APPC Networking Services for Windows

SC31-8138-01

Configuration Parameters Reference for Administrators and Application Programmers

Version 1.0

IBM

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SC31-8138-01

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Note

Before using this information and the product it supports, be sure to read the general information under “Notices” on page vii.

| **Second Edition (May 1995)**

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About This Book

Networking Services is a software product that supports Advanced Program-to-Program Communication (APPC) in the Microsoft** Windows** 3.1 environments. With Networking Services, communications applications on your workstation can “talk to” partner applications on other systems that support APPC. To use Networking Services, you must provide configuration information.

This book explains:

- How to provide configuration information
- How configuration information correlates between the methods used to provide information
- The possible values for configuration parameters
- How to configure parameters to improve performance

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Who Should Read This Book

This book is intended for:

- Administrators who are responsible for:
  - Instructing end users how to configure their workstations
  - Ensuring that configuration parameters are set for optimal performance. Some configuration parameters can be specified only by editing the network configuration file, NSD.INI. Only an administrator should edit NSD.INI.
- Application programmers who write application programs that use the node operator facility (NOF) API. For more information on the NOF API, refer to the *IBM APPC Networking Services for Windows: Application Programmer's Reference*.

The prerequisites for using this book are:

- Familiarity with the Windows graphical environment when using Windows applications
- Familiarity with SNA networks in general, and your own network in particular.

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About This Book

Conventions Used in This Book

To help you locate and identify information easily, this book uses the following visual cues and standard text formats:

Type style	Used for
Bold	Names of Networking Services programs
Monospace	Names of entry fields, action bar items, and choices from pull-down menus
Italics	Titles of books, defined terms, and CPI-C call characteristics and variables.

Terms Used in This Book

Terms used in this book include:

Term	Purpose
Type	Instructs you to type information in an entry field or file. You do not need to press Enter after typing this information.
Workstation	Refers to a programmable workstation.
KB	1024 bytes.
MB	1 048 576 bytes.

Where to Find More Information on Networking Services

For basic information on using Networking Services, refer to the online help facility provided by Networking Services. The online help provides users with information on:

How to use Networking Services programs

Configuration parameters that can be set using Networking Services programs

Error messages and the message log.

Where to Find Related Information

For more information about IBM APPC Networking Services for Windows, refer to the other publications in this product's library:

IBM APPC Networking Services for Windows: Getting Started, SC31-8124

IBM APPC Networking Services for Windows: Administrator's Guide, SC31-8125

IBM APPC Networking Services for Windows: Application Programmer's Reference, SC31-8126

This book and *IBM APPC Networking Services for Windows: Getting Started* are available in hardcopy format in the product package. All publications in the IBM APPC Networking Services for Windows library, including this book, are available in softcopy format on the product diskettes, and their hardcopy formats can also be ordered separately.

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About This Book

Chapter 1. Introducing Configuration Information

To use Networking Services, you must provide configuration information. Configuration information consists of various configuration parameters.

This chapter provides an overview of configuration information:

Topic	Page
Initial and dynamic configuration information	1-1
Required and optional configuration information	1-2
Method for specifying initial configuration information	1-3
Methods for specifying dynamic configuration information	1-3

Initial and Dynamic Configuration Information

Configuration information provided before you start Networking Services is called *initial configuration information*. Configuration information provided after Networking Services is started is called *dynamic configuration information*.

Networking Services stores initial configuration information in the network configuration file, NSD.INI. When Networking Services starts it uses the contents of NSD.INI to set up the Networking Services environment. Some of the characteristics of the Networking Services environment can be changed temporarily by providing dynamic configuration information. However, providing dynamic configuration information does not change the contents of NSD.INI.

Dynamic configuration information is discarded when the entity that it describes is deactivated, or when Networking Services is stopped. When Networking Services is started again, it reinitializes the Networking Services environment with the contents of NSD.INI.

Therefore, if you want to change how Networking Services is initialized, you must change the contents of NSD.INI, using the method discussed in “Method for Specifying Initial Configuration Information” on page 1-3.

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Required and Optional Configuration Information

Configuration Information Required to Start Networking Services

Some configuration information is required in order to start Networking Services. Networking Services is designed so that this information is minimal. In fact, for most connection types that you use, only two parameters are required to start Networking Services:

- Connection type
- Local LU name

For asynchronous and SDLC connections types, you must also specify the following parameters during initial configuration:

- Line type
- Modem type
- Port name

All information required to start Networking Services must be provided with the method discussed in “Method for Specifying Initial Configuration Information” on page 1-3. Optional information can also be provided with this method.Table 2-1 on page 2-2 , Table 2-2 on page 2-4, and Table 2-5 on page 2-7 provide additional information on required and optional parameters that are specified during initial configuration.

Configuration Information Required to Perform Networking Services Services

Other configuration information is required in order to perform Networking Services services, such as activating a link, or defining a mode. Configuration information of this kind can be provided as either initial configuration information or dynamic configuration information. For more information about which parameters are required to perform Networking Services services, see Table 2-2 on page 2-4 through Table 2-9 on page 2-12.

Optional Configuration Information

Some configuration information is optional. All optional parameters have default values; you need specify optional parameters only if you do not want to use the default values. Some optional information can be provided as part of initial configuration information, some can be provided dynamically, and some can be provided at either time.

Method for Specifying Initial Configuration Information

Use Steps 1 through 3 of the **Configure** program, with which you can specify all required parameters and some optional parameters. Use the final step of the **Configure** program (click on Done) to cause the specified parameters to become part of the initial configuration information.

For more information about the parameters can be specified with this method, see the Table 2-1 on page 2-2 through Table 2-5 on page 2-7.

Configure Program

The **Configure** program is a graphical user interface program that enables you to enter the required and optional configuration parameters.

To use this program, double-click on the **Configure** icon in the IBM APPC Networking Services for Windows program group. When you install Networking Services, you can also use this program by answering YES when the installation program asks if you want to configure.

When you use the **Configure** program, Networking Services reads the NSD.INI file and displays all parameters that are already defined in NSD.INI in the appropriate fields in the **Configure** program panels.

For more information about the **Configure** program, refer to the *IBM APPC Networking Services for Windows: Administrator's Guide*. note.Editing NSD.INI is not recommended.

Changing Initial Configuration Parameters

In order to change parameter values so that they will become initial configuration parameters, you must stop Networking Services and start it again. To cause some changed parameters to take effect, you must reboot your workstation. For more information about which parameter changes require rebooting, see the Table 2-1 on page 2-2 through Table 2-5 on page 2-7.

Methods for Specifying Dynamic Configuration Information

Networking Services provides the following related methods to specify dynamic configuration information:

The node operator facility (NOF) application program interface (API)

The **Advanced Operations** program

For information about which methods can be used to specify each parameter, see Table 2-1 on page 2-2 through Table 2-9 on page 2-12.

Specifying Dynamic Configuration Information

Node Operator Facility (NOF) Application Program Interface (API)

The NOF API allows an application program to dynamically request activation and deactivation of links and sessions, and to dynamically create, display, or delete mode definitions, side information, and transaction program (TP) definitions.

Advanced Operations Program

The **Advanced Operations** program is a graphical user interface program that uses the NOF API to dynamically request activation and deactivation of links and sessions, and to dynamically create, display, or delete mode definitions, side information, and transaction program (TP) definitions.

For more information about the **Advanced Operations** program, refer to the *IBM APPC Networking Services for Windows: Administrator's Guide*.

Changing Dynamic Configuration Parameters

When configuration parameters are changed with one of these methods, the parameter value is in effect only as long as the link, session, or definition to which the parameter applies is active. When configuration parameters with either of these methods, no change is made to NSD.INI.

To change any parameter value with one of these methods, you do not need to stop Networking Services and restart it, nor do you need to reboot your workstation. For more information about which parameters can be changed with these methods, see the Table 2-1 on page 2-2 through Table 2-5 on page 2-7.

Chapter 2. Types of Configuration Information

Configuration information consists of the following types:

Topic	Page
General workstation information	2-2
Link information	2-2
Mode information	2-9
Side information	2-11
Transaction program information	2-12

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Link Information

General Workstation Information

General workstation information is the required and optional information to describe your workstation. Table 2-1 shows the parameters that make up this information.

For more information about each parameter and default values for optional parameters, turn to the pages listed in the table.

Table 2-1. Required and optional general workstation information

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required to start Networking Services						
local LU name	X	X				4-29
connection type	X	X			(Note)	4-11
Optional						
message log directory	X	X				4-40
Program Launcher operation	X	X				4-56
node identifier	X	X				4-50
user identifier	X	X				4-14

If you want change any of these parameters, specify a different value using a method appropriate to the parameter, and reboot your machine.

Note: If you change the connection type parameter to a connection type that you have not already used, reboot your workstation. When you change connection type to a type that you have already used, stop Networking Services and start it again.

Link Information

To request that links be activated when you start Networking Services, provide any required and optional configuration parameters by using the **Configure** program.

To request activation of links after you have started Networking Services, you can use the **Advanced Operations** program, or an application program can issue a node operator facility API verb, to provide the required information and some optional information.

For asynchronous and SDLC connection types, you must use provide the following required information using the **Configure** program, even if you do not request that the link be activated when Networking Services starts:

Line type

Modem type

Link Information

Port name

Otherwise, all parameters that are listed as required are required in order to activate the link, but they are not required as part of initial configuration.

The required and optional parameters differ according to the connection type that is specified as part of general workstation information. During general workstation configuration, one of the following connection types is specified:

Asynchronous (ASYNC)

Table 2-2 on page 2-4 shows the required and optional parameters to activate an ASYNC link.

Local area network (LAN)

Table 2-3 on page 2-5 shows the required and optional parameters to activate a LAN link.

Multi-protocol transport networking (MPTN)

Table 2-4 on page 2-6 shows the required and optional parameters to activate an MPTN link.

Synchronous data link control (SDLC)

Table 2-5 on page 2-7 shows the required and optional parameters to activate an SDLC link.

Twinaxial (TWINAX)

Table 2-6 on page 2-8 shows the required and optional parameters to activate a TWINAX link.

The following tables indicate which methods can be used to specify each parameter. The methods are discussed in Chapter 1, “Introducing Configuration Information.” Some parameters have different names or different value settings for different methods.

For more information about each parameter, its name and values according to specification method, and default values for optional parameters, see the corresponding page listed in the table.

ASYNC Information

Information for an ASYNC Link

Table 2-2. Required and optional parameters for an ASYNC connection type

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required during initial configuration						
line type	X	X			X	4-24
modem type	X	X				4-47
port name	X	X			X	4-54
Required to activate the link						
link name	X	X	X	X		4-25
local station address	X	X	X	X		4-32
telephone number (required if activate role is CALLER, which is the default)	X	X	X	X		4-65
Optional						
activate role	X	X	X	X		4-5
connection timeout	X	X	X	X		4-10
frame recovery retry	X	X	X	X		4-17
frame recovery timeout	X	X	X	X		4-18
node ID	X	X	X	X		4-50
software interrupt number	X	X			X	4-62
station role	X	X	X	X		4-63

Information for a LAN Link

Table 2-3. Required and optional parameters for a LAN connection type

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required during initial configuration						
No parameters are required to be specified during initial configuration						
Required to activate links						
link name	X	X	X	X		4-25
remote address	X	X	X	X		4-58
Optional						
acknowledgement timer	X	X		X		4-3
adapter number	X	X			X	4-6
connection retry number	X	X	X	X	X	4-8
connection retry timer	X	X	X	X	X	4-9
frame retry	X	X		X		4-19
inactivity timer	X	X		X		4-20
link stations	X	X			X	4-27
links to reserve	X	X			X	4-28
local SAP	X	X				4-31
maximum frame size	X	X				4-33
maximum outstanding I-frames	X	X		X		4-36
maximum received I-frames	X	X		X		4-37
node ID	X	X		X		4-50
remote SAP	X	X	X	X		4-59
response timer	X	X		X		4-60
SAPs to reserve	X	X			X	4-61

MPTN Information

Information for an MPTN Link

Table 2-4. Required and optional parameters for an MPTN connection type

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required during initial configuration						
No parameters are required to be specified during initial configuration						
Required to activate a link						
link name	X	X	X	X		4-25

Information for an SDLC Link

Table 2-5. Required and optional parameters for an SDLC connection type

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required during initial configuration						
line type	X	X			X	4-24
modem type	X	X				4-47
port name	X	X			X	4-54
Required to activate a link						
link name	X	X	X	X		4-25
local station address	X	X	X	X		4-32
telephone number (required if activate role is CALLER, which is the default)	X	X	X	X		4-65
Optional						
activate role	X	X	X	X		4-5
connection timeout	X	X	X	X		4-10
frame recovery retry	X	X	X	X		4-17
frame recovery timeout	X	X	X	X		4-18
line facility	X	X			X	4-23
node ID	X	X	X	X		4-50
NRZI data encoding	X	X			X	4-51
software interrupt number	X	X			X	4-62
station role	X	X	X	X		4-63

TWINAX Information

Information for a TWINAX Link

Table 2-6. Required and optional parameters for a TWINAX connection type

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Reboot Required for Change	Page
Required during initial configuration						
No parameters are required to be specified during initial configuration						
Required to activate a link						
link name	X	X	X	X		4-25
local station address	X	X	X	X		4-32

Mode Definitions

When you activate a session, you specify a mode name. Similarly, when your workstation receives a BIND from a remote computer, a mode is specified. These modes must be defined at your workstation in mode definitions that specify mode characteristics for sessions between your workstation and a remote computer.

Networking Services provides the following mode definitions as part of the default network configuration file, NSD.INI.

SNASVCMG

BLANK

#BATCH

#INTER

For information about the parameters specified in the default NSD.INI file, see "A Sample Network Configuration File, NSD.INI" on page 3-4.

You can define other modes either before starting Networking Services, by using the **Configure** program, or after Networking Services is started by using the **Advanced Operations** program. You can also use these methods to display or delete mode definitions. An application program can issue the node operator API verb, NSDEFMO, to define a mode definition, or the verb, NSDELMO, to delete a mode definition.

Mode Definitions

The following table shows the required and optional parameters to include in a mode definition.

Table 2-7. Required and optional parameters for a mode definition

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Page
Required					
mode name	X	X	X	X	4-44
maximum negotiable sessions	X	X	X	X	4-35
receive pacing window size	X	X	X	X	4-57
Optional					
maximum RU size	X	X	X	X	4-38
minimum negotiable contention winners	X	X	X	X	4-41

Side Information Definitions

Before starting a conversation with a partner program, a CPI-C program requires the following information:

The name of the partner program

The name of the LU on the remote computer

The type of session used by the program.

You can define side information either before starting Networking Services, by using the **Configure** program, or after Networking Services is started by using the **Advanced Operations** program. You can also use these methods to display or delete side information definitions. An application program can issue the node operator API verb, NSDEFSI, to define a side information definition, or the verb, NSDELSI, to delete a side information definition.

The following table shows the required and optional parameters to include in a side information definition.

Table 2-8. Required and optional parameters for a side information definition

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Page
Required to define a side information definition					
symbolic destination name	X	X	X	X	4-64
mode name	X	X	X	X	4-44
partner LU name	X	X	X	X	4-52
transaction program name	X	X	X	X	4-66
Optional					
conversation security type	X	X	X	X	4-13
conversation security password	X	X	X	X	4-12
conversation security user ID	X	X	X	X	4-14

If the CPI-C partner program uses a blank symbolic destination name, a side information definition is not necessary.

Transaction Program Definitions

When a remote computer starts (allocates) a conversation with your workstation, a program on your workstation must be started to accept the conversation. The allocation request, called an Attach, from the remote computer specifies the transaction program name associated with the program on your workstation that is expected to accept the conversation.

Networking Services provides an Attach Manager function that matches incoming Attaches to accepts issued by programs at your workstation, and a Program Launcher that can start programs as a result of receiving an incoming Attach.

The Attach Manager and the Program Launcher require information to determine which matches to make and how long to wait to make a match. This information is provided by transaction program (TP) definitions.

You can define TP definitions either before starting Networking Services, by using the **Configure** program, or after Networking Services is started by using the **Advanced Operations** program. You can also use these methods to display or delete TP definitions. An application program can issue the node operator API verb, NSDEFTP, to define a TP definition, or the verb, NSDELTP, to delete a TP definition.

If programs on remote computers do not start programs or conversations on your workstation, TP definitions are not necessary.

The following table shows the required and optional parameters to include in a TP definition.

Table 2-9. Required and optional parameters for a TP definition

Parameter	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb	Page
Required to define a TP definition					
transaction program name	X	X	X	X	4-66
Optional					
Accept_Conversation timeout	X	X	X	X	4-2
file specification	X	X	X	X	4-16
program parameters	X	X	X	X	4-55
incoming Attach timeout	X	X	X	X	4-21
TP operation	X	X	X	X	4-69

Chapter 3. Order of Parameters in NSD.INI Keywords and Definitions

This chapter helps you understand how configuration parameters are organized in the network configuration file, NSD.INI. Specifically, this chapter covers the following topics:

Topic	Page
What are keywords and definitions?	3-1
Order of parameters in keywords	3-1
Order of parameters in definitions	3-3
A sample network configuration file, NSD.INI	3-4

What Are Keywords and Definitions?

Each item of configuration information that you provide to Networking Services is called a configuration parameter. When these parameters become part of the network configuration file, NSD.INI, they are grouped into keywords or definitions:

Keyword Has a fixed name and contains one or more parameters that have variable values.

General workstation information and link information is contained in keywords in NSD.INI.

Definition Has a variable name, which is itself a parameter, and also contains other multiple parameters.

Mode, side information, and transaction program definitions are contained in definitions in NSD.INI.

Order of Parameters in Keywords

Some keywords contain a single parameter. Some keywords contain multiple parameters. For keywords that contain multiple parameters, the parameters are separated with commas. If you choose not to specify a parameter, include its comma to indicate that no value is specified for the parameter.

In NSD.INI, each keyword has the form, with the number of parameters depending on the keyword:

```
KEYWORD=parameter 1, parameter 2, ...
```

For example, the link activation keyword for a twinaxial connection type is:

```
EMLD=RALAS1 1, 6
```

You need to know the correlation of parameters to keywords if you choose to edit the NSD.INI file or if a configuration error occurs. The following table shows:

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Parameter Order in Keywords

Each keyword in NSD.INI

Names of the parameters it corresponds to

The page where each parameter, its meaning, and its possible values are defined.

Table 3-1 (Page 1 of 2). Correlation of keywords and parameters

Keyword	Configuration Parameters	Page
ASPN	port name	4-54
COMMONUSERID	default user ID	4-15
DLCTYPE	connection type	4-11
EMLD	(1) link name	4-25
	(2) local station address	4-32
LANGUAGE	language	4-22
LOCALLUNAME	local LU name	4-29
MPLD	link name	4-25
NODEID	node ID	4-50
SDDE	NRZI data encoding	4-51
SDDI	software interrupt number	4-62
SDLD	(1) link name	4-25
	(2) local station address	4-32
	(3) frame recovery timeout	4-18
	(4) frame recovery retry	4-17
	(5) connection timeout	4-10
	(6) station role	4-63
	(7) activate role	4-5
SDLF	line facility	4-23
SDLT	line type	4-24
SDMT	modem type	4-47
SWAD	telephone number	4-65
TRAL	links to reserve	4-28
TRAN	adapter number	4-6
TRAS	SAPs to reserve	4-61
TRLD	(1) link name	4-25
	(2) remote address	4-58
	(3) remote SAP	4-59
	(4) connection retry timer	4-9
	(5) connection retry number	4-8
	(6) node ID	4-50
	(7) maximum outstanding I-frames	4-36
	(8) maximum received I-frames	4-37
	(9) response timer	4-60
	(10) acknowledgement timer	4-3
	(11) inactivity timer	4-20
	(12) frame retry	4-19

Table 3-1 (Page 2 of 2). Correlation of keywords and parameters

Keyword	Configuration Parameters	Page
TRMF	maximum frame size	4-33
TRRL	link stations	4-27
TRSS	local SAP	4-31

Order of Parameters in Definitions

In addition, NSD.INI contains mode definitions, side information definitions, and transaction program (TP) definitions. The definitions are similar to keywords, except that the definition name is also a parameter that can be assigned a value.

In NSD.INI, each definition has the form, with the number of parameters dependent on the definition type:

Definition name=parameter 1, parameter 2, ...

In the following table, which shows the order of parameters in each definition, the definition name is shown as parameter 0.

Table 3-2. Correlation of definitions and parameters

Definition	Definition Name and Parameters	Page
Mode definition	(0) mode name	4-44
	(1) maximum RU size	4-38
	(2) receive pacing window size	4-57
	(3) maximum negotiable sessions	4-35
	(4) minimum negotiable contention winners	4-41
Side information definition	(0) symbolic destination name	4-64
	(1) partner LU name	4-52
	(2) mode name	4-44
	(3) transaction program name	4-66
	(4) conversation security type	4-13
	(5) conversation security user ID	4-14
	(6) conversation security password	4-12
	(7) link name	4-25
TP definition	(0) transaction program name	4-66
	(1) file specification	4-16
	(2) Accept_Conversation timeout	4-2
	(3) incoming Attach timeout	4-21
	(4) TP operation	4-69
	(5) program parameters	4-55

A Sample NSD.INI

A Sample Network Configuration File, NSD.INI

Networking Services provides a sample sample network configuration file, NSD.INI. This file is used as the default NSD.INI. This file is located in the directory where Microsoft Windows is installed.

Here is an example of how the file appears:

```
[Configuration]
; Example of general configuration
DLCTYPE=LAN
LOCALLUNAME=APPNNET1.D967PC 5
NODEID= 75
LANGUAGE=2924
COMMONUSERID=USER     1
DIRECTORY=C:\NSW
STARTPROGRAMLAUNCHER=TRUE

[LAN]
; Example of LAN link configuration
TRLD1= NR5151CI, 1   5A6D15AC, 4, 8, 8, , 2, 1, 1 , 1, 1, 3
TRLD6= TRLINK2, 1   5A6D26BD

[REMOTE]
; Example of REMOTE link configuration
SDLD=REMLINK, C1, 2 , 2, 9 , NEGOTIABLE, CALLER
SDDE=YES
SDDI=68
SDLF=HALF
SDLT=SWTPP
SDMT=ATTDP
SWAD=1-987-654-321
ASPN=COM1

[TWINAX]
; Example of TWINAX link configuration
EMLD=RALAS1 1, 6

[MPTN]
; Example of MPTN link configuration
MPLD=ANYLINK

[MODES]
;Mode      Max.        Rcv.  Pacing    Max.  Neg.    Min.  Neg.
;Name =    RU Size, Window,          Sessions,    Conwinners
;-----------------------------------------------------
SNASVCMG= 256,       1,                  2,                1
BLANK=            ,       2,                  8,                4
#BATCH=     256,       3,                  8,                4
#INTER=          ,       7,                  8,                4

[SIDEINFO]
;Symbolic
;Destination   Partner     Mode   Transaction     Security   User
;Name          =    LU Name , Name, Program Name, Type,         ID,    Password
;-----------------------------------------------------------------
; Example of Side Information definitions
```

A Sample NSD.INI

```
CPICTALK=APPN.ESCPIC,   #BATCH,   CPICTALK
SYMDEST1=LU   1,          #INTER,   QUERY,        PROGRAM,   ID5,  PWA2C

[DEFINETP]
;Transaction                          Accept_          Incoming
;Program                               Conversation  Attach                          Parameter
;Name          = Filespec,             Timeout,       Timeout,   TP Operation, String
;-------------------------------------------------------------------------------
APINGD=   C:\NSW\TOOLS\APINGD.EXE,  12 ,              3 ,          am_started
ATELLD=   C:\NSW\TOOLS\ATELLD.EXE,  12 ,              3 ,          am_started
```

A Sample NSD.INI

Chapter 4. Configuration Parameters

For each configuration parameter, this chapter shows:

Purpose of the parameter

Possible values

A table that shows:

- The methods by which the parameter can be configured. If the table contains a blank column under a given method, the parameter cannot be set using that method.
- The name by which the parameter is known in that method. For parameters that are a part of a multiple-parameter keyword or multiple-parameter definition in the NSD.INI file, the NSD.INI column shows the keyword, or definition, that it belongs to and, in parentheses, the ordinal position of the parameter. For example, the activate role parameter is shown as SDLD (7).
- Any other information that differs according to method.

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Accept_Conversation timeout

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TP Name entry (2)	Accept_Conversation Timeout	Accept_Conversation Timeout	RcvAllocTimeout
Appears in:	DEFINETP section	Step 3	1. Select Definitions panel from Operation pull-down 2. Click on Transaction Programs option button 3. Click on Define	NSDEFTP

Purpose

When defining a TP definition, use this optional parameter to determine how long to wait after an Accept_Conversation (CMACCP) call is issued for a matching Attach to be received. If the timeout expires, Networking Services returns from the CMACCP call with a return code of CM_PROGRAM_STATE_CHECK.

Values

Specify the number of seconds that an Accept_Conversation (CMACCP) call waits for an incoming Attach to arrive. Valid values are 0 through 65 535; the default is 0. 65 535 represents an infinite value. Do not include commas in the value you specify. If you do not specify a value, Networking Services uses the default value.

acknowledgement timer

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (10)	Acknowledgement Timer		InactLinkTimer
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the value for the receive acknowledgment timer.

This timer specifies the length of time that the workstation waits before sending an acknowledgment to a received frame. Before you change this parameter, see "Timer Parameters" on page 6-3.

This timer starts when a block of data (I-frame) is received and stops when an acknowledgment is sent. The value of this timer must be less than that of the response timer parameter to ensure that the remote link station receives the delayed acknowledgment before its response timer expires.

Values

Valid values are 0 through 99; the default is 0. The lower the acknowledgement timer value, the better the response time for the workstation. However, if you specify a value that is too low, you may create unnecessary traffic on the LAN and, as a result, increase response time for all LAN users. To disable the acknowledgment timer so that the workstation responds to all traffic, specify a value greater than 10.

The following table shows the actual acknowledgment time for each possible setting.

Value Specified	Actual Value in Milliseconds
0	80-120
1	40-80
2	80-120
3	120-160
4	160-200
5	200-240
6	400-800
7	800-1200
8	1200-1600
9	1600-2000

acknowledgement timer

Value Specified	Actual Value in Milliseconds
10	2000-2400
11-99	Timer disabled

activate role

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLD (7)	Receive Call	Activate Role	ActivateRole
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM
Values:	CALLED CALLER	Box is checked Box is not checked	CALLED CALLER	1 0

Purpose

For asynchronous and SDLC connection types, use this optional parameter to specify whether your workstation attempts to activate the link or waits for the remote station to activate the link when link connection is requested.

Values

Specify one of the following:

CALLER — Indicates your workstation attempts to activate the link when link activation is requested.

CALLED — Indicates your workstation waits for a remote station to activate the link.

The default is CALLER.

adapter number

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRAN	Adapter Number		
Appears in:	LAN section	Step 2		

Purpose

For LAN connection types, use this optional parameter to indicate which LAN adapter Networking Services uses.

Values

Valid values are 0 (primary adapter) or 1 (secondary adapter); the default is 0.

If you have only one LAN adapter, the adapter number is 0. If you have more than one, refer to the setup or reference program for your workstation to determine which adapter is primary. If you are using an IBM PC Network adapter, specify 0 as the adapter number.

Note: To make a change in this value take effect, reboot your workstation.

Attach authorization

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:			Attach Authorization	Authorization
Appears in:			1. Select Attach Management from Operation pull-down 2. Click on the option button for the desired setting	NSATTACH
Values:			All Attaches Defined Attaches Only No Attaches	0 1 2

Purpose

Use this optional parameter to specify whether the Attach Manager adds incoming Attaches to the list of Attaches eligible to be accepted by a local program.

Values

Specify one of the following values:

All Attaches All incoming Attaches are added to the Attach list.

Defined Attaches Only
Only incoming Attaches containing a TP name that matches the transaction program name parameter in an entry in the set of defined TPs are added to the Attach list. All others are rejected.

No Attaches All incoming Attaches are rejected.

The default value is **All Attaches**. Specifying Attach authorization has no effect on any Attaches already in the Attach list. For more information about the Attach list, refer to the *IBM APPC Networking Services for Windows: Application Programmer's Reference*.

connection retry number

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (5)	Connection Retry Number	Connection Retry Number	ConnRetry
Appears in:	LAN section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the LAN connection retry value. Before you change this parameter, see “Timer Parameters” on page 6-3.

This parameter specifies the number of frame retries during the initialization of a link-level connection.

Values

Valid values are 0 through 255.

In the following situations, the default values for the connection retry number parameter are:

Frame Type	Retry Limit
Local TEST	0
Broadcast TEST	2
XID	0
SABME	0

Note: To make a change in this value take effect, reboot your workstation.

Use this parameter if the network is complex with potential congestion between two nodes. If you specify a value greater than 1, congested bridges are less likely to drop the XID. You may want to increase this value if Networking Services repeatedly displays the following message

5134 - LAN timeout waiting for remote computer response.

connection retry timer

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (4)	Connection Retry Timer	Connection Retry Timer	ConnTimer
Appears in:	LAN section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the time interval in half-seconds between connection retries. The connection retry number value is multiplied by the value of this parameter to yield the total time elapsed before timing out the link connection. Before you change this parameter, see “Timer Parameters” on page 6-3.

Values

Valid values are 1 through 255, which equates to .5 through 127.5 seconds.

In the following situations, the default values for the connection retry timer parameter are:

Frame Type	Time between Retries in Seconds
Local TEST	3
Broadcast TEST	6
XID	9
SABME	9

Note: To make a change in this value take effect, reboot your workstation.
You may want to increase this value if Networking Services repeatedly displays the following message

5134 - LAN timeout waiting for remote computer response.

connection timeout

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLD (5)	Connection Timeout	Connection Timeout	ConnectTimer
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM

Purpose

For asynchronous and SDLC connection types, use this optional parameter to specify the amount of time in seconds that Networking Services waits for a connection to be established between the workstation and the remote computer. If the value for this parameter is reached, Networking Services drops the data terminal ready (DTR) signal to the modem.

Values

Valid values are 5 through 255; the default is 90.

connection type

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	DLCTYPE	Connection Type		
Appears in:	Configuration section	Step 1		

Purpose

Use this required parameter to specify the type of communications adapter you are using.

Values

Specify one of the following adapter types:

LAN — Specifies token-ring, Ethernet, IBM PC Network, or coaxial communications

TWINAX — Specifies twinaxial data link control (TDLC) communications

SDLC — Specifies synchronous data link control (SDLC) communications

ASYNC — Specifies SDLC over asynchronous communications.

MPTN — Specifies communications over a link that supports multi-protocol transport networking (MPTN).

Note: If you change the connection type parameter to a connection type that you have not already used, reboot your workstation. When you change connection type to a type that you have already used, stop Networking Services and start it again.

conversation security password

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (6)	Password	Password	Password
Appears in: (when the conversation security type parameter is set to PROGRAM)	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI
Appears in: (when the conversation security type parameter is set to SAME)			1. Select Connections from Operation pull-down 2. Click on Activate under LU Sessions	NSACT

Purpose

Use this optional parameter to specify the password used for security processing during conversation initiation. Note that a program can override this initial setting by issuing a Set_Conversation_Security_Password (CMSCSP) call.

How to Specify

This parameter is specified differently depending on the value of the conversation security type parameter. When the conversation security type is:

NONE — No specification is necessary. If this parameter is specified in any way, it is ignored. NONE is the default value for conversation security type.

PROGRAM — Include this parameter in a side information definition. For more information about creating a side information definition, see “Side Information Definitions” on page 2-11.

SAME — Specify this parameter when you request activation of sessions with a partner LU.

Values

Specify a conversation security password containing up to 10 characters. Valid characters are:

Uppercase A through Z

0 through 9

conversation security type

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (4)	Security Type	Security Type	ConvSecurity
Appears in:	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI

Purpose

Use this optional parameter to specify the conversation security type to be associated with a symbolic destination name. Note that a program can override this initial setting by issuing a Set_Conversation_Security_Type (CMSCST) call.

Values

Specify one of the following:

NONE — Indicates that Networking Services does not use security for conversations it initiates using the symbolic destination name parameter with which this parameter is associated. Networking Services ignores any specification of conversation security user ID or password parameters.

PROGRAM — Indicates that when a local program issues an Allocate (CMALLC) call to request initiation of a conversation, Networking Services uses the conversation security user ID and conversation security password that have been specified in a side information definition, unless the program has issued either a Set_Conversation_Security_User_ID (CMSCSU) call or a Set_Conversation_Security_Password (CMSCSP) call, or both, after it has issued an Initialize_Conversation (CMINIT) call and before it has issued the CMALLC call.

SAME — Indicates that Networking Services uses the conversation security user ID and conversation security password parameters specified when a request is made to activate a session.

The default is NONE.

conversation security user ID

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (5)	Security User ID		UserID
Appears in: (when the conversation security type parameter is set to PROGRAM)	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI
Appears in: (when the conversation security type parameter is set to SAME)			1. Select Connections from Operation pull-down 2. Click on Activate under LU Sessions	NSACT

Purpose

Use this optional parameter to specify the user ID used for security processing during conversation initiation. Note that a program can override this initial setting by issuing a Set_Conversation_Security_User_ID (CMSCSU) call.

How to Specify

This parameter is specified differently depending on the value of the conversation security type parameter. When the conversation security type is:

NONE — No specification is necessary. If this parameter is specified in any way, it is ignored. NONE is the default value for conversation security type.

PROGRAM — Include this parameter in a side information definition. For more information about creating a side information definition, see “Side Information Definitions” on page 2-11.

SAME — Specify this parameter when you request activation of sessions with a partner LU.

Values

Specify a conversation security user ID containing up to 10 characters. Valid characters are:

Uppercase A through Z

0 through 9

default user ID

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	COMMONUSERID			
Appears in:	Configuration section			

Purpose

Use this optional parameter to specify a default user ID to be used for conversation security processing when a conversation security user ID is not otherwise specified. This parameter enables you to create a generic side information definition that can be easily customized for individual users.

Values

Specify a default user ID containing up to 10 characters. Valid characters are:

Uppercase A through Z

0 through 9

The default value is blank.

file specification

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TP Name entry (1)	File Specification	File Specification	FileSpec
Appears in:	DEFINETP section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFTP

Purpose

Use this required parameter to specify the file specification that Networking Services uses as follows:

While processing an accept from a local program, Networking Services builds from the set of defined TPs a candidate list of all defined TPs, whose filenames (without drive, path, or extension) in this parameter match the filename (without drive, path, or extension) of the program that issued the accept. If an incoming Attach specifies the TP name of an entry in the candidate list, it is matched to the accept.

The Program Launcher uses this parameter to determine the drive, path, and filename of the program it is to start.

For more information about processing accepts and about the Program Launcher, refer to the *IBM APPC Networking Services for Windows: Application Programmer's Reference*.

Values

Specify this parameter in any form that Microsoft Windows uses for starting a program. For example, you can specify a complete file specification, or just a file name. You may specify an asterisk (*) for the file specification parameter. In this case, Networking Services uses the file name specified by the transaction program name parameter in the same TP definition as the file specification. Do not specify * if the transaction program name contains hexadecimal digits.

frame recovery retry

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLD (4)	Frame Recovery Retry	Frame Recovery Retry	NumberOfTimeouts
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM

Purpose

For asynchronous and SDLC connection types, use this optional parameter to specify the number of times that the wait-for-recovery action defined by frame recovery timeout parameter is attempted before the link is declared inoperative.

Values

Valid values are 1 through 255. The default is 10 if your workstation is the primary link station; the default is 2 if your workstation is the secondary link station.

If the station role parameter is set to NEGOTIABLE (which is the default value for station role), the appropriate default for the frame recovery retry parameter is used after the link station roles are negotiated.

Therefore, if your link station is secondary and you use the default values for the frame recovery timeout and frame recovery retry parameters, the connection request has a total of 80 seconds (40 seconds x 2 attempts) to complete successfully.

frame recovery timeout

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLD (3)	Frame Recovery Timeout	Frame Recovery Timeout	TimeOut
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM

Purpose

For SDLC and ASYNC connection types, use this optional parameter to specify the amount of time in seconds that Networking Services waits for a missing or erroneous data frame to be sent again by the remote link station.

Values

Valid values are 3 to 40. The default is 3 if your workstation is the primary link station; the default is 40 if your workstation is the secondary link station. If you specify NEGOTIABLE for the station role parameter, the appropriate default is used after the link station roles are negotiated.

frame retry

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (12)	Frame Retry		FrameRetry
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the LAN frame retry number used in attempting to establish a link connection. Before you change this parameter, see “Timer Parameters” on page 6-3

This value specifies the number of times that frames are retransmitted after a logical link connection is established. After a frame is transmitted the specified number of times without receiving a valid response, the link is dropped and you receive an error message.

Values

Valid values are 0 through 255; the default is 0. If you specify 0, frames are transmitted 8 times before the link is dropped.

inactivity timer

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (11)	Inactivity Timer		InactLinkTimer
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the value for the inactivity timer. This timer runs when the response timer parameter is not running. Before you change this parameter, see “Timer Parameters” on page 6-3.

The inactivity timer value specifies how often the workstation checks the link to the remote computer to ensure that the link is operational. If the inactivity timer value is small, you are notified about a link failure more quickly. However, small inactivity timer values also cause more traffic on the LAN. If the inactivity timer value is too small, the workstation may report a link failure even when the link is operational.

Values

Valid values are 0 through 10; the default is 0.

The following table shows the actual inactivity time for each possible setting.

Value Specified	Actual Value in Seconds
0	25-30
1	1-2
2	2-3
3	3-4
4	4-5
5	5-6
6	6-10
7	10-15
8	15-20
9	20-25
10	25-30

incoming Attach timeout

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TP Name entry (3)	Incoming Attach Timeout	Incoming Attach Timeout	IncAllocTimeout
Appears in:	DEFINETP section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFTP

Purpose

When defining a TP definition, use this optional parameter to specify how long to wait after an incoming Attach is received until a matching accept is received. If the timeout expires, the Attach Manager rejects the Attach.

Specify the number of seconds that an Attach waits to be accepted.

Values

Valid values are 0 through 65 535; the default is 30. 65 535 represents an infinite value. Do not include commas in the value you specify. If you do not specify a value, Networking Services uses the default value.

language

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	LANGUAGE	Language		
Appears in:	Configuration section	Step 1		

Purpose

Use this optional parameter to specify which language is used for displayed text in messages and helps.

Values

The only valid value is 2924 (US English); the default is 2924.

line facility

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLF	Full Duplex		
Appears in:	REMOTE section	Step 2		

Purpose

For an SDLC connection type, use this optional parameter to indicate whether the line facility on an SDLC connection is half-duplex or duplex.

Values

Specify one of the following:

HALF (half-duplex) — Indicates that the line or modem cannot be used to transmit data in both directions at the same time. This type of operation is called half-duplex.

FULL (duplex) — Indicates that the line or modem can be used to transmit data in both directions at the same time. This type of operation is called duplex, or full-duplex.

The default is HALF.

Select FULL if your modem is capable of duplex operation and it supports constant *request-to-send* modem signal. Refer to the documentation for your modem to determine whether your modem supports duplex communication.

SDLC still operates in half-duplex mode, but configuring the line as duplex eliminates the *clear-to-send* delay from the modem. Duplex is most effective when the workstation modem and the remote computer modem are configured as duplex.

Note: To make a change in this value take effect, reboot your workstation.

line type

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLT	Line Type		
Appears in:	REMOTE section	Step 2.		
Values:	SWTPP NONSWTPP	Dialed Leased		

Purpose

For an asynchronous or SDLC connection, use this optional parameter to indicate whether the connection is to be made over a switched line or a nonswitched line.

Values

Specify one of the following:

SWTPP — Indicates a switched point-to-point line. Typically, this is a dialed connection.

NONSWTPP — Indicates a nonswitched point-to-point line. Typically, this is a dedicated, leased connection.

The default value is SWTPP.

Note: To make a change in this value take effect, reboot your workstation.

link name

	Parameter Name	Appears in: (to define a link)	Appears in: (to assign sessions to a specified link)	Appears in: (to deactivate a link)
NSD.INI	EMLD (1) MPLD (1) SDLD (1) TRLD (1)	TWINAX section MPTN section REMOTE section LAN section		
Configure Program	Link Name	Step 2		
Advanced Operations Program	Link Name	1. Select Connections from Operation pull-down 2. Select New Link	1. Select Connections from Operation pull-down 2. Select Activate under LU Sessions	1. Select Connections from Operation pull-down 2. Select Disconnect under Link Control
NOF API Verb	LinkName	NSCONTWX NSCONMPT NSCONREM NSCONLAN	NSACT	NSDISCON

Purpose

For all connection types, use this parameter to specify the name used only by your workstation to refer to the link between your workstation and the remote computer.

This parameter is required to activate a link connection except when the connection type is ASYNC or SDLC and the activate role parameter is set to CALLED. In this case, the parameter is ignored.

Values

Specify a name containing from 1 to 8 characters. Valid characters are:

A through Z

0 through 9.

The first character must be a letter.

Note: This parameter does not need to match any parameter on the remote computer.

The Default Link

You can greatly reduce the amount of network configuration required for your workstation by defining a link to an APPN* network node. When your workstation sends session activation requests to the network node, the network node determines the route needed to reach the partner LU.

link name

To further reduce the number of parameters needed for session activation requests, Networking Services provides the default link feature. When a session activating request (a request using **Advanced Operations**, an NSACT verb, or an Allocate) does not specify a link, Networking Services first checks to see if a partner LU definition exists for the specified partner LU. If so, a link has been assigned for that partner LU, and the session is activated over the assigned link. If no partner LU definition yet exists, Networking Services activates the session over the default link, and the default link becomes the assigned link. For more information on partner LU definitions, see Chapter 5, “Partner LU Definition” on page 5-1.

If you are not using a LAN adapter, only one link can be used; therefore, it is the default link.

When you define multiple links in a LAN environment, the default link is the first link activated, whether by your workstation, or by the remote computer. If your workstation activates the link first, the first link name parameter processed by Networking Services specifies the default link.

In you are using a LAN adapter, it is best to define a link to connect to a network node before you start Networking Services, by using the **Configure** program Otherwise, a link that does not connect to a network node may be the first activated when a remote computer initiates contact with your workstation. If that remote computer is not a network node, future session activation requests sent by your workstation will be likely to fail.

The Backup Default Link

If the default link goes down or is deactivated, the next link that was activated becomes the default link. When using the default link feature, carefully consider the effects of link failure and recovery on your application and the network.

link stations

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRRL	Link Stations		
Appears in:	LAN section	Step 2		

Purpose

For LAN connection types, use this optional parameter to specify the number of directly-connected remote computers on the LAN that you want to communicate with at the same time. Each direct connection is a LAN link. For each LAN link, specify a link name parameter and a remote address parameter.

This parameter takes effect only if Networking Services opens the LAN adapter.

Values

Valid values are 1 through 6; the default is 3.

The sum of the values for the links to reserve parameter and the link stations parameter must not exceed 32.

If you specify more than 3 links, change the extra stations parameter (EST) for the device driver DXMT0MOD.SYS to match the link stations value. For more information, see the DXMINFO file on the Local Area Network Support Program diskettes in the Networking Services package.

Note: To make a change in this value take effect, reboot your workstation.

Comments

If another product opened the LAN adapter, the number of active links is the smaller of the following:

Number of available links

Default link stations value.

For some adapters, adapter memory is reserved out of conventional memory to provide transmit and receive buffers for each link specified by the links to reserve parameter and the link stations parameter. To minimize adapter memory required:

Specify the value for the links to reserve parameter as 0

Specify the value for the link stations parameter as 1

links to reserve

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRAL	Links to Reserve		
Appears in:	LAN section	Step 2		

Purpose

For LAN connection types, use this parameter to specify the number of links to reserve for use by other programs that share the LAN adapter.

This parameter takes effect only if Networking Services opens the LAN adapter. Networking Services ignores the value of the links to reserve parameter if the adapter has already been opened.

Values

Valid values are 0 through 31; the default is 0.

The sum of the values for the links to reserve parameter and the link stations parameter must not exceed 32.

Note: To make a change in this value take effect, reboot your workstation.

Comments

For some adapters, adapter memory is reserved out of conventional memory to provide transmit and receive buffers for each link specified by the links to reserve parameter and the link stations parameter. To minimize adapter memory required:

Specify the value for the links to reserve parameter as 0

Specify the value for the link stations parameter as 1

local LU name

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	LOCALLUNAME	Local LU Name		
Appears in:	Configuration section	Step 1		

Purpose

Use this required parameter to provide the local LU name for your workstation. This name uniquely identifies your workstation. If the name is not unique, activation of sessions and conversations may fail.

Values

An LU name contains from 1 to 17 characters. The two types of local LU names are:

Fully qualified

Consists of 3 to 17 characters in three parts:

1. A network name (NETID), containing from 1 to 8 characters.
2. A period to separate the other two parts. The period is counted as 1 character in the total character count. No other periods may occur in the name.
3. The LU name, containing from 1 to 8 characters.

The first character of the first and third parts must be a letter.

Unqualified

The LU name only, containing from 1 to 8 characters. The first character must be a letter.

Networking Services allows you to specify an unqualified name for this parameter. However, some remote computers do not allow link connection when you have specified an unqualified name. Unless your network administrator directs you to specify an unqualified name, always specify a fully qualified name.

For both types of names, the valid characters are from character set 01134, plus 3 additional characters, as shown below:

Uppercase A through Z

0 through 9

The following special characters: $, #, @.

Networking Services maps any lowercase letters into uppercase letters.

local LU name

For other characteristics of local LU names and information on character set 01134, refer to the *CPI Communications Reference* or the *CPI Communications Specification*.

local SAP

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRSS	Local SAP		
Appears in:	LAN section	Step 2		

Purpose

For LAN connections, use this optional parameter to specify the service access point (SAP) that Networking Services uses when it opens the LAN adapter.

Values

Valid values are X'04' through X'FC' and must be divisible by 4. The default value is X'04'.

Comments.

The SAP value specified with the local SAP parameter must be different from the SAP value used by other workstation programs sharing the LAN adapter. However, this value must match the value specified on the remote computers you communicate with. If you specify a SAP value that is out of range on the remote computer, the SAP value may seem to initialize properly when you start Networking Services, but communications cannot be established. If this error occurs, check the valid range of values for the remote computer and specify a SAP value in that range.

local station address

	Parameter Name	Appears In
NSD.INI	EMLD (2) SDLD (2)	TWINAX section REMOTE section
Configure Program	Local Station Address	Step 2
Advanced Operations Program	Local Station Address	1. Select Connections from Operation pull-down 2. Select New Link
NOF API Verb	WorkStationAddress StationAddress	NSCONTWX NSCONREM

Purpose

For asynchronous, SDLC, and twinaxial connection types, use this parameter to specify the address that the remote computer uses to identify the workstation. This parameter is required to activate a link connection.

Values

For asynchronous and SDLC connections, valid values are X'01' through X'FE'.

For a twinaxial connection, valid values are 0 through 6.

maximum frame size

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRMF	Maximum Frame Size		
Appears in:	LAN section	Step 2		

Purpose

For LAN connection types, use this optional parameter to specify the maximum frame size used for communications from your workstation.

If Networking Services opens the LAN adapter, this parameter is used to set the maximum frame size. If another program opens the adapter, such as the DXMT0MOD device driver, that program establishes the maximum frame size.

Values

Valid values are 265 through 16393.

The default value is 2048.

Before you specify a value greater than 2000, refer to the *Local Area Network Support Program User's Guide*. If response time is slow, this value may not be set correctly.

The maximum frame size varies for different LANs and adapters. The formula for determining the maximum frame size is:

$$RU + 9$$

where RU is the largest RU to be used by LAN sessions, and 9 is the value required for the SNA headers. For example, if the largest RU for all sessions is 512 bytes, the maximum frame size should be 521 (512 + 9).

The maximum RU size is defined in mode definitions. Specify the maximum frame size as 9 greater than the largest maximum RU size for all modes that may be used on this LAN link.

If any node in the network route between your workstation and the remote computer requires a smaller frame size, that smaller size is used.

Frame Sizes for Token-Ring Adapters

The following table lists selected token-ring adapters and the associated maximum frame size and RU values.

maximum frame size

Adapter Name	PWS	Adapter Length	RAM	Link Speed	Max Frame Size	Max RU
IBM T-R Network Adapter	PC/AT*	----	8KB	4Mbps	2048	1920
IBM T-R Network Adapter II	PC/AT	Full	8KB	4Mbps	2048	1920
IBM T-R Network Adapter II	PC/AT	Half	16KB	4Mbps	4464	4096
IBM T-R Network Adapter/A	PS/2*	----	16KB	4Mbps	2048	1920
IBM T-R Network 16/4 Adapter/A	PS/2	----	64KB	4Mbps	4464	4096
IBM T-R Network 16/4 Adapter/A	PS/2	----	64KB	16Mbps	16393	16384
IBM T-R Network 16/4 Adapter	PC/AT	----	64KB	4Mbps	4464	4096
IBM T-R Network 16/4 Adapter	PC/AT	----	64KB	16Mbps	16393	16384

Considerations When Using Other Device Drivers

If NetBIOS opens the LAN adapter, the DS parameter in the DXMT0MOD.SYS statement in CONFIG.SYS specifies the maximum frame size. If a value is not specified for the DS parameter, the default value of 2048 is used. To prevent NetBIOS from opening the adapter, add the parameter O=N to the DCXT0MOD device driver statement in CONFIG.SYS. For more information, refer to the DXMINFO file on the Local Area Network Support Program diskettes in the Networking Services package.

Suggestions for Improving Performance

A token-ring network provides an environment with few transmission errors. Therefore, data transmission is more efficient if data is sent in large frames. When you specify a large frame size, you can configure large RU sizes for CPI-C. Large RUs dramatically increase throughput. However, using large frame sizes requires additional workstation memory.

In general, a frame size greater than 2048 requires a 16Mbps token-ring environment. If you are using an Ethernet connection, the recommended maximum frame size is 1496.

maximum negotiable sessions

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Mode Name entry (3)	Maximum Negotiable Sessions	Maximum Negotiable Sessions	MaxNegSess
Appears in:	MODES section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Modes option button 3. Click on Define	NSDEFMO

Purpose

When defining a mode, use this required parameter to specify the maximum number of sessions per partner LU supported by this mode.

Values

Valid values are 0 through 32 767.

maximum outstanding I-frames

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (7)	Maximum Outstanding I-Frames		MaxIFrameOut
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the maximum number of sequentially numbered blocks of data (I-frames) that may be outstanding at any time.

Values

Valid values are 0 through 127; the default is 2.

You may want to increase the maximum outstanding I-frames value to increase throughput if you experience network delays. If you increase this value, however, the link stations use more buffers.

Normally, the higher the value, the better the performance. If frames are sent faster than the workstation or remote computer can receive them, however, a busy condition may occur because of adapter overrun.

Consider how the maximum outstanding I-frames value affects LAN bridges along your communication path. In general, when traversing LAN bridges, performance improves when you maximize this values. Conversely, when traversing Wide Area Network (WAN) bridges, such as T1 links, the WAN bridge becomes congested when given large incoming frames with large values for the maximum outstanding I-frames parameter.

Depending on the capabilities of the remote computer, you may need to configure the maximum outstanding I-frames and maximum received I-frames parameters so that the Networking Services maximum outstanding I-frames parameter has the same value as the remote computer's maximum received I-frames parameter, and vice versa.

For more information about maximizing performance without causing adapter overruns, refer to the *IBM APPC Networking Services for Windows: Administrator's Guide*.

maximum received I-frames

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (8)	Maximum Received I-Frames		MaxIFrameIn
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connection types, use this optional parameter to specify the maximum number of sequentially numbered blocks of data (I-frames) that may be received before sending an acknowlegement.

Values

Valid values are 0 through 127; the default is 1.

You may want to increase the maximum received I-frames value to increase throughput if you experience network delays. If you increase this value, however, the link stations use more buffers.

Normally, the higher the value, the better the performance. If frames are sent faster than the workstation can receive them, however, a busy condition may occur because of adapter overrun.

Consider how the maximum received I-frames value affects LAN bridges along your communication path. In general, when traversing LAN bridges, performance improves when you maximize this values. Conversely, when traversing Wide Area Network (WAN) bridges, such as T1 links, the WAN bridge becomes congested when given large incoming frames with large values for the maximum received I-frames parameter.

Depending on the capabilities of the remote computer, you may need to configure the maximum outstanding I-frames and maximum received I-frames parameters so that the Networking Services maximum received I-frames parameter has the same value as the remote computer's maximum outstanding I-frames parameter, and vice versa.

For more information about maximizing performance without causing adapter overruns, see “Selecting DLC Pacing Window Sizes” on page 6-2.

maximum RU size

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Mode Name entry (1)	Maximum RU Size	Maximum RU Size	MaxRU
Appears in:	MODES section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Modes option button 3. Click on Define	NSDEFMO

Purpose

When defining a mode, use this optional parameter to specify the maximum RU size. Request/response units (RUs) are the SNA messages exchanged between a pair of LUs.

Values

Valid values are listed below:

Use the following table to select a valid RU size.

256	288	320	352	384	416	448	480
512	576	640	704	768	832	896	960
1024	1152	1280	1408	1546	1664	1792	1920
2048	2304	2560	2816	3072	3328	3584	3840
4096	4608	5120	5632	6144	6656	7168	7680
8192	9216	10240	11264	12288	13312	14336	15360
16384							

If you specify a value not shown in the list, Networking Services rounds down the specified value to the closest value in the list.

If you do not specify a maximum RU size, Networking Services computes a default size based on the maximum link frame size.

The maximum RU size that can be sent over a link is:

Maximum frame size - 9 bytes for the SNA header

The maximum frame size for a LAN link can be specified with the maximum frame size parameter. For other connection types, Networking Services assumes fixed maximum frame sizes:

maximum RU size

Twinaxial 2048

SDLC 521

Asynchronous 521

These frame sizes are negotiated with the remote computer when the link is established. If smaller values are configured on the remote link station, these values are negotiated to a smaller value.

Because SDLC and asynchronous links may have a relatively high level of line noise, the optimal frame size depends on the error rate of the link. If the error rate is high, performance may suffer if large frame sizes are used, because frames may need to be retransmitted frequently.

To minimize the number of line flows, specify a value equal to the maximum frame size minus 9. Networking Services does not support segmented RUs. If the RU size is greater than the maximum frame size minus 9, Networking Services reduces the RU size.

message log directory

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	DIRECTORY	Message Log Directory		
Appears in:	Configuration section	Step 1		

Purpose

This parameter specifies the directory in which the message log is located.

Values

Specify the drive, directory and subdirectories with a character string of up to 66 characters.

This parameter appears only in the configuration file, NSD.INI. The value is automatically set to the directory where you installed Networking Services, unless you use the **Configure** program to change the value.

minimum negotiable contention winners

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Mode Name entry (4)	Minimum Negotiable Contention Winners	Minimum Negotiable Contention Winners	MinNegConWin
Appears in:	MODES section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Modes option button 3. Click on Define	NSDEFMO

Purpose

When defining a mode, use this optional parameter to specify the minimum number of sessions per partner LU on which you want your workstation to be the contention winner. When your workstation is the contention winner, it can allocate a conversation on that session without requesting from the partner LU permission to use the session.

Values

Valid values are 0 through the value specified for the maximum negotiable sessions parameter. If you do not specify a value for this parameter, Networking Services uses one-half of the value specified for the maximum negotiable sessions parameter. This value is negotiated with the partner LU.

minimum sessions

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:			Minimum Sessions	MinSessions
Appears in:			1. Select Connections from Operation pull-down 2. Select Activate under LU Sessions	NSACT
Values:			0 through 99 S	0 through 99 -1

Purpose

When activating one or more sessions with a partner LU, use this optional parameter specify the minimum number of sessions to remain active.

Specifying a nonzero value for this parameter enables you to activate sessions before they are required by a conversation. When sessions have been activated in advance, transaction programs can start conversation faster. If the partner LU deactivates sessions, Networking Services reactivates sessions so that the number of active sessions equals the value specified by the minimum sessions parameter. except when:

The minimum sessions value is less than or equal to the number of active sessions

The minimum sessions value is greater than the limits negotiated on the BIND for the LU-mode pair.

The minimum sessions value is equal to S (-1) or 0.

Values

Valid values are:

0 Create a partner LU definition that indicates support for parallel sessions, but do not activate any sessions at this time.

1 through 99 Activate parallel sessions in the amount indicated. If a partner LU definition has not yet been created, create one that indicates support for parallel sessions.

S Activate one session (single-session), and create a partner LU definition that indicates parallel sessions are not supported. Nonsupport of parallel sessions is called single session.[1]

1 When Networking Services receives a BIND that indicates single session, it always sets the contention winner field in the BIND to indicate that the BIND receiver (the secondary LU) wins contention. When the contention loser has sent the BIND, it has the right to

As a result, Networking Services activates only this session to the partner LU. If other sessions are already active to that LU, this activate fails. If this activate succeeds, all subsequent activates to that LU fail until this session is deactivated.

The default is 0.

Comments

If you deactivate sessions below the number that was specified by the minimum sessions parameter, the minimum sessions value is reset.

When a single session is activated, the partner LU definition contains the information that parallel sessions are not supported. When that single session is deactivated, the partner LU definition remains the same. If you need to change to parallel sessions, you must deactivate the partner LU definition.

Single session is not recommended for sessions between two Networking Services LUs.

start the first conversation of the session. However, after the first and all succeeding conversations end, the secondary LU has the right to start a conversation unless it gives permission to the primary by positively responding to a BID request. Although Networking Services supports receipt of BID, it does not support sending BID.

mode name

The mode name parameter appears both as the name of the group of parameters that constitutes a mode definition, and also as a parameter in a side information definition.

This table shows how mode name is used as the name of a mode definition:

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Mode Name entry (0)	Mode Name	Mode Name	ModeName
Appears in: (When working with definitions)	MODES section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Modes option button 3. Click on Define	NSDEFMO NSDELMO
Appears in: (When activating a session)			1. Select Connections from Operation pull-down 2. Select Activate under LU Sessions	NSACT

mode name

This table shows how mode name is used as a parameter in a side information definition:

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (2)	Mode Name	Mode Name	ModeName
Appears in:	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI

Purpose

Use this required parameter:

When defining a mode, to name the set of parameters that defines the characteristics of sessions using that mode

When defining a side information definition, to specify the mode to be used for a conversation that is initiated by your workstation

Use this parameter optionally:

When activating sessions, to specify the mode to be used on those sessions

When using the Set_Mode_Name (CMSMN) call, to specify the mode to be used for a conversation that is initiated by your workstation

Values

Specify a name containing from 1 to 8 characters from character set 01134, which consists of uppercase letters A through Z and numerics 0 through 9. Networking Services maps any lowercase letters into uppercase letters. For more information about this set of valid characters, refer to the *CPI Communications Reference* or the *CPI Communications Specification*.

The following mode names and their corresponding mode definitions are included in the default configuration file, NSD.INI.

```
[MODES]
;Mode      Max.       Rcv. Pacing   Max. Neg.   Min. Neg.
;Name =    RU Size, Window,         Sessions,   Conwinners
;-------------------------------------------------
SNASVCMG=256, 1, 2, 1
BLANK= , 2, 8, 4
#BATCH=256, 3, 8, 4
#INTER= , 7, 8, 4
```

mode name

The name must begin with a letter; the exceptions to this rule are the modes #INTER and #BATCH.

Specification of the blank mode for a conversation is handled in different ways depending on where the mode is set:

When the blank mode is specified on a Set_Mode_Name (CMSMN) call, a string of 0 to 8 ASCII blanks must be used

When the blank mode is specified in any other way, you can specify either a string of 0 to 8 ASCII blanks or the string 'BLANK'

If you specify the blank mode name with either method, Networking Services puts 8 blank characters in the mode name field of any corresponding BINDs it sends.

For other characteristics of valid mode names, refer to the *CPI Communications Reference* or the *CPI Communications Specification*.

modem type

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDMT	Modem Type		
Appears in:	REMOTE section	Step 2		

Purpose

For asynchronous or SDLC connections, use this required parameter to specify the modem type to be used. Networking Services provides approximately 80 modem initialization files, which represent the prevailing external, internal, and PCMIA modems from various vendors. In addition, you can create your own modem initialization files.

For more information about modifying a modem initialization file, or creating your own modem initialization files, refer to the *IBM APPC Networking Services for Windows: Administrator's Guide*.

Values

When you use the **Configure** program to select a modem supported by Networking Services, the name of the appropriate modem initialization file is stored in your network configuration file, NSD.INI.

If you need to define your own modem initialization file, specify a name containing up to 12 printable characters.

Networking Services supports the following modems for SDLC connections:

Synchronous Leased Line Connection
Synchronous Switched Connection Modem

Networking Services supports the following modems for ASYNC connections:

Hayes** ACCURA 144 + FAX144 Modem
Hayes ACCURA 96 + FAX96 Modem
Racal-Datacom ALM3223 Modem
Racal-Datacom ALM3226 V.32bis Modem
Apex Freedom 14/96 Data/Fax Laptop Modem
Apex PCMCIA** Fax/Modem IBP-1414
Asynchronous Leased Line Modem
Asynchronous Switched Connection Modem
AT&T**Comsphere 3820
AT&T DataPort
AT&T KeepInTouch PCMCIA Cellular Data/Fax Modem
AT&T KeepInTouch PCMCIA Wired Data/Fax Modem
BocaModem 14.4 V.32bis External Modem
BocaModem 14.4 V.32bis Internal Modem
Motorola** Codex 3220 Plus

modem type

Motorola Codex 3260 Modem
Motorola Codex 3261 Fast
Complete PC 14400 TurboModem
| Data Race RediCard Cellular PCMCIA Modem
| Data Race RediCard Wired PCMCIA Modem
Data Race Thinkpad Internal Modem
Digicom Eagle Plus V.32
Motorola UDS FasTalk 32bx Modem
GVC FM-144V External Fax Modem
GVC SM-96 External Modem
IBM 7851 14.4Kbps Data/Fax Modem
IBM 7855 Modem
IBM High Speed Internal Data/Fax Modem
IBM PCMCIA Data/Fax Modem
IBM Microelectronics 14.4/14.4 Data/Fax Modem
IBM ASYNC/SDLC V.32 Modem/A
Intel** PCFM7600 14.4/14.4 External Modem
Intel 14.4EX Modem
Intel SatisFAXtion** Modem/400
Intel SatisFAXtion Modem/400e
Macronix Fax/Modem
Megahertz XJ1144FM PCMCIA Data/Fax Modem
Megahertz XJ196FM PCMCIA Data/Fax Modem
Microcom** QX/4232bis Modem
Microcom MicroPorte 4232bis Portable Modem
Microcom DeskPorte FAST Modem
Multitech 1432 Modem
Multitech 1432Mu Modem
Multitech 932 Modem
NEC** 19632E Intelligent Modem
| Nokia PC Card Cellular Data/Fax Modem
| Nokia PC Card Wired Data/Fax Modem
Hayes Optima** 14400 Modem
Hayes Optima 28800 Modem
Hayes Optima 9600 Modem
Practical Peripherals FXMT Modem
Practical Peripherals FX PS/2 Internal Modem
Practical Peripherals FXSA Modem
Practical Peripherals PM 14400FX Internal Modem
Practical Peripherals PM 14400FX PKT Modem
Rolm 244 PC Telephone
SupraFAX V.32bis Modem
Telebit** T1600 Modem
Telebit T2500 Modem
Telebit T3000 Modem
Telebit Trailblazer Plus Modem
Motorola UDS V.3229 Modem
Hayes Ultra 14400 Modem

modem type

Hayes Ultra 9600 Modem
USRobotics Courier HST DS
USRobotics Sportster 14400 Modem
USRobotics WorldPort 14400 Modem
USRobotics WorldPort 9600 Modem
ViVa 14.4/FAX Modem
IBM Mwave* Waverunner Digital Modem
IBM MWave Windsurfer 14400 Modem
Telebit WorldBlazer Modem
Zenith Data Systems 2000 Laptop Modem
ZOOM EVFPV32bis Modem
ZOOM EVFXV32 Modem
ZOOM EVFXV32 Internal Modem
ZOOM EVFPV32bis Internal Modem
ZOOM V.32bis High Speed External Modem

node ID

	Parameter Name	Appears In
NSD.INI	NODEID TRLDx (6)	Configuration section LAN section
Configure Program	Node ID	Step 1
Advanced Operations Program		
NOF API Verb	IDNum	NSCONLAN NSCONREM

Purpose

For LAN, ASYNC, or SDLC connection types, use this optional parameter to specify the node_ID carried in the XID exchange at the data link control layer when links are connected. The node ID is a combination of the 3-character block_ID and the 5-character ID. This parameter may be required when you connect a link with some nodes, such as some releases of VTAM* and NCP.

Values

Specify 8 hexadecimal characters.

You can specify this parameter when you use the **Advanced Operations** program to request activation of a LAN link; if you do not specify this parameter at this time, Networking Services uses the default node ID as specified in the configuration file, NSD.INI. To create your own default node ID in the NSD.INI file, use the **Configure** program. If you do not create your own default node ID, the NSD.INI file contains the default value of X'07500000'.

NRZI data encoding

	Parameter Name	Appears In: (When Defining a Side Information Definition)	Appears In: (When Activating Sessions)
NSD.INI	Symbolic Destination Name entry (1)	SIDEINFO section	
Configure Program	NZRI Data Encoding	Step 2	
Advanced Operations Program	Partner LU Name	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	1. Select Connections from Operation pull-down 2. Select Activate under LU Sessions
NOF API Verb	Partner LU Name LU Name	NSDEFSI	 NSACT

Purpose

For an SDLC connection type, use this optional parameter to indicate whether you use the NRZI digital signal encoding scheme.

Values

Specify one of the following:

YES Use the NRZI digital signal encoding scheme.

NO Disable the use of the NRZI digital signal encoding scheme.

The default is YES.

Both the Networking Services and the remote communications line must be configured the same for the NRZI digital signal encoding scheme.

Note: To make a change in this value take effect, reboot your workstation.

partner LU name

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (1)	Partner LU Name		LuName PartnerLUName
Appears in:	SIDEINFO section	Step 3	1. Select Connections from Operation pull-down. 2. Select Activate under LU Sessions.	NSACT NSDEFSI

Purpose

Use this required parameter to specify the name of the partner LU on the remote computer:

When defining a side information definition

When requesting sessions to be activated to the partner LU

When an application program issues the Set_Partner_LU_Name (CMSPLN) call

Values

Specify a name containing from 1 to 17 characters. The two types of partner LU names are:

Fully qualified

Consists of 3 to 17 characters in three parts:

1. A network name (NETID), containing from 1 to 8 characters.
2. A period to separate the other two parts. The period is counted as 1 character in the total character count. No other periods may occur in the name.
3. The LU name, containing from 1 to 8 characters.

The first character of the first and third parts must be a letter.

Unqualified

The LU name only, containing from 1 to 8 characters. The first character must be a letter.

If you specify an unqualified local LU name, Networking Services uses the unqualified name if either of the following conditions is true:

Your local LU name (specified by the local LU name parameter) is not fully qualified (has no NETID)

A received BIND contained an unqualified primary LU name that matches the specified partner LU name

Otherwise, Networking Services adds the NETID from your local LU name to the partner LU name you specify.

The valid characters are from character set 01134, plus 3 additional characters, as shown below:

Uppercase A through Z

0 through 9

The following special characters:

$

#

@

Networking Services maps any lowercase letters into uppercase letters.

For other characteristics of local LU names and information on character set 01134, refer to the *CPI Communications Reference* or the *CPI Communications Specification*.

port name

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	ASPN	Port Name		
Appears in:	REMOTE section	Step 2		

Purpose

For asynchronous or SDLC connections, use this optional parameter to to specify which port is used by Networking Services.

Values

For an asynchronous connection, specify one of the following: COM1, COM2, COM3, or COM4. The default is COM1.

Note: Some computers do not support COM3 or COM4. For more information, refer to the documentation for your workstation.

For an SDLC connection, specify one of the following: MPA0 or MPA1. The default is MPA0.

Make sure that Networking Services is the only program that uses the specified port. If Networking Services attempts to use a port that is already in use by another program, Networking Services may take control of the port and break the connection used by the other program.

Note: To make a change in this value take effect, reboot your workstation.

program parameters

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TP Name entry (5)	Program Parameters		ParmString
Appears in:	DEFINETP section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFTP

Purpose

When defining a TP definition, use this optional parameter to specify parameters to be passed to the program specified in the TP definition when it is started.

Values

Specify up to 128 printable characters.

Program Launcher operation

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	STARTPROGRAMLAUNCHER	Run Program Launcher	Run Program Launcher	
Appears in:	Configuration section	Step 1	1. Select Attach Management from Operation pull-down. 2. Select Activate under LU Sessions.	
Values:	TRUE FALSE		Box is checked Box is not checked	

Purpose

Use this optional parameter to specify whether the Program Launcher is to be started when you start Networking Services.

Values

Specify one of the following:

TRUE — Indicates the Program Launcher is started when Networking Services is started

FALSE — Indicates the Program Launcher is not started when Networking Services is started

The default is TRUE.

receive pacing window size

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Mode Name entry (2)	Receive Pacing Window Size		RcvPacingWin
Appears in:	MODES section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Modes option button 3. Click on Define	NSDEFMO

Purpose

When defining a mode definition, use this required parameter to specify how many RUs the partner LU may send before requiring permission to send additional RUs. Networking Services also uses this parameter to determine the amount of storage when a session using this mode definition is activated. The storage used is:

RU size × receive pacing window size

Values

Valid values are 1 through 63. In general, values greater than 8 offer little performance improvement when fixed session pacing is used. Therefore, higher values unnecessarily consume storage.

Pacing windows are negotiated between your workstation and the partner LU when a session is activated. If necessary, the receive pacing window size on your workstation is reduced to match the send window size on the partner LU. You may need to coordinate these values on the two computers.

remote address

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (2)	Remote Address	Remote Address	RemAddr
Appears in:	LAN section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link	NSCONLAN

Purpose

For a LAN connection type, use this parameter to specify the LAN address of the remote computer. This parameter is required to activate a link connection.

Values

Specify an address containing 12 hexadecimal characters.

If you are using an Ethernet connection, you may have to use a byte-reversal procedure to determine the appropriate address. For more information about Ethernet addresses, refer to the *IBM APPC Networking Services for Windows: Administrator's Guide*.

remote SAP

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (3)	Remote SAP (hex)	Remote SAP	RemSAP
Appears in:	LAN section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONLAN

Purpose

For LAN connections, use this optional parameter to specify the service access point (SAP) value in the remote computer. Specify this value only if the remote computer has changed the assumed value.

Values

Valid values are hexadecimal numbers from X'04' to X'FC'. The value must be divisible by 4. The default is X'04'.

response timer

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRLDx (9)	Response Timer		WaitForRspTimer
Appears in:	LAN section	Step 2		NSCONLAN

Purpose

For LAN connections, use this optional parameter to specify the value for the response timer. This timer controls the length of time the sending station waits after sending a frame for a response to the frame. Before you change this parameter, see “Timer Parameters” on page 6-3.

Values

Valid values are 0 through 10; the default is 0.

The following table shows the actual response time for each possible setting.

Value Specified	Actual Value in Seconds
0	1.0-1.2
1	0.2-0.4
2	0.4-0.6
3	0.6-0.8
4	0.8-1.0
5	1.0-1.2
6	1-2
7	2-3
8	3-4
9	4-5
10	5-6

SAPs to reserve

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TRAS	SAPs to Reserve		
Appears in:	LAN section	Step 2		

Purpose

For LAN connections, use this optional parameter to specify additional service access points (SAPs) to be reserved in addition to the SAP that Networking Services uses.

Values

Valid values are 0 through 9; the default is 0.

Networking Services ignores the SAPs to reserve parameter if the adapter is already open. Use this parameter only if other workstation programs share the LAN adapter.

Note: To make a change in this value take effect, reboot your workstation.

software interrupt number

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDDI	Software Interrupt Number (hex)		
Appears in:	REMOTE section	Step 2		

Purpose

For asynchronous or SDLC connections, use this optional parameter to specify the interrupt number used by the real-mode device driver that provides NDIS** support to the SDLC or asynchronous data link control.

Values

Select a value that is not used by other programs on your workstation. Valid values are X'60' through X'68'. The default value is X'68'.

Note: To make a change in this value take effect, reboot your workstation.

station role

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SDLD (6)	Station Role	Station Role	StationRole
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM

Purpose

For asynchronous and SDLC connection types, use this optional parameter to specify the link station role by your workstation during link activation.

Values

Specify one of the following:

PRIMARY Indicates your workstation must act as primary link station.

SECONDARY Indicates your workstation must act as secondary link station.

NEGOTIABLE Indicates your workstation negotiates during link activation for the role of primary link station or secondary link station.

The default is NEGOTIABLE.

symbolic destination name

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (0)	Symbolic Destination Name	Symbolic Destination Name	SymDestName
Appears in:	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI NSDELSI

Purpose

When defining a side information definition, use this required parameter to specify the name for the set of parameters used to initialize information a local CPI-C program needs before starting a conversation.

Values

Specify a name containing from 1 to 8 characters. Valid characters are:

Uppercase A through Z

0 through 9.

The first character must be a letter.

telephone number

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	SWAD	Telephone Number	Telephone Number	SWAD
Appears in:	REMOTE section	Step 2	1. Select Connections from Operation pull-down. 2. Select New Link.	NSCONREM

Purpose

For asynchronous or SDLC connections, use this optional parameter to specify the telephone number to be used for automatic dialing.

This parameter is required if the line type parameter is set to SWTPP (switched point-to-point) and the activate role parameter is set to CALLER.

If the activate role parameter is set to CALLED, the telephone number parameter for the corresponding link name is ignored.

Values

Specify a string of up to 61 characters. For example, specify

1-987-654-321

transaction program name

The transaction program name parameter appears both as the name of the group of parameters that constitutes a transaction program definition, and also as a parameter in a side information definition.

This table shows how mode name is used as the name of a transaction program definition:

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Transaction Program Name entry (0)	Transaction Program Name	Transaction Program Name	TPName
Appears in:	DEFINETP section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Transaction Programs option button 3. Click on Define	NSDEFTP NSDELTP

transaction program name

This table shows how transaction program name is used as a parameter in a side information definition:

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	Symbolic Destination Name entry (2)	Transaction Program Name	Transaction Program Name	TPName
Appears in:	SIDEINFO section	Step 3	1. Select Definitions from Operation pull-down 2. Click on Side Information option button 3. Click on Define	NSDEFSI

Purpose

Use this required parameter:

When defining a TP definition, to specify the TP name that you expect to appear in an incoming Attach.

When defining a side information definition, to specify the name of the partner transaction program on the remote computer

When using the Set_TP_Name (CMSTPN) call, to specify the name of the partner transaction program on the remote computer

Values

Specify a name in one of the two formats for the transaction program name:

You may specify a name containing from 1 to 64 characters. Valid characters are A through Z (uppercase and lowercase), 0 through 9, or special characters in character set 00640. For more information on character set 00640, refer to the *CPI Communications Reference* or the *CPI Communications Specification*.

You may specify a name containing from 1 to 128 hexadecimal digits. All digit pairs must be in the range X'41' through X'FE', with the following exceptions:

- If the first digit pair is X'0E', then the last digit pair must be X'0F', and all other digit pairs must be in the range X'41' through X'FE'.

  Example:

  X' EC1D7C9D5C7 F'

- If the first digit pair is less than X'40', then up to three digit pairs may correspond to the EBCDIC representation of an uppercase letter or a numeral.

  Example:

transaction program name

X' 7F F F1'

The hexadecimal format is appropriate for service transaction programs, for transaction programs with names containing unprintable characters, or for transaction programs with names containing double-byte characters.

TP operation

	NSD.INI	Configure Program	Advanced Operations Program	NOF API verb
Parameter name:	TP Name entry (4)	Started by Program Launcher	Started by Program Launcher	TPOperation
Appears in:	DEFINETP section	Step 3	Definitions panel (from Operation pull-down)	NSDEFTP
Values:	AM_STARTED OPERATOR_ STARTED	Box is checked Box is not checked	Box is checked Box is not checked	0 1

Purpose

When defining a TP definition, use this optional parameter to indicate how the transaction program is started.

Values

Specify one of the following:

AM_STARTED
: Indicates that the Program Launcher starts the program. If the Program Launcher is not started, this parameter is ignored.

OPERATOR_STARTED
: Indicates that the user starts the program.

The default value is AM_STARTED.

TP operation

Chapter 5. Partner LU Definition

Networking Services dynamically creates a partner LU definition when the first session with a partner LU is activated. Networking Services also creates a partner LU definition without activating any user sessions when the minimum sessions parameter is set to zero, or is not specified (the default is 0), on a session activation request. If the minimum sessions parameter is set to, or defaulted to, zero, Networking Services initiates a CNOS exchange with the specified partner LU using the blank mode, but does not activate any user sessions.

Networking Services records the following information in the partner LU definition:

Partner LU name - Name of the partner LU

Assigned link - Name of the link over which all sessions to the partner LU initiated by your workstation will be routed

Parallel session support - Whether sessions with this partner LU can be parallel or must be single-session only. If single-session is defined, multiple sessions with that partner LU can occur only by serially using the single-session.

A partner LU definition is created when:

You use the **Advanced Operations** program to request activation of sessions with a partner LU that is not yet defined.

An application program issues the node operator facility API verb, NSACT, for a partner LU that is not yet defined.

A transaction program at your workstation issues an Allocate (CMALLC) for a partner LU that is not yet defined.

A BIND is received from a partner LU that is not yet defined.

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Partner LU Definition

The sources of information for the partner LU definition in each case are :

Partner LU name	Assigned link	Parallel session support
NSACT verb or **Advanced Operations** *request:*		
Partner LU name specified **Note:** If the specified name is not fully qualified, Networking Services adds the NETID from its local LU name. If the local LU name is also unqualified, the partner LU name is unqualified. For more information about LU names, see 4-29 and 4-52.	The link specified by the link name parameter; otherwise, the default link. **Note:** For more information on the default link, see "The Default Link" on page 4-25.	Single-session if the minimum sessions parameter is set to SINGLE; otherwise, parallel. If the minimum sessions parameter = 0, which is the default value, the partner LU is defined to support parallel sessions although no sessions are activated at this time.
Allocate (CMALLC)		
The partner LU name from the side information definition that corresponds to the symbolic destination name specified on the CMINIT that preceded the CMALLC, or the partner_LU_name specified on a Set_Partner_LU_Name (CMSPLN) if CMSPLN is issued before CMALLC.	The default link **Note:** For more information on the default link, see "The Default Link" on page 4-25.	Parallel sessions
BIND Received		
As specified in the BIND, whether fully qualified or not	The link on which the BIND was received	As specified in the BIND

If a partner LU definition already exists when:

Session activation is requested with an NSACT verb or using the **Advanced Operations** program, Networking Services rejects the request if it specifies a link other than the assigned link, or specifies parallel session support different from what is already recorded in the partner LU definition. Otherwise, Networking Services processes the session activation request normally.

An application program issues an Allocate (CMALLC) for a partner LU that is defined to support single-session while the session is active, the Allocate fails. If the partner LU is defined to support parallel sessions, Networking Services activates a parallel session over the assigned link.

A BIND is received, Networking Services rejects the BIND if the partner LU definition shows support for single session and the session is active. If the partner LU definition shows support for parallel sessions, Networking Services accepts the BIND, thereby activating a parallel session. If the BIND is received over a link

different from the assigned link, Networking Services records the link over which the BIND was received. This link can become the backup link if the assigned link fails while this session is still active.

Once created, the definition for a partner LU remains in effect until the partner LU is deactivated. To change the assigned link or parallel session support for a given partner LU, you must deactivate the partner LU and recreate the partner LU definition.

The partner LU is deactivated when:

You use the **Advanced Operations** program to deactivate the partner LU, or its assigned link, or to stop Networking Services.

An application program issues the NSDEACT, NSDISCON or NSSTOP verb

The assigned link fails and no sessions with the partner LU are active over other links. If any sessions with the partner LU are active over other links, Networking Services chooses one of those links to become the new assigned link for the partner LU definition.

Partner LU Definition

Chapter 6. Configuring Networking Services to Improve Performance

This section provides guidelines on configuring Networking Services to enhance performance and to minimize storage.

Topic	Page
Configuration parameters that affect performance	6-1
Frame size	6-1
RU size	6-2
Pacing window size	6-2
Timer Parameters on LANs	6-3
Configuring Networking Services for Optimum Performance	6-5
Configuring Networking Services to Minimize Storage	6-6

For more information on factors that affect the performance on a LAN, refer to "Performance Considerations for Local Area Networks" in *AS/400 Communications: Local Area Network Guide*. For more information on ordering this and other publications, refer to the *IBM APPC Networking Services for Windows: Getting Started*.

Configuration Parameters that Affect Performance

The configuration parameters that affect performance are:

Frame size

The frame size is the maximum amount of data that the DLC can send at one time.

In Networking Services, the maximum frame sizes for twinaxial, SDLC, and asynchronous communications are fixed:

Twinaxial 4105

SDLC 521

Asynchronous 521

These frame sizes are negotiated with the remote computer when the link is established. If smaller values are configured on the remote link station, these values are negotiated to a smaller value.

Because SDLC and asynchronous links may have a relatively high level of line noise, the optimal frame size depends on the error rate of the link. If the error rate is high, performance may suffer if large frame sizes are used, because frames may need to be retransmitted frequently.

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To specify the frame size for LAN communications, use the maximum frame size parameter. For more information, see page 4-33.

RU size

Request/response units (RUs) are the SNA messages, including messages with data, exchanged between a pair of LUs. The RU size determines the size of data blocks exchanged on a *session*, while the frame size determines the size of data blocks exchanged on the *link*.

The maximum RU size is configured on both computers. The LU, however, determines the actual maximum RU size when a session is activated.

The record sizes and the buffer sizes used by your application are independent of the RU sizes used by the LU. The LU automatically combines and splits records to fill an RU.

To specify the RU size, use the maximum RU size parameter.in the For more information on the maximum RU size parameter, see “maximum RU size” on page 4-38

Pacing Window Size

Pacing is a technique that a receiving network component uses to control the rate of transmission by the sending component and therefore prevent overrun or congestion. A pacing window is the group of message units that one network component can send to another component before a response is required. The pacing window size is the number of message units in the pacing window.

Selecting DLC Pacing Window Sizes

To specify the DLC pacing window size for LAN communications, use the maximum received I-frames and maximum outstanding I-frames parameters. You cannot specify a DLC pacing window size for ASYNC, MPTN, SDLC, or TWINAX connection types.

The maximum received I-frames and maximum outstanding I-frames parameters specify the number of frames the local LAN data link control sends and receives before requiring an acknowledgment. Normally, the higher the value, the better the performance. If frames are sent faster than the workstation or remote computer can receive them, however, a busy condition may occur because of adapter overrun.

To calculate potential adapter RAM overrun, use the values provided in the following table. Use the links to reserve, SAPs to reserve, maximum frame size, and link stations parameters to calculate memory requirements only if Networking Services opens the adapter.

Function	Memory Required in Bytes
Adapter work and communication area overhead	1588 (2100 for 16/4 adapters)
Service access point (SAP) overhead	64 * Number of SAPs (Number of SAPs = SAPs to reserve + 1)
Link station overhead	144 * Number of link stations (Number of link stations = links to reserve + link stations)
Frame size overhead	Frame size * Number of frames (Frame size = maximum frame size; number of frames = maximum outstanding I-frames)

1. Using the table, calculate the demand on the adapter.
2. To calculate the amount of adapter RAM available for receiving buffers, subtract the total demand from the total RAM on the adapter.

For example, if you use an IBM Token Ring Network 16/4 Adapter/A with a demand of 32KB, the calculation is:

64KB total RAM - 32KB total demand = 32KB for receive buffers

If you expect to receive buffers of size 16KB, avoid adapter overrun by specifying a value of 2 or less for the maximum received I-frames parameter.

Consider how pacing window size affects LAN bridges along your communication path. In general, when traversing LAN bridges, performance improves when you maximize the window count. Conversely, when traversing Wide Area Network (WAN) bridges, such as T1 links, the WAN bridge becomes congested when given large incoming frames with large receive windows.

Depending on the capabilities of the remote computer, you may need to configure these window counts so that the Networking Services send window count is the same as the remote receive window count, and vice versa.

Session Pacing Window Size

Session pacing is used to tell the partner LU how many RUs it can send before overrunning the local buffers. Before requiring a message exchange with the partner LU, Networking Services should send and receive as much data as possible. To specify the session pacing window size, use the receive pacing window size parameter in a mode definition. For more information, see page 4-57.

Networking Services uses fixed session level pacing only.

Timer Parameters

For most LAN connections, you need not change the following timer and retry parameters:

response timer

acknowledgement timer

inactivity timer

frame retry

connection retry number

connection retry timer

For the following connections, however, you may want to change these values from their defaults to improve reliability or response time:

Connections with a remote computer over a locally bridged Ethernet/802.3 LAN that includes multiple bridge hops

Connections with a remote computer over a remotely bridged LAN, including LAN types 802.5, 802.3, and Ethernet Version 2

Connections with a remote computer over an Ethernet/802.3 LAN that presents a frame rate greater than 100 frames per second to the remote computer.

When using a token-ring link, Networking Services automatically determines whether the link is bridged; if it is, Networking Services uses larger default values for the response timer, acknowledgement timer and inactivity timer parameters. Networking Services does not, however, distinguish between links passing through a local bridge and links passing through a pair of remote bridges. Because remote bridge links are often much slower than local bridge links, be sure that you specify timer values other than the defaults.

When using an Ethernet or 802.3 link, Networking Services cannot determine whether the link is bridged. If you are using a remotely bridged Ethernet or 802.3 link, be sure that you specify timer values other than the defaults. If you are using a locally bridged Ethernet or 802.3, you may need to specify different timer values.

Configuring Networking Services for Optimum Performance

The following table provides examples of configuration values you can use to help enhance the performance of Networking Services.

Adapter Type	Frame Size	Value of maximum frame size	RU Size	DLC Pacing Window	Session Pacing Windows
LAN	2048	1929	1920	maximum received I-frames=2 maximum outstanding I-frames=2	7
Twinaxial	4105	N/A	4096	N/A	7
SDLC	521	N/A	512	N/A	7
Asynchronous	265	N/A	256	N/A	7
N/A = Not applicable.					

Notes:

1. The LAN maximum frame size in the previous table is the maximum frame size supported by the IBM Token-Ring adapter for the PC/AT. For information on maximum frame sizes for other adapters, see page 4-33 or refer to the documentation for the adapter..
2. The maximum RU size of 1920 is the largest allowable RU size that fits in a frame size of 2048.

Configuring Networking Services to Minimize Storage

The following table provides examples of configuration values you can use to help minimize storage used.

Adapter Type	TRMF Value	Frame Size	RU Size	DLC Pacing Window	Session Pacing Windows
LAN	2048	265	256	maximum received I-frames=1 maximum outstanding I-frames=1	1
Twinaxial	4105	N/A	256	N/A	1
SDLC	521	N/A	256	N/A	1
Asynchronous	265	N/A	256	N/A	1

N/A = Not applicable.

Part 1. Appendixes, Glossary, and Index

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Appendix A. Networking Services/DOS Configuration Files to Networking Services for Windows

If you have previously used the Networking Services/DOS product, and you are upgrading to Networking Services for Windows, you can convert your Networking Services/DOS configuration information into configuration information for Networking Services for Windows. This chapter discusses the following topics:

Topic	Page
Networking Services/DOS configuration information	A-1
Networking Services for Windows configuration information	A-1
Correlating Networking Services/DOS and Networking Services for Windows configuration information	A-2
Networking Services/DOS keywords no longer used	A-5

Networking Services/DOS Configuration Information

In Networking Services/DOS, configuration information was contained in multiple configuration files:

CONFIG.NSD, or equivalent. (Networking Services/DOS allowed you to assign your own name to your network configuration file.)

MODE.NSD

SIDEINFO.NSD

DEFINETP.NSD

In addition, AUTOEXEC.BAT contained some environment variables that were used by Networking Services/DOS.

Networking Services for Windows Configuration Information

In Networking Services for Windows, all configuration information is contained in one configuration file, NSD.INI. NSD.INI has sections that correspond to the Networking Services/DOS configuration files.

For link information, Networking Services for Windows uses the same keyword names that were used in CONFIG.NSD in Networking Services/DOS. Some keywords for ASYNC and SDLC connections have been combined. The order of parameters in the LAN description keyword, TRLD, has been changed, as discussed in “Order of Parameters in TRLDx” on page A-5.

Most keywords used for general workstation information have been changed to be more readable.

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Converting Networking Services/DOS Configuration

Mode, side information, and TP definitions are similar to those in the Networking Services/DOS MODE.NSD, SIDEINFO.NSD, and DEFINETP.NSD files, except that side information and TP definitions now have some additional optional parameters.

Correlating Networking Services/DOS and Networking Services for Windows Configuration Information

Table A-1 on page A-3 shows all the keywords and definition names used in NSD.INI, in which Networking Services/DOS file the equivalent keyword occurs, and any change that may be necessary to convert to Networking Services for Windows.

You can edit the NSD.INI file directly to copy keywords and definitions from Networking Services/DOS configuration files to NSD.INI. Make sure that you take into account the changes described in this chapter.

You can also use the **Configure** program to enter the values of keywords from the Networking Services/DOS configuration files in the appropriate **Configure** program parameter fields. For more information on correlation of keywords and definitions to parameters, see Chapter 3, “Order of Parameters in NSD.INI Keywords and Definitions.”

New Keywords in NSD.INI

The following keywords in NSD.INI have no correlating keyword in Networking Services/DOS. For information about how to define these keywords, see Table 3-1 on page 3-2 to find the correlating parameter name, and then find the parameter in Chapter 4, “Configuration Parameters.”

COMMONUSERID — This new keyword enables you to define a user ID to be used for conversation security processing if no user ID is otherwise specified.

SDMT — This new keyword defines the modem initialization file used for ASYNC or SDLC links. The modem initialization file has information that replaces the information that was specified by the following Networking Services/DOS keywords: ASBR, ASDB, ASFS, ASMI, ASPR, ASSB, SDCM, and SWAR.

MPLD — The new keyword defines link information for a multi-protocol transport networking (MPTN) link. Networking Services/DOS did not support MPTN links.

Converting Networking Services/DOS Configuration

Table A-1 (Page 1 of 2). Converting Networking Services/DOS configuration files to NSD.INI

NSD.INI keyword	Networking Services/DOS file	Networking Services/DOS keyword	Other changes
General workstation information (Configuration section of NSD.INI)			
DLCTYPE	CONFIG.NSD	NSDC	
LOCALLUNAME	CONFIG.NSD	First parameter of NSDN	
NODEID		Second parameter, if present, in NSDN	
LANGUAGE	AUTOEXEC.BAT	NSDL	
Link definitions for LAN connection type (LAN section of NSD.INI)			
TRLDx (where x has a value from 1 through 6)	CONFIG.NSD	TRLD	Change order of parameters (See "Order of Parameters in TRLDx" on page A-5)
TRAL	CONFIG.NSD	TRAL	
TRAN	CONFIG.NSD	TRAN	
TRAS	CONFIG.NSD	TRAS	
TRMF	CONFIG.NSD	TRMF	
TRRL	CONFIG.NSD	TRRL	
TRSS	CONFIG.NSD	TRSS	
Link definitions for remote connection types (REMOTE section of NSD.INI)			
SDLD	CONFIG.NSD	SDLD	The default value for the sixth parameter (station role) is now NEGOTIABLE
SDDE	CONFIG.NSD	SDDE	
SDDI	CONFIG.NSD	NSDI	
SDLF	CONFIG.NSD	SDLF	
SDLT	CONFIG.NSD	SDLT	
SWAD	CONFIG.NSD	SWAD	Use a telephone number only
ASPN	CONFIG.NSD	ASPN	Now used for an SDLC connection type as well as ASYNC

Converting Networking Services/DOS Configuration

Table A-1 (Page 2 of 2). Converting Networking Services/DOS configuration files to NSD.INI

NSD.INI keyword	Networking Services/DOS file	Networking Services/DOS keyword	Other changes
Link definitions for twinaxial connection types (TWINAX section of NSD.INI)			
EMLD	CONFIG.NSD	EMLD	
Mode definitions (MODES section of NSD.INI)			
Mode name (variable)	MODE.NSD	Mode name (variable)	
Side information definitions (SIDEINFO section of NSD.INI)			
Symbolic destination name (variable)	SIDEINFO.NSD	Symbolic destination name (variable)	May add security parameters to each entry
TP information definitions (DEFINETP section of NSD.INI)			
Transaction program name (variable)	DEFINETP.NSD	Transaction program name (variable)	May add a program parameters parameter to each entry

Order of Parameters in TRLDx

The order of parameters in the Networking Services/DOS TRLD was:

1. link name
2. remote address
3. remote SAP
4. maximum outstanding I-frames
5. maximum received I-frames
6. response timer
7. acknowledgement timer
8. inactivity timer
9. frame retry
10. connection retry timer
11. connection retry number

The order of parameters in a IBM APPC Networking Services TRLD is:

1. link name
2. remote address
3. remote SAP
4. connection retry timer
5. connection retry number
6. node ID
7. maximum outstanding I-frames
8. maximum received I-frames
9. response timer
10. acknowledgement timer
11. inactivity timer
12. frame retry

Networking Services/DOS Keywords No Longer Used

The following Networking Services/DOS keywords are no longer used:

NSDI This keyword is no longer used for LAN and TWINAX connection types. It replaced by SDDI for SDLC and ASYNC connection types.

NSDS This keyword was used for Networking Services/DOS to reserve memory. Networking Services for Windows is not as memory-constrained.

SDCM SDLC and ASYNC connection types

SWAR SDLC and ASYNC connection types

ASBR ASYNC connection type

ASDB ASYNC connection type

ASFS ASYNC connection type

ASMI ASYNC connection type

ASPR ASYNC connection type

ASSB ASYNC connection type

Converting Networking Services/DOS Configuration

Appendix B. Registering an SNA Network Identifier

This appendix provides information on the SNA Network Registry.

IBM has established the SNA Network Registry, a worldwide clearinghouse for registering Network Identifiers (NETIDs). This registry is available at no charge to customers who are licensed for the following networking products:

Advanced Communications Function/VTAM (ACF/VTAM*)

Operating System/400*.

The SNA Network Registry is a repository for information related to SNA networks. IBM established this registry to help SNA network owners create and maintain unique NETIDs.

What Is an SNA NETID?

In SNA, a network is an interconnected group of nodes logically associated by a common identifier called a *NETID*. To communicate among SNA networks, each NETID involved must be unique.

SNA defines the NETID as a one- to eight- character field consisting of alphanumeric characters. The SNA Network Registry adds a hierarchical structure to this definition. This new structure enables the NETID to identify the country in which the network is managed, the enterprise that owns the network, and the suffix of the associated network. In the new structure, the format of the NETID is **cceeeenn**, where:

cc = country code

eeee = enterprise code

nn = network suffix code

A country code specification is limited to those characters defined by ISO Standard 3166. You may choose enterprise codes and network suffixes from any of the allowable characters of character set 01134. For example, the NETID **USABCD01** indicates that the country code is US, the enterprise code is ABCD, and the network suffix code is 01.

How Do You Register a NETID?

To register a NETID, contact your local IBM branch office. You must supply the following information:

Your enterprise name and address

The name of the resident country

Up to three choices for an enterprise code.

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Registering an SNA Network Identifier

The requested enterprise code must be different from all other enterprise codes for the same country code. If the enterprise code passes this test, IBM will register 1296 NETIDs for you, using all of the network suffix combinations.

Why Register Your NETID?

Registering a NETID in the SNA Network Registry ensures that your NETID is different from all other NETIDs within the registry.

By registering your NETID, you help protect the time and effort invested in defining the NETID throughout the network. You also help avoid future connectivity problems when adding new networks to an interconnected community.

Why Use a Structured NETID?

A hierarchical structure enables the NETID to convey additional information about the network, such as the country in which the network is managed. This information can be used by applications involved in routing decisions, like network management applications or distributed services applications that do connectionless routing.

After IBM validates a unique enterprise code for you, you can register up to 1296 NETIDs. As a result, you can grow your networks using preregistered NETIDs. In addition, you enjoy the administrative advantage of using the same country code and enterprise code for all NETIDs in your networks.

How Is the Registry Related to OSI?

The SNA Network Registry and the structured NETID play an important part in efforts toward OSI/SNA interoperability. This registry is now part of the OSI registration process, thereby providing a registration vehicle that enables the SNA addressing token to be used as part of a Network Service Access Point (NSAP) in the OSI environment.

When Should You Register Your NETID?

The SNA Network Registry is available today. Because requests are accepted on a “first come, first served” basis, IBM recommends that you register your NETIDs early.

If you have already established an SNA network, you should submit requests as soon as possible. If you have a selected networking product that is not part of an existing network, you should also request a registered NETID.

What about Existing NETIDs?

What if you have already established a NETID for your network? Before you change your NETID to a registered NETID, review the following considerations:

Is the NETID unique within the community of networks to which it may connect?

You may need to change an existing NETID if:

- The network you want to connect to "knows" another network by the same NETID.
- A directly connected network needs to change its NETID.
- A network that is in the interconnected community but not directly connected needs to change its NETID.

Do the benefits of using a structured NETID outweigh the impact of changing the current NETID?

Benefits: By changing the current NETID, you:

- Protect your investment in the network
- Avoid future connectivity problems.

Impact: Changing the NETID requires you to:

- Change the use of the NETID in all nodes in your network
- Notify connection partners of the change.

Can You Register an Unstructured NETID?

To register an unstructured NETID, contact your local IBM branch office. Your IBM representative will consult *Registration Process for SNA Netids: User's Guide for SNA Network Registry*, ZZ27-7425.

You must supply the following information:

Your enterprise name and address

NETID to be registered.

IBM recommends that you obtain a registered NETID for each of your networks and that you use structured NETIDs. However, IBM recognizes that you may need to continue using an existing unstructured NETID in certain situations.

Do not use an unstructured NETID if the first two characters coincide with an ISO country code. Registration of an unstructured NETID follows the "first come, first served" rule for registering structured NETIDs.

Registering an SNA Network Identifier

Glossary

This glossary defines terms and abbreviations used in this book. If you do not find the term you are looking for, refer to the index or to the *IBM Dictionary of Computing*, SC20-1699.

A

acknowledgement. (1) The transmission by a receiver of acknowledge characters as an affirmative response to a sender. (2) An indication that an item sent was received.

action bar. The highlighted area at the top of a panel that contains the choices available in the application program.

activate. (1) To make an object, program, system, or device available for use. (2) To make a link for a communication session active.

active. (1) Operational. (2) Pertaining to a file, page, or program that is in main storage or memory, as opposed to a file, page, or program that must be retrieved from auxiliary storage. (3) Pertaining to a node or device that is connected or is available for connection to another node or device.

active link. A link that is currently available for transmission of data.

active program. Any program that is loaded and ready to be executed.

adapter. (1) A piece of hardware that connects a computer and an external device. (2) See *communication adapter*.

adapter number. A specific number that identifies an adapter when more that one adapter is used in a workstation.

adaptive pacing. See *adaptive session-level pacing*.

adaptive session-level pacing. A form of session-level pacing in which session components exchange pacing windows that may vary in size during the course of a session. This allows transmission within a network to adapt dynamically to variations in availability and demand of buffers on a session-by-session basis. Session-level pacing occurs within independent stages along the session path according to local congestion at the intermediate nodes.

American National Standard Code for Information Interchange (ASCII). The standard code with a coded character set consisting of 7-bit coded characters (8 bits including parity check), used for information interchange among data processing systems and data communication systems. The ASCII set consists of control characters and graphic characters.

API. Application program interface.

application. A program or set of programs that perform a task.

application program interface (API). A formally-defined programming language interface between a system control program or a licensed program and the user of a program.

application transaction program. A program written for or by a user to process the user's application; in an SNA network, an end user of a type 6.2 logical unit. Contrast with *service transaction program*.

ASCII. American National Standard Code for Information Interchange.

asynchronous. Data transmission in which transmission of a character or block of characters can begin at any time but in which the bits that represent the character or block have equal time duration. Contrast with *synchronous transmission*

Attach. In SNA, the request unit that flows on a session to initiate a conversation.

Attach Manager. The component of APPC that matches Attaches received from remote computers to accepts issued by local programs.

Attach list. The list of received Attaches currently eligible to be accepted by any program that issues an accept.

AUTOEXEC.BAT. A file that stores startup commands and executes them automatically when the system is started.

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Glossary

B

beaconing. Pertaining to repeated transmission of a beacon message when a normal signal is not received because of a serious fault, such as a line break or power failure. The message is repeated until the error is corrected or bypassed.

BIND. In SNA, the response/request unit (RU) involved in activating a session between logical units (LUs) or control points (CPs).

bit. Synonym for binary digit (either 0 or 1).

buffer. (1) A routine or storage used to compensate for a difference in rate or flow of data, or time or occurrence of events, when transferring data from one device to another. (2) An area of storage that is temporarily reserved for use in performing an input/output operation, into which data is read or from which data is written.

buffer pool. The shared area in memory that contains communication buffers for all Networking Services conversations to or from the workstation. This area is set aside when Networking Services is loaded, and released when Networking Services is unloaded.

byte. (1) A binary character operated upon as a unit and usually shorter than a computer word. Among personal computers, a byte consists of 8 consecutive bits. (2) The representation of a character.

byte reversal. A technique in which numeric data is stored with the least significant byte first. This technique is used for integers and addresses on machines with the Intel family of microprocessors.

C

call. (1) The action of bringing a computer program, a routine, or a subroutine into effect, usually by specifying the entry conditions and jumping to an entry point. (I) (2) In data communication, the actions necessary to make a connection between two stations on a switched line. (3) In communications, a conversation between two users. (4) To transfer control to a procedure, program, routine, or subroutine. (5) To attempt to contact a user, regardless of whether the attempt is successful.

CICS*. Customer Information Control System.

CICS/VS. Customer Information Control System for Virtual Storage.

class of service (COS). A designation of the transport network characteristics, such as route security, transmission priority, and bandwidth, needed for a particular session. The class of service is derived from a *mode name* specified by the initiator of a session.

class of service database. A database maintained independently by each network node and optionally by APPN end nodes. It contains one entry per class of service name; each database entry contains:

A definition of the acceptable values for transmission group (TG) and node characteristics for routes described by that class of service name and the weight function to be used to compute the weights of nodes and TGs that meet the acceptable values.

The transmission priority to be used for traffic that flows on routes described by that class of service name.

client. (1) A user. (2) A functional unit that receives shared services from a server.

coaxial cable. A cable consisting of one conductor, usually a small copper tube or wire, within and insulated from another conductor of larger diameter, usually copper tubing or copper braid.

CNOS. (1) Change Number of Sessions. (2) A service transaction program which changes the maximum number of sessions allowed between a pair of LUs from 0 to a positive number, or from a positive number to O. One or more of the sessions can be automatically activated.

communication. The transmission and reception of data. Synonymous with *data communication*.

communication adapter. A circuit card with associated software that enables a processor, controller, or other device to be connected to a network.

communications port. (1) An access point for data entry or exit to or from a communication device such as a terminal. (2) On a personal computer, a synchronous or asynchronous serial port to which a modem can be attached. Synonymous with *port*.

communications line. The physical link, such as wire or a telephone circuit, that connects one or more workstations to a communications control unit or that connects one control unit to another. See also *data link*.

Glossary

Communications Manager/2. A component of OS/2 that lets a workstation connect to a remote computer and use the resources of that computer as well as the resources of other personal computers to which the workstation is attached. Communications Manager provides APIs so that users can develop their own applications.

CONFIG.NSD. The Networking Services/DOS file that defines the characteristics for a communications adapter and links to other computers.

CONFIG.SYS. A file that contains configuration options for a program installed on a workstation. See also *configuration file*.

configuration. (1) The arrangement of a computer system or network as defined by the nature, number, and the chief characteristics of its functional units. More specifically, the term configuration may refer to a hardware configuration or a software configuration. (2) The devices and programs that make up a system, subsystem, or network.

configuration file. A file that specifies the characteristics of a system or subsystem.

confirmation. (1) Acknowledgement by a program that data has been received or a request completed. (2) A prompt in a menu window wherein a program questions the user when the consequences of a user action are significant.

congestion. An overload condition caused by traffic in excess of the capabilities of a network or a particular node.

conloser. Contention loser.

conwinner. Contention winner.

contention. In a session, a situation in which both NAUs attempt to initiate the same action at the same time, such as when both attempt to send data in a half-duplex protocol (half-duplex contention), or both attempt to start a bracket (bracket contention). At session initiation, one NAU is defined to be the contention winner; its action will take precedence when contention occurs. The contention loser must get explicit or implicit permission from the contention winner to begin its action.

contention loser. In APPC, the LU that must request and receive permission from the session partner LU to allocate a session. Contrast with *contention winner*.

contention-loser polarity. In APPC, the designation that an LU is the contention loser for a session. Contrast with *contention-winner polarity*.

contention-loser session. To a NAU, a session for which it was defined during session initiation to be the contention loser.

contention winner. The LU that can allocate a session without requesting permission from the session partner LU. Contrast with *contention loser*.

contention-winner polarity. In APPC, the designation that an LU is the contention winner for a session. Contrast with *contention-loser polarity*.

contention-winner session. To a NAU, a session for which it was defined during session initiation to be the contention winner.

control block. (1) A storage area used by a computer program to hold control information. (2) A specifically formatted block of information provided from the application program to an API to request an operation.

conversation. A logical connection between two transaction programs using an APPC session.

conversation security. In APPC, a process that allows validation of a user ID or group ID and password before establishing a connection.

COS. Class of service.

CPI Communications. Common Programming Interface for Communications.

CPI-C. Common Programming Interface for Communications.

CP name. A network-qualified name of a control point (CP), consisting of a network ID qualifier identifying the network (or *name space*) to which the CP's node belongs, and a unique name within the scope of that network ID identifying the CP. Each T2.1 node has one CP name assigned to it at system-definition time.

CSD. Corrective Service Diskette.

Customer Information Control System (CICS). An IBM-licensed program that enables transactions entered at remote terminals to be processed concurrently by user-written application programs. It includes facilities for building, using, and maintaining data bases.

Glossary

D

data buffer. blocks of memory used to send or receive data.

data communication. The transmission and reception of data.

data flow control (DFC). In SNA, a request/response unit (RU) category used for requests and responses exchanged between the data flow control layer in one half-session and the data flow control layer in the session partner.

data link. A physical link, such as a wire or a telephone circuit, that connects one or more devices or communication controllers. See also *communications line*.

data link control (DLC). (1) The physical means of connecting one location to another for the purpose of transmitting and receiving data. (2) In SNA, synonym for link.

DBCS. Double-byte character set

deactivate. To take any element out of service, rendering it inoperable or placing it in a state in which it cannot perform the functions for which it was designed.

deadlock. (1) Unresolved contention for the use of a resource. (2) In APPC, an error condition in which processing cannot continue because each of two elements of the process is waiting for an action by or a response from the other.

default. An alternative value, attribute, or option that is assumed when none has been specified.

DEFINETP.NSD. The Networking Services/DOS configuration file that contains transaction program definitions. See TP.

device. An I/O unit such as a terminal, display, or printer.

directed Locate search. A search request sent to a specific destination node known to contain a resource, such as a logical unit, to verify the continued presence of the resource at the destination node and to obtain the node's connectivity information for route calculation. Contrast with *broadcast search*.

distributed application. An application for which the component application programs are distributed between two or more interconnected processors.

DLC. Data link control.

Double-byte character set. A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets.

Duplex. Pertaining to communication in which data can be sent and received at the same time. Synonymous with *full-duplex*. Contrast with *half-duplex*.

E

EBCDIC. Extended binary-coded decimal interchange code.

end user. The ultimate source or destination of application data flowing through an SNA network. An end user can be an application program or a workstation operator.

environment variable. Variables which control the behavior of some batch files and programs.

Ethernet. A 10-megabit baseband local area network that allows multiple stations to access the transmission medium at will without prior coordination, avoids contention by using carrier sense and deference, and resolves contention by using collision detection and transmission. Ethernet uses carrier sense multiple access with collision detection (CSMA/CD).

Exchange Identification (XID). A specific type of basic link unit that is used to convey node and link characteristics between adjacent nodes. XIDs are exchanged between link stations before and during link activation to establish and negotiate link and node characteristics, and after link activation to communicate changes in these characteristics.

extended binary-coded decimal interchange code (EBCDIC). A coded character set consisting of 8-bit coded characters used by mainframe computers.

F

field. (1) In a record, a specified area used for a particular category of data, for example a group of card columns in which a wage rate is recorded. (2) In a data base, the smallest unit of data to which you can refer. A field contains one unit of information from a column within a row of data in a table.

file. A set of related records treated as a unit.

file name. (1) The name assigned to a set of input data or output data. (2) The portion of the identifying name that precedes the extension.

filespec. The name and location of a file. The format is dependent on the storage medium of a file. For example, c:\path\file_name.ext.

flow control. (1) The procedure for controlling the data transfer rate. (2) In SNA, the process of managing the rate at which data traffic passes between components of the network. The purpose of flow control is to optimize the rate of flow of message units with minimum congestion in the network; that is, to neither overflow the buffers at the receiver or at intermediate routing nodes, nor leave the receiver waiting for more message units. See also *adaptive session-level pacing*, *pacing*, and *session-level pacing*.

full-duplex. Synonym for *duplex*. Contrast with *half-duplex*.

H

half-duplex. In two-way communication, where only one user transmits at a time. Contrast with *full-duplex.*

hex. Hexadecimal.

hexadecimal (hex). A numbering base where 4 bits are used to represent each digit. The digits can have one of 16 values, usually numbered 0,1,2,..., 9,A,B,C,D,E,F.

I

I frame. Information frame.

inactive link. A link currently unavailable for transmitting data. Contrast with *active link*.

incoming Attach. An Attach which is received by Networking Services.

independent LU. An LU whose operation does not depend on an SNA host system.

information (I) frame. A frame in I format used for numbered information transfer.

input field. An unprotected field on a display surface in which data can be entered, modified, or erased.

integer. One of the numbers 0, +1, -1, +2, -2....

interrupt. A suspension of a process, such as execution of a computer program caused by an external event, and performed in such a way that the process can be resumed. Programs in the workstation can register themselves to be called by other programs by placing their address at an interrupt level.

IPM. Isolated pacing message.

IPR. Isolated pacing response.

Isolated pacing message (IPM). A session-level message sent independently of a particular request or response indicating a need or readiness for action on the part of a session partner.

isolated pacing response (IPR). In SNA, a response to a session-level pacing request sent independently of any particular request without correlation of sequence numbers, and that signals readiness of the receiver to receive an additional pacing group.

K

KB. Kilobyte.

keyword. One of the predefined words of a computer, command language, or an application.

kilobyte. 1024 bytes.

Glossary

L

LAN. Local area network.

leased line. See *non-switched line*.

line flow. A recording of the bytes exchanged by a pair of link stations.

line trace. The ability to log online diagnostic information.

line speed. The rate at which data is transmitted from one point to another over a telecommunications line, expressed in bits per second (bps).

link. (1) In computer programming, the part of a computer program, in some cases a single instruction or an address, that passes control and parameters between separate portions of the computer program. (2) In computer programming, to provide a link. (3) In SNA, the combination of the link connection and the link stations joining network nodes.

Note: A link connection is the physical medium of transmission for example, a telephone wire or a microwave beam. A link includes the physical medium of transmission, the protocol, and associated devices and programming; it is both logical and physical.

link connection. The physical equipment providing two-way communication between one link station and one or more other link stations; for example, a telecommunication line and data circuit terminating equipment.

link station. The hardware and software components within a node representing a connection to an adjacent node over a specific link. For example, if node A is the primary end of a multipoint line that connects to three adjacent nodes, node A will have three link stations representing the connections to the adjacent nodes. See also *adjacent link station*.

local. Residing on the user's node or workstation.

local area network (LAN). (1) Two or more computing units connected for local resource sharing. (2) A network in which communications are limited to a moderate-sized geographic area such as a single office building, warehouse, or campus, and that do not extend across public rights-of-way.

local logical unit. See *logical unit (LU)*.

local LU. Local logical unit.

local transaction program. In APPC, the transaction program at the local end of the conversation. Contrast with *remote transaction program*.

logical link. The conceptual joining of two nodes for direct communication. Several logical links may be able to use the same physical hardware.

logical unit (LU). A port providing formatting, state synchronization, and other high-level services through which an end user communicates with another end user over an SNA network.

logical unit 6.2 (LU 6.2). A particular type of SNA LU that provides a connection between resources and transactions programs running on different network nodes. These logical units interact with each other as peers. See *APPC*.

low-entry networking. A capability in type 2.1 nodes allowing them to be directly attached to one another using peer-to-peer protocols and allowing them to support multiple and parallel sessions between logical units.

LU. Logical unit.

LU 6.2. A type of logical unit that supports general communication between programs in a distributed processing environment. LU 6.2 is characterized by (a) a peer relationship between session partners, (b) efficient utilization of a session for multiple transactions, (c) comprehensive end-to-end error processing, and (d) a generic application program interface consisting of structured verbs that are mapped into a product implementation.

LU-LU session. In SNA, a session between two logical units (LUs) in an SNA network. It provides communication between two end users or between an end user and an LU services component.

LU type. The classification of an LU in terms of the specific subset of SNA protocols and options it supports for a given session, specifically:

The mandatory and optional values allowed in the session activation request.

The usage of data stream controls, function management headers (FMHs), request unit parameters, and sense data values.

Presentation services protocols such as those associated with FMH usage.

M

MAC. Medium access control.

MB. Megabyte.

medium access control (MAC). In local area network (LAN), the subcomponent of IEEE 802.2 application program interface (API) that supports medium-dependent functions and uses the services of the physical layer to provide services to logical link control. MAC includes the medium access port.

megabyte. 1 048 576 bytes.

message log. In Networking Services, an ASCII text file named MSGLOG.NSD. This file contains error messages and informational messages logged by Networking Services.

mode. See *mode name*.

mode definitions table. The Networking Services table that contains mode definitions. See also *mode name*.

mode name. In APPC, a name that a program uses to request a specific set of network connectivities of a session the program wants to use for a conversation. These connectivities include, for example, the highest synchronization level for conversations on the sessions, the class of service for the sessions, and the session routing and delay characteristics. See also *class of service*.

MODE.NSD. The Networking Services/DOS configuration file that initializes the mode definitions table when Networking Services/DOS is started. See also *mode name*.

modem. A device that converts digital data from a computer to an analog signal that can be transmitted on a telecommunication line and converts the received analog signal to digital data for the computer. Synonymous with *modulator/demodulator*.

N

NDIS. Network driver interface specification

negotiable BIND. In SNA, a capability that allows two LU-LU half-sessions to negotiate the parameters of a session when the session is being activated.

negotiable link station. The capability of a link station to assume either a primary link-station or secondary link-station role and to negotiate with a partner link station during link activation which role it will assume.

NetBIOS. An API between a local area network adapter and programs.

NETID. Network identifier.

network. A group of nodes and the links interconnecting them.

network configuration file. See *NSD.INI* and *CONFIG.NSD*.

network driver interface specification. The LAN Manager Network Driver Interface Specification, jointly developed by Microsoft and 3Com**. It is the LAN Manager driver architecture that lets a DOS or OS/2* system support one or more network adapters and protocol drivers. The device driver functions at the medium access control (MAC) layer. This kind of driver is also called an *NDIS MAC driver*.

network identifier (NETID). A 1- to 8-byte customer-selected name or an 8-byte registered name that uniquely identifies a specific subnetwork. See also *registered network ID*.

network name. In SNA, a symbolic identifier by which end users refer to a NAU, a link station, or a link. Also known as NETID. See also *network address*.

network node (NN). Synonym for *Advanced Peer-to-Peer Networking network node*.

network node server. An APPN network node that provides network services for its local LUs and adjacent end nodes.

network operator. (1) A person who controls the operation of all or part of a network. (2) In a multiple-domain network, a person or program responsible for controlling all domains.

network-qualified name. A 1- to 17-byte name consisting of an optional qualifier concatenated to a 1- to 8-byte type-1134 symbol-string name; when present, the qualifier contains a 1- to 8-byte type-1134 symbol-string network identifier concatenated with a period (when the qualifier is not present, the period is omitted).

node operator application program interface. An application program interface (API) offered by Networking Services that allows an application program to enter commands and provide configuration information after Networking Services has been started. This API is also utilized to provide a Windows user interface.

nonswitched line. A telecommunication line on which connections do not have to be established by dialing. Contrast with *switched line*.

nonswitched point-to-point line. A telecommunication line that is permanently connected to a station.

NRZI. (1) Non-return-to-zero inverted. (2) A type of data encoding used between SDLC modems.

NSD.INI. The Networking Services file that is used to initialize characteristics for a communications adapter, links to other computers, and mode, side information, and transaction program definitions.

NSDR.OVL. The nonresident component for DOS programs.

NSDW.DLL. The Networking Services for Windows component that provides the CPI-C application program interface.

P

pacing. (1) In data communications, a technique by which receiving equipment controls the rate of transmission of a sending station to prevent overrun. (2) In SNA, a technique by which a receiving component controls the rate of transmission of a sending component to prevent overrun or congestion. See also *flow control*, *receive pacing*, and *send pacing*.

pacing interval. (1) In SNA, the duration between requests that can be transmitted on the normal flow in one direction on a session before a session-level pacing response is received, indicating that the receiver is ready to accept the next group of requests. (2) In asynchronous communications, the duration enforced by the sender between successive lines of data.

pacing window. The requests that can be transmitted on the normal flow in one direction on a session before a session-level pacing response is received, indicating that the receiver is ready to accept the next group of requests.

pacing window size. In SNA, the number of RUs that a program can send before getting permission to send more.

parallel session. In SNA, two or more concurrently active sessions between the same two LUs using different pairs of network addresses. Each session can have independent session parameters.

parameter. (1) A variable that is given a constant value for a specified application and that may denote the application. (2) An item for which the operator specifies a value or for which the system provides a value. (3) A name in a procedure that is used to refer to an argument passed to that procedure.

parity. The determination whether the number of ones (or zeros) in an array of binary digits is odd or even.

partner logical unit (PLU). In Systems Network Architecture (SNA), the remote participant in a session.

partner transaction program. The transaction program engaged in an APPC conversation with a local transaction program.

password. (1) A unique string of characters that a program, computer operator, or user must supply to meet security requirements before gaining access to data. (2) A code or signal, usually confidential, that enables its user to have full or limited access to a station.

path. (1) The route used to locate files on a disk or diskette, consisting of a drive and directories. (2) In the IBM Token-Ring Network, a route between any two nodes. (3) In a data base, a sequence of segment occurrences from the root segment to an individual segment. (4) In SNA, the series of path control network components (path control and data link control) that are traversed by the information exchanged between two NAUs. A path consists of a virtual route and its route extension, if any.

peer-to-peer. The communication between two SNA LUs that is not managed by a host. Commonly used when referring to LU 6.2 nodes.

PLU. (1) Primary logical unit. (2) Partner logical unit.

poll. To determine if any remote device on a communications line is ready to send data.

port. A port represents a physical connection to the link hardware. A port is sometimes referred to as an adapter. There may be one or more ports controlled by a single DLC process.

positional parameter. A parameter that must be positioned in a specified location relative to other parameters.

primary half-session. In SNA, the half-session that sends the session activation request. Contrast with *secondary half-session*.

primary link station. In SNA, the link station on a link responsible for control of the link. A link has only one primary link station. All traffic over the link is between the primary link station and a secondary link station. Contrast with *secondary link station*.

procedure. (1) The course of action taken for the solution of a problem. (2) The description of the course of action taken for the solution of a problem. (3) A sequenced set of statements that may be used at one or more points in one or more computer programs, and that usually has one or more input parameters and yields one or more output parameters. (4) The actions taken to implement protocols. (5) A named collection of related statements, and possibly control statements, that perform a particular task.

protocol. (1) A specification for the format and relative timing of information exchanged between communicating parties. (2) The set of rules governing the operation of functional units of a communication system that must be followed if communication is to be achieved. (3) In SNA, the meanings of, and the sequencing rules for, requests and responses used for managing the network, transferring data, and synchronizing the states of network components.

PTF. Program temporary fix.

R

receive. To obtain a message or file from another computer. Contrast with *send*.

receive pacing. In SNA, the pacing of message units being received by a component. See *pacing*. Contrast with *send pacing*.

receive window count. The window size or window count is the number of buffers of data one computer can send to another before a specific acknowledgement is returned by the communication system below (and transparent to) the application program. This number is part of the MODE specification of the communication session.

record. A set of data treated as a unit. Records are often fixed-length fields, particularly in database transactions.

record format. The definition of how data is structured in the records contained in a file. The definition includes record names, field names, and field descriptions, such as length and data type.

registered network ID. An 8-byte name included in an IBM-maintained worldwide registry that has a structured format and is assigned to a particular IBM customer to uniquely identify a specific network.

remote. (1) Synonym for *link-attached*. (2) Pertaining to a system, program, or device that is accessed through a telecommunication line. (3) In APPC, indicates the partner LU or transaction program is not at the local node.

request header (RH). Control information preceding a request unit. See also *request/response header*.

request/response header (RH). Control information, preceding a request/response unit (RU), that specifies the type of RU (request unit or response unit) and contains control information associated with that RU.

request/response unit (RU). A generic term for a request unit or a response unit. See also *request unit* and *response unit*.

request unit (RU). A message unit that contains control information, end-user data, or both.

reset. To return a device or process to a clear or initial state.

resident. Pertaining to computer programs or data while they remain on a particular storage device.

resident program. A program that remains in a particular area of storage.

response header (RH). A header, optionally followed by a response unit, that indicates whether the response is positive or negative and that may contain a pacing response.

response unit (RU). A message unit that acknowledges a request unit; it may contain prefix information received in a request unit. If positive, the response unit may contain additional information such as session parameters in response to BIND, or if negative, contains sense data defining the exception condition.

return code. The portion of all CPI-C calls which provides information about the success or failure of the call.

RH. (1) Request header. (2) Response header.

RU. (1) Request unit. (2) Response unit.

RU buffer pool. See *buffer pool*.

S

SAP. Service access point.

SDLC. Synchronous Data Link Control.

secondary half-session. In SNA, the half-session that receives the session-activation request. Contrast with *primary half-session*.

secondary link station. In SNA, any link station on a link, using a primary-secondary protocol, that is not the primary link station. A secondary link station can exchange data with the primary link station, no data traffic flows from one secondary link station to another. Contrast with *primary link station*.

secondary logical unit (SLU). In Systems Network Architecture (SNA), the logical unit (LU) that contains the secondary half-session for a particular LU-LU session. A logical unit can contain secondary and primary half-sessions for different active LU-LU sessions. See *primary logical unit (PLU)*. See also *secondary half-session*

send. To send a message or file to another computer. Contrast with *receive*.

send pacing. In SNA, the pacing of message units that a component is sending. See also *pacing*. Contrast with *receive pacing*.

sense data. In SNA, a set of data sent with a negative response, indicating the reason for the response.

server. (1) On a local area network (LAN), a data station that provides facilities to other data stations. (2) A computer that shares its resources with other computers on the network.

service access point (SAP). In LAN, the logical point at which an n-1 layer entity acquires the services of the n-layer. A single SAP can have many links ending it.

service transaction program. Any IBM-supplied transaction program running in a network accessible unit. Contrast with *application transaction program.*

session. (1) A connection between two stations or NAUs that allows them to communicate. (2) The period of time during which a user of a terminal can communicate with an interactive system; usually, the elapsed time between logon and logoff. (3) In SNA, a logical connection between two NAUs that can be activated, tailored to provide various protocols, and deactivated, as requested. The session activation request and response can determine options for such things as the rate and concurrency of data exchange, the control of contention and error recovery, and the characteristics of the data stream. Sessions compete for network resources such as the links within the patch control network. For routing purposes, each session is identified by the network or local addresses of the session partners. See also *CP-CP session*, *half-session*, and *LU-LU session*.

session activation. In SNA, the process of exchanging a session activation request and a positive response between NAUs. Contrast with *session deactivation*.

session deactivation. In SNA, the process of exchanging a session deactivation request and response between NAUs. Contrast with *session activation*.

session-level pacing. A flow control technique that permits a receiving half-session or session connector to control the data transfer rate (the rate at which it receives request units) on the normal flow. It is used to prevent overloading a receiver with unprocessed requests when the sender can generate requests faster than the receiver can process them.

session limit. In SNA, the maximum number of concurrently active LU-LU sessions a particular LU can support.

session partner. In SNA, one of the two NAUs having an active session.

session security. An SNA function that allows data to be transmitted in encrypted form.

side information. System-defined values required by CPI-C to initialize a conversation. These values include the partner LU name, mode name, and transaction program name. In Networking Services, this information appears in the side information table.

side information table. The Networking Services table that contains side information. See *side information*.

SIDEINFO.NSD. The Networking Services/DOS configuration file that initializes the side information table when you start Networking Services/DOS. See *side information*.

single session. In SNA, a session that is the only session connecting two LUs. Contrast with *parallel session*.

SLU. secondary logical unit.

SNA. Systems Network Architecture.

SNA network. The part of a user-application network that conforms to the formats and protocols of Systems Network Architecture. It enables reliable transfer of data among end users and provides protocols for controlling the resources of various network configurations. The SNA network consists of network accessible units; boundary function, gateway function, and intermediate session routing function components; and the transport network. An SNA network can use subarea protocols (see Subarea Network) or APPN protocols (see APPN) or both.

SNASVCMG mode name. SNA service manager mode name. This is the architecturally defined mode name identifying sessions on which CNOS is exchanged.

SNASVCMG session. A session that uses the SNASVCMG mode name.

station. (1) One of the input or output points of a system that uses telecommunications facilities. (2) In SNA, a link station.

subfield. A subdivision of a field, that is, a field within a field.

subvector. A subcomponent of the medium access control (MAC) major vector.

switch. An action that moves the input focus from one area to another. A switch can be within the same window or from one window to another. See also *toggle.*

switched line. A telecommunication line in which the connection is established by dialing. Contrast with *nonswitched line*.

switched point-to-point. A network topology that uses switching facilities to provide multiple communication paths between channels and control units.

symbolic destination name. A field in the side information table. CPI-C uses the symbolic destination name to access information required to initialize a conversation.

synchronous transmission. In data communication, a method of transmission in which the sending and receiving of characters are controlled by timing signals. Contrast with *asynchronous transmission* .

synchronous data link control (SDLC). A discipline for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop. SDLC conforms to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute and High-Level Data Link Control (HDLC) of the International Standards Organization.

system. An assembly of components united by some form of regulated interaction to form an organized whole.

Systems Network Architecture (SNA). The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through the networks and controlling the configuration and operation of networks.

The purpose of the layered structure of SNA is to allow the ultimate origins and destinations of information to be independent of, and unaffected by, the way in which the specific SNA network services and facilities used for information exchange are provided.

T

terminal. (1) A point in a system or network at which data can either enter or leave. (2) A device, usually equipped with a keyboard and display, capable of sending and receiving information over a link.

terminate. In SNA, a request unit that is sent by a logical unit (LU) to its system services control point

(SSCP) to cause the SSCP to start a procedure to end one or more designated LU-LU sessions.

timeout condition. A condition indicating that a specified amount of waiting time has elapsed without the occurrence of an expected event.

token-ring. A network with a ring topology that passes tokens from one attaching device to another; for example, the IBM Token-Ring Network.

TP. Transaction program.

TP name. Transaction program name. The TP_name specifies the name of the remote program and comes from the APPC architecture, where programs are referred to as transaction programs.

trace. (1) A record of data that provides a history of events that occurred in a system. (2) The process of recording the sequence in which the statements in a program are executed and, optionally, are the values of the program variables used in the statements.

transaction. An exchange between a workstation and a program, between two workstations, or between two programs that accomplishes a particular action or result.

transaction processing. A sequence of operations on a database that is viewed by the user as a single, individual operation.

transaction program (TP). A program that uses the APPC application programming interface (API) to communicate with a partner application program in the same node or at a partner node. A transaction program has a valid transaction program identifier (TP ID).

twinaxial. See *twinaxial data link control*.

twinaxial cable. A shielded cable with two conductors inside a larger conductor. The conductors are insulated from the larger conductor and from one another.

twinaxial data link control (TDLC). A communications function that allows personal computers, attached to the workstation controller by way of twinaxial cable, to use APPC.

twinaxial feature. See *twinaxial data link control*.

type 2.0 node. A node that attaches to a subarea network as a peripheral node and provides full end-user services but no intermediate routing services.

type 2.1 (T2.1) end node. A T2.1 node that provides full SNA end-user services, but no intermediate routing or network services to any other node; it is configured only as an endpoint in a network. See also *advanced peer-to-peer networking (APPN) end node* and *low-entry networking end node*.

type 2.1 (T2.1) network. A collection of interconnected T2.1 network nodes and T2.1 end nodes. A T2.1 network may consist of nodes of just one type, specifically, all network nodes or all end nodes; a pair of directly attached end nodes is the simplest case of a T2.1 network.

type 2.1 (T2.1) node. An SNA node that can be configured as an endpoint or intermediate routing node in a T2.1 network, or as a peripheral node attached to a subarea network.

U

UNBIND. In SNA, to deactivate a session between logical units (LUs). Contrast with *BIND*.

upper memory. An area of memory consisting of 384KB of space in PC DOS computers and it is immediately adjacent to the 640KB of conventional memory. Upper memory is not considered part of the total computer memory because programs cannot store information in this area. This area is normally reserved for running the system's hardware, such as the monitor. DOS 5 allows enabled programs such as Networking Services to access portions of upper memory.

user id. A unique name that identifies a user to the network.

user session. Any session other than a SNASVCMG session.

V

verb. A reserved word that expresses an action to be taken by an application programming interface (API), a compiler, or an object program.

Virtual Telecommunications Access Method (VTAM). A set of programs that control communication between nodes and application programs running on a host system.

VTAM. Virtual Telecommunications Access Method.

v.25 bis automatic dialing. A modem with the capability to switch into data mode automatically after dialing for the initial connection.

W

wait condition. The normal situation in which a transaction program waits indefinitely for its partner program to take some action. Contrast with *deadlock*.

WAN. Wide area network.

wide area network. A network that provides data communication capability in geographic areas larger than those serviced by local area networks.

window. See *pacing window*.

Windows user interface. A Windows end user interface that utilizes the node operator application program interface to allow an end user to enter command and configuration parameters through Windows dialog boxes.

workstation. A terminal or personal computer, usually one that is connected to a mainframe or within a network, at which a user can run applications. See also *system*.

X

XID. Exchange identification.

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Configuration Parameters Reference
for Administrators and Application Programmers
Version 1.0

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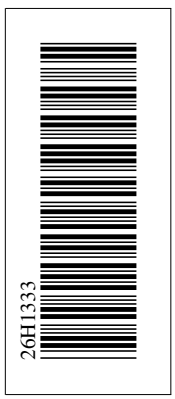
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