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Systems

ACF/TAP User's Guide

(Advanced Communications Function/
Trace Analysis Program)

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irst Edition (September 1977)

his edition applies to the initial release of the Advanced Communications Function race Analysis Program and to subsequent versions unless otherwise indicated in new litions or Technical Newsletters. Information in this manual is subject to changes; any ıch change will be reported in subsequent revisions or Technical Newsletters. Before ;ing this publication in connection with the operation of IBM systems or equipment, :fer to the *IBM System/370 Bibliography,* GC20-0001, and associated Technical 'ewsletters, for the editions that are applicable and current.

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his manual has been written by the IBM System Communications Division, Publication enter, Department E01, P. O. Box 12195, Research Triangle Park, North Carolina 7709. A reader's comment form is provided at the back of this publication. If the form as been removed, comments may be sent to the above address. Comments become the roperty of IBM.

Preface

The Advanced Communications Function Trace Analysis Program (called ACF/TAP) is an IBM service aid that increases the usefulness of trace data by providing:

- A common trace analysis facility for ACF/VTAM, ACF/TCAM, and ACF/NCP trace data.
- Output reports that show SNA and SDLC network trace data in formats that are easy to read and understand.

This publication has two purposes, each independent of the other:

- It describes how to use ACF/TAP.
- It provides a general overview of ACF/TAP maintenance information.

This user's guide is for IBM Customer Engineers, Program Support Representatives, and Systems Engineers who use ACF/TAP to provide hardware and program maintenance for customer data communication networks. It is also for IBM personnel who provide program maintenance on ACF/TAP.

A general knowledge of traces, SNA (SDLC and networking), VTAM or TCAM access methods, and communications controllers is a prerequisite for using ACF/TAP. This publication has no prerequisite manuals. However, refer to the list of related publications following the preface for manuals that may be helpful when using ACF/TAP.

This manual contains nine chapters and two appendixes.

- Chapter 1 describes the capabilities and limitations of ACF/TAP.
- Chapter 2 provides general information on traces.
- Chapter 3 describes how to create trace files.
- Chapters 4 and 5 describe how to run ACF/TAP. Chapter 4 describes sample JCL and Chapter 5 describes the ACF/TAP control parameters and commands.
- Chapter 6 describes how to interpret the ACF/TAP output reports.
- Chapter 7 contains a list of ACF/TAP messages and their definitions. DOS *console* message IDs have a different ID than OS console messages. DOS message IDs are shown directly below the equivalent OS message ID. The message text is the same for either, and is shown only with the OS ID.
- Chapter 8 provides a general overview of how ACF/TAP functions. It is intended primarily for ACF/TAP maintenance.
- Chapter 9 provides diagrams showing the function of each ACF/TAP program module and its relation to the overall program structure. It is intended primarily for ACF/TAP maintenance.
- Appendix A contains supplementary information about certain types of output reports.
- Appendix B contains reference material on SNA transmission headers (TH), request/response headers (RH), and request/response units (RU).

For unfamiliar terms and abbreviations, refer to the Glossary of Abbreviations and Terms at the back of this manual.

Related Publications

The following list of publications contains information that may be helpful when using ACF/TAP.

OS/VS1

OS/VS1 VTAM Debugging Guide, GC27-0022
OS/VS1 VTAM System Programmer's Guide, GC27-6996
OS/VS1 Service Aids, GC28-0665
OS/VS1 Service Aids Logic, GC28-0635
OS/VS Data Management Macro Instructions, GC26-3793
OS/VS VTAM Network Operating Procedures, GC27-0027

OS/VS2

OS/VS2 MVS VTAM Debugging Guide, GC27-0023
OS/VS2 MVS System Programming Library: Service Aids, GC28-0674
OS/VS2 MVS System Programming Library: VTAM, GC28-0688
OS/VS2 MVS Service Aids, Logic, SY28-0643
OS/VS2 SVS VTAM Debugging Guide, GC27-0050
OS/VS2 SVS VTAM System Programmer's Guide, GC27-0049

DOS/VS VTAM

DOS/VS VTAM System Programmer's Guide, GC27-6957
DOS/VS VTAM Network Operating Procedures, GC27-0025
DOS/VS VTAM Debugging Guide, GC27-0021

OS/VS TCAM

OS/VS TCAM System Programmer's Guide, GC30-2051
Operator's Library: OS/VS TCAM, GC30-3037

NCP (Network Control Program) and 3705 Communications Controllers

IBM 3704 and 3705 Communications Controllers Principles of Operation, GC30-3004
IBM 3705 Advanced Communications Function for Network Control Program Handbook, SY30-3029
IBM 3705 Advanced Communications Function for Network Control Program/VS, Generation and Utilities Reference Manual, SC30-3116

SNA (Systems Network Architecture)

Systems Network Architecture Reference Summary, GA27-3136
Systems Network Architecture Introduction, GA27-3116
Advanced Function for Communications System Summary, GA27-3099
Systems Network Architecture General Information (to be renamed Technical Overview), GA27-3102
IBM Synchronous Data Link Control General Information, GA27-3093
Systems Network Architecture Format and Protocol Reference Manual: Architecture Logic, SC30-3112
Systems Network Architecture, FE Education Student Self-Study Course, SR23-4208

Miscellaneous

Introduction to Advanced Communications Function (Multiple System Data Communication Networks), GC30-3033
Advanced Function NCP and Related Host Traces, Student Text, SR20-4510

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Chapter 1. Introduction To ACF/TAP

The Advanced Communications Function/Trace Analysis Program (ACF/TAP) is an IBM service aid that assists in analyzing trace data produced by ACF/VTAM, ACF/TCAM, and ACF/NCP. ACF/TAP provides a common trace analysis facility for different types of trace input data. It produces output reports showing SNA and SDLC trace data formatted into merged, easy-to-use, and easy-to-read formats. Unusual conditions occurring in the trace data that may indicate error situations are highlighted for the user.

What ACF/TAP Does

ACF/TAP functions as an application program under OS/VS1, OS/VS2 (MVS), OS/VS2 (SVS), and DOS/VS. It operates independently of the VTAM or TCAM access methods, but uses the external trace files produced by VTAM and TCAM as input data.

ACF/TAP processes:

- NCP line traces from communication scanner types 1,2, and 3 (LINE, LIN3)
- OS/VS VTAM I/O traces (RNIO)
- DOS/OS I/O traces (IO)
- OS/VS VTAM buffer traces (now BUF, formerly TPIOS)
- OS/VS TCAM PIU trace (PIUT)

An ACF/TAP *processed* trace record is defined as a record that is read from a trace file and analyzed. Then some type of printed output is produced.

The primary ACF/TAP output report is SYSPRINT (OS/VS version) or SYSLST (DOS/VS version). SYSPRINT or SYSLST has up to four different formats and shows the following:

- Input control parameters and error messages
- Summary of the GTF, VTAM, TCAM or NCP line trace header information that precedes the trace data
- The input records in standard hexadecimal and alphanumeric dump format
- The ACF/TAP processed trace data and, in abbreviated form, the ACF/TAP interpretation of the SNA and SDLC header information from the trace data

In addition to the SYSPRINT or SYSLST reports, ACF/TAP can produce up to six other output reports describing the contents of the input trace data files. They are:

- Line Trace Detail Report
- Line Trace Summary Report
- SNA Detail Report
- SNA Summary Report
- Network Data Traffic Report
- Network Error Report

Line Trace Detail Report

This report shows NCP line trace records in one of two formats depending on whether the trace data is from a type 1 or 2 scanner or from a type 3 scanner.

For the type 1 or 2 scanners, trace records are four bytes in length and are shown in hexadecimal format, one entry per print line with a description of the entry.

For the type 3 scanner, trace records are either eight-byte status records or variable-length text records. Status trace entries are shown in hexadecimal format, one entry per print line with a description of the entry. Text traces are shown on a variable number of print lines, depending on their length, in hexadecimal and character format.

e Trace Summary Report

This report shows the NCP line trace data in one of two condensed formats depending on whether the trace data is from a type 1 or 2 scanner or from a type 3 scanner. For the type 1 or 2 scanners, 35 trace records are shown per group of six print lines for SDLC line control or five print lines for binary synchronous communications (BSC) line control and start-stop line control. For SDLC, the report indicates the start and end of messages and flags certain error and exception conditions.

For the type 3 scanner, up to four status and text entries are shown in hexadecimal format per print line. Complete SDLC messages are indicated by a message number.

A Detail Report

This report is produced from all types of trace records processed by ACF/TAP, and has a group of print lines for each complete message. Each print entry shows a complete analysis of the SNA and SDLC protocols used in the message. SDLC data is not produced for line trace data from the type 3 scanner.

A Summary Report

This report is produced from all types of trace records processed by ACF/TAP, and shows the SNA and SDLC protocols in a compact one-print-line-per-message format. The summary information is shown in a vertical format that permits you to rapidly scan a column for changes in a particular bit setting.

twork Data Traffic Report

This report provides a hexadecimal and character printout of request/response units (RU) that have data associated with them. Any data that remains after the analysis of the transmission header (TH), request/response header (RH), and RU command bytes is printed. In the case of network commands, a description of the command is provided.

twork Error Report

This report indicates messages that show unusual characteristics.

hat ACF/TAP Does Not Do

ACF/TAP does not process:

- NCP channel adapter traces
- User buffer traces (formerly VTAM control layer (CL) trace)
- VTAM internal traces (VIT)
- VTAM storage management services traces (SMS)
- TCAM channel trace (IOTR)
- TCAM buffer traces (BFFR)
- TCAM dispatcher traces (STCB)

ACF/TAP *cannot* process a trace file concurrently being used by the access method.

It is important to remember that a trace is only a representation of an event, it is not the event. The trace may not be a complete representation of the event, nor may it be totally accurate. ACF/TAP cannot determine this.

Errors in the interpretation of the form or content of trace data are ACF/TAP errors. Errors in the form or content of the trace data are access method or NCP errors. You can determine where the error occurred by comparing the SYSPRINT or SYSLST dump format report with an ACF/TAP produced report.

How ACF/TAP Works

Traces of one type or another are among the minimum sources of information required to analyze any network problem. ACF/TAP processes the types of traces you usually need for network problems and prints the trace data in a readable, easily understood format.

To use ACF/TAP, you do the following:

1. Create trace files to use as input data.
2. Start ACF/TAP.
3. Enter control parameters or commands that define what ACF/TAP is to do.
4. Interpret the output reports that ACF/TAP produces.

Creating Trace Files

Before running ACF/TAP, you need to create trace files to use as input data. You do this by using the trace facilites already available in VTAM or TCAM.

Chapter 2 describes the traces that ACF/TAP processes. Chapter 3 describes how to create trace files that ACF/TAP can use.

Starting ACF/TAP

ACF/TAP is started the same as any application program. Sample JCL for either OS/VS or DOS/VS is shown in Chapter 4.

Entering Control Parameters and Commands

Once ACF/TAP begins executing, you are prompted for commands or parameters that tell the program what to do. For example, ACF/TAP must know what trace records to process and what output reports to produce. You enter the commands and parameters from the operator's console, or you can enter only the READ command and then ACF/TAP reads the commands and parameters from either the SYSIN (OS/VS version) or SYSIPT (DOS/VS version) data set.

Commands direct the overall operation of ACF/TAP and parameters select the input and output data that ACF/TAP processes. You can use the ACF/TAP default parameters or you can enter other parameters that may be better suited to your requirements. In either case a GO command must be entered after entering the control parameters to cause ACF/TAP to start processing trace records.

Chapter 5 describes how to use the six ACF/TAP commands and the six categories of control parameters.

Interpreting the Results

ACF/TAP processes the trace files according to your instructions and prepares various types of reports. The reports range from a general report of every trace record to a detailed report of specific trace records. You can select all of the reports or only certain ones. Chapter 6 describes the contents of every type of report and helps you use them for debugging purposes.

Using ACF/TAP Messages

ACF/TAP produces messages that inform you of the progress of the program or that indicate error conditions within the program. For a complete description of ACF/TAP messages, refer to Chapter 7.

Debugging ACF/TAP

Chapters 8 and 9 contain maintenance information for ACF/TAP. Refer to these chapters for information about ACF/TAP program modules and program logic flow.

Chapter 2. General Information About Traces

Traces help you debug your communication network. You use traces when you don't seem to be getting the results you expected — when you think you are sending out data and not getting the proper responses — when there is a problem with the network — something is wrong but you don't know what.

Traces show you what is flowing back and forth between various nodes in the network. If you know what is actually happening, then debugging the problem is much simpler.

Sometimes though, analyzing the trace is almost as difficult as debugging the problem, especially if you use traces infrequently. ACF/TAP helps you analyze trace data by processing the types of traces you usually need for network problems and by printing the trace data in a readable, easily understood format.

ACF/TAP does not process all types of traces, but does process the types you normally use for network problems. This chapter describes:

- Which traces ACF/TAP processes
- Briefly what each trace contains
- When to use each trace

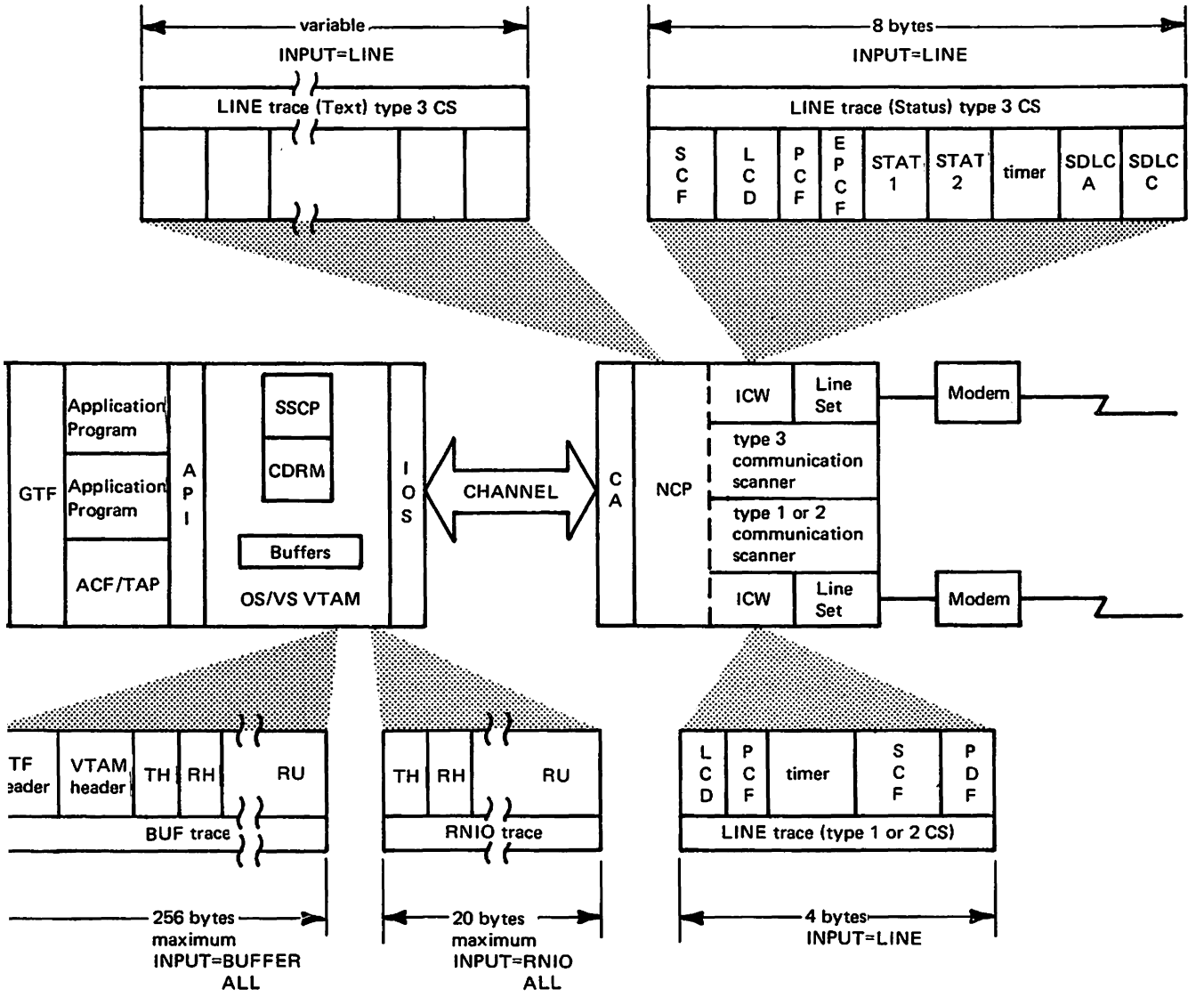
CAUTION
Do not use ACF/TAP to process a file that is concurrently being used by the access method or other trace processing programs.

OS VTAM Traces

ACF/TAP processes the following OS VTAM traces:

- NCP line trace (LINE)
- OS/VS VTAM Buffer trace (BUF)
- OS/VS VTAM I/O trace (RNIO)
- DOS/OS VTAM I/O trace (IO)

Buffer traces containing only user data are not processed by ACF/TAP. Figures 2-1 and 2-2 show approximately where each VTAM trace is recorded and what information is recorded. These traces can be started or stopped at any time and can execute concurrently. Traces are generally recorded in the order that events occur, but when a trace file is full, the oldest trace records are overlaid by new records.



ure 2-1. OS/VS VTAM Traces Processed by ACF/TAP (SOURCE=GTF)

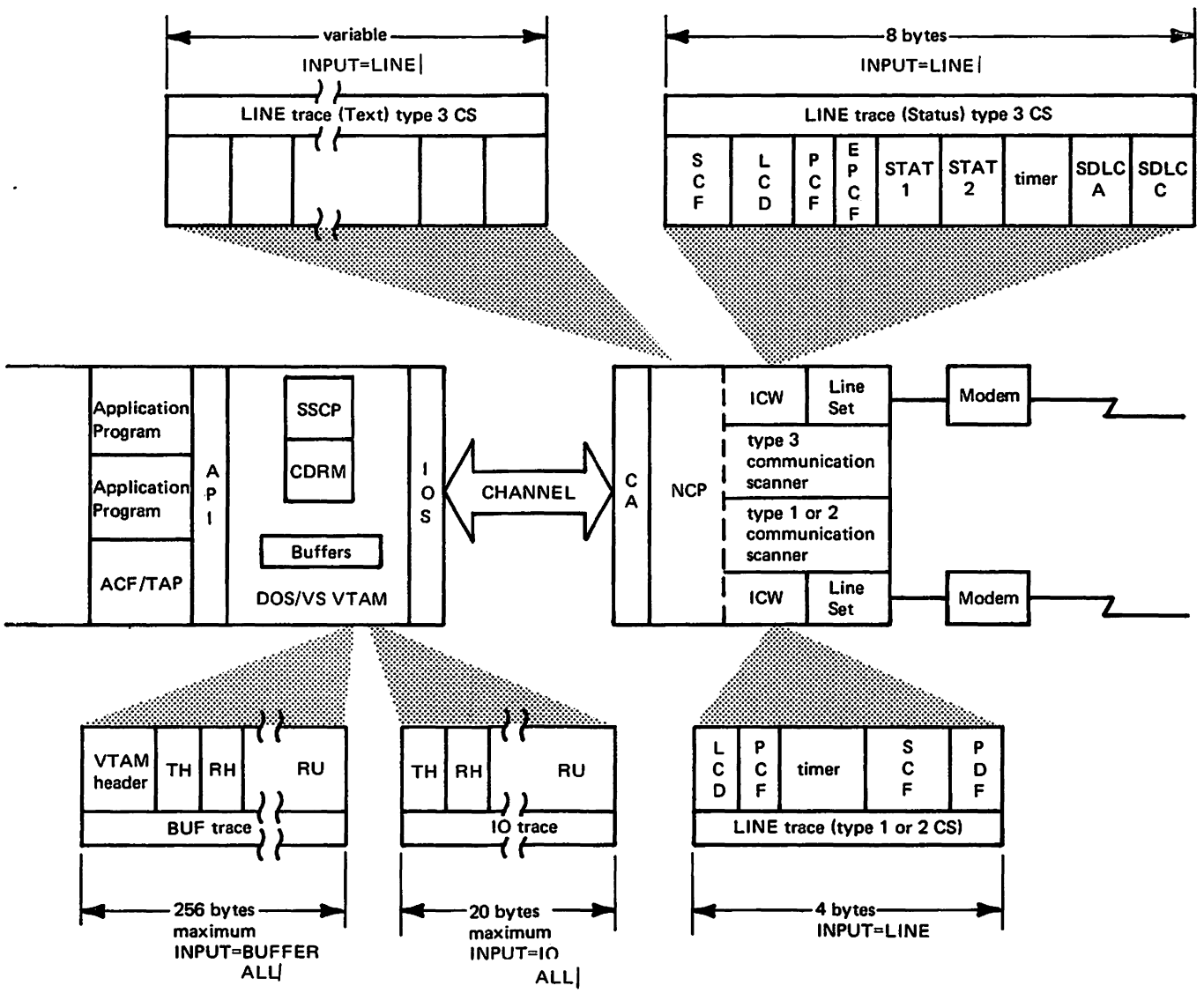


Figure 2-2. DOS/VS VTAM Traces that are Processed by ACF/TAP (SOURCE=DOS)

OS/VS VTAM traces are recorded by GTF (generalized trace facility) on a data set named SYS1.TRACE. GTF is a service aid program available under OS to trace selected system events (such as supervisor calls and start I/O operations) for the purpose of problem determination. DOS/VS traces are recorded by VTAM on a data set named TRFILE.

Either SYS1.TRACE or TRFILE is used as data input to ACF/TAP. Figures 2-3 and 2-4 show the formats of the SYS1.TRACE and TRFILE trace files. The OS/VS version of ACF/TAP processes either SYS1.TRACE or TRFILE input from a tape. The DOS/VS version of ACF/TAP processes only TRFILE input from a tape or DASD device. (Refer to the UNIT= control parameter in Chapter 5 for the device types on which TRFILE can reside in the DOS/VS version of ACF/TAP.)

CP Line Trace

NCP line trace for the type 1 or 2 communication scanner is a record of activity on a designated communication line attached to a 3705 Communications Controller operating with NCP. The NCP records four bytes of diagnostic information each time a level 2 interrupt occurs. Three bytes of the information are obtained from the type 2 scanner interface control word (ICW) or from the type 1 scanner bit control block (BCB). The fourth byte is an NCP timer field. Figure 2-1 or 2-2 shows the format for a type 1 or 2 scanner line trace.

NCP line trace for the type 3 communication scanner is a record of activity on a designated communication line attached to a communications controller operating with NCP. The NCP records eight bytes of status information or a variable number of text bytes each time a level 2 interrupt occurs. Five bytes of status are from the interface control word (ICW), one byte is the NCP timer field, one byte is the SDLC address character (A), and one byte is the SDLC control character (C). The address and control characters are zero for BSC line control.

For BSC receive operations, the block check character (BCC) accumulation from the interface control word (ICW) is traced after receiving an end of text character (ETX) or end of text block character (ETB). The BCC is not traced when an intermediate text block character (ITB) is received.

For BSC and SDLC transmit operations, the BCC accumulation is traced when the level 2 interrupt occurs. For SDLC receive operations, all information (I) fields and the BCC accumulation are traced. Figure 2-1 or 2-2 shows the status format of the trace for a type 3 scanner.

The timer field contains a hexadecimal value indicating, in tenths of a second, the elapsed time between the activation of the trace and the level 2 interrupt represented by this entry. The field is reset to zero when the trace starts and wraps to zero after 25.5 seconds.

For more information on the content of the ICW and BCB, see the publications *3705 Program Reference Handbook* or the *3705 Principles of Operation.*

The NCP line trace is a function of both NCP and VTAM. NCP records and temporarily stores the trace data in dynamically allocated buffers, then NCP sends the data to VTAM with a path information unit (PIU). A trace type indicator in the PIU indicates if the trace is a byte line trace (type 1 or 2 scanner) or a block line trace (type 3 scanner).

When to Use the NCP Line Trace: You use the NCP line trace to verify that the communications controller is sending and receiving the correct data to and from a station.

OS/VS VTAM Buffer Trace

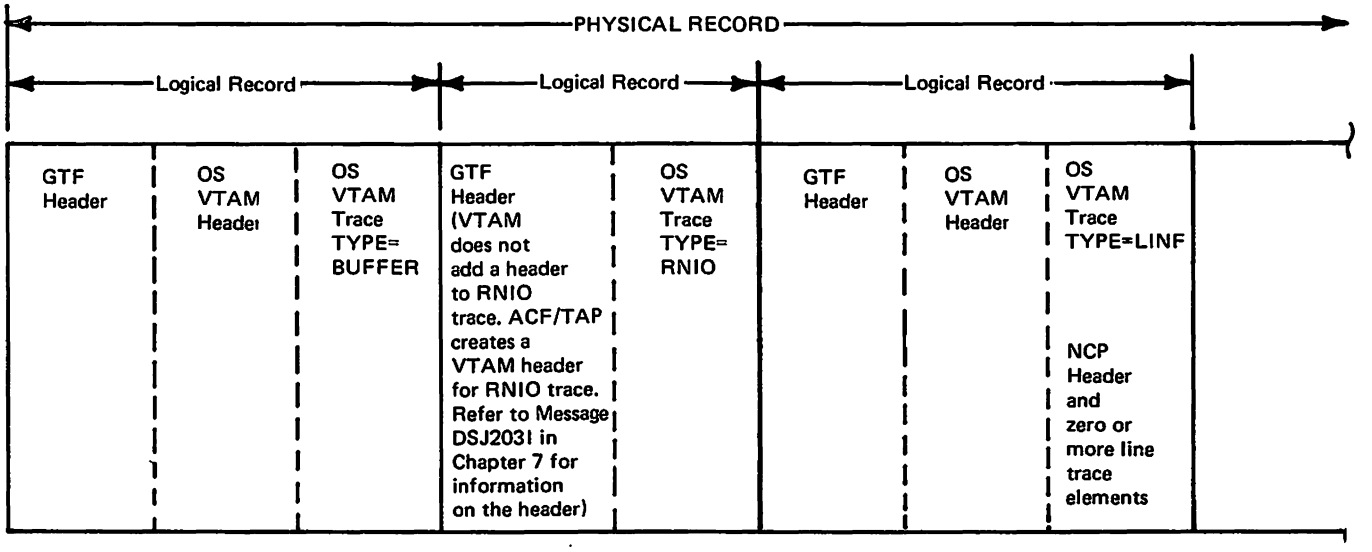
The OS/VS VTAM buffer trace records up to 212 bytes of data (224 bytes for DOS) from VTAM buffers during the transmission of an inbound or outbound message to a locally attached device or NCP. The VTAM buffer trace includes the transmission header (TH), the request/reponse header (RU), and a variable portion of the request/response unit (RU). VTAM adds 32 bytes of header information to the OS and DOS trace data records. GTF adds up to 12 bytes of header information to OS/VTAM trace data records. Figure 2-1 or Figure 2-2 shows the format for a VTAM buffer trace.

When to Use the OS/VS Buffer Trace: You use the OS/VS VTAM buffer trace to determine if the SNA sequences between VTAM and NCP are correct. If you do not need the user data, then use the RNIO trace.

OS/VS I/O Trace (RNIO) and DOS/VS I/O Trace (IO)

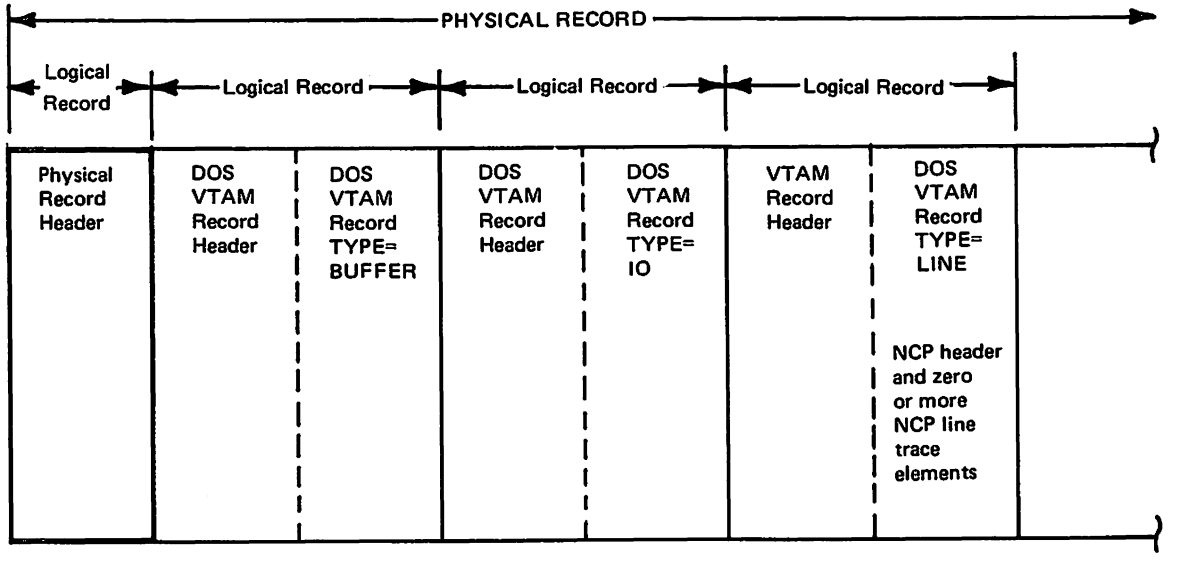
The OS/VS VTAM I/O trace (RNIO) and DOS/VS I/O trace (IO) record up to 20 bytes of data during the transmission of an inbound or outbound message to NCP. It includes the transmission header (TH), request/response header (RH), and a variable portion of the request/response unit (RU). OS/VTAM does not add any header information to the RNIO trace; however, ACF/TAP creates a 32-byte header for it. (Refer to Chapter 7, Message DSJ203I, for more information on the format of this header.) GTF adds up to 36 bytes of header information to the RNIO trace. DOS/VTAM adds a 32-byte header to the IO trace. RNIO or IO trace is similar to a short buffer trace in content if user data is being transmitted and received. However, certain control sequences may appear in RNIO or IO traces that do not appear in VTAM buffer traces. Figure 2-1 shows the format for a VTAM RNIO trace and Figure 2-2 shows the format for a VTAM IO trace.

When to Use RNIO or IO Trace: You use the RNIO or IO trace to determine if the SNA sequences between VTAM and NCP are correct. Because the RNIO or IO trace is abbreviated, you save trace file space by using it instead of the VTAM buffer trace.



Note: Only the record types processed by ACF/TAP are shown. Other types may also be on the trace file. Records can be recorded in any sequence, not necessarily the one shown.

Figure 2-3. Format of OS/VTAM SYS1. TRACE Trace File



Note: Only the record types processed by ACF/TAP are shown. Other types may also be on the trace file. Trace records can be recorded in any sequence, not necessarily the one shown.

Figure 2-4. Format of DOS/VTAM TRFILE Trace File

TCAM Traces

ACF/TAP processes the following TCAM traces:

- NCP line traces (LINE and LIN3)
- PIU trace (PIUT)

A TCAM routine named COMWRITE writes the NCP line trace and PIU trace to a sequential data set named COMWRITE. After the trace information is recorded on COMWRITE, you use it as data input to ACF/TAP. Figure 2-5 shows approximately where each TCAM trace is recorded and what information is recorded.

NCP Line Trace (TCAM)

The NCP line trace is the same for TCAM as for VTAM. The line trace is recorded by NCP, therefore the information it contains is independent of the access method. The format of the trace file varies depending on the access method, but ACF/TAP handles these differences for you. Figure 2-6 shows the format of the TCAM COMWRITE file. Note that NCP line traces and PIU traces are not combined in the same physical record.

When to Use the NCP Line Trace (TCAM): You use the TCAM NCP line trace to verify that the communications controller is sending and receiving the correct data to and from a station.

PIU Trace (TCAM)

PIU traces record 28 bytes of information passing in either direction between TCAM and NCP. Included are indexes to the terminal name table for the destination name and source name, transmission header (TH), request/response header (RH), and the first 15 bytes of the request/response unit (RU). The RU portion of the PIU trace is padded with hexadecimal zeros if necessary to fill out the 15 bytes. TCAM adds a four-byte header to the PIU trace data containing the source and destination terminal-name table indexes. ACF/TAP does not convert the indexes to trace-name table information for the PIU trace record.

When to Use the PIU Trace: You use the PIU trace to determine if the data being transferred between TCAM and the communications controller is correct.

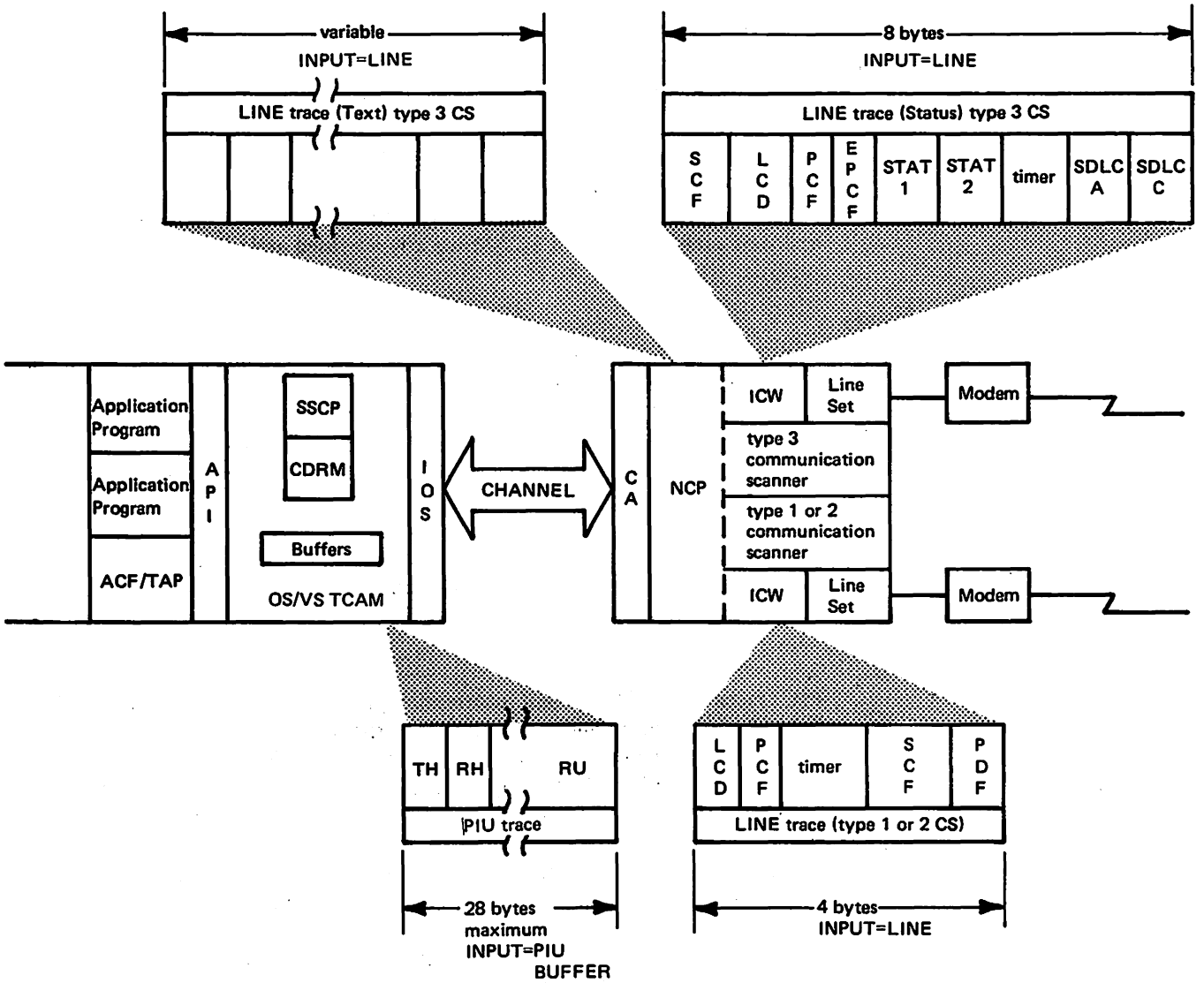
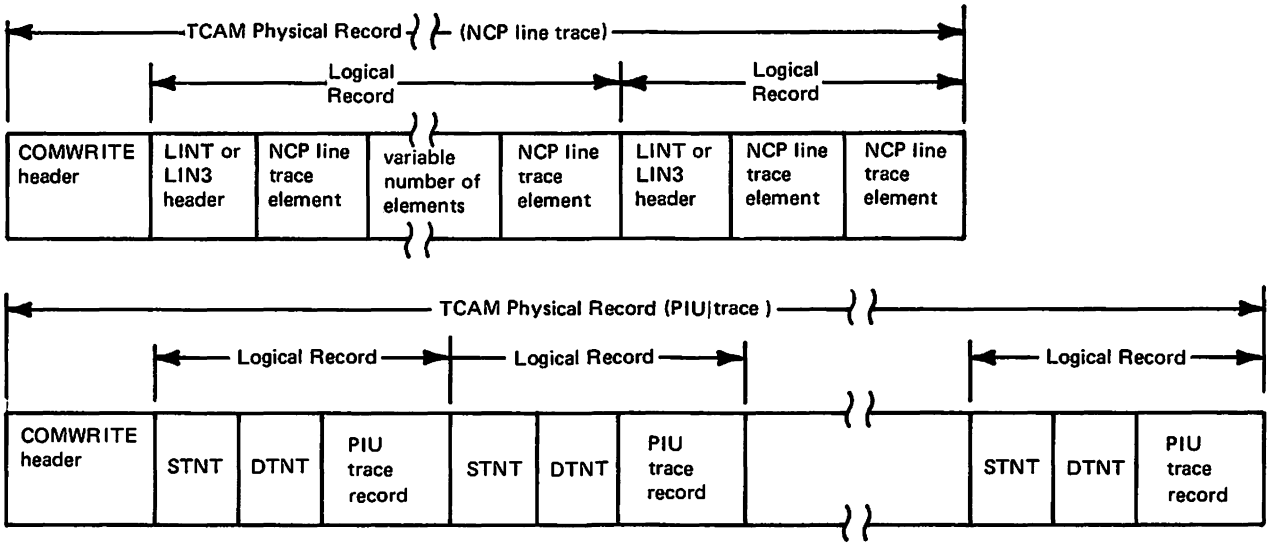
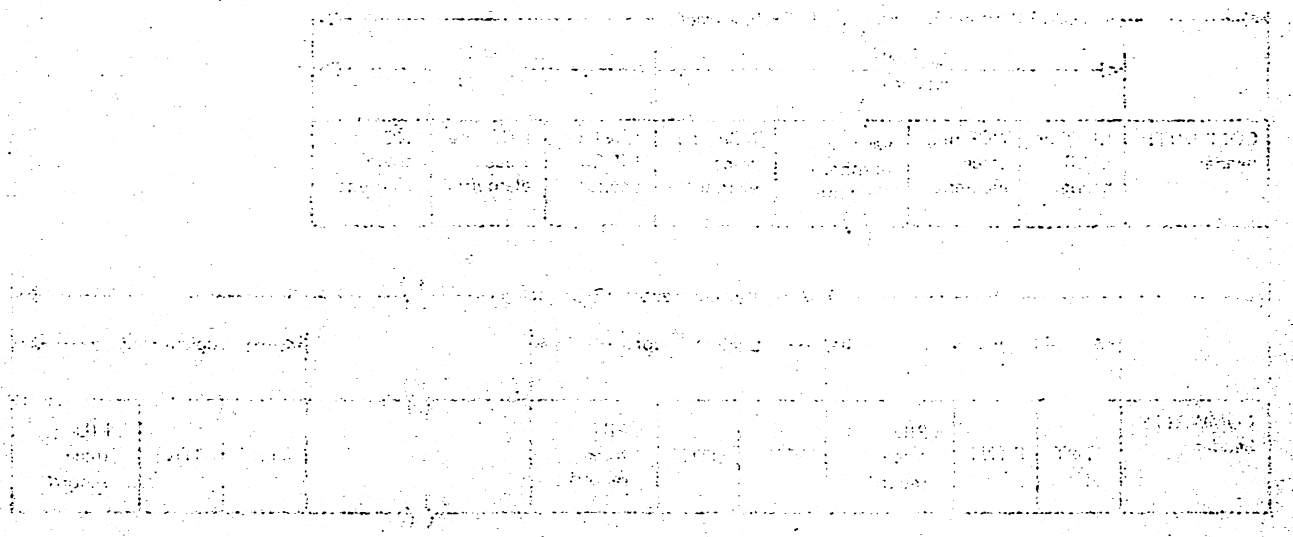


Figure 2-5. TCAM Traces that are Processed by ACF/TAP (SOURCE=COMWRITE)



Note: NCP line trace logical records and PIU logical records cannot be mixed on the same physical record.

Figure 2-6. Format of OS TCAM COMWRITE Trace file



Chapter 3. How to Create Trace Files

Before running ACF/TAP, you need to create trace files to use as input data. You do this by using the trace facilities already available in VTAM, TCAM, and NCP. This chapter describes how to create trace files.

Starting GTF (Generalized Trace Facility)

GTF must be started at the operator's console before a VTAM trace can be activated. VTAM formats the trace data into trace records and passes the records to GTF, which stores the records in the trace output data set SYS1.TRACE. Information on how to start GTF can be found in the appropriate *OS Service Aids* manual listed in the front of this manual.

Use the following GTF trace options when you run ACF/TAP.

```
TRACE=RNIO,USR
TIME=YES
```

TIME=YES is not mandatory but it makes the trace data more useful by causing GTF to time-stamp each trace record.

How to Start the NCP Line Trace

You start an NCP line trace from the host processor by using the appropriate command shown below. These commands are to be used after VTAM or TCAM has started.

If you want to start the trace at the same time the access method is started, you must include a line trace start parameter in the access method's start parameter list or enter it from the console during start-up. For more information on this, refer to the appropriate *System Programmer's Guide* listed in the front of this manual.

Note: *The VTAM and TCAM initialization routines and the trace routines are asynchronous; therefore, some events may not be traced during VTAM and TCAM start-up.*

OS/VS VTAM Line Trace

Start the OS/VS VTAM line trace with this command:

```
MODIFY|F procname,TRACE|NOTRACE,ID=nodename,TYPE=LINE
```

procname is the name of the start VTAM cataloged procedure.

TRACE turns on the trace.

NOTRACE turns off the trace.

nodename is the line name specified in the NCP LINE macro for the line you want to trace.

DOS/VS VTAM Line Trace

Start the DOS/VS VTAM line trace with this command:

```
MODIFY|F TRACE|NOTRACE,ID=nodename,TYPE=LINE
```

The operands are the same as above for OS/VS VTAM.

OS/VS TCAM Line Trace

Start the OS/VS TCAM line trace with this command:

```
MODIFY|F  {procname.id},TRACE={grpname,rln},{ON },[255],[100   ]
          {id         }       {linename   } {OFF} {aaa} {bbbbb}
          {jobname    }
          {procname   }
```

procname is the name of a cataloged procedure in SYS1.PROCLIB.

id is the abbreviation for identifier. The *procname id* variable was entered when TCAM was started; its use in any subsequent TCAM command must be identical to the *procname.identifier* field entered in the START TCAM command.

jobname is used only when TCAM is loaded and executed from the input stream (for example a card reader). *procname* is the name of a cataloged procedure in SYS1.PROCLIB that starts the TCAM message control program to which you are issuing this command. *grpname* is the name of the line group specified in the NCP GROUP macro. *rln* is the relative line number in the group. *linename* is the line name specified in the NCP TERMINAL macro for the line you want to trace.

ON turns the trace on.

OFF turns the trace off.

aaa is a decimal number specifying the maximum time interval in tenths of a second that NCP is to wait before sending its accumulated trace data to TCAM. The maximum value (and default) is 255.

bbbbb is a decimal number specifying the maximum number of four-byte trace entries to be allowed in host storage for this line. The minimum value is 2, the maximum value is 16366; the default is 100.

CAUTION
If the *bbbbb* chosen is not large enough to handle the line trace data coming from the NCP, trace data may be lost.

How to Start the VTAM Buffer Trace

You start a VTAM buffer trace from the host processor using the appropriate command shown below. These commands are to be used after VTAM has started.

If you want to start the trace at the same time the access method is started, you must include a line trace start parameter in the access method's start parameter list or enter it from the console during start-up. For more information on this, refer to the appropriate *System Programmer's Guide listed in the front of this manual.*

Note: *The VTAM initialization routines and the trace routines are asynchronous; therefore, some events may not be traced during VTAM start-up.*

OS/VS VTAM Buffer Trace

Start the OS/VS VTAM buffer trace with this command:

```
MODIFY|F procname,TRACE|NOTRACE,ID=nodename,TYPE=BUF
```

procname is the name of the start VTAM cataloged procedure.

TRACE turns on the trace.

NOTRACE turns off the trace.

nodename identifies the component, terminal (which may be a logical unit), cluster controller, or NCP for which the trace is to be started or stopped.

DOS/VS Buffer Trace

Start the DOS/VS VTAM buffer trace with this command:

```
MODIFY|F TRACE|NOTRACE,ID=nodename,TYPE=BUF
```

The operands are the same as above for OS/VS VTAM.

How to Start the VTAM RNIO Trace or IO Trace

You start the RNIO or IO trace from the host processor using the appropriate command shown below. These commands are to be used after VTAM has started.

If you want to start the RNIO or IO trace at the same time VTAM is started, you must include a buffer trace start parameter in the VTAM start parameter list or enter it from the console during start-up. For more information on this, refer to the appropriate *System Programmer's Guide.*

Note: *The VTAM initialization routines and the trace routines are asynchronous; therefore, some events may not be traced during VTAM start-up.*

OS/VS VTAM RNIO Trace

Start the OS/VS VTAM RNIO trace with this command:

```
MODIFY|F procname,TRACE|NOTRACE,ID=nodename,TYPE=IO
```

procname is the name of the start VTAM cataloged procedure.

TRACE turns on the trace.

NOTRACE turns off the trace.

nodename identifies the component, terminal (which may be a logical unit), cluster controller, or NCP for which the trace is to be started or stopped.

DOS/VS VTAM I/O Trace

Start the DOS/VS VTAM I/O trace with this command:

```
MODIFY|F procname,TRACE|NOTRACE,ID=nodename,TYPE=IO
```

The operands are the same as above for OS/VS VTAM.

Note: *ID=VTAM can be specified for TYPE=IO and TYPE=BUF to trace SSCP or CDRM events. Refer to Chapter 5 for information on control parameters.*

How To Start The TCAM PIU Trace

You start the PIU trace from the host processor using the command shown below. This command is to be entered after TCAM has started. If you want to start the trace at the same time TCAM is started, you must include a start parameter in the TCAM start parameter list or enter it from the console during start-up. For more information on this, refer to the *TCAM System Programmer's Guide.*

Note: *The TCAM initialization routines and the trace routines are asynchronous; therefore, some events may not be traced during start-up.*

/VS TCAM PIU Trace

Start the OS/VS TCAM PIU trace with this command:

```
MODIFY|F    {procname.id},BTRACE={linename    },ON|OFF
            {id          }        {grpname,rln}
            {procname    }        {grpname,ALL}
            {jobname     }        {ncpname     }
```

procname is the name of a cataloged procedure in SYS1.PROCLIB that starts the TCAM message control program to which you are issuing this command.

id is the abbreviation for identifier. The procname identifier variable was entered when TCAM was started; its use in any subsequent TCAM command must be identical to the *procname.identifier* field entered in the START TCAM command.

jobname is used only when TCAM is loaded and executed from the input stream (for example a card reader).

linename is the symbolic name of a line or line group.

grpname is the name of the line group.

rln is the relative line number of a line within the group.

ALL specifies all the lines and resources in the line group.

ncpname is the name of an NCP. All the lines attached to the NCP and all the resources attached to the lines are traced.

ON starts the trace.

OFF stops the trace.

Chapter 4. ACF/TAP JCL

This chapter describes OS and DOS JCL that can be used to run ACF/TAP.

Sample OS/VS JCL

The following JCL can be used to run OS/VS ACF/TAP. Information you must supply is shown in lowercase.

```
//ACFTAP JOB (your accounting information),'...etc...',
//ACFTAP   EXEC PGM=ACFTAP,REGION=256K
//STEPLIB  DD DSN=SYS1.yurlink,DISP=SHR
//SYSLDPRT DD SYSOUT=A
//SYSLSPRT DD SYSOUT=A
//SYSSDPRT DD SYSOUT=A
//SYSSSPRT DD SYSOUT=A
//SYSNEPRT DD SYSOUT=A
//SYSDTPRT DD SYSOUT=A
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//SYSTRACE DD DISP=(,KEEP),UNIT=2400,VOL=SER=yurnum,
                LABEL=(,NL)
//SYSIN    DD *
INPUT=LINE
SOURCE=COMWRITE
SUMMARY=YES
UNIT=TAPE
PRINT=YES
SSPRT=YES
SDPRT=YES
LDPRT=YES
LSPRT=YES
NEPRT=YES
DTPRT=YES
GO
QUIT
/*
```

You can omit //SYSIN and the control parameter data (INPUT=LINE, etc.). If you do, ACF/TAP will prompt you to enter parameters from the operator's console. Refer to Chapter 5 for more information about entering control parameters.

Sample DOS/VS JCL

The following JCL can be used to run DOS/VS ACF/TAP. Information you must supply is shown in lower case.

```
// JOB
// ASSGN SYS002,X'unit'
// DLBL SSPRT,'SYSSSPRT'
// EXTENT SYS002,extent information
// ASSGN SYS003,X'unit'
// DLBL LSPRT,'SYSLSPRT'
// EXTENT SYS003,extent information
// ASSGN SYS004,X'unit'
// DLBL NEPRT,'SYSNEPRT'
// EXTENT SYS004,extent information
// ASSGN SYS005,X'unit'
// DLBL DTPRT,'SYSDTPRT'
// EXTENT SYS005,extent information
// ASSGN SYS006,X'unit'
// DLBL SDPRT,'SYSSDPRT'
// EXTENT SYS006,extent information
// ASSGN SYS007,X'unit'
// DLBL LDPRT,'SYSLDPRT'
// EXTENT SYS007,extent information
// ASSGN SYS008,X'unit'
// EXEC ACFTAP
```

This JCL assumes that the six reports other than SYSPRINT (refer to Chapter 6 for a description of these reports) are all to be spooled by ACF/TAP to temporary DASD extents.

Note: *Any or all of the temporary data sets can also be assigned to magnetic tape unit(s), one data set per tape drive.*

SYS008 defines the trace input file. You may have to supply additional JCL, depending on the trace file recording media. The type of device (TAPE, 2311, 2314, 3330, or 3340) must be specified to ACF/TAP with the TYPE= parameter (refer to Chapter 5 for information about this).

The following symbolic units are automatically assigned to a DOS/VS program and are used by ACF/TAP:

- SYSIPT - Card reader input; used to read ACF/TAP parameters.
- SYSLST - System printer output; used to print the SYSPRINT data set followed by the SYSSSPRT, SYSLSPRT, SYSNEPRT, SYSDTPRT, SYSSDPRT, and SYSLDPRT data sets that were spooled to temporary storage during program execution.

Chapter 5. How to Specify ACF/TAP Commands and Parameters

This chapter describes the six commands and six categories of parameters that control the operation of ACF/TAP.

ACF/TAP Execution

When ACF/TAP begins execution, you get these messages on the operator's console. (Messages are described in Chapter 7.)

```
DSJ001I ACFTAP EXECUTION BEGINS
  F601I
DSJ021I PARAMETERS ARE RESET TO DEFAULT STATUS
  F621I
DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
  F620A
```

Note: *The messages are shown in their OS/VS format. For the DOS version of ACF/TAP, console messages have a different message ID than the OS message ID. DOS console message IDs are shown directly below the OS console message ID. The message text is the same for either, and is shown only with the OS ID. Messages in the output reports always appear in the OS/VS format, even for the DOS version of ACF/TAP.*

You must reply to these messages with either an ACF/TAP command or control parameter(s). The commands and parameters are entered from the operator's console. Or, if you enter a READ command, ACF/TAP then begins reading the commands and parameters from the SYSIN (OS/VS version) or SYSIPT (OS/DOS version) data set.

The ACF/TAP Commands

ACF/TAP commands direct the overall operation of ACF/TAP. The format to enter an ACF/TAP command is:

```
REPLY xx,GO
         LIST
         PROMPT
         QUIT
         READ
         RESET
```

Note: *The format shown is for OS/VS. xx is the OS/VS system reply ID. For DOS/VS, omit 'REPLY xx,'.*

GO — ACF/TAP begins processing trace files and producing output reports. All changes to the control parameters must be made before this command is entered (information on control parameters is in another section of this chapter). When the GO command is entered from the operator's console, Messages DSJ050I through DSJ073I print on the console. When the GO command is entered from the SYSIN or SYSIPT data set, part of the Messages DSJ050I through DSJ073I are sent to SYSPRINT or SYSLST (refer to Messages DSJ050I-DSJ073I in Chapter 7 for more information on this).

LIST — ACF/TAP prints messages DSJ050I through DSJ073I on the operator's console. This list shows the current parameters. Refer to Chapter 7 for information on the messages.

PROMPT	ACF/TAP stops reading parameters from the SYSIN (OS/VS version) or SYSIPT (DOS/VS version) data set, issues Message DSJ081I, and *prompts* the user to enter the parameters from the operator's console.
QUIT	ACF/TAP terminates execution.
READ	ACF/TAP stops reading parameters from the operator's console and begins reading them from the SYSIN (OS/VS version) or SYSIPT (DOS/VS version) data set. The SYSIN and SYSIPT data sets are also referred to in this manual as the *parameter input file* or *input file.*
RESET	ACF/TAP resets all control parameters to their default state.

e ACF/TAP Control Parameters

The six major categories of ACF/TAP control parameters are used to select:

- Type of input trace records
- Origin of the input trace file
- Type of output reports
- Selective processing of input trace records
- Network definition
- Miscellaneous control parameters

Enter ACF/TAP control parameters in this format:

```
REPLY xx,parameter=value
```

Note: *The format shown is for OS/VS. xx is the OS/VS system reply ID. For DOS/VS, omit 'REPLY xx,'.*

You enter the parameters from the operator's console (or from the SYSIN or SYSIPT data set if a READ command was previously entered). Blanks and commas are delimiters. At least one delimiter must appear between parameters. The maximum length of an input line is 72 characters. Multiple lines may be entered; however, no parameter may be continued from one line to another. Parameters may be re-entered if you make a mistake. The parameter used is the last value entered.

Any parameter, except SSCP and CDRM, is reset to its default state by coding the parameter without a value ('parameter= '). Input lines beginning with an asterisk (*) are ignored. However, a line beginning with * can be used as a comment line.

The parameter value default is shown *underscored.*

After each entry from the operator's console, ACF/TAP responds with these messages:

```
DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
  F620A
DSJ029I message text shows the entry from the console.
  F629I
```

If you make a syntax error while entering parameters, Message DSJ029I is followed by this message:

```
DSJ028I |
```

The vertical indicator (|) points to the approximate location in Message DSJ029I where ACF/TAP stopped scanning the entry because of a syntax error.

Note: *If the parameters are read from the SYSIN or SYSIPT data set, and a syntax error is detected, then Message DSJ089I prints in place of Message DSJ029I (see Chapter 7 for information about the messages).*

How to Select the Type of Trace Records for Processing

You use this parameter to specify what type of trace records to select from the input trace file for processing (see Chapter 2 for a description of trace records).

The parameters are:

```
[INPUT={ALL        }]
       {BUFFER|PIU}
       {LINE       }
       {RNIO|IO    }
       {SCAN       }
```

ALL — ACF/TAP processes BUFFER and RNIO trace records at the same time. When ALL is specified, ACF/TAP always sets LSPRT=NO and LDPRT=NO (the LSPRT and LDPRT parameters are described in another section of this chapter).

BUFFER — ACF/TAP processes only VTAM buffer trace records or TCAM PIU trace records. PIU can be entered instead of BUFFER.

LINE — ACF/TAP processes only NCP line trace records. ACF/TAP can process line trace data for only one line at a time. If no line is specified, the first line in the trace file is the line processed (see the NODE= parameter in another section of this chapter). LINE is the default value.

RNIO — ACF/TAP processes only OS/VTAM RNIO traces, DOS/VTAM I/O traces, or OS/TCAM I/O traces. IO can be entered instead of RNIO. If INPUT=RNIO | IO and SOURCE=COMWRITE are specified, ACF/TAP ignores INPUT=RNIO | IO and instead processes INPUT=BUFFER | PIU. (PIU trace is the TCAM equivalent of RNIO | IO trace.)

SCAN — ACF/TAP summarizes all the trace records on the input file. No analysis is performed on the trace records (see the SUMMARY= parameter in another section of this chapter and Messages DSJ201I and DSJ205I, in Chapter 7, for more details).

How to Specify the Origin of the Trace Files

You use this parameter to specify the origin of the trace file. The parameters are:

```
[SOURCE={COMWRITE}]
        {GTF     }
        {DOS     }
```

COMWRITE — The input trace file is the TCAM COMWRITE data set.

GTF — The input trace file is the GTF SYS1.TRACE data set. For the OS/VS version of ACF/TAP, GTF is the default value.

DOS — The input trace file is the DOS VTAM trace file data set. For the DOS/VS version of ACF/TAP, DOS is the default and is the only valid keyword that can be specified for SOURCE.

Iow to Select the Types of Output Reports

You use these parameters to specify the kind of output reports you want. You can request up to seven different types of reports. YES causes the report to be produced; NO omits the report. LDPRT and SUMMARY have additional parameters that are explained below. See Chapter 6 for a description of the reports.

CP Line Trace Summary Report

```
[LSPRT={NO }]
       {YES}
```

If INPUT=ALL is specified, then ACF/TAP always sets LSPRT=NO.

CP Line Trace Detail Report

```
[LDPRT={ERROR}]
       {NO   }
       {YES  }
```

ERROR Specifies the detail report show only ACF/TAP defined error or exception conditions.

If INPUT=ALL is specified, then ACF/TAP always sets LDPRT=NO.

NA Analysis Detail Report

```
[SDPRT={NO }]
       {YES}
```

NA Analysis Summary Report

```
[SSPRT={NO }]
       {YES}
```

:twork Data Traffic Report

```
[DTPRT={NO }]
       {YES}
```

:twork Error Report

```
[NEPRT={NO }]
       {YES}
```

'SPRINT or SYSLST Reports

Message Numbers SYSPRINT or SYSLST Report: This report provides a summary of the parameters that ACF/TAP used to process the input file and a summary of input records.

```
[SUMMARY={ALL  }]
         {EVERY}
         {NO   }
         {YES  }
```

ALL — Specifies a SYSPRINT or SYSLST report showing *all* input trace records specified by INPUT=. All processable records, whether actually processed or not, are summarized.

EVERY — Specifies a SYSPRINT or SYSLST report showing *every* input trace record on the input data set including types that ACF/TAP does not process.

YES — Specifies a SYSPRINT or SYSLST report showing input trace records that ACF/TAP processed. The distinction between ALL and YES occurs when trace records are being selectively processed according to time, count or nodename options. In this case, ALL may produce more summary entries than YES.

NO — Is the default *except* if INPUT=SCAN is specified. In this case, SUMMARY=ALL overrides the default. See the START= and END= parameters for further information about file scanning.

Hexadecimal Snapshot SYSPRINT or SYSLST Report: This parameter specifies that every input trace file record be printed in standard dump format.

```
[DUMP={NO }]
      {YES}
```

Trace Summary SYSPRINT or SYSLST Report: This parameter specifies that the contents of the TH, RH and RU be printed.

```
[PRINT={NO }]
       {YES}
```

How To Selectively Process Trace Records

You use these parameters to select records for processing based on time, count, and device name.

Select Records by Time

```
[STIME=hh.mm.ss ETIME=hh.mm.ss]
```

These parameters specify records for processing based on the trace record timestamp. The specified values of STIME= and ETIME= are compared against the timestamp on the trace record. Records with timestamps before the start time (STIME=) and after the end time (ETIME=) are not processed. (hh=hours: mm=minutes: ss=seconds.) STIME= must be less than ETIME=. ETIME= minus STIME= must be less than 24 hours.

Select Records by Count (Range)

```
[START=count END=count]
```

These parameters specify records for processing based on ACF/TAP assigned message counts (see Chapter 6 for information on how ACF/TAP counts messages). Records with message counts between START= and END= are processed. Starting and ending counts may be specified when a trace file is scanned (INPUT=SCAN). If SUMMARY=EVERY is specified, the count limits apply to every trace record on the file. If the SUMMARY= parameter is not specified, the scan count applies only to trace records that can be processed by ACF/TAP.

electing by Device Name

```
[NODE=nodename]
```

This parameter specifies the records to be processed based on the name of a device. A unique one-to-eight character name is used as the nodename (device name). The nodename depends on the source of the trace data. For DOS and GTF VTAM-BUFFER traces and NCP line trace, it is the alphanumeric nodename of the node being traced. For GTF VTAM-RNIO traces and TCAM PIU traces, no unique identifiable name field is included in the trace records. ACF/TAP extracts the network addresses of the node being traced from the trace record. The network address is included in the SYSPRINT or SYSLST summary print line produced for each trace record in the trace file. The unique network address may be used as a nodename.

For NCP line trace, if you do not specify a nodename, the first identifiable name is used as a selection limit for the remainder of the file. For all trace types, if NODE=******** is specified, the first identifiable name is used as a selection limit for the remainder of the file.

Note: *Count (START= and END=) is processed within NODE, and NODE is processed within time (STIME= and ETIME=). Thus it is possible to select 'n' records from a particular node occurring between certain time limits. Figure 5-1 illustrates this.*

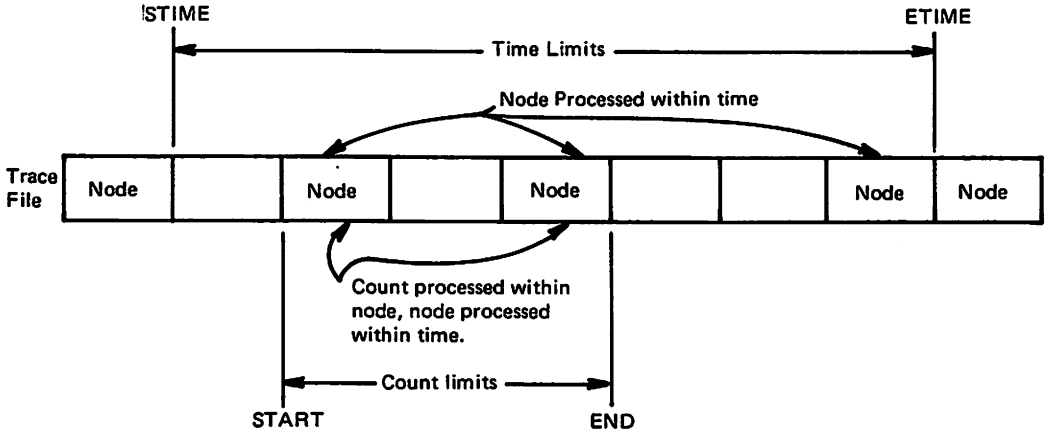


Figure 5-1. How ACF/TAP Processes Records By Time, Device Name (Node) , and Count.

low to Define the Network

You use these parameters to select records for processing based on the network definition.

lumber of Major Active Network Nodes

```
[MAXSUBA={nnn}]
         {15}
```

MAXSUBA specifies the highest value assigned to a major node ID in the network configuration. ACF/TAP must know the MAXSUBA of the network to form the SSCP (system services control point) and CDRM (cross domain resource manager) network addresses. Specify n=3, 7, 15, 31, 63, 127, or 255. No other

values are allowed. The default is MAXSUBA=15. Refer to the appropriate *System Programmer's Guide* for information about MAXSUBA.

Address of CDRM (Cross Domain Resource Manager)

```
[CDRM={subarea,element}]
      {1,1           }
```

CDRM specifies the subarea and element address of each CDRM in the network. A maximum of 255 CDRM addresses can be specified. The default is (1,1).

ACF/TAP must know the subarea and element address of each CDRM so it can recognize formatted FM data representing network services traffic between CDRMs (CDSENDED, CDCINIT, etc.).

ACF/TAP validates subarea and elements to ensure the subarea is greater than zero and is not greater than MAXSUBA; and that the element number is not greater than 16,381 and is not greater than the maximum elements possible per subarea.

The maximum number of elements per specified value of MAXSUBA are:

MAXSUBA=3, maximum elements = 16,381.
MAXSUBA=7, maximum elements = 8,189.
MAXSUBA=15, maximum elements = 4,093.
MAXSUBA=31, maximum elements = 2,045.
MAXSUBA=63, maximum elements = 1,021.
MAXSUBA=127, maximum elements = 509.
MAXSUBA=255, maximum elements = 253.

To eliminate a CDRM entry for a particular subarea (sss), enter CDRM=sss.

Address of SSCP (System Services Control Point)

```
[SSCP={subarea,element}]
      {1,0           }
```

SSCP specifies the subarea and element address of an SSCP. A maximum of 255 SSCP addresses can be specified. The default is (1,0).

ACF/TAP must know the subarea and element addresses of each SSCP so it can recognize the formatted FM data representing network services traffic between SSCPs and intra-domain NCPs (INITSELF, etc).

ACF/TAP validates subarea and elements to ensure the subarea is greater than zero and is not greater than the MAXSUBA; and the element number is not greater than 16,381 and is not greater than the maximum elements possible per subarea.

The maximum number of elements per specified value of MAXSUBA are:

MAXSUBA=3, maximum elements = 16,381.
MAXSUBA=7, maximum elements = 8,189.
MAXSUBA=15, maximum elements = 4,093.
MAXSUBA=31, maximum elements = 2,045.
MAXSUBA=63, maximum elements = 1,021.
MAXSUBA=127, maximum elements = 509.
MAXSUBA=255, maximum elements = 253.

To eliminate an SSCP entry for a particular subarea (sss), enter SSCP=sss.

Miscellaneous Control Parameters

You use these parameters to change the format or data in certain output reports or, for DOS, to specify the device type that the DOS/VS trace file resides on.

Selecting the Number of Print Lines per Page

```
[LINECNT={nn}]
         {60}
```

Specify the LINECNT= parameter to change the number of print lines per page on the output reports. The minimum line count is 25 and the maximum line count is 99999999. The default value is LINECNT=60.

Suppressing Receive Ready (RR) Frames

```
[RRSUP={NO  }]
       {PAIR}
       {YES }
```

NO — Specifies *no* SDLC receive ready (RR) frames are suppressed on the output reports.

PAIR — Specifies RR sequence *pairs* (command and response) occurring after the first pair are suppressed from the output reports, except the NCP line trace detail report (LDPRT) for the type 3 scanner, the SNA summary report (SSPRT) for the type 1 or 2 scanner, and the SNA detail report (SDPRT) for the type 1 or 2 scanner.

Note: *Because of the way that line trace is implemented by NCP for full duplex lines, RRSUP=PAIR does not cause suppression of RR sequences in full duplex line trace data. Specify RRSUP=YES when processing full duplex line traces.*

YES — Specifies SDLC receive ready (RR) frames are suppressed from the SNA summary report (SSPRT), SNA detailed report (SDPRT), and NCP line trace detail report (LDPRT) for the type 3 scanner. YES is the default value.

Selecting Timeout Limit for NCP Line Trace Timer Field

```
[TIMEOUT={nnn}]
         {010}
```

TIMEOUT= specifies the time duration of the NCP timer field that ACF/TAP flags as an exception in the line trace summary report (LSPRT) and line trace detail report (LDPRT). *nnn* is in tenths of a second. 000 is the minimum allowed value and 255 is the maximum allowed value. If 000 or 001 is specified, the ACF/TAP timeout exception is eliminated.

Selecting Type of Device the Trace File Resides On (DOS/VS only)

```
[UNIT={TAPE}]
      {2311}
      {2314}
      {3330}
      {3340}
```

This parameter is used by the DOS/VS version of ACF/TAP to specify the type of device that the input data set resides on. The default is TAPE. This parameter is ignored by the OS/VS version of ACF/TAP.

Chapter 6. How to Interpret ACF/TAP Reports

After you have created a trace file, ACF/TAP can then process it and prepare various types of reports. The reports range from a general log of every trace record to a detailed report of specific trace records. This chapter describes the content of each type of report. Chapter 5 described how to select the report.

How ACF/TAP Numbers Report Data

When ACF/TAP processes trace data files, it sequentially numbers the records in several different ways. This makes it easy to cross reference the same record(s) in different types of reports. Figure 6-1 shows an example of a VTAM trace file with different types of trace records on it. A TCAM trace file is similar except it does not have mixed types of records in the same physical record. Figure 6-1 is keyed to the following descriptions.

1. ACF/TAP sequentially numbers every record on a trace file, even if the record is a type that ACF/TAP does not process. This absolute sequence number appears only on the SYSPRINT or SYSLST log.

2. ACF/TAP sequentially numbers every record that it processes—or can process in the case where the file is being scanned (INPUT=SCAN)—by the type of record. This *process* number is the one that the count select limits (START=count; END=count) are tested against, except when INPUT=SCAN and SUMMARY=EVERY are specified.

3. Every complete transmission that ACF/TAP analyzes is called a message and is assigned a message number. The *message* number is the same as the *process* number except for NCP line trace.

4. A line trace record consists of multiple NCP line trace events of variable length depending on the type of communication scanner. ACF/TAP sequentially numbers each NCP line trace event and refers to it as an *element* number.

5. A line trace message consists of multiple elements that can span one or more records. Each message that is assembled from the line trace data is assigned a *message* number. A line trace record can have more than one message in it.

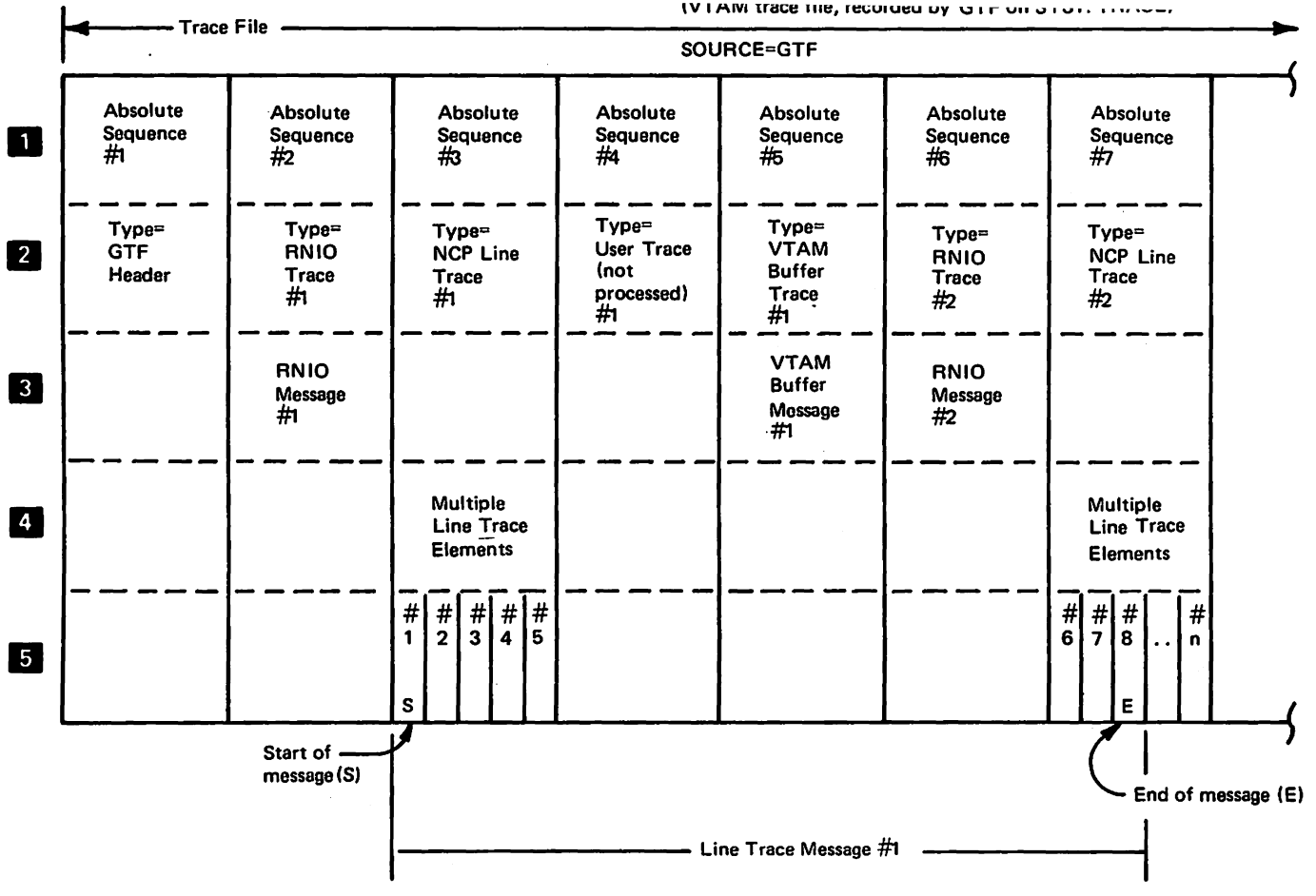


Figure 6-1. ACF/TAP Method for Numbering Trace File Input Data

Line Trace Summary Report (Type 1 or Type 2 Scanner)

Figure 6-2 shows an example of the ACF/TAP line trace summary report for a type 1 or 2 scanner. (This is a special composite figure that shows both SDLC and BSC line traces.) The line trace summary report is produced by the control parameter LSPRT=YES. (NO is the default value.) If INPUT=ALL is specified, ACF/TAP always sets LSPRT=NO. If LSPRT=YES was specified, it is overridden. The NCP line trace summary report is produced from NCP line trace records. Figure 6-2 is keyed to the following descriptions.

1. NCP line trace element. This is a line trace element shown in hexadecimal format. It was initially recorded in a 3705 when a level 2 interrupt occurred. For the type 1 or type 2 scanner, it is always four bytes long. ACF/TAP shows up to 35 line trace elements per *six* lines of printing for SDLC and up to 35 line trace elements per *five* lines of printing for BSC or start-stop line control.

2. Trace field descriptions. ACF/TAP prints field descriptions to make it easier to read the line trace summary report. Each description is shown in the same relative location as the corresponding trace data is shown.

3. Element number. This is the sequence number of an NCP line trace element from the input trace file. The element number is for the last element in this group of print lines.

4. Record number. Record number is the sequence number of the NCP line trace record currently being processed by ACF/TAP when the lines are printed.

5. V. This is a pointer that indicates every fifth trace element. It is provided for ease in reading the report.

6. Number of complete messages. This is the number of *SDLC* messages, completely assembled, when the group of lines is printed. The fifth line does not print for binary synchronous communications (BSC) or start-stop line control (or when no flag or error conditions have occurred).

7. ACF/TAP description of the current line state. Each trace element is analyzed and if the line control is SDLC (LCD=X'3' for type 1 scanner, LCD=X'9' for type 2 scanner), certain events are flagged under the trace element that it occurred in. These flags are:

   S The parallel data field (PDF) indicated this trace element is the start of an SDLC frame. Because SDLC architecture permits the flag at the end of a frame to also delimit the start of the next frame, the start of frame flag may not occur.

   E The parallel data field (PDF) indicated this trace element is the end of an SDLC frame.

   R The end of an SDLC frame and the beginning of another SDLC frame was detected and ACF/TAP reset its internal buffers.

I Characters are ignored for the following reasons:

- Duplicate flags.
- Characters outside an identified frame (between or before frames).
- Characters following an exceptional condition (other than timeout) are ignored until the next start of frame is detected. In general, ACF/TAP ignores characters until it can exactly determine the state of the line being traced or find the start of the SDLC frame.

X An exception in the secondary control field (SCF) or a timeout was detected. A timeout occurs when the timer field has incremented an amount equal to that specified in the TIMEOUT=nnn control parameter. It applies only to half duplex line traces. It has no relation to the line control timeouts. The SCF conditions that ACF/TAP flags as exceptions are shown in Appendix A.

blank (no flag). For SDLC this is an address (A), control (C), data or BCC check character. For binary synchronous communication (BSC) or start-stop line control, the fifth line is not printed.

8 Page heading information. The page heading is self-explanatory. The date shows when the report was printed.

```
                                    ADVANCED COMMUNICATIONS FUNCTION
                                         TRACE ANALYSIS PROGRAM  (8)
DATE: 01:18:77 (8)                        LINE TRACE SUMMARY                                   PAGE: 00001 (8)

ELEMENT  TRACE                                                                                                  PROGRAM
REC/MSG  FIELDS                 (1)          V(5)          V             V             V             V             V          V   RESULT

(3) 0000035 LCDPCF  95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 I-IGNOR CHR
            TIME    00 00 00 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 01 02 02 02 02 R-RESET BFR
(4) 0000005 SCF (2) 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 S-START MSG
            PDP     7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3E BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3E BE BE 7E C1 E-END MSG
(6) 0000005         R  S           E  S           E  R  S           E  I           E  R  S           E  I  X-EXCEPTION

            0000070 LCDPCF  99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 I-IGNOR CHR
                    TIME    02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 02 03 03 03 03 03 03 03 03 03 03 R-RESET BFR
            0000007 SCF     40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 S-START MSG
                    PDP     D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B E-END MSG
            0000010             E  R  S           E  I           E  R  S           E  I           E  R  S  X-EXCEPTION

            0000105 LCDPCF  97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 I-IGNOR CHR
                    TIME    03 03 03 03 03 03 03 03 03 03 03 03 03 03 03 03 03 03 04 04 04 04 04 04 04 04 04 04 04 04 04 04 04 04 04 R-RESET BFR
            0000010 SCF     49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 S-START MSG
                    PDP     BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E E-END MSG
            0000016     E  I           E  R  S           E  I           E  R  S           E  I           E  R  X-EXCEPTION

            0000140 LCDPCF  96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 99 99 99 95 96 97 97 97 97 96 99 99 99 I-IGNOR CHR
                    TIME    04 04 04 04 04 04 04 04 04 04 04 04 04 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 05 R-RESET BFR
            0000012 SCF     0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 40 40 45 45 0D 49 49 49 49 0D 45 40 40 S-START MSG (7)
                    PDP     7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 31 1B 7E 7E 7E C1 71 3B BE BE 7E C1 D1 E-END MSG
            0000021     S           E  I           E  R  S           E  I           E  R  S (7)       E  I        X-EXCEPTION

                SDLC ──────┐
                           ▲
                BSC ──────┐
                          ▼
                                    ADVANCED COMMUNICATIONS FUNCTION
                                         TRACE ANALYSIS PROGRAM
DATE: 05:04:77                            LINE TRACE SUMMARY                                   PAGE: 00001

ELEMENT  TRACE                                                                                                  PROGRAM
REC/MSG  FIELDS                          V             V             V             V             V          V   RESULT

0000070 LCDPCF  C9 C5 C7 C7 C7 C7 C9 C9 C9 C9 C9 C5 C9 C9 C9 C9 C9 C9 C9 C9 C9 C9 C5 C7 C7 C7 C7 C9 C9 C9 C9 C9 C9 C9 C9 C9 I-IGNOR CHR
        TIME    D4 D4 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D6 D6 D6 D6 D6 D6 D6 D6 R-RESET BFR
0001810 SCF     42 42 4A 4A 4A 42 42 42 42 42 42 42 42 42 42 42 42 42 42 42 4A 4A 4A 4A 42 42 42 42 42 42 42 42 42 42 S-START MSG
        PDP     FF FF 32 37 FF FF AA 32 32 37 FF FF AA 32 32 40 40 7F 7F 2D FF FF 32 37 FF FF AA 32 32 40 40 7F 7F 2D FF E-END MSG
```

Figure 6-2. NCP Line Trace Summary Report (Type 1 or 2 scanner) (Specify LSPRT=YES)

Figure 6-3 shows an example of the NCP line trace detail report. (This is a special composite figure that shows both SDLC and BSC line traces.) This report is produced from the same input data used for the line trace summary report. You can print only the exceptions as shown in Figure 6-3 by using the default parameter LDPRT=ERROR. You can print *all* the NCP line trace records by using the control parameter LDPRT=YES. You can omit the report by using the control parameter LDPRT=NO. If INPUT=ALL is specified, ACF/TAP sets LDPRT=NO. If LDPRT=YES or LDPRT=NO was specified, it is overridden. Figure 6-3 is keyed to the following descriptions.

Note: *The NCP line trace detail report is of little value for* ***non-SDLC*** *line trace data.*

1. NCP line trace element. This is one complete line trace element shown in hexadecimal format. It was initially recorded in a 3705 when a level 2 interrupt occurred. It is always four bytes long. This report shows *one* line trace per *one* print line.

2. Trace field description. ACF/TAP provides field descriptions to make it easier for you to read the line trace summary report.

3. Element number. This is the sequence number of an NCP line trace element from the input trace file.

4. Page heading descriptions. The page headings are self-explanatory. The date shows when the line trace detail report was printed.

5. Descriptive analysis. ACF/TAP shows the secondary control field (SCF) in binary. If the SCF program flag bit is set, the message 'PROGRAM FLAG' is added to the print line. The bits that ACF/TAP flags as exception conditions are shown in Appendix A. If ACF/TAP does not detect an exception bit and the line trace timer has incremented an amount equal to the value specified in the control parameter TIMEOUT=nnn, then the message 'TIMEOUT' prints.

6. Status/Action. The line control definer (LCD) status is printed unless the status is SDLC (LCD=X'9'). Then it prints the parallel data field (PDF) status. The status/action messages are shown in Appendix A.

7. Program results. ACF/TAP describes what the results were when it analyzed the line trace data. The messages are shown in Appendix A.

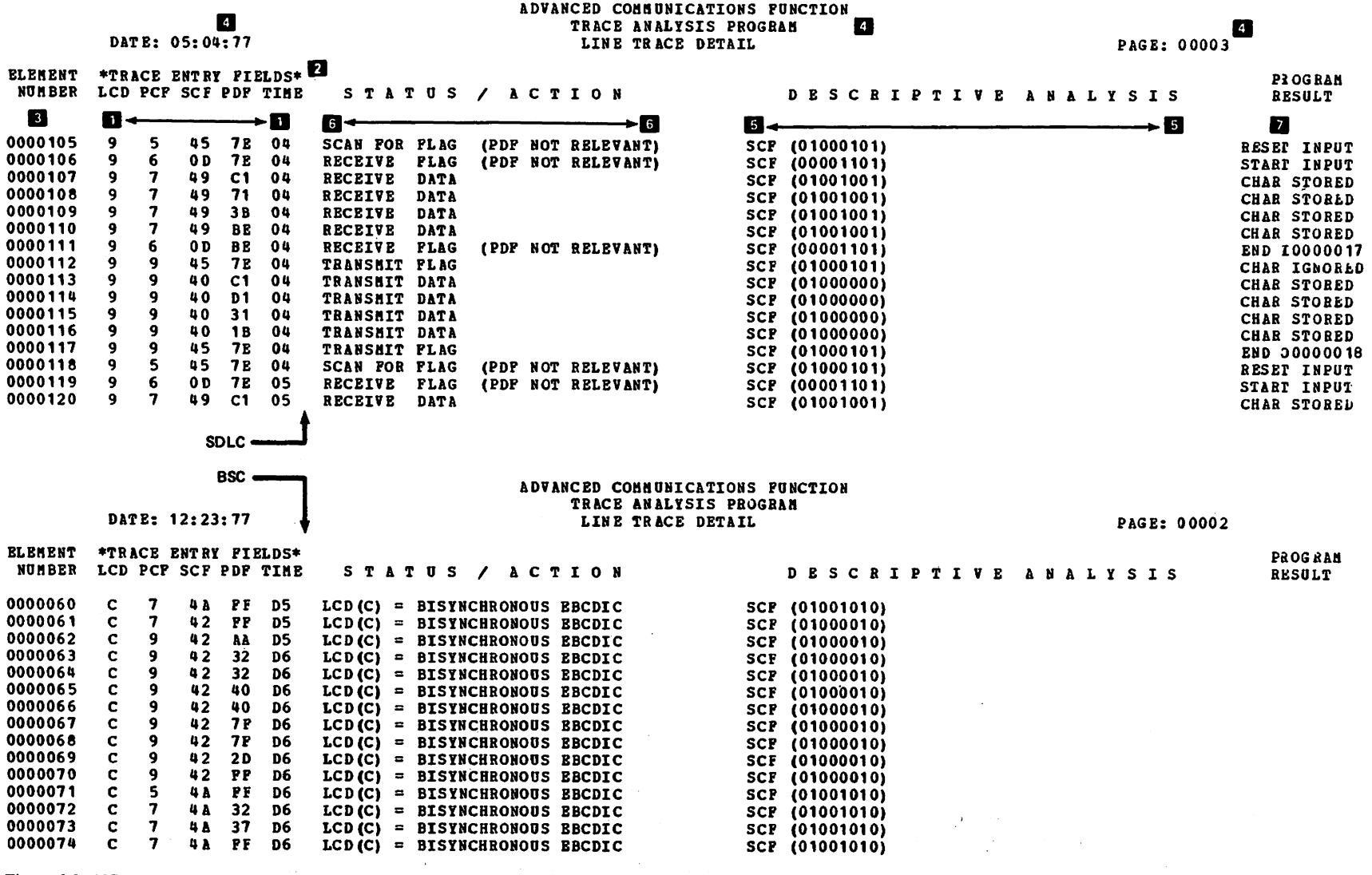


Figure 6-3. NCP Line Trace Detail Report (Type 1 or 2 scanner) (Specify LDPRT=YES)

Line Trace Summary Report (Type 3 Scanner)

Figure 6-4 shows an example of the ACF/TAP line trace summary report for a type 3 scanner. This report is produced by the control parameter LSPRT=YES. IF INPUT=ALL is specified, then ACF/TAP sets LSPRT=NO. This overrides the specified INPUT= parameter. The NCP line trace summary report is produced from NCP line trace records. Figure 6-4 is keyed to the following descriptions.

1. NCP line trace status element. This is one line trace status element shown in hexadecimal format. It was initially recorded in a 3705, for a type 3 scanner, when a level 2 interrupt occurred. A status element is always eight bytes long and has the format shown. The format of the status element has been superimposed on Figure 6-4.

2. NCP line trace text element. This is one line trace text element shown in hexadecimal format. It was initially recorded in a 3705, for a type 3 scanner, when a level 2 interrupt occurred. A text element's length is variable. The minimum length is two bytes (BCC only). The maximum is variable and depends on the message length.

3. Record number. This is the ACF/TAP assigned sequence number of the *physical line* trace record that ACF/TAP was processing when this line was printed.

4. Element number. This is the ACF/TAP assigned sequence number of the last *complete* element shown on this print line.

5. Message number. This is the number of the last *SDLC* message, completely assembled, when this line was printed.

6. Page heading information. The page heading is self-explanatory. The date shows when the report was printed.

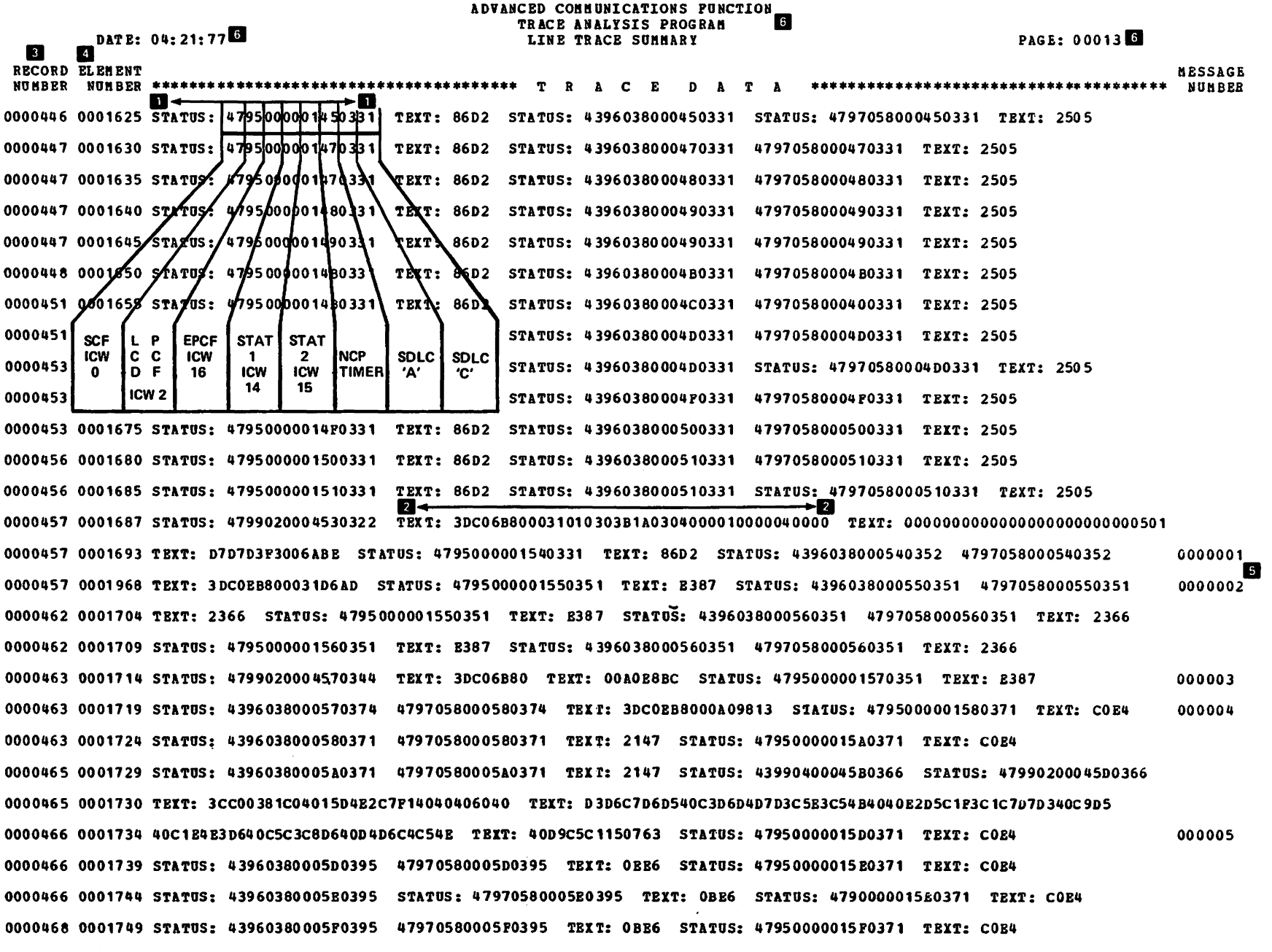


Figure 6-4. NCP Line Trace Summary Report (Type 3 scanner) (Specify LSPRT=YES)

NCP Line Trace Detail Report (Type 3 Scanner)

Figure 6-5 shows an example of the ACF/TAP line trace detail report for a type 3 scanner. This report is produced from the same input data used for the line trace summary report. You can print only the errors and exceptions by specifying LDPRT=ERROR. You can print all the NCP line trace records by specifying LDPRT=YES. You can omit this report by specifying LDPRT=NO (NO is the default). In the example shown, LDPRT=YES and RRSUP=YES (default) were specified. If INPUT=ALL is specified, ACF/TAP sets LDPRT=NO. If LDPRT=YES or LDPRT=ERROR was specified, it is overridden.

1. NCP line trace status element. This is one line trace status element shown in hexadecimal format. It was initially recorded in a 3705, for a type 3 scanner, when a level 2 interrupt occurred. A status element is always eight bytes long and has the format shown by the headings printed at the top of the page.

2. NCP line trace text. This is one line trace text message, assembled by ACF/TAP from text elements, shown both in hexadecimal and character format. The asterisks (*) are delimiters. A text element's length is variable. The minimum length is two bytes (BCC only). The maximum length is variable and depends on the message length.

3. Record number. This is the ACF/TAP assigned sequence number of the *physical* line trace record that ACF/TAP was processing when this line was printed.

4. Element number. This is the ACF/TAP assigned sequence number of the status or text element or, in the case of multiple text elements assembled into a message, it is the sequence number of the last text element in the message.

5. Message number. This is the number of *SDLC* messages, completely assembled. It prints on the first line of the text.

6. RR, RNR and text elements suppressed. This is the total number of RR and RNR status elements and two byte text elements that were *not* printed because RRSUP=YES was specified. If RRSUP=NO had been specified, each element would print in the same format as the message elements.

7. Link state. ACF/TAP indicates the direction of transmission with respect to NCP (I=in, O=out); the frame type (I=information frame, S=supervisory, N=nonsequenced); and if the frame is a supervisory or non-sequenced frame, ACF/TAP indicates if it is a response (R) or command (C) frame. The letter that indicates direction of transmission appears in the vertical column under the letter 'S' in STATE. The letter that indicates type of frame appears in the vertical column under the letter 'A' in STATE. The letter that indicates response or command appears in the vertical column under the letter 'E' in STATE.

8. Control field. This is a description of the SDLC control field from the status element. If the control frame is a command or response frame, the acronym for the response or command appears in the vertical column under CMND. A list of acronyms and their definitions is found

```
                                    ADVANCED COMMUNICATIONS FUNCTION
                                        TRACE ANALYSIS PROGRAM
                                          LINE TRACE DETAIL
      DATE: 06:01:77                                                                                    PAGE: 00001

ELEMENT   ************TRACE ENTRY FIELDS*************   LINK *CONTROL FIELDS*     CURRENT                    RECORD          MESSAGE
 NUMBER   LCD PCF EPCF SCF TIME STAT1 STAT2 ADDR CNTL   STATE CMND P/F RCV SND  SCANNER STATE               NUMBER           NUMBER

0002125    9   7   05   47  E0    80    00   03   1E    I I         S   0   7   RECEIVE  PLAG              0000532
0002126 *3CC08381  00A8B1                                                       *..CA.Y.                                  * 0000014
        0000006 RR  0000000 RNR  0000004 TEXT  ELEMENTS SUPPRESSED

0002137    9   9   04   43  E3    00    04   03   00    O I               0   0   TRANSMIT DATA             0000532
0002138    9   9   02   47  E5    00    04   03   00    O I               0   0   TRANSMIT FLAG             0000532
0002142 *3CC00381  C04015D4  E2C7F140  40406040  E2D5C1F3  C1D7D7D3  40C9D540  C1E4E3D6*...A. .MSG1   - SNA3APPL IN AUTO* 0000015
        *40C5C3C8  D640D4D6  C4C54B40  F0F0F415  40404040  40404040  40404040  40404040* ECHO MODE. 004.                 *
        *40404040  40404040  40404040  40404040  40404040  40343B                       *                 ••          *
        0000013 RR  0000024 RNR  0000025 TEXT  ELEMENTS SUPPRESSED

0002205    9   6   03   43  C1    80    00   03   30    I I         S   1   0   RECEIVE  CNTL              0000543
0002206    9   7   05   47  C1    80    00   03   30    I I         S   1   0   RECEIVE  FLAG              0000543
0002207 *3CC08381  006A0D                                                       *..CA...                                  * 0000016
        0000006 RR  0000000 RNR  0000004 TEXT  ELEMENTS SUPPRESSED

0002218    9   9   04   43  C4    00    04   03   22    O I               1   1   TRANSMIT DATA             0000547
0002219    9   9   02   47  C6    00    04   03   22    O I               1   1   TRANSMIT FLAG             0000547
0002223 *3CC00381  C04015D4  E2C7F140  40406040  E2D5C1F3  C1D7D7D3  40C9D540  C1E4E3D6*...A. .MSG1   - SNA3APPL IN AUTO* 0000017
        *40C5C3C8  D640D4D6  C4C54B40  F0F0F515  40404040  40404040  40404040  40404040* ECHO MODE. 005.                 *
        *40404040  40404040  40404040  40404040  40404040  40EA30                       *                 ••          *
        0000013 RR  0000024 RNR  0000025 TEXT  ELEMENTS SUPPRESSED

0002286    9   6   03   43  D2    80    00   03   52    I I         S   2   1   RECEIVE  CNTL              0000557
0002287    9   7   05   47  D2    80    00   03   52    I I         S   2   1   RECEIVE  FLAG              0000557
0002288 *3CC08381  008D82                                                       *..CA..B                                  * 0000018
        0000006 RR  0000000 RNR  0000004 TEXT  ELEMENTS SUPPRESSED

0002299    9   9   04   43  D5    00    04   03   44    O I               2   2   TRANSMIT DATA             0000561
0002300    9   9   02   47  D7    00    04   03   44    O I               2   2   TRANSMIT FLAG             0000561
0002304 *3CC00381  C04015D4  E2C7F140  40406040  E2D5C1F3  C1D7D7D3  40C9D540  C1E4E3D6*...A. .MSG1   - SNA3APPl IN AUTO* 0000019
        *40C5C3C8  D640D4D6  C4C54B40  F0F0F615  40404040  40404040  40404040  40404040* ECHO MODE. 006.                 *
        *40404040  40404040  40404040  40404040  40404040  402030                       *                 ••          *
        0000012 RR  0000022 RNR  0000023 TEXT  ELEMENTS SUPPRESSED

0002363    9   6   03   43  E3    80    00   03   74    I I         S   3   2   RECEIVE  CNTL              0000572
0002364    9   7   05   47  E3    80    00   03   74    I I         S   3   2   RECEIVE  FLAG              0000572
0002365 *3CC08381  00171F                                                       *..CA...                                  * 0000020
        0000006 RR  0000000 RNR  0000004 TEXT  ELEMENTS SUPPRESSED
```

Figure 6-5. NCP Line Trace Detail Report (Type 3 scanner) (Specify LDPRT=YES)

indicated by ****. No commands or responses are shown in the example.

If the poll/final bit is set, an S is printed in the vertical column under the P/F. Nothing prints if the bit is not set. The number of messages received is printed in decimal in the vertical column under RCV. The number of messages sent is printed in decimal in the vertical column under SND.

9 Page heading information. The page heading is self-explanatory. The date shows when the report was printed.

10 Current Scanner State. ACF/TAP examines the PCF and EPCF and prints a descriptive message. The messages and their definitions are shown in Appendix A.

SNA Analysis Summary Report

Figure 6-6 shows an example of the SNA summary report. (This is a special composite figure that shows both SDLC and host data.) The SNA analysis summary report is produced from all types of input files when SSPRT=YES is specified (YES is the default). It is presented in a compact one-line-per-message format but still contains the essential SNA and SDLC protocol information. To further reduce paper utilization, page headings are only printed on alternate pages.

The summary information is presented in a vertical format. This allows you to easily detect changes in a bit setting from transmission to transmission. The report title lines identify the definition of each column; single characters, or blanks, identify the setting of each field. Figure 6-6 is keyed to the following descriptions. Appendix B shows the TH, RH, and RU formats.

1 Page heading information. The page heading information is self-explanatory. The date shows when the report was printed.

2 Column headings. From left to right the column headings are as follows:

MESSAGE NUMBER. The ACF/TAP assigned number for this message.

TYPE. Trace type, L=Line, I=RNIO or DOS IO and B=Buffer or PIU.

DIRECTION (with respect to the host). I=IN, O=Out (TCAM PIUT is blank except FID0 shows the direction ACF/TAP assumed).

SDLC

SDLC ADDRESS. The 'A' field of the SDLC F-A-C-BCC-F frame.

CMND/RESP. Indicates if the SDLC frame was a command or response. C=Command and R=Response.

POLL/FINAL. Indicates the setting of the SDLC poll/final bit in the SDLC 'C' (command) field. S=poll/final bit set and blank=poll/final bit not set.

RECEIVE. The receive count in decimal from the SDLC 'C' field for information and supervisory frames.

SEND. The send count in decimal from the SDLC 'C' field for information frames.

TYPE CMND. The SDLC command type. I=Information frame, S=Supervisory frame, and N=Nonsequenced frame.

CMND. This column gives the literal equivalent of command for supervisory or nonsequenced frames (RR, RNR, REJ, SNRM, NSA, etc.).

TRANSMISSION HEADER (TH)

FORMAT IDENTIFIER (FID). The TH type. 0=FID0, 1=FID1, 2=FID2, and 3=FID3.

F/M/L/(=ENTIRE) SEGMENT. Mapping indicator, F=First segment, M=Middle

segment, L=Last segment, and blank=entire segment.

OAF DAF. Shows the two-byte (FID0 and FID1) or one-byte (FID2) network addresses in the TH.

SEQNO. The TH sequence number in decimal.

COUNT. The TH data count field converted to decimal.

FROM/TO SSCP (FID0). PL/LU indicator, P=physical unit, and blank=logical unit.

FROM/TO PU (FID3). SSCP/LU indicator, S=SSCP, and blank=logical unit.

FID3 LSID. Local session address.

REQUEST HEADER (RH)

REQUEST OR RESPONSE. Describes the setting of the request/response indicator in the RH. Q=reQuest and S=reSponse.

SC/DFC/NC/(=FMDATA) RU. Describes the RU category. S=session control; D=data flow control; N=network control; and blank=FM data.

FORMATTED. Describes the format indicator. F=formatted; blank=unformatted.

F/M/L(=ONLY) CHAIN. Describes the chaining control. F=first RU in chain, M=middle RU in chain, L=last RU in chain, and blank=only RU in chain.

REQUEST/RESPONSES. Describes the setting of the response bits. DR1=FME bit is set, DR2=RRN bit is set, EXCEPTION=exception bit is set and blank=no bits are set.

PACING INDICATOR. Describes the setting of the pacing request indicator. P=bit is set and blank=bit is not set.

BEGIN BRACKET INDICATOR. Describes the setting of the begin bracket. B=bit is set and blank=bit is not set.

END BRACKET INDICATOR. Describes the setting of the end bracket. E=bit is set and blank=bit is not set.

CHANGE DIRECTION IND. Describes the change direction indicator. S=bit is set and blank=bit is not set.

ALT CODE. Describes the setting of the code selection indicator. A=bit is set and blank=bit is not set.

RU (request units)

COMMAND. Shows the abbreviation of the network control, session control, or data flow control command/response, or the abbreviation of the FM data of an SSCP network services command/response. It shows six control bytes of a FID0 transmission.

SENSE. Shows the four bytes of sense data if the sense data bit is set in the RH.

```
                                    ADVANCED COMMUNICATIONS FUNCTION [1]
                                        TRACE ANALYSIS PROGRAM
                                  SYSTEMS NETWORK ARCHITECTURE SUMMARY
        DATE: 06:06:77 [1]                                                                  PAGE: 00001

          *******SDLC******   **********TRANSMISSION HEADER*********   **********************REQUEST HEADER**********************

          ..-SDLC ADDRESS     .-FORMAT IDENTIFIER (FID)                 .-REQUEST(Q) OR RESPONSE(S)     .-PACING INDICATOR
    [2]   || .-CMND/RESP [2]  | .-F/M/L/( =ENTIRE) SEGMENT      [2]     | .-SC/DFC/NC/( =FMDATA) RU [2] | .-BEGIN BRACKET INDICATOR [2]
          || | .-POLL/FINAL   | | .-EXPEDITED                           | | .-FORMATTED                   | | .-END BRACKET INDICATOR
DIRECTION-. || | | .-RECEIVE  | | |                                     | | | .-F/M/L/( =ONLY) CHAIN      | | | .-CHANGE DIRECTION IND
   TYPE-. | || | | | .-SEND  | | |     FROM/RO SSCP(FID3)---.          | | | |                           | | | | .-ALT CODE
-------- | || | | | | .-TYPE | | |     FROM/TO PU(FID3)---. | FID3     | | | |                           | | | | |  *********RU*****
MESSAGE  | || | | | | | CMND | | |  OAF  DAF  SEGNO COUNT | | LSID     | | | |  REQUEST/RESPONSES        | | | | |  COMMAND   SENSE
NUMBER   V VV V V V V V ____ V V V  ____ ____ _____ _____ V V ____     V V V V  __________________     V V V V V  ________  _____

0000185 L I C1   S 3 6 I      2      06   01   00022                    Q        DR1
0000190 L O C1     7 3 I      2      01   06   00022                    S        DR1
0000193 L O C1     7 4 I      2      01   06   00022                    Q        DR1     EXCEPTION
0000195 L I C1   S 5 7 I      2      01   01   00023                    Q        DR1
0000200 L O C1     0 5 I      2      01   01   00023                    S        DR1
0000203 L O C1     0 6 I      2      01   01   00023                    Q        DR1     EXCEPTION
0000566 L I C1   S 7 0 I      2      03   01   00024                    Q        DR1
0000571 L O C1     1 7 I      2      01   03   00024                    S        DR1
0000574 L O C1     1 0 I      2      01   03   00024                    Q        DR1     EXCEPTION
0000576 L I C1   S 1 1 I      2      02   01   00031                    Q        DR1
0000581 L O C1     2 1 I      2      01   02   00031                    S        DR1
0000584 L O C1     2 2 I      2      01   02   00031                    Q        DR1     EXCEPTION
0000612 L I C1   S 3 2 I      2      03   01   00025                    Q        DR1

SDLC

HOST DATA

0000131 B O                   0      3000 5037 04122 00010             Q   F    DR1                          081840000000
0000132 B I                   0      5038 3000 04121 00012             S   F    DR1                          081840006000
0000133 B O                   0      3000 5036 04123 00010             Q   F    DR1                          081840000000
0000134 B I                   0      5037 3000 04122 00013             S   F    DR1                          081840006000
0000135 B I                   0      5036 3000 04123 00013             S   F    DR1                          081840006000
0000136 B O                   0      3000 5004 04124 00010             Q   F    DR1                          082140000000
0000137 B O                   0      3000 5003 04125 00010             Q   F    DR1                          082140000000
0000138 B I                   0      5004 3000 04124 00026             S   F    DR1                          082140006000
0000139 B O                   0      3000 5004 04126 00026             Q   F    DR1                          082240000000
0000140 B I                   0      5003 3000 04125 00030             S   F    DR1                          082140006000
0000141 B O                   0      3000 5003 04127 00031             Q   F    DR1                          082240000000
0000142 B I                   0      5004 3000 04126 00026             S   F    DR1                          082240006000
0000143 B I                   0      5003 3000 04127 00030             S   F    DR1                          082240006000
0000144 B                     1      3000 5000 00024 00008             Q   F    DR1                            ACTLINK
0000145 B                     1      5000 3000 00001 00033             Q   F                                   RECMS
0000146 B                     1      5000 3000 00024 00010             S   F    DR1     EXCEPTION              ACTLINK   80020000
```

Figure 6-6. SNA Analysis Summary Report (Specify SSPRT=YES)

SNA Detail Report

Figure 6-7 shows an example of the SNA detail report. (This is a special composite figure that shows FID0, FID1, FID2, and FID3.) It can be produced from all types of input when SDPRT=YES is specified (NO is the default). For INPUT=RNIO | IO or INPUT=BUFFER | PIU, one group of print lines is produced for each record. For NCP line trace, one group of print lines is produced for each assembled message. Each entry group shows a complete ACF/TAP analysis of the SNA and SDLC protocols used in the message, except SDLC data is not produced for NCP line trace data from the type 3 scanner. Figure 6-7 is keyed to the following descriptions.

1 MESSAGE NUMBER. This is the ACF/TAP assigned sequence number for this message.

2 GROUP SUMMARY. This is a summary of the type of data in this group of print lines. The type is either USER DATA, DATA FLOW or CONTINUED. CONTINUED occurs because of a buffer overflow in ACF/TAP. DATA FLOW is shown in hexadecimal format and USER DATA is shown in character format.

3 Data shown in hexadecimal format.

4 TH (transmission header) and TH byte ID. The byte ID (XX-XX) identifies the byte(s) described on this print line. Appendix B shows the TH formats.

5 RH (request header) and RH bytes ID. The byte ID (XX-XX) identifies the RH bytes described in this group of print lines. Appendix B shows the RH format.

6 RU (request/response unit) and RU bytes ID. The byte ID (XX-XX) identifies the RU bytes described in this group of print lines. Appendix B shows the RU format.

7 Page heading information. The page heading information is self-explanatory. The date shows when the report was printed.

8 ENTRY SUMMARY. Summary of any network commands.

9 SDLC CMND. Interpretation of SDLC command (C) field.

10 SDLC LINK. Shows the SDLC address (A), command (C) and BCC.

Note: *BCC is the frame check sequence (FCS) field.*

```
                                                ADVANCED COMMUNICATIONS FUNCTION
                                                    TRACE ANALYSIS PROGRAM
          DATE: 12:23:77                        SYSTEMS NETWORK ARCHITECTURE DETAIL                          PAGE: 00001

MESSAGE    GROUP                                                                                              ENTRY
 NUMBER   SUMMARY                          D E S C R I P T I V E   A N A L Y S I S                           SUMMARY
   1         2          3                                                                                      8

0000081  DATA FLOW   1D 00 30 00 50 00 00 11 00 08 AF 90 00 08 15 00 00 51 00 00 00 00 00 00 00 00 00 00

       4 TH  00-00   FORMAT ID (FID): 1 * SEGMENT (MPF): ENTIRE *                              * FLOW (EFI): EXPEDITED *
         TH  02-09   SOURCE (OAF): 5000 DESTINATION (DAF): 3000 * SEQUENCE NUMBER (SNF):00017 * COUNT (DCF):  00008   *

       5 RH  00-02   RU TYPE: NETWORK CONTROL   RESPONSE * RESPONSE/REQUEST: DR1     EXCEPTION* CHAIN: ONLY ELEMENT   *
                     RU FORMAT:   FORMATTED              * PACING INDICATOR: OFF              * SENSE DATA INCLUDED   *

       6 RU  00-03   SENSE: 08150000  08 REQUEST REJECT  15 FUNCTION ALREADY ACTIVE        USER DATA: 0000000000000000   SENSE DATA

         RU  04-     COMMAND: NCP LINE-SWITCH LINE TO NCP MODE CMD DATA: 00 00 00 00 00 00 00 00 00 00                    NCP LINE

0000081  USER DATA  *..........                                                                          *


0000082  DATA FLOW   00 00 50 33 30 00 10 01 00 0A 0B 80 00 00 08 18 40 00 00 00 00 00 00 00 00 00 00 00

       4 TH  00-00   FORMAT ID (FID): 0 * SEGMENT (MPF): ENTIRE *                              * FLOW (EFI): NORMAL     *
         TH  02-09   SOURCE (OAF): 3000 DESTINATION (DAF): 5033 * SEQUENCE NUMBER (SNF):04097 * COUNT (DCF):  00010   *

       5 RH  00-02   RU TYPE: FM DATA FLOW      REQUEST  * RESPONSE/REQUEST: DR1              * CHAIN: ONLY ELEMENT    *
                     RU FORMAT:   FORMATTED             * PACING INDICATOR: OFF              *                        *
                     BRACKET:                           * CHANGE DIRECTION INDICATOR: OFF    * RU CODE: EBCDIC        *

       6 RU  00-06   COMMAND: 08  CONTROL              MODIFIER: 18-COPY DESTINATION MODE          FLAGS: 40  00
                     FUNCTION FLAGS: 01000000                          BTU FLAGS: 00000000
                                     |________HEADER PREFIX

0000082  USER DATA  *.........                                                                           *


0000193  DATA FLOW   C1 E8 2E 00 06 01 00 16 03 90 00 C9 D5 D8 E4 C9 D9 E8 40 F3 F6 F0 F0 40 F0 F2 F2 40 C2 F6 40 A6 8D

       9 SDLC CMND   SDLC DATA TRANSMITTED              RECEIVE ( 7 )   SEND ( 4 )    POLL/FINAL = OFF
      10 SDLC LINK   ADDRESS:  C1  COMMAND: E8  (11101000)  BLOCK CHECK: A68D BCC COMPLEMENT:   0101100101110010 (22898)

       4 TH  00-00   FORMAT ID (FID): 2 * SEGMENT (MPF): ENTIRE *                              * FLOW (EFI): NORMAL     *
         TH  02-05   SOURCE (OAF): 01   DESTINATION (DAF): 06   * SEQUENCE NUMBER (SNF):00022 *                        *

       5 RH  00-02   RU TYPE: FM DATA FLOW      REQUEST  * RESPONSE/REQUEST: DR1     EXCEPTION* CHAIN: ONLY ELEMENT   *
                     RU FORMAT: UNFORMATTED             * PACING INDICATOR: OFF              *                        *
                                                BRACKET: * CHANGE DIRECTION INDICATOR: OFF    * RU CODE: EBCDIC        *

0000193  USER DATA  *INQUIRY 3600 022 B6                                                                 *


0000005  DATA FLOW   3C C0 03 81 C0 40 15 D4 E2 C7 F1 40 40 40 60 40 D3 D6 C7 D6 D5 40 C3 D6 D4 D7 D3 C5 E3 C5 4E 40 40
                     E2 D5 C1 F3 C1 D7 D7 D3 40 C9 D5 40 C1 E4 E3 D6 40 C5 C3 C8 D6 40 D4 D6 C4 C5 4E 40 D9 C5 C1 15

         TH  00-00   FORMAT ID (FID): 3 * SEGMENT (MPF): ENTIRE *                              * FLOW (EFI): NORMAL     *
       4
         TH  01-01   LOCAL SESSION ID (LSID): 000  ROUTE (FROM/TO): LU    ADDRESS TYPE: LU
```

Figure 6-7. SNA Analysis Detail Report (Specify SDPRT=YES)

Figure 6-8 shows an example of the network data traffic report. It is a printout, in hexadecimal and character format, of request/response units that have data associated with them. Only the data that remains following the analysis of the TH, RH, and RU command bytes is printed. A summary of any network commands is also printed. The control parameter DTPRT=YES (NO is the default) causes this report to be printed. Figure 6-8 is keyed to the following descriptions.

1. Data in hexadecimal format.
2. Data in character format.
3. MESSAGE NUMBER. ACF/TAP assigned sequence number.
4. GROUP SUMMARY. Source of data.
5. ENTRY SUMMARY. Summary of any network commands.
6. Page heading information. The page heading is self-explanatory. The date shows when the report was printed.

```
                                ADVANCED COMMUNICATIONS FUNCTION
                                    TRACE ANALYSIS PROGRAM  6
DATE: 01:18:77 6                     NETWORK DATA TRAFFIC                          PAGE: 00002
 3
MESSAGE    GROUP                                                                          ENTRY
 NUMBER   SUMMARY                          M E S S A G E  D A T A                       SUMMARY
                                                  1                          2
0000031   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG1   - SNA3APPL IN AUTO *
             4       *C5C3C8D6 40D4D6C4 C54B40F0 F1F21540 40404040 40404040 40404040*ECHO MODE. 012.             *
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *

0000033   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG1   - SNA3APPL IN AUTO *
                     *C5C3C8D6 40D4D6C4 C54B40F0 F1F31540 40404040 40404040 40404040*ECHO MODE. 013.             *
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *

0000035   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG    - SNA3APPL IN AUTO *
                     *C5C3C8D6 40D4D6C4 C54B40F0 F1F41540 40404040 40404040 40404040*ECHO MODE. 014.*
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *

0000037   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG1   - SNA3APPL IN AUTO *
                     *C5C3C8D6 40D4D6C4 C54B40F0 F1F51540 40404040 40404040 40404040*ECHO MODE. 015.             *
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *

0000039   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG1   - SNA3APPL IN AUTO *
                     *C5C3C8D6 40D4D6C4 C54B40F0 F1F61540 40404040 40404040 40404040*ECHO MODE. 016.             *
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *

0000041   USER DATA  *4015D4E2 C7F14040 406040E2 D5C1F3C1 D7D7D340 C9D540C1 E4E3D640* .MSG1   - SNA3APPL IN AUTO *
                     *C5C3C8D6 40D4D6C4 C54B40F0 F1F71540 40404040 40404040 40404040*ECHO MODE. 017.             *
                     *40404040 40404040 40404040 40404040 40404040 40404040 *       *
                                                                                          5
0000042   USER DATA  *0101                                                  *..          *  ACTLU

0000043   USER DATA  *01                                                    *.           *  ACTLU
```

Figure 6-8. Network Data Traffic Report Specify (Specify DTPRT=YES)

Network Error Report

Figure 6-9 shows an example of the network error report. It indicates messages or elements that had unusual characteristics. The control parameter NEPRT=YES (YES is default) causes this report to be printed. Figure 6-9 is keyed to the following descriptions.

1. ERROR. These are messages DSJ100I through DSJ199I, which are described in Chapter 7. In this report, the message ID is the same for DOS as for OS. This means all message IDs are in the form DSJXXXI and none appear as F6XXI.
2. Additional information. This applies only to Message DSJ126I and is the sense data in hexadecimal format.
3. SUMMARY. This is a single keyword that summarizes the error condition. It is self-explanatory.
4. Page heading information. The page heading is self-explanatory. The date shows when the report was printed.
5. MESSAGE NUMBER. The ACF/TAP assigned message number.

ADVANCED COMMUNICATIONS FUNCTION [4]
TRACE ANALYSIS PROGRAM
[4] DATE: 05:04:77 NETWORK ERROR ANALYSIS PAGE: 00002

ERROR [5] MESSAGE NUMBER	ERROR CONDITION	ADDITIONAL INFORMATION	[3] SUMMARY
[1] DSJ123I MESSAGE 0000112	INCOMPLETE NERWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000114	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000116	INCOMPLETE NETWORK SERVICES RU	[2]	INCOMPLETE
DSJ126I MESSAGE 0000118	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000119	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000121	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000122	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000124	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000125	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000127	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000128	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000130	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000131	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000133	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000134	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000136	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000137	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000139	SENSE DATA FIELD PRESENT	80020000	SENSE DATA
DSJ123I MESSAGE 0000140	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000145	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000150	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000155	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000160	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000165	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000170	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000175	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000180	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000185	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000187	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000188	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000190	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000191	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000193	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000194	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000196	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000197	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000199	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000200	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000202	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000203	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ126I MESSAGE 0000205	SENSE DATA FIELD PRESENT	08220000	SENSE DATA
DSJ123I MESSAGE 0000206	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000208	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000210	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000212	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000214	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000216	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000218	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000220	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000222	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000224	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000226	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000228	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE
DSJ123I MESSAGE 0000230	INCOMPLETE NETWORK SERVICES RU		INCOMPLETE

Figure 6-9. Network Error Report (Specify NEPRT=YES)

Figures 6-11 and 6-12 show examples of the ACF/TAP SYSPRINT reports. (The SYSLST reports are identical to the SYSPRINT reports.)

The SYSPRINT or SYSLST report contains:

- A summary of the ACF/TAP control parameters used in processing the trace file
- Operational and status messages
- Network error messages (from network error report)

The SYSPRINT or SYSLST report can optionally contain:

- A summary of each trace record on a trace file, even if ACF/TAP did not process the trace record
- A summary of records specified by INPUT=type, START=count, END=count, STIME=hh.mm.ss, ETIME=hh.mm.ss, and NODE=nodename
- Trace analysis summary (PRINT=YES)
- Unprocessed (raw) trace file dump (DUMP=YES)

If SUMMARY=EVERY is specified, *every* trace record in the trace file is summarized, even if it is a type not processed by ACF/TAP. If SUMMARY=ALL is specified, *all* of the trace records of INPUT=TYPE are summarized. If SUMMARY=YES is specified, all trace records processed by ACF/TAP are summarized. The distinction between ALL and YES occurs when records are selectively processed by time, count, or nodename. Then, ALL may produce more summary records than YES. Figure 6-10 illustrates this.

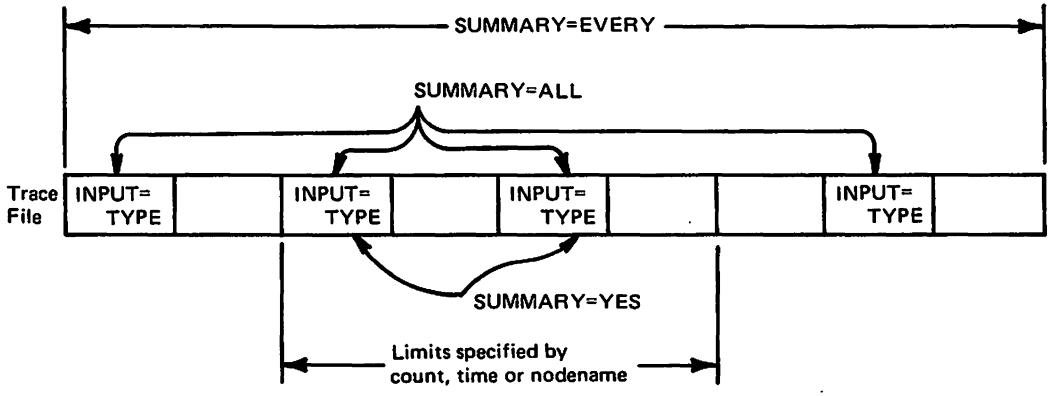


Figure 6-10. **Illustration of Records Summarized for SUMMARY=EVERY, ALL, or YES** (Specify SUMMARY=YES PRINT=YES)

The format of the summary record of each trace record is different for each input source. In all cases the timestamp, if present in the trace record, is included. Also included is other source dependent information (GTF, AID, FID, and EID) that may be helpful.

Two sequence numbers are included in the trace file summary. One is the ACF/TAP assigned absolute sequence number, and the other is the ACF/TAP assigned process number (same as message number except for line trace records). In the case of line trace, the sequence number identifies the trace data block. Message sequence numbers of frames within the block data may be determined from the line trace summary report and the line trace detail report.

Figures 6-11 and 6-12 are keyed to the following descriptions. These are composite figures so that more information can be shown in less space.

1 Start-up messages and control parameters. For Figure 6-11, the parameters in effect for the SYSPRINT were SUMMARY=YES and PRINT=YES. Because SUMMARY=YES was specified, records summarized were selected based on the parameters INPUT, START, END, and NODE.

2 Information about the trace file. Refer to Chapter 7 for the message definitions.

CAUTION
Do not confuse the GTF FID (format identifier) with the SNA FID (format identification). They are *not* the same. For more information about the GTF FID, refer to the *OS/VS Service Aids* manual. An example of a GTF FID is shown at the bottom of Figure 6-11.

3 Trace file summary.

4 Contents of TH, RH, and RU. This is the result of PRINT=YES being specified.

5 End of trace file information. Refer to Chapter 7 for the definition of these messages.

6 Page heading descriptions. The page headings are self-explanatory. The date shows when the line trace detail report was printed.

7 Dump of trace file. (Note that Figure 6-12 is for a TCAM trace file.) This dump is the result of DUMP=YES being specified.

```
                                                ADVANCED COMMUNICATIONS FUNCTION
          DATE: 12:23:77 6                           TRACE ANALYSIS PROGRAM 6                          PAGE: 00001 6

1 DSJ021I PARAMETERS ARE RESET TO DEFAULT STATUS
  DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
  DSJ029I START=1 END=100 PRINT=YES LDPRT=YES LSPRT=YES SDPRT=YES
  DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
  DSJ029I DTPRT=YES
  DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
  DSJ029I GO
  DSJ050I ACFTAP PARAMETERS:
  DSJ051I INPUT   = L L       S=SCAN        L=LINE B=BUFFER(FIU)  I=IO(RNIO)  A=ALL
  DSJ052I SOURCE  = G  G=GTF  D=DOS  C=COMWRITE
  DSJ053I LDPRT   = Y  Y=YES  N=NO  X=ERROR (LINE TRACE DETAIL)
  DSJ054I LSPRT   = Y  Y=YES  N=NO                    SUMMARY)
  DSJ...                      NAME OR ********
  DSJ...                  (3, 7, 15, 31, 63, 127, 255)
  DSJ067I SSCP    = (001,00000)
  DSJ068I CDRM    = (001,00001)
  DSJ069I LINECNT = 00000060  (25 TO 99999999)
  DSJ071I TIMEOUT = 010  (0 TO 255)
  DSJ072I UNIT    = TAPE (TAPE 3330 3340 2314 2311)
  DSJ079I SSCP NETWORK ADDRESS FOR SUBAREA 001 IS 1000
1 DSJ079I CDRM NETWORK ADDRESS FOR SUBAREA 001 IS 1001


                                                ADVANCED COMMUNICATIONS FUNCTION
          DATE: 12:23:77                             TRACE ANALYSIS PROGRAM                          PAGE: 00002

2 DSJ002I SYSTRACE/SYS008 INPUT FILE OPENED
  DSJ004I TRACE FILE PROCESSING BEGINS.....
  DSJ220I TRACE FILE RECORDED BY MVS GTF
  DSJ223I GTF COMPREHENSIVE TRACE RECORDING MODE
  DSJ224I GTF TRACE RECORDS ARE TIMESTAMPED
2 DSJ228I GTF USR OPTION IN EFFECT
  DSJ227I GTF RNIO OPTION NEEDED FOR VTAM TRACE TYPE=RNIO
3 DSJ203I VTAM TRACE 0000002 LENG(00101) D(11.04.75) T(07.41.05.892525) LRC(00/00) L(HOST21)              NCP TRACE    IN   0)00000
  DSJ204I LINE TRACE 0000002 TYPE(01) LINE(0412) HALF DUPLEX       PRIMARY          TIME(02) EP(00) STATUS(01)          0000000
  DSJ203I VTAM TRACE 0000003 LENG(00101) D(11.04.75) T(07.41.05.893211) LRC(00/00) L(HOST21)              NCP TRACE    IN   0000002
  DSJ204I LINE TRACE 0000003 TYPE(01) LINE(0412) HALF DUPLEX       PRIMARY          TIME(02) EP(00) STATUS(01)          0)00015
  DSJ203I VTAM TRACE 0000103 LENG(00101) D(11.04.75) T(07.41.10.885022) LRC(00/00) L(HOST21  )              NCP TRACE    IN   0000193
  DSJ204I LINE TRACE 0000103 TYPE(01) LINE(0412) HALF DUPLEX       PRIMARY          TIME(02) EP(00) STATUS(01)          0)01324
  DSJ203I VTAM TRACE 0000104 LENG(00101) D(11.04.75) T(07.41.10.885688) LRC(00/00) L(HOST21  )              NCP TRACE    IN   0000194
  DSJ204I LINE TRACE 0000104 TYPE(01) LINE(0412) HALF DUPLEX       PRIMARY          TIME(35) BP(00) STATUS(01)          0)01339
  DSJ203I VTAM TRACE 0000105 LENG(00089) D(11.04.75) T(07.41.10.886315) LRC(00/00) L(HOST21  )              NCP TRACE    IN   0)00194
3 DSJ204I LINE TRACE 0000105 TYPE(01) LINE(0412) HALF DUPLEX       PRIMARY          TIME(35) EP(00) STATUS(01)          0001354

4 0000195 LINE TRACE IN        LINE(HOST21)       STATION(01)  START(33)/SEND(34)
          SDLC C1BE                        INFORMATION FRAME       P/F=SET   RECEIVE(5)  SEND( 7 )

          TH   2C0001010017                   SAF(01  ) DAF(01  ) SEQ(00023)
          RH   038000                    FM REQ DRI

          RU                             C9D5D8E4C9D9E840F3F6F0F040F0F2F340C2F1403EB9
4

5 DSJ006I INPUT SELECTION LIMIT(S) ACHIEVED
  DSJ003I SYSTRACE/SYS008 INPUT FILE CLOSED

                                                                                  CAUTION: SEE TEXT
  DSJ204I LINE TRACE 0001817 TYPE(01) LINE(D604) HALF DUPLEX       PRIMARY          TIME(EC) EP(00) STATUS(01)
  DSJ201I GTF RECORD 0001818 LENG(00275) D(04.11.76) T(09.17.02.255097) AID(FF) FID(FD) EID(EFF2)          NCP TRACE
  DSJ203I VTAM TRACE 0001818 LENG(00209) D(04.11.76) T(09.17.02.255097) LRC900/00 L(DVR4NDS )             NCPTRACE     IN   0000012
  DSJ204I LINE TRACE 0001818 TYPE(01) LINE(D604) HALF DUPLEX       PRIMARY          TIME(EC) EP(00) STATUS(01)
  DSJ201I GTF RECORD 0001819 LENG(00275) D(04.11.76) T(09.17.02.257462) AID(FF) FID(FD) EID(EFF2)          NCP TRACE
  DSJ203I VTAM TRACE 0001819 LENG(00209) D(04.11.76) T(09.17.02.257462) LRC(00/00) L(DRV4NDS)              NCP TRACE    IN   0)00013
```

Figure 6-11. Sysprint Report (Specify SUMMARY=YES PRINT=YES)

```
                                                                                
          DATE: 12:23:77                    TRACE ANALYSIS PROGRAM              PAGE: 00001
1
 DSJ029I GO
 DSJ050I ACPTAP PARAMETERS:
 DSJ051I INPUT   = B  S=SCAN L=LINE B=BUFFER(PIU) U=IO(BNIO) A=ALL
 DSJ052I SOURCE  = C  G=GTP  D=DOS  C=COMWRITE
 DSJ053I LDPRT   = N  Y=YES  N=NO  X=ERROR (LINE TRACE DETAIL)
 DSJ054I LSPRT   = N  Y=YES  N=NO           (LINE TRACE SUMMARY)
 DSJ055I SDPRT   = N  Y=YES  N=NO           (SNA DETAIL)
 DSJ056I SSPRT   = Y  Y=YES  N=NO           (SNA SUMMARY)
 DSJ057I DTPRT   = N  Y=YES  N=NO           (NETWORK DATA TRAFFIC)
 DSJ058I NEPRT   = Y  Y=YES  N=NO           (NETWORK ERROR)
 DSJ059I SUMMARY = E  Y=YES  N=NO  A=ALL  E=EVERY (INPUT SUMMARY)
 DSJ060I DUMP    = Y  Y=YES  N=NO   (TRACE RECORD DUMP)
 DSJ070I RRSUP   = Y  P=PAIR  N=NO  Y=YES
 DSJ073I PRINT   = N  N=NO  Y=YES  (TRACE DATA TO SYSPRINT/SYSLST)
 DSJ061I START   = 00000001 (SELECT START COUNT)
 DSJ062I END     = 00000125 (SELECT END COUNT)
 DSJ066I MAXSUBA = 015  (3, 7, 15, 31, 63, 127, 255)
 DSJ067I SSCP    = (003,00000)
 DSJ067I SSCP    = (005,00000)
 DSJ069I LINECNT = 00000060  (25 TO 99999999)
 DSJ071I TIMEOUT = 010  (0 TO 255)
 DSJ072I UNIT    = TAPE (TAPE 3330 3340 2314 2311)
 DSJ079I SSCP NETWORK ADDRESS FOR SUBAREA 003 IS 3000
1DSJ079I SSCP NETWORK ADDRESS FOR SUBAREA 005 IS 5000
```

```
                                ADVANCED COMMUNICATIONS FUNCTION
          DATE: 12:23:77                    TRACE ANALYSIS PROGRAM              PAGE: 00002

2DSJ002I   SYSTRACE/SYS008 INPUT FILE OPENED
  DSJ004I   TRACE FILE PROCESSING BEGINS.....

3DSJ205I TCAM TRACE 0000003 LENG(06384) D(01.23.77) T(10.51.02.250000) SEQ(17237328) STCB

7REC. 0000003 *  E2E3C3C2  10510225  0077023F  01070550  E0128668  FE12F7E6  02070868  04440980  * STCE.....&..F...7W..... *
              *  0007080C  0009B2F8  00070600  0007080C  FF09DAAC  00000000  00000000  00000000  * .......8..................... *
              *  E409DAAC  0012F608  0007085C  0412F606  FE09DAAC  0012F644  0012F608  00128668  * U.....6....*..6.....6...6...F. *
              *  E409DAAC  0009E30A  0209DB88  0007080C  0009B2F8  000706C0  0007080C  0007080C  * U.........H...H.....8..... *
              *  FF128668  00000000  00000000  00000000  E0128668  FE12F7E6  02070868  04440980  * ..F.............F...7W..... *
              *  0007080C  0009B2F8  000706C0  0007080C  FF09DAAC  00000000  00000000  00000000  * .......8..................... *
              *  E409DAAC  0012F608  0007085C  0412F606  FE09DAAC  0012F644  0012F608  00128668  * U.....6....*..6.....6...6...F. *
              *  E409DAAC  0009E30A  0209DB88  0007080C  0009B2F8  000706C0  0007080C  0007080C  * U.........H...H.....8..... *
              *  FF128668  00000000  00000000  00000000  E0128668  FE12F7E6  02070868  04440980  * ..F.............F...7W..... *
              *  0007080C  0009B2F8  000706C0  0007080C  FF09DAAC  00000000  00000000  00000000  * .......8..................... *
              *  E409DAAC  0012F608  0007085C  0412F606  FE09DAAC  0012F644  0012F608  0007080C  * U.....6....*..6.....6...6...F. *
7             *  E409DAAC  0009E30A  0209DB88  0007080C  0009B2F8  000706C0  0007080C  04440980  * U.........H...H.....8..... *
```

Figure 6-12. Sysprint Report (TCAM) (Specify SUMMARY=EVERY DUMP=YES)

Chapter 7. ACF/TAP Messages

This chapter describes the messages produced by ACF/TAP. These messages inform you of the progress of the program and indicate error conditions. The messages are shown in their OS/VS format. For the DOS version of ACF/TAP, console messages have a different message ID than the OS message ID. DOS console message IDs are shown directly below the OS console message ID. The message text is the same for either, and is shown only with the OS ID. Messages in the output reports (SYSPRINT for OS/VS or SYSLST for DOS/VS) always appear in the OS/VS format, even for the DOS version of ACF/TAP.

If no programmer or operator action is shown under the description of the messages, no action is required.

DSJ000I
F600I ACFTAP INTERNAL ERROR - CODE: xxxxxxxx RET: yyyyyyyy

Issued by: DSJCEPRT in behalf of 'unknown' to SYSPRINT/console.
Explanation: An undefined error code (xxxxxxxx in decimal) was supplied to the error print routine. yyyyyyyy is the return address in hexadecimal.
System Action: Processing continues.

DSJ001I
F601I ACFTAP EXECUTION BEGINS

Issued by: DSJCEPRT in behalf of DSJCETAP to console.
Explanation: This message is issued as the first action to occur when the main routine (DSJCETAP) is entered.
System Action: Processing continues.

DSJ002I
F602I SYSTRACE/SYS008 INPUT FILE OPENED

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: This message is issued after the successful open of the trace input file.
System Action: Processing continues.

DSJ003I
F603I SYSTRACE/SYS008 INPUT FILE CLOSED

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: This message is issued after the successful close of the trace input file.
System Action: Processing continues.

DSJ004I
F604I TRACE FILE PROCESSING BEGINS.....

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: This message is issued prior to the first input operation performed on the trace input file.
System Action: Processing continues.

DSJ005I
F605I TRACE FILE END OF FILE

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: This message is issued after an end of file condition on the trace input file.
System Action: The trace file is closed with a rewind option permitting reprocessing of the file if desired. The user is prompted for additional ACF/TAP parameters if the last parameter was from the system console; or additional parameters are read from the parameter input file if the last parameter was from the file.

;J006I INPUT SELECTION LIMIT(S) ACHIEVED
F606I

Explanation: This message is issued when the input selection limits of time and/or count are reached.
System Action: The trace file is closed with a rewind option permitting reprocessing of the file if desired. The user is prompted for additional ACF/TAP parameters if the last parameter was from the system console; or additional parameters are read from the parameter input file if the last parameter was from the file.

;J007I TRACE FILE PROCESSING COMPLETE WITH I/O ERROR(S)
F607I

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: An input operation on the trace input file was not successfully completed. The input record was skipped.
System Action: DSJCETAP closes all files and terminates. Processing continues until end of file. This message is issued after the end of file condition occurs and in place of DSJ005I or DSJ006I.
Programmer Action: Examine SYNAD information, correct the error condition, and rerun the job. SYNAD information, preceded by message DSJ008I, is output to the system log via the WTL macro for the OS/VS version of ACF/TAP. (See DSJ231I.)

;J008I message text

Issued by: DSJCEIOF in behalf of DSJCEIOF to SYSPRINT.
Explanation: The message text contains SYNAD information (byte 41 to byte 119) returned by the host system via the SYNADAF macro instruction.
System Action: Parameter file processing continues (see DSJ025I). Trace file processing continues (see DSJ007I and DSJ231I). Output file processing is terminated via EROPT=ABE DCB option. This message is issued only by the OS/VS version of ACF/TAP. For further information about the SYNAD error field, refer to the *OS/VS Data Management Macro Instructions* manual.
Programmer Action: Examine the SYNAD error fields, correct the error condition, and rerun the job.

;J010I UNABLE TO OPEN SYSPRINT/SYSLST

Issued by: DSJCEPRT in behalf of DSJCETAP to console.
Explanation: The SYSPRINT data set cannot be opened. This message is issued only by the OS/VS version of ACF/TAP. No check for the successful open of the data set is made by the DOS/VS version of ACF/TAP.
System Action: Processing is terminated by the main routine.
Programmer Action: Correct the error condition that caused the open function to fail.

;J011I UNABLE TO OPEN SYSSSPRT/SYS002
F611I

;J012I UNABLE TO OPEN SYSLSPRT/SYS003
F612I

;J013I UNABLE TO OPEN SYSNEPRT/SYS004
F613I

;J014I UNABLE TO OPEN SYSDTPRT/SYS005
F614I

;J015I UNABLE TO OPEN SYSSDPRT/SYS006
F615I

DSJ016I UNABLE TO OPEN SYSLDPRT/SYS007
F616I

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: The named output print file could not be opened.
System Action: Processing continues until all other output print files are opened. The user is then prompted for additional parameters.
Operator Action: When prompted for additional parameters, enter QUIT to terminate processing, or xxxxx=NO to ignore the data set(s) that could not be opened (xxxxx is SSPRT, SDPRT, LSPRT, LDPRT, NEPRT or DTPRT).
Programmer Action: Correct the condition that caused the function to fail.
Additional Comments: This message is used for the DOS version of ACF/TAP if the file is assigned IGN (IGNORE). To ignore the file, enter xxxxx=NO when prompted for additional parameters.

DSJ017I UNABLE TO OPEN SYSTRACE/SYS008
F617I

Issued by: DSJCEPRT in behalf of DSJCETAP to SYSPRINT/console.
Explanation: The trace input file could not be opened (OS/VS version) or the trace input file was assigned IGN (DOS/VS version).
System Action: The main routine terminates after closing the files that have been opened.
Programmer Action: Correct the condition that caused the function to fail.

DSJ018I UNABLE TO OPEN SYSIN/SYSIPT
F618I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The parameter input file cannot be opened in response to a READ command issued to DSJCETAP from the console (OS/VS version), or the parameter file was assigned IGN (DOS/VS version).
System Action: Processing continues and the user is prompted for parameters.
Operator Action: Enter ACF/TAP parameters as required.
Programmer Action: Correct the condition that caused the open function to fail.

DSJ020A ENTER ACFTAP PARAMETERS OR READ, QUIT, LIST, GO, RESET
F620A

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The user is prompted to enter input parameters or the commands READ, QUIT, LIST, GO, or RESET.
System Action: Program waits for input from the console.
Operator Action: Enter parameters or commands. Enter READ to have parameters read from parameter input file. Enter QUIT to terminate execution of ACF/TAP. Enter LIST to get a console listing of all parameters and their current values. Enter GO to cause the input trace file to be processed by ACF/TAP. Enter RESET to reset all parameters to their default values. (See Chapter 5 for more information about the ACF/TAP commands.)

DSJ021I PARAMETERS ARE RESET TO DEFAULT STATUS
F621I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message is issued when the parameter input routine is first entered or in response to the RESET command.
System Action: Processing continues.

DSJ022I SYSIN/SYSIPT PARAMETER INPUT FILE OPENED
F622I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message is issued after the successful open of the parameter input file.
System Action: Processing continues and parameters are read from the parameter input file until a command is read. LIST and READ are ignored. RESET causes the parameters to be reset to their default values. GO starts the processing of the trace input file. QUIT causes the execution of ACF/TAP to terminate. PROMPT issued from the parameter input file causes the program to stop reading from the parameter input file and prompt the user for additional input from the console.

DSJ023I PARAMETER FILE INPUT COMPLETE
F623I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message is issued to indicate an end of file condition on the parameter input file.
System Action: Processing continues and the user is prompted for additional parameter input.
Operator Action: Enter additional ACF/TAP parameters or commands from the console.

DSJ024I PARAMETER FILE ALREADY ACCESSED
F624I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message is issued in response to a READ command entered after an end of file or an error condition occurred on the parameter input file.
System Action: Processing continues and the READ command is ignored.
Operator Action: Enter additional ACF/TAP parameters or commands. Do not enter the READ command.

DSJ025I PERMANENT ERROR ON PARAMETER INPUT FILE

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: An input operation from the parameter input file was not successfully completed.
System Action: Processing continues and the user is prompted for additional ACF/TAP parameters or commands.
Operator Action: Enter additional ACF/TAP parameters or commands.
Programmer Action: Examine the SYNAD information, correct the error condition, and rerun the job.
Additional Comments: This message is issued only by the OS/VS version of ACF/TAP. SYNAD information, preceded by message DSJ008I, is output to the system log via the WTL macro.

DSJ026I INVALID SYNTAX - REMAINDER OF RECORD IGNORED
F626I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: A syntax error occurred in the parameter record currently being processed.
System Action: Processing continues and the remainder of the record is ignored. A prompt for corrections is made if the input is from the parameter input file.
Operator Action: Enter correct ACF/TAP parameters or commands when prompted.
Additional Comments: This message is followed by two additional messages: Either DSJ029I, current input record if the input was from the console, or DSJ089I, current input record if the input was from the parameter input file; and, DSJ028I showing the approximate position where the syntax error occurred.

DSJ028I
F628I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message is always preceded by either message DSJ029I or DSJ089I. The vertical indicator (|) points to the approximate location in the message text of DSJ029I or DSJ089I where scanning of the input parameter stopped because of a syntax error.
System Action: The current input parameter is ignored.
Operator Action: Enter the correct parameter when prompted.

DSJ029I message text
F629I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The message text shows the current input parameter value from the console.
System Action: Processing continues.
Additional Comments: This message is output to SYSPRINT for every input parameter from the console and is followed by message DSJ028I if an error is detected in the input.

DSJ030I yyyyyyyy INCORRECT FOR xxxxxxxx
F630I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The parameter value yyyyyyyy is not valid for the keyword xxxxxxxx. (xxxxxxxx=yyyyyyyy is not correct).
System Action: Processing continues.
Operator Action: Enter correct parameter when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ031I INVALID KEYWORD: xxxxxxxx
F631I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The keyword xxxxxxxx is not recognized.
System Action: Processing continues.
Operator Action: Enter correct parameter when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ032I INVALID PARAMETER: xxxxxxxx
F632I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The parameter value xxxxxxxx is not recognized.
System Action: Processing continues.
Operator Action: Enter correct parameter when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ033I INVALID TIME LIMITS - IGNORED
F633I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The starting time (STIME) is greater than ending time (ETIME) for the selection of trace records.
System Action: Processing continues.
Operator Action: Enter correct time limits when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ034I INVALID COUNT LIMITS - IGNORED
F634I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The starting count (START) is greater than the ending count (END) for the selection of trace records.
System Action: Processing continues.
Operator Action: Enter the correct count limits when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ035I INVALID TIMEOUT LIMIT (0 To 255 ONLY)
F635I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The timeout limit (TIMEOUT) exceeded a value of 255 (25.5 seconds).
System Action: The input is ignored and the timeout limit is reset to the default value of 010 (1 second).
Operator Action: Enter correct timeout value when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ037I INVALID MAXSUBA (3, 7, 15, 31, 63, 127, 255 ONLY)
F637I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The specified MAXSUBA is not one of the seven valid values.
System Action: The MAXSUBA value is reset to the default value of 15.
Operator Action: Enter correct MAXSUBA when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters).

DSJ038I xxxx = (sss,eeeee) INVALID - IGNORED
F638I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The SSCP or CDRM (xxxx) subarea/element combination is invalid because of one of the following conditions.

1. The subarea (sss) is equal to zero or greater than 255.
2. The element (eeeee) is greater than 16,381.
3. The element (eeeee) address is greater than the maximum number of elements possible with the specified MAXSUBA.

System Action: Processing continues and the address is not reset.
Operator Action: If the address was incorrect, enter the correct subarea/element address for the SSCP or CDRM (refer to the SSCP= and CDRM= parameters in Chapter 5).

If the MAXSUBA value was incorrect, enter the correct MAXSUBA value (refer to the MAXSUBA= parameter in Chapter 5). After correcting the MAXSUBA, the subarea/element may then be correct.

To eliminate an SSCP or CDRM entry for a particular subarea (sss), enter SSCP=sss or CDRM=sss.
Additional Comments: SSCP and CDRM addresses must be supplied to ACF/TAP so it can recognize and decode network services commands and responses (ACTLINK or SETCV). Network addresses for SSCP and CDRM components can be found in the network definition member of the partitioned data set SYS.VTAMLST for VTAM, or the terminal table layout of the TCAM formatted dump.

DSJ039I INVALID LINECOUNT - IGNORED
F639I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The LINECNT limit was less than 25 lines per page.
System Action: The input is ignored and the LINECNT parameter reset to 60.
Operator Action: Enter correct LINECNT when prompted for additional ACF/TAP parameters or commands (see Chapter 5 for information about ACF/TAP parameters.)

```
DSJ050I     ACFTAP PARAMETERS:
  F650I
DSJ051I     INPUT   = x  S=SCAN L=LINE B=BUFFER(PIU) I=IO(RNIO) A=ALL
  F651I
DSJ052I     SOURCE  = x  G=GTF  D=DOS  C=COMWRITE
  F652I
DSJ053I     LDPRT   = x  Y=YES  N=NO  X=ERROR (LINE TRACE DETAIL)
  F653I
DSJ054I     LSPRT   = x  Y=YES  N=NO          (LINE TRACE SUMMARY)
  F654I
DSJ055I     SDPRT   = x  Y=YES  N=NO          (SNA  DETAIL)
  F655I
DSJ056I     SSPRT   = x  Y=YES  N=NO          (SNA  SUMMARY)
  F656I
DSJ057I     DTPRT   = x  Y=YES  N=NO          (NETWORK DATA TRAFFIC)
  F657I
DSJ058I     NEPRT   = x  Y=YES  N=NO          (NETWORK ERROR)
  F658I
DSJ059I     SUMMARY = x  Y=YES  N=NO  A=ALL  E=EVERY (INPUT SUMMARY)
  F659I
DSJ060I     DUMP    = x  Y=YES  N=NO   (TRACE RECORD DUMP)
  F660I
DSJ061I     START   = nnnnnnnn (SELECT START COUNT)
  F661I
DSJ062I     END     = nnnnnnnn (SELECT END COUNT)
  F662I
DSJ063I     STIME   = hh.mm.ss (SELECT START TIME)
  F663I
DSJ064I     ETIME   = hh.mm.ss (SELECT END TIME)
  F664I
DSJ065I     NODE    =          (SELECT NAME OR ******** FOR FIRST NODE)
  F665I
DSJ066I     MAXSUBA = nnn  (3, 7, 15, 31, 63, 127, 255)
  F666I
DSJ067I     SSCP    = (xxx,xxxxx)
  F667I
DSJ068I     CDRM    = (xxx,xxxxx)
  F668I
DSJ069I     LINECNT = nnnnnnnn  (25 To 99999999)
  F669I
DSJ070I     RRSUP   = x  P=PAIR  N=NO  Y=YES
  F670I
DSJ071I     TIMEOUT = nnn  (0 To 255)
  F671I
DSJ072I     UNIT    = uuuu (TAPE 3330 3340 2314 2311)
  F672I
DSJ073I     PRINT   = x  N=NO  Y=YES (TRACE DATA TO SYSPRINT/SYSLST)
  F673I
```

Issued by: DSJCEPRT in behalf of DSJPARM to SYSPRINT/console.
Explanation: These messages are issued to the console in response to the LIST command entered at the console or to SYSPRINT in response to the GO command issued from either the console or parameter input file. When output is to the console, all of the above messages are produced. When output is to SYSPRINT, only those messages are printed that show parameters specified by the user and used during the processing of the trace file.
System Action: Processing continues.

DSJ079I xxxx NETWORK ADDRESS FOR SUBAREA nnn IS vvvv
F679I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT
Explanation: This message shows the network addresses of each SSCP or CDRM (xxxx) specified. The network addresses are formed from the subarea and element values provided for each SSCP or CDRM and from the MAXSUBA specified for the network. nnn is the subarea where the SSCP or CDRM is located, and vvvv is the hexadecimal address used to determine if a formatted FM data request unit is a network services command or response.
System Action: Processing continues.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ080I PARAMETERS INPUT IN ERROR
F680I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: If parameters are entered in error, the user can correct the error(s). This message is issued to indicate the reason why additional parameters are being requested.
System Action: The user is prompted for additional input from the console.
Operator Action: Enter additional ACF/TAP parameters or commands.

DSJ081I PROMPT COMMAND ISSUED FROM SYSIN/SYSIPT
F681I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the PROMPT command was issued from the parameter input file.
System Action: The user is prompted for additional input from the console.
Operator Action: Enter additional ACF/TAP parameters or commands.

DSJ082I GO COMMAND ISSUED FROM SYSIN/SYSIPT
F682I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the GO command was issued from the parameter input file.
System Action: Parameter input is terminated and trace file processing begins.

DSJ083I QUIT COMMAND ISSUED FROM SYSIN/SYSIPT
F683I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the QUIT command was issued from the parameter input file.
System Action: Parameter input is terminated and program execution is terminated.

DSJ084I LIST COMMAND FROM SYSIN/SYSIPT IGNORED
F684I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the LIST command was issued from the parameter input file.
System Action: The LIST command from the parameter input file is ignored.

DSJ085I READ COMMAND FROM SYSIN/SYSIPT IGNORED
F685I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the READ command was issued from the parameter input file.
System Action: The READ command from the parameter input file is ignored.

DSJ086I RESET COMMAND ISSUED FROM SYSIN/SYSIPT
F686I

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: This message informs the user that the RESET command was issued from the parameter input file.
System Action: All ACF/TAP parameters are reset to their default values.

DSJ089I F689I message text

Issued by: DSJCEPRT in behalf of DSJCPARM to SYSPRINT/console.
Explanation: The message text shows the current parameter value read from the parameter input file.
System Action: Processing continues.
Additional Comments: This message is output to SYSPRINT for every parameter read from the parameter input file and is followed by DSJ028I if a syntax error is detected in the input.

DSJ099I F699I ACFTAP TERMINATES

Issued by: DSJCEPRT in behalf of DSJCETAP to console.
Explanation: This message is issued as the last action to occur before DSJCETAP is exited.
System Action: Processing continues.

DSJ100I MESSAGE xxxxxxx ACFTAP INTERNAL ERROR CODE: yyyyyyyy RET: zzzzzzzz

Issued by: DSJYEMIT in behalf of 'unknown' to SYSPRINT/SYSNEPRT.
Explanation: An undefined error code (yyyyyyyy in decimal) was supplied to the network error print routine. xxxxxxx is the ACF/TAP assigned message number and zzzzzzzz is the return code in hexadecimal.
System Action: Processing continues.

DSJ101I MESSAGE xxxxxxx INCOMPLETE BASIC LINK UNIT

Issued by: DSJYEMIT in behalf of DSJRSDLC to SYSPRINT/SYSNEPRT.
Explanation: Not enough data remains in the current trace entry to permit processing of the SDLC frame (address, control and BCC) bytes. xxxxxxx is the ACF/TAP message number.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

FORM 1: Line trace for type 1 or 2 scanner.

DSJ102I MESSAGE xxxxxxx SDLC REJ - FRAME REJECT

FORM 2: Line trace for type 3 scanner.

DSJ102I ELEMENT xxxxxxx SDLC REJ - FRAME REJECT

Issued by: DSJYEMIT in behalf of DSJRASCM to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the SDLC reject command (REJ) is noted. For form 2 messages, refer to the type 3 scanner status element in the line trace summary or line trace detail report. xxxxxxx is the ACF/TAP assigned message or element number.
System Action: No further processing is performed on the message.

FORM 1: Line trace for type 1 or 2 scanner.

DSJ104I MESSAGE xxxxxxx SDLC CMDR - COMMAND REJECT

FORM 2: Line trace for type 3 scanner.

DSJ104I ELEMENT xxxxxxx SDLC CMDR - COMMAND REJECT

Issued by: DSJYEMIT in behalf of DSJRASCM to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the SDLC command reject (CMDR) is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

FORM 1: Line trace for type 1 or 2 scanner.

DSJ105I MESSAGE xxxxxxx INVALID SDLC SUPERVISORY FRAME

FORM 2: Line trace for type 3 scanner.

SJ105I ELEMENT xxxxxxx INVALID SDLC SUPERVISORY FRAME

Issued by: DSJYEMIT in behalf of DSJRASCM to SYSPRINT/SYSNEPRT.
Explanation: The SDLC supervisory frame command is not defined. For form 2 messages, refer to the type 3 scanner status element in the line trace summary or line trace detail report. xxxxxxx is the ACF/TAP assigned message or element number.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

FORM 1: Line trace for type 1 or 2 scanner.

SJ106I MESSAGE xxxxxxx INVALID SDLC NONSEQUENCED FRAME

FORM 2: Line trace for type 3 scanner.

SJ106I ELEMENT xxxxxxx INVALID SDLC NONSEQUENCED FRAME

Issued by: DSJYEMIT in behalf of DSJRASCM to SYSPRINT/SYSNEPRT.
Explanation: The SDLC nonsequenced frame command is invalid. For form 2, refer to the type 3 scanner status element in the line trace summary or line trace detail reports. xxxxxxx is the ACF/TAP assigned message or element number.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

SJ110I MESSAGE xxxxxxx INCOMPLETE TRANSMISSION HEADER

Issued by: DSJYEMIT in behalf of DSJRANTH to SYSPRINT/SYSNEPRT.
Explanation: There is not enough data remaining in the current trace entry to permit processing of the transmission header (TH). xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

SJ111I MESSAGE xxxxxxx INVALID TH FIELD

Issued by: DSJYEMIT in behalf of DSJRANTH to SYSPRINT/SYSNEPRT.
Explanation: The transmission header (TH) format ID is not 0, 1, 2, or 3. xxxxxxx is the ACF/TAP assigned message number.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

SJ120I MESSAGE xxxxxxx INCOMPLETE REQUEST HEADER

Issued by: DSJYEMIT in behalf of DSJRANRH to SYSPRINT/SYSNEPRT.
Explanation: There is not enough data remaining in the current trace entry to permit processing of the request header (RH). xxxxxxx is the ACF/TAP assigned sequence number.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

SJ121I MESSAGE xxxxxxx INVALID RH FIELD

Issued by: DSJCEPRT in behalf of DSJRANRH to SYSPRINT/SYSNEPRT.
Explanation: No check is made of the reserved/restricted bits in the request header (RH).
System Action: Processing continues.

DSJ122I MESSAGE xxxxxxx INCOMPLETE NC/SC/DFC COMMAND

Issued by: DSJYEMIT in behalf of DSJRANRU to SYSPRINT/SYSNEPRT.
Explanation: Not enough data remains in the current trace entry to permit processing of the session control (SC), network control (NC), or data flow control (DFC) command-byte. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

DSJ123I MESSAGE xxxxxxx INCOMPLETE NETWORK SERVICES RU

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: Not enough data remains in the current trace entry to permit processing of the header bytes of the network services formatted FM data to or from an SSCP or CDRM. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

DSJ124I MESSAGE xxxxxxx UNDEFINED SC/NC/DFC COMMAND

Issued by: DSJYEMIT in behalf of DSJRANRU to SYSPRINT/SYSNEPRT.
Explanation: The session control (SC), network control (NC), or data flow control (DFC) command is not defined to DSJCETAP. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ125I MESSAGE xxxxxxx UNDEFINED NETWORK SERVICES COMMAND

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The network services command is not defined in DSJCETAP. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ126I MESSAGE xxxxxxx SENSE DATA FIELD PRESENT ssssssss

Issued by: DSJYEMIT in behalf of DSJRSENS to SYSPRINT/SYSNEPRT.
Explanation: The presence of sense data (ssssssss) in the trace entry is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace entry continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Refer to the *3705 Program Reference Handbook* for information about the sense data.

DSJ127I MESSAGE xxxxxxx INVALID OAF/DAF ADDRESS

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: A formatted function management (FM) data path information unit (PIU) contained an OAF/DAF address for subarea zero with a non-zero element address. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace data continues.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ128I MESSAGE xxxxxxx INCOMPLETE SENSE DATA FIELD

Issued by: DSJYEMIT in behalf of DSJRANRH to SYSPRINT/SYSNEPRT.
Explanation: There is not enough data remaining in the current trace entry to permit processing of the sense data bytes. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.

5J129I MESSAGE xxxxxxx UNDEFINED SENSE DATA FIELD

Issued by: DSJYEMIT in behalf of DSJRSENS to SYSPRINT/SYSNEPRT.
Explanation: The sense bytes are not defined to DSJCETAP. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on this message.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

5J130I MESSAGE xxxxxxx INCOMPLETE FID0 BTU CMD/MODIFIER

Issued by: DSJYEMIT in behalf of DSJRABTU to SYSPRINT/SYSNEPRT.
Explanation: There is not enough data remaining in the current trace entry to permit processing of the FID0 basic transmission unit (BTU) bytes. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: This message appears only if the SNA detail report is run. Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

5J131I MESSAGE xxxxxxx INVALID FID0 BTU CMD/MODIFIER

Issued by: DSJYEMIT in behalf of DSJRABTU to SYSPRINT/SYSNEPRT.
Explanation: The basic transmission unit command or response is not defined to DSJCETAP. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: No further processing is performed on the message.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: This message appears only if the SNA detail report is run. Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

5J140I MESSAGE xxxxxxx NETWORK SERVICES PROCEDURE ERROR

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the NSPE network services request unit is noted.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

5J141I MESSAGE xxxxxxx BIND FAILURE

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the BINDF network services request unit is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

5J142I MESSAGE xxxxxxx UNBIND FAILURE

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the UNBINDF network services request unit is noted.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ143I MESSAGE xxxxxxx INOPERATIVE

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the INOP network services request unit is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ144I MESSAGE xxxxxxx LOST PATH

Issued by: DSJYEMIT in behalf of DSJRANRU to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the LOSTPATH network control command is noted.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ145I MESSAGE xxxxxxx LOST SUBAREA

Issued by: DSJYEMIT in behalf of DSJRANRU to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the LOSTSUBA network control command is noted.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ146I MESSAGE xxxxxxx REQUEST RECOVERY (RQR)

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the RQR session control command is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ147I MESSAGE xxxxxxx X-DOMAIN SESSION SETUP FAILURE

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the CDSESSSF network services request unit is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

DSJ148I MESSAGE xxxxxxx X-DOMAIN SESSION TAKEDOWN FAIL

Issued by: DSJYEMIT in behalf of DSJRAFMH to SYSPRINT/SYSNEPRT.
Explanation: The occurrence of the CDSESSTF network services request unit is noted. xxxxxxx is the ACF/TAP assigned message number of the trace entry currently being processed.
System Action: Processing of the trace data continues.
Programmer Action: Trace data should be examined to determine the cause of the error condition.
Additional Comments: Consult the *Systems Network Architecture Format and Protocol Reference Manual* for more information.

SJ199I MESSAGE xxxxxxx TRACE DATA MAY BE DISCONTINUOUS

Issued by: DSJYEMIT in behalf of DSJRDRVR to SYSPRINT/SYSNEPRT.
Explanation: A continuity error condition was detected in the input data. This message reflects the continuity error to the analysis portion of ACF/TAP.
System Action: ACF/TAP internal buffers are reset to avoid merging unrelated pieces of data. Suppression of RR (receive ready) pairs in SDLC line trace is reset.
Programmer Action: When analyzing trace data, be aware of the continuity situation.
Additional Comments: This message prints with Message DSJ230I and one of these messages: DSJ241I, DSJ242I, DSJ243I, DSJ244I, DSJ245I or DSJ249I.

SJ201I GTF RECORD nnnnnnn LENG(llllll) D(mm.dd.yy) T(hh.mm.ss.dddddd)
AID(aa) FID(ff) EID(eeee) ttttttttttttt

Where:		
	nnnnnnn	is the ACF/TAP assigned input record number.
	llllll	is the input record length.
	mm.dd.yy	is the timestamp date field from the input record or from the last GTF timestamp control record.
	hh.mm.ss.dddddd	is the timestamp time field from the input record or from the last GTF timestamp control record.
	aa	is the GTF AID (action identifier) field.
	ff	is the GTF FID (format identifier) field.
	eeee	is the GTF EID (event identifier) field.
	ttttttttttttt	is a literal describing recognized records: (VTAM RNIO IN, VTAM RNIO OUT, VTAM BUFFER, USER BUFFER, and NCP TRACE).

Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: This message describes the contents of the GTF header portion of GTF trace records.
System Action: Processing continues.
Additional Comments: In certain situations, the contents of the GTF trace record headers, in conjunction with non-VTAM GTF trace records, can be valuable in problem determination. Information about GTF can be found in the *OS Service Aids*.

SJ202I DOS BLOCK nnnnnnn LENG(llllll) LRC(vvvvv) ID(iiiii) SEQ(sssss)
COUNT(ccccc)

Where:		
	nnnnnnnn	is the ACF/TAP assigned input record number.
	llllll	is the block length from the block header.
	vvvvv	is the lost trace block count.
	iiiii	is the trace block ID, normally 'TRACE'.
	sssss	is the trace block sequence number.
	ccccc	is the count of the VTAM trace records in the trace block.

Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: This message describes the contents of the DOS/VTAM trace block header.
System Action: Processing continues.
Additional Comments: Detailed information relating to DOS/VTAM trace file contents may be found in the *DOS/VS VTAM System Programmer's Guide*.

DSJ203I VTAM TRACE nnnnnnn LENG(lllll) D(mm.dd.yy) T(hh.mm.ss.dddddd)
LRC(ii/oo) S(ssssssss) D(dddddddd) ttttttttttt dir

Where:

nnnnnnn	is the ACF/TAP assigned input record number.
lllll	is the record length from the trace header.
mm.dd.yy	is the converted timestamp date field from the trace record header.
hh.mm.ss.dddddd	is the converted time-of-day timestamp time field from the trace record header.
ii	is the hexadecimal inbound lost record count from the trace record header.
oo	is the hexadecimal outbound lost record count from the trace record header.
ssssssss	is the source NODENAME, or line name of the line being traced.
dddddddd	is the destination NODENAME (blank if line trace).

Note: *In the case of OS/VS VTAM RNIO records traced via GTF, no VTAM trace header information is included in the trace data. DSJCETAP constructs a dummy trace header for RNIO trace data from GTF. The dummy trace data is constructed as follows:*

mm.dd.yy	
hh.mm.ss.dddddd	identical to the last GTF timestamp.
ii/oo	lost record count set to zero.
ssssssss	transmission header source nodename.
dddddddd	transmission header destination nodename.
ii/oo	lost record count set to zero.
tttttttttttt	is a literal describing processable records. (VTAM IO/RNIO, VTAM BUFFER, USER BUFFER, and NCP TRACE).
dir	is the trace direction with respect to the host access method.

Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: This message describes the contents of the VTAM trace record header.
System Action: Processing continues.
Additional Comments: Information about VTAM trace file contents can be found in the appropriate *System Programmer's Guide.*

J204I LINE TRACE nnnnnnn TYPE(tt) LINE(llll) dddd DUPLEX bbbbb sss
ssssss llllllll TIME(mm) EP(ee) STATUS(ss) wwwwwwww eeeeeee

Where:	nnnnnnn	is the ACF/TAP assigned input record number.
	tt	is the RU1WT byte returned as part of the record line trace header.
	llll	is the hexadecimal network address of the line that is being traced.
	dddd	HALF or FULL duplex.
	bbbbb	CSB-3 if the line trace is being performed on a line attached to a type 3 scanner.
	sssssssss	SECONDARY or PRIMARY depending upon whether the link is traced as the secondary or primary SDLC station.
	llllllll	TRANSMIT or RECEIVE if the line is a full duplex line, otherwise blank. This indicates which leg of the link (inbound or outbound) is represented by the trace data.
	mm	is the RU1TH (25.5 second timer) returned as part of the record line trace header.
	ee	is the RU1SCA byte returned as part of the record line trace header.
	ss	is the RU1RTT byte returned as part of the record line trace header.
	wwwwwwww	SLOWDOWN if the slowdown indicator is on in the record line trace header.
	eeeeeee	is the next element count to be assigned by ACF/TAP to a line trace element extracted from the trace data.

Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: This message describes the contents of the record line trace header information returned by NCP to the host access method as part of the line trace data.
System Action: Processing continues.
Additional Comments: Information about DOS/VTAM trace file contents can be found in the *DOS/VS VTAM System Programmer's Guide.*

FORM 1: TCAM trace other than LINE, LIN3, or PIUT.

```
DSJ205I   TCAM TRACE nnnnnnn LENG(llllll) D(mm.dd.yy) T(hh.mm.ss.dddd00)
          SEQ(qqqqqqqq) tttt
```

FORM 2: The first TCAM LINE or LIN3 trace entry in a trace record.

```
DSJ205I   TCAM TRACE nnnnnnn LENG(llllll) D(mm.dd.yy) T(hh.mm.ss.dddd00)
          SEQ(qqqqqqqq) tttt LINE(iiiiiiii) LENG(vvvvv)      mmmmmmmm
```

FORM 3: The remaining TCAM LINE or LIN3 entries in a trace record.

```
DSJ205I   TCAM TRACE nnnnnnn
          LINE(ssssssss) LENG(vvvvv)      mmmmmmmm
```

FORM 4: The first TCAM PIUT trace entry in a trace record.

```
DSJ205I   TCAM TRACE nnnnnnn LENG(llllll) D(mm.dd.yy) T(hh.mm.ss.dddd00)
          SEQ(qqqqqqqq) tttt S(ssss....) D(dddd....)     mmmmmmmm
```

FORM 5: The remaining TCAM PIUT trace entries in a trace record.

```
DSJ205I   TCAM TRACE nnnnnnn
                    tttt S(ssss....) D(dddd....)     mmmmmmmm
```

Where:

nnnnnnnn	is the ACF/TAP assigned input record number.
llllll	is the input record length.
mm.dd.yy	is the timestamp date field from the input trace record header.
hh.mm.ss.dddd00	is the timestamp time field from the input trace record header.
qqqqqqqq	is the sequence number from the input trace record header.
tttt	is the record type indicator from the input trace record header.
iiiiiiii	is the name of the line from which the trace data is received.
vvvvv	is the length of the line trace entry in the line trace record.
mmmmmmmm	is the next message count to be assigned to a message.
ssss	is the hexadecimal origin address field (OAF) of the traced PIUT.
dddd	is the hexadecimal destination address field (DAF) of the traced PIUT.

Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: This message describes the contents of TCAM trace records.
System Action: Processing continues.
Additional Comments: Information about the OS/VS TCAM trace file contents can be found in the *OS/VS TCAM System Programmer's Guide.*

The following block of messages (DSJ220I through DSJ229I) describes the state of the GTF trace file as determined by the bit settings in the first timestamp control record encountered in the file.

Issued by: DSJCEPRT in behalf of DSJCGBLK to SYSPRINT.
System Action: Processing of the trace record continues.

J220I TRACE FILE RECORDED BY MVS GTF
J221I TRACE FILE RECORDED BY VS1 OR SVS GTF
Explanation: GTF trace record formats differ between VS1 (SVS) GTF and VS2 (MVS). The host system is determined by searching for a timestamp control record, normally the first record in each trace block. The timestamp identifiers are themselves unique, as follows:

AID(00) FID(04) VS1 (SVS/VS2)
AID(00) FID(01) VS2 (MVS/VS2)

J222I GTF MINIMAL TRACE RECORDING MODE
J223I GTF COMPREHENSIVE TRACE RECORDING MODE
Explanation: The setting of the GTF minimal/comprehensive trace option, as determined from the first timestamp record encountered, is described. DSJCETAP does not print the JOBNAME or address space ID, which is included in GTF trace records in comprehensive recording mode.

J224I GTF TRACE RECORDS ARE TIMESTAMPED
J225I GTF TRACE RECORDS ARE NOT TIMESTAMPED
Explanation: The setting of the GTF time/notime timestamp option, as determined from the first timestamp record encountered, is described. If individual trace records are not time-stamped, they are shown as having the same time as the last timestamp control record.

J226I GTF RNIO OPTION IN EFFECT
J227I GTF RNIO OPTION NEEDED FOR VTAM TRACE TYPE=RNIO
Explanation: The setting of the GTF RNIO trace option, as determined from the first timestamp record encountered, is described.

J228I GTF USR OPTION IN EFFECT
J229I GTF USR OPTION NEEDED FOR VTAM TRACE TYPE=LINE AND TYPE=BUF
Explanation: The setting of the GTF USR trace option, as determined from the first timestamp record encountered, is described.
Additional Comments: Detailed information about GTF can be found in the *OS/VS Service Aids* and *OS/VS Service Aids Logic*.

J230I TRACE BUFFERS RESET DUE TO CONTINUITY ERROR
Issued by: DSJCEPRT in behalf of DSJTRGET to SYSPRINT.
Explanation: Trace buffers are reinitialized to prevent erroneous analysis of trace data.
System Action: Processing of the trace records continues.
Additional Comments: This message prints with Message DSJ199I and one of the following messages: DSJ241I, DSJ242I, DSJ243I, DSJ244I, DSJ245I or DSJ249I.

J231I INPUT ERROR ON TRACE FILE
Explanation: Self-explanatory.
System Action: The input trace record is skipped. Processing continues with the next trace record.
Additional Comments: For the OS/VS version of ACF/TAP, information preceded by message DSJ008I is sent as output to the system log via the WTL macro. See DSJ007I and DSJ008I.

J240I RECORD xxxxxxx IGNORED VS1(SVS) / VS2 GTF INDETERMINATE
Issued by: DSJCEPRT in behalf of DSJCGBLK to SYSPRINT.
Explanation: GTF records cannot be processed until ACF/TAP determines if the trace file was recorded by VS1-GTF or VS2-GTF. The determination is made by searching the file for timestamp control records that are system unique. All trace records are ignored until a timestamp control record is found. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: Processing of the trace file continues.

DSJ241I RECORD xxxxxxx CONTINUITY ERROR - LOST RECORD INDICATOR

Issued by: DSJCEPRT in behalf of DSJCVBLK to SYSPRINT.

Explanation: (1) A GTF lost event record was encountered in the input trace file. (2) A non-zero lost event record indicator was encountered in a DOS VTAM trace block header. (3) A non-zero inbound or outbound lost record indicator was encountered in VTAM trace record header.

System Action: Processing of the trace record continues.

Additional Comments: This message prints with Messages DSJ199I and DSJ230I.

DSJ242I RECORD xxxxxxx CONTINUITY ERROR - TIMESTAMP WRAPAROUND

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.

Explanation: The timestamp in the current GTF or VTAM or TCAM trace record header contains a time value, which is earlier than a previously encountered time. xxxxxxx is the ACF/TAP assigned record number of the current input record.

System Action: Processing of the trace record continues.

Additional Comments: This message prints with Messages DSJ199I and DSJ230I.

DSJ243I RECORD xxxxxxx CONTINUITY ERROR - SEQUENCE NUMBER WRAPAROUND

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.

Explanation: The sequence number in the current DOS/VTAM or TCAM trace record header contains a sequence value that is earlier than a previously encountered sequence. xxxxxxx is the ACF/TAP assigned record number of the current input record.

System Action: Processing of the trace record continues.

Additional Comments: This message prints with Messages DSJ199I and DSJ230I.

DSJ244I RECORD xxxxxxx CONTINUITY ERROR - LOST SEQUENCE NUMBER

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.

Explanation: The sequence number in the current DOS/VTAM or TCAM trace record header contains a sequence value that is not one greater than the previous sequence number. xxxxxxx is the ACF/TAP assigned record number of the current input record.

System Action: Processing of the trace record continues.

Additional Comments: This message prints with Messages DSJ199I and DSJ230I.

DSJ245I RECORD xxxxxxx CONTINUITY ERROR - DATA TRUNCATED

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.

Explanation: Line trace data has been truncated at the end of a COMWRITE trace segment. xxxxxxx is the ACF/TAP assigned record number of the current input record.

System Action: Processing of the trace record continues.

Additional Comments: This message prints with Messages DSJ199I and DSJ230I.

DSJ246I RECORD xxxxxxx SUPPRESSED - CONFIDENTIAL TEXT INDICATED

Issued by: DSJCEPRT in behalf of DSJCVBLK to SYSPRINT.

Explanation: The confidential text bit in the VTAM trace record header is set. xxxxxxx is the ACF/TAP assigned record number of the current input record.

System Action: Trace data in the trace record is blanked. No trace data is analyzed.

DSJ247I RECORD xxxxxxx REMAINING DATA IGNORED - LINE TRACE DATA ERROR

Issued by: DSJCEPRT for DSJCLNTR to SYSPRINT.

Explanation: The input line trace data is incorrectly formed. The last line trace element in the trace record is incomplete or it extends beyond the remaining record length.

System Action: Processing continues with the next trace record.

Programmer Action: Examine the input data to determine the cause of the error condition.

DSJ248I RECORD xxxxxxx CONTINUITY - LINE TRACE TERMINATED

Issued by: DSJCEPRT in behalf of DSJCLNTR to SYSPRINT.

Explanation: The last-record indicator was on in the record line trace header returned by the NCP with line trace data. xxxxxxx is the ACF/TAP assigned sequence number of the current input record.

System Action: Processing of the trace record continues.

;J249I RECORD xxxxxxx CONTINUITY - LINE TRACE TERMINATED (SLOWDOWN)

Issued by: DSJCEPRT in behalf of DSJCGBLK to SYSPRINT.
Explanation: The last-record indicator was set in the record line trace header returned by the NCP with line trace data. The NCP line trace was terminated due to NCP slowdown. xxxxxxx is the ACF/TAP assigned sequence number of the current input record.
System Action: Processing of the trace record continues.
Additional Comments: This message prints with messages DSJ199I and DSJ230I.

;J250I REMAINING DATA LENGTH CANNOT CONTAIN HEADER

Issued by: DSJCEPRT in behalf of DSJCVBLK to SYSPRINT.
Explanation: The input record was too short to contain a complete VTAM trace header.
System Action: The record is ignored and trace file processing continues.

;J251I RECORD xxxxxxx - GTF AND VTAM TRACE HEADERS INCONGRUENT

Issued by: DSJCEPRT in behalf of DSJCVBLK to SYSPRINT.
Explanation: The type or direction flags in the VTAM trace record header did not correspond to the equivalent flags in the GTF trace record header. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: Processing of the trace record continues. The VTAM flags take precedence over the GTF flags.

;J253I RECORD xxxxxxx IGNORED - TOO SHORT TO CONTAIN BLOCK HEADER

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.
Explanation: The input record is not large enough to contain a complete TCAM trace block header. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The trace record is ignored.

SJ258I RECORD xxxxxxx IGNORED - BLOCK ID NOT TRACE

Issued by: DSJCEPRT in behalf of DSJCDBLK to SYSPRINT.
Explanation: The block ID in the DOS VTAM trace block header is not TRACE. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The trace block is ignored.

SJ260I RECORD xxxxxxx LENGTH ERROR - LAST PIUT ENTRY NOT 32 BYTES

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.
Explanation: The last PIUT entry in the TCAM PIUT trace segment is not 32 bytes in length. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The remainder of the record is ignored.
Programmer Action: Examine the remaining data in the trace block to ensure that it does not contain useful trace information.

SJ261I RECORD xxxxxxx LENGTH ERROR - INCOMPLETE LINE TRACE HEADER

Issued by: DSJCEPRT in behalf of DSJCLNTR to SYSPRINT.
Explanation: The line trace data remaining after record header processing is too short to contain a complete RLTRU header. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The line trace entry is ignored.

'SJ262I RECORD xxxxxxx IGNORED - LINE TRACE NOT INDICATED IN HEADER

Issued by: DSJCEPRT in behalf of DSJCLNTR to SYSPRINT.
Explanation: The status byte of the record line trace header returned by NCP with line trace data did not indicate line trace. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The trace record is ignored.

'SJ263I RECORD xxxxxxx IGNORED - TOO SHORT TO CONTAIN LENGTH FIELD

Issued by: DSJCEPRT in behalf of DSJCTBLK to SYSPRINT.
Explanation: Not enough data remains in the TCAM trace record to contain a line trace entry length field. xxxxxxx is the ACF/TAP assigned record number of the current input record.
System Action: The trace record is ignored.

Chapter 8. ACF/TAP Overview

This chapter provides a general overview of ACF/TAP functions and is intended primarily for ACF/TAP maintenance. It should be used in conjunction with Chapter 9, which relates each ACF/TAP routine to the overall structure of ACF/TAP.

The Function of ACF/TAP

ACF/TAP is a structured, single-thread, and single-function program. Its function is:

- Read a trace record.
- Analyze the trace record.
- Print the results.

Three primary routines and six secondary routines accomplish this. The primary routines are:

- DSJCETAP - Control execution and define tables (main routine).
- DSJTRGET - Read trace records.
- DSLRDRVR - Analyze trace messages and print the results.

The secondary routines are:

- DSJLDRVR - Analyze NCP line trace elements from a type 1 or 2 scanner.
- DSJTLGET - Deblock NCP line trace elements from a type 1 or 2 scanner, and analyze NCP line trace elements from a type 3 scanner.
- DSJCPARM - Read and validate control parameters.
- DSJCEPRT - Format and issue operational and status messages.
- DSJCEIOF - Interface with QSAM input and output facilities.
- DSJCNIOF - Interface with console input and output facilities.

In addition to the above modules, other modules perform special functions such as acquiring the current date, analyzing headers, etc. These are defined in another section of this chapter.

DSJCETAP Overview

DSJCETAP is the main ACF/TAP routine. It calls the other routines, opens and closes input and output files, defines and initializes tables and buffers, and terminates execution of ACF/TAP.

The DSJCETAP functions are:

1. Issue messages, via calls to DSJCEPRT, indicating that execution is starting.
2. Obtain the current date via a call to DSJCDATE.
3. Open the primary output data set (SYSPRINT for OS/VS or SYSLST for DOS/VS). If it cannot be opened, issue a message to the operator and terminate ACF/TAP execution.
4. Call the parameter input and validation routine, DSJCPARM. The return code from this routine indicates the next action to take. If the return code indicates that the trace file cannot be processed with the options stored in the CNTRL table, close any open files and terminate ACF/TAP execution.
5. If the return code indicates the trace file can be processed, open the six output report files (SYSLDPRT, SYSLSPRT, SYSSDPRT, SYSSPRT, SYSDTPRT, and SYSNEPRT). If any of the report files cannot be opened, issue a prompting message for parameters. This permits the user to either terminate

the run, correct the condition, or specify that the reports are not to be produced.

6. After all report files are opened, initialize all tables.
7. Open the trace input file. If the trace input file cannot be opened, issue a message to the operator, close any open files and terminate ACF/TAP execution. If the trace input file is opened successfully, issue messages to the operator informing him of that and also that trace file processing is beginning.
8. Call routine DSJTRGET to read trace data for processing. If the return code from DSJTRGET indicates there is data to process, call routine DSJRDRVR to process the data. VABUF points to the buffer control block of the buffer to be processed. Continue reading trace data until the DSJTRGET return code indicates there is no more data.
9. Terminate trace data processing and issue a message to the operator indicating the reason (end of file, select limit(s) reached, or errors during trace file processing). Close the input file and report files. If the return code indicates that the trace file processing was terminated because of errors, terminate ACF/TAP execution. Otherwise, return to step four and request parameters for reprocessing the file.

DSJTRGET Overview

DSJTRGET reads trace records from the trace input file and stores the trace data in the ACF/TAP internal buffers.

The functions of DSJTRGET are:

- Select records for processing based on the specified parameters INPUT= and SOURCE=.
- Issue summary print lines describing the contents of the headers.
- Call the NCP line trace processing routine.
- Scan the trace input file.
- Buffer the host trace data.

Trace Data Buffering

Trace data for processing is buffered in one of three internal buffers. Each buffer contains two segments: a traced character segment and a segment containing the external hexadecimal character equivalent of the traced character (for example, X'F0' and X'C6F0').

Buffer status is maintained in a buffer control block for each buffer. The buffer control block points to the start of each buffer segment and to the next available position in the buffer. It contains:

- The segment size
- Overflow flag
- Character count
- Data type indicator
- Other line trace related fields

The three buffer control blocks are called: IBUFC, OBUFC, and TBUFC. The IBUFC and OBUFC blocks are used exclusively for NCP line trace processing to store the character activity on the input and output legs of the link. The TBUFC block is used for host trace processing to store all host activity, and is used to store supervisory and non-sequenced text frame activity.

When a buffer is processed, the address of its buffer control block is placed in the active buffer control block pointer (VABUF=VIBUFC). The buffer then becomes the active buffer:

The following rules apply to buffer control:

- Buffer pointers are updated as characters are stored in the buffers. They always point to the next available buffer position.
- The buffer size is the number of character positions in the value buffer. The external character equivalent buffer is twice that size.
- The overflow count is incremented each time a buffer is filled. An overflow count of 0 indicates no overflow. An overflow count of 1 indicates the first overflow. The overflow count is not incremented for the last (non-overflow) buffer of a set. If the overflow count is equal to the preceding overflow count, no new overflow has occurred. The overflow count is reset by the analysis control routine (DSJRDRVR) when no new overflow has occurred.
- The character count is the number of characters in the buffer. For NCP line trace processing, it is set to minus one when initialized and when the NCP line trace analysis is reset because of unusual conditions.

When reset, all characters are ignored until an SDLC flag character is detected. The count is then incremented to 0, indicating the start of the basic link unit (BLU). Subsequent flag characters do not increment the count, thus permitting back-to-back flag characters in the trace data. When non-frame characters are detected, they are stored in the buffer and the count value is incremented. The next SDLC flag character indicates the end of the BLU, and the buffer is available for processing. After analysis, the count is reset to zero, indicating a return to the start of the BLU state (assuming no overflow); this permits an end-of-frame flag to also be the starting flag for the next frame.

For host traces, the count field is the number of characters in the buffer.

DSJRDRVR Overview

DSJRDRVR processes the buffered trace data. The VABUF field points to the active buffer control block that in turn points to the data to process. DSJRDRVR is aware of the following characteristics that may be present in the data:

- Source of trace data (host or NCP line trace)
- Error conditions (continuity, incomplete or invalid data)
- Positional relationships between SDLC frame characters, TH, RH, sense data, and commands
- Functional relationships: Session control (SC), network control (NC), and data flow control (DFC) request headers contain commands; formatted function management (FM) data request headers may contain network services (NS) commands; FID0 traces contain basic transmission unit (BTU) commands and responses; sense data indicator indicates if sense data is included.

DSJRDRVR also manages page overflow for the SNA detail report, and controls the output of the SNA summary report, the SYSPRINT trace print, and the network data traffic report.

The functions of DSJRDRVR are:

- If the trace data to be processed contains SDLC header information (from scanner 1 or 2 NCP line trace), DSJRDRVR calls a subsidiary routine DSJRSDLC to process the SDLC framing characters (ADDR, CNTL and BCC). If after processing there is no remaining data, cleanup is performed and

the routine returns to the calling program. If the trace data does not contain SDLC header information, it is written to the SNA detail report and processing continues.

- The transmission header (TH) is analyzed and written to the SNA detail report.
- The request header (RH) is analyzed and written to the SNA detail report.
- If sense data is present, it is analyzed and written to the SNA detail report.
- If the RH indicated SC/NC/DFC mode, the command byte is analyzed and written to the SNA detail report.
- If the trace data is formatted FM data, it is analyzed to determine if it is a network services command to or from an SSCP or CDRM. If so, the NS command string is analyzed and written to the SNA detail report.
- If the TH indicates a FID0 transmission, the BTU command bytes are analyzed and written to the SNA detail report.
- Data remaining after all analysis is complete is written in character format to the SNA detail report and in character and hexadecimal format to the network data traffic report.
- Trace summary is written to SYSPRINT and the SNA summary report.
- The trace buffer pointers and count are reset and if no additional overflow has occurred, the overflow remember count is reset.

Message Analysis

When a trace message is completely assembled, or when the ACF/TAP internal buffer is filled, the buffer is presented to the analysis section of the program, controlled by routine DSJRDRVR. Routines called by DSJRDRVR examine each of the trace data header fields. Each analysis routine (DSJRSDLC, DSJRANTH, DSJRANRH, DSJRANRU, DSJRAFMH, and DSJRABTU) is aware of only the format and contents of the particular header that it examines, and is independent of the format of any other header. Each analysis routine performs the following functions on the trace data in the buffer:

- Determine if sufficient data is in the buffer to contain the entire header. If not, signal an error, set the data count value to minus one, and terminate.
- If sufficient data does remain, examine the header, abstract the header information in the corresponding ACF/TAP table, and signal any errors.
- Place the character count of the header in the corresponding ACF/TAP table and decrement the count of the number of characters in the buffer by the same value.
- Update the current position pointers in the buffer control block to point to the first byte of data following the header.

Trace headers, analysis routines, print routines and ACF/TAP tables are related as follows:

Type	*Table*	*Analysis Routine*	*Format Routine*
SDLC	KSTAT	DSJRSDLC/DSJRASCM	DSJRPSCM/DSJRPSAB
TH	TSTA	DSJRANTH	DSJRETHA
RH	RSTAT	DSJRANRH	DSJRERHA
SENS	RSTAT	DSJRANRH/DSJRSENS	DSJRSENS
SNDF+	RSTAT	DSJRANRH/DSJRANRU	DSJRECMD
NS++	HSTAT	DSJRAFMH	DSJRENSS
BTU	FSTAT	DSJRABTU/DSJRPBTU DSJRPRSP	DSJRPBTU/DSJRPRSP

+SNDF=Session or network or data flow control
++NS =Network services (to or from SSCP or CRDM)

DSJLDRVR Overview

DSJLDRVR assembles a complete basic link unit (BLU) from NCP line trace data. DSJTRGET calls the line trace analysis routine in DSJLDRVR. The input is a line trace data record without headers that may be a new trace record, or a trace record that has been partially processed during a previous call. It returns to DSJTRGET when a message was completely assembled or when there is no more trace data in the current input record.

Trace elements are removed from the trace data by DSJTLGET which is aware of the type of scanner (type 1, 2 or 3) that the trace data has come from. DSJTLGET controls the processing of type 3 scanner trace data. Trace messages from type 3 scanner data acquired by DSJTLGET are passed back through DSJLDRVR and DSJTRGET to the processing control routine DSJRDRVR.

The functions of DSJLDRVR are:

- Get a line trace element from the data via a call to DSJTLGET. DSJTLGET will return a non-OK return code if it either needs a new trace record, or finds a message of its own to analyze. In either case, DSJLDRVR returns to the calling routine.
- If DSJTLGET returns a four-byte type 1 or 2 scanner trace element, DSJLDRVR breaks it into its component pieces (TRACE internal table), tests it for timeout (half duplex only), and moves the pieces to the line status table (LSTAT).
- Call DSJLAVSF to analyze the line state.
- If the line state is not SDLC, call the output routines (DSJLPSDL and DSJLPSQL) if necessary, and return to the first step. Otherwise call DSJLSSTC to dispose of the character that was traced. The character is either stored or ignored by DSJLSSTC and the buffers are reset, messages started or messages completed based on the link state.
- Call the line trace detail and summary report output routines if necessary.
- If DSJLSSTC indicates a message is complete in a buffer, store the address of the corresponding buffer control block in VABUF, and return to the calling routine indicating that a message is available to process.

DSJTLGET Overview

DSJTLGET gets line trace elements from NCP line trace records. If the trace records are from a type 1 or 2 scanner, DSJTLGET gets one four-byte line trace element and then returns to the calling routine.

If the trace records are from a type 3 scanner, DSJTLGET gets trace elements until a complete PIU is assembled and then returns to the calling routine. The type 3 scanner trace data consists of eight-byte status elements and variable length text elements.

For either case, if no data remains in the trace record, an end-of-record signal is returned to the calling routine requesting another trace record.

DSJTLGET makes the following assumptions about type 3 scanner trace data:

- A two-byte text element following a status element is a block check character (BCC).
- The direction (in or out with respect to the NCP) of a text element is determined by the preceding status element. For input text, the ACF/TAP input buffer is used, and for output TEXT the ACF/TAP output buffer is used. For non-SDLC undefined line states, and nonsequenced SDLC frames, the host buffer is used.
- Text elements are buffered until a status element is detected. If the previous status element indicated that the text is an SDLC information (I) field, the buffered text (minus the two-byte BCC) is returned to the calling routine for analysis. If the text is not an I field, it is printed and then discarded.
- If buffered text is returned for analysis, the status element that triggered the action is processed the next time DSJTLGET is called.
- Status elements can occur in groups in the line trace data.
- RR or RNR status elements are eliminated from the trace detail report if RRSUP=YES is specified.
- Messages from type 3 scanner trace data do not contain SDLC framing characters.

DSJCPARM Overview

DSJCPARM reads and validates parameters entered by the user. When first called, DSJCPARM resets all parameters to their default values and requests user input from the console. If a READ command is entered, DSJCPARM stops reading from the console and begins reading from the SYSIN or SYSIPT card image file. If the PROMPT command is read from SYSIN or SYSIPT, a message is issued to the user and parameters are again requested from the console.

All commands can be entered via the SYSIN or SYSIPT input data set; however the READ and LIST commands are ignored.

Parameter processing is table driven. There is a keyword name table and a corresponding branch table that selects the logic to process the keyword. For parameters in the format KEYWORD=PARM (where the corresponding parameter table (CNTRL) entry is switch-set rather than value-set), the branch table causes a branch to common logic. That logic does a table look-up on the PARM string and converts it to its equivalent internal switch, followed by a branch to unique validation logic for each KEYWORD.

For parameters not in the format KEYWORD=PARM, the first branch is directly to unique logic for each KEYWORD.

DSJCPARM processes parameters as follows:

- Parameter sets (KEYWORD=PARM) cannot be continued from one line of input to the next.
- Parameter sets must be separated by blanks or commas.

- Scanning of the current parameter input record is terminated if a syntax error is detected.
- If the LIST command is entered from the console, a list of parameters is printed on the console. When the GO command is entered, a list of all parameters to be used in processing the trace file is written to the SYSPRINT or SYSLST data set.
- If an error is made while entering parameters, the user is given an opportunity to correct the error.
- Certain parameter combination errors cannot be detected until the GO command is entered. If these errors occur, they are indicated to the user, and the GO command is not executed. The user is given the opportunity to correct the error or terminate the run.

DSJCEPRT Overview

DSJCEPRT formats and issues messages to the operator's console and the SYSPRINT or SYSLST data set.

The functions of DSJCEPRT are:

- If called by DSJYEMIT, copy the network error messages formatted by that routine, and issue them to SYSPRINT or SYSLST.
- If called by DSJTRGET to issue Messages DSJ201I through DSJ219I, add the ACF/TAP assigned message sequence number to the message text and issue the messages to SYSPRINT or SYSLST.
- If called to issue a status message (Messages DSJ220I through DSJ263I), format the message, adding the current record number if necessary, and issue to SYSPRINT or SYSLST.
- If called by DSJCPARM to list all parameter options on the operator's console, or to list the SYSPRINT parameters used during trace file processing, format and issue a print line for each parameter as required.
- If an invalid message code is requested, issue Message DSJ000I, containing the invalid code and the return address, to the calling routine.
- All other messages (one message for each error code) are issued to SYSPRINT and the console except DSJ001I, DSJ010I, and DSJ099I which are issued to the console only.

Message routing is as follows:

Message	*Formatted by:*	*Output to:*
DSJ001I	DSJCEPRT	Console
DSJ008I	DSJCEIOF	SYSPRINT or SYSLST (by DSJCEIOF)
DSJ010I	DSJCEPRT	Console
DSJ099I	DSJCEPRT	Console
DSJ0xxI	DSJCEPRT	Console or SYSPRINT or SYSLST
DSJ1xxI	DSJYEMIT	SYSPRINT or SYSLST (SYSNEPRT by DSJYEMIT)
DSJ201I	DSJCGBLK	SYSPRINT or SYSLST
DSJ202I	DSJCDBLK	SYSPRINT or SYSLST
DSJ203I	DSJCVBLK	SYSPRINT or SYSLST
DSJ204I	DSJCTBLK	SYSPRINT or SYSLST
DSJ205I	DSJCLNTR	SYSPRINT or SYSLST
DSJ2xxI	DSJCEPRT	SYSPRINT or SYSLST

SJCEIOF Overview

DSJCEIOF contains all the entry points for handling the trace file input and report output. All entry point names are in the format INITxx for initialization, TERMxx for termination, GETxx for input, and PUTxx for output. The xx identifier for each file is as follows:

Reports:	*Files:*
PD - Network Data Traffic PE - SYSPRINT PF - Line Trace Detail PQ - Line Trace Summary PR - SNA Detail PS - SNA Summary PY - Network Error	IP - Parameter input IC - COMWRITE input ID - DOS/VS VTAM input IG - GTF input

The essential operating characteristics of DSJCEIOF follow:

S/VS Version

- The DCBOFLGS bit in the DCB is tested to verify a successful open of the file. An error code is returned if the selected file was not opened.
- If DCB=BLKSIZE is not specified on the SYSTRACE DD card for COMWRITE input, the values BLKSIZE=32760 and BUFNO=1 are used.
- SYNAD exit is supported for all files. SYNAD information is issued to the system log via WTL SVC with error Message DSJ008I. Output files specify EROPT=ABE (abend) in the DCB. Input files specify EROPT=ACC (accept). The input in error will be accepted, but the calling routine will ignore it.

OS/VS Version

- No output spooling capability is assumed. SYSPRINT or SYSLST output goes directly to the assigned printer. If any of the other six reports are to be printed, they are written to temporary storage (any media supported by DTFCP) and printed when the files are closed.
- Output temporary files assigned ignore (IGN) are considered unable to be opened. The user is given the option of terminating execution or specifying that the file is not to be used.
- If the input parameter file is assigned ignore (IGN), it is considered unable to be opened.
- If the input trace file is assigned ignore (IGN), it is considered unable to be opened.
- If SYSLST is assigned ignore (IGN), no output to SYSLST is performed.

ummary of each DCB and DTF in DSJCEIOF

OS DCB for Parameter Input File:

```
IPDCB    DCB    DSORG=PS,
                MACRF=(GL),
                LRECL=80, ,
                BLKSIZE=80,
                RECFM=F,
                EROPT=ACC,
                SYNAD=TPERR,
                EODAD=TPEND,
                DDNAME=SYSIN
```

OS DCB for COMWRITE Input (OS/VS TCAM):

```
ICDCB    DCB    DSORG=PS,
                MACRF=(GL),
                BLKSIZE=0,
                RECFM=U,
                EROPT=ACC,
                SYNAD=TPERR,
                EXLST=EXTLST,
                EODAD=TPEND,
                DDNAME=SYSTRACE
```

OS DCB for DOS Input (DOS/VS VTAM):

```
IDDCB    DCB    DSORG=PS
                MACRF=(GL),
                LRECL=2044,
                BLKSIZE=2048,
                RECFM=VB,
                EROPT=ACC,
                SYNAD=TPERR,
                EODAD=TPEND,
                DDNAME=SYSTRACE
```

OS DCB for GTF Input (OS/VS VTAM):

```
IGDCB    DCB    DSORG=PS,
                MACRF=(GL),
                LRECL=4092,
                BLKSIZE=4096,
                RECFM=VB,
                EROPT=ACC,
                SYNAD=TPERR,
                EODAD=TPEND,
                DDNAME=SYSTRACE
```

OS DCB for SYSLDPRT Line Trace Detail Report:

```
LDDCB    DCB    DSORG=PS,
                MACRF=(PM),
                LRECL=133,
                BLKSIZE=665,
                RECFM=FBA,
                EROPT=ABE,
                SYNAD=TPERR,
                DDNAME=SYSLDPRT
```

OS DCB for SYSLSPRT Line Trace Summary Report:

```
LSDCB    DCB    DSORG=PS,
                MACRF=(PM),
                LRECL=133,
                BLKSIZE=665,
                RECFM=FBA,
                EROPT=ABE,
                SYNAD=TPERR,
                DDNAME=SYSLSPRT
```

OS DCB for SYSSDPRT SNA Detail Report:

```
SDDCB    DCB    DSORG=PS,
                MACRF=(PM),
```

```
                    LRECL=133,
                    BLKSIZE=665,
                    RECFM=FBA,
                    EROPT=ABE,
                    SYNAD=TPERR,
                    DDNAME=SYSSDPRT
```

OS DCB for SYSSSPRT SNA Summary Report:

```
SSDCB       DCB     DSORG=PS,
                    MACRF=(PM),
                    LRECL=133,
                    BLKSIZE=665,
                    RECFM=FBA,
                    EROPT=ABE,
                    SYNAD=TPERR,
                    DDNAME=SYSSSPRT
```

OS DCB for SYSPRINT:

```
CLDCB       DCB     DSORG=PS,
                    MACRF=(PM),
                    LRECL=133,
                    BLKSIZE=665,
                    RECFM=FBA,
                    EROPT=ABE,
                    SYNAD=TPERR,
                    DDNAME=SYSPRINT
```

OS DCB for SYSDTPRT Network Data Traffic Report:

```
DTDCB       DCB     DSORG=PS,
                    MACRF=(PM),
                    LRECL=133,
                    BLKSIZE=665,
                    RECFM=FBA,
                    EROPT=ABE,
                    SYNAD=TPERR,
                    DDNAME=SYSDTPRT
```

OS DCB for SYSNEPRT Network Error Report:

```
NEDCB       DCB     DSORG=PS,
                    MACRF=(PM),
                    LRECL=133,
                    BLKSIZE=665,
                    RECFM=FBA,
                    EROPT=ABE,
                    SYNAD=TPERR,
                    DDNAME=SYSNEPRT
```

Master DTFs for Line Trace Detail Report:

```
LDODTF      DTFCP   DEVADDR=SYS007,
                    RECSIZE=665,
                    DISK=YES,
                    TYPEFLE=OUTPUT,
                    IOAREA1=LDAREA1,
                    IOAREA2=LDAREA2,
                    IOREG=(2)
```

```
LDIDTF    DTFCP    DEVADDR=SYS007,
                   RECSIZE=665,
                   DISK=YES,
                   EOFADDR=TPEND,
                   TYPEFLE=INPUT,
                   IOAREA1=LDAREA1,
                   IOAREA2=LDAREA2,
                   IOREG=(2)
```

Master DTFs for Line Trace Summary Report:

```
LSODTF    DTFCP    DEVADDR=SYS003,
                   RECSIZE=665,
                   DISK=YES,
                   TYPEFLE=OUTPUT,
                   IOAREA1=LSAREA1,
                   IOAREA2=LSAREA2,
                   IOREG=(2)

LSIDTF    DTFCP    DEVADDR=SYS003,
                   RECSIZE=665,
                   DISK=YES,
                   EOFADDR=TPEND,
                   TYPEFLE=INPUT,
                   IOAREA1=LSAREA1,
                   IOAREA2=LSAREA2,
                   IOREG=(2)
```

Master DTFs for SNA Detail Report:

```
SDODTF    DTFCP    DEVADDR=SYS006,
                   RECSIZE=665,
                   DISK=YES,
                   TYPEFLE=OUTPUT,
                   IOAREA1=SDAREA1,
                   IOAREA2=SDAREA2,
                   IOREG=(2)

SDIDTF    DTFCP    DEVADDR=SYS006,
                   RECSIZE=665,
                   DISK=YES,
                   EOFADDR=TPEND,
                   TYPEFLE=INPUT,
                   IOAREA1=SDAREA1,
                   IOAREA2=SDAREA2,
                   IOREG=(2)
```

Master DTFs for SNA Summary Report:

```
SSODTF    DTFCP    DEVADDR=SYS002,
                   RECSIZE=665,
                   DISK=YES,
                   TYPEFLE=OUTPUT,
                   IOAREA1=SSAREA1,
                   IOAREA2=SSAREA2,
                   IOREG=(2)

SSIDTF    DTFCP    DEVADDR=SYS002,
                   RECSIZE=665,
                   DISK=YES,
                   EOFADDR=TPEND,
                   TYPEFLE=INPUT,
                   IOAREA1=SSAREA1,
```

```
                    IOAREA2=SSAREA2,
                    IOREG=(2)
```

Master DTFs for Network Data Traffic Report:

```
DTODTF    DTFCP   DEVADDR=SYS005,
                  RECSIZE=665,
                  DISK=YES,
                  TYPEFLE=OUTPUT,
                  IOAREA1=DTAREA1,
                  IOAREA2=DTAREA2,
                  IOREG=(2)

DTIDTF    DTFCP   DEVADDR=SYS005,
                  RECSIZE=665,
                  DISK=YES,
                  EOFADDR=TPEND,
                  TYPEFLE=INPUT,
                  IOAREA1=DTAREA1,
                  IOAREA2=DTAREA2,
                  IOREG=(2)
```

Master DTFs for Network Error Report:

```
NEODTF    DTFCP   DEVADDR=SYS004,
                  RECSIZE=665,
                  DISK=YES,
                  TYPEFLE=OUTPUT,
                  IOAREA1=NEAREA1,
                  IOAREA2=NEAREA2,
                  IOREG=(2)

NEIDTF    DTFCP   DEVADDR=SYS004,
                  RECSIZE=665,
                  DISK=YES,
                  EOFADDR=TPEND,
                  TYPEFLE=,INPUT,
                  IOAREA1=NEAREA1,
                  IOAREA2=NEAREA2,
                  IOREG=(2)
```

Master DTF for TRFILE Input Interface Tape:

```
DTFTAPE   DTFMT   DEVADDR=SYS008,
                  ERROPT=TPERR,
                  RECFORM=VARBLK,
                  FILABL=NO,
                  MODNAME=TAPEMOD,
                  BLKSIZE=2048,
                  TYPEFLE=INPUT,
                  EOFADDR=TPEND,
                  IOAREA1=IDAREA1,
                  IOAREA2=IDAREA2,
                  IOREG=(2)
```

Master DTF for TRFILE Input Interface 3330:

```
DTF3330   DTFSD   DEVADDR=SYS008,
                  ERROPT=TPERR,
                  RECforM=VARBLK,
                  DEVICE=3330,
                  MODNAME=DASDMOD,
                  BLKSIZE=2048,
```

```
                    TYPEFLE=INPUT,
                    EOFADDR=TPEND,
                    IOAREA1=IDAREA1,
                    IOAREA2=IDAREA2,
                    IOREG=(2)
```

Master DTF for TRFILE Input Interface 3340:

```
DTF3340   DTFSD   DEVADDR=SYS008,
                  ERROPT=TPERR,
                  RECFORM=VARBLK,
                  DEVICE=3340,
                  MODNAME=DASDMOD,
                  BLKSIZE=2048,
                  TYPEFLE=INPUT,
                  EOFADDR=TPEND,
                  IOAREA1=IDAREA1,
                  IOAREA2=IDAREA2,
                  IOREG=(2)
```

Master DTF for TRFILE Input Interface 2314:

```
DTF2314   DTFSD   DEVADDR=SYS008,
                  ERROPT=TPERR,
                  RECFORM=VARBLK,
                  DEVICE=2314,
                  MODNAME=DASDMOD,
                  BLKSIZE=2048,
                  TYPEFLE=INPUT,
                  EOFADDR=TPEND,
                  IOAREA1=IDAREA1,
                  IOAREA2=IDAREA2,
                  IOREG=(2)
```

Master DTF for TRFILE Input Interface 2311:

```
DTF2311   DTFSD   DEVADDR=SYS008,
                  ERROPT=TPERR,
                  RECFORM=VARBLK,
                  DEVICE=2311,
                  MODNAME=DASDMOD,
                  BLKSIZE=2048,
                  TYPEFLE=INPUT,
                  EOFADDR=TPEND,
                  IOAREA1=IDAREA1,
                  IOAREA2=IDAREA2,
                  IOREG=(2)
```

Master DTF for SYSLST:

```
SYDTF     DTFCP   DEVADDR=SYSLST,
                  RECSIZE=133,
                  DISK=YES,
                  TYPEFLE=OUTPUT,
                  IOAREA1=SYAREA1,
                  IOAREA2=SYAREA2,
                  IOREG=(2)
```

Master DTF for PARAMETER Input Interface:

```
IPDTF     DTFCP   DEVADDR=SYSIPT,
                  RECSIZE=80,
```

```
                    DISK=YES,
                    TYPEFLE=INPUT,
                    EOFADDR=TPEND,
                    IOAREA1=IPAREA1,
                    IOAREA2=IPAREA2,
                    IOREG=(2)
```

Processing Modules:

```
          CPMOD     TYPEFLE=OUTPUT,
                    IOAREA2=YES,
                    RETRY=NO,
                    DISK=YES

TAPEMOD   MTMOD RECFORM=VARBLK,TYPEFLE=INPUT

DASDMOD   SDMODVI RECFORM=VARBLK,TYPEFLE=INPUT
```

DSJCNIOF Overview

DSJCNIOF issues text (pointed to by the CNPT field in the CNCBK) to the system console. If the text requires a response from the system console, DSJCNIOF moves the response to the data area pointed to by the CNIP field in the CNCBK. Lower to upper case translation is performed.

DSJCNIOF differentiates between output-only-messages (DSJ0xxI) and the prompt for input-message (DSJ020A) by looking for the character 'A' in the seventh byte of the message.

The DOS/VS version of DSJCNIOF converts the message identifier DSJ1xx to the DOS/VS console standard format, F6xx.

Differences Between OS/VS and DOS/VS Versions of ACF/TAP

Three routines exist only in the OS/VS version of ACF/TAP. These routines are unique to the processing of GTF and TCAM trace files. The routines are:

- DSJCGBLK Process GTF headers
- DSJCTBLK Process TCAM records
- DSJCTTOD TCAM packed decimal timestamp conversion

System dependent code is required in six ACF/TAP routines for the OS/VS and DOS/VS versions of ACF/TAP. The selection of OS/VS or DOS/VS code is performed via a macro variable that is tested when the routines are compiled. The macro variable (%SYS) is set to 'DOS' for compiling the DOS/VS version of the program. The six routines are:

- DSJCETAP Main routine
- DSJCPARM Parameter input
- DSJCDATE Obtain current data
- DSJTRGET Message/record acquisition control
- DSJCEIOF QSAM I/O interface facility
- DSJCNIOF Console interface facility

Assembler Interface

The following routines issue OS/VS or DOS/VS assembler language macro instructions explicitly:

- DSJCDATE Obtain current date
- DSJCNIOF Console interface facillty
- DSJCEIOF QSAM I/O interface facility

Note: *The DOS/VS version of DSJCETAP generates an EOJ macro instruction.*

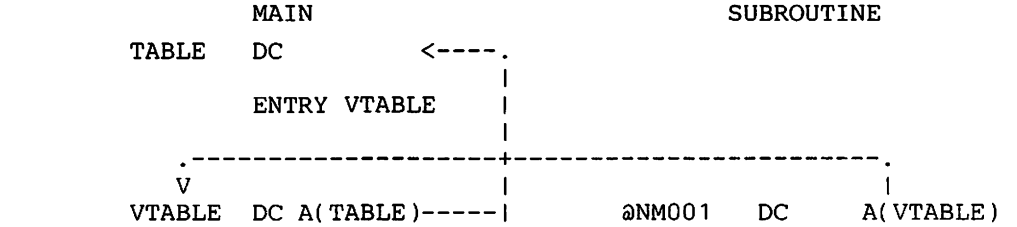
Table Overview

All internal tables in the ACF/TAP program are static; they are defined as constant areas in the main routine (DSJCETAP). No dynamic allocation of tables, buffers or work areas is performed except that performed by the QSAM access methods. Each table in the main routine is pointed to by a variable that is declared as a local external reference (for example, an entry point). All other routines refer to the table through that external reference resolved at the time the program is link-edited. Those routines reference the table by loading a local variable with the local external reference and using that local variable as a base pointer to the table. The general form that the code takes is:

```
        MAIN ROUTINE
DECLARE 1 TABLE,
          2 * CHARACTER (8. INITIAL ('TABLE'),
                .       .
                .       .
DECLARE 1 VTABLE LOCAL EXTERNAL,
          2 * POINTER (31.  INITIAL (ADDR(TABLE)),
          2 * CHARACTER (8. INITIAL ('VTABLE  ');

        SUBROUTINE
DECLARE VTABLE POINTER (31. NONLOCAL EXTERNAL;
DECLARE ATABLE POINTER (31.;
DECLARE 1 TABLE BASED (ATABLE),
          2 * CHARACTER (8.,
                .     .
                .       .
```

The resultant structure is:



To access the table in any subroutine:

```
ATABLE=VTABLE;
```

The resultant code first loads the address of the external variable from the local pointer (supplied at link-edit time) and then loads the address of the table from that external variable. Two assembler instructions are required to access any table:

```
ATABLE   EQU   4
         L     15,@NM001
         L         ATABLE,0(15.
```

Table Index

Table	*Function*
ZSTAT	SSCP/CDRM address lookup table
TITLE	Standard title lines for all reports
DATER	Current date (placed on every report page)
CNTRL	Parameter status table
TSTAT	Transmission header status table
VABUF	Active buffer pointer
IBUFC	Input buffer control block
OBUFC	Output buffer control block
TBUFC	Host/nonsequenced buffer control block
FLINE	Line trace detail report print line
TFCTL	Line trace detail report status table
YLINE	Network error report print line
TYCTL	Network error report status table
DLINE	Network data traffic report print line
TDCTL	Network data traffic report status table
RLINE	SNA detail report print line
TRCTL	SNA detail report status table
ELINE	SYSPRINT print line
TECTL	SYSPRINT status table
SLINE	SNA summary report print line
TSCTL	SNA summary report status table
QLINE	Line trace detail report print line
TQCTL	Line trace detail report status table
FSTAT	FID0 BTU status table
ESTAT	RR suppression status table
KSTAT	SDLC link status table
RSTAT	Request header status table
HSTAT	FM header status table
RCODE	Universal return code
CNCBK	Console interface control block
INCBK	Trace input interface control block
NSTAT	Trace logical status control block
ECODE	Universal error code
YSTAT	Network error report additional information table
LSTAT	Line trace analysis status table
TRACE	Line trace decomposed element status table
TRBCT	Translate table to count bits in byte
TRDMP	Translate table to convert hex to dump format

Parameter Lists

Although the majority of the routines in ACF/TAP use the status tables to save and pass information, certain routines expect parameters in the standard parameter list format (register 1 points to a list of pointers to the actual parameters). The following parameter list DSECTs are defined in the ACF/TAP source library:

Name	*Routine*	*Function*
VTOD	DSJCVTOD	Edit S/370 TOD clock to external
TTOD	DSJCTTOD	Edit TCAM packed decimal time to external
BICH	DSJCEDIT	Edit binary byte to external(e.g.10011100)
HXCH	DSJCEDIT	Edit fullword to external hexadecimal
CHFX	DSJCEDIT	Edit character string to fullword
FXCH	DSJCEDIT	Edit fullword to character string

System DSECTs

For input formats that are well-defined, system DSECTs are defined in the ACF/TAP source library:

Name	*Function*
RLTRU	NCP line trace header
ISTTRAB	VTAM trace record header (except OS/VS VTAM RNIO)
ISTTRB	DOS/VS VTAM trace block header

Constant Areas

Name	*Function*	
CONST	General constants used in many places	
RLIST	Return code constants	(RCODE)
ELIST	Error code constants (DSJ0xx, DSJ2xx)	(ECODE)
YLIST	Network error constants (DSJ1xx)	(ECODE)

Note: *Symbolic names (defined in the ACF/TAP source library) set variables in the ACF/TAP tables and status words. The CONST member defines alphanumeric single-character constants that are used to set switches in the various tables. With one exception (LCOD in LSTAT), eight-bit character switches are used in ACF/TAP instead of bit switches.*

Module Index

Name	*Function*
DSJCETAP*	Main routine. Execution control and table definition
DSJCDATE*	Obtain current date
DSJCDBLK	Process DOS/VTAM trace record and DOS ID header
DSJCDUMP	Format raw trace dump (DUMP=) to SYSPRINT
DSJCEDIT	Character string edit support services
DSJCEIOF*	Sequential (QSAM) input/output facilities
DSJCEMIT	SYSPRINT control. Titles, page break, and line count
DSJCEPRT	Operational and status message format (DSJ0xx,DJS2xx)
DSJCETRP	Format trace data to SYSPRINT (PRINT=)
DSJCGBLK+	Process GTF trace record and GTF record header
DSJCLNTR	Process RECTRACE NS header from line trace
DSJCNIOF*	Console input and output facility
DSJCPARM*	Parameter input and validation
DSJCPICK	Trace record select limit controller
DSJCSCAN	Character string scan support services
DSJCTBLK+	Process TCAM trace record
DSJCTTOD+	Convert TCAM packed decimal timestamp to external
DSJCVBLK	Process VTAM trace record header (ISTTRAB)
DSJCVTOD	Convert VTAM/GTF STCK timestamp to external
DSJDEMIT	Format network data traffic report (DTPRT=)
DSJLANSF	Analyze type 3 scanner line trace fields

Name	*Function*
DSJLAVSF	Analyze type 1 or 2 scanner line trace fields
DSJLDRVR	Control type 1 or 2 scanner analysis and message extraction
DSJTLGET	Obtain type 1 or 2 scanner element and type 3 scanner message
DSJLPNQL	Print type 3 scanner line trace summary (LSPRT=)
DSJLPNSD	Print type 3 scanner status element detail (LDPRT=)
DSJLPNSF	Print type 3 scanner status element bit detail (LDPRT)
DSJLPNST	Print type 3 scanner text element detail (LDPRT=)
DSJLPSDL	Print type 1 or 2 scanner element detail (LDPRT=)
DSJLPSQL	Print type 1 or 2 scanner element summary (LSPRT=)
DSJLSSTC	Buffer type 1 or 2 scanner trace characters
DSJLTTLA	Print type 3 scanner line trace detail report titles
DSJRABTU	Analyze FID0 BTU
DSJRAFMH	Analyze formatted RU and Network Services command
DSJRANRH	Analyze request header (RH)
DSJRANRU	Analyze SNA SC/NC/DFC command byte
DSJRANTH	Analyze Transmission Header
DSJRASCM	Analyze SDLC command byte
DSJRDPRT	Output SNA detail remaining data bytes (SDPRT=)
DSJRDRVR	Control analysis/output of trace messages
DSJRECMD	Output SNA detail SC/NC/DFC command line (SDPRT=)
DSJREMIT	Output SNA detail raw data print lines (SDPRT=)
DSJRENSS	Output SNA detail network services command line (SDPRT=)
DSJRERHA	Output SNA detail RH print lines (SDPRT=)
DSJRETHA	Output SNA detail TH print lines (SDPRT=)
DSJTRGET*	Control acquisition of trace message for analysis
DSJRPBTU	Output SNA detail FID0 BTU command lines (SDPRT=)
DSJRPRSP	Output SNA detail FID0 BTU response lines (SDPRT=)
DSJRPSAB	Output SNA detail SDLC address print line (SDPRT=)
DSJRPSCM	Output SNA detail SDLC command print line (SDPRT=)
DSJRSDLC	Control analysis and output of SDLC message envelope
DSJRSENS	Analyze and output SNA detail sense data line (SDPRT=)
DSJRTTLA	Output SNA detail title lines
DSJSEMIT	Output SNA summary detail and title lines
DSJYEMIT	Format and output network error print (NEPRT=)

* - routine has unique OS/VS and DOS/VS versions.

+ - routine exists only in OS/VS version of ACF/TAP.

Chapter 9. ACF/TAP Process Structure Diagrams

This chapter provides process structure diagrams that show the function of each routine and its relation to the overall structure of ACF/TAP. It is intended primarily for ACF/TAP maintenance and should be used in conjunction with Chapter 8, which provides an overview of the ACF/TAP program modules.

Calls to entry points in the edit services routine DSJCEDIT are not shown.

The '+' character indicates the routine is used only for OS/VS. The '*' character indicates routines that have unique OS/VS and DOS/VS versions.

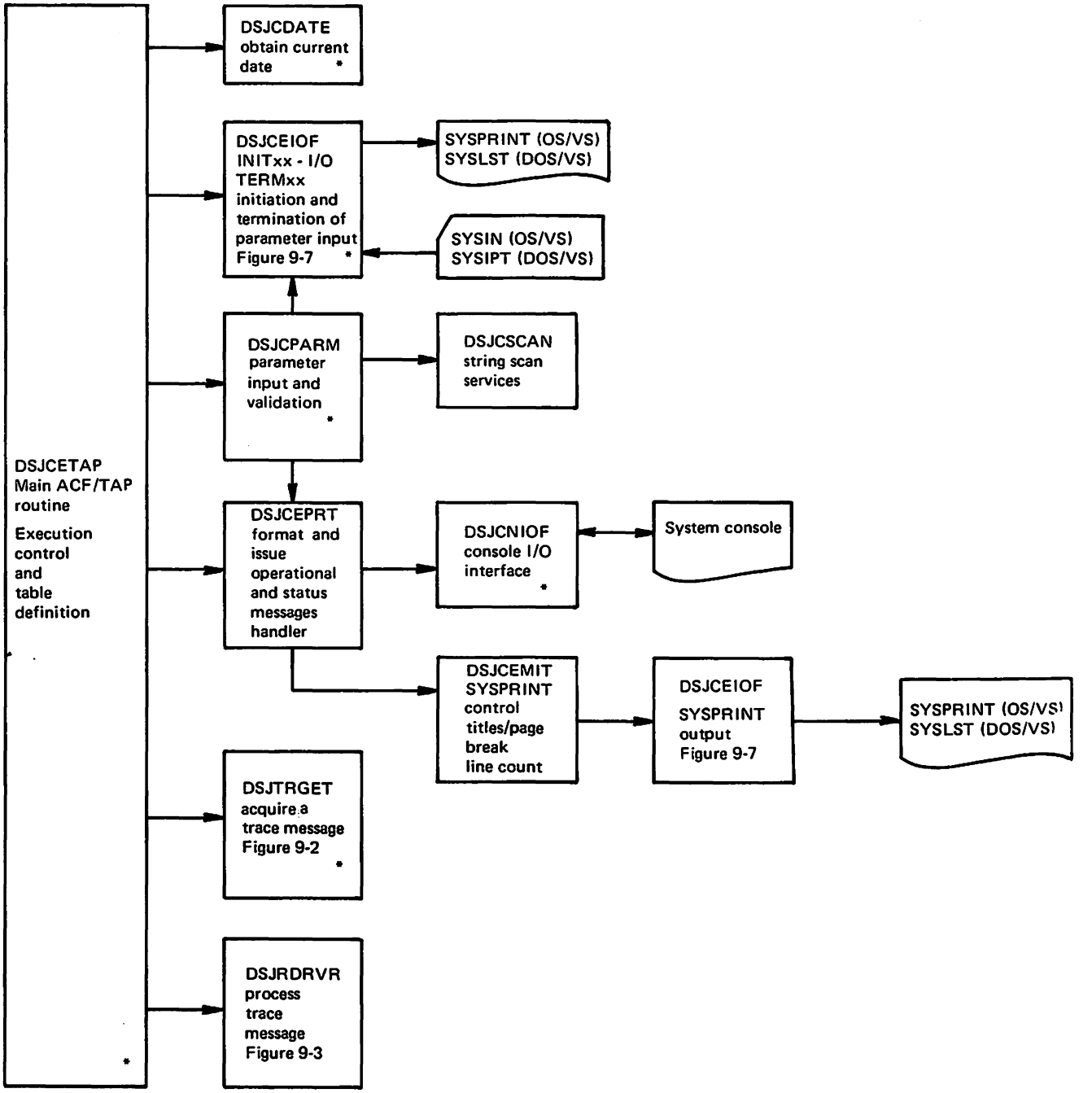


Figure 9-1. Overall ACF/TAP Structure

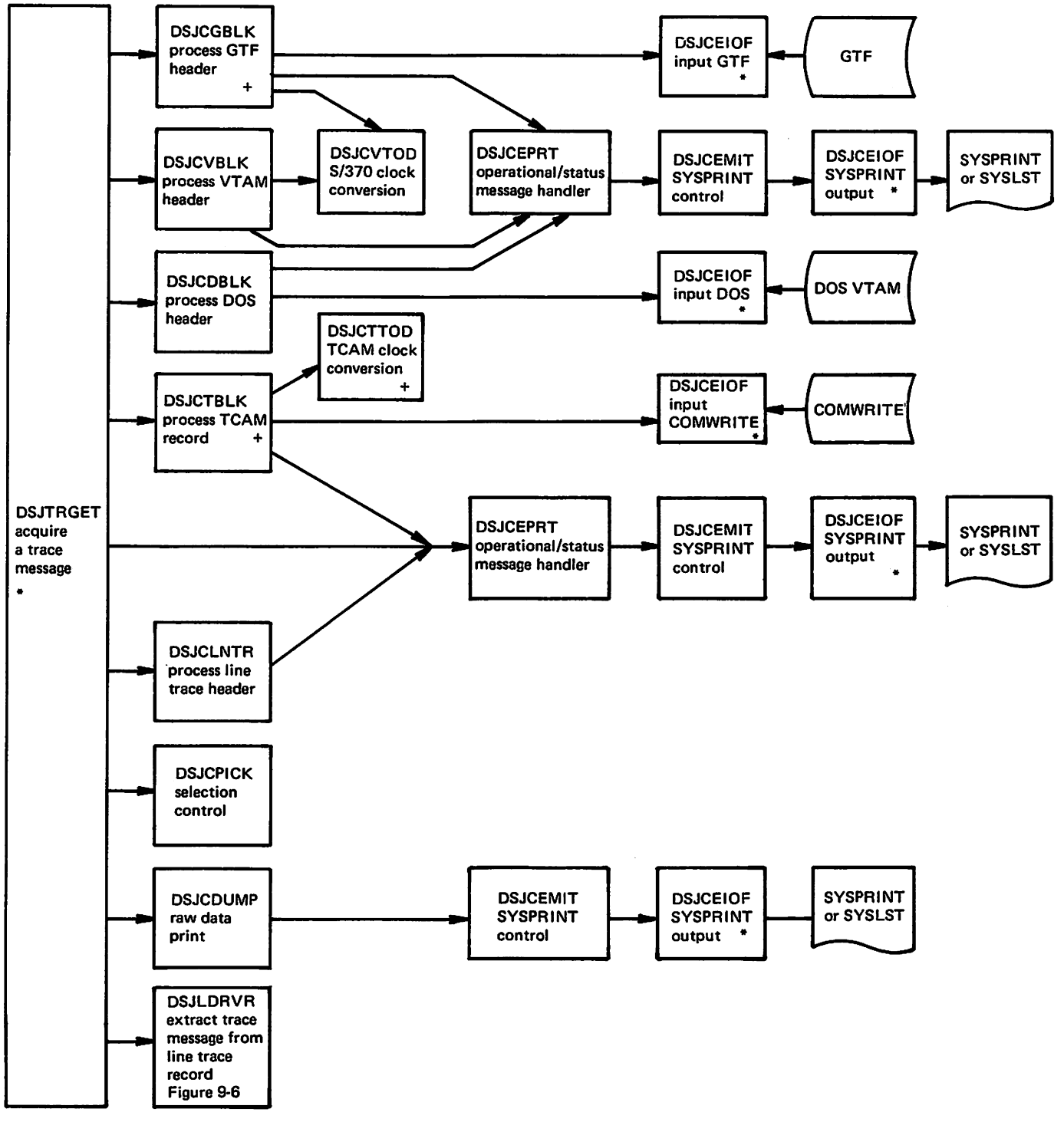


Figure 9-2. DSJTRGET Structure

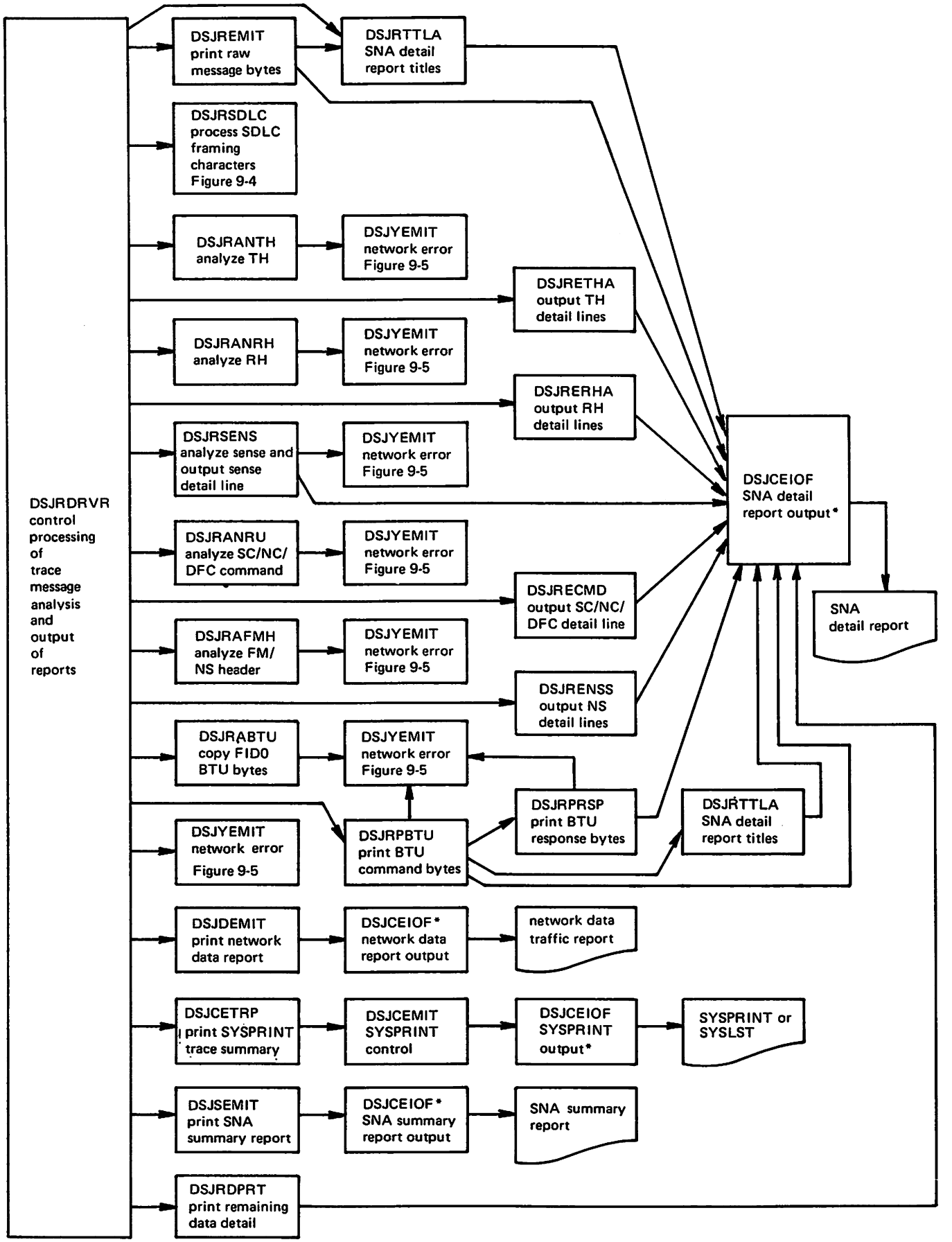


Figure 9-3. DSJRDRVR Structure

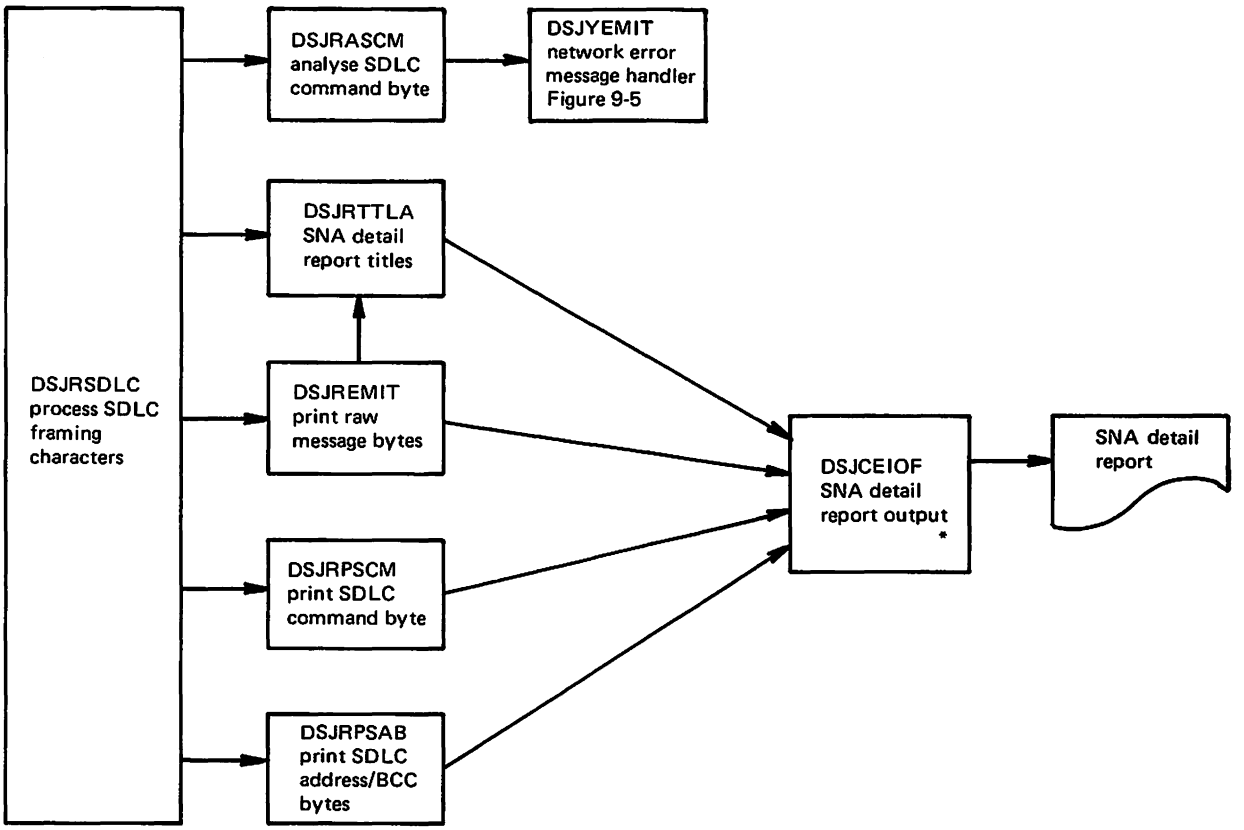


Figure 9-4. DSJRSDLC Structure

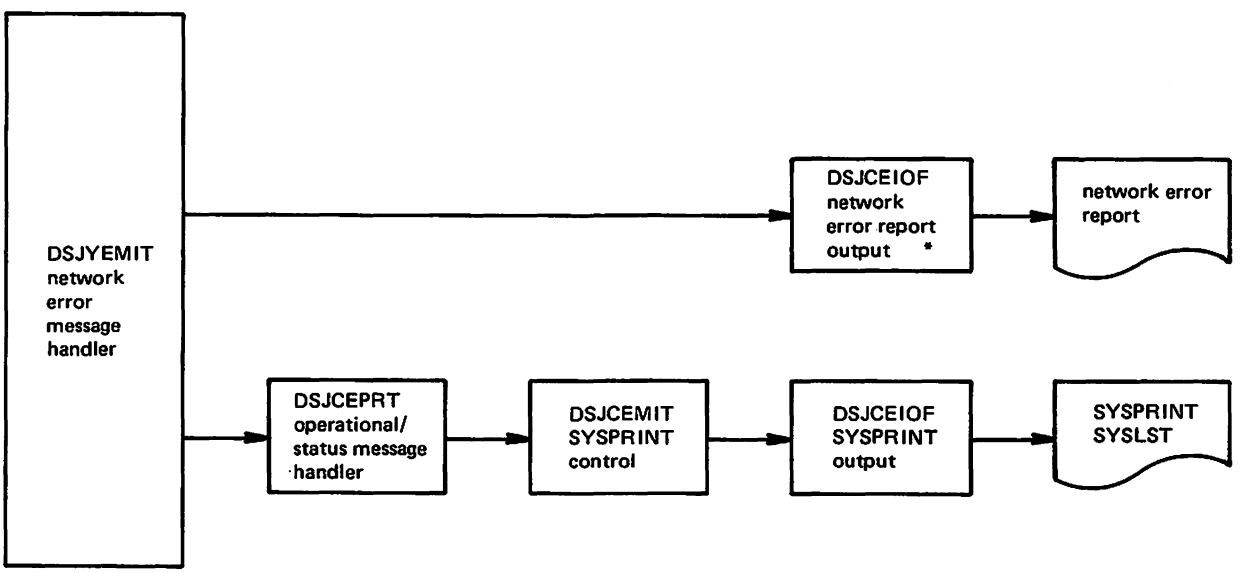


Figure 9-5. DSJYEMIT Structure

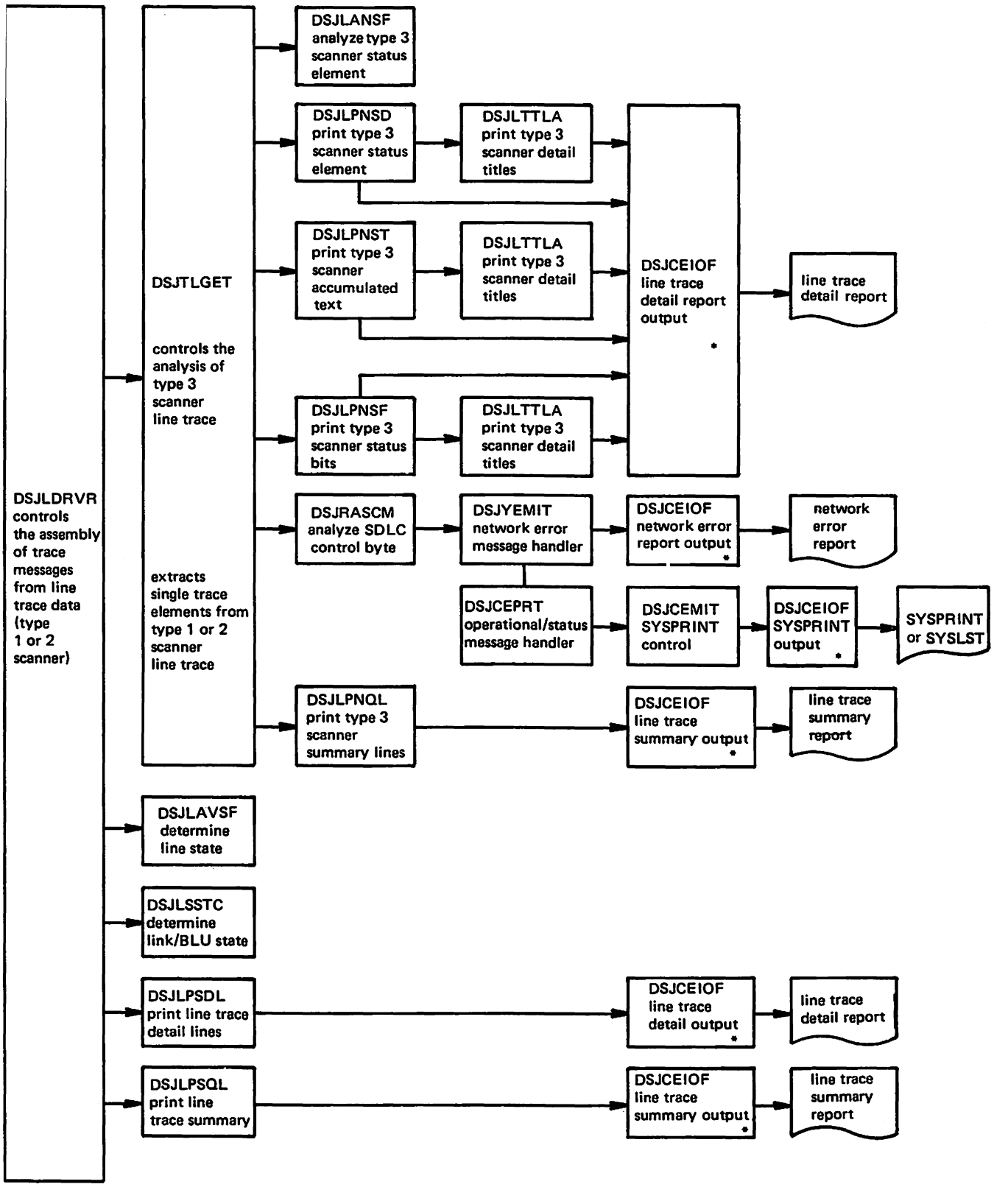


Figure 9-6. DSJLDRVR Structure

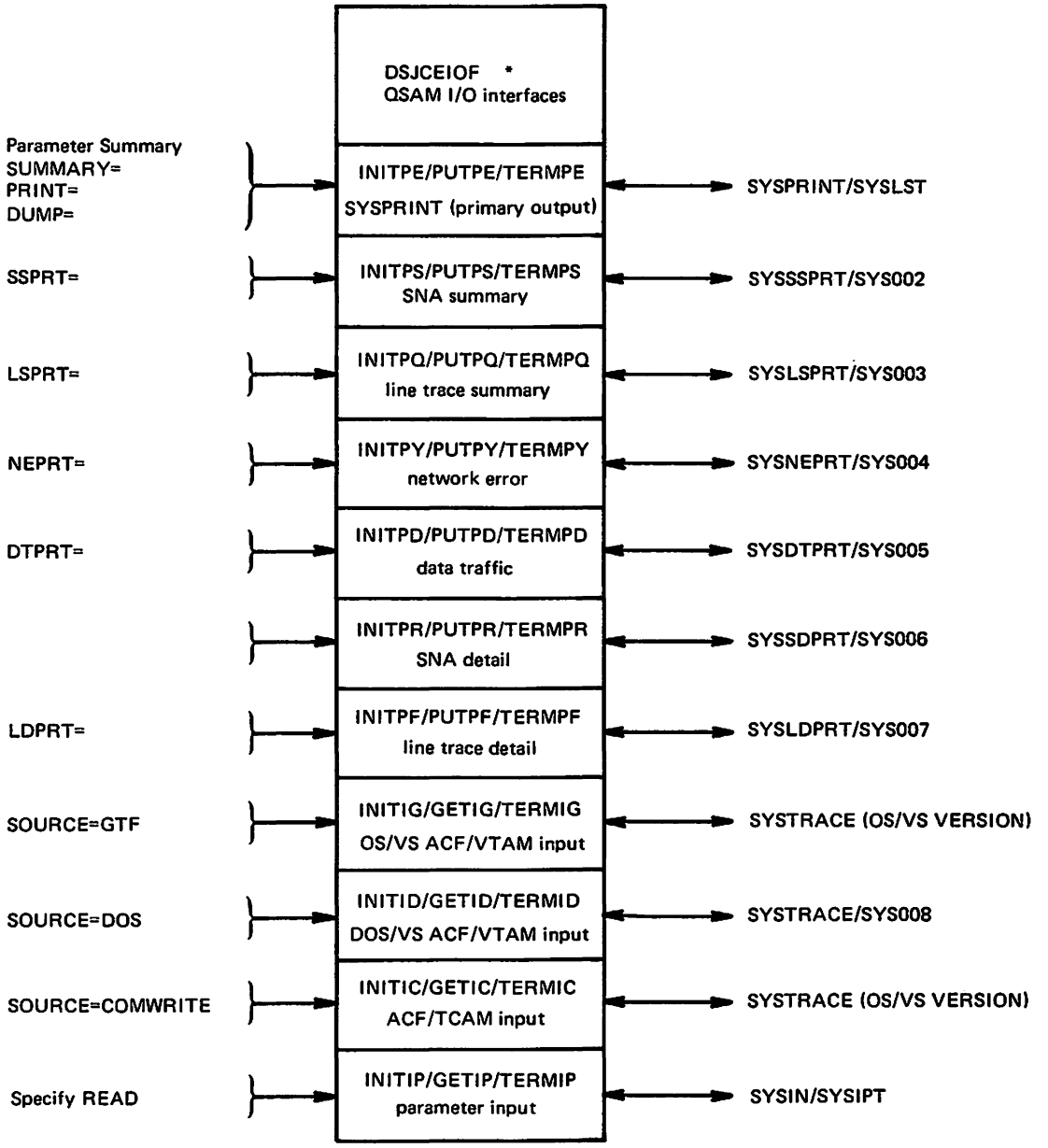
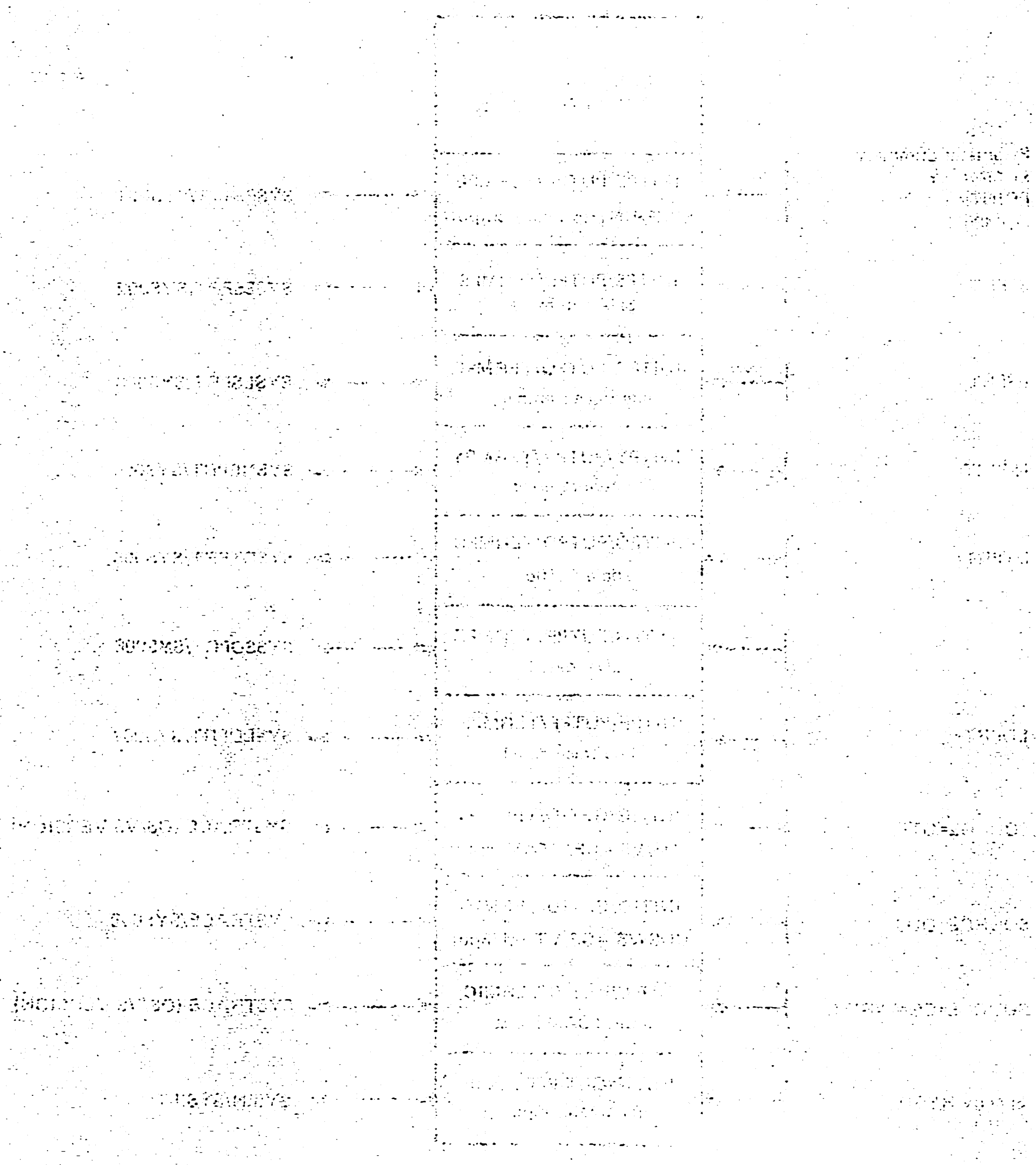


Figure 9-7. DSJCEIOF Detail

Figure 9-7. DSJCEIOF Detail



Appendix A. How ACF/TAP Interprets the Interface Control Word (ICW)

This appendix describes:

- How ACF/TAP interprets the interface control word (ICW) fields for the type 1 or 2 scanner and for the type 3 scanner
- The message that prints on the line trace summary report (LDPRT=YES) for each interpretation

How ACF/TAP Interprets the ICW for the Type 1 or 2 Scanner

ACF/TAP routine DSJLAVSF interprets the ICW for the type 1 or 2 scanner.

Primary Control Field (PCF)

The messages are printed in *key area 6* on the line trace detail report shown in Chapter 6.

SCAN FOR FLAG (PDF NOT RELEVANT)	PCF=X'4' or X'5'
RECEIVE FLAG (PDF NOT RELEVANT)	PCF=X'6'
RECEIVE DATA	PCF=X'7', SCF bit 0=0
RECEIVE ABORT/PAD CHARACTER	PCF=X'7', SCF bit 0=1
TRANSMIT SYNCHRONIZATION CHARACTER	PCF=X'8'
TRANSMIT FLAG	PCF=X'9'
TRANSMIT ABORT/PAD CHARACTER	PCF=X'9'
TRANSMIT DATA	PCF=X'9'
TRANSMIT DATA AND RESYNCHRONIZE	PCF=X'A'
TRANSMIT DATA AND TURN AROUND TO RECEIVE	PCF=X'C'
TRANSMIT FLAG CONTINUOUS	PCF=X'D'
INVALID PDF SCF PCF COMBINATION	PCF=X'9', PDF not X'FF', X'00', or X'7E' (flag)
* U N D E F I N E D * *	None of the above

Line Control Definer (LCD)

The messages are printed in *key area 6* on the line trace detail report shown in Chapter 6. The message is self-explanatory as to what condition of the LCD caused it to print.

```
LCD( 0 ) = START/STOP 9/6
LCD( 1 ) = RESERVED
LCD( 2 ) = START/STOP 8/5
LCD( 4 ) = START/STOP 9/7
LCD( 5 ) = START/STOP 10/7
LCD( 6 ) = START/STOP 11/7
LCD( 7 ) = START/STOP 11/8
LCD( A ) = RESERVED
LCD( B ) = RESERVED
LCD( C ) = BISYNCHRONOUS EBCDIC
LCD( D ) = BISYNCHRONOUS ASCII
LCD( E ) = RESERVED
LCD( F ) = FEEDBACK CHECK
```

Secondary Control Field (SCF)

Certain conditions of the SCF bits that are flagged as exception conditions by ACF/TAP are shown below. The exception messages are printed in *key area 5* on the line trace detail report shown in Chapter 6.

ABORT CHARACTER RECEIVED	SCF bit 0=1
CHARACTER OVERRUN/UNDERRUN	SCF bit 2=1
MODEM CHECK/UNEXPECTED FLAG	SCF bit 3=1
RECEIVED LINE SIGNAL DETECT	SCF bit 4=0 and PCF=X'6' or X'7'
FLAG/DISABLE INSERT REMEMBER	SCF bit 5=0 and PCF=X'6'
DISABLE ZERO INSERT CONTROL	SCF bit 7=1 and PDF is not X'FF', X'00', or X'7E' (flag)
PROGRAM FLAG	SCF bit 6-1 (this message is added to the print line).

CF/TAP Results

The result of the ACF/TAP analysis of the trace element is printed in *key area 7* on the line trace detail report shown in Chapter 6.

EXCEPTION
CHAR IGNORED
RESET INPUT (ACF/TAP buffers)
RESET OUTPUT (ACF/TAP buffers)
CHAR STORED
START INPUT
START OUTPUT
END I xxxxxxx (xxxxxxx is the ACF/TAP assigned message number)
END O xxxxxxx (xxxxxxx is the ACF/TAP assigned message number)

low ACF/TAP Interprets the ICW for the Type 3 Scanner

ACF/TAP routine DSJLANSF interprets the ICW for the type 3 scanner.

rimary Control Field (PDF) and Extended Primary Control Field (EPCF)

If the LCD=X'1' or X'9', ACF/TAP analyzes the PCF and EPCF and prints descriptive messages under the heading *CURRENT SCANNER STATE* on the line trace detail report shown in Chapter 6.

SCAN FOR FLAG	PCF=X'4' or X'5' and EPCF=X'00'
RECEIVE FLAG	PCF=X'6', EPCF=X'01' or PCF=X'7', EPCF=X'05'
RECEIVE ADDR	PCF=X'6', EPCF=X'02'
RECEIVE CNTL	PCF=X'6', EPCF=X'03'
RECEIVE FIRST	PCF=X'6', EPCF=X'04'
RECEIVE DATA	PCF=X'7', EPCF=X'04'
RECEIVE ABORT	PCF=X'7', EPCF=X'03'
RECEIVE IDLE	PCF=X'7', EPCF=X'07'
RECEIVE DIAG	PCF=X'7', EPCF=X'0C'
TRANSMIT INIT	PCF=X'8' or X'A' and EPCF=X'00'
TRANSMIT PAD	PCF=X'9' or X'B' and EPCF=X'00'
TRANSMIT SYNC	PCF=X'9' or X'B' and EPCF=X'01'
TRANSMIT FLAG	PCF=X'9', EPCF=X'02' or X'05'
	PCF=X'B', EPCF=X'02' or X'05'
TRANSMIT ABRT	PCF=X'9' or X'B' and EPCF=X'03'
TRANSMIT DATA	PCF=X'9' or X'B' and EPCF=X'04'
TRANSMIT BCC	PCF=X'9' or X'B' and EPCF=X'06'
TRANSMIT IDLE	PCF=X'9' or X'B' and EPCF=X'07'
TRANSMIT DIAG	PCF=X'9' or X'B' and EPCF=X'0C'
INVALID	None of the above

ine Control Definer (LCD)

If the LCD is not X'1' or X'9' (SDLC) ACF/TAP interprets the LCD and prints the following messages under the heading *CURRENT LINE STATE* on the line

trace detail report (LDPRT=YES) shown in Chapter 6.

BISYNC EBCDIC	LCD=X'4' or X'C'
BISYNC ASCII	LCD=X'5' or X'D'
BISYNC XASCII	LCD=X'6' or X'E'
AUTOCALL	LCD=X'3' or X'B'
FEEDBACKCHECK	LCD=X'7' or X'F'

Secondary Control Field (SCF)

SCF bits that are flagged as error are:

- bit 0=1 - Abort character received on
- bit 1=0 - Service request interlock off (only if all SCF bits except bit 6 are off)

STAT1

STAT1 bits that are flagged as errors by ACF/TAP are:

- bit 1=1 - SDLC idle state on
- bit 3=1 - Block check error on
- bit 4=1 - Flag off boundary on
- bit 7=1 - Length check on

STAT2

STAT2 bit that is flagged as an errors by ACF/TAP is:

- bit 0=1 - Control byte error on

Appendix B. SDLC and SNA Reference Information

This appendix contains reference information about SDLC and SNA. It shows the format and contents of the SDLC frame, SNA format identifier byte, local session identification (LSID) byte, and the SNA request header.

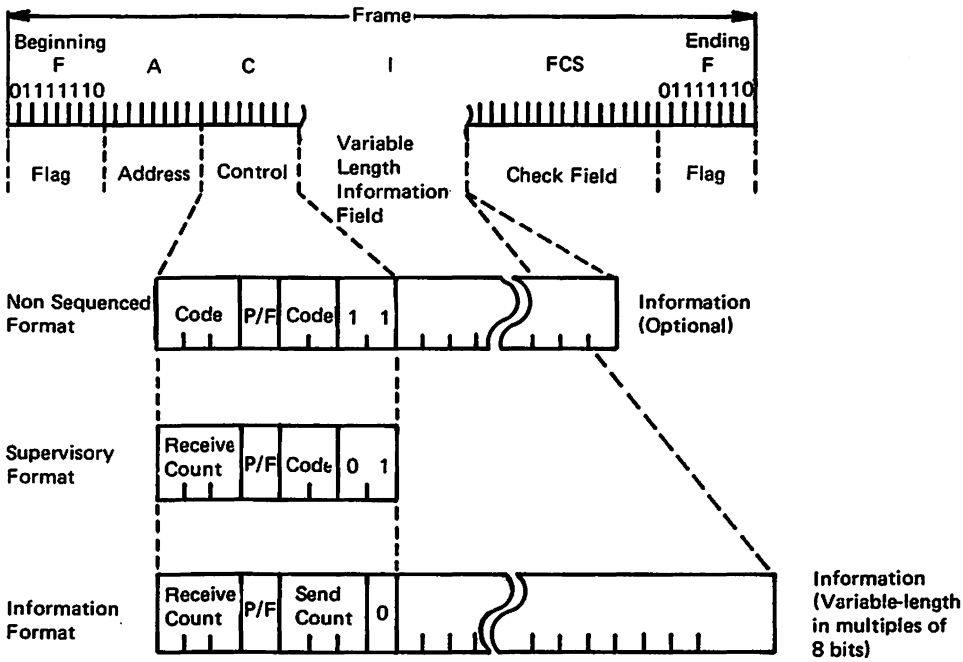


Figure B-1. SDLC Format

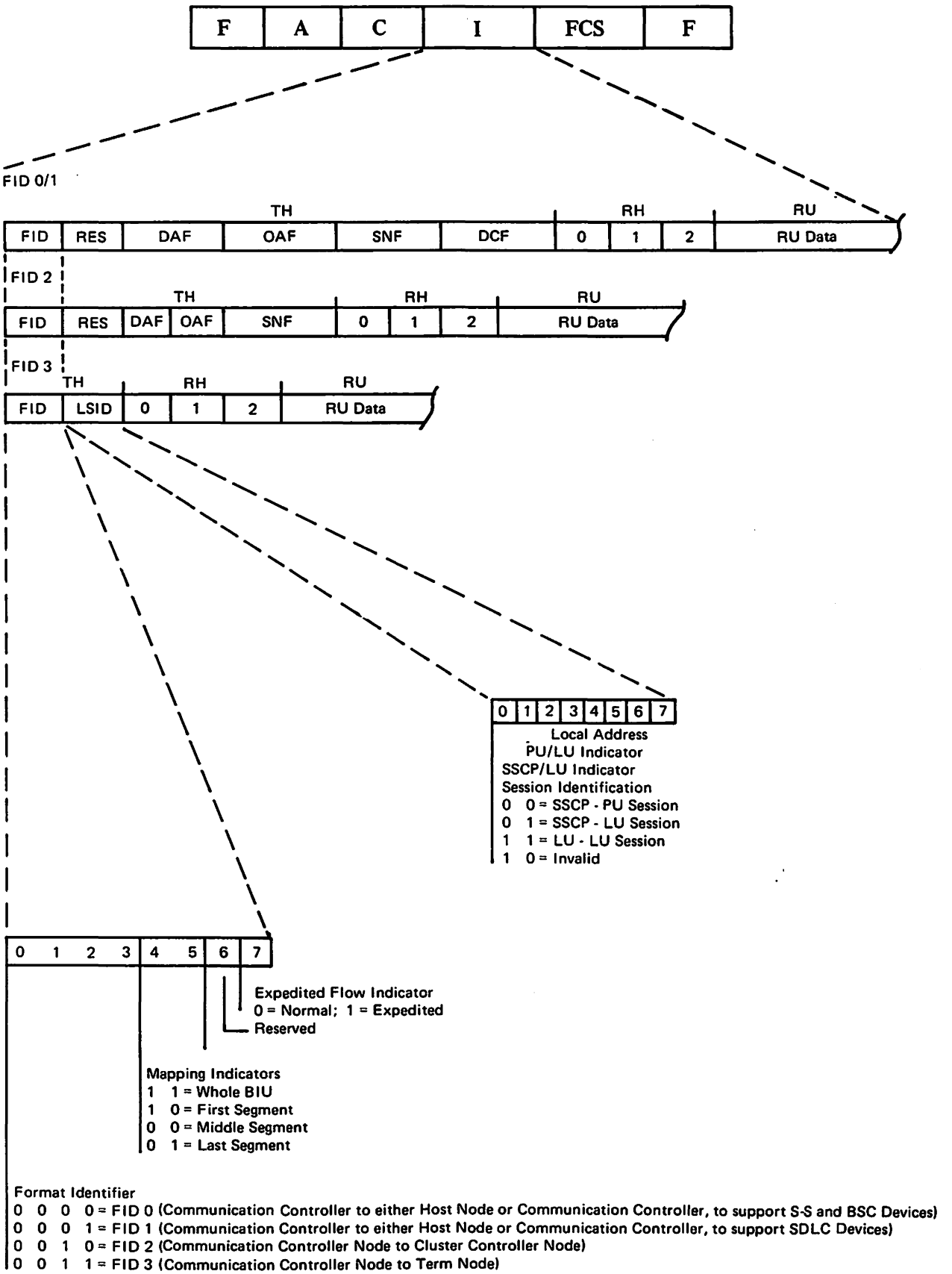


Figure B-2. SNA Format Identifier Byte and Local Session Identification (LSID)

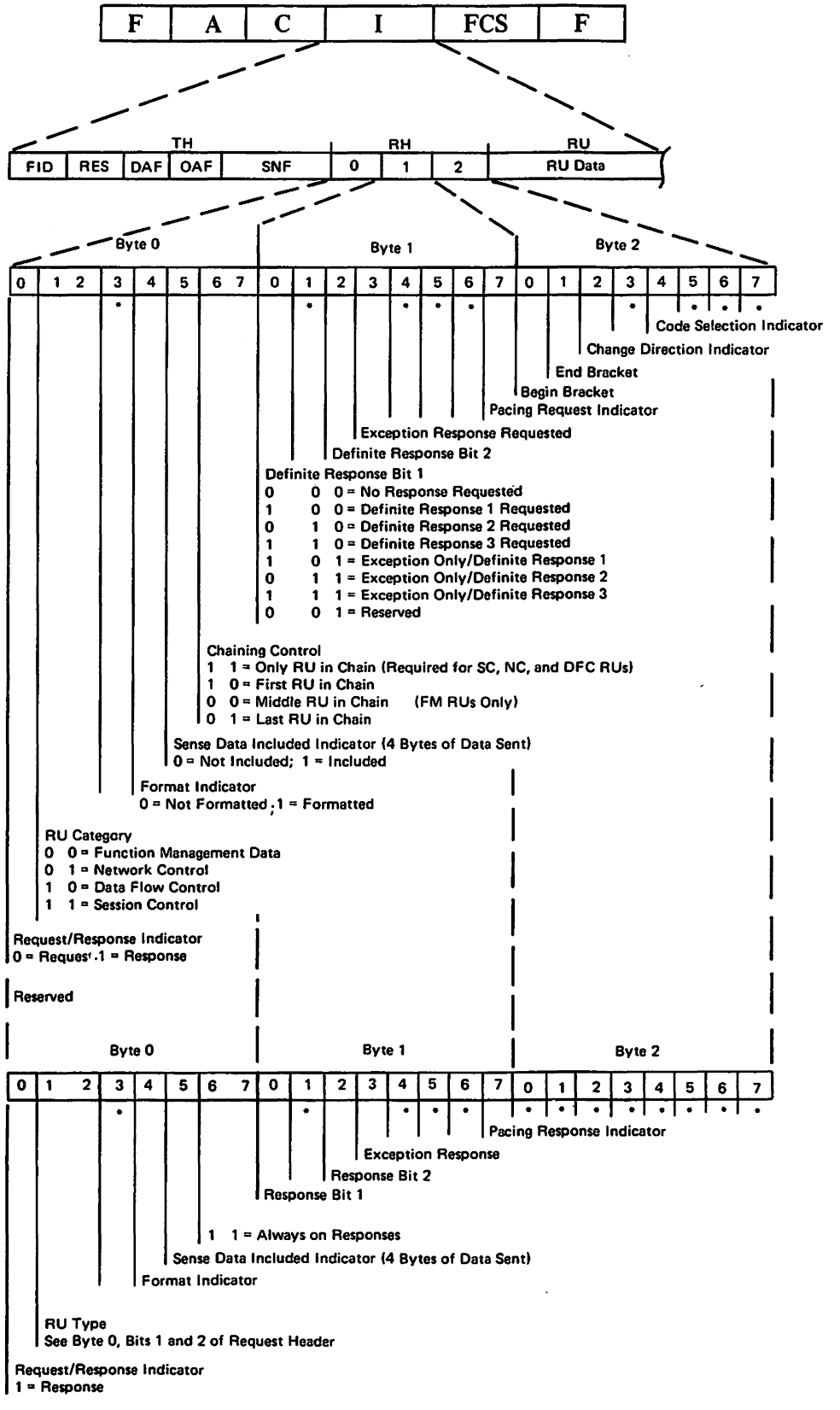
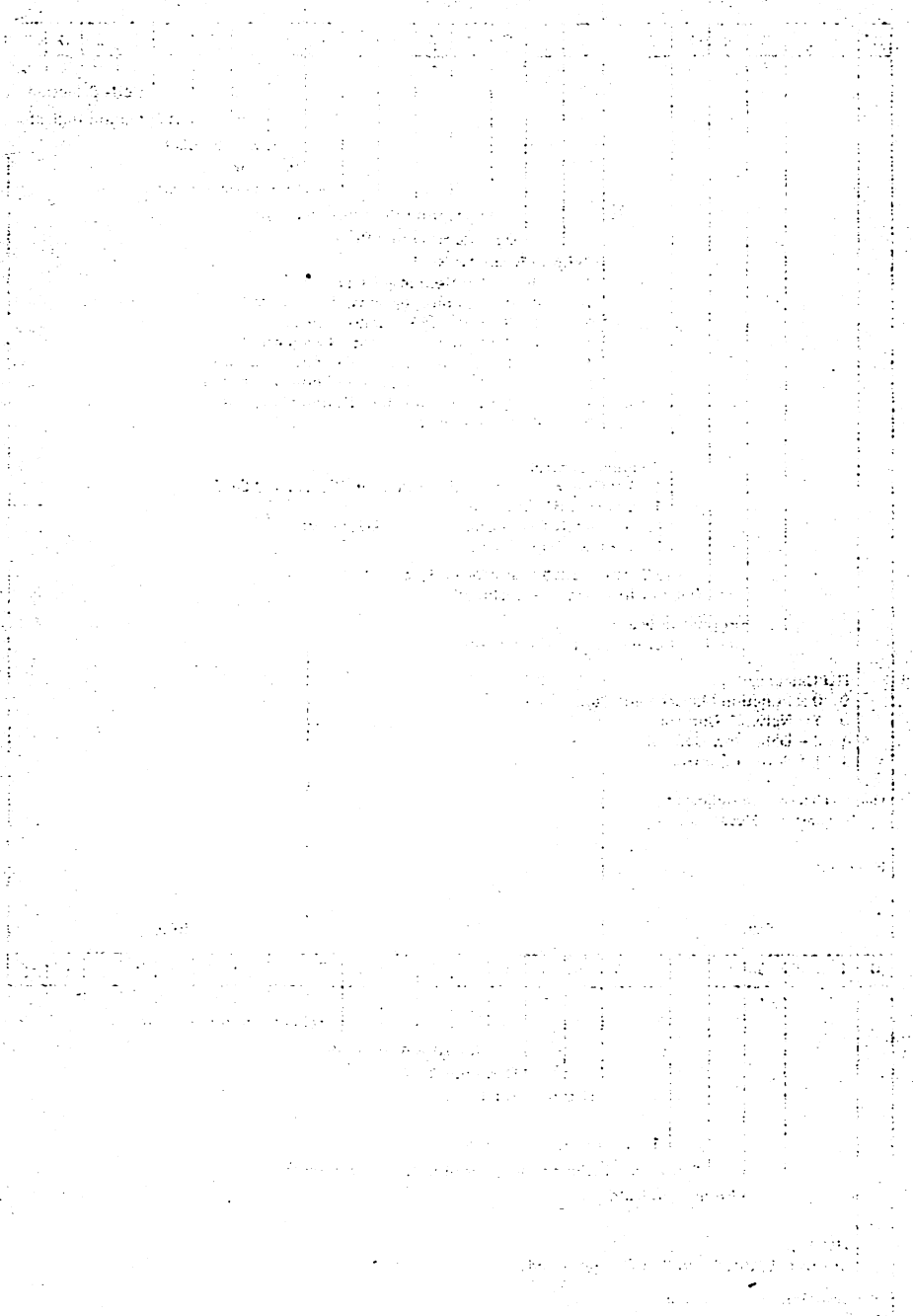


Figure B-3. SNA Request Header Format



Glossary of Abbreviations and Terms

A	address field
ACF	advanced communications function
API	application program interface
BCB	bit control block
BCC	block check character
BFFR	TCAM acronym for buffer trace
BIU	basic information unit
BLU	basic link unit
BTU	basic transmission unit
BSC	binary synchronous communications
C	control field
CA	channel adapter
CDRM	cross domain resource manager
CL	control layer
CS	communication scanner
DAF	destination address field
DASD	direct access storage device
DCF	data count field
DFC	data flow control
DLC	data link control
DTNT	destination terminal name table (part of TCAM header for PIU trace)
EPCF	extended primary control field
ETB	end-of-text block (BSC control character)
ETX	end-of-text (BSC control character)
F	SDLC flag pattern
FCS	frame check sequence
FID	(SNA) format identification (GTF) format identifier
FM	function management
GTF	generalized trace facility
I	information (field or frame)
ICW	interface control word
INOP	inoperative network services command
IOS	input/output supervisor
ITB	intermediate text block (BSC control character)
LCD	line control definer
LINT	TCAM acronym for NCP line trace from a type 1 or type 2 communication scanner
LIN3	TCAM acronym for NCP line trace from a type 3 communication scanner
LSID	local session identification
LU	logical unit
NC	network control
NCP	network control program
NS	network services
NSPE	network services procedure error
OAF	origin address field
PCF	primary control field
PDF	parallel data field
PIU	path information unit
PU	physical unit
P/F	poll/final
RH	request/response header

RR	receive ready
RU	request/response unit
SC	session control
SCF	secondary control field
SDLC	synchronous data link control
SMS	VTAM acronym for storage management services trace
SNA	systems network architecture
SNF	sequence number field
SSCP	system services control point
STCB	TCAM dispatcher trace
STNT	source terminal name table (part of TCAM header for PIU trace)
SYNAD	synchronous error routine address
S/S	start-stop communications
TCAM	telecommunications access method
TH	transmission header
VIT	VTAM internal trace
VTAM	virtual telecommunications access method

Terms

Asterisked (*) definitions are reproduced with permission from the *American National Dictionary for Information Processing,* copyright 1975 by the American National Standards Institute. Copies of this dictionary may be purchased from the American National Standards Institute at 1430 Broadway, New York, New York 10018.

Access method. A data management technique for transferring data between main storage and input/output units.

Application program. A program written for or by a user that applies to a particular application.

Buffer. An area of storage that is temporarily reserved for use in an input/output operation, into which data is read or from which data is written.

Channel adapter (CA). A communications controller hardware unit that provides attachment of the controller to a System/360 or System/370 channel.

Communication scanner. A communicatons controller hardware unit that provides the connection between line interface bases and the central control unit The communication scanner monitors the communication lines for service requests.

Element (ACF/TAP). The basic unit of the NCP line trace. An element from a type 1 or type 2 scanner consists of four bytes of trace data An element from a type 3 scanner consists of eight bytes of trace status data or a variable length group of text bytes.

***End-of-text character (ETX).** A communication control character used to indicate the end of a text communication.

***End-of-transmission character (EOT).** A communication control character used to indicate the conclusion of a transmission, which may have included one or more texts and any associated headings.

Generalized Trace Facility (GTF). An optional OS/VS service program that records significant system events (such as supervisor calls and start I/O operations) for the purpose of problem determination.

Line trace. (1) In the network control program, an optional function that logs online diagnostic information. (2) In TCAM, a table that provides a sequential record in main storage of the I/O interruptions occurring on a specified line.

Message (ACF/TAP). A complete text string assembled by ACF/TAP, containing a transmission header (TH), receive/request header (RH) and receive/request units (RU). If the message was assembled from type 1 or type 2 NCP line trace data, it will also include SDLC frame characters (address, control, BCC).

Message analysis (ACF/TAP). The ACF/TAP process of examining the headers and fields in the assembled text string, and then building internal tables that represent the contents of those headers. ACF/TAP then issues print lines that describe the contents of the headers and fields.

Network Control Program (NCP). A control program for the communications controllers, generated by the user from a library of IBM-supplied modules.

***Parameter.** A variable that is given a constant value for a specific purpose or process.

***Record.** A collection of related items of data treated as a unit.

Trace. (1)* A record of the execution of a computer program; it exhibits the sequences in which the instructions were executed. (2) To record a series of events as they occur.

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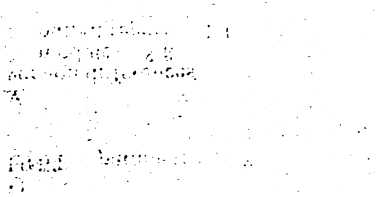

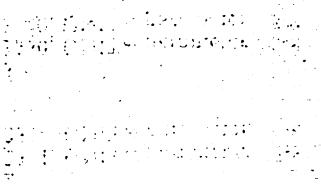

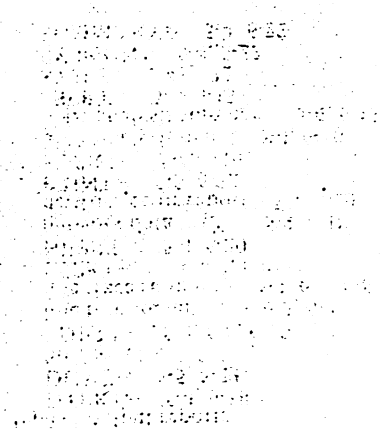

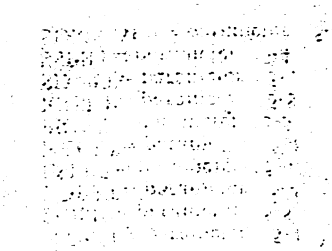

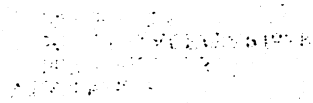

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