (See Applications Note 017-000003.)

Other Software Components

SLA.LB   -   This is a library tape which contains programs required for con-
                 trol of the synchronous line adapter. It is part of the Synchronous
                 Communications Package described in Applications Note 017-000001.

BFPKG.RB   -   This is the relocatable binary module containing the DGC Buffered
                 I/O Package, described in Applications Note 017-000003. This
                 module is only required if an RTOS system is being constructed.

RTOS.RB   -   This is the relocatable binary program containing system parameter
                 information and tables for the RTOS system. It is produced by
                 using the RTOS System Generation Program. (See the RTOS User's
                 Manual, 093-000056.)

RTOS1.LB,
RTOS2.LB   -   These library tapes are used to build a complete RTOS system.

PROCEDURES FOR CONSTRUCTING A NEW SYSTEM

There are three steps needed to create a new RSTCP program for use with RTOS or
RDOS:

1.   The options program (RSTOP.SR) must be edited and assembled to ob-
      tain a new options binary program, RSTOP.RB. The listing on page 5-4
      illustrates the way the default options are defined and how they may be
      altered.

2.   The system components must be loaded by the relocatable loader. For
      an RTOS system the following programs must be loaded:

      RTOS, RSTCT, RST, RSTRD, RSTOP, SLA.LB, BFPKG,
      RTOS1.LB, RTOS2.LB

      For an RDOS system a disk save file must be created by loading
      the following programs:

      RSTCD, RST, RSTRD, RSTOP, SLA.LB

      For either RTOS or RDOS, the order in which programs are listed
      above for loading is the order in which they must be loaded.

3.   A new absolute binary tape must be punched as a result of the load
      process for the RTOS system.

PROCEDURES FOR CONSTRUCTING A NEW SYSTEM (Cont'd)

> NOTE: The relocatable load necessary to create the absolute
> binary for the RTOS system can be performed using
> the Extended Relocatable Loader or under the RDOS
> system.

When the program is run, the following message may appear:

<div align="center">"SLAI ERROR"</div>

This message indicates that either no real-time clock was specified at system gener-
ation time, or that the device code specified is illegal or is in conflict with some
other device, for example, the 4060 asynchronous multiplexor. Regenerating the
system and restarting the program will eliminate this error.

In an RDOS environment there must be a sufficient number of stacks allocated to run
the RST package. The optimal number of stacks for use by this program is four.
For further details on selection of the number of stacks consult the SYSGEN Appendix
of the RDOS Users Manual 093-000075.

In an RTOS environment the user must first perform a system generation to obtain
the relocatable binary RTOS.RB. The user should specify that he wants to have 6
tasks and 5 channels in the system in addition to the peripherals making up the hard-
ware configuration.

```
  0001   RSTOP
01              ,  THIS PROGRAM IS USED TO INITIALIZE PARAMETERS WITHIN THE
02              ,  SYNCHRONOUS CONTROL PROGRAM.  IN CHOOSING THE FOLLOWING
03              ,  OPTIONS,
04              ,     A '1' INDICATES A POSITIVE RESPONSE
05              ,     A '0' INDICATES A NEGATIVE RESPONSE
06              ,  ALL PARAMETERS MUST BE DEFINED WITH 0, 1, OR OTHER
07              ,  APPROPRIATE VALUE.
08
09
10              ,  CHOOSE DESIRED LINE CODE:
11
12     000000         ASCII=0
13     000001         EBCDIC=1
14
15              ,  IS VERTICAL REDUNDANCY CHECKING (PARITY) REQUIRED?
16              ,     IF EBCDIC, NO.
17              ,     IF ASCII, YES OR NO.
18
19     000000         VRC=0
20
21              ,  CHOOSE MODEM CONTROL OPTION:
22              ,   A '0' INDICATES THAT THE DATASET READY LEAD NEED NOT BE
23              ,  CHECKED.  A '1' INDICATES THAT THE DATASET READY LEAD IS
24              ,  REQUIRED FOR NORMAL USE.
25
26     000001         MODEM=1
27
28              ,  INDICATE MAXIMUM NUMBER OF 80 BYTE RECORDS TO BE TRANSMITTED
29              ,  IN EACH MESSAGE BLOCK:
30
31     000004         MAXT=4.
32
33              ,  INDICATE MAXIMUM BYTE COUNT OF MESSAGE BLOCKS TO BE
34              ,  RECEIVED. THIS PARAMETER MUST BE GREATER THAN OR EQUAL
35              ,  TO MAXT*80.
36
37     000620         MAXR=400.
38
39              ,  CHOOSE IF OPERATOR INTERVENTION AFTER A REVERSE INTERRUPT
40              ,  MESSAGE IS REQUIRED.  IF THIS OPTION IS NOT SELECTED THE
41              ,  PROGRAM WILL AUTOMATICALLY TRANSMIT THE REST OF THE DATA
42              ,  WHICH WAS NOT SENT PRIOR TO THE RVI.  WITH USE OF THIS
43              ,  OPTION THE 'R' COMMAND IS REQUIRED TO COMPLETE TRANSMISSION
44              ,  OF THE DATA.
45
46     000001         OPINT=1
47
48              ,  INDICATE NUMBER OF RETRIES TO BE DONE ON A READ
49              ,  OR WRITE TRANSMISSION FAILURE.  MINIMUM NUMBER IS THREE.
50              ,  DEFAULT VALUE IS TEN.
51
52     000012         RETRY=10.
53
54              ,  SET THE DEVICE CODE (30,31,70,71):
55
56     000030         SLA=30
```

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