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Demystifying the SNA Bind

**S. M. Cawn
J. J. Lucas**

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Abstract

The purpose of this presentation on the SNA BIND is to give the audience a direction to pursue when the session establishment process fails. An understanding of what the various components do during this process is necessary to eliminate wasted time in determining where the error is. Topics to be discussed will include the SNA Access Methods (ACF/VTAM and ACF/TCAM) and how the BIND is defined, selected, and changed in each. Also included is a discussion on the major IBM Subsystems and how they interface with the BIND. The conclusion will cover some general steps to be used in tuning and problem determination with regard to the BIND.

Preface

This paper is intended for IBM Systems Engineers, Systems programmers, Network planners and Network technicians.

Special thanks to all of the people who provided information to produce this bulletin. Very special thanks go to J. D. Burnside, who helped create this presentation.

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Demystifying the SNA BIND

Foil 1

The topics to be included in this presentation include a brief definition of the BIND and its purpose. In order to understand what happens in the session initiation process, it is also necessary to know part of the SNA data flow that occurs during that process. Each SNA Access Method has its own requirements regarding definition and selection of the BIND. These will be covered, as well as what each access method changes in the BIND. Perhaps the most confusing part of the session initiation process is the requirements the IBM Subsystems have regarding definition and interface to the access method during the session initiation process. Most major IBM subsystems will be discussed in that section. Finally some very basic steps to be used in tuning and problem determination in the session initiation process will be covered.

DEMYSTIFYING THE SNA BIND

TOPICS

- **WHAT IS A BIND**
- **SESSION INITIATION FLOW**
- **ACF/VTAM CONSIDERATIONS**
- **ACF/TCAM V2 CONSIDERATIONS**
- **SUBSYSTEM CONSIDERATIONS**
- **TUNING/PROBLEM DETERMINATION**

Foil 2

A BIND is an SNA request to activate a session between two logical units. The three types of LU to LU sessions are: terminal to application program; application program to application program; and terminal to terminal. The BIND contains data pertaining to the rules to be used in carrying on the conversation. Also contained in the BIND are some characteristics or features that can be used during the session. Both logical units must agree to limit their conversation to only those protocols and capabilities that are contained in the BIND. There are two types of BINDs currently defined in the Architecture. These are a non-negotiable BIND, which is more or less a take it or leave it option, and a negotiable BIND, which can be used, if supported by both logical units, to allow the session partners to come to an agreement on the BIND parameters. The details on each byte in the BIND and what it means will not be discussed in this bulletin. That level of detail is covered both in the SNA Format and Protocol manual and in the ACF/VTAM Programming manual. In addition, negotiable BIND will not be discussed in this bulletin. A description of those elements in the BIND that can be negotiated is contained in the ACF/VTAM Programming manual.

WHAT IS A BIND

- **REQUEST TO ACTIVATE A SESSION BETWEEN TWO LOGICAL UNITS**
 - CONTAINS PARAMETERS SPECIFYING THE PROTOCOLS AND DEVICE CHARACTERISTICS TO BE USED
 - BOTH LOGICAL UNITS MUST AGREE AND OBEY

- **TWO DIFFERENT BIND TYPES**
 - NON-NEGOTIABLE
 - NEGOTIABLE

- **REFERENCES**
 - SC30-3112 SNA FORMAT AND PROTOCOL
 - SC30-3339 SNA FORMAT AND PROTOCOL: SNA NETWORK INTERCONNECTION
 - GC30-3073 SNA TECHNICAL OVERVIEW
 - GC20-1869 SNA INTRODUCTION TO SESSIONS BETWEEN LU'S
 - GC20-1868 SNA SESSIONS BETWEEN LOGICAL UNITS
 - GC27-3136 SNA REFERENCE SUMMARY
 - SC27-0449 ACF/VTAM V1R3 PROGRAMMING
APPENDIX F-SESSION PARAMETERS
 - SC27-0611 ACF/VTAM V2 PROGRAMMING
APPENDIX F-SESSION PARAMETERS
 - SC23-0115 ACF/VTAM V3 PROGRAMMING
APPENDIX F-SESSION PARAMETERS

Foil 3

The session initiation process in ACF/VTAM can begin from three major sources. These sources are as follows:

PLU INITIATED

A Primary Logical Unit (PLU) is an application program, residing in a host, that can request a session to be initiated by issuing either a 'SIMLOGON' (which simulates a logon from the secondary LU) or an 'OPNDST OPTCD=ACQUIRE' (which immediately acquires the secondary LU for a session) to ACF/VTAM.

SLU INITIATED

A Secondary Logical Unit (SLU) can be a terminal or an application program residing in a host or a programmable controller. SLUs can request a session to be initiated by issuing the SNA command 'INIT-SELF' or an Unformatted Systems Services (USS) LOGON to ACF/VTAM. An application program in a host can issue a 'REQSESS' (request session) to ACF/VTAM if it wants to initiate a session in which it will act as the Secondary Logical Unit.

THIRD PARTY INITIATED

A session initiation request can be generated from a source other than the intended session partners. This can be accomplished by coding LOGAPPL= on the LU, by the Network Operator issuing a V NET,LOGON= command to ACF/VTAM, or by an application program issuing a 'CLSDST OPTCD=PASS' to ACF/VTAM. Using the first two forms will cause ACF/VTAM to initiate the session on behalf of the two LU's. The last method is an application program initiated technique to pass an LU from one application to another application without end user involvement.

SESSION INITIATION FLOW

- **PLU INITIATED**
 - SIMLOGON
 - OPNDST OPTCD=ACQUIRE

- **SLU INITIATED**
 - INITSELF
 - USS LOGON
 - REQSESS

- **THIRD PARTY INITIATED**
 - LOGAPPL= ON LU
 - V NET,LOGON= BY OPERATOR
 - CLSDST PASS BY PROGRAM

Foil 4

Regardless of the technique used to request the session to be initiated, there are common Request Units (RUs) that will flow between the System Services Control Points (SSCPs) and the Logical Units involved in the process. This is not intended to illustrate all of the flows that can or do occur, rather an attempt to point out those RUs that can stop the session initiation process if a negative response is received. One of the first RUs that you will see in a trace of this process is a 'CROSS DOMAIN INITIATE' (CDINIT). You will notice that a CDINIT can flow from primary to secondary or from secondary to primary. This is because the session initiation request can be PLU initiated or SLU initiated. The primary purpose of the CDINIT in the receiving SSCP is to resolve the name of the Logical Unit in its domain to a network address, establish the availability of that LU (Status, Path, Session Limit), and if the LU in its domain is to be the SLU, verify that a Mode Table Entry exists and derive a Class of Service (COS) name if one was not specified, or if the LU is to be the PLU, verify that the COS Name is a valid entry in the Class of Service Table. Required information is returned in the response to the CDINIT.

The next RU that is important is the 'CROSS DOMAIN CONTROL INITIATE' (CDCINIT). The CDCINIT always flows from the SSCP of the SLU to the SSCP of the PLU. CDCINIT passes information about the SLU, including the BIND image selected. This point is important because it shows the the Mode Table Entry must come from the SSCP that owns the Secondary Logical Unit. The CDCINIT RU requests the SSCP of the PLU to send a 'CONTROL INITIATE' (CINIT) to the Primary Logical Unit. The CINIT informs the PLU of the new session request.

The CINIT causes the Logon Exit of the application to be driven requesting that the application program issue an 'OPNDST OPTCD=ACCEPT' to initiate the session. If the application program wants to see the session parameters supplied from the Mode Table Entry, it must issue an 'INQUIRE OPTCD=SESSPARM' prior to the 'OPNDST'. The application can use these session parameters, part of them, or none of them in establishing the session. If the application decides not to establish the session it will issue a 'CLSDST' to ACF/VTAM.

When the application issues the 'OPNDST' it points to an area that contains the session parameters it wants included in the BIND. The content of this area is under control of the application, however, some fields are modified by the SSCP. The BIND is sent by ACF/VTAM as a result of the 'OPNDST' being issued. The Secondary Logical Unit can either accept the BIND (+RSP) or reject the BIND (-RSP).

SESSION INITIATION FLOW
PLU SSCP(PLU) SSCP(SLU) SLU

CDINIT
+RSP

CDCINIT
(CONTAINS BIND DATA)
+RSP

CINIT
(CONTAINS BIND DATA)
+RSP

BIND
+RSP

• **NOTES**

- **BIND IMAGE (MODE TABLE ENTRY) ALWAYS COMES FROM THE SSCP OF THE SLU**
- **COS TABLE ENTRY NAME COMES FROM THE SSCP OF SLU BUT THE VR LIST IS OBTAINED FROM THE SSCP OF THE PLU (ACF V1R3 AND ABOVE - MAY ALSO COME FROM GATEWAY SSCP FOR CROSS NETWORK SESSIONS WITH ACF/VTAM V2R2 AND V3)**
- **APPLICATION MUST ISSUE 'INQUIRE OPTCD=SESSPARM' TO SEE THE CINIT (BIND DATA) BUT THIS IS NOT REQUIRED**
- **BIND ISSUED AS A RESULT OF 'OPNDST' COMES FROM THE APPLICATION AND CAN BE CHANGED BY THE APPLICATION**

Foil 5

Two concepts that should be understood from both a session initiation and a tuning standpoint is that of SNA chaining and segmentation. Chaining can occur both outbound from the application or ACF/VTAM V2 or V3, and inbound from the Secondary Logical Unit. Outbound chaining is an application program or application program invoked function that must be supported by the SLU. Some devices support only single outbound chain elements. Inbound chaining is dependent on the device, however the application must support assembly of chain elements or processing of each element as it arrives. The maximum size of each chain element is indicated in the BIND in the MAXRU field. Both maximum inbound and outbound RU sizes are specified.

Outbound segmentation is accomplished independently of the application. The application sends the maximum outbound RU and when it is received by the boundary function (BF, which is either the ACF/NCP or ACF/VTAM where the SLU is physically attached), it is broken into segments. This function must be supported by the SLU. The maximum size of each segment is determined by the definition of the SLU (PU MAXDATA =) and the ACF/NCP (BUILD BFRS =) parameters.

8mm ACF/VTAM will also perform segmentation for channel attached SNA control units (such as the 3274). This support works just like ACF/NCP's, and is controlled by the MAXDATA parameter on the PU macro.

Inbound segmentation is performed by the SLU independently of the application. The SLU sends the segments to its BF, and the segments are sent, in tact, to the SSCP of the PLU. The SSCP will reassemble the inbound segments and then forward the assembled data to the application program (NOTE: ACF/VTAM V2 and V3 for MVS/370 uses LSQA, subpool 229, in the application program's address space for the segmentation assembly area. ACF/VTAM V3 for MVS/XA uses extended LSQA for this purpose).

SNA CHAINING/SEGMENTATION

- **CHAINING**

- **OUTBOUND CHAINING**

- **APPLICATION PROGRAM FUNCTION MUST BE SUPPORTED BY THE SLU**
 - **ACF/VTAM V2 AND V3 CAN PERFORM CHAINING VIA LMPEO OPTION ON BEHALF OF THE APPLICATION**

- **INBOUND CHAINING**

- **DEPENDENT ON THE DEVICE**

- **SIZE OF CHAIN ELEMENT BASED ON MAXIMUM RU SIZE IN BIND**

- **SEGMENTATION**

- **APPLICATION PROGRAM INDEPENDENT**

- **DONE BY THE BOUNDARY FUNCTION(BF) OR SLU**

- **MUST BE SUPPORTED BY THE SLU**

- **SIZE OF SEGMENT BASED ON NCP OR VTAM PU MAXDATA= PARAMETER AND NCP BUFFER SIZE**

Foil 6

This foil contains examples of both chaining and segmentation. From a host performance standpoint, segmentation is preferable since the application has to issue only one 'SEND' to get the data out, as opposed to multiple chain elements, which require multiple 'SEND's to be issued. This is not true if the application program is executing under the control of ACF/VTAM V2 or V3, and has implemented support for the Large Message Processing Enhancement Option (LMPEO). This facility allows the application program, when in session with an SNA LU, to issue one 'SEND' to ACF/VTAM, and lets ACF/VTAM perform all necessary chaining. Outbound segmentation is accomplished in the ACF/NCP, and thus requires both buffers and 37x5 utilization to get the entire RU to its destination. Inbound segmentation is accomplished by the SLU and reassembled in the host by ACF/VTAM. It is valid, and many devices support, both chaining and segmentation.

NOTE: The abbreviations on the foil are:
OIC - Only In Chain
FIC - First In Chain
MIC - Middle In Chain
LIC - Last In Chain
OIS - Only In Segment
FIS - First In Segment
MIS - Middle In Segment
LIS - Last In Segment

PLU SSCP BF SLU

- **OUTBOUND CHAINING**

SEND (FIC)

SEND (MIC)

SEND (MIC)

SEND (LIC)

- **INBOUND CHAINING**

SEND (FIC)

SEND (MIC)

SEND (LIC)

- **OUTBOUND SEGMENTATION**

SEND (OIC)

SEND (FIS)

SEND (MIS)

SEND (LIS)

- **INBOUND SEGMENTATION**

SEND (FIS)

SEND (MIS)

SEND (LIS)

- **COMBINATION OF CHAINING AND SEGMENTATION IS VALID**

Foil 7

The first SNA Access Method we will discuss is ACF/VTAM. The items that will be covered will be how a BIND is defined to ACF/VTAM, how the BIND image is selected by ACF/VTAM, what fields in the BIND are changed by ACF/VTAM, and what portions of the BIND are checked by ACF/VTAM for Non-SNA 3270s.

ACF/VTAM CONSIDERATIONS

- **HOW TO DEFINE A BIND**
- **HOW THE BIND IMAGE IS SELECTED**
- **WHAT VTAM CHANGES**
- **NON-SNA 3270 BIND CHECKING**

Foil 8

There are three macros furnished with ACF/VTAM to be used to generate BIND images. The MODETAB macro is used to indicate the start of a Mode Table. The label on this macro is used to indicate the CSECT name for this particular table. In ACF/VTAM you can have as many different Mode Tables as are needed to suit your installation requirements. When you define an LU, you can indicate which Mode Table to use with this particular LU through the MODETAB= parameter. The same Mode Table can be used by many LUs. ACF/VTAM also comes with a default Mode Table, ISTINCLM (ISTINALM in OS/VS1). The IBM supplied table contains entries that are valid for most IBM devices and subsystems.

The MODEENT macro is used to actually define a BIND image. The entry name is indicated by the LOGMODE= keyword. The other parameters are included here for reference later in this presentation, however no further details will be provided because each is documented in the references listed. The MODEENT macro can have a label, and it is recommended that the label be the same as the LOGMODE= parameter. This could be helpful if you ever have to look at the code that is generated by the macros. One Mode Table can have multiple MODEENT macros specified.

The MODEEND macro is the final macro, and it is used to indicate the end of the table.

ACF/VTAM BIND GENERATION

MODETAB

MODEENT	LOGMODE =	ENTRY NAME
	TYPE =	NEGOTIABLE?
	FMPROF =	FM PROFILE
	TSPROF =	TS PROFILE
	PRIPROT =	PLU PROTOCOL
	SECPROT =	SLU PROTOCOL
	COMPROT =	COMMON PROTOCOL
	RUSIZES =	INBOUND/OUTBOUND
	PSERVIC =	SLU PRES SRVCS
	PSNDPAC =	PS PACING
	SRCVPAC =	SR PACING
	SSNDPAC =	SS PACING
	COSNAME =	CLASS OF SERVICE
	ENCR =	ENCRYPTION

MODEEND

- REFERENCES

- SC27-0584 ACF/VTAM PLANNING AND INSTALLATION
VERSION 1 RELEASE 3
- SC27-0610 ACF/VTAM PLANNING AND INSTALLATION
VERSION 2 RELEASE 1
- SC27-0613 ACF/VTAM CUSTOMIZATION
VERSION 2 RELEASE 2
- SC23-0112 ACF/VTAM CUSTOMIZATION
VERSION 3

Foil 9

The BIND selection algorithm in ACF/VTAM is fairly straight forward. It is primarily dependent on whether or not the initiate RU ('INIT') contains a Mode Table Entry name, and whether or not a default entry may be selected. If the 'INIT' RU has a non-blank Mode Table Entry name, that is the 'INIT-SELF' contains an entry name or the USS Logon contains a LOGMODE parameter (either by the user entering this parameter or having a default mode entry name defined in the USS table), ACF/VTAM will search first the table specified by the user, and second the default table. If the entry is not found the 'INIT' is rejected, and the session setup fails.

If the 'INIT' does not contain a Mode Table Entry name, ACF/VTAM will first see if the user has specified a default entry (DLOGMOD=) to use. If a default is specified ACF/VTAM will search the user table (if specified) and then the system table. If the entry is not found, the 'INIT' is rejected, and the session setup fails. If the user has not specified a default entry, ACF/VTAM will select the first entry in the user table (if coded), or the first entry in the system table (which is valid for an SNA 3767).

ACF/VTAM BIND SELECTION

- IF 'INIT' RU HAS NON-BLANK MODE NAME
 - IF ENTRY CONTAINED IN USER TABLE (MODETAB=), THEN USE IT ELSE
 - IF ENTRY IN SYSTEM TABLE (ISTINCLM) USE IT ELSE
 - REJECT THE 'INIT'
- IF 'INIT' RU HAS NO MODE NAME
 - IF DLOGMOD= CODED, SEARCH USER TABLE, THEN SYSTEM TABLE IF NOT FOUND REJECT 'INIT'
 - IF DLOGMOD= NOT CODED, USE FIRST ENTRY IN USER TABLE (IF CODED) OR SYSTEM TABLE

Foil 10

The only parameters in the BIND that ACF/VTAM will override are the pacing parameters. Lets start by defining the types of pacing implemented in ACF/VTAM, and how they can be specified by the user.

Outbound pacing in ACF/VTAM is in two-stages. The first stage is pacing from ACF/VTAM to the Boundary Function (BF), and this is called Primary Send or PS pacing.

The second stage of outbound pacing is called Secondary Receive or SR pacing. This is pacing from the boundary function to the Secondary Logical Unit.

While the Architecture has defined two stage inbound pacing, only single stage inbound pacing has been implemented in current SNA products. Inbound pacing is a function that requires device support in the Secondary Logical Unit. Inbound pacing consists of Secondary Send or SS pacing and Primary Receive or PR pacing. In SNA today, Primary Receive and Secondary Send pacing are always equal.

The pacing parameters are defined by the user, either through the Mode Table or the definition of the Logical Unit. On the LU macro, the user can code VPACING, which equates to Primary Send, and PACING, which equates to Secondary Receive. On the APPL statement the user can code VPACING, which equates to inbound pacing (Primary Receive and Secondary Send) if the APPL will be the PLU in this session. To use primary send (PS) pacing you must not code AUTH=NVPACE on the APPL (AUTH=VPACE is the default). If the APPL is to act as the Secondary Logical Unit in this session, then VPACING becomes the Primary Send pacing count and there is no Secondary Receive.

The user may also specify pacing in the Mode Table Entry by using the keywords that are supplied. You will note that there is no keyword for Primary Receive. This is because inbound pacing is single stage only and Primary Receive and Secondary Send must be equal.

ACF/VTAM BIND CHANGES

- **PACING**

SSCP(PLU) BF SLU

OUTBOUND PACING (TWO STAGE)

PRIMARY SEND (PS)

SECONDARY RECEIVE (SR)

INBOUND PACING (SINGLE STAGE)

PRIMARY RECEIVE (PR)

SECONDARY SEND (SS)

- **USER CODED PARAMETERS AFFECT PACING**

– LU VPACING=,PACING=

– APPL VPACING=,AUTH=NVPACE

– MODEENT PSNDPAC=
SRCVPAC=
SSNDPAC=

Foil 11

Now that we've reviewed how pacing is defined, let's see how these parameters can be overridden by ACF/VTAM.

If the Primary LU does not support pacing, then the Primary Send pacing is set to zero. Otherwise, if Primary Send pacing is not zero in the Mode Table Entry selected, it is used. Otherwise ACF/VTAM will use VPACING from the definition of the SLU.

If Secondary Receive pacing for ACF/NCP supported LU's is not zero in the Mode Table Entry selected, it is used. Otherwise ACF/VTAM will use PACING from the definition of the SLU.

If Secondary Receive pacing for application to application sessions or for local SNA devices is not zero in the Mode Table Entry selected, it is used. Otherwise, if the Primary application does not allow pacing, then set the Secondary Receive pacing to zero. Otherwise, ACF/VTAM will use VPACING from the definition of the SLU.

Please note the change in override criteria for inbound pacing. If the Mode Table Entry for Secondary Send pacing is not zero, use the VPACING from the Primary APPL, otherwise use zero. This change is necessary to allow an application to use inbound pacing for some sessions and still work for sessions that do not support that function.

ACF/VTAM PACING

- PRIMARY SEND PACING
 - IF PLU AUTH=NVPACE USE ZERO ELSE IF PSNDPAC= IS NOT ZERO USE IT ELSE USE VPACING FROM SLU
- SECONDARY RECEIVE PACING (NCP LU)
 - IF SRCVPAC= IS NOT ZERO USE IT ELSE USE PACING FROM SLU
- SECONDARY RECEIVE PACING (APPL TO APPL OR LOCAL SNA)
 - IF SRCVPAC= IS NOT ZERO USE IT ELSE IF PLU AUTH=NVPACE USE ZERO ELSE USE VPACING FROM SLU
- INBOUND PACING
 - IF SSNDPAC= IS NOT ZERO USE VPACING FROM PLU ELSE USE ZERO

Foil 12

Lets look at some examples of how pacing is finally resolved in the BIND, depending on how the user has coded various parameters and the Mode Table Entry. You will note that in each case for outbound pacing the Mode Table Entry parameter is used unless it is zero. If it is zero, then the appropriate definition is used. If both are zero, then the BIND will contain zero.

For inbound pacing the Mode Table Entry really only indicates whether or not the device supports inbound pacing. The value used in the BIND will always be either zero or what is coded on the APPL for VPACING.

ACF/VTAM PACING

WHERE CODED	ACF/VTAM PARAMETER	MODEENT PARAMETER	BIND SENT
LU	VPACING = A	PSNDPAC = B	PS = B
LU	VPACING = A	PSNDPAC = 0	PS = A
LU	PACING = C	SRCVPAC = D	SR = D
LU	PACING = C	SRCVPAC = 0	SR = C
APPL	VPACING = F	SSNDPAC = E	PR = SS = F
APPL	VPACING = F	SSNDPAC = 0	PR = SS = 0
APPL	VPACING = 0	SSNDPAC = E	PR = SS = 0

Foil 13

ACF/VTAM will respond to any BIND that is destined for a Non-SNA 3270. The fields in the BIND that are checked by ACF/VTAM are indicated on this foil. ACF/VTAM will reject the BIND if the values shown here are not present.

ACF/VTAM NON-SNA 3270

- **MUST BE NON-NEGOTIABLE**
- **FM AND TS PROFILE MUST BE '02'**
- **PRIMARY PROTOCOL**
 - **SINGLE REQUEST CHAINS**
 - **NO COMPRESSION**
- **SECONDARY PROTOCOL**
 - **SINGLE REQUEST CHAINS**
 - **MULTIPLE OUTSTANDING CHAINS (DELAYED REQUEST MODE)**
 - **SECONDARY NO RESPONSE MODE**
- **COMMON PROTOCOLS**
 - **NO FM HEADERS**
 - **FDX CONTENTION**
 - **PLU HANDLES RECOVERY**
 - **SLU WINS CONTENTION**
 - **EITHER BRACKETS NOT USED**
OR
PRIMARY SENDS END BRACKET
UNCONDITIONAL END BRACKET
SECONDARY FIRST SPEAKER
- **IF NOT ALL ABOVE REJECT THE 'INIT'**

Foil 14

For ACF/TCAM V2 we will review how a BIND is defined (There are differences between ACF/VTAM and ACF/TCAM in this area), how ACF/TCAM selects the BIND image to be used, and what values ACF/TCAM changes and enforces in the BIND. What will be discussed will be limited in some parts to what ACF/TCAM does when it is acting as the Primary Logical Unit (i.e. when the DCB interface is being used). The Subsystem Interface will be covered later when we discuss what each Subsystem does with the BIND, as this is common between the Access Methods when the Subsystem Interface (ACB Interface) is being used.

ACF/TCAM V2 CONSIDERATIONS

- **HOW TO DEFINE A BIND**
- **HOW THE BIND IMAGE IS SELECTED**
- **WHAT TCAM CHANGES**

Foil 15

One of the major differences in this area between the SNA Access Methods is that in ACF/TCAM V2 there is only one Mode Table for the system. In ACF/TCAM it is referred to as the BIND Table (or BIND Image table). ACF/TCAM also furnishes three macros to generate its BIND Table. Only the keywords on each of these macros and parameters that are common to both SNA access methods are shown.

The first of these macros is IEDBTAB. This macro is used to indicate the start of the BIND Table. The label on this macro must be IEDBITN. The keyword DEFBI= is used to indicate which entry in the table is the default system entry.

The IEDBENT macro is used much the same as the MODEENT macro in ACF/VTAM. Again these will not be covered in detail for each of these keywords and their usage. The main difference between ACF/VTAM and ACF/TCAM is that the BIND Table entry name generated by ACF/TCAM is the label of the IEDBENT macro, where in ACF/VTAM the user specified the name of the entry through the LOGMODE= keyword.

The IEDBEND macro is used to indicate the end of the table.

ACF/TCAM V2 BIND GENERATION

IEDBTAB	CBI=	SUPPLIED
	DEFBI=	DEFAULT
IEDBENT	FMTYPE=	NEGOTIABLE?
	FMPROF=	FM PROFILE
	TSPROF=	TS PROFILE
	PRIPROT=	PLU PROTOCOL
	SECPROT=	SLU PROTOCOL
	COMPROT=	COMMON PROTOCOL
	LUPROF=	LU TYPE
	TSUSAGE=	RU SIZES,PACING
	PRESERC=	LU PRES SRVCS
	COS=	CLASS OF SERVICE
	CRPTOPT=	NCRYPTION
	LOGON=	OGON DATA
	USRDATA=	USER DATA

IEDBEND

- REFERENCES

SC30-3153 ACF/TCAM VERSION 2 NETWORKING
INSTALLATION GUIDE

SC30-3132 ACF/TCAM VERSION 2 BASE
INSTALLATION GUIDE

Foil 16

The BIND selection criteria used by ACF/TCAM is very similar to the technique used by ACF/VTAM. The primary difference is that ACF/TCAM does not have a user table to search.

Again, the primary criteria is whether or not the 'INIT' RU contains a non-blank Mode Table Entry name. If the 'INIT' has a non-blank mode name, the BIND Table is searched for the entry. If the entry is found it is used. If it is not found the 'INIT' is rejected, and the session setup fails.

If the 'INIT' RU has no Mode Table Entry name, then ACF/TCAM will check to see if the user has specified the IEDLMODE option field for that LU. If the field has been specified then ACF/TCAM will use that name to search the BIND Table. If the entry is not found the 'INIT' is rejected, and the session setup fails. If the IEDLMODE option field has not been coded by the user then ACF/TCAM will use the system default entry specified by the user when the BIND Table was generated.

ACF/TCAM BIND SELECTION

- **IF 'INIT' RU HAS NON-BLANK MODE NAME**
 - **IF ENTRY IN BIND TABLE (IEDBITN) USE IT ELSE**
 - **REJECT THE 'INIT'**

- **IF 'INIT' RU HAS NO MODE NAME**
 - **IF IEDLMODE OPTION FIELD CODED FOR THIS LU THEN USE THAT NAME IF NOT FOUND REJECT 'INIT'**
 - **IF IEDLMODE OPTION FIELD NOT CODED USE DEFAULT ENTRY IN BIND TABLE (IEDBTAB DEFBI=)**

Foil 17

In discussing what ACF/TCAM V2 changes in the BIND, only those items ACF/TCAM changes when it is acting as the Primary Logical Unit are mentioned.

Three items are changed by ACF/TCAM in the BIND, regardless of what is specified. These items are that ACF/TCAM will only operate in 'immediate request mode' and requires 'primary chain response protocol'. ACF/TCAM also requires that the secondary is the first speaker.

ACF/TCAM will also enforce certain protocols regardless of the Device Message Handler (DMH). These are that ACF/TCAM will insure that end bracket is sent, if required, and it will not allow brackets if they are not to be used. ACF/TCAM will also enforce the bracket termination rules.

ACF/TCAM V2 BIND CHANGES

- **PRIMARY LU PROTOCOL**
 - IMMEDIATE REQUEST MODE
 - PRIMARY CHAIN RESPONSE PROTOCOL
 - COMMON LU PROTOCOL

- **SECONDARY FIRST SPEAKER**
 - ENFORCED BY TCAM IF SET
 - PRIMARY LU PROTOCOL
 - IF PRIMARY DOES NOT SEND END BRACKET
TCAM WILL ENSURE THAT NO END BRACKET
IS SENT REGARDLESS OF WHAT IS SET IN
THE DMH
 - COMMON LU PROTOCOL
 - IF BRACKETS ARE NOT USED TCAM DOES
NOT PERMIT THE IEDRH MACRO IN THE
PLU DMH TO SET BRACKETS IN THE RH
BRACKET TERMINATION RULE IS ENFORCED

- **IF TCAM IS TO BE THE SLU IN A SESSION SEE 'ACF/TCAM
VERSION 2 NETWORKING INSTALLATION GUIDE' (SC30-3153)
SECTION 3**

Foil 18

The Subsystems are perhaps the key part of this bulletin because, as you have seen, the actual content, with very few exceptions, of the BIND is totally up to the Subsystem. As we discuss these various IBM Subsystems you will see that each has its own requirements in the session initiation process. This is not an attempt to educate you in the Subsystem/Access Method interface, rather an attempt to give you a good direction to pursue when the session initiation process fails. If you are attempting to resolve why you got a 'SESSION NOT BOUND', an understanding of what the Subsystem does in this process can be very time saving in the resolution of the problem. This discussion will apply to both ACF/VTAM and ACF/TCAM V2 when the Subsystem Interface is being used. Remember that TSO, NCCF, RES, and ACF/TCAM V3 are not supported through this interface. Also, since ACF/TCAM is not supported on VSE, the POWER/VS considerations are applicable only in an ACF/VTAM environment.

SUBSYSTEM CONSIDERATIONS

- **CICS/VS V1R6**
- **CICS/VS V1R7**
- **IMS/VS**
- **TSO/VTAM**
- **NCCF**
- **ES2/RJE**
- **JES3**
- **POWER/VS**
- **RES**
- **BDT**
- **ACF/TCAM V3**

Foil 19

Remember from earlier that the application program must issue an 'INQUIRE' to see the session parameters that have been selected for this session. CICS/VS does not issue an 'INQUIRE'. This means that regardless of what you have coded in the Mode Table Entry, it will have no effect (other than pacing). (NOTE: There is one exception to this, and this is controlled by the LOGMODE parameter. See this description on the next foil). CICS/VS will create the BIND image based on parameters coded when the CICS/VS Terminal Control Table (TCT) was generated. CICS/VS does have some excellent references, by device type, to assist in how to define the device to CICS/VS.

CICS/VS V1R6 CONSIDERATIONS

- **CICS/VS DOES NOT ISSUE 'INQUIRE'**
- **BIND VALUES USED ARE BASED ON CICS TCT GEN PARAMETERS**
- **PACING OVERRIDDEN BY VTAM**
- **REFERENCES**

SC33-0149 CICS/VS RESOURCE DEFINITION GUIDE

SC33-0096 CICS/VS IBM 3270/8775 GUIDE

SC33-0072 CICS/VS IBM 4700/3600/3630 GUIDE

SC33-0073 CICS/VS IBM 3650/3680 GUIDE

SC33-0074 CICS/VS IBM 3767/3770/6670 GUIDE

SC33-0075 CICS/VS IBM 3790/3730/8100 GUIDE

Foil 20

The primary CICS/VS TCT parameters that affect the BIND are contained on this page. Remember that CICS/VS V1R6 requires that the LU be defined in the TCT before a session can be established. If you ever have a problem with session establishment, one of the first things you should do is to verify that the LU is defined in the TCT.

The TRMTYPE = parameter is used to select most of the protocols to be selected for this session. What is illustrated here is the different ways to specify 3270 type devices, a common coding error in CICS/VS. Remember that a Non-SNA 3270 is always an LU Type 0, while an SNA 3270 is always either an LU Type 2 for a display, or an LU Type 1 or 3 for a printer.

The BUFFER = parameter will be used by CICS/VS to determine the maximum outbound RU size that can be used. A common error made here is to specify too small a value. If the value coded is too small you might not see any indication of it until the CPU starts having performance problems. Remember that the application must perform the chaining if the message is larger than MAXRU outbound. In CICS/VS V1R6 and above, a new facility has been implemented to exploit new capabilities in ACF/VTAM V2 and V3. CICS/VS has implemented support for ACF/VTAM's Large Message Processing Enhancement Option (LMPEO). This eliminates the necessity for CICS/VS to perform any outbound chaining for its sessions with SNA LU's. ACF/VTAM will perform this function on CICS/VS's behalf.

The RUSIZE = parameter in the TCT will be used to determine the maximum inbound RU size. This will be the maximum size chain element sent from the SLU.

The parameters TRMMODL = , DEFSCRN = , ALTSCRN = , and FEATURE = all can affect what is in the PSERVIC portion of the BIND. The FEATURE = parameters are used to indicate extended data stream support for SNA 3270s. Extended data streams are used to support graphics data (e.g. full seven color and programmed symbol support).

One keyword in the TCT should be used with caution. The LOGMODE = keyword causes CICS/VS to issue an 'OPNDST' to ACF/VTAM, but rather than pointing to an area containing the BIND image to be used, it indicates which Mode Table Entry to use. This is not valid and will be rejected if the resource is cross domain or cross network. As a result, this parameter should be left off, or be set to blanks. Also, since CICS/VS does not issue an 'INQUIRE' to find out the session parameters, the user must insure that the TCT parameters are compatible with the Mode Table Entry used.

There is one other way this parameter can be set. If LOGMODE = 0 is coded, CICS will not build the BIND from the TCT parameters, but will use whatever parameters are specified in the SLU's Mode Table entry. These parameters need to be consistent with the TCT settings or communication on the session may not be possible.

CICS/VS V1R6 TCT PARAMETERS

- **NETNAME =** **REQUIRED**
TRMTYPE = 3270 **NON-SNA DISPLAY**
 3270P **NON-SNA PRINTER**
 TWX **NTO TWX**
 LUTYPE2 **SNA DISPLAY**
 LUTYPE3 **SNA PRINTER(DSC)**
 SCSPRT **SNA PRINTER(LU1)**

- **BUFFER =** **MAXRU OUTBOUND**

- **RUSIZE =** **MAXRU INBOUND**

- **TRMMODL =**
DEFSCRN = **ALL AFFECT THE**
ALTSCRN = **PSERVIC**
FEATURE =

- **LOGMODE =** **NOT VALID FOR**
 CROSS DOMAIN OR
 CROSS NETWORK
 RESOURCES

Foil 21

CICS/VS V1R7 works just like V1R6 if the SLU is predefined in the TCT at CICS/VS generation.

One of the major enhancements of CICS/VS V1R7 is to allow dynamic terminal definitions. This is supported only for sessions that are SLU initiated. If this feature is utilized, then the TCT definition will be dynamically built when the CICS/VS Logon exit is invoked. CICS/VS will interrogate the CINIT RU passed from ACF/VTAM. From this RU, CICS/VS will obtain the LU name, and will interrogate the session parameters and then search the predefined model definitions to obtain a matching definition. A user exit is then invoked so the user can supply the CICS/VS terminal ID. Upon return from the exit, the terminal is then added to the other TCT entries, and the session setup proceeds.

CICS/VS V1R7 CONSIDERATIONS

- **JUST LIKE V1R6 IF SLU IS PRE-DEFINED**
- **SUPPORTS DYNAMIC SLU DEFINITIONS IF SESSION IS SLU INITIATED**
- **LU NAME AND SESSION PARAMETERS OBTAINED FROM CINIT**
- **SER EXIT ALLOWS USER SPECIFIED TERMINAL ID**
- **PACING OVERRIDDEN BY VTAM**
- **REFERENCES**

SC33-0149 CICS/VS RESOURCE DEFINITION GUIDE

SC33-0096 CICS/VS IBM 3270/8775 GUIDE

SC33-0072 CICS/VS IBM 4700/3600/3630 GUIDE

SC33-0073 CICS/VS IBM 3650/3680 GUIDE

SC33-0074 CICS/VS IBM 3767/3770/6670 GUIDE

SC33-0075 CICS/VS IBM 3790/3730/8100 GUIDE

Foil 22

IMS/VS does issue an 'INQUIRE' to ACF/VTAM and uses most of the parameters specified in the Mode Table Entry. As with CICS/VS the terminal must be defined to IMS/VS before a session can be established. The first thing to do if a session is not established is to insure that the LU is defined to IMS/VS.

The only parts of the BIND overridden by IMS/VS are the RU sizes and the protocols. IMS/VS will use the OUTBUF= parameter on the TERMINAL definition to determine the maximum outbound RU size. It will also use the COMM RECANY= parameter to replace the maximum inbound RU size. The primary, secondary, and common protocols will be set based on device or LU type. Remember that ACF/VTAM can still override the pacing.

The TERMINAL macro also has a MODETBL= parameter that can be used to select a Mode Table Entry to be used in this session. Since IMS/VS does issue an 'INQUIRE' you do not have to correlate the Mode Table Entry to other parameters in IMS/VS. The RU sizes will still be overridden, however the parameter is not valid if the resource is cross domain or cross network.

IMS/VS CONSIDERATIONS

- **IMS/VS DOES ISSUE 'INQUIRE'**
- **TERMINAL NAME = REQUIRED**
- **RUSIZES IN BIND OVERRIDDEN**
 - **TERMINAL OUTBUF = REPLACES MAXRU OUTBOUND**
 - **COMM RECANY = REPLACES MAXRU INBOUND**
- **PRIPROT, SECROT AND COMPROT SET BASED ON LU TYPE**
- **TERMINAL MODETBL = CANNOT BE USED IF RESOURCE IS CROSS DOMAIN**
- **REFERENCES**

SH20-9081 IMS/VS VERSION 1 INSTALLATION GUIDE
SH20-9054 IMS/VS VERSION 1 PROGRAMMERS GUIDE
FOR REMOTE SNA SYSTEMS
SH20-0911 IMS/VS VERSION 2 SYSTEMS PROGRAMMING
REFERENCE MANUAL

Foil 23

TSO does issue an 'INQUIRE' to determine the session parameters, however it only uses certain of the parameters. If the Function Management Profile is set to '02' then TSO assumes that the device is a Non-SNA 3270. Otherwise TSO will look at the first byte in the PSERVIC to see if the device is an LU Type 2 (SNA 3270). If neither of these conditions are true, then TSO assumes that the device is an LU Type 1.

The entire BIND is 'hardcoded' in TSO/VTAM except:

1. If the device is an LU Type 0, TSO will use the user specified PSERVIC. This allows different models of LU Type 0's to be supported (e.g. 3278 Model 2 through 5, 3279 model 2 or 3 and graphics, etc.).
2. If the device is an LU Type 1, TSO will honor user specified ASCII (alternate code indicator). This allows TSO to support both SNA 3767's and NTO type TWX terminals both as LU Type 1's).
3. If the device is an LU Type 2, TSO will honor user specified RUSIZES, PSERVIC, and ASCII (alternate code indicator). The ASCII indicator is used for APL, and this indicator is turned on whenever the terminal user presses the "APL ON" key at the terminal. The PSERVIC field allows for different models of LU Type 2's to be supported (e.g. 3178 Model 2 or 3, 3290 in 3278 Model 2 through 5 mode, etc.).

TSO/VTAM CONSIDERATIONS

- TSO DOES ISSUE 'INQUIRE'
- IF FMPROF='02' THEN LU0
- IF LUTYPE='02' THEN LU2 ELSE LU1
- BIND IS HARDCODED EXCEPT
 - LU0 - USER PSERVIC USED
 - LU1 - USER SPECIFIED ASCII IS HONORED
 - LU2 - USER SPECIFIED RUSIZES USER SPECIFIED PSERVIC ASCII IS HONORED
- REFERENCES
 - SC27-0584 ACF/VTAM PAIR VERSION 1 RELEASE 3
 -APPENDIX E
 - SC27-0610 ACF/VTAM PAIR VERSION 2 RELEASE 1
 -APPENDIX E
 - SC27-0610-2 ACF/VTAM V2R2 INSTALLATION AND
 RESOURCE DEFINITION-APPENDIX C
 - SC23-0111 ACF/VTAM V3 INSTALLATION AND RESOURCE
 DEFINITION -APPENDIX C

Foil 24

NCCF V1 has a major requirement in the session initiation process. This requirement is that the Mode Table Entry name must be DSILGMOD. This means that you must have a different Mode Table for each unique device type (i.e. one table for SNA 3270s with a screen size of 1920, one table for a SNA 3270 with a screen size of 3440, etc.).

NCCF does issue an 'INQUIRE' to determine and validate the session parameters. NCCF will change nothing in the BIND, and it will use the PSERVIC specified.

The references given for NCCF show the Mode Table Entry parameters required by device type.

NCCF V1 CONSIDERATIONS

- **MODE TABLE ENTRY NAME MUST BE 'DSILGMOD'**
- **NCCF ISSUES 'INQUIRE'**
- **NCCF CHANGES NOTHING**
- **NCCF USES PSERVIC**
- **REFERENCES**

SC27-0430 NCCF INSTALLATION
P. 42 (RELEASE 1)
P. 51 (RELEASE 2)

Foil 25

NCCF V2 removes the NCCF V1 requirement for the Mode Table Entry name being DSILGMOD. This version of NCCF will accept any valid Mode Table Entry name, which eliminates unique Mode Tables because of the NCCF V1 restriction for Mode Table Entry name.

The remainder of the NCCF V2 support is consistent with NCCF V1.

NCCF V2 CONSIDERATIONS

- **MODE TABLE ENTRY NAME IS USER DEFINED**
- **NCCF ISSUES 'INQUIRE'**
- **NCCF CHANGES NOTHING**
- **NCCF USES PSERVIC**
- **REFERENCES**

**SC27-0660 NCCF V2 INSTALLATION AND
RESOURCE DEFINITION**

Foil 26

JES2/RJE also issues an 'INQUIRE' to determine the session parameters, but most of the BIND content is 'hardcoded' or is built from parameters specified in SYS1.PARMLIB.

This table shows that the only parts of the Mode Table Entry that are used are whether or not compression or compaction is allowable, and whether or not alternate code is supported. The rest of the BIND is determined by JES2. An excellent reference for all RJE Subsystems is the IBM 3770 SNA Installation Guide.

JES2/RJE CONSIDERATIONS

- JES2 DOES ISSUE 'INQUIRE'
- JES2 BUILDS BIND BASED ON PARAMETERS FROM SYS1.PARMLIB

FIELD	MODE TABLE	JES2 BUILDS
FMPROF	NOT USED	'03'
TSPROF	NOT USED	'03'
PRIPROT	NO COMPR/COMPC	'B1'
	COMPR OR COMPC	'B3'
SECPROT	NOT USED	'A3'
COMPROT	NO ALT CODE	'7080'
	ALT CODE	'7880'
RUSIZES	NOT USED	'8585' IF BUFSIZE = 256 '8686' IF BUFSIZE = 512

- REFERENCES

- GC30-3064 IBM 3770 SNA INSTALLATION GUIDE
- SC23-0003 SYSTEMS PROGRAMMER'S LIBRARY:
NETWORK JOB ENTRY
FACILITY FOR JES2
- SC23-0046 SYSTEMS PROGRAMMER'S LIBRARY:
JES2 INSTALLATION, INITIALIZATION
AND TUNING
- GG22-9373 NETWORK JOB ENTRY FORMATS
AND PROTOCOLS FOR SYSTEM/370
PROGRAM PRODUCTS

Foil 27

JES3, POWER/VS, and RES are all similar in their session initiation process. All will issue an 'INQUIRE' to determine the session parameters, and nothing is overridden.

JES3/POWER/RES CONSIDERATIONS

- **ALL DO ISSUE 'INQUIRE'**
- **NOTHING IS OVERRIDDEN**
- **REFERENCES**

**GC28-6878 OS/VS1 RES SYSTEMS PROGRAMMERS
GUIDE**

**SH12-5329 VSE/POWER INSTALLATION AND
OPERATIONS GUIDE**

**GC28-0608 OS/VS2 SYSTEMS PROGRAMMERS
LIBRARY: JES3**

**SC23-0041 JES3 SYSTEM PROGRAMMING
LIBRARY: INSTALLATION AND
TUNING**

GC30-3064 IBM 3770 SNA INSTALLATION GUIDE

Foil 28

MVS Bulk Data Transfer (BDT) is an application that transmits files between MVS systems. It issues an 'INQUIRE' to determine the session parameters, but everything in the user supplied parameters is overridden, except the data encryption indicators. BDT uses format 0 negotiable BINDs. Negotiable BIND is used to set up some of the variable parameters between the BDT applications. The values being negotiated are in the BIND User Data field, and are BDT operational control parameters which are defined in the BDTIN data set. The most important field that is negotiated is based on the BDT Data Buffer Size. This field is used to determine the actual RU size utilized between the BDT nodes (NOTE: BDT always sets the BIND RUSIZE to 256 for both the send and receive RU data length). The actual RU sizes sent between BDT nodes is the smaller of the two BDT nodes BUFSZ parameter.

Some of the other considerations for BDT have to do with session pacing. BDT does not use SNA pacing because it uses its own pacing mechanisms. BDT supports multiple logical sessions (the number of which is defined by the BDT LU parameter) within a single SNA session. Each of these logical sessions (know as VLU's or virtual LU's) is paced independently. The pacing values used for this is defined by the BDT BUFNO parameter, which also controls when BDT checkpoints the data transmission. This is important because if the SNA session fails and is restarted, BDT will begin transmission based on the last checkpoint record. As such, this value should be carefully chosen.

The last item with BDT has to do with data compression. This is an optional feature, and can increase the efficiency of the data transfer between BDT nodes. There is an impact on the CPU utilization in both the transmitting and receiving BDT nodes if compression is used. As such, there is a host CPU cycle versus network capacity issue that must be resolved relative to this facility.

MVS BULK DATA TRANSFER

- BDT ISSUES 'INQUIRE'

- ONLY ENCRYPTION INDICATOR IS USED

- FORMAT OF NEGOTIABLE BIND USED

FIELD	MODE TABLE	BDT BUILDS
FMPROF	NOT USED	'04'
TSPROF	NOT USED	'07'
PRIPROT	NOT USED	'00'
SECPROT	NOT USED	'00'
COMPROT	NOT USED	'0000'
RUSIZES*	NOT USED	'8585'
PACING	NOT USED	'00'
PSERVIC	NOT USED	'0000..'

- PARAMETERS FROM BDTIN DATA SET

CONTROL BIND USER DATA FIELD

FIELD	BTD PARAMETER
PASSWORD	PASSWORD
DATA BUFFER SIZE	BUFSZ
VLU PACING WINDOW	BUFNO
NUMBER OF VLU'S	LU
COMPRESSION OPTIONS	
SELECTABLE FEATURES	

- REFERENCES

SC28-1314 BDT INITIALIZATION AND NETWORK DEFINITION

* RUSIZE IS NOT USED. THE REAL RU SIZE IS THE SMALLER OF THE TWO BDT NODE'S BUFSZ VALUE, WHICH IS NEGOTIATED DURING BIND PROCESSING

Foil 29

ACF/TCAM V3 runs as an ACF/VTAM application program. This level of ACF/TCAM does issue the 'INQUIRE SESSPARM' macro in the ACF/TCAM Logon exit routine. ACF/TCAM forces the BIND parameters to specify Immediate request mode and definite response mode chains are used. In addition, ACF/TCAM will validate the pacing parameters for single stage pacing. ACF/TCAM will insure that the primary send and secondary receive pacing values are the same, as long as single stage outbound pacing is being used. In a similar fashion, ACF/TCAM will insure that secondary send is the same as primary receive if inbound pacing is used. All other BIND parameters are unchanged by ACF/TCAM.

ACF/TCAM V3

- **TCAM ISSUES 'INQUIRE'**

- **TCAM FORCES:**

FMPROF -

**IMMEDIATE REQUEST MODE
DEFINITE RESPONSE CHAINS**

**IF SINGLE STAGE OUTBOUND PACING -
PRIMARY SEND = SECONDARY RECEIVE**

**IF SINGLE STAGE INBOUND PACING -
SECONDARY SEND = PRIMARY RECEIVE**

- **ALL OTHER VALUES ARE UNCHANGED**

- **REFERENCES**

**SC30-3237 ACF/TCAM INSTALLATION, RESOURCE
DEFINITION, AND CUSTOMIZATION GUIDE**

**SC30-3236 ACF/TCAM INSTALLATION, RESOURCE
DEFINITION, AND CUSTOMIZATION REFERENCE**

Foil 30

The primary thing to remember when tuning or performing problem determination for session setup problems is that you must be working from a trace of the session initiation process. Instead of an external trace (such as ACF/VTAM IO trace), you can use NLDM to obtain session setup failure information. To obtain this data with NLDM, you must be using NLDM Release 3 in conjunction with ACF/VTAM V3 for same domain sessions. For cross domain or cross network session setup problems, any release of NLDM and ACF/VTAM can be used provided the CDRM sessions are being traced by NLDM. The one exception to this is if you are using a Subsystem that requires the SLU to be defined, the first step is to insure that it is at least defined.

If you are attempting to tune your network or portions of it, a trace of the session can be very helpful. Again, NLDM could be used to obtain the session parameters. For every session that NLDM is capturing session awareness data, the SNA BIND parameters are saved, and are available for online viewing by the NLDM operator. Am I using chaining and segmentation effectively? Are the maximum RU sizes optimum for the network? Is pacing being used effectively? Remember that some devices, such as SNA 3270 displays and printers in Data Stream Compatibility (DSC) mode, require no pacing at all. Other devices, such as SNA 3270 printers operating in SNA Character Set (SCS) mode (LU Type 1), do require pacing, but the pacing can be optimized to achieve maximum overlap on the printer.

If you are trying to determine why a session didn't get established the trace will show where the request was rejected. If the resource is cross domain or cross network, did the CDINIT and CDCINIT get positive response? If not the SNA Sense code should indicate the reason why. Did the Subsystem just issue a 'CLSDST' rather than an 'OPNDST' (i.e. there was no 'BIND' in the trace)? If that is the case then depending on the Subsystem, either the SLU was not defined or the session parameters were not agreeable. Did the BIND actually get sent but the device rejected it? If that is the case the component description manual or the device itself can point you to the portion of the BIND that was not acceptable (e.g. if an SNA 3776/3777 rejects the BIND, in the negative response user sense field will be a displacement into the BIND of the field that caused the rejection).

It is not possible in a bulletin such as this to completely cover all aspects of the session initiation process. Hopefully, enough has been covered to get you started in the right direction in the problem determination process. A basic understanding of what the subsystem does can be very time saving when trying to resolve the problem.

A good rule of thumb is to always use a reference guide that is proven, like the 'SNA Products Installation Guide'. The definitions provided in this manual may not be optimal for all conditions, but they will work and that is the main objective when starting out.

TUNING/PROBLEM DETERMINATION

- **MUST TRACE SESSION INITIATION**
 - **USE IO TRACE OR NLDM**

- **TUNING**
 - **CHECK THE BIND BEING SENT**
 - **CHAINING/SEGMENTATION**
 - **MAXRU SIZES**
 - **PACING VALUES**

- **PROBLEM DETERMINATION**
 - **IS THE BIND BEING SENT**
 - **IS IT WHAT YOU WANTED**
 - **DEPENDING ON WHERE IT IS BEING REJECTED**
 - **COMPONENT DESCRIPTION MANUAL**
 - **SUBSYSTEM/VTAM DEFINITION**

- **REFERENCES**

GG24-1557 SNA PRODUCTS INSTALLATION GUIDE

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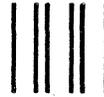
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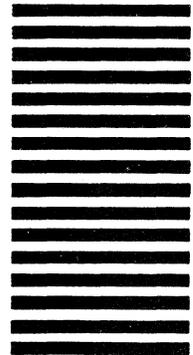


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