Advanced Communications Function for VTAM

Version 2

Reference Summary

Program Product

Program Numbers: 5665-280 (MVS)
5662-280 (OS/VS1)
5666-280 (VSE)

SX27-0027-1
File No. S370/4300-30

IBM Corporation, Dept. 52Q, Neighborhood Road,
Kingston, New York 12401

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Second Edition (September 1983)

This is a reprint of SX27-0027-0 incorporating changes released in Technical Newsletter SN31-1339 (dated November 1982).

This edition applies to the Advanced Communications Function for the Virtual Telecommunications Access Method (ACF/VTAM) Version 2 for OS/VS2 (MVS) Program Number 5665-280). It also applies to ACF/VTAM Version 2 for VSE (Program Number 5666-280) and OS/VS1 (5662-280). Information related to the later two program products should be used for planning purposes only, until those products are available.

Information about the optional ACF/VTAM Encrypt/Decrypt Feature, available for OS/VS1 and VS only, is also included.

Changes are continually made to the information in IBM system publications. Before using this publication in connection with the operation of IBM systems, consult your IBM representative or the *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, to find out which editions are applicable and current.

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Preface

This publication contains a summary of ACF/VTAM Version 2 reference information which is presented under four major headings:

- Part 1. Operation
- Part 2. Installation
- Part 3. Programming
- Part 4. SNA Reference Data

Refer to the Contents for a list of the specific topics included in each part of the manual.

Supplemental publications include but are not limited to:

- General Information:
  ACF/VTAM General Information, GC27-0608
- Planning and Installing ACF/VTAM:
  ACF/VTAM Planning and Installation Reference, SC27-0610
- Writing Application Programs:
  ACF/VTAM Programming, SC27-0611
- Operating ACF/VTAM:
  ACF/VTAM Operation, SC27-0612
- Messages:
  ACF/VTAM Messages and Codes, SC27-0614
- Diagnosis:
  ACF/VTAM Diagnosis Guide, SC27-0630 (VSE), SC27-0615 (OS/VS)
  ACF/VTAM Diagnosis Reference, LY38-3058 (VSE), LY38-3053 (OS/VS)
  ACF/VTAM Data Areas, LY38-3059 (VSE), LY38-3054 (OS/VS)
  ACF/VTAM Logic: Encrypt/Decrypt Feature, LY38-3055
- *Systems Network Architecture Reference Summary,* GA27-3136

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Summary of Amendments (November 15, 1982) to SX27-0027-0 by Technical Newsletter SN31-1339

New Program Functions

ACF/VTAM supports the communication adapter feature of the IBM 4321 and 4331 Processors. This feature allows resources to be link-attached to the host processor without using a communication controller.

It also supports ACF/NCP Version 2 for the IBM 3705 Communications Controller. This includes support for a new NCP trace, the generalized path information unit trace (GPT). GPT records the flow of path information units to or from an NCP and its subordinate physical and logical units.

New Documentation

In Part 1, the MODIFY, START, and VARY commands contain support for the communication adapter and GPT. The internal trace record summary includes new communication adapter entries for error recovery procedures, interrupts, and start I/O.

In Part 2, definition statements have been added for resources attached through a communication adapter.

Changed Documentation

In Part 2, the OPT and SUPP operands have been added to the USSMSG macro instruction for terminal operator messages. Also, the description of how ACF/VTAM processes the IBMTEST command has been corrected.

In Part 4, request reject sense codes for VSE have been added.

Minor editorial changes have also been made.

PART 1. OPERATION

ACF/VTAM Operator Commands

DISPLAY Commands[1]

DISPLAY NET,APPLS[,ACT|EVERY|INACT]

DISPLAY NET,BFRUSE

DISPLAY NET,CDRMS[2] [,ACT|EVERY|INACT]

DISPLAY NET,CDRSCS[2] [,ACT|EVERY|INACT]

DISPLAY NET,CLSTRS[,ACT|EVERY|INACT]

DISPLAY NET,ID=name[3] [,ACT|EVERY|INACT|NONE]

DISPLAY NET,LINES[,ACT|EVERY|INACT]

DISPLAY NET,MAJNODES

DISPLAY NET,NCPSTOR,ID=ncpname,ADDR=address
[,LENGTH=n|32]

DISPLAY NET,PATHS,ID=switched physical unit name

DISPLAY NET,PATHTAB[,ADJSUB=subarea|DESTSUB=
subarea]

DISPLAY NET,PENDING

DISPLAY NET,ROUTE,DESTSUB=subarea
[,COSNAME=name|ER=n|ER=ALL|VR=n]
[TEST=YES|NO]

DISPLAY NET,STATIONS[,ACT|EVERY|INACT][4]
[,ID=node name]

DISPLAY NET,TERMS[,ACT|EVERY|INACT]

DISPLAY NET,U,[5] ID=tso userid

---

[1] The following abbreviations may be used:

ACT = A	INACT = I
DISPLAY = D	NONE = N
EVERY = E	PATHS = P

[2] Applies only to multiple-domain networks.

[3] Does not apply to application program major nodes.

[4] Also can be specified as SCOPE=ACT|SCOPE=ALL|
SCOPE=INACT.

[5] Applies only to MVS with TSO/VTAM.

EXEC Command[1]

Enter EXEC PROC=procname

and, if prompted, one or more of these start options:

CDRSCTI=n|480
COLD|WARM
CONFIG=xx|00|name
HOSTSA=n|1
IOINT=n|180
ITLIM=n|0
LIST=xx|00
MAXAPPL=n|10
MAXSUBA=n|15
MSGMOD=YES|NO
NODELST=name
SONLIM=([m|60] [,n|30])
SSCPID=n
SUPP=[NOSUP|INFO|WARN|NORM|SER]
{TNSTAT[,CNSL|NOCNSL[,TIME=n|60]]
{NOTNSTAT}
TRACE|NOTRACE,TYPE=BUF,ID=nodename[,EVERY|E[2]]
TRACE|NOTRACE,TYPE=IO,ID=nodename[,EVERY|E[2]]
TRACE|NOTRACE,TYPE=LINE,ID=linename
TRACE|NOTRACE,TYPE=SMS,ID=VTAMBUF
{TRACE,TYPE=VTAM[,MODE=INT|EXT]
[,OPTIONS=(option)[3]]
(API,MSG,PIU)|ALL]
[,SIZE=nnn|2]
{NOTRACE,TYPE=VTAM}
USSTAB=name
VFBUF=vbsz
VPBUF=vbsz
VTAMEAS=n|404
poolname=(baseno,bufsize,slowpt,xpanno,xpanpt)

[1] Applies to VSE only.
OS/VS users should use the START command.
[2] EVERY or E may be used.
[3] Options may be one of the following:
API, CIO, LOCK, MSG, PIU, PSS, SMS, SSCP.

HALT Commands[1]

HALT NET[,CDLINK[2]=ACT|INACT]

HALT NET,CANCEL[3]

HALT NET,QUICK[,CDLINK[2]=ACT|INACT]

[1] HALT or Z may be used.
[2] Applies only to multiple-domain networks.
[3] Applies to OS/VS only; causes an abend of ACF/VTAM with a system completion code of hex 0A9.

MODIFY Commands[1]

MODIFY procname,[2] CDRM[3]=(new cdrm[,old cdrm])
[,ID=cdrsc major node name|cdrsc minor node name]

MODIFY procname,[2] CSALIMIT[4]=n|(n[,F])

MODIFY procname,[2] DUMP,ID=ncp name or link station name
[,DUMPDS=name]
[,DUMPSTA=link station name]
[,OPTION[5]=DYNA|STATIC]
[,RMPO=YES|NO]

MODIFY procname,[2] ENCR[6]={OPT|REQD},ID=logical unit name

MODIFY procname,[2] IMR,ID=link station or physical unit name
[,OPTION[5]=ACT|INACT]
[,RECLIM=n|10]

MODIFY procname,[2] IOPD[,IOINT=n]

MODIFY procname,[2] LL2,ID=name[7] [,OPTION=CANCEL|CONT]
[,NTRANS=10|m]
[,DATA=data] [,NFRAMES=n|1]

---

[1] MODIFY or F may be used.

[2] In VSE, use NET.
In OS/VS1, use procname.Pnn.
In MVS, use procname.
The procname operand is the name of the cataloged procedure by which ACF/VTAM was started.

[3] Applies only to multiple-domain networks.

[4] Applies to MVS only.

[5] OPTION or OPT may be used.

[6] Applies to Encrypt/Decrypt Feature only.

[7] ID=name may be the PU name, or the link station name for the NCP or for the adjacent host.

MODIFY Commands[1] (Continued)

MODIFY procname,[2] MSGMOD=$\left\{\underline{\text{YES}}|\text{NO}\right\}$

MODIFY procname,[2] NEGPOLL=number of responses,ID=line name

MODIFY procname,[2] NOTNSTAT

MODIFY procname,[2] NOTRACE,TYPE=$\left\{\text{BUF}|\underline{\text{IO}}\right\}$,ID=node name[,SCOPE=ALL|$\underline{\text{ONLY}}$[3]]

MODIFY procname,[2] NOTRACE,TYPE=$\left\{\underline{\text{LINE}}|\text{GPT}[4]|\text{SMS}|\text{TG}|\text{TSO}[5]\right\}$,ID=name

MODIFY procname,[2] NOTRACE,TYPE=VTAM [,OPTION=ALL|option|(option[,. . .,option][6])|END]

MODIFY procname,[2] POLL=n,ID=line name

MODIFY procname,[2] SESSION=n,ID=line name

MODIFY procname,[2] SUBTASK,[7] ID=name|TPRINT, FUNCTION=$\left\{\underline{\text{ATTACH}}|\text{DETACH}|\text{MSG}\right\}$

and if prompted, one or more of these trace print options:

CANCEL

PRINT

BUF=ALL

BUF=name[, . . . ,name]

CLEAR=YES|$\underline{\text{NO}}$

INTERVAL=beginning time[8]|(end,time)|(beginning time, end time)

---

[1] MODIFY or F may be used.

[2] In VSE, use NET.
In OS/VS1, use procname.Pnn.
In MVS, use procname.

[3] SCOPE=ALL|$\underline{\text{ONLY}}$ can also be specified as EVERY or E.

[4] If an NCP name is specified for the ID operand, SCOPE=ALL|ONLY may also be specified. For all other ID= values, the command is processed as if SCOPE=ALL were specified.

[5] Applies to MVS only.

[6] Options may be one or more of the following:
API, CIO, LOCK, MSG, PIU, PSS, SMS, SSCP.

[7] Applies to VSE only.

[8] Specify the time as yy.ddd/hh:mm:ss, yy.ddd, or hh:mm:ss.

MODIFY Commands[1] (Continued)

IO=ALL
IO=name[,...,name]
LINE=ALL
LINE=name
TNST=ALL
TNST=name[,...,name]
VIT

MODIFY procname,[2] SUPP={NOSUP|INFO|WARN|NORM|SER}

MODIFY procname,[2] TEST

MODIFY procname,[2] TNSTAT[,CNSL=YES|NO[3]]
[,TIME=n]

MODIFY procname,[2] TRACE,TYPE={BUF|IO},ID=name[4]
[,SCOPE=ALL|ONLY][5]

---

[1] MODIFY or F may be used.

[2] In VSE, use NET.
In OS/VS1, use procname.Pnn.
In MVS, use procname.

[3] CNSL=YES|NO can also be specified as CNSL|NOCNSL.

[4] ID=name specifies the name of the resource for which tracing is to be done. This operand does not apply for TYPE=VTAM.

Names of various types of resources can be specified, depending on the value of the TYPE operand.

For TYPE=BUF or TYPE=IO
Any of the following names can be specified with the SCOPE operand to trace message activity with the named resource, if applicable, and all of the resource's subordinate nodes:

- The name of an NCP major node.
- The name of a channel-attachment major node (only

TYPE=IO, SCOPE=ALL can be specified).

- The name of a line attached to a communication adapter (only TYPE=IO, SCOPE=ONLY can be specified)
- The name of a physical unit (including switched and channel-attached SNA physical units)
- The name of a logical unit

Any of the following names can be specified to trace message activity with the named resource:

- ISTPUS (for a trace of RUs between this host's PU type 5 and another PU type 4 or 5; these RUs include ER-OP, ER-IOP, ER-ACT, or ER-TEST)
- ISTIRN (for a trace of all PIUs received from a channel-attached PU type 4 or 5, passing through this host, and being sent to another channel-attached PU type 4 or 5)
- VTAM (for a trace of all SSCP sessions)
- The name of an NCP
- The name of a physical unit (including switched and channel-attached SNA physical units)
- The name of a logical unit (including application programs)
- The name of a channel-attached non-SNA terminal
- The name of a CDRM (only in a multiple-domain network)
- The name of a CDRSC (only in a multiple-domain network)

[5] SCOPE=ALL|ONLY can be specified as EVERY (E).

MODIFY procname,[2] TRACE,TYPE=
{LINE|GPT[3]|SMS|TG|TSO[4]}
,ID=name[5]

---

[1] MODIFY or F may be used.

[2] In VSE, use NET.
In OS/VS1, use procname.Pnn.
In MVS, use procname.

[3] If an NCP name is specified for the ID operand, SCOPE=ALL|ONLY may also be specified. For all other ID= values, the command is processed as if SCOPE=ALL were specified.

[4] Applies to MVS only.

[5] ID=name specifies the name of the resource for which tracing is to be done. This operand does not apply for TYPE=VTAM.

Names of various types of resources can be specified, depending on the value of the TYPE operand.

For TYPE=LINE
The ID operand specifies the name of the line for which tracing is to be done. The ID operand cannot specify a line attached to a communication adapter.

For TYPE=GPT
The ID operand specifies the name of either the NCP or the NCP resource for which tracing is to be done.

For TYPE=SMS
ID=VTAMBUF must be specified for an SMS trace.

For TYPE=TG
The ID operand specifies the name of a line currently within the transmission group to be traced. All the lines in the transmission group are traced as if they were a single logical line. The ID operand cannot specify a line attached to a communication adapter.

For TYPE=TSO
The ID operand specifies the TSO user ID for which tracing is to be done.

MODIFY Commands[1] (Continued)

MODIFY procname,[2] TRACE,TYPE=VTAM
[,MODE=INT|EXT]
[,OPTION=option|
(option[, . . . ,option[3]])|ALL]
[,SIZE=nnn]

[1] MODIFY or F may be used.
[2] In VSE, use NET.
In OS/VS1, use procname.Pnn.
In MVS, use procname.
[3] Options may be one or more of the following: API, CIO, LOCK, MSG, PIU, PSS, SMS, SSCP.

MODIFY TRACE Types

	BUF	BUF, SCOPE =ALL	GPT	GPT, SCOPE =ALL	IO	IO, SCOPE =ALL	LINE	SMS	TG	TSO	VTAM
Application Program Major Node											
Application Program Minor Node	●				●					●	
Local SNA Major Node											
Local SNA Physical Unit	●	●			●	●					
Local SNA Logical Unit	●				●						
Local Non-SNA Major Node											
Local Non-SNA Minor Node	●				●						
NCP	●	●	●	●	●	●					
Nonswitched Line			●				●		●		
Switched Line			●				●				
Link Station											

MODIFY TRACE Types (Continued)

	BUF	BUF, SCOPE =ALL	GPT	GPT, SCOPE =ALL	IO	IO, SCOPE =ALL	LINE	SMS	TG	TSO	VTAM
Physical Unit	●	●	●		●	●					
Logical Unit	●		●		●						
Switched Major Node											
Switched Physical Unit	●	●	●		●	●					
Switched Logical Unit	●		●		●						
Path Definition Set											
CDRM Major Node											
CDRM Minor Node	●				●						
CDRSC Major Node											
CDRSC Minor Node	●				●						

MODIFY TRACE Types (Continued)

	BUF	BUF, SCOPE =ALL	GPT	GPT, SCOPE =ALL	IO	IO, SCOPE =ALL	LINE	SMS	TG	TSO	VTAM
Channel-Attachment Major Node						●					
Channel Link					●						
Channel Link Station											
Nonswitched Line					●						
Switched Line					●						
SDLC Link Station											
Physical Unit	●	●			●	●					
Logical Unit	●				●						
ISTPUS	●				●						
ISTIRN					●						
VTAM	●	●			●	●					
VTAMBUF								●			

START Command[1]

Enter START[2] { procname / procname.Pnn[3] } [, , ,(options,. . .)]

where the start options may be one or more of the following:

CDRSCTI=n|480
COLD|WARM
CONFIG=xx|00|name
CSALIMIT=n|0[4]
DLRTCB=n|8[3]
DLRTCB=n|32[4]
HOSTSA=n|1
IOINT=n|180
ITLIM=n|0
LIST=xx|00
MAXAPPL=n|10
MAXSUBA=n|15
MSGMOD=YES|NO
NODELST=name
SONLIM=([m|60] [,n|30])
SSCPID=n
SUPP=[NOSUP|INFO|WARN|NORM|SER]
{ TNSTAT[,CNSL|NOCNSL] [,TIME=n|60] / NOTNSTAT }
TRACE|NOTRACE,TYPE=BUF,ID=nodename[,EVERY[5]]
TRACE|NOTRACE,TYPE=IO,ID=nodename [EVERY[5]]
TRACE|NOTRACE,TYPE=LINE,ID=linename
TRACE|NOTRACE,TYPE=SMS,ID=VTAMBUF
{ TRACE,TYPE=VTAM [,MODE=INT|EXT] [,OPTIONS=(options)| (API,MSG, PIU[6])|ALL] [,SIZE=nnn|2] / NOTRACE,TYPE=VTAM }

[1] Applies to OS/VS only.
VSE users should use the EXEC command.
[2] START or S.
[3] Applies to OS/VS1 only.
[4] Applies to OS/VS2 (MVS) only.
[5] EVERY or E.
[6] Options may be one or more of the following:
API, CIO, LOCK, MSG, PIU, PSS, SMS, SSCP.

USSTAB=name
VTAMEAS=n|404
poolname=(baseno,bufsize,slowpt,F,xpanno,xpanpt)

[1] Applies to OS/VS only.
VSE users should use the EXEC command.

VARY Commands[1]

```
VARY      NET,ACQ,ID=name
          [,ACT[,LOGMODE=logon mode name]
                [,LOGON=primary LU name or
                  cdrsc name
                [,SCOPE=ALL|COMP|ONLY|U]
```

```
VARY      NET,ACT,ID=name
          [,ANS[2]=ON|OFF]
          [,DUMPSTA=name]
          [,LOAD=YES|NO|U]
          [,LOADSTA=name]
          [,LOGMODE=logon mode name]
          [,LOGON=primary LU name or
            cdrsc name[3] ]
          [,RNAME=name|(name1,...,name13)]
          [,SCOPE[4]=ALL|COMP|ONLY|U]
          [,U=channel device name]
          [,WARM[4] ]
```

[1] VARY or V.

[2] Applicable when using SDLC only.

[3] Applies only to multiple-domain networks; a CDRSC name must be an application program in another domain.

[4] Note that WARM and SCOPE cannot be specified on the same command. If both are specified, the command fails.

VARY Commands[1] (Continued)

The following table indicates each resource type for which the command is valid and which operands can be used on the command. A bullet (•) indicates that the operand applies to that resource and an S indicates that the operand can be specified for sifting to subordinate resources. An M indicates that the operand applies to that resource only in certain migration cases.

	V NET,ACT,											
	WARM	U =	SCOPE =	RNAME =	LOGON =	LOGMODE =	LOADSTA =	LOAD =	DUMPSTA =	ANS =	ID =	
Application Program Major Node				•								•
Application Program Minor Node												•
Local SNA Major Node	•			•		S	S					•
Local SNA Physical Unit			•	•		S	S					•
Local SNA Logical Unit				•		•	•					•
Local Non-SNA Major Node	•			•		S	S					•
Local Non-SNA Minor Node						•	•					•
NCP	•		•	•	•	S	S	•	•	•		•
Nonswitched Line				•		S	S					•
Switched Line				•							•	•
Link Station					M	S	S					•
Physical Unit				•		S	S					•
Logical Unit						•	•					•
Switched Major Node	•			•		S	S					•
Switched Physical Unit				•		S	S					•
Switched Logical Unit						•	•					•
Path Definition Set												•
CDRM Major Node[2]	•			•								•
CDRM Minor Node[2]												•
CDRSC Major Node[2]	•			•								•
CDRSC Minor Node[2]												•
Channel Attachment Major Node	•			•								•
Channel Link			•	•								•
Channel Link Station				•								•
Nonswitched Line			•	•		S	S					•
Switched Line			•	•							•	•
SDLC Link Station												•
Physical Unit				•		S	S					•
Logical Unit						•	•					•

VARY NET,ANS[3] = {ON|OFF} ,ID = line name [,ACT]

[1] VARY or V.
[2] Applies only to multiple-domain networks; a CDRSC name must be an application program in another domain.
[3] Applicable when using SDLC dial only.

VARY Commands[1] (Continued)

VARY NET,DRDS,ID = drname

VARY NET,INACT[2],ID = name
[,CDLINK = ACT|INACT[3]]

[,FINAL]
[,I|F[4]|R[5]]
[,RMPO]

The following table indicates each resource type for which the command is valid and which operands can be used on the command. A bullet (•) indicates that the operand applies to that resource. An I, F, or R in the table indicates what value is substituted if an F or R operand is specified for a resource to which it does not apply.

	V NET,ACT,							
	RMPO	R	F	I	FINAL	CDLINK =	ID =	
Application Program Major Node			F	•	•			•
Application Program Minor Node			F	•	•			•
Local SNA Major Node			I	I	•			•
Local SNA Physical Unit			•	•	•	•		•
Local SNA Logical Unit			F	•	•			•
Local Non-SNA Major Node			I	I	•			•
Local Non-SNA Minor Node			F	•	•			•
NCP		•	•	•	•		•	•
Nonswitched Line			F	•	•			•
Switched Line			F	•	•			•
Link Station			•	•	•			•
Physical Unit			•	•	•	•		•
Logical Unit			F	•	•			•
Switched Major Node			I	I	•			•
Switched Physical Unit			•	R	•	•		•
Switched Logical Unit			F	•	•			•
Path Definition Set								
CDRM Major Node[3]			F	•	•			•
CDRM Minor Node[3]			F	•	•			•
CDRSC Major Node[3]			F	•	•			•
CDRSC Minor Node[3]			F	•	•			•
Channel Attachment Major Node			I	I	•			•
Channel Link			F	•	•			•
Channel Link Station			•	•	•			•
Nonswitched Line			F	•	•			•
Switched Line			F	•	•			•
SDLC Link Station			•	•	•			•
Physical Unit			•	•	•	•		•
Logical Unit			F	•	•			•

VARY Commands[1] (Continued)

```
VARY    NET,INOP  { ,ID=line name[,END]   }
                  { ,ID=physical unit name }

VARY    NET,LOGON=primary LU name or
          cdrsc name[6],ID=name
        [,LOGMODE=logon mode name]

VARY    NET,PATH=USE|NOUSE
          { ,GID=n,ID=switched major node name }
          { ,PID=n,ID=physical unit name       }

VARY    NET,REL,ID=name
        [,CDLINK=ACT|INACT[3]]
        [,I]

VARY    NET,TERM,
          { ,LU1=LU name[,LU2=LU name]                    }
          { ,LU2=LU name[,LU1=LU name]                    }
          { ,PLU=primary LU name[,SLU=secondary           }
          {   LU name]                                    }
          { ,SID=session identifier                       }
          { ,SLU=secondary LU name[,PLU=primary           }
          {   LU name]                                    }
        [,NOTIFY=YES|NO]
        [,SCOPE=ACT|ALL|Q]
        [,TYPE=COND|UNCOND|FORCE]
```

---

[1] VARY or V may be used.

[2] **Warning: TSO/VTAM users should never use this command to deactivate a TSO user memory while TSO/VTAM is operating.**

[3] Applies only to multiple-domain network.

[4] F or FORCE may be used.

[5] R or REACT may be used.

[6] Applies only to multiple-domain networks; a CDRSC name must be an application program in another domain.

Resource Status Codes

ACF/VTAM provides detailed information on the status of a resource. This status is defined by a state code and is generally contained in a 10-character format: *statexxxxx*.

The following text describes the possible state codes. They are listed in numeric order.

Status-modifier (*xxxxx*) information is included after the list of status codes.

Note: For resource status codes of sessions involving application programs and cross-domain resources, see message IST635I or 5G35I.

The classification of states into the following major categories may aid in deciding if a problem exists.

State Code

Category	*Meaning*
Final	ACF/VTAM has no further processing to do for the node.
Short Transient	The node is awaiting completion of an operation (such as I/O) that will take a relatively short time to complete. If the node remains in this state for a long time, there is probably a hardware or software error.
Long Transient	The node is awaiting completion of an operation that will take a relatively long time to complete. If the node remains in this state for an unreasonable length of time, there is probably a hardware or software error.

Category	*Meaning*
Suspended	This node is awaiting processing of another node. When the awaited processing is completed, the status of this node should change. If the awaited processing is completed and this node remains in this state, then there is probably a software problem.
Internal	This state is used within ACF/VTAM to direct processing. It should never be displayed. If it is, then there is probably a software problem.

The first byte of RPRCURST and RPRDESST represents the resource status categories:

Value (Hex)	Current State Category	Desired State Category
00	Inactive	Inactive
01	Pending inactive	Not used
02	Connectable	Connectable
03	Reactivate	Reactivate
04	Pending active	Not used
05	Active	Active
06	Routable	Routable

The second byte of RPRCURST and RPRDESST gives the specific resource status. The following table shows the two bytes in combination (for example, value hex 0001 indicates a category of 00 and a specific code of 01).

Abbreviation (Hex Value)	*Category*	*Resource Status*
ACTIV (0505)	Final	Active: The resource is in the active state.
APEER (0501)	Final	Backup Link Station Active: The resource is an active backup link station to which a subarea node is attached.
CONCT (0200)	Final	Connectable: A VARY NET,ACT command has been completed for a switched or local physical or logical unit, or for an application program. A dial-in or dial-out request will be honored, but the resource is not active at this time. For application programs, an OPEN has not yet been issued. For a channel-attached resource, the device has not been powered on.
CTD(1) (043D)	Suspended	Contacted (1): A link station was being activated and a Contacted request has been received. Because the NCP contacted is also being activated, the activation of the link station is suspended while the NCP activation proceeds. Activation processing for the link station will resume before activation of the NCP is completed.

Abbreviation (Hex Value)	*Category*	*Resource Status*
CTDER (041D)	Suspended	Contacted Error: A node, either a link station or a peripheral physical unit was being activated and a Contacted request was received indicating the Contact operation failed. For a peripheral PU, a request to deactivate the resource has been scheduled. For a link station, if the NCP it is trying to contact is also being activated, the link station activation will be suspended while the NCP activation proceeds. Activation processing for the link station will resume before activation of the NCP completes. A second contact failure will cause deactivation of the link station.
CTRQI (043A)	Suspended	Contacted (2) Request IPL: A node, either a link station or a peripheral PU, is being activated and the Contacted request indicates that reload is required. For a peripheral PU, a request to deactivate the resource has been scheduled. For a link station, if the NCP it is trying to contact is also being activated, the link station activation will be suspended while the communication controller activation proceeds. Activation processing for the link station will resume before activation of the NCP completes. A second Contacted request indicating that reload is required will cause deactivation of the link station.

Abbreviation (Hex Value)	*Category*	*Resource Status*
CT1NS (040F)	Suspended	Contact (1) Not Sent: A link station reached the point in its activation where a Contact request should be sent, but the NCP to be contacted was not in a suitable state. The link station's activation will be suspended while the NCP's activation proceeds. Activation processing for the link station will resume before activation of the NCP completes.
DALUC (011E)	Suspended	DACTLU Complete: A DACTLU has been sent and the response received, but some higher-level node recovery processing has started. This node will remain in this state until the higher-level process redrives it.
DAPUC (011F)	Internal	DACTPU Complete: A DACTPU has been sent as the result of a force deactivate or force reactivate command, and either the response was received or in the case of a communication controller, a route failed and a DACTPU request was received.
DEFND (0001)	Short Transient	Defined: A VARY NET, ACT command is being processed for a major node and the RDT segment has just been built. The major node and its subnodes are known to ACF/VTAM. The activation has been suspended while the processing of the command moves from one internal ACF/VTAM dispatching point to another.

Abbreviation (Hex Value)	*Category*	*Resource Status*
DUMPC (011B)	Suspended	Dump Complete: A link station was used to dump an NCP and the dump is complete, but the recovery or deactivation of the NCP has not reached the point where link stations adjacent to that NCP are processed. For a recovery, that point is when the NCP's load/dump procedure status is RESET. For a deactivation, that point is when the NCP's status is PRSET.
FDSCC (0445)	Internal	Force Discontact Complete: A DISCONTACT has been sent as a result of a force deactivate or force reactivate command and the response to the DISCONTACT has been received.
HLACC (042D)	Internal	Higher-Level Activate Complete: The resource is being activated and its higher-level node has completed activation. For example, a local PU or LU is being activated, and the activation of the associated channel (such as PUB or UCB allocation) has completed. The activation of the resource is about to begin.
HLACF (0409)	Internal	Higher-Level Activate Failed: The resource was being activated, and activation of its higher-level node failed. For example, a local PU or LU was being activated, and PUB or UCB allocation has failed for its associated channel. A deactivate request was scheduled for the local PU or LU.

Abbreviation (Hex Value)	*Category*	*Resource Status*
IINOP (0005)	Final	Inactive (Inoperative): The resource has been deactivated by an INOP request or a forced deactivation.
INACS (0006)	Final	Inactive with Sessions. If the resource is an LU, the node is in the inactive state, but may have active sessions. There is no LU-SSCP session, but the LU may have active LU-LU sessions. This state can occur when a cross-domain resource is made a same-domain resource as part of the takeover of the resources of an SSCP that failed. If the resource is a CDRM, the node is in an inactive state, but it supports active cross-domain LU-LU sessions. In this state, there is no SSCP-SSCP session, but the CDRM may be supporting active cross-domain LU-LU sessions. This state can occur when: 1. The virtual route used by the SSCP-SSCP session is inoperative or has been deactivated by a DACTVR (FORCE) 2. Activate CDRM contention has occurred 3. An unrecoverable error has been detected for the SSCP-SSCP session. The cross-domain active session, which used the SSCP-SSCP session to setup, will remain intact.

Abbreviation (Hex Value)	*Category*	*Resource Status*
INACT (0003)	Final	Inactive: The resource is inactive.
INOP (0441)	Suspended	Inoperative: An INOP request, route failure, or force reactivate command is being processed. Active user sessions have been terminated, and the resource is about to be reactivated, but must wait for a higher level node.
INVAP (0417)	Internal	Invalid ACTPU Response: A node, such as a communication controller or PU, is being activated, and the ACTPU request has been sent, but the associated response is invalid. Examples of invalid responses are: when the response unit has invalid format or indicates the PU is not in COLD or ERP state, or the resource has been loaded, and the contents ID is not the expected value. A request to deactivate the resource was scheduled.
LLQED (043B)	Suspended	Lower Level Queued: A VARY NET, ACT command is being processed for a communication controller and the RDT segment has just been built. The network names of the major node and its subnodes are known to ACF/VTAM. At least one of the subnode link stations has been queued on another link station queue, because it is an operand of the RNAME= keyword on the second communication

Abbreviation (Hex Value)	*Category*	*Resource Status*
		controller's VARY NET, ACT command. The activation of the communication controller has been suspended while the processing of the command moves from one internal ACF/VTAM dispatching point to another.
NACDR (042F)	Internal	Negative Activate CDRM Response: A CDRM is being activated and the Activate CDRM request was sent, but the associated response was negative (the request failed). A request to deactivate the CDRM has been scheduled.
NACTL (0410)	Internal	Negative Activate LU Response: A node, such as an application program or other LU was being activated, and the Activate LU request was sent, but the associated response was negative (the request failed). A request to deactivate the resource was scheduled.
NACTP (0412)	Internal	Negative Activate PU Response: A node, such as a communication controller or PU, was being activated and the Activate PU was sent, but the associated response was negative, and the request failed. A request to deactivate the resource was scheduled.

Abbreviation (Hex Value)	*Category*	*Resource Status*
NADLK (0423)	Internal	Negative Add Link Response: A channel link was being activated and an Add Link request was sent to the appropriate PU services. However, the associated response was negative and the request failed. A request to deactivate the resource was scheduled.
NADST (0420)	Internal	Negative Add Link Station Response: A channel link station was being activated and an Add Link Station request was sent to the host PU. However, the associated response was negative and the request failed. A request to deactivate the resource was scheduled.
NALNK (0415)	Internal	Negative Activate Link Response: A line was being activated, and the Activate Link request was sent, but the associated response was negative (the request failed). A request to deactivate the line has been scheduled.
NANNA (0431)	Internal	Negative Allocate Node Network Address: A node, such as a DR-added PU or LU, was being activated, and the Request Network Address Assignment request was sent to the appropriate PU services, but the associated response was negative, and the request failed. A request to deactivate the resource was scheduled.

Abbreviation (Hex Value)	*Category*	*Resource Status*
NASNA (0426)	Internal	Negative Allocate Subnode Network Addresses: A node, such as a local or switched physical unit, is being connected and the Request Network Address Assignment request has been sent to the appropriate PU services. However, the associated response was negative and the request failed. A request to disconnect the resource was scheduled.
NCONO (0400)	Internal	Negative Connect Out Response: A node, such as a local or switched physical unit, was being connected and the Connect Out request was sent to the appropriate PU services, but the associated response was negative and the request failed. A request to disconnect the resource was scheduled.
NCONT ((041C)	Internal	Negative Contact Response: A node, such as a link station or PU, was being activated and the Contact request was sent, but the associated response was negative (the request failed). A request to deactivate the resource has been scheduled.
NEVAC (0004)	Final	Never Activated: The resource has never been activated.

Abbreviation (Hex Value)	*Category*	*Resource Status*
NLOAD (043C)	Internal	Negative Load Response: An NCP was being activated and a Load Request was sent to the appropriate PU services, but the associated response was negative and the request failed. A request to deactivate the NCP was scheduled.
NNAUV (0403)	Internal	Negative Set LU Control Vector Response: A node, such as a switched or dynamically added logical unit, was being connected and the Set Control Vector request with the LU Control Vector was sent, but the associated response was negative and the request failed. A request to disconnect the resource was scheduled.
NSARV (041A)	Internal	Negative Set Subarea Routing Control Vector: A node, such as a link station, was being activated and the Set Control Vector request with the Subarea Routing Control Vector was sent, but the associated response was negative and the request failed. A request to deactivate the resource was scheduled.
NSDT (0428)	Internal	Negative Start Data Traffic Response: A communication controller was being activated and the Start Data Traffic request was sent, but the associated response was negative, and the request failed. A request to deactivate the communication controller was scheduled.

Abbreviation (Hex Value)	*Category*	*Resource Status*
NSNCP (042E)	Internal	Negative Switch to NCP Response: A PEP link was being activated, and the SW to NCP request was sent, but the associated response was negative, and the request failed. A request to deactivate the PEP link was scheduled.
NSSSV (0405)	Internal	Negative Set SDLC Secondary Station (SSS) Control Vector: A node, such as a DR-added PU, or a switched PU, was being connected, and the Set Control Vector Request with the SSS control vector was sent, but the associated response was negative and the request failed. A request to disconnect the node was scheduled.
NSTD (042A)	Internal	Negative Set Time and Date Response: A node, such as a communication controller, was being activated, and the Set Time and Data request was sent, but the associated response was negative, and the request failed. A request to deactivate the node was scheduled.
NVYLM (0436)	Internal	Negative Operator Query (VFLYM) Response: The resource was being activated and the response to the ACF/VTAM message IST361A or 5D61A was to terminate the NCP's activation. A request to deactivate the resource has been scheduled.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PABCN (010B)	Short Transient	Pending Abandon Connection Response: A node, such as a local or switched PU, is about to become disconnected. The Abandon Connection request has been sent to the appropriate PU services, but the associated response has not been received.
PABCO (0116)	Short Transient	Pending Abandon Connect Out Response: A node, such as a local or switched PU, is being disconnected and the Abandon Connect Out request has been sent to the appropriate PU services, but the associated response has not been received.
PACDR (0430)	Long Transient	Pending Activate CDRM Response: A CDRM is being activated and the Activate CDRM request has been sent, but the associated response has not been received. The sending of this request may have to wait for the availability of a virtual route. If one or more explicit routes are operative, this should be a short transient state while route activation proceeds. If no routes are operative, this may be a long transient state while ACF/VTAM waits for connectivity to be established along the route.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PACTL (0411)	Short Transient	Pending Activate LU Response: A node, such an an application program or other logical unit, is being activated and the Activate LU request has been sent, but the associated response was not received.
PADLK (0421)	Short Transient	Pending Add Link Response: A channel link is being activated and an Add Link request was sent to the appropriate PU services, but the associated response has not been received.
PADST (0419)	Short Transient	Pending Add Link Station Response: A channel link station is being activated and an Add Link Station request was sent to the appropriate PU services, but the response has not been received.
PALNK (0416)	Short Transient	Pending Activate Link Response: A line is being activated, and the Activate Link request has been sent, but the associated response was not received.
PALUC (0434)	Short Transient	Pending Activate LU Cleanup Response: An active LU is undergoing recovery processing. An ACTLU request has been sent, but the associated response has not been received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PANNA (0432)	Short Transient	Pending Allocate Node Network Address: A node, such as a dynamically added physical unit or logical unit, is being activated and the Request Network Address Assignment request has been sent to the appropriate PU services, but the associated response was not received.
PAPU1 (0413)	Long Transient	Pending Activate PU (1) Response: An NCP is being activated, and may need to be loaded, ACTPU was sent, but the associated response has not yet been received. The sending of this request may have to wait for the availability of a virtual route. If one or more explicit routes are operative, this should be a short transient state while route activation proceeds. If no routes are operative, this may be a long transient state while ACF/VTAM waits for connectivity to be established along the route.
PAPU2 (0425)	Long Transient	Pending Activate PU (2) Response: A physical unit is being activated. ACTPU has been sent, but the associated response has not yet been received. For a subarea PU, the sending of this request may have to wait for the availability of a virtual route. If one or more explicit routes are operative, this should effectively be a short transient state

Abbreviation (Hex Value)	*Category*	*Resource Status*
		while route activation proceeds. If no routes are operative, this may be a long transient state while ACF/VTAM waits for connectivity to be established along the route.
PASNA (0427)	Short Transient	Pending Allocate Subnode Network Addresses: A node, such as a local or switched physical unit, is being connected and the Request Network Address Assignment request has been sent to the appropriate PU services. However, the associated response was not received.
PCONO (0401)	Short Transient	Pending Connect Out Response: A node, such as a local or switched physical unit, is being connected and the Connect Out request has been sent to the appropriate PU services, but the associated response was not received.
PCON1 (041E)	Short Transient	Pending Contact (1) Response: A node, such as a link station is being activated, and the first Contact request was sent to the appropriate PU services, but the associated response was not received.
PCON2 (0422)	Short Transient	Pending Contact (2) Response: A node, such as a PU or link station, is being activated, and the Contact request (second attempt for link station) has been sent to the appropriate PU services, but the associated response has not been received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PCTD1 (041F)	Long Transient/ Suspended	Pending Contacted (1) Request: If the resource is a link station it is being activated, and a positive Contact response was received but the associated Contacted request was not received. An NCP will also be found in this state (in this case a suspended state) during activation while waiting for an adjacent link station to be activated.
PCTD2 (0424)	Long Transient/ Suspended	Pending Contacted (2) Request: If the node is a link station or peripheral PU, it is being activated and a Contact request was sent and the response received, but the associated Contacted request has not been received. An NCP will also be found in this state (it is a suspended state in this case) during activation while waiting for an adjacent link station connected to it to be activated. The difference between PCTD2 and PCTD1 is that an NCP in the PCTD1 state may be loaded if a Contacted request is received for an adjacent link station indicating that the communication controller needs to be loaded, whereas, in the PCTD2 state, both the adjacent link station and the NCP would be deactivated, since a load has already been performed or the NCP has been activated with LOAD=NO.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PDACL (010F)	Short Transient	Pending DACTLU Response: A node, such as an application program or a logical unit, is being disconnected or deactivated. The DACTLU request has been sent, but the associated response has not been received.
PDACP (0110)	Short Transient	Pending DACTPU Response: A node, such as a communication controller or physical unit, is being disconnected or deactivated. The DACTPU request has been sent, but the associated response has not been received.
PDANC (0442)	Short Transient	Pending DACTPU ANSC: A DACTPU has been sent to the resource but the associated response has not been received. The resource was being activated when an Auto Network Shutdown Complete (ANSC) RU was received. This request causes the SSCP to reset the SSCP-PU session and then resume the activation procedure.
PDANS (0104)	Short Transient	Pending Inactivate ANS Processing: The Abandon Connect In request unit has been sent for a node such as a switched link.
PDELR (010E)	Short Transient	Pending Delete Network Resource Response: A node, such as an application program, is being disconnected. The Delete Network Resource request has been sent to the appropriate PU services, but the associated response has not been received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PDISC (010D)	Short Transient	Pending Discontact Response: A node, such as a link station or physical unit, is being deactivated or disconnected. The Discontact request has been sent to the appropriate PU services, but the associated response has not been received.
PDLNK (0112)	Short Transient	Pending DACTLINK Response: A line or local device is being deactivated, and the DACTLINK request has been sent to the appropriate PU services, but the associated response has not been received.
PDLUC (011D)	Short Transient	Pending Deactivate LU Cleanup: An active LU is undergoing error recovery processing and a DACTLU request has been sent, but the associated response has not been received.
PDPA1 (0443)	Short Transient	Pending DACTPU (ACT1): A DACTPU has been sent to the resource but the associated response has not been received. The NCP was being activated and was found already loaded. This state is exited when the DACTPU response is received and processing will continue from the beginning. Another attempt to load will be allowed.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PDPA2 (0440)	Short Transient	Pending DACTPU (ACT2): A DACTPU has been sent to the resource but the associated response has not been received. If the resource is an NCP, it was being activated and a load was performed. Once the DACTPU response is received, the activation of the NCP will proceed. If the resource is a BSC 3270 PU, a General Poll Failure occurred and the DACTPU was sent to clean up internal control blocks. When the response is received, an ACTPU will be sent.
PFDCP (0440)	Short Transient	Pending Force DACTPU Response: A DACTPU has been sent as a result of a force reactivate or force deactivate command against a node, such as a communication controller. The response has not been received.
PFDLU (0120)	Short Transient	Pending Force DACTLU Response: A DACTLU has sent as a result of a force deactivate command for the LU, but the response has not yet been received.
PFDMP (0119)	Long Transient	Pending Dump Response: DUMP is being performed of an NCP over a link station and has not yet completed processing.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PFDSC (042C)	Short Transient	Pending Force Discontact Response: A PU is being force deactivated or force reactivated and the Discontact request has been sent to the appropriate PU services, but the associated response has not been received.
PFNNA (011C)	Short Transient	Pending Free Node Network Address: A node, such as a dynamically added PU or LU is being deactivated. The Free Network Address request has been sent to the appropriate PU services, but the associated response has not been received.
PFSNA (010C)	Short Transient	Pending Free Subnode Network Addresses: A node, such as a local or switched PU, is being disconnected. The Free Network Address request has been sent to the appropriate PU services, but the associated response has not been received.
PHLAC (040A)	Suspended	Pending Higher-Level Activation: A node is awaiting activation of its higher-level node. For example, a local PU or LU is being activated, and the request to activate the associated channel, (that is, the associated PUB or UCB) has not completed.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PHLIN (0102)	Suspended	Pending Higher-Level Deactivation: A node is inactive and its higher-level node is being deactivated. For example, a local PU is inactive and the associated channel PUB or UCB is being deallocated.
PINAC (0100)	Long Transient	Pending Inactive: CDRM is being deactivated. This is a long transient state because all cross-domain sessions involving the CDRM must be terminated before the CDRM is deactivated.
PLOAD (040E)	Long Transient	Pending Load: An NCP is being activated and a loading operation has begun, or a peripheral PU, such as an 8775, being activated has requested a load and the SSCP sent the load request to an application program defined in the CNM routing tables. A response to the load request has not been received.
PLSTC (043F)	Suspended	Pending Load Station Conditional: Activation processing for an NCP is waiting for the link station over which the NCP will be loaded to become available. When the link station is available, ACF/VTAM will perform a conditional load if the link station is channel-attached, or otherwise an unconditional load.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PLSTU (040D)	Suspended	Pending Load Station Unconditional: Activation processing for an NCP is waiting for the link station over which the NCP will be loaded to become available. When the link station is capable of being used for loading, a load of the NCP will be done.
PMALD (0446)	Long Transient	Pending Migration ACTPU Load/Dump Procedure: For an NCP session on a migration route, a session recovery loop has been suspended due to an ongoing load or dump operation.
PMATM (0447)	Long Transient	Pending Migration ACTPU Timer: An NCP, attempting session recovery on a migration route, is waiting for expiration of a time interval before retrying session activation.
PNAUV (0404)	Short Transient	Pending Set LU Control Vector Response: A node, such as a switched or dynamically added logical unit, is being connected and the Set Control Vector request with the LU Control Vector has been sent to the appropriate PU services, but the associated response has not been received.
PNFY1 (0113)	Long Transient	Pending Notify(1) Request: A node, such as an LU, is being deactivated or disconnected. The request to terminate user sessions has

Abbreviation (Hex Value)	*Category*	*Resource Status*
		been scheduled, but the Notify request indicating that the user sessions have ended has not yet been received.
PNFY2 (0108)	Long Transient	Pending Notify(2) Request: A node, such as a logical unit, is about to become connectable and the request to terminate any queued user sessions has been scheduled. However, the Notify request indicating that the user sessions have ended has not yet been received.
PNFY3 (0105)	Long Transient	Pending Notify(3) Request: A node is about to become inactive and the request to terminate queued user sessions has been scheduled. However, the Notify request indicating that the user sessions have ended has not yet been received.
POAS1 (0437)	Long Transient	Pending Operator Query (AUTOSYN1) Response: A communication controller is being activated and message IST183A or 5B83A, which asks if the communication controller should be reloaded or resynchronized, has been issued. The message was sent after the communication controller was contacted but before an SSCP-PU session was established. The reply has not been received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
POAS2 (0438)	Long Transient	Pending Operator Query (AUTOSYN2) Response: A communication controller is being activated and message IST183A or 5B83A, which asks if the communication controller should be reloaded or resynchronized, has been issued. The message was sent after an SSCP-PU session was established with the communication controller. The reply has not been received.
PREQC (0402)	Long Transient	Pending Request Contact Request: A node, such as a local or switched physical unit, is being connected and the Connect Out response has been received, but the Request Contact request has not been received.
PRMPO (0103)	Short Transient	Pending RMPO Response: A link station is being deactivated and the NCP attached to it has to be powered off. A Remote Power Off request has been sent and the response has not been received.
PRSET (0101)	Short Transient	Pending Reset: The resource is inactive, but the network name is still known to ACF/VTAM.
PSARV (041B)	Short Transient	Pending Set Subarea Routing Control Vector Response: A node, such as a link station, is being activated and the Set Control Vector request containing a Subarea Routing Control Vector has been sent to the appropriate PU services, but the associated response has not been received.

Abbreviated (Hex Value)	*Category*	*Resource Status*
PSDT (0429)	Short Transient	Pending Start Data Traffic (SDT) Response: A node, such as a communication controller is being activated, and the Start Data Traffic request was sent, but the associated response was not received.
PSNCP (0414)	Short Transient	Pending Switch to NCP Response: A PEP link is being activated, and the Switch to NCP request was sent, but the response has not been received.
PSSSV (0406)	Short Transient	Pending Set SDLC Secondary Station (SSS) Control Vector Response: A switched physical unit is being connected, or a DR added PU is being activated, and the Set Control Vector Request containing an SSS control vector has been sent to the appropriate PU services, but the associated response has not been received.
PSTD (042B)	Short Transient	Pending Set Time and Date Response: A communication controller is being activated, and the Set Control Vector request containing a Set Time and Date Control Vector was sent, but the associated response was not received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PSUBR (0504)	Suspended	Pending Subnode Release: An acquired communication controller that was activated before it was acquired is being released; that is, a request to release the subnodes in the acquired portion of the communication controller is in progress.
PSUB1 (0115)	Suspended	Pending Subnode Deactivate (1): A node supporting subnodes, for example, an application program segment, communication controller, link, or PU is being deactivated or disconnected and is waiting for its subnodes to complete deactivation processing before proceeding with its own deactivation. (The differences between PSUB1, PSUB2, and PSUB3 vary for the node type. The different states are used to determine the next step to be taken in deactivating this node once its subnodes complete processing.)
PSUB2 (010A)	Suspended	Pending Subnode Deactivate (2): A node supporting subnodes, for example, an application program segment, communication controller, link, or PU is being deactivated or disconnected and is waiting for its subnodes to complete deactivation processing before proceeding with its own deactivation. (The differences between PSUB1, PSUB2, and PSUB3 vary for the node type.

Abbreviation (Hex Value)	*Category*	*Resource Status*
		The different states are used to determine the next step to be taken in deactivating this node once its subnodes complete processing.)
PSUB3 (0107)	Suspended	Pending Subnode Deactivate (3): A node supporting subnodes, for example, an application program segment, communication controller, link, or PU is being deactivated or disconnected and is waiting for its subnodes to complete deactivation processing before proceeding with its own deactivation. (The differences between PSUB1, PSUB2, and PSUB3 vary for the node type. The different states are used to determine the next step to be taken in deactivating this node once its subnodes complete processing.)
PSWEP (0111)	Short Transient	Pending Switch to EP Response: A PEP link has been deactivated. The Switch to EP Mode request has been sent to the appropriate PU services, but the associated response has not been received.
PTRM1 (0114)	Short Transient	Pending Terminate(1) Response: A node, such as an LU, is being deactivated or disconnected. The request to terminate user sessions has been scheduled, but the associated response has not yet been received.

Abbreviation (Hex Value)	*Category*	*Resource Status*
PTRM2 (0109)	Short Transient	Pending Terminate(2): A node, such as an LU, is about to become connectable and the request to terminate queued user sessions has been scheduled. However the associated response has not yet been received.
PTRM3 (0106)	Short Transient	Pending Terminate(3) Response: An LU is about to become inactive and the request to terminate queued user sessions has been scheduled, but the associated response has not yet been received.
PVYLM (0435)	Long Transient	Pending Operator Query (VFYLM) Response: The resource is being activated and the ACF/VTAM operator message IST361A or 5D61A has been issued, but the reply has not yet been received. Message IST361A or 5D61A asked the operator if he wanted to load the NCP or terminate the NCP's activation.
P095A (0118)	Long Transient	Pending Operator Query Response: An error recovery procedure (ERP) issued message IST095A or 5A95A, asking whether an ERP DUMP is desired. The reply has not been received.
P284A (0408)	Long Transient	Pending Operator Query Response: A communication controller is being recovered and message IST284A or 5C84A, asking whether the communication controller should be

Abbreviation (Hex Value)	*Category*	*Resource Status*
		reloaded, has been issued. The reply has not been received.
RACTH (0301)	(See Note)	Reactivate at Higher Level: The resource is being deactivated and, once inactive, will wait for its reactivation to be driven by a higher-level node.[1]
RACTN (0300)	(See Note)	Reactivate at this Level: The resource is being deactivated and will then be reactivated at this level.[1]
RADDF (0433)	Internal	RDTADD Failed: A node was being activated and the request to add the associated network address to the ACF/VTAM's network address table has failed. A request to deactivate the resource has been scheduled.
RDIAL (0201)	(See Note)	Redial: A switched PU is being disconnected and an attempt to redial the PU will be made once disconnection is complete.[1]
RELSD (0002)	Final	Released: A physical unit has been released or it exists in the unowned portion of an activated-before-acquired communication controller and has not yet been acquired.

[1] This is a desired state only.

Abbreviation (Hex Value)	*Category*	*Resource Status*
RESET (0000)	Final	Reset: As a current state, this means that the RDT segment has been built but has not been processed by the SSCP. This value for an LU can also mean that a VARY NET,REL command for the associated PU has been completed. As the NCP's load dump procedure status, this state means that no load or dump procedure is in progress.
RINAC (0600)	Long Transient	Routable, Inactive: A MODIFY LL2 command is being processed for an inactive DR-added PU. When the LL2 test is terminated the PU will be returned to the inactive state.
RRLSD (0601)	Long Transient	Routable, Release: A MODIFY LL2 command is being processed for a released DR-added PU. When the LL2 test is terminated, the PU will be returned to the released state.
183AF (0418)	Internal	Operator Query (AUTOSYNCH) Failed: A request to issue message IST183A or 5B83A was scheduled, but the message could not be issued. Processing continues as if the reply was negative.

Abbreviation (Hex Value)	*Category*	*Resource Status*
284AF (0407)	Internal	Operator Query Failed: A request to issue message 5C84A has been scheduled, but the message could not be issued. Processing continues as if the reply was negative.
TRACT[1] (03)	Final	Trace Active: The trace indicated is active for this line.
TRPAR[1] (02)	Short Transient	Pending Active Trace Response: The trace is being activated and the ACTTRACE request has been sent, but the associated response has not been received.
TRPDR[1] (01)	Short Transient	Pending DACTTRACE Response: The trace is being deactivated and a DACTTRACE request has been sent, but the associated response has not been received.
TRRES[1] (00)	Final	Trace Reset: The trace indicated is inactive for this line.

[1] This value may appear in a 1-byte field containing the line trace status.

Status Modifiers

The following status modifiers can appear in positions 4 and 5 of the state field.

Status Modifier	*Meaning*
/B	A BIND is in progress for this node.
/C	A session between this node and its controlling application program is active, pending active, or queued.
/S	A session is in progress for this logical unit or terminal. This will not appear if one of the other status modifiers is present.
/U	A CLEAR preceding UNBIND or an UNBIND is in progress for this node.

Resource Status

The following resource status information can appear in character positions 6 through 10 in the *statexxxxx* field.

When an NCP is displayed with the EVERY, ACTIVE, or INACTIVE keyword, the status of the NCP links can be modified with "N" in the 7th character position, if the link was not originally owned by the host processing the DISPLAY, and the link has been "acquired."

The resource status code "T" in the 10th position shows that a resource (link, PU, or LU) is attached through the programmed resource capability of the NCP.

The status of a dynamically added PU or LU can be modified with "D" in the 10th position to show that the resource has been added by dynamic reconfiguration.

Resource Status Codes

If a cross-domain resource was created dynamically, a "Y" will appear in the 10th character position.

When a resource is defined as a shadow resource, an "S" will appear in the 8th character position. This indicator may be combined with other modifiers.

If a cross-subarea link or link station has been automatically activated, an "I" will appear in the 9th and 10th character positions. Otherwise, an active cross-subarea link or link station is displayed with an "E" in the 10th character position. See *ACF/VTAM Operation* for an explanation of *automatic* and other types of actions.

If a link station is functioning as a backup for another link station (in certain migration situations), a "B" will be displayed in the 10th character position.

System Completion Codes (OS/VS)

This section contains only the OS/VS system completion codes related to ACF/VTAM. The remainder of the system completion codes are listed in the appropriate *OS/VS Message Library: System Codes.*

System completion codes indicate that the control program has determined that a task cannot continue processing and expect valid results. For example, an error may have occurred during the execution of a user's application program and was detected by ACF/VTAM. In such a case, processing of the task is terminated, and a completion code is supplied which indicates the reason for the termination. When appropriate to the error, the explanation of the completion code suggests a programmer response intended to correct the reason for the abnormal termination. If the error cannot be corrected by correcting program code, the problem determination action should be followed. The problem determination table for the system completion codes is at the end of this section.

0A7

Explanation: During ACF/VTAM HALT NET, CANCEL processing, ACF/VTAM found that a TPEND exit routine did not exist or could not be scheduled for each access method control block (ACB) opened by the user's application program.

System Action: The user's task is abnormally terminated.

Programmer Response: None.

0A8

Explanation: ACF/VTAM detected an error that occurred during the execution of a user's application program. The contents of the low-order 2 bytes of register 15 indicates the cause of the error:

Register 15 Contents in Hexadecimal:	*Explanation:*
2101	An ACF/VTAM validity check of the user's request parameter list (RPL) failed because the RPL does not have the same protection key as the application programs's TCB.
7001	The user's request parameter list (RPL) or event control block (ECB) is invalid.
7003	The user's request parameter list (RPL) is invalid.

System Action: The task abnormally terminates.

Programmer Response: Probable user error. Verify that the RPL and ECB pointers are correct and execute the job step again.

0A9

Explanation: An error occurred during the execution of an ACF/VTAM module. The contents of the low-order 2 bytes of register 15 indicate the cause of the error.

Register 15 Contents in Hexadecimal:	*Explanation:*
0000	An ACF/VTAM HALT NET, CANCEL command has been processed successfully.
3141	An ACF/VTAM destination vector table (DVT) entry is invalid for the defined attachment.

Register 15 Contents in Hexadecimal:	*Explanation:*
7001	An ACF/VTAM application program has specified an invalid RPL or ECB.
7002	An ACF/VTAM request for storage failed.
7003	An ACF/VTAM request to release storage failed because the storage had already been released.
7004	ACF/VTAM could not obtain a local storage lock.
7005	ACF/VTAM was unable to restore its registers after a user exit routine returned to ACF/VTAM.
7071	A RELSTORE was issued for a previously freed buffer.
7141	Control cannot be passed to the proper ACF/VTAM module. Either an ACF/VTAM destination vector table (DVT) entry is invalid for the defined attachment or ACF/VTAM storage has been altered.
10F1	The ABEND was issued by the ACF/VTAM STAE retry routine so that the user recovery routine (STAE exit routine) could get control.

System Action: The task that initiated the ACF/VTAM request abnormally terminates.

Programmer Response: None.

0AA

Explanation: An abend condition occurred during execution of ACF/VTAM. ACF/VTAM's functional recovery routines (FRRs) were unable to associate the failure with any particular TCB in the address space.

System Action: All the tasks in the address space are abnormally terminated.

Programmer Response: None.

0AB

Explanation: An error occurred while TSO/VTAM was in operation and a VTIOC module was executing an ACF/VTAM macro instruction. The contents of the 2 low-order bytes of register 15 indicate the cause of the error:

Register 15 Contents in Hexadecimal:	*Explanation:*
0101	The terminal input manager for IBM 3767, IBM 3770, and NTO terminals (IKTIMLU1) encountered an unrecoverable error while executing an ACF/VTAM macro instruction that uses a request parameter list (RPL).
0102	The terminal output manager for IBM 3767, IBM 3770, and NTO terminals (IKTOMLU1) encountered an unrecoverable error while executing an ACF/VTAM marco instruction that uses an RPL.
0103	The terminal input manager for IBM 3270 SNA terminals (IKTIMLU0 or IKTIMLU2) encountered an unrecoverable error while executing an ACF/VTAM macro instruction that uses an RPL.

Register 15 Contents in Hexadecimal:	*Explanation:*
0104	The terminal output manager for IBM 3270 SNA terminals (IKTOMLU0 or IKTOMLU2) encountered an unrecoverable error while executing an ACF/VTAM macro instruction that uses an RPL.
0105	The VTIOC LOSTERM exit routine encountered an error during execution of a BIND or UNBIND command that used an RPL.
0201	The error occurred during initialization of a TSO/VTAM user address space. An application program ID problem was encountered while executing ACF/VTAM OPEN macro instruction.
0202	The error occurred during execution of an ACF/VTAM OPEN macro instruction. The ERROR field of the ACB indicates the problem. The values that can be set in the ERROR field are shown in Part 3, "Programming," in the section titled, "ACB ERROR Field Values."
0203	The error occurred during execution of an ACF/VTAM CLOSE macro instruction. The code in the ERROR field of the ACB is hex 42, indicating that the ACB has been closed but an ACF/VTAM error has prevented the successful disconnection of one or more TSO terminals.

System Action: The terminal session in which the error occurred terminates.

Programmer Response: None.

0AC

Explanation: The terminal control address space (TCAS) was unable to continue its normal processing due to an error. The 2 low-order bytes of register 15 and TCAS work area (TWAR) field TWARSON both contain the reason code that indicates the cause of the error:

Reason Code in Hexadecimal:	*Explanation:*
00	STOP command was entered.
04	Invalid START command was issued.
10	The TCAS main task was unable to attach the ACF/VTAM interface subtask.
14	The TCAS main task was unable to attach the user interface subtask.
18	The TCAS main task was unable to attach the console communication subtask.
1C	TCAS was unable to obtain storage for the TCAS table (TCAST) in the common service area (CSA).
20	The TCAS main task abnormally terminated and was unable to recover.

Reason Code in Hexadecimal:	*Explanation:*
30	The ACF/VTAM interface subtask abnormally terminated and was unable to recover.
34	The user interface subtask abnormally terminated and was unable to recover.
38	The console communication subtask abnormally terminated and was unable to recover.

System Action: TCAS abnormally terminates.

Operator Response: Reply "DUMP" to TCAS termination message IKT012D to obtain a dump.

0AD

Explanation: An error occurred while TSO/VTAM was in operation and VTIOC's queue manager was executing a GETCELL or FREECELL macro instruction. The contents of the 2 low-order bytes of register 15 indicate the cause of the error:

Register 15 Contents in Hexadecimal:	*Explanation:*
0108	The cell address supplied to the FREECELL macro instruction was invalid.
010C	No cell pool existed for the FREECELL request.
0110	An invalid cell pool ID was specified for the FREECELL request.
020C	No cell pool existed for the GETCELL request.

Register 15 Contents in Hexadecimal:	*Explanation:*
0210	An invalid cell pool ID was specified for the GETCELL request.

System Action: The queue manager abnormally terminates, and the terminal session in which the error occurred terminates.

Programmer Response: None.

Cancel and Function Codes (VSE)

When an ACF/VTAM routine issues CANCEL, register 15 and the TIBCNCL field in the task information block (TIB) contains codes that aid in determining the reason for the cancelation. A cancel code is set in the TIB and a function code is set in register 15. The cancel code also appears at the end of message 5J97I:

> 5J97I VTAM CANCELLED FOR INVALID CONDITION cancel code

Note: This message is also issued without a cancel code under some conditions. See *ACF/VTAM Messages and Codes* for more information.

Cancel Codes

Cancel codes are set in the VSE TIB cancel fields (hex 1A). This field is found at displacement hex 01 in the PIB. For information about the relationship between the TIB and ACF/VTAM control blocks, see *ACF/VTAM Diagnosis Reference.* Possible cancel codes are:

Hex 40 The application program task was canceled because ACF/VTAM terminated.

Hex 41 ACF/VTAM terminated in this task with the function code indicated.

If the hex 40 is set, message 5J95I is issued:

> 5J95I taskname CANCELLED DUE TO TERMINATION OF VTAM

If hex 41 is set, message 5J97I is issued:

> 5J97I VTAM CANCELLED FOR INVALID CONDITION function code

Function Codes

The two low-order bytes of register 15 are set with flags and a function code. The flags occupy the first four bits, and function code occupies the remaining 12 bits. The function codes are listed below:

Function Code (hex)	*Issuing Module*	*Reason*
7001	ISTOCCSM ISTAPCUE	The address of an application program's RPL or ECB is invalid.
7005	ISTAPCUE	ACF/VTAM was unable to restore its registers after a user exit routine returned to ACF/VTAM.
7071	ISTORCRT	RELSTORE was issued for an area of storage that was not originally obtained by REQSTORE.

VR Status Field

The VR STATUS field in message IST537I or 5F37I may present the following values:

ACTIV—the VR is active
It has been defined to ACF/VTAM in a path definition set. It has been successfully activated. It is in use by a session(s).

PACT—the VR is pending active
It has been defined to ACF/VTAM in a path definition set and is in the process of being activated by this node.

PINAC—the VR pending inactive
It has been defined to ACF/VTAM in a path definition set and has recently been active, but is now in the process of being deactivated by this node. Unless ACF/VTAM is halting, the VR will be automatically reactivated when it is again needed for a session.

INACT—the VR is inactive
It has been defined to ACF/VTAM in a path definition set, but is not currently active. It will be automatically activated when it is needed for a session.

UNDEF—the VR is undefined
It has not been defined to ACF/VTAM in a path definition set.

ER Status Field

The ER STATUS field in message IST537I or 5F37I may present the following values:

ACTIV1—the ER is active
It has been defined to ACF/VTAM in a path definition set, is physically available to the network, and has been activated by the node at the other end of the route.

ACTIV2—the ER is active
It has been defined to ACF/VTAM in a path definition deck, is physically available to the network, has been activated by the node at the other end of the route, and is in the process of being activated by this node.

ACTIV3—the ER is active
It has been defined to ACF/VTAM in a path definition set, is physically available to the network, and has been activated by this node or by both this node and the node at the other end of the route.

MIGR—the ER is active (but only for limited function, "migration" use)
It has been defined to ACF/VTAM in a path definition set and is believed to be physically available to the network. During activation processing, it was determined that one or more nodes along the route do not support the explicit route protocols.

PACT—the ER is pending active
It has been defined to ACF/VTAM in a path definition set, is physically available to the network, has not been activated by the node at the other end of the route, and is in the process of being activated by this node.

INACT—the ER is inactive
It has been defined to ACF/VTAM in a path definition set and is physically available to the network, but has never been successfully activated. Activation will be attempted automatically when the ER is needed for a session.

INOP—the ER is inoperative
It has been defined to ACF/VTAM in a path definition set, but is not physically available to the network. That is, connectivity does not exist along the entire route.

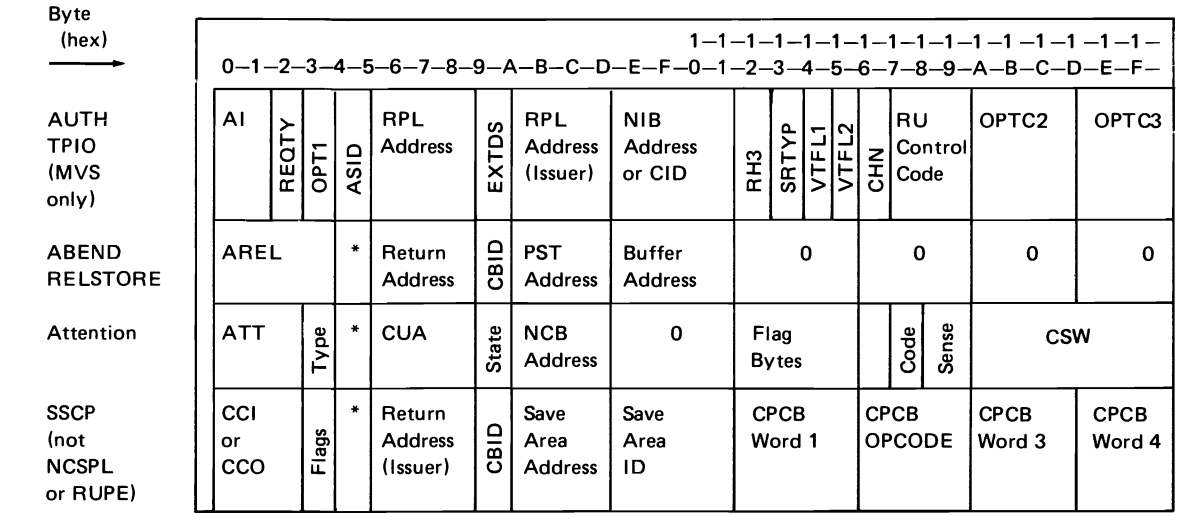
PDEFA—the ER is "pending definition—active"
It is physically available to the network and activation has been attempted by the node at the other end of the route, but it has not yet been defined to ACF/VTAM in a path definition set; it will be automatically activated by this node when an appropriate path definition set is processed.

PDEFO—the ER is "pending definition—operative"
It is physically available to the network, but is has not yet been defined to ACF/VTAM in a path definition set.

UNDEF—the ER is undefined
It has not been defined to ACF/VTAM in a path definition set and is not physically available to the network.

Internal Trace Record Summary

The following lists all internal trace records alphabetically by record ID. For detailed descriptions of the trace records, refer to the *ACF/VTAM Diagnosis Guide*.



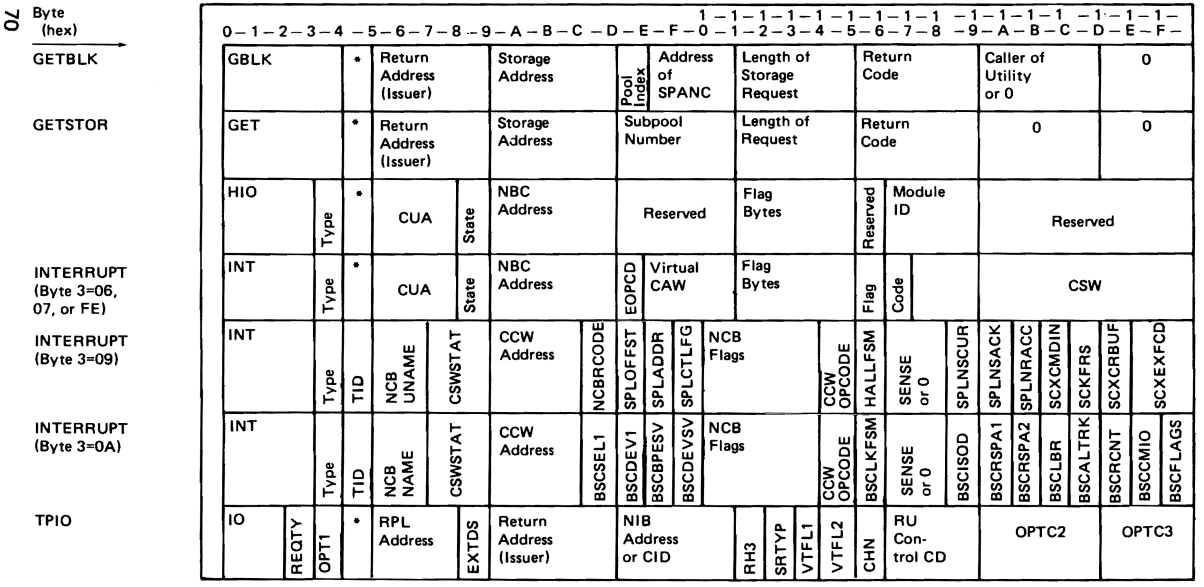
*ASID (MVS), 0 (VS1), or TID (VSE)

Byte (hex) →	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
SSCP (RUPE)	CCI or CCO		Flags	*	Return Address (Issuer)				CBID	Save Area Address				Save Area ID			RUPE CID				RU											Sense
SSCP (NCSPL)	CCI or CCO		Flags	*	Return Address (Issuer)				CBID	Save Area Address				Save Area ID			DAF		Flags	RC	CP OP Code				RDTE State				CPCB WTD			
PAB Dispatch	DISP			*	PST Address				CBID	Work Element Address			PABOF	PAB Address			Work Element Queue				PAB Chain Field				Module Name or DVT Address				Flags	RPH Address		
Error Recovery Procedures (Byte 3 = 06, 07, or FE)	ERP		Type	*	CUA				LNKST	NCB Address			ERACT	Virtual CAW			NCB Flags				ERCODE	RCODE	Sense or 0		CSW							
Error Recovery Procedures (Byte 3 = 09)	ERP		Type	TID	NCB UNAME		HALLFSM	HALRLIM	HALCRNT	HALCFSM	CCW OPCODE		CCBCPAD		ERBQSNS (Byte 1)		NCB Flags				ERBQSNS (Byte 2)	ERBQSNS (Bytes 5,6)		ERBQSNS (Bytes 8,9)		ERBQSNS (Bytes 11,12)		ERBQSNS (Byte 17)	ERBQSNS (Bytes 19,20)		ERBQSNS (Bytes 23,24)	
Error Recovery Procedures (Byte 3 = 0A)†	ERP		Type	TID	NCB UNAME		0	BSCLKFSM	0				0				NCB Flags				NCBSENSE		NCBERCOD		0				0			

*ASID (MVS), 0 (VS1), or TID (VSE)

Byte (hex) →	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F
TPESC	ESC	*	Return Address (Issuer)		0	DISP Address	·PABOF	PAB Address		RPH Work Element		PAB Chain Field		Module Name or DVT Address		RPH Address
TPEXIT	EXIT	*	Return Address (Issuer)		ETYPE	PST Address	PAB Address			Work Element Queue		PAB Chain Field		PABOF	DVT Address	RPH Address
FREEBLK	FBLK	*	Return Address (Issuer)		Storage Address		Pool Index	Address of SPANC		Length of Storage Freed		Return Code		Caller of Utility or 0		0
FREESTOR	FREE	*	Return Address (Issuer)		Storage Address		Subpool Number			Length of Storage Freed		0		0		0

*ASID (MVS), 0 (VS1), or TID (VSE)

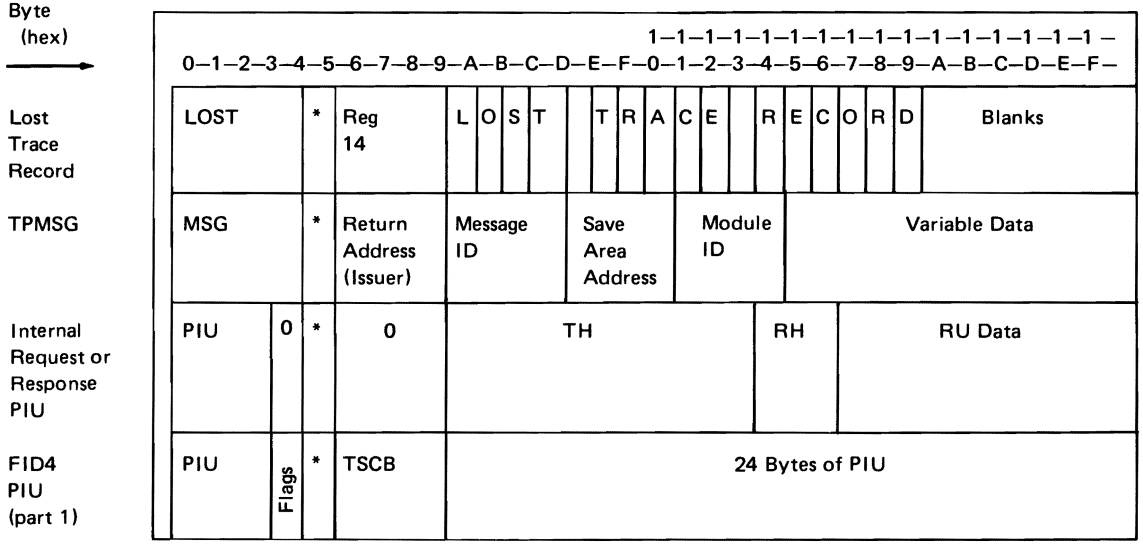


*ASID (MVS), 0 (VS1), TID (VSE)

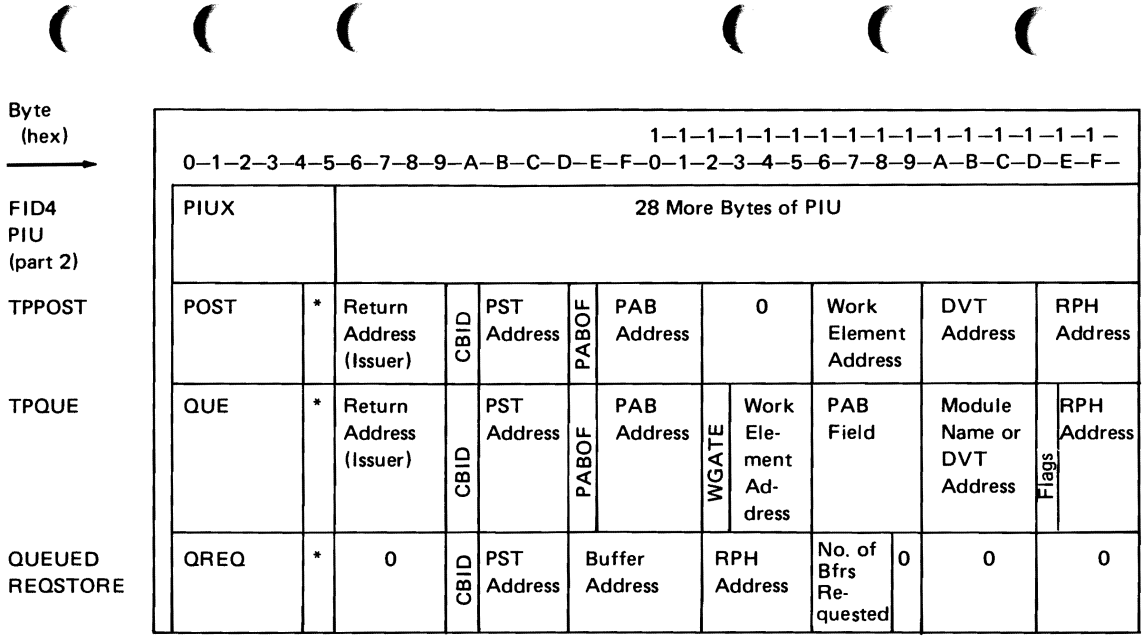
Byte (hex) →	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F
IRB DISPATCH	IRBD	*	PST Address	PST Sync TPPSTed Queue (STPP)	PST Sync Normal Queue (SNRM)	0	IRB Address	TCB Address	FLG1	0						
IRB EXIT	IRBX	*	PST Address	TCB New Address	TCB Old Address	ASCB New Address**	ASCB Old Address**	RB Address	0							
TPLOCK EXCLUSIV	LKEX	*	Return Address	PST Address	CRA-LKACT	Lock Address	Lock Level	Lock Word	RPH Address							
TPLOCK SHARED	LKSH	*	Return Address	PST Address	CRA-LKACT	Lock Address	Lock Level	Lock Word	RPH Address							

*ASID (MVS), 0 (VS1), or TID (VSE)

**Zero in VS1



*ASID (MVS), 0 (VS1), or TID (VSE)

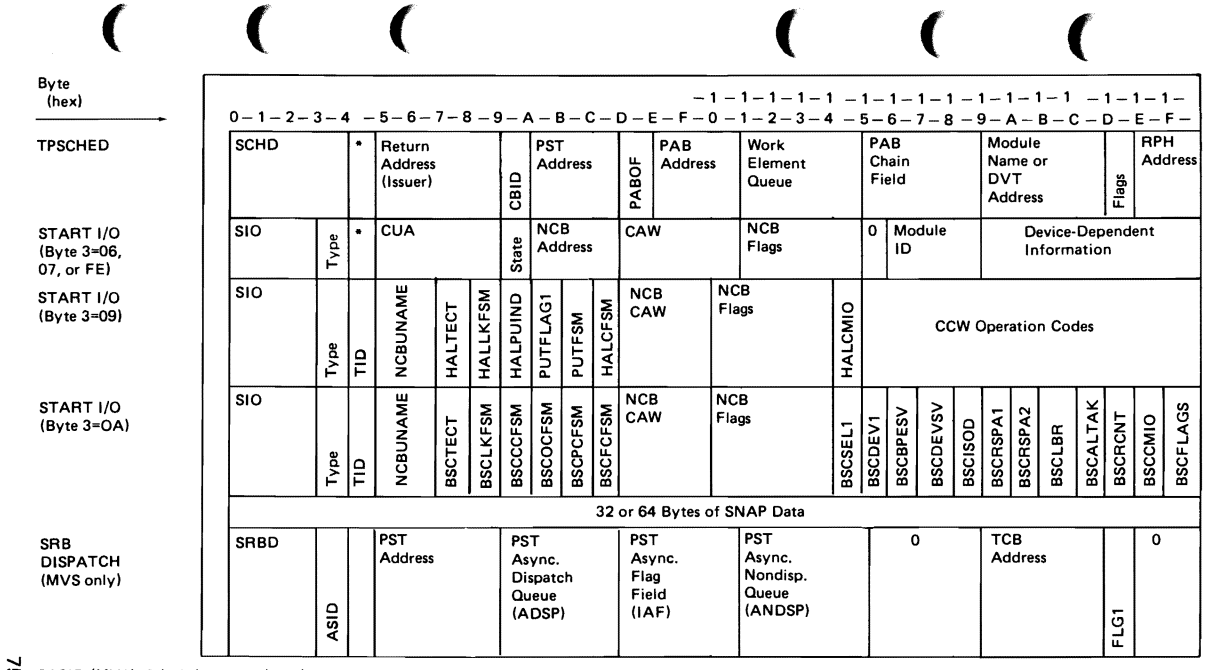


*ASID (MVS), 0 (VS1), or TID (VSE)

Byte (hex) →

	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F	0–1	2–3	4–5	6–7	8–9	A–B	C–D	E–F
RPL EXIT	RE	REQTY	0	*	RPL Address	EXTDS	EXIT Address	CID or 0		RPL Area	RPL RLEN		RTNCD	FDB2	0	RPL FDBK2
RELSTORE	RELS			*	Return Address (Issuer)	CBID	PST Address or 0	Buffer Address		Register 1	Next Buffer Address		0			0
REQSTORE	REQS			*	Return Address (Issuer)	CBID	PST Address or 0	Buffer Address		Register 1	No. of Bfrs Req	Retn Code	0			0
RESUME	RESM			*	PST Address	CBID	Work Element Address	PABOF	PAB Address	Work Element Queue	PAB Chain Field		0	DVT Address	Flags	RPH Address

*ASID (MVS), 0 (VS1), or TID (VSE)

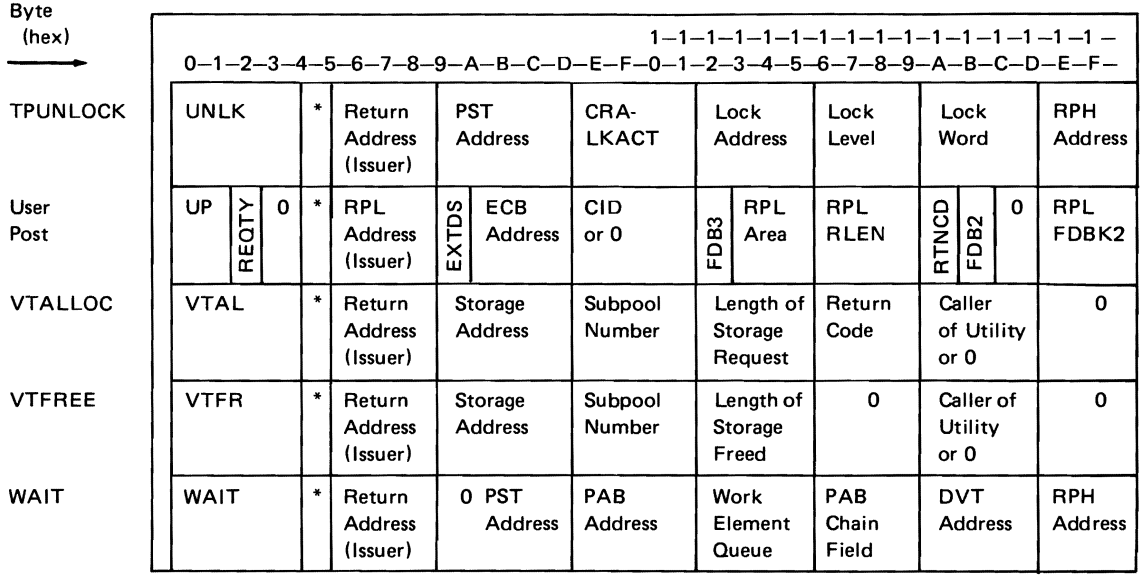


*ASID (MVS), 0 (VS1), or TID (VSE)

Byte (hex) →

	0–1–2–3–4–5–6–7–8–9–A–B–C–D–E–F–	1–1–1–1–1–1–1–1–1–1–1–1–1–1–1–1–
SRB EXIT (MVS only)	SRBX | | ASID | PST Address | PST Async. Dispatch Queue (ADSP) | PST Async. Flag Field (IAF)	ASCB New Address | ASCB Old Address | 0 | 0
User Exit	UE 0 | Code | * | Exit Address | Exit Type Dependent	Primary (APPL) LU Name | Secondary LU Name (EXC. TPEND)
User Exit (DFASY & RESP)	UE | REQTY | 0 | * | RPL Address | EXTDS | Exit Address | CID or 0	FDB3 | RPL Area | RPL RLEN | RTNCD | FDB2 | 0 | RPL FDBK2
TPUNLOCK ALL	ULKA | * | Return Address (Issuer) | PST Address | CRA-LKACT	0 | 0 | 0 | RPH Address

*ASID (MVS), 0 (VS1), or TID (VSE)



*ASID (MVS) or 0 (VS1)

PART 2. INSTALLATION

Coding Conventions

Conventions used to explain the syntax of macro instructions and definition statements, and the rules used to code them are summarized here as assembler language rules.

Name	*Operation*	*Operands*
Symbolic name	Macro instruction or statement	Required and optional operands

The Name field symbolically identifies the macro instruction, definition statement, or minor node. If a symbolic name is specified in the field, it must contain 1 to 8 characters in the following format:

first character — alphabetic (A-Z) or the national characters @, #, or $

second through eighth character — alphanumeric (A-Z or 0-9) or the national characters @, #, or $

The name must begin in the first position of the macro instruction or statement and must be followed by one or more blanks. If the description indicates that the name is optional, you may still want to code it, since ACF/VTAM uses it in operator messages referring to the resource defined.

The Operation field identifies the macro instruction or statement. It must be preceded and followed by one or more blanks.

The Operands field contains operands coded in any order and separated by commas. The Operands field ends with one or more blanks placed after the last operand. In most macro instructions or statements, keyword operands are used in the Operands field. Keyword operands are followed by an equal sign (=) and the keyword value. The keyword value can be a single value or a list of values. If it is a list of values, the values must be separated by commas and the list must be enclosed in parentheses.

Comments can be written after the Operands field, but they must be separated from the last operand of the Operands field by one or more blanks. An entire card can be used for a comment by placing an asterisk in the first column of the card. A macro instruction that has no operands cannot have comments on the same card as the operation code.

ACF/VTAM definition statements and NCP generation macro instructions are coded in columns 1 through 71 of a card. A statement or macro instruction that exceeds 71 columns can be continued on one or more additional cards by placing a nonblank character in column 72 to indicate continuation. The operands can be interrupted either at column 71 or after any comma that separates operands. The continued portion must begin in column 16 of the following card. Comments can appear on every card of a continued statement. Columns 73 through 80 can be used to code identification characters, statement sequence characters, or both.

Restrictions on Use of Assembler Features

The NCP generation macro instructions and the ACF/VTAM definition statements are coded in standard operating system macro instruction format, as described above, with the following restrictions:

- Assembler program control instructions (such as ICTL, ISEQ) cannot be used in major node definition decks.
- Assembler listing control statements (such as PRINT, SPACE, EJECT) can be used in the NCP generation deck but must not be used in definition decks for the other types of major nodes.

Some assembler features must not be used in a major node definition deck:

- User assembler macro instructions that generate NCP macro instructions are not permitted.
- Names generated by global variables (for example, &SYSNDX or &SYSECT) cannot be used.
- Variable substitution at assembly time is not permitted.

References to assembler attributes (length, type, etc.) are not permitted.

Use of literals is not permitted.

Quoted strings cannot be used to make names out of keywords. For example, AUTH="PASS" is treated just like AUTH=PASS.

Null keywords cannot be used. For example, ", ," is treated as a null keyword and is invalid.

Comments, statements, or remarks can be used in decks for all types of major nodes.

Errors made in the major node definition decks filed in the ACF/VTAM definition library result in messages to the system operator's console during ACF/VTAM initialization or VARY ACT command processing.

Missing continuation characters can cause the NCP (during NCP generation) to assume values that are not physically correct (for example, half-duplex lines instead of full-duplex lines).

Macro Instructions and Definition Statements

Conventions used to illustrate the format and coding of macro instructions and definition statements are as follows:

Capital Letters: Capital letters represent values that are coded directly, without change. Brackets [ ], "or" bar |, underlines, and superscripts are never coded.

Lowercase Letters: Lowercase letters represent operands for which a value or name must be supplied if the operand is coded.

Brackets [ ]: Brackets enclose operands or symbols that are either optional or conditional. Conversely, the lack of brackets indicates that an item or group of items must be coded.

An optional operand is one that can be coded or omitted independently of other operands that are coded or omitted. Depending on the operand, omitting it might cause the corresponding feature or function to be omitted or included, or omitting it can cause a specific value (the default value) to be assigned. When the syntax of a macro instruction or statement is shown in this book, any operands that are always required appear first, followed by the optional or conditional operands in alphabetical order.

Vertical "or" Bar (|): A vertical bar between operands indicates that one operand must be coded from among the values separated by the "or" bar.

Parentheses, Equal Sign, and Commas: Parentheses, equal signs, and commas are coded as shown.

Underlined Values: An underlined value represents the value that ACF/VTAM or the NCP uses if the operand is omitted (the default value).

Braces { }: Braces indicate mutually exclusive operands.

Defining the Network

Application Program Major Nodes

For an application program major node, code one VBUILD statement and then one APPL statement for each application program.

```
[name]   VBUILD   TYPE=APPL
name     APPL     [,ACBNAME=acbname]
                  [,AUTH=(|ACQ|NOACQ]
                          [,CNM|NOCNM]
                          [,PASS|NOPASS]
                          [,PPO|SPO|NOPO]
                          [,TSO|NOTSO][1]
                          [,VPACE|NVPACE])]
                  [,AUTHEXIT=YES|NO][2]
                  [,DLOGMOD=default logon mode entry
                            name]
                  [,EAS=n|404]
                  [,ENCR=SEL|REQD|OPT|NONE][3]
                  [,MAXPVT=n|0][4]
                  [,MODETAB=logon mode table name]
                  [,PARSESS=YES|NO]
                  [,PRTCT=password]
                  [,SONSCIP=YES|NO]
                  [,SPAN=name][5]
                  [,SRBEXIT=YES|NO][1]
                  [,VPACING=n|0]
                  [,VTAMFRR=YES|NO][1]
                  [,SSCPFM=USSNOP|USSPOI]
                  [,USSTAB=name]
                  [,VPACING=n|0]
                  [,VTAMFRR=YES|NO][1]
```

Local Non-SNA Major Nodes

Code one LBUILD statement for each set (major node) of channel-attached non-SNA terminals.

```
[name]   LBUILD   [,CONFGDS=name]
                  [,CONFGPW=password]
```

---

[1] Applies to MVS only.
[2] Applies to OS/VS1 only.
[3] Applies to the Encrypt/Decrypt Feature only.
[4] Applies to OS/VS only.
[5] Applies to NCCF only.

Code one LOCAL statement for each channel-attached non-SNA terminal (minor node) in the major node.

```
name  LOCAL    CUADDR=channel device name
                [,TERM=3277|3284|3286]
                [,DLOGMOD=default logon mode entry
                          name]
                [,FEATUR2=([EDATS|NOEDATS]
                           [MODEL1|MODEL2])
                [,ISTATUS=ACTIVE|INACTIVE]
                [,LOGAPPL=application program name]
                [,LOGTAB=interpret table name]
                [,MODETAB=logon mode table name]
                [,SPAN=name] [1]
                [,USSTAB=USS definition table name]
```

Local SNA Major Nodes

Code one VBUILD statement for each set of channel-attached SNA devices.

```
[name]  VBUILD   TYPE=LOCAL
                 [,CONFGDS=name]
                 [,CONFGPW=password]
```

Code one PU statement for each physical unit in the local SNA major mode.

```
name    PU    CUADDR=channel device name
              [,DISCNT=([YES|NO] [,F|NF]
              [,DLOGMOD=default logon mode entry name] [2]
              [,ENCR=REQD|SEL|OPT|NONE] [2,3]
              [,ISTATUS=ACTIVE|INACTIVE]
              [,LOGAPPL=application program name] [2]
              [,LOGTAB=interpret table name] [2]
              [,MAXBFRU=number|1]
              [,MODETAB=logon mode table name] [2]
              [,PACING=n|0|1] [2]
              [,PUTYPE=2]
              [,SPAN=name] [1]
              [,SSCPFM=FSS|USSSCS] [2]
              [,USSTAB=USS definition table name] [2]
              [,VPACING=n|0|1]
```

[1] Applies to NCCF only.

[2] If any of these operands are specified in both the PU and LU statements, the values used are those in the LU statement.

[3] Applies to OS/VS only.

Code one LU statement for each logical unit associated with a physical unit within a local SNA major node.

```
name    LU      LOCADDR=n
                [,DLOGMOD=default logmode entry] [1]
                [,ENCR=REQD|SEL|OPT|NONE] [1,2]
                [,ISTATUS=ACTIVE|INACTIVE]
                [,LOGAPPL=application program name] [1]
                [,LOGTAB=interpret table name] [1]
                [,MODETAB=logon mode table name] [1]
                [,PACING=n|0|1] [1]
                [,SPAN=name] [1,3]
                [,SSCPFM=FSS|USSSCS] [1]
                [,USSTAB=USS definition table name] [1]
                [,VPACING=n|0|1] [1]
```

Switched Major Nodes

Code one VBUILD statement for each switched major node.

```
name    VBUILD  TYPE=SWNET
                [,MAXGRP=n]
                [,MAXNO=n]
                [,CONFGDS=name]
                [,CONFGPW=password]
```

[1] If any of these operands are specified in both the PU and LU statements, the values used are those in the LU statement.
[2] Applies to the Encrypt/Decrypt Feature only.
[3] Applies to NCCF only.

Code one PU statement for each physical unit in the switched major node.

```
name    PU    ADDR=station address
              ,IDBLK=identification block
              ,IDNUM=identification number
              [,BATCH=YES|NO] [1,2]
              [,DISCNT=([YES|NO] [,F|NF])]
              [,DLOGMOD=default logmode entry name] [1]
              [,ENCR=REDO|SEL|OPT|NONE] [1,3]
              [,FEATUR2=LOWERCSE|
               DUALCSE] [1,2]
              [,IRETRY=YES|NO] [2]
              [,ISTATUS=ACTIVE|INACTIVE]
              [,LOGAPPL=application program name] [1]
              [,LOGTAB=interpret table name] [1]
              [,MAXDATA=SIZE|261|265] [4]
              [,MAXOUT=n|1]
              [,MAXPATH=n|0]
              [,MODETAB=logon mode table name] [1]
              [,PACING=n|0|1] [1]
              [,PASSLIM=n|1] [2]
              [,PUTYPE=n|2]
              [,SPAN=name] [5]
              [,SSCPFM=FSS|USSSCS|USSNTO] [1]
              [,TERM=terminal type] [1,2]
              [,USSTAB=USS definition table name] [1]
              [,VPACING=n|0|2] [1]
```

[1] If any of these operands are specified in both the PU and LU statements, the values used are those in the LU statement.

[2] These operands cannot be specified in either the PU or the LU statement for devices on lines connected through a communication adapter.

[3] Applies to OS/VS only.

[4] Default 261 applies to PU type 1, and default 265 applies to PU type 2.

[5] Applies to NCCF only.

Code up to 256 PATH statements to define dial-out paths for each physical unit. Each PATH statement must immediately follow the PU statement that defines the associated physical unit.

```
[name]      PATH     DIALNO=telephone number
                     LINENM=linename
                    [,GID=n]
                    [,GRPNM=groupname]
                    [,PID=n]
                    [,REDIAL=n|3]
                    [,USE=YES|NO]
```

Code one LU statement for each logical unit associated with a physical unit within a switched major node.

```
name        LU       LOCADDR=n
                     [,BATCH=YES|NO] [1,2]
                     [,DLOGMOD=default logmode entry] [1]
                     [,ENCR=REQD|SEL|OPT|NONE] [1,3]
                     [,FEATUR2=LOWERCASE|
                      DUALCSE] [1,2]
                     [,ISTATUS=ACTIVE|INACTIVE]
                     [,LOGAPPL=application program name] [1]
                     [,LOGTAB=interpret table name] [1]
                     [,MODETAB=logon mode table name] [1]
                     [,PACING=n|0|1] [1]
                     [,SPAN=name] [4]
                     [,SSCPFM=FSS|USSSCS|USSNTO] [1]
                     [,TERM=terminal type] [1,2]
                     [,USSTAB=USS definition table name] [1]
                     [,VPACING=n|0|1] [1]
```

[1] If any of these operands are specified in both the PU and LU statements, the values used are those in the LU statement.

[2] These operands cannot be specified in an LU statement for LUs connected through a communication adapter.

[3] Applies to the Encrypt/Decrypt Feature only.

[4] Applies to NCCF only.

Network Control Program Major Nodes

File one or more PCCU statements in front of the NCP generation deck. (This is a required ACF/VTAM only statement.)

```
[symbol]    PCCU    ,NCPLUB=lubname[1]
                    [,AUTODMP=YES|NO]
                    [,AUTOIPL=YES|NO]
                    [,AUTOSYN=YES|NO]
                    [,BACKUP=YES|NO]
                    [,CHANCON=COND|UNCOND]
                    [,CONFGDS=name]
                    [,CONFGPW=password]
                    [,CUADDR=channel device name]
                    [,DUMPDS=dumpname]
                    [,DUMPSTA=link station name]
                    [,INITEST=YES|NO]
                    [,LOADSTA=link station name]
                    [,MAXDATA=size]
                    [,OWNER=ownername]
                    [,RNAME=link station name|(name,
                     name, . . . ,name)]
                    [,SUBAREA=n]
                    [,VFYLM=YES|NO]
```

[1] Applies to VSE only.

NCP generation operands that are used by ACF/VTAM are as follows:

	PU	LU	GROUP	LINE	CLUSTER	TERMINAL
ADDR	*				*	*
ANS	*					
ANSWER			V	V		
ATTN			*	*		
AUTO				*		
AUTODL			R	R		
BATCH	*	*	*	*		
BHSET			R	R	R	R
BNNSUP	*		*	*		
CALL			R	R		
CDATA			*	*		
CONV			*	*		*
CUTYPE			*	*		
DEVICE						V
DIAL			*			
DIALNO						
DIRECTN			*	*		*
DISCNT	V		V	V	V	
DLOGMOD	V	V	V	V	V	V
ENCR	V	V	V	V		

V = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.*

N = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The *Network Terminal Option Installation* manual should be consulted for further discussion.

R = ACF/VTAM restriction; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The operand is described in *ACF/NCP-SSP Installation.*

* = Described in *NCP Generation Manual* (no special ACF/VTAM restrictions).

NCP generation operands used by ACF/VTAM (continued)

	PU	LU	GROUP	LINE	CLUSTER	TERMINAL
FEATUR2	N	N	V	V	V	V
GPOLL					R	
IDSEQ						
IRETRY	*		*	*	*	
ISTATUS	V	V	V	V	V	V
LINEADD			*			
LINEAUT			R			
LNCTL			*			
LOCADDR		*				
LOGAPPL	V	V	V	V	V	V
LOGTAB	V	V	V	V	V	V
MAXDATA	*		*	*	*	
MAXLU	*		*	*		
MAXOUT	*		*	*	*	
MODETAB	V	V	V	V	V	V
OWNER			V	V		
PACING	R	R	R	R		
PASSLIM	*		*	*		
PAUSE			*	*		
POLIMIT			R	R		
POLL						*
POLLED			*	*		

V = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.*

N = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The *Network Terminal Option Installation* manual should be consulted for further discussion.

R = ACF/VTAM restriction; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The operand is described in *ACF/NCP-SSP Installation.*

* = Described in *NCP Generation Manual* (no special ACF/VTAM restrictions).

NCP generation operands used by ACF/VTAM (continued)

	PU	LU	GROUP	LINE	CLUSTER	TERMINAL
PT3 EXEC			*	*		
PU			V	V		
PUTYPE	*		*	*		
SESSION			R	R		
SSCPFM	V	V	V	V		
SUBAREA (used by PU)	*					
TERM	N	N	R	R	R	R
TGN	*					
TYPE			*	*		
USE			R	R		
USSTAB	V	V	V	V	V	V
VIRTUAL			*			
VPACING	V	V	V	V	V	
X21SW			R			

V = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.*

N = ACF/VTAM only; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The *Network Terminal Option Installation* manual should be consulted for further discussion.

R = ACF/VTAM restriction; for a description, refer to *ACF/VTAM Planning and Installation Reference.* The operand is described in *ACF/NCP-SSP Installation.*

* = Described in *NCP Generation Manual* (no special ACF/VTAM restrictions).

Operands in NCP Macros Used by ACF/VTAM

ANSWER=ON|OFF
AUTODL=YES|NO
BHSET
CALL=IN|OUT|INOUT
DISCNT=([YES|NO] [,F|NF])
DLOGMOD=default logon mode entry
ENCR=REQD|SEL|OPT|NONE (OS/VS only)
FEATUR2=(operand,operand. . .)

The operands are:

EDATS|NOEDATS
LOWERCSE|DUALCSE
MODEL1|MODEL2

GPOLL=chars
ISTATUS=ACTIVE|INACTIVE
LINEAUT=YES
LOGAPPL=application program name
LOGTAB=interpret table name
MODETAB=logon mode table name
OWNER=ownername
PACING=n|0|1
POLIMIT=([n|1] [,WAIT|NOWAIT|QUEUE])
PU=YES|NO
SESSION=count|1
SSCPFM=FSS|USSSCS|USS3270|USS3275|USSNTO
TERM=type
USE=NCP|EP
USSTAB=USS definition table name
VPACING=n|0|2
X21SW=YES|NO

The first definition statement is VBUILD TYPE=DR. To code a DR member or book, use ADD and DELETE statements, each followed by NCP generation PU and LU macro instructions as required. The completed set of statements must be filed in the ACF/VTAM definition library.

The formats of these statements are:

```
[name]    ADD       TO=resource-name
[name]    DELETE    FROM=resource-name
```

The VBUILD Statement

Code a VBUILD statement for each set of channel attachment definition statements.

```
[name]      VBUILD   TYPE=CA
                     [,CONFGDS=name]
                     [,CONFGPW=password]
```

A channel attachment major node may contain definition statements for channel-to-channel support (OS/VS only) or for communication-adapter support (VSE only).

A channel attachment major node begins with a VBUILD statement, but may contain different types of link groups. Each link group has a unique GROUP statement and contains a unique set of minor node statements. The operands and default values also vary according to the particular link group being defined. The following list shows the structure of minor nodes associated with each type of link group that can be defined in a channel attachment major node.

- GROUP LNCTL=CTCA (OS/VS only)
  - LINE
  - PU
- GROUP LNCTL=SDLC,DIAL=NO (VSE only)
  - LINE
  - PU
  - LU
- GROUP LNCTL=SDLC,DIAL=YES (VSE only)
  - LINE
  - PU
- GROUP LNCTL=BSC (VSE only)
  - LINE
  - CLUSTER
  - TERMINAL

A summary of the operands for the minor node statements of a channel attachment major node is provided in the *ACF/VTAM Planning and Installation Reference.*

The GROUP Statement for a CTCA Line Group

The GROUP statement defines the type of links that follow and also carries other operands that "sift down" to following statements that do not explicitly override them.

This group statement shows the valid operands and defaults for a CTCA line group:

```
name        GROUP   LNCTL=CTCA
                    [,DELAY=time|0|.100] [1,2]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,MAXBFRU=([norm|10] [,max|
                     norm])] [3]
                    [,PUTYPE=4] [1]
                    [,REPLYTO=time|3.0] [2]
                    [,SPAN=name] [4]
```

[1] These operands can be specified in either the GROUP, LINE, or PU statement. They are meaningful for physical units, and their explanations appear in the PU statement description.

[2] Time is in seconds.

[3] These operands can be specified in either the GROUP or LINE statement. They are meaningful for lines, and their explanations appear in the LINE statement description.

[4] Applies to NCCF only.

The LINE Statement for a CTCA Line

Code one LINE statement for each channel-to-channel adapter. The LINE statement defines to ACF/VTAM the characteristics of its side of the adapter.

```
name        LINE    [ADDRESS=cua]
                    [,DELAY=time|0|.100] [1,2]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,MAXBFRU=(|norm|10] [,max|
                     norm] )]
                    [,PUTYPE=4]
                    [,SPAN=name] [3]
```

MAXBFRU=([norm|10] [,max|norm])

specifies the number of buffers ACF/VTAM will use whenever it starts a normal channel program.

The PU Statement for a CTCA Physical Unit

Code one PU statement for each LINE statement.

```
name        PU      [,DELAY=time|0|.100] [2]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,PUTYPE=4]
                    [,SPAN=name] [3]
```

[1] These operands can be specified in either the GROUP, LINE, or PU statement. They are meaningful for physical units, and their explanations appear in the PU statement description.

[2] Time is in seconds.

[3] Applies to NCCF only.

The GROUP Statement for an SDLC Nonswitched Line Group

This GROUP statement defines SDLC nonswitched links; it also carries other operands that "sift down" to following statements that do not explicitly override them.

If a line is defined in more than one line group, only one of the groups can be active.

```
name    GROUP     LNCTL=SDLC
                  [,ACTIVTO=t] [1]
                  [,DIAL=NO]
                  [,DISCNT=([YES|NO] [,F|NF] )] [2]
                  [,DLOGMOD=default logmode entry
                   name] [3]
                  [,ISTATUS=ACTIVE|INACTIVE]
                  [,LOGAPPL=application program
                   name] [3]
                  [,LOGTAB=interpret table name] [3]
                  [,MAXBFRU=([norm|1|2] [,max|
                   2|8] )]
                  [,MAXDATA=size|261|265] [2]
                  [,MAXOUT=n|1] [2]
                  [,MODETAB=logon mode table
                   name] [3]
                  [,PACING=n|0|1] [3]
                  [,PASSLIM=n|maxout] [2]
                  [,PAUSE=t|0.1] [1]
                  [,PUTYPE=1|2|4|5] [1]
                  [,REPLYTO=n|1] [1]
                  [,RETRIES=n|7] [1]
                  [,SERVLIM=n|4] [1]
                  [,SPAN=name] (NCCF only)
                  [,SSCPFM=FSS|USSSCS] [3]
                  [,USSTAB=USS definition table] [3]
                  [,VPACING=n|0|2] [3]
```

[1] Applies to a LINE definition statement for an SDLC nonswitched line.

[2] Applies to a PU definition statement for a PU on an SDLC nonswitched line.

[3] Applies to an LU definition statement.

The LINE Statement for an SDLC Nonswitched Line

Code one LINE statement for each SDLC nonswitched line. The LINE statement defines to ACF/VTAM:

- The name for the line
- The channel unit address for the line
- Certain procedural options to be used for this line

```
name    LINE    [ADDRESS=channel unit address|
                 030]
                [,ACTIVTO=t]
                [,DISCNT=([YES|NO] [,F|NF] )] [1]
                [,DLOGMOD=default logmode
                 entry name] [2]
                [,ISTATUS=ACTIVE|INACTIVE]
                [,LOGAPPL=application program
                 name] [2]
                [,LOGTAB=interpret table name] [2]
                [,MAXBFRU=([norm|1|2] [,max|
                 2|8] )] [1]
                [,MAXDATA=size|261|265] [1]
                [,MAXOUT=n|1] [1]
                [,MODETAB=logon mode table
                 name] [2]
                [,PACING=n|0|1] [2]
                [,PASSLIM=n|maxout] [1]
                [,PAUSE=t|0.1]
                [,PUTYPE=1|2|4|5] [1]
                [,REPLYTO=n|1]
                [,RETRIES=n|7] [1]
                [,SERVLIM=n|4]
                [,SPAN=name] (NCCF only)
                [,SSCPFM=FSS|USSSCS] [2]
                [,USSTAB=USS definition table] [2]
                [,VPACING=n|0|2] [2]
```

[1] Applies to a PU definition statement for a PU on an SDLC nonswitched line.

[2] Applies to an LU definition statement.

The PU Statement for a PU on an SDLC Nonswitched Line

Code one PU statement for each physical unit with which ACF/VTAM will communicate over this nonswitched SDLC link.

```
name    PU      ADDR=char
                [,DISCNT=([YES|NO] [,F|NF])]
                [,DLOGMOD=default logmode entry
                  name] [1]
                [,ISTATUS=ACTIVE|INACTIVE]
                [,LOGAPPL=application program
                  name] [1]
                [,LOGTAB=interpret table name] [1]
                [,MAXDATA=size|261(PU type 1)|
                  265(PU type 2)]
                [,MAXOUT=n|1]
                [,MODETAB=logon mode table
                  name] [1]
                [,PACING=n|0|1] [1]
                [,PASSLIM=n|maxout]
                [,PUTYPE=1|2|4|5]
                [,RETRIES=n|7]
                [,SPAN=name] (NCCF only)
                [,SSCPFM=FSS|USSSCS] [1]
                [,SUBAREA=n]
                [,TADDR=chars|C1]
                [,USSTAB=USS definition table] [1]
                [,VPACING=n|0|2] [1]
```

[1] Applies to LU definition statement.

The LU Statement for an LU on an SDLC Nonswitched Line

Code one LU statement for each logical unit associated with an SDLC station (physical unit type 1 or 2) attached to a nonswitched SDLC line. LU statements immediately follow the PU statement for the physical unit.

```
name    LU      LOCADDR=n
                [,DLOGMOD=default logmode entry
                  name]
                [,ISTATUS=ACTIVE|INACTIVE]
                [,LOGAPPL=application program
                  name]
                [,LOGTAB=interpret table name]
                [,MODETAB=logon mode table
                  name]
                [,PACING=n|0|1]
                [,SPAN=name] (NCCF only)
                [,SSCPFM=FSS|USSSCS]
                [,USSTAB=USS definition table
                  name]
                [,VPACING=n|0|2]
```

The GROUP Statement for an SDLC Switched Line Group

This GROUP statement defines SDLC switched links; it also carries other operands that "sift down" to following statements that do not explicitly override them.

If a line is defined in more than one line group, only one of the groups can be active.

```
name    GROUP     LNCTL=SDLC
                  ,DIAL=YES
                  [,ACTIVTO=t] [1]
                  [,ANSWER=ON|OFF] [1]
                  [,CALL=IN|OUT|INOUT] [1]
                  [,ISTATUS=ACTIVE|INACTIVE]
                  [,MAXBFRU=([norm|1|2] [,max|
                   2|8] )] [1]
                  [,MAXLU=n|2] [2]
                  [,PAUSE=t|0.1] [1]
                  [,REPLYTO=t|1] [1]
                  [,RETRIES=n|7] [1]
                  [,SERVLIM=n|4] [1]
                  [,SPAN=name] (NCCF only)
```

[1] Applies to a LINE definition statement for an SDLC switched line.

[2] Applies to a PU definition statement for a PU on an SDLC switched line.

The LINE Statement for an SDLC Switched Line

Code one LINE statement for each SDLC switched line. The LINE statement defines to ACF/VTAM:

- The name for the line
- The channel unit address for the line
- Certain procedural options to be used for this line

```
name    LINE        [ACTIVTO=t]
                    [,ADDRESS=channel unit address|
                     030]
                    [,ANSWER=ON|OFF]
                    [,AUTO=address]
                    [,CALL=IN|OUT|INOUT]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,MAXBFRU=([norm|1] [,max|2])]
                    [,MAXLU=n|2] [1]
                    [,PAUSE=t|0.1]
                    [,REPLYTO=t|1]
                    [,RETRIES=n|7]
                    [,SERVLIM=n|4]
                    [,SPAN=name] (NCCF only)
```

[1] Applies to a PU definition statement for a PU on an SDLC switched line.

The PU Statement for a PU on an SDLC Switched Line

Code one PU statement for each physical unit with which ACF/VTAM will communicate over this switched SDLC link.

```
name    PU          [ISTATUS=ACTIVE|INACTIVE]
                    [,MAXLU=n|2]
                    [,SPAN=name] (NCCF only)
```

The GROUP Statement for a BSC Line Group

This GROUP statement defines a BSC line; it also carries other operands that "sift down" to following statements that do not explicitly override them.

If a line is defined in more than one line group, only one of the groups can be active.

```
name    GROUP     LNCTL=BSC
                  [,CUTYPE=3271|3275] [1]
                  [,DLOGMOD=default logmode
                   entry name] [2]
                  [,FEATUR2=([MODEL1|MODEL2]
                   [,PRINTR|NPRINTR] )] [2]
                  [,ISTATUS=ACTIVE|INACTIVE]
                  [,LOGAPPL=application program
                   name] [2]
                  [,LOGTAB=interpret table name] [2]
                  [,MODETAB=logon mode table
                   name] [2]
                  [,RETRIES=n|7] [3]
                  [,SERVLIM=n|4] [3]
                  [,SPAN=name] (NCCF only)
                  [,TERM=3275|3277|3284|3286] [2]
                  [,USSTAB=USS definition table] [2]
```

[1] Applies to a CLUSTER definition statement.
[2] Applies to a TERMINAL definition statement.
[3] Applies to a LINE definition statement for a BSC line.

The LINE Statement for a BSC Nonswitched Line

Code one LINE statement for each BSC nonswitched line. The LINE statement defines to ACF/VTAM:

- The name for the line
- The channel unit address for the line
- Certain procedural options to be used for this line.

```
name    LINE        [ADDRESS=channel unit address|
                     030]
                    [,CUTYPE=3271|3275] [1]
                    [,DLOGMOD=default logmode entry
                     name] [2]
                    [,FEATUR2=([MODEL1|MODEL2]
                     [,PRINTR|NPRINTR] )] [2]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,LOGAPPL=application program
                     name] [2]
                    [,LOGTAB=interpret table name] [2]
                    [,MODETAB=logon mode table
                     name] [2]
                    [,RETRIES=n|7]
                    [,SERVLIM=n|4]
                    [,SPAN=name] (NCCF only)
                    [,TERM=3275|3277|3284|3286] [2]
                    [,USSTAB=USS definition table] [2]
```

[1] Applies to a CLUSTER definition statement.
[2] Applies to a TERMINAL definition statement.

The CLUSTER Definition Statement for a BSC Cluster Controller

Code one CLUSTER definition statement for each 3270 cluster controller on the line.

```
name    CLUSTER    GPOLL=char
                   [,CUTYPE=3271|3275]
                   [,DLOGMOD=default logmode
                    entry name] [1]
                   [,FEATUR2=([MODEL1|MODEL2]
                    [,PRINTR|NPRINTR])] [1]
                   [,ISTATUS=ACTIVE|INACTIVE]
                   [,LOGAPPL=application program
                    name] [1]
                   [,LOGTAB=interpret table name] [1]
                   [,MODETAB=logon mode table
                    name] [1]
                   [,SPAN=name] (NCCF only)
                   [,TERM=3275|3277|3284|3286] [1]
                   [,USSTAB=USS definition table] [1]
```

[1] Applies to TERMINAL definition statement.

The TERMINAL Definition Statement for a BSC Terminal

Code one TERMINAL statement for each BSC terminal attached to a 3270 cluster controller.

A printer attached to a 3275 is defined by coding the FEATUR2=PRINTR operand in the TERMINAL statement definition statement for the 3275, and not by coding a separate TERMINAL statement for the printer.

```
name    TERMINAL    ADDR=char
                    ,TERM=3275|3277|3284|3286
                    [,DLOGMOD=default logmode
                     entry name]
                    [,FEATUR2=([MODEL1|MODEL2]
                     [,PRINTR|NOPRINTR])]
                    [,ISTATUS=ACTIVE|INACTIVE]
                    [,LOGAPPL=application program
                     name]
                    [,LOGTAB=interpret table name]
                    [,MODETAB=logon mode table
                     name]
                    [,SPAN=name] (NCCF only)
                    [,USSTAB=USS definition table
                     name]
```

Cross-Domain Resource Manager (CDRM) Major Nodes

Code a VBUILD statement for each set of CDRM definition statements.

```
[name]      VBUILD   TYPE=CDRM
                     [,CONFGDS=name]
                     [,CONFGPW=password]
```

Code one or more CDRM definition statements to define CDRM minor nodes.

```
cdrmname    CDRM     SUBAREA=n
                     [,CDRDYN=YES|NO]
                     [,CDRSC=OPT|REQ]
                     [,ELEMENT=n|1]
                     [,ISTATUS=ACTIVE|INACTIVE]
                     [,VPACING=n|0|63]
```

Cross-Domain Resource (CDRSC) Major Nodes

Code a VBUILD statement for each set of CDRSC definition statements.

```
[name]      VBUILD   TYPE=CDRSC
                     [,CONFGDS=name]
                     [,CONFGPW=password]
```

Code one or more CDRSC definition statements to define CDRSC minor nodes.

```
cdrscname   CDRSC    CDRM=cdrmname
                     [,ISTATUS=ACTIVE|INACTIVE]
                     [,SPAN=name] [1]
```

[1] Applies to NCCF only.

Cross-Domain Path Tables

Code one or more PATH statements to define a path definition set to represent the routes ACF/VTAM takes to communicate with other subarea nodes.

```
symbol      PATH[1]   DESTSA=n|(n1,n2,n3, . . . )
                      [,ER0=(adjsub[,tg#] )]
                      [,ER1=(adjsub[,tg#] )]
                            .
                            .
                            .
                      [,ER7=(adjsub[,tg#] )]
                      [,VR0=er#]
                      [,VR1=er#]
                            .
                            .
                            .
                      [,VR7=er#]
```

[1] Refer to the *Planning and Installation Reference* for details about specifying ER and VR.

TSO/VTAM Requirements

An APPL definition statement defines an application program to ACF/VTAM. Because TCAS and each TSO user are ACF/VTAM application programs, APPL definition statements must be specified for them and put into SYS1.VTAMLST.

Code the following APPL statements for TCAS:

```
TSO        APPL    PRTCT=password[1],AUTH=
                   (NOACQ,PASS,NVPACE,TSO,
                   NOPO),EAS=1
```

Code as many APPL statements, in the following format, as there will be users logged on to TSO/VTAM at one time:

```
TSOnnnn[2] APPL    PRTCT=password[1],AUTH=
                   (NOACQ,PASS,NVPACE,TSO,
                   NOPO),EAS=1
```

Multiple-Domain Network

TCAS and the terminals are defined with special statements.

Code the following CDRM statements in each domain[3]:

```
name1      CDRM    CDRDYN=YES,CDRSC=OPT, . . .
name2      CDRM    CDRDYN=YES,CDRSC=OPT, . . .
```

[1] The same *password* must be specified for TCAS and each TSO/VTAM user.

[2] A different application program name, in the form TSOnnnn, must be specified for each session. The suffix nnnn is a decimal number; the numbering must start with 0001 and must be sequential. Note that NOACQ and NOPO need not be coded; they are default values.

[3] This is to avoid defining both the SLUs that log on to TSO/VTAM as CDRSCs in the TSO/VTAM domain, and the TSO user application programs as CDRSCs in the SLU's domain. This is controlled by the CORDYN and CDRSC operands.

Code the following APPL statement for TCAS in your domain:

```
tsoa[1]      APPL    ACBNAME=TSO,
                     PRTCT=password,
                     AUTH=(NOACQ,PASS,
                     NOVPACE,TSO,NOPO),
                     EAS=1
```

Code as many APPL statements in the following format as the maximum number of sessions that will be established with TSO/VTAM in your domain at one time:

```
tsoannnn[1,2]  APPL    ACBNAME=TSOnnnn,
                       PRTCT=password,
                       AUTH=(NOACQ,PASS,
                       NVPACE,TSO,NOPO),
                       EAS=1
```

Code the following statement for each TCAS in another domain with which an LU in your domain will communicate:

```
tsob[3]      CDRSC   CDRM=name of ACF/VTAM
                       manager for tsob
```

[1] *tsoa* is a unique prefix that must be included on all APPL statements for your domain. The name, *tsoa*, must be unique in the network. The same prefix (that is, *tsoa*) must be specified when coding APPL statements for each terminal logged on to the TSO/VTAM in this ACF/VTAM host concurrently.

[2] The *nnnn* suffix is a decimal integer that must start with 0001 and be sequential. The remaining operands are described above.

[3] *tsob* specifies the name of the TCAS APPL definition statement in the domain of the indicated CDRM that this CDRSC represents.

If dynamic cross-domain resource definition is not authorized, code the following CDRSC statements in each domain that contains an SLU that can communicate with your domain:

```
tsobnnnn[1,2]    CDRSC   CDRM=name of ACF/VTAM
                           manager for tsobnnnn
                           application
```

and code a CDRSC statement in the domain of TSO/VTAM for each cross-domain SLU that can log on to TSO/VTAM.

---

[1] *tsob* specifies the name of the TSO user APPL definition statement in the domain of the indicated CDRM that this CDRSC represents.

[2] The *nnnn* suffix is a decimal integer that must start with 0001 and be sequential. The remaining operands are described above.

Specifying 3270 Characteristics

Two types of 3270 devices are supported by TSO/VTAM: non-SNA devices attached over a channel or through a bisynchronous line protocol, and SNA devices attached by SDLC links. For non-SNA devices with a screen size larger than 24 X 80, or multiple screen sizes, or special features, and for SNA devices (LU2), you must provide a logmode table entry.

Use the MODETAB and MODEENT macros to define the logmode table and its entry. The PSERVIC parameter of the MODEENT macro carries the screen sizes in row/column form. If no logmode table entry exists for a 3270 device, TSO/VTAM assumes it is non-SNA (LU0), and the buffer size specified by the SCRSIZE parameter of the TSOKEY00 member of PARMLIB (either 480 (12 X 40) or 1920 (24 X 80)).

MODEENT Macro Instruction for Non-SNA 3270 Devices

```
[name]    MODEENT    LOGMODE=name,
                     FMPROF=X'02',
                     TSPROF=X'02',
                     PRIPROT=X'71',
                     SECPROT=X'40',
                     COMPROT=X'2000',
                     PSERVIC=X'. . . . . .'[2]
```

For example:

Code the following MODEENT macro instruction for a 3270 terminal having a screen size of 1920 characters:

```
MODEENT[1]  FMPROF=X'02',TSPROF=X'02',
            PRIPROT=X'71',SECPROT=X'40',
            COMPROT=X'2000',COS=cos name,[3]
            PSERVIC=X'000000000000000000000200'
```

[1] The FMPROF, TSPROF, PRIPROT, SECPROT, and COMPROT values are the same as those used in the IBM-supplied logon mode table, ISTINCLM.

[2] See "PSERVIC Operand of the MODENT Macro Instruction."

[3] Is the name of an entry in the COS table.

MODEENT Macro Instruction for SNA 3270 Devices

```
[name]    MODEENT    LOGMODE=name,
                     FMPROF=X'03',
                     TSPROF=X'03',
                     PRIPROT=X'B1',
                     SECPROT=X'90',
                     COMPROT=X'3080',
                     RUSIZES=X'8587',
                     COS=cos name,[2]
                     PSERVIC=X'. . . . . .'[1]
```

The RUSIZES parameter above indicates a 256-byte maximum secondary logical unit RU send size and a 1024-byte maximum primary logical unit RU send size.

For example:

Code the following MODEENT macro instruction for a 3270 terminal having a primary buffer size of 1920 characters, and an alternate buffer size of 3440 characters:

```
MODEENT   FMPROF=X'03',TSPROF=X'03',
          PRIPROT=X'B1',SECPROT=X'90',
          CMPROT=X'3080',RUSIZES=X'8587',
          COS=cos name,[2]
          PSERVIC=X'020000000000018502B507F'
```

[1] See "PSERVIC Operand of the MODENT Macro Instruction."

[2] Is the name of an entry in the COS table.

PSERVIC Operand of the MODEENT Macro Instruction

Code the 12 bytes of device-specific hexadecimal data of the PSERVIC operand as described below:[1,2]

PSERVIC=X'00. . 00000000. . . . . 00'	for non-SNA (LU0)
X'02. . 00000000. . . . . 00'	for SNA (LU2)
X'. . 00. . . . . .'	device without extended data stream capability
X'. . 80. . . . . .'	device with extended data stream capability
X'. . . . . 0000000001. .'	buffer size 480 only (12X40)
X'. . . . . 0000000002. .'	buffer size 1920 only (24X80)
X'. . . . . 0C280C507F. .'	buffer sizes 480 or 960 (12X40) or 12X80)
X'. . . . . 185020507F. . '	buffer sizes 1920 or 2560 (24X80 or 32X80)
X'. . . . . 18502B507F. . '	for buffer sizes 1920, 3440 (24X80 or 43X80)
X'. . . . . 18501B847F. . '	for buffer sizes 1920, 3564 (24X80 or 27X132)

[1] To prevent switching of screen sizes on a device that has more than one size possible, code the screen size to be used in the primary area of PSERVIC and a X'7E' to indicate no switching. For example:

PSERVIC=X'. . . . . 1B8400007E. . '	for 3564 buffer only

[2] See *ACF/VTAM Programming* for details of the bit settings in the PSERVIC parameter, which represents bytes 13-24 of the session parameters.

Defining 2741, TWX, or WTTY Terminals to TSO/VTAM

2741, TWX, or WTTY devices attached to a communication controller can be used with TSO/VTAM through its LU type 1 protocol managers. These devices are identified to ACF/VTAM during the NCP generation process. (See *Network Terminal Option Installation* and the *ACF/NCP-SSP Installation* for details.) Since the NCP will translate ASCII line code to EBCDIC for these devices, care must be taken to ensure that any logmode entry specified by DLOGMODE and MODETAB operands on the PU or LU macro instructions identifies the device to ACF/VTAM as EBCDIC. An example is given below of an ASCII TWX logmode table entry definition that has the alternate code indicator in the COMPROT field set off (to indicate EBCDIC to TSO/VTAM).

The MODETAB macro instruction:

```
TWXTABLE    MODETAB
```

The MODEENT macro instruction:

```
TWXDEVIC    MODEENT    LOGMODE=TWXDEVIC,
                       FMPROF=X'03',
                       TSPROF=X'03',
                       PRIPROT=X'B1',
                       SECPROT=X'90',
                       COMPROT=X'3040',
```

For planning details on the use of the MODETAB and MODEENT macro instructions and information on coding these macros, see *ACF/VTAM Planning and Installation Reference.*

Security Considerations

Use the CONFTXT parameter of the TSOKEYxx member of PARMLIB to specify whether data can be traced by VTAM IO or BUF type traces for a TSO/VTAM session. Specify CONFTXT=YES to indicate that the data is confidential, and not traceable, or CONFTXT=NO to allow tracing.

Note: The CONFTXT parameter does not apply to the TSO type VTAM trace for TPUT/TPG/TGET buffers; they are always traceable.

Defining Procedures to Establish Sessions

Class of Service (COS) Tables

Define a COS table by specifying a COSTAB macro, one or more COS macros, and a COSEND macro.

```
csectnam  COSTAB[1]    where csectnam=ISTSDCOS
[name]    COS      VR=(vr#,tp#)
                        ((vr#,tp#)(vr#,tp#)
                        (,...))
COSEND
```

Interpret Tables

Define each interpret table by one INTAB macro followed by at least one LOGCHAR macro, followed by one ENDINTAB macro.

```
[name]    INTAB
[name]    LOGCHAR   APPLID=(APPLICID,applname)|
                              (ROUTINE,routinename)
                    [,SEQNCE='characters']
[name]    ENDINTAB
```

Logon Mode Tables

Define, create, or modify a logon mode table by specifying a MODETAB macro, one or more MODEENT macros, and a MODEEND macro.

```
[name]    MODETAB
[name]    MODEENT   [LOGMODE=name]
                    [,TYPE=value]
                    [,FMPROF=value]
                    [,TSPROF=value]
                    [,PRIPROT=value]
                    [,SECPROT=value]
```

[1] The IBM-supplied default is ISTVTCOS, which is used for example to establish CDRM-to-CDRM sessions.

```
                                [,COMPROT=value]
                                [,RUSIZES=value]
                                [,PSERVIC=value]
                                [,PSNDPAC=value]
                                [,SRCVPAC=value]
                                [,SSNDPAC=value]
                                [,ENCR=value][1]
                                [,COS=name]
[name]    MODEEND
```

USS Definition Tables

Create or modify USS definition tables with USSTAB, USSCMD, USSPARM, USSMSG, and USSEND macro instructions.

```
[name]    USSTAB     [TABLE=name]
[name]    USSCMD     CMD=name
                     [,REP=name]
                     [,FORMAT=BAL|PL1]
[name]    USSPARM    PARM=pn|name
                     [,REP=name]
                     [,DEFAULT=value]
                     [,VALUE=value]
[name]    USSMSG[2]  [MSG=n(n1,n2...)]
                     [,TEXT='message text.][3]
                     [,BUFFER=bufferaddress][3]
                     [,OPT=option]
                     [,SUPP=class]
          USSMSG[4]  MSG=n|(n1,n2,...)
                     [,DESC=(desc-code)]
                     [,MCSFLAG=(value)]
                     [,OPT=option]
                     [,SUPP=class]
                     [,ROUTCDE=(route-code)]
                     [,TEXT='message text']

[name]    USSEND
```

[1] Applies to the Encrypt/Decrypt Feature only.
[2] Format of USSMSG for terminal operator messages.
[3] TEXT and BUFFER are mutually exclusive.
[4] Format of USSMSG for ACF/VTAM operator messages.

Character-Coded Requests and USS Definition Tables

Using the IBM-supplied USS table, ACF/VTAM can accept a character-coded logon that has the following format:

```
LOGON APPLID(name)[LOGMODE(name)]
[DATA(user data)]
```

In this format:

- LOGON represents the function of logging on and must be specified first.
- The APPLID parameter names the application program with which the LU wants to establish a session.
- The optional LOGMODE parameter indicates the entry in a logon mode table where the session parameters desired for use in the session can be found.
- The optional DATA parameter contains data to be passed to the application program.

ACF/VTAM expects to receive information in a character-coded logoff that has the following format:

```
LOGOFF[APPLID(name)] TYPE(COND|UNCOND|
FORCE) HOLD(YES|NO)
```

In this format:

- LOGOFF represents the function for logging off.
- The APPLID parameter names the application program with which the LU is in session.
- The TYPE parameter indicates whether or not the session is to be terminated at the discretion of the application program.
- The HOLD parameter indicates the disposition of the SSCP-to-PU session after the LU is no longer in session with the application program.

If you want logons and logoffs entered at LUs in some other form, you have the following choices:

- If the syntax of the logon and logoff commands is such that they can be translated to the character-coded logon

format in the IBM-supplied USS table (these tables use PL/I syntax), you can:

- Change the IBM-supplied default USS table. The default table must contain the desired translation of the logon and logoff command into the required IBM format. This table will be used for an LU that has not been associated with a specific USS table.
- Write supplementary USS tables and associate them with specific LUs. These tables must contain the desired translation of the logon and logoff commands into the required IBM format.

For example, suppose that you wanted to use a logon format from a previous system:

```
L ACCOUNTS
```

A replacement USS definition table could convert this to the standard USS format:

```
LOGON APPLID(ACCOUNTS) LOGMODE(QUERY)
```

- If the logons you want to use are such that a USS definition table cannot be used to translate them into a formatted command (for example they are not PL/I syntax), you can use an interpret table).

The contents of the IBM-supplied USS table are shown in *ACF/VTAM Planning and Installation Reference*. In changing the IBM-supplied table or creating replacement or supplementary tables, you use USSTAB, USSCMD, USSPARM, USSMSG, and USSEND macro instructions.

The USSTAB macro instruction indicates the beginning of a USS definition table. It can optionally specify the table to be used for character translation.

The USSCMD macro instruction identifies a set of definition statements to be used to convert a user-defined command received from an LU.

The USSPARM macro instruction identifies a user-defined keyword or positional parameter that can be coded in the user-defined command identified by the previous USSCMD definition.

The USSMSG macro instruction allows you to tailor messages corresponding to different situations. The IBM-supplied table already contains messages for these situations, appropriate to most installations, but you may want to change the language.

The USSEND macro instruction indicates the end of a USS definition table.

To tell ACF/VTAM that a device supports character-coded messages and to indicate any input media control required by the device, specify the SSCPFM operand in the statement defining the device. To tell ACF/VTAM which USS table it should use in translating the character-coded commands from a particular LU, name the table in the USSTAB operand on the LU statement.

IBMTEST Command

IBMTEST allows the terminal operator to test the physical path between the terminal and ACF/VTAM. IBMTEST causes ACF/VTAM to return test data to the terminal a specified number of times. ACF/VTAM returns the test data with the prefix "IBMECHO."

IBMTEST [nn|10] [,data]

nn|10
: specifies the number of times the test data should be returned to the terminal. Specify *n* as a decimal number in the range 1 through 255. If no value is specified, a value of 10 is used by default.

data
: specifies the test data to be returned. Specify a character string of up to 255 characters, or the maximum message length of the terminal, whichever is smaller. If you do not specify a character string, ACF/VTAM sends out and returns a string consisting of the letters A through Z followed by the decimal numbers 0 through 9.

PART 3. PROGRAMMING

ACF/VTAM Macro Instructions

ACB—Create an Access Method Control Block

```
[symbol]    ACB        AM=VTAM
                       [,APPLID=address of application
                        program's symbolic name]
                       [,EXLST=exit list address]
                       [,MACRF=LOGON|NLOGON]
                       [,PARMS=(NIB=nib address)]
                       [,PARMS=([NIB=nib address]
                        [,USERFLD=user data])]
                       [,PASSWD=password address]
```

CHECK—Check Request Status

```
[symbol]    CHECK      RPL=rpl address
```

CLOSE—Close One or More ACBs

OS/VS only:

```
[symbol]    CLOSE      (acb address[,,acb address] . . .)
```

VSE only:

```
[symbol]    CLOSE      acb address[,acb address] . . .
```

CLSDST—Terminate Sessions in which the Application Program Is Acting as the Primary Logical Unit

```
[symbol]    CLSDST     RPL =rpl address
                       [,rpl field name=new value] . . .
```

RPL fields that apply to CLSDST are:

```
AAREA=address of target
 PLU's symbolic name
ACB=acb address
AREA=address of user
  data for Initiate
ARG=(register)
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL }
{EXIT=rpl exit routine address }
NIB=nib address
OPTCD=RELEASE|PASS
OPTCD=SYN|ASY
PARMS=(THRDPTY=
 NOTIFY|NONOTIFY)
RECLEN=length of user
 data
```

[1] Applies to MVS only.

EXECRPL—Execute a Request

```
[symbol]   EXECRPL    RPL=rpl address
                      [,rpl field name=new value] ...
```

All RPL fields apply to EXECRPL.

EXLST—Create an Exit List

```
[symbol]   EXLST   AM=VTAM
                   [,DFASY=exit routine address]
                   [,LERAD=exit routine address]
                   [,LOGON=exit routine address]
                   [,LOSTERM=exit routine address]
                   [,NSEXIT=exit routine address]
                   [,RELREQ=exit routine address]
                   [,RESP=exit routine address]
                   [,SCIP=exit routine address]
                   [,SYNAD=exit routine address]
                   [,TPEND=exit routine address]
```

GENCB—Generate a Control Block

```
[symbol]   GENCB   BLK= {ACB|EXLST|RPL|NIB}
                   ,AM=VTAM
                   [,keyword=value] ...
                   [,COPIES=quantity]
                   [,WAREA=work area address,
                    LENGTH=work area length]
                   [,MF=list, generate, or execute form
                    parameters]
```

Keyword is any GENCB-supported keyword that can be used in the macro instruction corresponding to the BLK operand.

INQUIRE—Obtain Logical Unit Information or Application Program Status

```
[symbol]   INQUIRE     RPL=rpl address
                       [,rpl field name-new value] ...
```

The setting of the specified RPL's option code determines the type of INQUIRE to be performed. The option code can be: LOGONMSG, DEVCHAR, COUNTS, TERMS, APPSTAT, CIDXLATE, TOPLOGON, SESSPARM or SESSKEY.

RPL fields that apply to INQUIRE are:

```
ACB=acb address
AREA=address of data area
AREALEN=length of data area
ARG=(register)
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
NIB=nib address
OPTCD=LOGONMSG|
  DEVCHAR|COUNTS|
  TERMS|APPSTAT|
  CIDXLATE|
  TOPLOGON|SESSPARM|
  SESSKEY[2]
OPTCD=SYN|ASY
```

INTRPRET—Interpret an Input Sequence

```
[symbol]   INTRPRET    RPL=rpl address
                       [,rpl field name=new value] ...
```

RPL fields that apply to INTRPRET are:

```
AAREA=interpreted
 data area address
AAREALN=
 interpreted data
 area length
ACB=acb address
AREA=input data
 address
ARG=(register)
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
NIB=nib address
OPTCD=SYN|ASY
RECLEN=input data length
```

ISTGLBAL—Declare and Set Macro Global Variables

```
[symbol] ISTGLBAL
```

---

[1] Applies to MVS only.

[2] Applies to the Encrypt/Decrypt Feature only.

MODCB—Modify the Contents of Control Block Fields

```
[symbol]   MODCB    AM=VTAM
                    { ,ACB=acb address          }
                    { ,EXLST=exit list address  }
                    { ,NIB=nib address          }
                    { ,RPL=rpl address          }
                    ,field name=new value . . .
                    [,MF=list, generate, or execute
                     form parameters]
```

NIB—Create a Node Initialization Block

```
[symbol]   NIB      [BNDAREA=0|bind area address]
                    [,ENCR=REQD|SEL|NONE][1]
                    [,EXLST=exit list address]
                    [,LISTEND=YES|NO]
                    [,LOGMODE=0|C' '|logon mode name]
                    [,MODE=RECORD]
                    [,NAME=name in configuration
                     tables]
                    [,RESPLIM=1|response limit]
                    [,SDT=APPL|SYSTEM]
                    [,USERFLD=user data]
                   [PROC=([CA|CS|RPLC]
                        [,KEEP|TRUNC]
                        [,NCONFTXT|CONFTXT]
                        [,NDFASYX|DFASYX]
                        [,NNEGBIND|NEGBIND]
                        [,NRESPX|RESPX]
                        [,NORDRESP|ORDRESP]
                        [,SYSRESP|APPLRESP])]
```

OPEN—Open One or More ACBs

OS/VS only:

```
[symbol]   OPEN     (acb address [,,acb address] . . . )
```

VSE only:

```
[symbol]   OPEN      acb address [,acb address] . . .
```

[1] Applies to the Encrypt/Decrypt Feature only.

OPNDST—Establish Sessions in which the Application Program Will Act as the Primary Logical Unit

```
[symbol]    OPNDST      RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to OPNDST are:

AAREA=input area address for negotiable bind response	OPTCD=ACQUIRE|ACCEPT
AAREALN=length of input area	OPTCD=CONANY|CONALL
ACB=acb address	OPTCD=CS|CA
BRANCH=YES[1]|NO	OPTCD=Q|NQ
{ECB=ecb address|INTERNAL / EXIT=rpl exit routine address}	OPTCD=SPEC|ANY
NIB=nib address	OPTCD=SYN|ASY

OPNSEC—Establish a Session in which the Application Program Will Act as the Secondary Logical Unit

```
[symbol]    OPNSEC      RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to OPNSEC are:

ACB=acb address	NIB=nib address
BRANCH=YES[1]|NO	OPTCD=CS|CA
{ECB=ecb address|INTERNAL / EXIT=exit routine address}	OPTCD=SYN|ASY

RCVCMD—Receive a Message from ACF/VTAM

```
[symbol]    RCVCMD      RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to RCVCMD are:

ACB=acb address	{ECB=ecb address|INTERNAL / EXIT=rpl exit routine address}
AREA=input message address	OPTCD=Q|NQ
AREALEN=length of message area	OPTCD=SYN|ASY
BRANCH=YES|NO	OPTCD=TRUNC

[1] Applies to MVS only.

RECEIVE—Receive Input on a Session

```
[symbol]    RECEIVE    RPL=rpl address
                       [,rpl field name=new value] . . .
```

RPL fields that apply to RECEIVE are:

```
ACB=acb address
AREA=input data area
  address
AREALEN=length of
  input data area
ARG=(register)
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
OPTCD=CA|CS
OPTCD=Q|NQ
OPTCD=SPEC|ANY
OPTCD=SYN|ASY
OPTCD=TRUNC|KEEP|
  NIBTK
RTYPE=(DFSYN|
  NDFSYN,DFASY|
  NDFASY,RESP|
  NRESP)
```

REQSESS—Initiate a Session in which the Application Program Will Act as the Secondary Logical Unit

```
[symbol]    REQSESS    RPL=rpl address
                       [,rpl field name=new value] . . .
```

RPL fields that apply to REQSESS are:

```
AAREA=0
ACB=acb address
AREA=address of user data
  for Initiate
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
NIB=nib address
OPTCD=NQ
OPTCD=SYN|ASY
RECLEN=user data
  length
```

RESETSR—Cancel RECEIVE Operations and Switch a Session's CS-CA Mode

```
[symbol]    RESETSR    RPL=rpl address
                       [,rpl field name=new value] . . .
```

[1] Applies to MVS only.

RPL fields that apply to RESETSR are:

ACB=acb address
ARG=(register)
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL / EXIT=rpl exit routine address}
OPTCD=CA|CS
OPTCD=SYN|ASY
RTYPE=(DFSYN|NDFSYN, DFASY|NDFASY, RESP|NRESP)

RPL—Create a Request Parameter List

```
[symbol]    RPL   AM=VTAM
                  [,AAREA=alternate data area address]
                  [,AAREALN=alternate data area length]
                  [,ACB=acb address]
                  [,AREA=data area address]
                  [,AREALEN=data area length]
                  [,BRACKET=(BB|NBB,EB|NEB,
                   CEB|NCEB)]
                  [,BRANCH=YES[1]|NO]
                  [,CHAIN=FIRST|MIDDLE|LAST|
                   ONLY]
                  [,CHNGDIR=(CMD|NCMD,
                   REQ|NREQ)]
                  [,CODESEL=STANDARD|ALT]
                  [,CONTROL=(DATA|BID|BIS|CANCEL|
                   CHASE|LUS|QC|RTR|QEC|RELQ|
                   RSHUTD|SBI|SHUTC|SHUTD|
                   SIGNAL|BIND|CLEAR|RQR|SDT|
                   STSN|UNBIND)]
                  [,CRYPT=YES|NO][2]
                  [{,ECB=ecb address
                   ,ECB=INTERNAL
                   ,EXIT=exit routine address}]
                  [,IBSQAC=SET|TESTSET|INVALID|
                   IGNORE|TESTPOS|TESTNEG|
                   RESET]
                  [,IBSQVAL=inbound sequence number]
                  [,NIB=nib address]
                  [,OBSQAC=SET|TESTSET|INVALID|
                   IGNORE|TESTPOS|TESTNEG|
                   RESET]
```

[1] Applies to MVS only.

[2] Applies to the Encrypt/Decrypt Feature only.

RPL—Create a Request Parameter List (continued)

```
                [,OBSQVAL=outbound sequence
                 number
                [,PARMS=(THRDPTY=NOTIFY|
                 NONOTIFY)]
                [,POST=SCHED|RESP]
                [,RECLEN=data length]
                [,RESPOND=EX|NEX,FME|NFME,
                 RRN|NRRN,QRESP|NORESP)]
                [,RTYPE=(DFSYN|NDFSYN,
                 DFASY|NDFASY,RESP|NRESP)]
                [,SEQNO=sequence number]
                [,SIGDATA=signal data]
                [,SSENSEO=0|CPM|STATE|FI|RR]
                [,SSENSMO=system sense modifier]
                [,STYPE=REQ|RESP]
                [,USENSEO=user sense value]
[,OPTCD = ([,ACCEPT|ACQUIRE]
           [,CA|CS]
           [,CONALL|CONANY]
           [,COND|UNCOND]
           [,LOGONMSG|DEVCHAR|
            COUNTS|TERMS|APPSTAT|
            CIDXLATE|TOPLOGON|
            SESSPARM|SESSKEY[1] ]
          [,NBUFFLST|BUFFLST]
          [,NCONTCHN|CONTCHN]
          [,NFMHDR|FMHDR]
          [,NIBTK|TRUNC|KEEP]
          [,NLMPEO|LMPEO]
          [,NUSERRH|USERRH]
          [,Q|NQ]
          [,QUIESCE|STOP|START]
          [,RELEASE|PASS]
          [,RELRQ|NRELRQ]
          [,SPEC|ANY]
          [,SYN|ASY])
```

[1] Applies to the Encrypt/Decrypt feature only.

SEND-Send Output on a Session

```
[symbol]    SEND    RPL=rpl address
                    [,rpl field name=new value] . . .
```

RPL fields that apply to SEND are:

ACB=acb address
AREA=address of output data or buffer list
ARG=(register)
BRACKET=(BB|NBB,EB|NEB, CEB|NCEB)
BRANCH=YES[2]|NO
CHAIN=FIRST|MIDDLE LAST|ONLY
CHNGDIR=(CMD|NCMD, REQ|NREQ)
CONTROL=DATA|BID|BIS| CANCEL|CHASE|LUS|QC| RTR|QEC|RELQ|RSHUTD| SBI|SHUTC|SHUTD|SIGNAL
CODESEL=STANDARD|ALT
CRYPT=YES|NO[1]
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
OPTCD=CA|CS
OPTCD=BUFFLST|NBUFFLST
OPTCD=CONTCHN|NCONTCHN
OPTCD=FMHDR|NFMHDR
OPTCD=LMPEO|NLMPEO
OPTCD=SYN|ASY
OPTCD=USERRH| NUSERRH
POST=SCHED|RESP
RECLEN=length of output data or buffer list
RESPOND=(EX|NEX, FME|NFME,RRN|NRRN, NQRESP|QRESP)
RTYPE=(DFSYN|NDFSYN, DFASY|NDFASY, RESP|NRESP)
SEQNO=sequence number
SIGDATA=signal data
SSENSEO=CPM| STATE|FI|RR|0
SSENSMO=system sense modifier value
STYPE=REQ|RESP
USENSEO=user sense value

SENDCMD—Send an ACF/VTAM Operator Command to ACF/VTAM

```
[symbol]    SENDCMD    RPL=rpl address
                       [,rpl field name=new value] . . .
```

RPL fields that apply to SENDCMD are:

ACB=acb address
AREA=command address
BRANCH=YES[2]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
OPTCD=SYN|ASY
RECLEN=command length

[1] Applies to the Encrypt/Decrypt Feature only.
[2] Applies to MVS only.

SESSIONC—Send a Session-Control Request or Response

```
[symbol]    SESSIONC    RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to SESSIONC are:

```
ACB=acb address
ARG=(register)
BRANCH=YES[1]|NO
CONTROL=SDT|CLEAR|
  STSN|RQR|BIND
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine
   address}
IBSQAC=SET|TESTSET|
  INVALID|IGNORE|
  RESET|TESTPOS|
  TESTNEG
IBSQVAL=inbound
  sequence number
NIB=nib address
OBSQAC=SET|TESTSET|
  INVALID|IGNORE|
  RESET|TESTPOS|
  TESTNEG
OBSQVAL=outbound
  sequence number
OPTCD=SYN|ASY
RESPOND=(EX|NEX)
SEQNO=sequence number
SSENSEO=system sense
  value
SSENSMO=system
  sense modifier value
STYPE=REQ|RESP
USENSEO=user sense
  value
```

SETLOGON—Modify an Application Program's Capability to Establish Sessions

```
[symbol]    SETLOGON    RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to SETLOGON are:

```
ACB=acb address
BRANCH=YES[1]|NO
{ECB=ecb address|INTERNAL}
{EXIT=rpl exit routine address}
OPTCD=QUIESCE|
  START|STOP
OPTCD=SYN|ASY
```

[1] Applies to MVS only.

SHOWCB—Extract the Contents of Control Block Fields

```
[symbol]    SHOWCB    AM=VTAM
                      [{,ACB=acb address       }]
                       {,EXLST=exit list address}
                       {,NIB=nib address        }
                       {,RPL=rpl address        }
                      ,AREA=data area address
                      ,FIELDS=field name|(field
                        name, . . . )
                      ,LENGTH=data area length
                      [,MF=list, generate, or execute
                       form parameters]
```

SIMLOGON—Initiate a Session in which the Application Program Will Act as the Primary Logical Unit

```
[symbol]    SIMLOGON  RPL=rpl address
                      [,rpl field name=new value] . . .
```

RPL fields that apply to SIMLOGON are:

ACB=acb address	OPTCD=CONANY|CONALL
AREA=address of user data for Initiate	OPTCD=Q|NQ
BRANCH=YES[1]|NO	OPTCD=RELRQ| NRELRQ
{ECB=ecb address|INTERNAL / EXIT=rpl exit routine address}	OPTCD=SYN|ASY
NIB=nib address	RECLEN=length of user data

[1] Applies to MVS only.

TERMSESS—Request Termination of a Session in which the Application Program Acts as the Secondary Logical Unit

```
[symbol]    TERMSESS    RPL=rpl address
                        [,rpl field name=new value] . . .
```

RPL fields that apply to TERMSESS are:

```
ACB=acb address                    NIB=nib address
ARG=(register)                     OPTCD=COND|
BRANCH=YES[1]|NO                     UNCOND
{ECB=ecb address|INTERNAL }        OPTCD=SYN|ASY
{EXIT=rpl exit routine address }
```

TESTCB—Test the Contents of a Control Block Field

```
[symbol]    TESTCB      AM=VTAM
                        [{,ACB=acb address          }]
                        [{,EXLST=exit list address  }]
                        [{,NIB=nib address          }]
                        [{,RPL=rpl address          }]
                        [,ERET=error exit routine
                         address]
                         ,field name=test value
                        [,MF=list, generate, or execute
                         form parameters]
```

[1] Applies to MVS only.

ACB ERROR Field Values

ERROR Field Value (Hex)	*Applicable Macros* OPEN	CLOSE	*Explanation*
0	•	•	OPEN or CLOSE successful
4		•	CLOSE already issued or ACB never opened
14	•		Open cannot be processed because of a temporary shortage of storage
24	•		The ACB's password does not match the APPL entry's password
40		•	Outstanding OPNDST (ACQUIREs) not released
42		•	System error prevented termination of one or more of the application program's sessions
46	•	•	OPEN or CLOSE not issued in mainline program
48		•	CLOSE was not issued in a job step task, or in a subtask within the ACF/VTAM partition.[1]
4C		•	CLOSE was issued for a program operator application but there are messages queued for it, or ACF/VTAM is waiting for a reply, or both
50	•	•	ACF/VTAM is not part of the operating system
52	•		HALT was issued by the operator
54	•		Invalid APPLID
56	•		APPLID is not an APPL entry
58	•		ACB's symbolic name is the same as another ACB that is already open

[1] Applies to OS/VS1 only.

ACB ERROR Field Values (continued)

ERROR Field Value (Hex)	*Applicable Macros*		*Explanation*
	OPEN	*CLOSE*	
5A	•		APPLID does not match any names in the ACF/VTAM network configuration tables
5C	•		ACF/VTAM is inactive
5E	•		Address in APPLID field is beyond the program's addressable range
60	•	•	System error
62	•		Incorrect APPLID length byte
64	•		Address in PASSWD field is beyond the program's addressable range
66	•		Incorrect PASSWD length byte
68	•		OPEN was issued for a primary program operator, when another primary program operator is already active
70	•	•	OPEN or CLOSE was issued unnecessarily while the program was terminating abnormally[1]
88	•		OPEN cannot be processed due to a temporary storage shortage.[2]
BC		•	ACB is being opened, or being closed by another CLOSE macro instruction
F4	•		The application program is not authorized for SRBEXIT=YES.[3]

[1] Applies to OS/VS only.
[2] Applies to VSE only.
[3] Applies to MVS only.

ACB ERROR Field Values (continued)

ERROR Field Value (Hex)	*Applicable Macros* OPEN	CLOSE	*Explanation*
F6	•		A communication network management (CNM) application program failed to supply a NIB pointer in the NIB field of the ACB, or the NIB address specified lies beyond the addressable range of the application program
FA	•		An application program without CNM authorization supplied a NIB pointer in its ACB, or if CNM authorized, the application program failed to supply valid NIB options on the NIB macro
FE	•		The CNM routing table indicated that this application program was to receive the same unsolicited formatted requests that were already being routed to another active CNM authorized application program

Manipulative Macro Instruction Return Codes

Register 15	*Explanation*
00	Successful completion
04	Error—Register 0 set
08	Error—Execute form of macro used to enter new item in parameter list—Register 0 not set
0C	System Control Error—Register 0 set[1]

Return Code (Register 0)	GENCB	MODCB	SHOWCB	TESTCB	*Explanation*
For 04 in Register 15					
01	●	●	●	●	Invalid request type
02	●	●	●	●	Invalid block type
03	●	●	●	●	Invalid keyword
04		●	●	●	Invalid block
05			●	●	Reserved (VSAM only)
06			●	●	Reserved (VSAM only)
07		●	●		Field nonexistent
08	●				Insufficient main storage
09	●		●		Insufficient program storage
0A	●	●			No address supplied
0B		●			RPL active
0C		●			ACB open
0D		●			Reserved (VSAM only)
0E	●	●		●	Invalid parameter list
0F	●		●		Invalid alignment
10	●	●	●	●	Invalid control block (access method invalid)
11				●	No internal ECB
For 0C in Register 15[1]					
04	●	●	●	●	SIZE operand missing from program EXEC statement
08	●	●	●	●	Attempt made to run in real mode
0C	●	●	●	●	SIZE operand does not allow enough space for ACF/VTAM modules

[1] Applies to VSE only.

RPL-Based Macro Instruction Return Codes

RTNCD Feedback	*FDBK2 Reason*	*Problem Definition*
00	00	Normal completion or request accepted
00	05	Input area too small
00	06	No input available
00	07	INQUIRE information not available
00	08	OPNDST OPTCD=ACQUIRE, SIMLOGON, or CLSDST OPTCD=PASS failed
00	09	OPNDST OPTCD=ACCEPT denied; no queued CINITs
04	03	Exception request received
04	04	Negative response received
08	00	Temporary storage shortage
0C	0A	Request canceled by RESETSR
0C	0B	Request canceled because the session has been terminated
0C	0C	Request canceled by Clear request
0C	0D	Prior exception in chain detected
10	00	Logical unit, application program status, or queued BIND not available
10	01	OPNDST failed
10	02	Logical unit inhibited for sessions
10	03	HALT issued
10	05	Request or response encryption failure
10	07	Request canceled by VARY command
10	09	Unconditional Terminate or character-coded logoff received
10	0A	ACF/VTAM error
10	0D	ACF/VTAM inactive for your ACB
10	0E	Request aborted
10	0F	Buffers filled
10	11	SDT failure on OPNDST
10	12	Macro instruction failure, sense included
14	00	VSAM request
14	02	Zero EXIT field
14	03	Zero ECB field
14	04	Inactive RPL checked
14	10	Control block invalid
14	11	No RTYPE specified

RPL-Based Macro Instruction Return Codes (continued)

RTNCD Feedback	*FDBK2 Reason*	*Problem Definition*
14	12	CLSDST in progress
14	13	CID invalid
14	1E	Invalid data or length
14	23	Request type invalid
14	24	Request invalid for address space[1]
14	3B	NFME-NRRN response
14	3C	Previous macro instruction outstanding
14	40	CONTROL invalid
14	41	Data traffic not allowed
14	42	Invalid STYPE for SESSIONC
14	44	RESPLIM exceeded
14	47	3270 SEND option invalid
14	48	Session control protocol violation
14	49	Invalid STSN action/result code
14	4A	Installation exit routine was not available
14	4B	INTRPRET sequence or LOGMODE invalid or cryptographic incompatibility
14	4C	Invalid search argument for INQUIRE or INTRPRET
14	4D	No interpret table
14	4E	Invalid use of NIB list
14	4F	ACQUIRE-ACCEPT option code invalid
14	50	RPL field Invalid
14	51	OPNDST OPTCD=ACCEPT and SIMLOGON not allowed
14	52	NIB invalid
14	53	Logical unit not found
14	55	Application program not authorized, application program name not available, or task association not specified

[1] Applies to MVS only.

RPL-Based Macro Instruction Return Codes (continued)

RTNCD Feedback	*FDBK2 Reason*	*Problem Definition*
14	57	Invalid MODE field
14	5E	CLSDST OPTCD=PASS not authorized
14	60	Invalid LU name for CLSDST or SESSIONC
14	61	Invalid SETLOGON
14	6C	Exceeded limit on outstanding RCVCMD requests
14	6D	Application program not authorized
14	6E	Syntax error in reply to ACF/VTAM operator message
14	6F	SENDCMD/RCVCMD processor inactive
14	70	Program operator closing ACB with requests outstanding
14	71	Operator command not valid
14	73	SEND parameter invalid for CNM
14	74	Negotiable response to non-negotiable BIND
14	75	Invalid negotiable BIND response parameters
14	76	Invalid negotiable BIND response size
14	77	FM Data request unit required
14	78	Invalid chain specification
14	79	Buffer list length invalid
14	7B	Invalid user RH
14	7C	OPTCD=USERRH invalid for SESSIONC

How RPL-Based Macro Instruction Error and Special-Condition Information Is Organized

For RPL-Based Requests

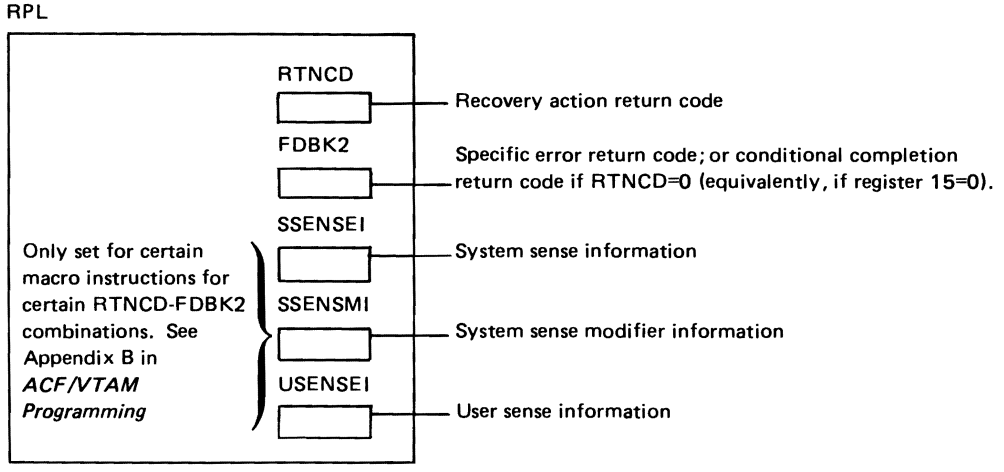
After a SEND, RECEIVE, CHECK, or other RPL-based macro instruction, the next sequential instruction finds in Register 15

Zero	The request was successful; or, for a synchronous request (including CHECK), the operation was successful.
Some other value	The request or the operation was not successful.

Depending on the request and whether or not it was successful, it may be necessary to test Register 0

Completion code	If register 15 is zero, register 0 indicates (with a conditional completion return code) for certain macro instructions whether success was conditional. If register 15 is not zero, register 0 can contain a return code from a LERAD or SYNAD exit routine or, if there is no LERAD/SYNAD exit routine, register 0 can contain a recovery action return code (generally the code from the RTNCD field of the RPL).
Return code	
Recovery code	

If a request or operation was unsuccessful or conditionally successful, the following RPL fields can be examined (in either the issuing routine or in a LERAD or SYNAD exit routine) to determine the cause of the exception.



In addition, other RPL fields that contain feedback information (such as SEQNO, CHAIN, and CHNGDIR) normally used following completion of a requested operation may be used in determining how to handle an error or special condition.

RPL fields are described under the RPL and other macro instruction descriptions in this manual, in the section titled, "ACF/VTAM Macro Instructions" and are summarized in Appendix A of *ACF/VTAM Programming.*

Possible RPL RTNCD,FDBK2, sense information settings and their meanings are described in this manual, in the section titled "ACB ERROR Field Values", and more fully in Appendix B of *ACF/VTAM Programming.*

For Arrival of a Logical Unit Status Request

After receiving input with a RECEIVE specifying RTYPE=(DFSYN,NRESP) and CONTROL=LUS, the RPL inbound sense fields (SSENSEI,SSENSMI, and USENSEI) will contain error or special condition information from the logical unit.

Register 0 is of interest in these circumstances

- For certain macro instructions with certain options set (see Appendix B of *ACF/VTAM Programming)*, if register 15 contains zero, success may be conditional. Register 0 should be examined to see if there is a condition (and what it is).
- If an error occurred for an RPL-based request and no LERAD or SYNAD exit routine is available, register 15 contains hex 04, and register 0 contains a recovery action return code.
- If a LERAD or SYNAD exit routine is available, it can set register 15 to zero to indicate "Error corrected — request or operation successful." If the error is not corrected, register 15 should be nonzero and a return code can be passed from LERAD or SYNAD in register 0.
- If the ACB was not opened, register 0 contains the RPL request code.

Recovery-Action Return Codes and Their General Meanings

Recovery Active Return Code (In RPL RTNCD Field (Hex))	LERAD or SYNAD Exit Scheduled	Type of Completion	Programmer Action
00	No exit scheduled	Normal or conditional	Continue normal or conditional processing.
04	SYNAD	Exception condition	Analyze RPL to choose logic path.
08	SYNAD	Retriable completion	User EXECRPL macro to retry if desired.
0C	SYNAD	Data integrity damage	Execute user program error recovery coding.
10	SYNAD	Environment error	Call for external intervention.
14	LERAD	Logic error	Dump program status and continue or abend.
18 (in register 0 but not in RTNCD field)	LERAD	Logic error; RPL invalid	Dump program status and continue or abend. Do not reuse this RPL.
Others	LERAD or SYNAD	RPL overwritten	Dump program status and continue or abend. Do not reuse this RPL.

LOSTERM Exit Routine Reason Codes

Reason Code		
Dec	*Hex*	*Meaning*
0		Reserved
4		Reserved
8		Reserved
12	0C	The session has been terminated. Immediate recovery is unlikely. The application program *must* issue CLSDST if it has not already done so. The cause of the session termination may preclude the session from being reestablished immediately. This reason code is only reported to a PLU application program. Some of the types of session outages that cause it are reported instead through a SCIP exit routine (if SONSCIP=YES on the APPL definition statement) or otherwise through an NSEXIT routine (if one exists).
16	10	The session has been terminated. This reason code is reported immediately after reason code 24 (hex 18) (unless CLSDST has been issued) and is only reported after reason code 24. The application program may now try to reinitiate the session, for example, by issuing SIMLOGON or OPNDST OPTCD=ACQUIRE; however, the application program *must* first issue CLSDST if it has not already done so. **Note:** Once the CLSDST macro instruction has been issued, session initiation is subject to the normal rules. Therefore, if another logical unit has a queued session with the logical unit, the new session requested by the application program whose LOSTERM exit routine was invoked may not be immediately established.

LOSTERM Exit Routine Reason Codes (continued)

Reason Code		
Dec	*Hex*	*Meaning*
16 (continued)	10	This reason code is only reported to a PLU application program. Many of the types of session outages that cause it are reported instead through a SCIP exit routine (if SONSCIP=YES on the APPL definition statement) or otherwise through an NSEXIT exit routine (if one exists).
20	14	A CTERM Forced request has been received. Perhaps the logical unit issued a Terminate Forced request, using TERMSESS OPTCD=UNCOND, for example. The application program *must* issue a CLSDST. When this completes, the application program may attempt to re-initiate the session. This reason code is only reported to PLU application programs.
24	18	The session has been terminated. The LOSTERM exit routine will be immediately rescheduled with reason code 16 (hex 10) for this session. (See the reason code 16 description above.) The application program may issue CLSDST at this time, which in turn may cancel the execution of the LOSTERM exit routine with reason code 16. This reason code is only reported to a PLU application program. The session outage can instead be reported through a SCIP or NSEXIT exit routine as is described under reason code 16.
28	1C	Reserved

LOSTERM Exit Routine Reason Codes (continued)

Reason Code		
Dec	*Hex*	*Meaning*
32	20	A CTERM Conditional request has been received. Perhaps the logical unit issued a Terminate Orderly request, using TERMSESS OPTCD=COND, for example. The application program can choose to issue CLSDST now or at some time in the future. The interpretation of the receipt of CTERM Conditional is not defined by SNA or ACF/VTAM. This reason code is only reported to a PLU application program.
36	24	Received request or response units for this session have been discarded because of a lack of buffer space. The session has not been terminated, but session data recovery procedures are required. This reason code may be reported to either a PLU or SLU application program. For further details, see the description of (RTNCD, FDBK2)=(16,15) in Appendix B of *ACF/VTAM Programming.*

Note: For any of the LOSTERM reason codes that require or recommend a CLSDST macro instruction, do not issue a second CLSDST if one has already been issued for the same session, but possibly for a different reason.

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Session Outage Notification Summary

Application Program is:	Receives:	
		SCIP
Primary Logical Unit	CTERM Orderly	
	CTERM Forced	
	CLEANUP	
	UNBIND	UNBIND
	Notify or NSPE	
Secondary Logical Unit	CLEANUP	
	UNBIND	UNBIND
	Notify or NSPE	

[1] Read each row from left to right. The first nonblank column for which the exit routine is available represents the exit routine that will be scheduled and shows some of the key input to that exit routine.

[2] The SCIP exit routine (if available) is scheduled for a PLU (for UNBIND) only if SONSCIP=YES is coded on the APPL definition statement. For SONSCIP=NO, UNBIND is handled as if no SCIP exit routine were available.

	Exit Routine Scheduled:[1]
	No SCIP Exit Routine Available[2]
NSEXIT	No NSEXIT Exit Routine Available
	LOSTERM[3] (Reason codes shown in decimal)
	Reason Code 32
	Reason Code 12 or 20
CLEANUP	Reason Code 12, or 24 followed by 16
CLEANUP	Reason Code 12, or 24 followed by 16
Notify or NSPE	No Exit Routine Scheduled
CLEANUP	No Exit Routine Scheduled
	An application program acting as a secondary logical unit must have a SCIP exit routine.
Notify or NSPE	No Exit Routine Scheduled

[3] If no LOSTERM exit routine is available, no exit routine is scheduled.

Session Outage Notification UNBIND Type Codes and Reason Codes (Part 1 of 3)

Session Outage Notification Signals SCIP: UNBIND RU with type code NSEXIT: CLEANUP RU (CU) LOSTERM: reason code (Type and reason codes shown in decimal) "ns" means "exit routine not scheduled" Session Outage Notification Reasons	If LU is PLU			If LU is SLU		
	SCIP	NSEXIT	LOSTERM	SCIP	NSEXIT	LOSTERM
UNBIND type=01 received by PLU –UNBIND 01 sent by SLU	01	CU	24 then 16	ns	ns	ns
UNBIND type=01 received by SLU –CLSDST OPTCD=RELEASE by PLU –See "CTERM Forced received by PLU" in the rows below. –CLOSE by PLU	ns	ns	ns	01	ns	ns
UNBIND type=02 received by SLU –CLSDST OPTCD=PASS by PLU	ns	ns	ns	02	ns	ns
UNBIND type=12 received by this LU –Unrecoverable failure of other LU	12	CU	12	12	ns	ns
UNBIND type=TC received by this LU for any UNBIND type not listed above, including (but not restricted to):[1] –TC=07 Virtual route inoperative –TC=08 Route extension inoperative –TC=09 Hierarchical reset because of SSCP session activation –TC=10 SSCP session deactivated/failed –TC=11 Virtual route deactivated –TC=14 Recoverable failure of other LU –TC=15 Cleanup done by other LU –TC=254 Protocol violation detected by other LU	TC	CU	24 then 16	TC	ns	ns
CTERM Forced received by PLU (PLU sends UNBIND type=01 to SLU) –VARY NET,INACT,I of either of LUs, CDRSC, CDRM, or associated component –HALT NET,QUICK –REQDISCONT Immediate from PU –Cross-Domain Takedown (Forced)	ns	ns	12	ns	ns	ns

[1] See *ACF/VTAM Programming,* Chapter 7 the section titled "Unbind Session (UNBIND)."

Session Outage Notification UNBIND Type Codes and Reason Codes (Part 2 of 3)

Session Outage Notification Signals SCIP: UNBIND RU with type code NSEXIT: CLEANUP RU (CU) LOSTERM: reason code (Type and reason codes shown in decimal) "ns" means "exit routine not scheduled" Session Outage Notification Reasons	If LU is PLU			If LU is SLU		
	SCIP	NSEXIT	LOSTERM	SCIP	NSEXIT	LOSTERM
CTERM Forced received by PLU (PLU sends UNBIND 01 to SLU) –Terminate Forced by SLU –LOGOFF UNCOND by SLU –TERMSESS UNCOND by SLU –VARY NET,TERM,UNCOND of session	ns	ns	20	ns	ns	ns
CLEANUP received by this LU (UNBIND type=01 sent to other LU) –VARY NET,INACT,F or R of LU, CDRSC, CDRM, or associated component –VARY NET,TERM,FORCE of session –Cross Domain Takedown Cleanup –CLOSE or ABEND by other LU –RU received larger than maximum size specified in BIND –Route extension inoperative	ns	CU	24 then 16	ns	CU	ns
CLEANUP received by this LU (UNBIND type=01 sent to other LU) –Terminate Cleanup by this or other LU (Includes Terminate Forced changed to Terminate Cleanup by the SSCP)	ns	CU	12	ns	CU	ns
Global failure of this LU (UNBIND type=01 sent to other LU) (TPEND exit routine with reason code 8) –HALT NET,CANCEL –ABEND of application program –ACF/VTAM failure	ns	ns	ns	ns	ns	ns
Failure of this LU for this session (UNBIND type=14 sent to other LU)	14	CU	24 then 16	14	ns	ns

Session Outage Notification UNBIND Type Codes and Reason Codes (Part 3 of 3)

Session Outage Notification Signals SCIP: UNBIND RU with type code NSEXIT: CLEANUP RU (CU) LOSTERM: reason code (Type and reason codes shown in decimal) "ns" means "exit routine not scheduled" Session Outage Notification Reasons	If LU is PLU			If LU is SLU		
	SCIP	NSEXIT	LOSTERM	SCIP	NSEXIT	LOSTERM
Buffer overflow at this LU (Does not cause session termination)	ns	ns	36	ns	ns	36
Test Request message received by PLU (UNBIND type=01 sent to the SLU) –From BSC 3270 attached to ACF/NCP	ns	ns	12	ns	ns	ns
CTERM Orderly received by PLU (Does not cause session termination) –VARY NET,TERM,COND of session –Terminate Orderly by SLU –TERMSESS COND by SLU –LOGOFF COND by SLU –Cross-Domain Takedown Orderly	ns	ns	32	ns	ns	ns

RPL REQ Field Values

Value (Dec)	*Hex*	*Macro Instruction*
(21)	15	SETLOGON
(22)	16	SIMLOGON
(23)	17	OPNDST
(26)	1A	INQUIRE
(27)	1B	INTRPRET
(31)	1F	CLSDST
(34)	22	SEND
(35)	23	RECEIVE
(36)	24	RESETSR
(37)	25	SESSIONC
(39)	27	SENDCMD
(40)	28	RCVCMD
(41)	29	REQSESS
(42)	2A	OPNSEC
(44)	2C	TERMSESS

Parameter Lists for the EXLST Exit Routines

Exit Routine	Register 1 Parameter List		
	1st Word	2nd Word	3rd Word
DFASY	ACB address	CID	USERFLD data[4]
LERAD	None (Register 1 contains the RPL address for the request that failed)		
LOGON	ACB address	Address of the secondary logical unit's symbolic name	USERFLD data or zeros[2]
LOSTERM	ACB address	CID	USERFLD data[4]
NSEXIT (for CLEANUP RU)	ACB address	CID	USERFLD data[4]
NSEXIT (for Notify RU)	ACB address	Reserved	USERFLD data[3]
NSEXIT (for NSPE RU)	ACB address	Reserved	Reserved

[1] If the BIND request is a result of a REQSESS macro instruction, word 3 contains the USERFLD data from the NIB used with REQSESS; otherwise, word 3 contains zeros.

[2] If the LOGON exit routine is entered as a result of a SIMLOGON macro instruction, word 3 contains USERFLD data from the NIB used with SIMLOGON; otherwise, word 3 contains zeros.

Parameter Lists for the EXLST Exit Routine (continued)

Exit Routine	Register 1 Parameter List		
	4th Word	5th Word	6th Word
DFASY	Reserved	Address of ready-only RPL	Reserved
LERAD	None (Register 1 contains the RPL address for the request that failed)		
LOGON	Length of logon message	Address of read-only RPL (RPL contains the address of the CINIT RU.)	CID
LOSTERM	Reason code	Reserved	Reserved
NSEXIT (Cleanup)	Reserved	Address of read-only RPL (RPL contains address of CLEANUP RU.)	Reserved
NSEXIT (Notify)	Reserved	Address of read-only RPL (RPL contains address of Notify RU.)	Reserved
NSEXIT (NSPE)	Reserved	Address of read-only RPL (RPL contains address of NSPE RU.)	Reserved

[3] Word 3 contains the USERFLD data from the NIB used with REQSESS, SIMLOGON, or CLSDST OPTCD PASS.
[4] Word 3 contains the USERFLD data from the NIB used with OPNDST or OPNSEC.

Parameter Lists for the EXLST Exit Routines (continued)

Exit Routine	Register 1 Parameter List		
	1st Word	2nd Word	3rd Word
RELREQ	ACB address	Address of the secondary logical unit's symbolic name	Reserved
RESP	ACB address	CID	USERFLD data[2]
SCIP (for BIND RU)	ACB address	CID	USERFLD data or zeros[1]
SCIP (for other than BIND RU)	ACB address	CID	USERFLD[2]
SYNAD	None (Register 1 contains the RPL address for the request that failed)		
TPEND	ACB address	Reason-code	Reserved

[1] If the BIND request is a result of a REQSESS macro instruction, word 3 contains the USERFLD data from the NIB used with REQSESS; otherwise, word 3 contains zeros.
[2] Word 3 contains the USERFLD data from the NIB used with OPNDST or OPNSEC.

Parameter Lists for the EXLST Exit Routines (continued)

Exit Routine	Register 1 Parameter List		
	4th Word	5th Word	6th Word
RELREQ	Reserved	Reserved	Reserved
RESP	Reserved	Address of read-only RPL	Reserved
SCIP (for BIND RU)	Address of the session parameters	Address of read-only RPL (RPL contains the address of the BIND RU.)	Reserved
SCIP (for other than BIND RU)	Reserved	Address of read-only RPL (For UNBIND, the RPL contains the address of the UNBIND RU.)	Reserved
SYNAD	None (Register 1 contains the RPL address for the request failed)		
TPEND	Reserved	Reserved	Reserved

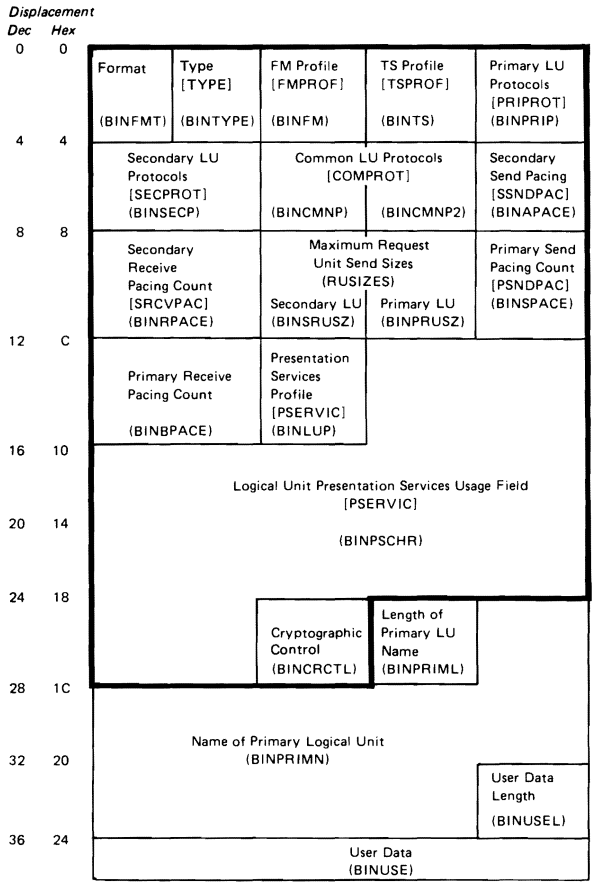
Macro Instructions That Create DSECTs

Control Block	*DSECT Name and Operands*	
ACB	IFGACB	AM=VTAM [,DSECT=YES|NO]
EXLST	IFGEXLST	AM=VTAM [,DSECT=YES|NO]
RPL	IFGRPL	AM=VTAM [,DSECT=YES|NO]
Device characteristics field in NIB	ISTDVCHR	[DSECT=YES|NO]
Processing options field in NIB	ISTDPROC	[DSECT=YES|NO]
RTNCD-FDBK2-FDBK fields in RPL	ISTUSFBC	
NIB	ISTDNIB	
Session parameters	ISTDBIND	
Program operator message and command header	ISTDPOHD	
Request/response header	ISTRH	
Buffer list entry	ISTBLENT	

In coding these macro instructions, do not use elsewhere in the program any label beginning with:

ACB	IFG	RH
BIN	IST	RPL
BLE	NIB	RSV
DEV	POH	USF
EXL	PRO	

PART 4. SNA REFERENCE DATA
Format of BNDAREA (ISTDBIND)



The heavily outlined section is the fixed-length portion of BIND. The names in brackets are the operands of the MODEENT macro used to build the corresponding fields in a logon mode table entry. For further information refer to the *ACF/VTAM Planning and Installation Reference* manual. The names in parentheses are the ISTDBIND DSECT labels for the field.

Index of RUs by NS Headers and Request Codes

Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
010002	Change Negative Response Poll Limit	FMD	–	–
010003	Change Session Limit	FMD	–	–
010004	Chg Service Seeking Pause	FMD	–	–
010201	Contact	FMD	CTCRU	CONTACT
010202	Discontact	FMD	DCTRU	DISCONTACT
010203	IPL Initial	FMD	–	IPLINIT
010204	IPL Text	FMD	–	IPLTEXT
010205	IPL Final	FMD	–	IPLFINAL
010206	Dump Initial	FMD	–	DUMPINIT
010207	Dump Text	FMD	–	DUMPTEXT
010208	Dump Final	FMD	–	DUMPFINAL
010209	Remote Power Off	FMD	–	RPO
01020A	Activate Link	FMD	ALKRU	ACTLINK
01020B	Deactivate Link	FMD	DLKRU	DACTLINK
01020E	Connect Out	FMD	CNTRU	CONNOUT
01020F	Abandon Connection	FMD	ABCRU	ABCONN
010211	Set Control Vector (Configuration Services)	FMD	SCVRU	SETCV
010214	Entering Slowdown	FMD	–	ESLOW
010215	Exiting Slowdown	FMD	–	EXSLOW
010216	Activate Connect In	FMD	AINRU	ACTCONNIN
010217	Deactivate Connect In	FMD	DINRU	DACTCONNIN
010218	Abandon Connect Out	FMD	ACNRU	ABCONNOUT
010219	Assign Network Address	FMD	ANARU	ANA
01021A	Free Network Address	FMD	FADRU	FNA
01021B	Request Discontact	FMD	–	REQDISCONT
010222	Set Control Vector (Configuration Services)	FMD	MSVRU	–
010280	Contacted	FMD	KTDRU	CONTACTED
010281	Inoperative	FMD	INPRU	INOP
010284	Request Contact	FMD	RQCRU	REQCONT
010285	NS Lost Subarea	FMD	LSARU	NSLSA
0102FFA0	Allocate Resource	FMD	ALRRU	–
0102FFA1	Free Resource	FMD	FRERU	–
0102FFA2	Set Routable State	FMD	RTARU	–
0102FFA3	Reset Routable State	FMD	RTIRU	–

Index of RUs by NS Headers and Request Codes

Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
010301	Execute Test	FMD	–	–
010302	Activate Trace	FMD	ATRRU	ACTTRACE
010303	Deactivate Trace	FMD	ATRRU	DACTTRACE
010311	Set Control Vector (Maintenance Services)	FMD	MSVRU	SETCV
010331	Display Storage	FMD	DSTRU	DISPSTOR
010334	Record Storage	FMD	RSTRU	RECSTOR
010381	Record Maintenance Stats	FMD	NSRU	RECMS
010382	Record Test Data	FMD	–	RECTD
010383	Record Trace Data	FMD	NSRU	RECTRD
010480	Record Measurement Data	FMD	RMDRU	–
010604	Net Services Proc Error	FMD	NSPE	NSPE
010680	Initiate Other	FMD	INITO	–
010681	Initiate Self Format-0	FMD	ISHDR	INIT-SELF
010682	Terminate Other	FMD	TMRU	–
010683	Terminate Self Format-0	FMD	TMRU	TERM-SELF
04	Logical Unit Status	DFC	LUSRU	LUSTAT
05	Ready to Receive	DFC	–	RTA
05	Lost Subarea	NC	LSARU	LSA
06	Entering Auto Net Shutdown	NC	–	ANSS
06	Explicit Route Inoperative	NC	ERIRU	ERINOP
07	ANS Complete	NC	ANCRU	ANSC
08	Lost Path	NC	–	–
09	Explicit Route Test	NC	ETSRU	–
0A	Explicit Route Test Reply	NC	ETRRU	–
0B	Explicit Route Activate	NC	ERARU	ERACT
0C	Explicit Route Activate Reply	NC	EARRU	ERACTRPLY
0D	Activate Logical Unit	SC	ALURU	ACTLU
0D	Activate Virtual Route	NC	VRARU	ACTVR
0E	Deactivate Logical Unit	SC	–	DACTLU

Index of RUs by NS Headers and Request Codes

Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
0E	Deactivate Virtual Route	NC	VRDRU	DACTVR
0F	Explicit Route Operative	NC	ERORU	EROP
11	Activate Physical Unit	SC	APURU	ACTPU
12	Deactivate Physical Unit	SC	DPURU	DACTPU
14	Activate CDRM	SC	ACTCD	ACTCDRM
14	Activate CDRM Response	SC	APRRU	ACTCDRM
15	Deactivate CDRM	SC	DACTC	DACTCDRM
31	Bind Session	SC	BIND	BIND
32	Unbind Session	SC	UNBRU	UNBIND
3F0233	Initiate Load	FMD	ILDRU	INITLOAD
3F0234	Load Status	FMD	LDSRU	LOADSTAT
410210	Request Net Addr Assign	FMD	RADRU	RNAA
41021C	Delete Network Resource	FMD	DNRRU	DELETENR
410237	Load Required	FMD	–	LDREQD
410240	Add Network Resource	FMD	ANRRU	ADDNR
410243	NS IPL Initiate	FMD	–	IPL-INIT
410244	NS IPL Text	FMD	–	IPL-TEXT
410245	NS IPL Final	FMD	–	IPL-FINAL
410246	NS IPL Abort	FMD	IPARU	IPL-ABORT
410285	Lost Subarea	FMD	LSARU	NSLSA
410286	Req Delete Net Resource	FMD	RDRRU	REQDELNR
410287	Network Services Lost Control Point	FMD	LCPRU	NSLCP
4102FF10	Request Network Address Assignment	FMD	RNARU	–
410TF66	Exchange ID	AMRU	AMRU	–
4102FFBD	Add Link	FMD	PLKRU	ADDLK
4102FFBE	Add Link Station	FMD	PSTRU	ADDLS
4102FFBF	Delete Network Resource	FMD	DNRRU	DELETENR
4102FFCD	Request Dump	FMD	RDPRU	REQDUMP
4102FFCE	Request Conditional Load	FMD	RLDRU	REQLOADC

Index of RUs by NS Headers and Request Codes				
Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
4102FFCF	Request Unconditional Load	FMD	RLDRU	REQLOADU
410304	Request Maintenance Statistics	FMD	–	REQMS
410305	Enter Test Mode	FMD	ETMRU	TESTMODE
410306	Request Route Test	FMD	TRTRU	–
410384	Record Formatted MS	FMD	RFMRU	RECFMS
410385	Record Test Results	FMD	RCTRU	RECTR
410386	Explicit Route Tested	FMD	ETRRU	–
4106FF01	OPEN ACB	FMD	OCRU	–
4106FF02	CLOSE ACB	FMD	OCRU	–
50	NCP Init Complete	NC	–	–
51	Switch line EP to NCP mode	NC	–	–
52	Switch line NCP to EP mode	NC	–	–
63	Service Manager Parameter List	FMD	SMP	–
70	Bracket Init Stopped	DFC	–	BIS
71	Stop Bracket Initiation	DFC	–	SBI
80	Quiesce At End Of Chain	DFC	–	QEC
81	Quiesce Complete	DFC	–	QC
810387	Request Echo Check	FMD	RQERU	REQECHO
810389	Echo Test	FMD	ECTRU	ECHO
810601	Control Initiate	FMD	CTLIN	CINIT
810602	Control Terminate	FMD	CTERM	CTERM
810620	Notify	FMD	NOTRU	NOTIFY
810629	Cleanup Session	FMD	CLNUP	CLEANUP
810680	Initiate Other	FMD	INITO	INIT-OTHER
810681	Initiate Self Format-1	FMD	ISHDR	INIT-SELF
810682	Terminate Other	FMD	TMRU	TERM-OTHER
810683	Terminate Self Format-1	FMD	TMRU	TERM-SELF
810685	Bind Failure	FMD	BFA	BINDF
810686	Session Started	FMD	SSSRU	SESST
810687	Unbind Failure	FMD	UBFRU	UNBINDF
810688	Session Ended	SSE	–	SESSEND
8106FF80	Reallocate	FMD	RELOC	–
810810	Forward	FMD	FWDRU	FORWARD

Index of RUs by NS Headers and Request Codes				
Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
810AFF00	API SETLOGON (START)	FMD	–	–
810AFF01	API SETLOGON (STOP)	FMD	–	–
810AFF02	API SETLOGON QUIESCE	FMD	–	–
810AFF10	API SIMLOGON	FMD	–	–
810AFF20	API OPNDST (ACQUIRE)	FMD	–	–
810AFF21	API OPNDST (ACCEPT)	FMD	–	–
810AFF30	API INQUIRE (LOGONMSG)	FMD	–	–
810AFF31	API INQUIRE (DEVCHAR)	FMD	–	–
810AFF32	API INQUIRE (COUNTS)	FMD	–	–
810AFF33	API INQUIRE (TOPLOGON)	FMD	–	–
810AFF34	API INQUIRE CIDXLATE	FMD	–	–
810AFF35	API INQUIRE (TERMS)	FMD	–	–
810AFF36	API INQUIRE (APPSTAT)	FMD	–	–
810AFF37	API INQUIRE (SESSPARMS)	FMD	–	–
810AFF38	API INQUIRE (SESSKEY)	FMD	–	–
810AFF40	API INTERPRET	FMD	–	–
810AFF50	API CLSDST (PASS)	FMD	–	–
810AFF51	API CLSDST (RELEASE)	FMD	–	–
810AFF60	API SESSIONC	FMD	–	–
810AFF70	API SENDCMD	FMD	–	–
810AFF80	API RCVCMD	FMD	–	–
810AFF90	API REQSESS	FMD	–	–
810AFFA0	API OPNSEC	FMD	–	–
810AFFB0	API TERMSESS	FMD	–	–
810812	Deliver	FMD	DLVRU	DELIVER
8108FF01	Notify	FMD	NAMRU	

Index of RUs by NS Headers and Request Codes

Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
818620	Cross-Domain Notify	FMD	NOTRU	NOTIFY
818627	Direct Search List	FMD	DSL	DSRLST
818640	Cross-Domain Init Other	FMD	CRDIO	INIT-OTHER-CD
818641	Cross-Domain Initiate	FMD	CDIN	CDINIT
818643	Cross-Domain Terminate	FMD	CDTRM	TERM-SELF-CD
818643	Cross-Domain Terminate	FMD	TMRU	CDTERM
818645	CD Session Setup Failure	FMD	CDSF	CDSESSF
818646	CD Session Started	FMD	CSESS	CDSESSST
818648	CD Session Ended	FMD	CRSE	CDSESSEND
818649	Cross-Domain Takedown	FMD	DTAKD	CDTAKED
81864A	CD Takedown Complete	FMD	DTAKC	CDTAKEC
81864B	CD Control Initiate	FMD	CDCIN	CDCINIT
82	Release Quiesce	DFC	–	RELQ
83	Cancel	DFC	–	CANCEL
84	Chase	DFC	–	CHASE
A0	Start Data Traffic	SC	–	SDT
A1	Clear	SC	–	CLEAR
A2	Set and Test Sequence Nos	SC	–	STSN
A3	Request Recovery	SC	–	RQR
C0	Cryptography Verify	SC	–	CRV
C0	Shutdown	DFC	–	SHUTD
C1	Shutdown Complete	DFC	–	SHUTC
C2	Request Shutdown	DFC	–	RSHUTD
C8	Bid	DFC	–	BID
C9	Signal	DFC	–	SIG
FF01	Virtual Route Inoperative	AMRU	AMRU	VRINOP
FF01	Notify (drive LOSTERM)	AMRU	AMRU	–
FF02	Set Session Address	AMRU	AMRU	–
FF03	Set Session Address with Disconnect	AMRU	–	–
FF04	Override Session Address	AMRU	–	–

Index of RUs by NS Headers and Request Codes				
Hex Value	*RU Name*	*RU Category*	*ACF/ VTAM Control Block*	*SNA Abbreviation*
FF05	Purge Wait Queue	AMRU	–	–
FF06	Flush Virtual Route Sessions	AMRU	AMRU	FLUSH
FF0B	Request Explicit Route Activate	AMRU	RAERU	REQERACT
FF0E	Request Virtual Route Deactivate	AMRU	RDVRU	REQDACTVR
FF31	Generic Bind	AMRU	GBIND	GBIND
FF32	Generic Unbind	AMRU	GUNB	GUNBIND
FFFF	Virtual Route Status	AMRU	VRSRU	VRSTAT

Logical Unit Presentation Services Profiles and Protocols[1]

LU Type 0

Use of a set of protocols and data streams agreed upon by the logical units involved; SNA does not define them

LU Type 1

Use of an SNA character string (SCS) and a defined set of SNA protocols for a keyboard/printer device

Use of predefined function management headers to identify a variety of data set types and controls that can be sent and received

LU Type 2

Use of a 3270 data stream and a defined set of SNA protocols for a keyboard/display device

LU Type 3

Use of a 3270 data stream and a defined set of SNA protocols for a printer

LU Type 4

Use of an SNA character string (SCS) and a defined set of SNA protocols for a batch input/output LU having associated with it a printer and a magnetic stripe reader/recorder

LU Type 6

Use of SNA character string (SCS) and structured field data streams between application programs in a distributed processing environment

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[1] Refer to *Systems Network Architecture: Sessions between Logical Units,* GC20-1868, and *Systems Network Architecture: Concepts and Products,* GC30-3072, for additional information.

Transmission Services Profiles[1]

Session Control Requests for Each Transmission Services Profile

Session Control Request	Transmission Services Profile			
	2	3	4	7
CLEAR	Opt	Opt	Opt	NA
RQR	NA	NA	Opt	NA
SDT	NA	Req	Req	NA
STSN	NA	NA	Opt	NA

Key: Req — This request must be used. The required requests may be issued by ACF/VTAM on behalf of the application program.

Opt — This request may be used.

NA — Not applicable. This request must not be used.

[1] Refer to the *Systems Network Architecture Reference Summary,* GA27-3136, for additional information.

Transmission Services Usage Field Request Unit Size

The session parameters specify the maximum length of request units that can be sent by the logical units. This information is divided into two parts: the secondary logical unit send request unit size (byte 9) and the primary logical unit send request unit size (byte 10). Both bytes have the same format; however, they may be set to different values depending upon the requirements of the logical units. The bits that can be set are listed below.

Warning: The displacements indicated below apply to the ISTDBIND DSECT. These displacements are one greater in the actual BIND RU, since the BIND RU contains a request code that is not contained in the ISTDBIND DSECT.

Bit Setting (Bytes 9 and 10)		
0 1 2 3	*4 5 6 7*	*Meaning*
0 . . .	. . . .	(byte 9) 6K bytes is the default maximum length of the request unit that can be sent by the SLU. ACF/VTAM will terminate a session on behalf of the PLU if a larger RU is received.
0 . . .	. . . .	(byte 10) There is no limit specified for the size of the request unit that can be sent by the PLU.
1 0 0 0	. . . .	This is the mantissa (m) of the formula $m \times 2^n$ used to determine the length of request units that can be sent by the primary or secondary logical unit.
through		
1 1 1 1	. . . .	
. . . .	0 0 0 0	This is the exponent (n) of the formula $m \times 2^n$ used to determine the maximum length of request units that can be sent by the primary or secondary logical unit.
through		
. . . .	1 1 1 1	

For example, if byte 9 or 10 is set to hex 85, then the mantissa is 8 and the exponent is 5; the associated RU size is 256 bytes (8×2^5). Refer to the table on the next page for all possible values. For a discussion of maximum RU size when using SEND OPTCD=LMPEO, refer to *ACF/VTAM Programming.*

Maximum Size of Request Unit (in decimal)

RU Size Byte	Bits 0-3(m)			
	8	9	A (10)	B (11)
0	8	9	10	11
1	16	18	20	22
2	32	36	40	44
3	64	72	80	88
4	128	144	160	176
5	256	288	320	352
6	512	576	640	704
7	1024	1152	1280	1408
8	2048	2304	2560	2816
9	4096	4608	5120	5632
A(10)	8192	9216	10240	11264
B(11)	16384	18432	20480	22528
C(12)	32768	36864	40960	45056
D(13)	65536	73728	81920	90112
E(14)	131072	147456	163840	180224
F(15)	262144	294912	327680	360448

Bits 4-7(n)

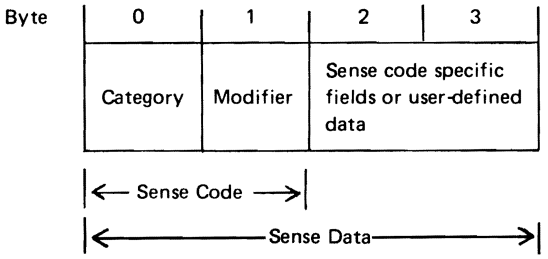
RU Size Byte	Bits 0-3(m)			
	C (12)	D (13)	E (14)	F (15)
0	12	13	14	15
1	24	26	28	30
2	48	52	56	60
3	96	104	112	120
4	192	208	224	240
5	384	416	448	480
6	768	832	896	960
7	1536	1664	1792	1920
8	3072	3328	3584	3840
9	6144	6656	7168	7680
A(10)	12288	13312	14336	15360
B(11)	24576	26624	28672	30720
C(12)	49152	53248	57344	61440
D(13)	98304	106496	114688	122880
E(14)	196608	212992	229376	245760
F(15)	393216	425984	458752	491520

Bits 4-7(n)

Sense Codes

The information in this section is adapted from information presented in the *SNA Format and Protocol Reference Manual: Architectural Logic,* SC30-3112, and is provided here for the convenience of the reader. Although the information was accurate at the time it was published, it is subject to change. The manual cited above should be regarded as the official source of this information.

The sense data included with an exception request (EXR), a negative response, or a send check is a 4-byte field (see below) that generally includes a 1-byte category value, a 1-byte modifier value, and 2 bytes of implementation- or end-user-defined data (hereafter referred to as user-defined data). For certain sense codes, user-defined data cannot be included in the sense data (it is never carried in send-check sense data); in its place is sense code specific information, whose format is defined along with the sense code definition, below.



Together, the category and modifier bytes hold the sense code (SNC) defined for the exception condition that has occurred.

The following categories are defined; all others are reserved:

Hex Value	*Category*
00	User Sense Data Only
08	Request Reject
10	Request Error
20	State Error
40	Request Header (RH) Usage Error
80	Path Error

The category "user sense data only" (hex 00) allows the end users to exchange sense data in bytes 2-3 for conditions not defined by SNA within the other categories (and perhaps unique to the end users involved). The modifier value is also hex 00.

The sense codes for the other categories are discussed below. For these categories, a modifier value of hex 00 can be used (as an implementation option) when no definition of the exception condition beyond the major category is to be identified.

Request Reject (Category Code Hex 08)

This category indicates that the request was delivered to the intended half-session component and was understood and supported, but not executed.

Sense Code (Hex)	*Meaning*
0801	Resource Not Available: The LU, PU, or link specified in an RU is not available.
0802	Intervention Required: Forms or cards are required at an output device, or a device is temporarily in local mode, or other conditions require intervention.
0803	Missing Password: The required password was not supplied.
0804	Invalid Password: The password was not valid.
0805	Session Limit Exceeded: The requested session cannot be activated, as one of the NAUs is at its session limit. Applies to ACTCDRM, INIT, BIND, and CINIT requests.
0806	Resource Unknown: The request contained a name or address not identifying a PU, LU, link, or link station known to the receiver.
0807	Resource Not Available—LUSTAT Forthcoming: A subsidiary device will be unavailable for an indeterminate period of time. LUSTAT will be sent when the device becomes available.
0808	Invalid Contents ID: The contents ID contained on the ACTCDRM request was found to be invalid.

Sense Code (Hex)	*Meaning*
0809	Mode Inconsistency: The requested function cannot be performed in the present state of the receiver.
080A	Permission Rejected: The receiver has denied an implicit or explicit request of the sender; when sent in response to BIND, it implies either that the secondary LU will not notify the SSCP when a BIND can be accepted, or that the SSCP does not recognize the NOTIFY vector key hex 0C. (See the hex 0845 sense code for a contrasting response.)
080B	Bracket Race Error: Loss of contention within the bracket protocol. Arises when bracket initiation/termination by both NAUs is allowed.
080C	Procedure Not Supported: A procedure (Test, Trace, IPL, REQMS type) specified in an RU is not supported by the receiver.
080D	NAU Contention: A request to activate a session was received while the receiving half-session was awaiting a response to a previously sent activation request for the same session; for example, the SSCP receives an ACTCDRM from the other SSCP before it receives the response for an ACTCDRM that it sent to the other SSCP and the SSCP ID in the received ACTCDRM was less than or equal to the SSCP ID in the ACTCDRM previously sent.
080E	NAU Not Authorized: The requesting NAU does not have access to the requested resource.

Sense Code (Hex)	*Meaning*
080F	End User Not Authorized: The requesting end user does not have access to the requested resource.
0810	Missing Requester ID: The required requester ID was missing.
0811	Break: Asks the receiver of this sense code to terminate the present chain with CANCEL or with an FMD request carrying EC. The half-session sending the Break sense code enters chain-purge state when Break is sent.
0812	Insufficient Resource: The receiver cannot act on the request because of a temporary lack of resources.
0813	Bracket Bid Reject—No RTR Forthcoming: BID (or BB) was received while the first speaker was in the in-bracket state, or while the first speaker was in the between-brackets state and the first speaker denied permission. RTR will not be sent.
0814	Bracket Bid Reject—RTR Forthcoming: BID (or BB) was received while the first speaker was in the in-bracket state, or while the first speaker was in the between-brackets state and the first speaker denied permission. RTR will be sent.
0815	Function Active: A request to activate a network element or procedure was received, but the element or procedure was already active.
0816	Function Inactive: A request to deactivate a network element or procedure was received, but the element or procedure was not active.

Sense Code (Hex)	*Meaning*
0817	Link Inactive: A request requires the use of a link, but the link is not active.
0818	Link Procedure in Process: CONTACT, DISCONTACT, IPL, or other link procedure was in progress when a conflicting request was received.
0819	RTR Not Required: Receiver of Ready to Receive has nothing to send.
081A	Request Sequence Error: Invalid sequence of requests.
081B	Receiver in Transmit Mode: A race condition: normal-flow request received while the half-duplex contention state was not-receive, (*S, ¬R), or while resources (such as buffers) necessary for handling normal-flow data was unavailable. (Contrast this sense code with hex 2004, which signals a protocol violation.)
081C	Request Not Executable: The requested function cannot be executed, because of a permanent error condition in the receiver.

The following list shows ACF/VTAM-unique codes that are set as part of sense code 081C.

OS/VS User Sense Codes for Request Load (Conditional) and Request Load (Unconditional) Request Units

Sense Data	*Meaning*
081C0008	ACF/VTAM is unable to successfully open the data set containing the NCP load module.

Sense Data	*Meaning*
081C0014	The loaded NCP has encountered an error preventing successful initialization.
081C0018	Load not performed — HALT is in progress.
081C001C	The communication controller dump/load/restart router (module ISTINCDP) has received an input work element which contains an unrecognized command code. The NCP load module is not present in the load module data set (BLDL failure).
081C0020	A permanent I/O error has occurred on the communication controller.
081C0024	ACF/VTAM is unable to successfully open the data set containing the diagnostics programs (ddname "INITTEST").
081C002C	The diagnostic program has detected a probable communication controller hardware error.
081C0030	The NCP or diagnostics program load module has a block size greater than 1024 bytes (the "DC" option was not specified when the link-edit was performed).

Sense Data	*Meaning*
081C003C	The communication controller unit control block does not contain a valid value for the channel adapter type field.
081C0040	The NCP or diagnostics program load module is improperly constructed.
081C0044	The IFLOADRN communication controller load utility program is unable to allocate sufficient storage.
081C004C	The NCP load module size exceeds the storage capacity of the communication controller.
081C0050	A permanent I/O error has occurred on the NCP load module library.
081C0054	A permanent I/O error has occurred on the diagnostics program load module library (ddname "INITTEST").
081C0058	A diagnostics program cannot be located in the diagnostics program load module library (ddname "INITTEST") – BLDL failure.
081C005C	Request Load (Conditional) is attempted while another host is already loading the communication controller (unit exception on SENSE channel program).

Sense Data	*Meaning*
081C0060	Request Load (Conditional) is attempted while another host is already loading the communication controller (Start I/O condition code = 3 on SENSE channel program).
081C0064	A Load I/O operation (to a link-attached communication controller) has been purged (by Vary Deactivate or error recovery of the communication controller or of another node in the path to the communication controller).
081C0068	A Load I/O operation (to a link-attached communication controller) has failed (a negative response has been generated by the adjacent communication controller).
081C008C	The NCP load module has an entry point address of zero.
081C00AB	Load not performed — the load subtask has abended.

VSE User Sense Codes for Request Load (Conditional) and Request Load (Unconditional) Request Units

Sense Data	*Meaning*
081C0008	An error has occurred during processing of the diagnostic data set. The operator decided

Sense Data	*Meaning*
	not to continue processing the nondiagnostic load.
081C000C	One of the following has occurred: A permanent I/O error on the diagnostic or load-module data set A probable 3705 hardware error, detected by the diagnostic program A permanent I/O error on the communication controller.
081C0010	A time-out has occurred while the Diagnostic Load program was running (Hardstop in the communication controller).
081C0014	An invalid symbolic unit exists in the RDT for the NCP data set.
081C0018	An error has occurred during processing of the NCP file.
081C001C	An error has occurred during the loading of the Loader Bootstrap.
081C00064	The remote communication controller load I/O has been purged.
081C00068	The remote communication controller I/O has failed.

User Sense Codes for Request Dump Request Units

Sense Data	*Meaning*
081C0004	A requested communication controller dump has been terminated because of a permanent I/O error on the dump file — the dump is partially complete and can be formatted and printed.
081C0008	A requested communication controller dump has been terminated because of a permanent communication controller I/O error — the dump is partially complete and can be formatted and printed.
081C000C	A requested communication controller dump has been terminated because of a permanent I/O error on the dump file — the dump data set cannot be formatted and printed.
081C0010	A requested communication controller dump has been terminated because of a permanent communication controller I/O error — the dump data set cannot be formatted and printed.
081C0014	Unable to successfully open the dump data set.
081C0018	Dump not performed — HALT is in progress.

Sense Data	*Meaning*
081C001C	The dump data set resides on a device that is not supported by the dump utility program. Or, the communication controller dump/load/restart router (module ISTINCDP) has received an input work element that contains an unrecognized command code.
081C0020	Unable to successfully load a necessary dump utility module.
081C00AB	Dump not performed — the dump subtask has abended.

User Sense Codes for Activate Link and Deactivate Link Request Units

Sense Data	*Meaning*
081C0004	Invalid Device Address — not three valid hexa-decimal digits.
081C0008	Invalid Device Address — specified device does not exist (i.e. has not been defined in the operating system SYSGEN).
081C000C	Invalid Device Type — specified device is not of the correct type.
081C0010	Device is already allocated to another JOB.

Sense Data	*Meaning*
081C0014	SYS000 is assigned (VSE only).
081C0018	There are no free channel queue entries (VSE only).
081C0020	VPBUF storage is insufficient.
081C0028	Unable to deallocate device.
081C0030	No paths are available to the device (MVS only).
081C0034	Invalid resource type in ACF/VTAM resource definition table entry (RDTE) corresponding to device to be allocated.
081C0038	Cannot locate ACF/VTAM resource definition table entry (RDTE) corresponding to device to be allocated.
081C003C	Device not Usable — VARY ONLINE OS/VS command has not been issued.

Sense Code (Hex)	*Meaning*
081D	Invalid Station/SSCP ID: The station ID or SSCP ID in the request was found to be invalid.
081E	Session Reference Error: The request contained reference to a half-session that was neither active nor in the process of being activated (generally applies to network services requests).
081F	Reserved.
0820	Control Vector Error: Invalid data for the control vector specified by the target network address and key.
0821	Invalid Session Parameters: Session parameters were not valid or not supported by the half-session whose activation was requested.
0822	Link Procedure Failure: A link-level procedure has failed due to link equipment failure, loss of contact with a link station, or an invalid response to a link request. (This is not a path error, since the request being rejected was delivered to its destination.)

Sense Code (Hex)	*Meaning*
0823	Unknown Control Vector: The control vector specified by a network address and key is not known to the receiver.
0824	Unit of Work Aborted: The current unit of work has been aborted; when synchronization point protocols are in use, both synchronization point managers are to revert to the previously committed synchronization point.
0825	Component Not Available: The LU component (a device indicated by an FM header) is not available.
0826	FM Function Not Supported: A function requested in an FMD RU is not supported by the receiver.
0827	Intermittent Error—Retry Requested: An error at the receiver caused an RU to be lost. The error is not permanent, and retry of the RU (or chain) is requested.
0828	Reply Not Allowed: A request requires a normal-flow reply, but the outbound data flow for this half-session is quiesced or shut down, and there is no delayed reply capability.
0829	Change Direction Required: A request requires a normal-flow reply, but the half-duplex flip-flop state is not-send (¬S, *R), CD was not set on the request, and there is no delayed reply capability.

Sense Code (Hex)	*Meaning*
082A	Presentation Space Alteration: Presentation space altered by the end user while the half-duplex state was not-send, (¬S, *R); request executed.
082B	Prsentation Space Integrity Lost: Presentation space integrity lost (e.g., cleared or changed) because of a transient condition—for example, because of a transient hardware error or an end user action such as allowing presentation services to be used by the SSCP. (Note: The end-user action described under sense codes hex 082A and 084A is excluded here.)
082C	Resource-Sharing Limit Reached: The request received from an SSCP was to activate a half-session, a link, or a procedure, when that resource was at its share limit.
082D	LU Busy: The LU resources needed to process the request are being used; for example, the LU resources needed to process the request received from the SSCP are being used for the LU-LU session.
082E	Intervention Required at LU Subsidiary Device: A condition requiring intervention, such as out of paper, or power-off, or cover interlock open, exists at a subsidiary device.
082F	Request Not Executable because of LU Subsidiary Device: The requested function cannot be executed, due to a permanent error condition in one or more of the receiver's subsidiary devices.
0830	Reserved.

Sense Code (Hex)	*Meaning*
0831	LU Component Disconnected: An LU component is not available because of power off or some other disconnecting condition.
0832	Invalid Count Field: A count field contained in the request indicates a value too long or too short to be interpreted by the receiver, or the count field is inconsistent with the length of the remaining fields. Bytes 2 and 3 following the sense code are not used for user-defined data; they contain a binary count that indexes (zero-origin) the first byte of the invalid count field.
0833	Invalid Parameter (with Pointer and Complemented Byte): One or more parameters contained in fixed- or variable-length fields of the request are invalid or not supported by the NAU that received the request. Bytes 2 and 3 following the sense code are not used for user-defined data. Byte 2 contains a binary value that indexes (zero-origin) the first byte that contained an invalid parameter. Byte 3 contains a transform of the first byte that contained an invalid parameter: the bits that constitute the one or more invalid parameters are complemented, and all other bits are copied.
0834	RPO Not Initiated: A power-off procedure for the specified node was not initiated because one or more other SSCPs have contacted the node, or because a CONTACT, DUMP, IPL, or DISCONTACT procedure is in progress for that node.

Sense Code (Hex)	*Meaning*
0835	Invalid Parameter (with Pointer Only): The request contained a fixed- or variable-length field whose contents are invalid or not supported by the NAU that received the request. Bytes 2 and 3 following the sense code are not used for user-defined data; they contain a 2-byte binary count that indexes (zero-origin) the first byte of the fixed- or variable-length field having invalid contents.
0836	PLU/SLU Specification Mismatch: For a specified LU-LU session, both the origin LU (OLU) and the destination LU (DLU) have only the primary capability or have only the secondary capability.
0837	Queuing Limit Exceeded: For an LU-LU session-initiation request (INIT, CDINIT, or INIT-OTHER-CD) specifying (1) Initiate or Queue (if Initiate not possible) or (2) Queue Only, the queuing limit of either the OLU or the DLU, or both, was exceeded.
0838	Reserved.
0839	LU-LU or SSCP-LU Session Being Taken Down: At the time an LU-LU session-initiation or termination request is received, the SSCP of at least one of the LUs is either processing a CDTAKED request or is in the process of deactivating the associated SSCP-LU session.
083A	LU Not Enabled: At the time an LU-LU session-initiation request is received at the SSCP, at least one of the two LUs, although having an active session with its SSCP, is not ready to accept CINIT or BIND requests.

Sense Code (Hex)	*Meaning*
083B	Invalid PCID: An invalid PCID was received, e.g., one containing an invalid network address of the SSCP of the initiating LU (ILU) or terminating LU (TLU), has been received in CDINIT, INIT-OTHER-CD, CDTERM, or TERM-OTHER-CD; or a PCID that does not identify a previously queued request has been received in CDINIT (Dequeue) or INIT-OTHER-CD (Dequeue); or, a PCID that cannot be associated with the PCID of any previously processed CDINIT has been received on CDCINIT.
083C	Domain Takedown Contention: While waiting for a response to a CDTAKED, a CDTAKED request is received by the SSCP containing the SSCP-SSCP primary half-session. Contention is resolved by giving preference to the CDTAKED sent by the primary half-session.
083D	Dequeue Retry Unsuccessful—Removed from Queue: The SSCP cannot successfully honor a CDINIT (Dequeue) request (which specifies "leave on queue if dequeue-retry is unsuccessful") to dequeue and process a previously queued CDINIT request (e.g., because the LU in its domain is still not available for the specified session), and removes the queued CDINIT request from its queue.
083E	Reserved.
083F	Terminate Contention: While waiting for a response to a CDTERM, a CDTERM is received by the SSCP of the SLU. Contention is resolved by giving preference to the CDTERM sent by the SSCP of the SLU.

Sense Code (Hex)	*Meaning*
0840	Procedure Invalid for Resource: The named procedure is not supported in the receiver for this type of resource (e.g., (1) SETCV specifies boundary function support for a type 1 node but the capability is not supported by the receiving node, or (2) the PU receiving an EXECTEST or TESTMODE is not the primary PU for the target link).
0841	Duplicate Network Address: In a cross-domain LU-LU session initiation request, the SSCP of the DLU determines that the OLU network address specified in the CDINIT request is a duplicate of an LU network address assigned to a different LU name.
0842	SSCP-SSCP Session Not Active: The SSCP-SSCP session, which is required for the processing of a network services request, is not active; e.g., at the time an LU-LU session-initiation or termination request is received, at least one of the following conditions exists: • The SSCP of the ILU and the SSCP of the OLU do not have an active session with each other, and therefore INIT-OTHER-CD cannot flow. • The SSCP of the TLU and the SSCP of the OLU do not have an active session with each other, and therefore TERM-OTHER-CD cannot flow. • The SSCP of the OLU and the SSCP of the DLU do not have an active session with each other, and therefore CDINIT or CDTERM cannot flow.

Sense Code (Hex)	*Meaning*
0843	Required FMDS Synchronization Not Supplied: For example, a secondary LU (LU-LU session type 2 or 3) received a request with Write Control Code = Start Print, along with RQE and ¬CD.
0844	Initiation Dequeue Contention: While waiting for a response to a CDINIT (Dequeue), a CDINIT (Dequeue) is received by the SSCP of the SLU. Contention is resolved by giving preference to the CDINIT (Dequeue) sent by the SSCP of the SLU.
0845	Permission Rejected—SSCP Will Be Notified: The receiver has denied an implicit or explicit request of the sender; when sent in response to BIND, it implies that the secondary LU will notify the SSCP (via NOTIFY vector key hex 0C) when a BIND can be accepted, and the SSCP of the SLU supports the notification. (See the hex 080A sense code for a contrasting response.)
0846	ERP Request Forthcoming: The received request was rejected for a reason to be specified in a forthcoming request.
0847	Restart Mismatch: Sent in response to STSN or SDT or BIND to indicate that the secondary half-session is trying to execute a resynchronizing restart but has received insufficient or incorrect information.
0848	Cryptography Function Inoperative: The receiver of a request was not able to decipher the request because of a malfunction in its cryptography facility.

Sense Code (Hex)	*Meaning*
0849	Reserved.
084A	Presentation Space Alteration: The presentation space was altered by the end user while the half-duplex state was not-send, (¬S, *R); request not executed.
084B	Requested Resources Not Available: Resources named in the request, and required to honor it, are not currently available. It is not known when the resources will be made available. Bytes 2 and 3 following the sense code are not used for user-defined data; they contain sense-code-specific information. Settings allowed are: 0000 Requested resources are not available. 6002 The resource identified by the destination program name (DPN) is not supported. 6003 The resource identified by the primary resource name (PRN) is not supported.
084C	Permanent Insufficient Resource: Receiver cannot act on the request because resources required to honor the request are permanently unavailable.
084D	Invalid Session Parameters—BF: Session parameters were not valid or were unacceptable by the boundary function. Bytes 2 and 3 following the sense code contain a binary count that indexes (zero-origin) the first byte of the fixed- or variable-length field having invalid contents.

Sense Code (Hex)	*Meaning*
084E	Invalid Session Parameter – PRI: A positive response to an activation request (e.g., BIND) was received and was changed to a negative response due to invalid session parameters carried in the response. The services manager receiving the response will send a deactivation request for the corresponding session.
084F	Reserved.
0850	Link-Level Operation Cannot be Performed: An IPL, dump, or RPO cannot be performed through the addressed link station because the system definition or current state of the hardware configuration does not allow it.
0851	Session Busy: Another session that is needed to complete the function being requested on this session (e.g., to forward an NS RU embedded in a FORWARD request) is temporarily unavailable.
0852	Session with Larger Activation Request Sequence Identifier Already Active: A session has already been activated for the subject destination-origin pair by a session-activation request that carried a larger activation request identifier than the current request; the current request (ACTPU or ACTCDRM) is refused.
0853	Terminate (Cleanup) Required: The SSCP cannot process the termination request, as it requires cross-domain SSCP-SSCP services that are not available. (The corresponding SSCP-SSCP session is not active.) Terminate (Cleanup) is required.

Sense Code (Hex)	*Meaning*
0854—0855	Reserved.
0856	SSCP-SSCP Session Lost: Carried in the sense data field in a NOTIFY or NSPE sent to an ILU or SSCP (ILU) to indicate that the activation of the LU-LU session either cannot be completed or is uncertain because the SSCP-SSCP session between the two domains has been lost. (This sense code appears only in NOTIFY or NSPE, not in a negative response. Another sense code, hex 0842, is used on a negative response to signal the condition when the condition is known at the time the response, e.g., to INIT, is prepared.)
0857	SSCP-LU Session Not Active: The SSCP-LU session, required for the processing of a request, is not active; e.g., in processing REQECHO, the SSCP did not have an active session with the target LU named in the REQECHO RU.
0858	Reserved.
0859	REQECHO Data Length Error: The specified length of data to be echoed (in REQECHO) violates the maximum RU size limit for the target LU.
085A—085F	Reserved.

Sense Code (Hex)	*Meaning*
0860	Function Not Supported—Continue Session: The function requested is not supported; the function may have been specified by a request code or some other field, control character, or graphic character in an RU. Bytes 2-3 following the sense code are not used for user-defined data; they contain a 2-byte binary count that indexes (zero-origin) the first byte in which an error was detected. This sense code is used to request that the session continue, thereby ignoring the error.
0861	Invalid COS Name: The class of service (COS) name, either specified by the ILU or generated by the SSCP of the SLU from the mode table is not in the "COS name to VR identifier list" table used by the SSCP of the PLU. Bytes 2 and 3 following the sense code contain hex 0000 if the COS name was generated by the SSCP or hex 0001 if specified by the ILU.
0862	Medium Presentation Space Recovery: An error has occurred on the current presentation space. Recovery consists of restarting at the top of the current presentation space. The sequence number returned is of the RU in effect at the top of the current presentation space. Bytes 2 and 3 following the sense code contain the byte offset from the beginning of the RU to the first byte of the RU that is displayed at the top of the current presentation space.
0863	Referenced Local Character Set Identifier (LCID) Not Found: A referenced character set does not exist.

Sense Code (Hex)	*Meaning*
0864	Function Abort: A loop will occur upon reexecution; the request sender should not send the same data.
0865	Function Abort: Sender is responsible to detect the loop.
0866	Function Abort: Receiver is responsible to detect the loop.
0867	Sync Event Response: Indicates a negative response to a synchronization event.
0868	No Panels Loaded: Referenced format not found because no panels are loaded for the display.
0869	Panel Not Loaded: The referenced panel is not loaded for the display.
0870	Reserved.
0871	Read Partition State Error: A Read Partition structured field was received while the display was in the retry state.
0872	Orderly Deactivation Refused: An NC–DACTVR (Orderly) request has been received, but sessions are assigned to the VR and it will not be deactivated.
0873	Virtual Route Not Defined: There is no explicit route number (ERN) designated to support this virtual route number (VRN).
0874	ER Not in a Valid State: The ER supporting the requested VR is not in a state allowing VR activation.

Sense Code (Hex)	*Meaning*
0875	Incorrect or Undefined Explicit Route Requested: The reverse ERNs specified in the NC–ACTVR do not contain the ERN defined to be used for the VR requested, or the ERN designated to be used for the VR is not defined.
0876	Nonreversible Explicit Route Requested: The ERN used by the NC–ACTVR does not use the same sequence of transmission groups (in reverse order) as the ERN that should be used for the RSP (NC–ACTVR).
0877	Reserved.
0878	Insufficient Storage: The storage resource required for a data format is not available.
0879	Storage Medium Error: A permanent error has occurred involving a storage medium.
087A	Format Processing Error: A processing error occurred during data formatting.

Request Error (Category Code Hex 10)

This category indicates that the RU was delivered to the intended half-session component, but could not be interpreted or processed. This condition represents a mismatch of half-session capabilities.

Sense Code (Hex)	*Meaning*
1001	RU Data Error: Data in the request RU is not acceptable to the receiving FMDS component; for example, a character code is not in the set supported, a formatted data field is not acceptable to presentation services, or a required name in the request has been omitted.
1002	RU Length Error: The request RU was too long or too short.
1003	Function Not Supported: The function requested is not supported. The function may have been specified by a formatted request code, a field in an RU, or a control character. (Note: This code can also be used instead of sense code hex 0826.) Bytes 2 and 3 following the sense code are not used for user-defined data; they contain sense-code-specific information. Settings allowed are: 0000 Function requested is not supported. 6002 The resource identified by the destination program name (DPN) is not supported. 6003 The resource identified by the primary resource name (PRN) is not supported.

Sense Code (Hex)	*Meaning*
1004	Reserved.
1005	Parameter Error: A parameter modifying a control function is invalid, or outside the range allowed by the receiver.
1006	Reserved.
1007	Category Not Supported: DFC, SC, NC, or FMD request was received by a half-session not supporting any requests in that category; or an NS request with byte 0 was not set to a defined value, or byte 1 was not set to an NS category supported by the receiver.
1008	Invalid FM Header: The FM header was not understood or translatable by the receiver, or an FM header was expected but not present. Bytes 2 and 3 following the sense code are not used for user-defined data; they contain sense-code-specific information as defined in the *Systems Network Architecture Reference Summary,* under "FM Header".
1009	Format Group Not Selected: No format group was selected before issuing a Present Absolute or Present Relative Format structured field to a display.

State Error (Category Code Hex 20)

This category indicates a sequence number error, or an RH or RU that is now allowed for the receiver's current session control or data flow control state. These errors prevent delivery of the request to the intended half-session component.

Modifier (Hex)	*Meaning*
2001	Sequence Number: Sequence number received on normal-flow request was not 1 greater than the last.
2002	Chaining: Error in the sequence of the chain indicator settings (BCI, ECI), such as first, middle, first.
2003	Bracket: Error resulting from failure of sender to enforce bracket rules for session. (This error does not apply to contention or race conditions.)
2004	Direction: Error resulting from a normal-flow request received while the half-duplex flip-flop state was not-receive, (*S, ¬R). (Contrast this sense code with hex 081B, which signals a race condition.)
2005	Data Traffic Reset: An FMD or normal-flow DFC request received by a half-session whose session-activation state was active, but whose data-traffic state was not active.
2006	Data Traffic Quiesced: An FMD or DFC request received from a half-session that has sent Quiesce Complete or Shutdown Complete and has not responded to Release Quiesce.

Modifier (Hex)	*Meaning*
2007	Data Traffic Not Reset: A session control request (e.g., STSN), allowed only while the data traffic state is reset, was received while the data-traffic state was not reset.
2008	No Begin Bracket: A BID or an FMD request specifying BBI=BB was received after the receiver had previously sent a positive response to Bracket Initiation Stopped.
2009	Session Control Protocol Violation: An SC protocol has been violated; a request, allowed only after a successful exchange of an SC request and its associated positive response, has been received before such successful exchange has occurred (e.g., an FMD request has preceded a required Cryptography Verification request). The request code of the particular SC request or response required, or hex 00 if undetermined, appears in the fourth byte of the sense data. There is no user data associated with this sense code.
200A	Immediate Request Mode Error: The immediate request mode protocol has been violated by the request.
200B	Queued Response Error: The queued response protocol has been violated by a request, i.e., QRI=¬QR when an outstanding request had QRI=QR.
200C	ERP Sync Event Error: The ERP synchronization event protocol has been violated.
200D	Response Owed before Sending Request: An attempt has been made in half-duplex (flip-flop or contention) send/receive mode to send a normal-flow request when a response to a previously received request has not yet been sent.

RH Usage Error (Category Code Hex 40)

This category indicates that the value of a field or combination of fields in the RH violates architectural rules or previously selected BIND options. These errors prevent delivery of the request to the intended half-session component and are independent of the current states of the session. They may result from the failure of the sender to enforce session rules. Detection by the receiver of each of these errors is optional.

Sense Code (Hex)	*Meaning*
4001	Invalid SC or NC RH: The RH of a session control (SC) or network control (NC) request was invalid. For example, an SC RH with pacing request indicator set to 1 is invalid.
4002	Reserved.
4003	BB Not Allowed: The begin bracket indicator (BBI) was specified incorrectly, e.g., BBI=BB with BCI=¬BC.
4004	EB Not Allowed: The end bracket indicator (EBI) was specified incorrectly, e.g., EBI=EB with BCI=¬BC, or by the primary half-session when only the secondary may send EB, or by the secondary when only the primary may send EB.
4005	Incomplete RH: Transmission shorter than full TH-RH.
4006	Exception Response Not Allowed: Exception response was requested when not permitted.
4007	Definite Response Not Allowed: Definite response was requested when not permitted.

Sense Code (Hex)	*Meaning*
4008	Pacing Not Supported: The pacing indicator was set on a request, but the receiving half-session or boundary function half-session does not support pacing for this session.
4009	CD Not Allowed: The change direction indicator (CDI) was specified incorrectly, e.g., CDI=CD with ECI=¬EC, or CDI=CD with EBI=EB.
400A	No-Response Not Allowed: No-response was specified on a request when not permitted. (Use only on EXR.)
400B	Chaining Not Supported: The chaining indicators (BCI and ECI) were specified incorrectly, e.g., chaining bits indicated other than (BC, EC), but multiple-request chains are not supported for the session or for the category specified in the request header.
400C	Brackets Not Supported: The bracket indicators (BBI and EBI) were specified incorrectly, e.g., a bracket indicator was set (BBI=BB or EBI=EB), but brackets are not used for the session.
400D	CD Not Supported: The change-direction indicator was set, but is not supported.
400E	Reserved.
400F	Incorrect Use of Format Indicator: The format indicator (FI) was specified incorrectly, e.g., FI was set with BCI=¬BC, or FI was not set on a DFC request.

Sense Code (Hex)	*Meaning*
4010	Alternate Code Not Supported: The code selection indicator (CSI) was set when not supported for the session.
4011	Incorrect Specification of RU Category: The RU category indicator was specified incorrectly, e.g., an expedited-flow request or response was specified with RU category indicator = FMD.
4012	Incorrect Specification of Request Code: The request code on a response does not match the request code on its corresponding request.
4013	Incorrect Specification of (SDI, RTI): The sense data included indicator (SDI) and the response type indicator (RTI) were not specified properly on a response. The proper value pairs are (SDI=SD, RTI= negative) and (SDI=¬SD, RTI=positive).
4014	Incorrect Use of (DR1I, DR2I, ERI): The definite response 1 indicator (DR1I), definite response 2 indicator (DR2I), and exception response indicator (ERI) were specified incorrectly, e.g., a Cancel request was not specified with DR1I=DR1, DR2I=¬DR2, and ERI=ER.
4015	Incorrect Use of QRI: The queued response indicator (QRI) was specified incorrectly, e.g., QRI=QR on an expedited-flow request.
4016	Incorrect Use of EDI: The enciphered data indicator (EDI) was specified incorrectly, e.g., EDI=ED on a DFC request.
4017	Incorrect Use of PDI: The padded data indicator (PDI) was specified incorrectly, e.g., PDI=PD on a DFC request.

Path Error (Category Code Hex 80)

This category indicates that the request could not be delivered to the intended receiver because of a path outage, an invalid sequence of activation requests, or one of the listed path information unit (PIU) errors. (Some PIU errors fall into other categories, e.g., sequence number errors are category hex 20.) A path error received while the session is active generally indicates that the path to the session partner has been lost. In this case, the NAU services manager receiving the -RSP (Path Error) may deactivate the affected half-session.

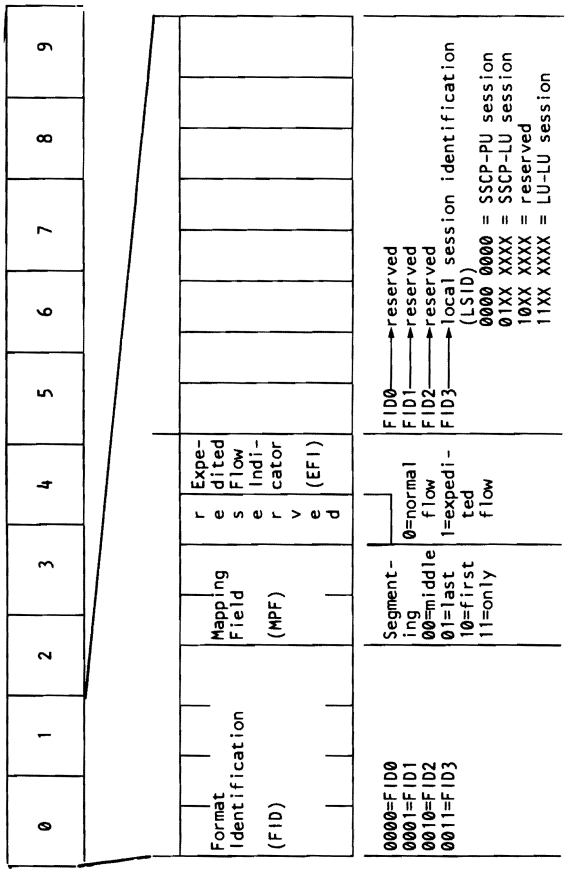
Sense Code (Hex)	*Meaning*
8001	Intermediate Node Failure: Machine or program check in a node providing intermediate function. A response may not be possible.
8002	Link Failure: Data link failure.
8003	NAU Inoperative: The NAU is unable to process requests or responses, e.g., the NAU has been disrupted by an abnormal termination.
8004	Unrecognized Destination Address: A node in the path has no routing information for the destination specified by the TH.
8005	No Session: No half-session is active in the receiving end node for the indicated origination-destination pair, or no boundary function half-session component is active for the origin-destination pair in a node providing the boundary function. A session-activation request is needed.

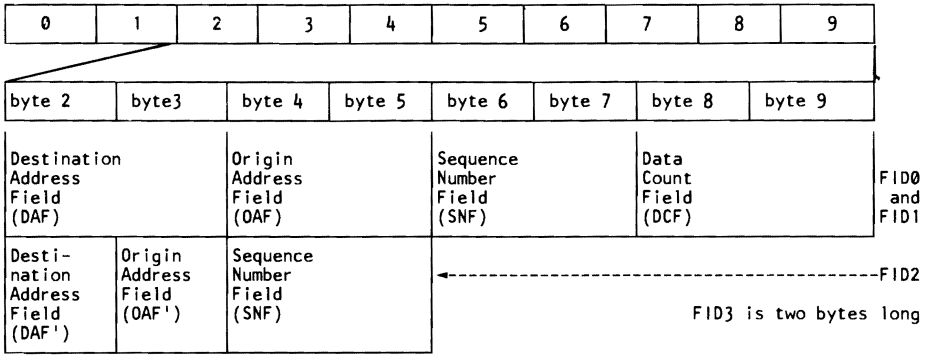
Sense Code (Hex)	*Meaning*
8006	Invalid FID: Invalid FID for the receiving node. It is generally not possible to send a response for this exception condition, since information (FID, addresses) required to generate a response is not available. It is logged as an error if this capability exists in the receiver.
8007	Segmenting Error: First BIU segment had less than 10 bytes; or mapping field sequencing error, such as first, last, middle; or segmenting not supported and MPF not set to 11. If segmenting is not supported, a negative response is returned for the first segment only, since this contains the RH. Subsequent segments are discarded.
8008	PU Not Active: The SSCP-PU secondary half-session in the receiving node has not been activated and the request was not ACTPU for this half-session; for example, the request was ACTLU from an SSCP that does not have an active SSCP-PU session with the PU associated with the addressed LU.
8009	LU Not Active: The destination address specifies an LU for which the SSCP-LU secondary half-session has not been activated and the request was not ACTLU.
800A	Too-Long PIU: Transmission was truncated by a receiving node because the PIU exceeded a maximum length or sufficient buffering was not available.

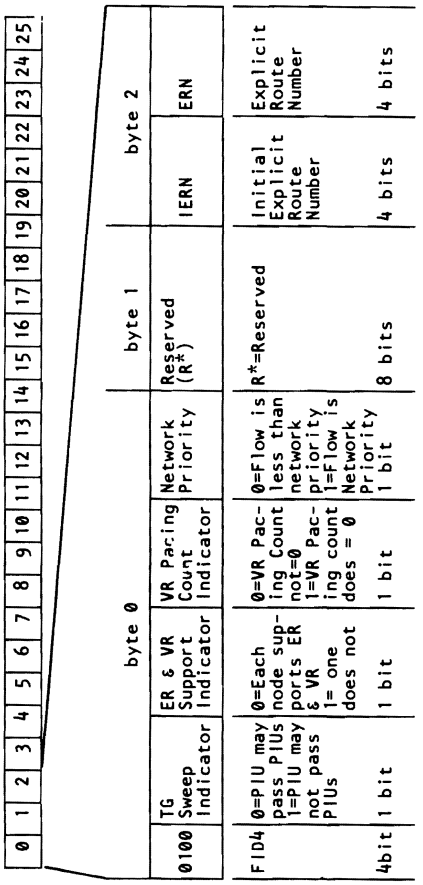
Sense Code (Hex)	*Meaning*
800B	Incomplete TH: Transmission received was shorter than a TH. It is generally not possible to send a response for this exception condition, since information (FID, addresses) required to generate a response is not available. It is logged as an error if this capability exists in the receiver.
800C	DCF Error: The data count field (DFC) is inconsistent with the transmission length.
800D	Lost Contact: Contact with the link station for which the transmission was intended has been lost, but the link has not failed. If the difference between link failure and loss of contact is not detectable, link failure (hex 8002) is sent.
800E	Unrecognized Origin: The origin address specified in the TH was not recognized.
800F	Invalid Address Combination: The (DAF', OAF') (FID2) combination or the LSID (FID3) specified an invalid type of session, e.g., a PU-LU combination.
8010	Segmented RU Length Error: An RU was found to exceed a maximum length, or required buffer allocation that might cause future buffer depletion.
8011	ER Inoperative or Undefined: A PIU was received from a subarea node that does not support ER and VR protocols, and the explicit route to the destination is inoperative or undefined.

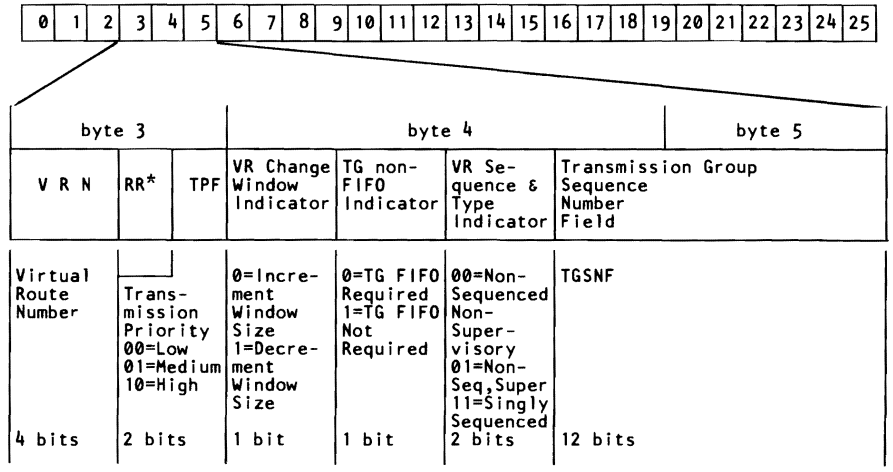
Sense Code (Hex)	*Meaning*
8012	Subarea PU Not Active or Invalid Virtual Route: A session-activation request for a peripheral PU or LU cannot be satisfied because there is no active SSCP-PU session for the subarea node providing boundary function support, or the virtual route for the specified SSCP-PU—T1|2 or SSCP-LU session is not the same as that used for the SSCP-PU session of the PU—T1|2's or LU's subarea PU.
8013	COS Not Available: A session-activation request cannot be satisfied because none of the virtual routes requested for the session is available. This condition may arise because each of the specified virtual routes cannot be activated for one of the following reasons: • The specified virtual route cannot be mapped to an explicit route to the destination subarea, or the explicit route it is mapped to is not defined. • The underlying explicit route is not operative. • The underlying explicit route is operative but cannot be activated. • The underlying explicit route is active but the virtual route cannot be activated. • The session must be assigned to a virtual route with an underlying reverse explicit route number of 0, but the virtual route does not meet this criterion.

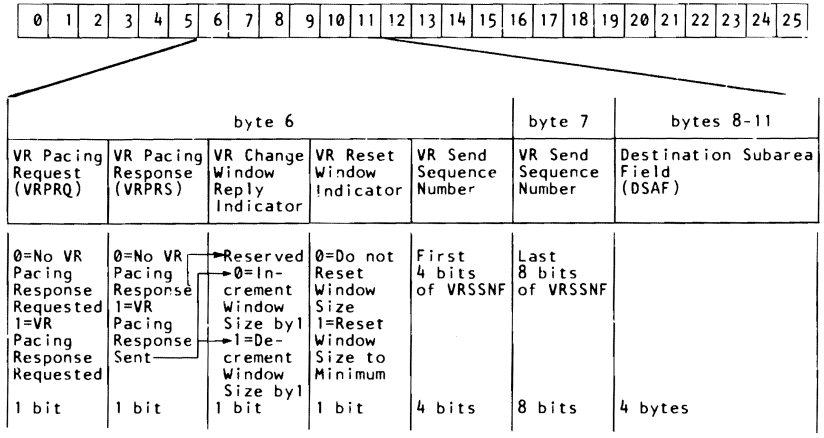
Sense Code (Hex)	*Meaning*
8017	PIU from Adjacent Pre-ER-VR Subarea Node Rejected: A PIU that requires intermediate path-control routing was received by a subarea node from an adjacent subarea node that does not support ER-VR protocols, but the receiving subarea node does not support intermediate path-control routing for adjacent subarea nodes that do not support ER-VR protocols.

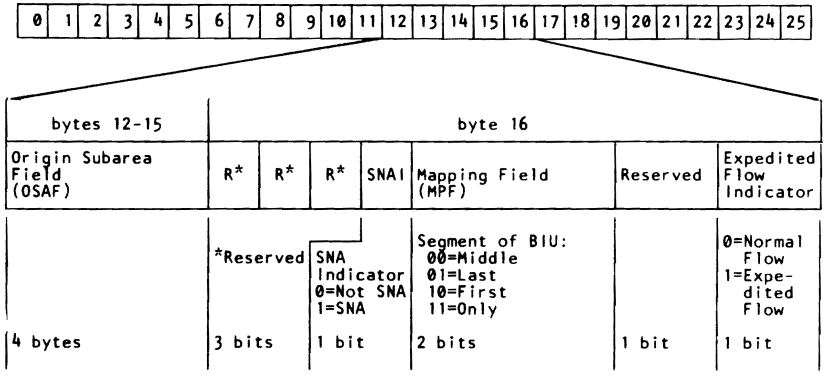

0 1 2 3 4 5 6 7 8 9
Format Identification (FID)
Mapping Field (MPF)
reserved
Expedited Flow Indicator (EFI)
0000=FID0
0001=FID1
0010=FID2
0011=FID3
Segmenting
00=middle
01=last
10=first
11=only
0=normal flow
1=expedited flow
FID0 reserved
FID1 reserved
FID2 reserved
FID3 local session identification (LSID)
0000 0000 = SSCP-PU session
01XX XXXX = SSCP-LU session
10XX XXXX = reserved
11XX XXXX = LU-LU session


0
1
2
3
4
5
6
7
8
9
byte 2
byte3
byte 4
byte 5
byte 6
byte 7
byte 8
byte 9
Destination Address Field (DAF)
Origin Address Field (OAF)
Sequence Number Field (SNF)
Data Count Field (DCF)
FID0 and FID1
Desti-nation Address Field (DAF')
Origin Address Field (OAF')
Sequence Number Field (SNF)
FID2
FID3 is two bytes long


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
byte 0
byte 1
byte 2
0100
TG Sweep Indicator
ER & VR Support Indicator
VR Pacing Count Indicator
Network Priority
Reserved (R*)
IERN
ERN
FID4
0=PIU may pass PIUs 1=PIU may not pass PIUs
0=Each node supports ER & VR 1= one does not
0=VR Pacing Count not=0 1=VR Pacing count does = 0
0=Flow is less than network priority 1=Flow is Network Priority
R*=Reserved
Initial Explicit Route Number
Explicit Route Number
4bit
1 bit
1 bit
1 bit
1 bit
8 bits
4 bits
4 bits

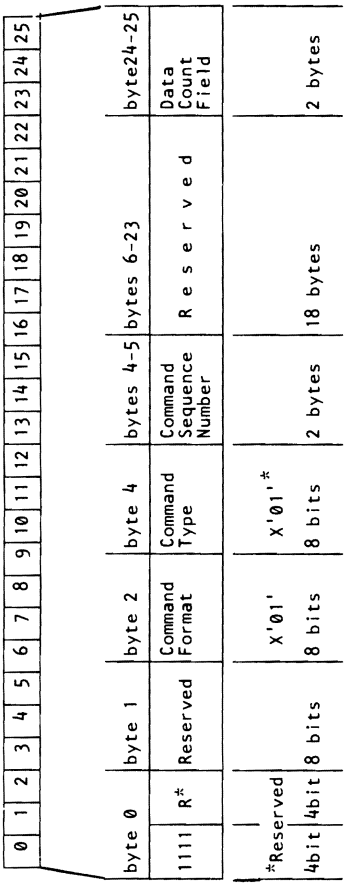

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
byte 3
byte 4
byte 5
V R N
RR*
TPF
VR Change Window Indicator
TG non-FIFO Indicator
VR Sequence & Type Indicator
Transmission Group Sequence Number Field
Virtual Route Number
Trans-mission Priority 00=Low 01=Medium 10=High
0=Increment Window Size 1=Decrement Window Size
0=TG FIFO Required 1=TG FIFO Not Required
00=Non-Sequenced Non-Supervisory 01=Non-Seq,Super 11=Singly Sequenced
TGSNF
4 bits
2 bits
1 bit
1 bit
2 bits
12 bits


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
byte 6
byte 7
bytes 8-11
VR Pacing Request (VRPRQ)
VR Pacing Response (VRPRS)
VR Change Window Reply Indicator
VR Reset Window Indicator
VR Send Sequence Number
VR Send Sequence Number
Destination Subarea Field (DSAF)
0=No VR Pacing Response Requested 1=VR Pacing Response Requested
0=No VR Pacing Response 1=VR Pacing Response Sent
Reserved
0=In-crement Window Size by1
1=De-crement Window Size by1
0=Do not Reset Window Size 1=Reset Window Size to Minimum
First 4 bits of VRSSNF
Last 8 bits of VRSSNF
1 bit
1 bit
1 bit
1 bit
4 bits
8 bits
4 bytes

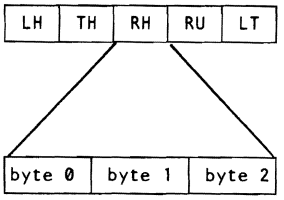

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
bytes 12-15
byte 16
Origin Subarea Field (OSAF)
R*
R*
R*
SNAI
Mapping Field (MPF)
Reserved
Expedited Flow Indicator
*Reserved
SNA Indicator 0=Not SNA 1=SNA
Segment of BIU: 00=Middle 01=Last 10=First 11=Only
0=Normal Flow 1=Expe-dited Flow
4 bytes
3 bits
1 bit
2 bits
1 bit
1 bit

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
byte17
byte18-19
byte20-21
byte22-23
byte24-25
Reserved
DEF
OEF
SNF
DCF
Destina-tion Element Field
Origin Element Field
Sequence Number Field
Data Count Field
1 byte
2 bytes
2 bytes
2 bytes
2 bytes

TRANSMISSION HEADER FOR FID TYPE F

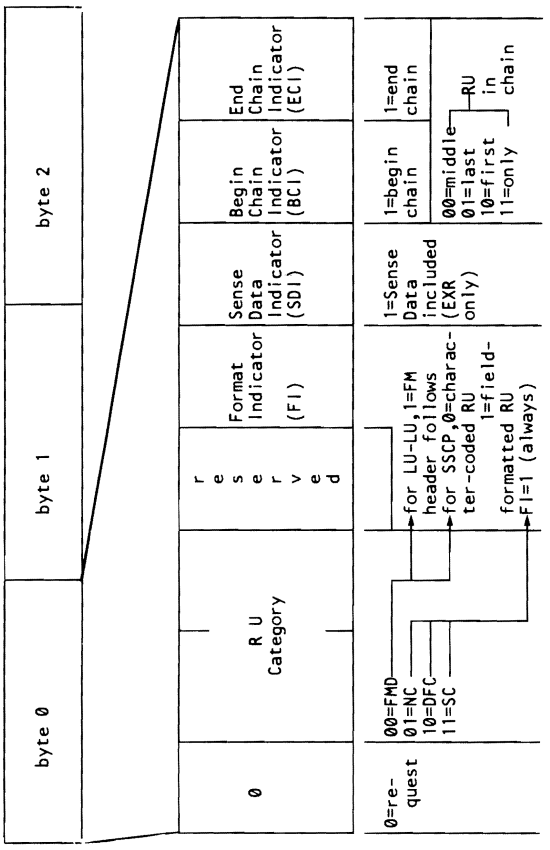


*TG SNF Wrap Acknowledgment (only value defined)

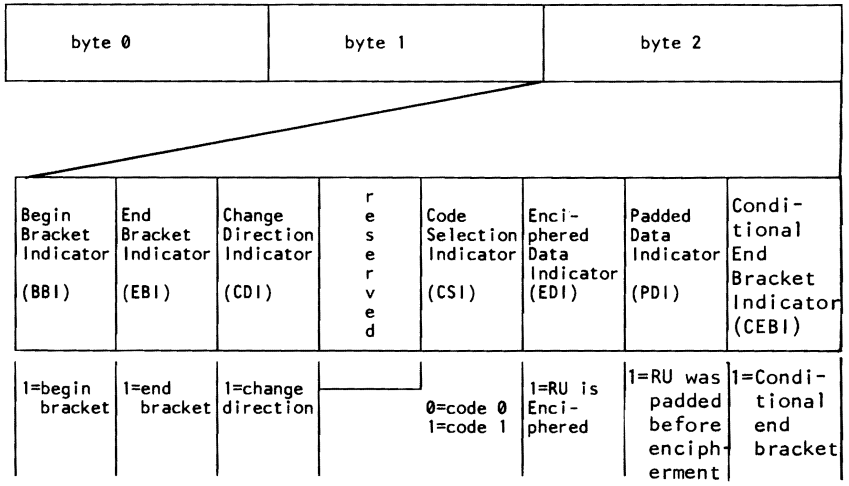


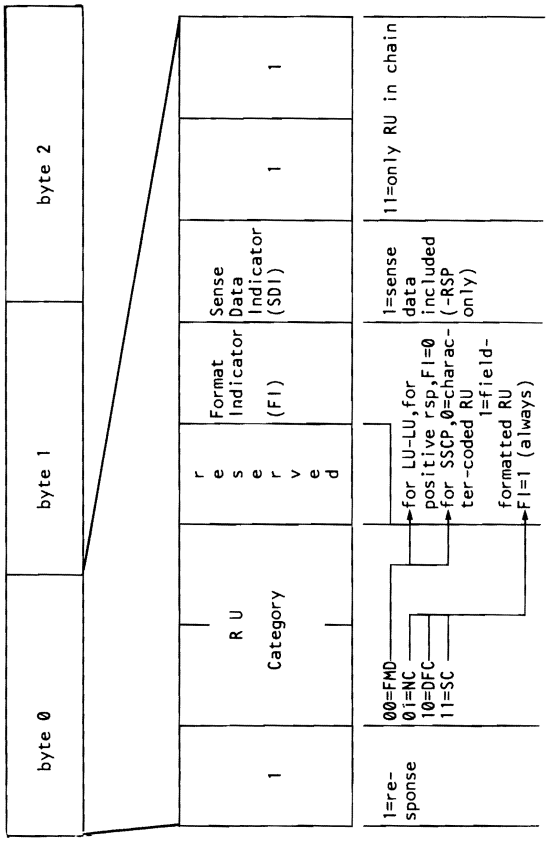
This information is taken from the **Systems Network Architecture Format and Protocol Reference Manual: Architectural Logic** (SC30-3112).

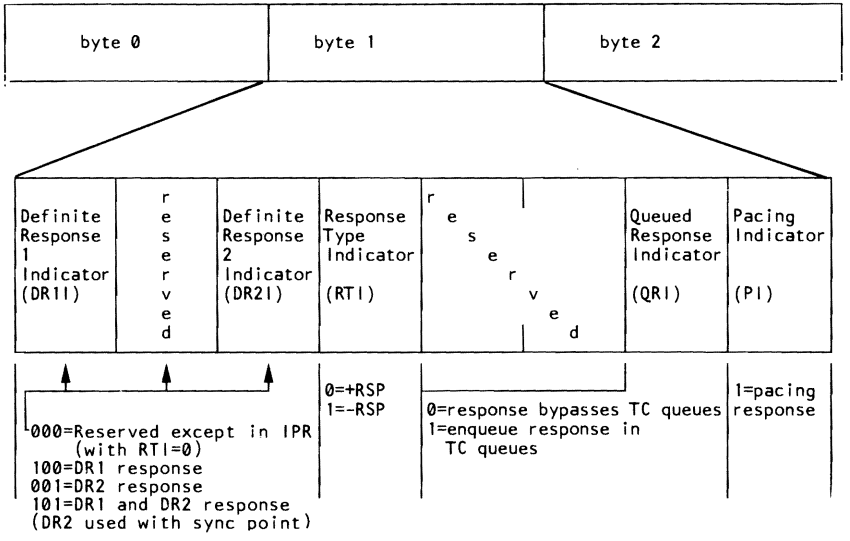
The request or response header (RH), when present, follows the transmission header (TH). In a request it is a request header; in a response, a response header. In either case, the RH is three bytes long.

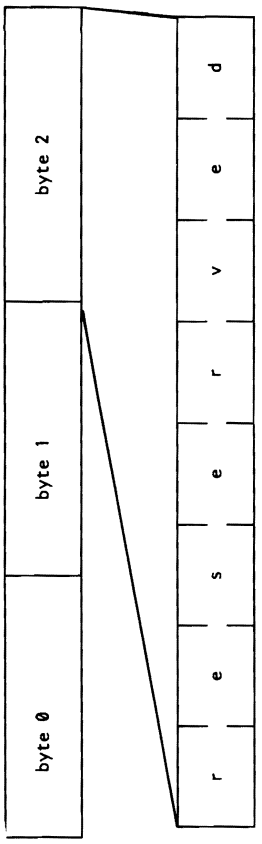

byte 0
byte 1
byte 2
0
RU Category
reserved
Format Indicator (FI)
Sense Data Indicator (SDI)
Begin Chain Indicator (BCI)
End Chain Indicator (ECI)
0=request
00=FMD
01=NC
10=DFC
11=SC
for LU-LU, 1=FM header follows
for SSCP, 0=character-coded RU
1=field-formatted RU
FI=1 (always)
1=Sense Data included (EXR only)
1=begin chain
1=end chain
00=middle
01=last
10=first
11=only
RU in chain

byte 0
byte 1
byte 2
Definite Response 1 Indicator (DR1I)
reserved
Definite Response 2 Indicator (DR2I)
Exception Response Indicator (ERI)
reserved
Queued Response Indicator (QRI)
Pacing Indicator (PI)
0000=No response requested
0010,1000,1010=definite response requested
0011,1001,1011=exception response requested
0=response bypasses transmission control queues
1=enqueue response in transmission control queues
1=pacing request


byte 0
byte 1
byte 2
Begin Bracket Indicator (BBI)
End Bracket Indicator (EBI)
Change Direction Indicator (CDI)
r e s e r v e d
Code Selection Indicator (CSI)
Enci-phered Data Indicator (EDI)
Padded Data Indicator (PDI)
Condi-tional End Bracket Indicator (CEBI)
1=begin bracket
1=end bracket
1=change direction
0=code 0
1=code 1
1=RU is Enci-phered
1=RU was padded before enciph-erment
1=Condi-tional end bracket


byte 0
byte 1
byte 2
1
RU Category
reserved
Format Indicator (FI)
Sense Data Indicator (SDI)
1
1
1=response
00=FMD
01=NC
10=DFC
11=SC
for LU-LU,for positive rsp,FI=0
for SSCP,0=character-coded RU
1=field-formatted RU
FI=1 (always)
1=sense data included (-RSP only)
11=only RU in chain


byte 0
byte 1
byte 2
Definite Response 1 Indicator (DR1I)
reserved
Definite Response 2 Indicator (DR2I)
Response Type Indicator (RTI)
reserved
Queued Response Indicator (QRI)
Pacing Indicator (PI)
000=Reserved except in IPR (with RTI=0)
100=DR1 response
001=DR2 response
101=DR1 and DR2 response
(DR2 used with sync point)
0=+RSP
1=-RSP
0=response bypasses TC queues
1=enqueue response in TC queues
1=pacing response


byte 2
byte 1
byte 0
d
e
v
r
e
s
e
r

Advanced Communications Function for VTAM Version 2 Reference Summary

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_____

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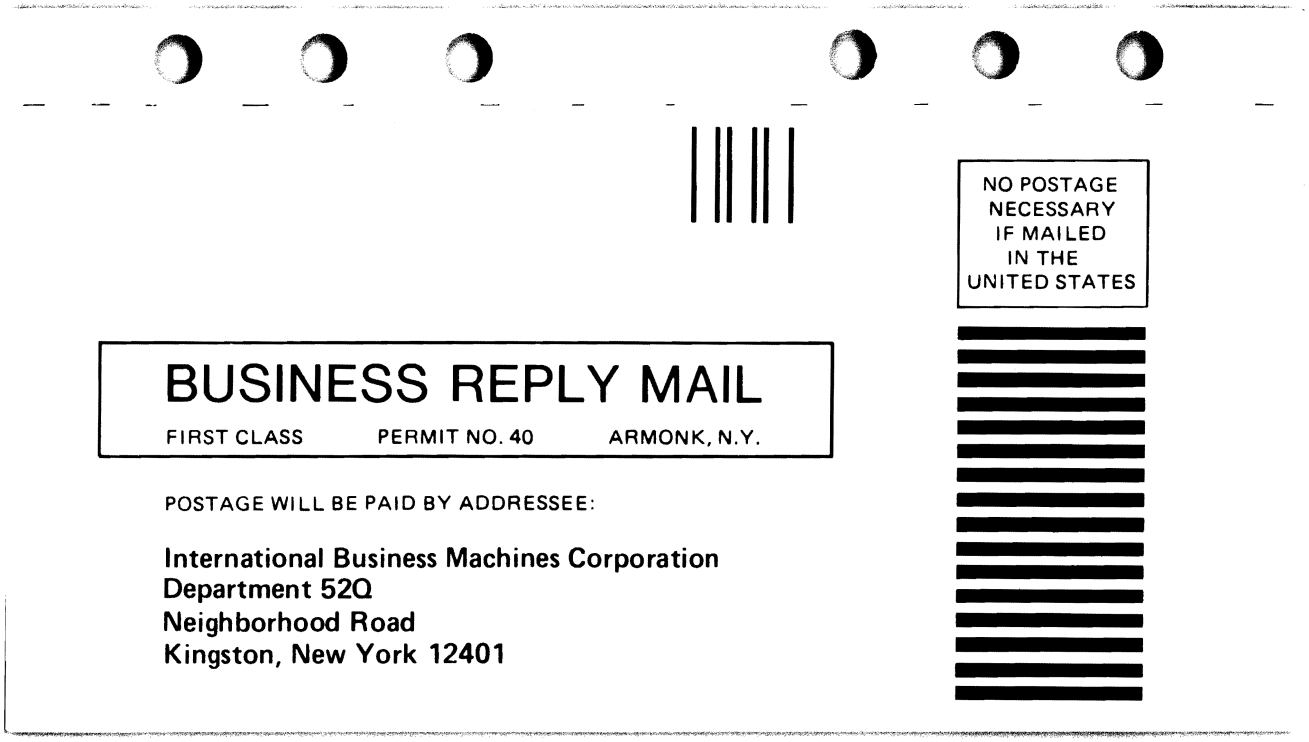

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