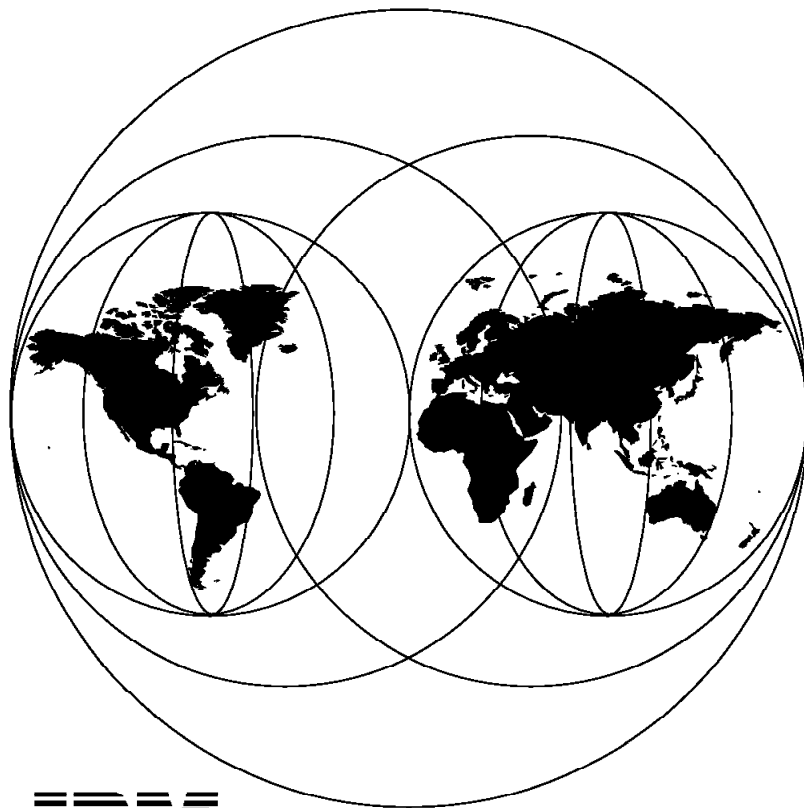


International Technical Support Organization

GG24-4485-00

## **Multiplatform APPC Configuration Guide**

December 1994



**IBM**

**International Technical Support Organization  
Raleigh Center**





International Technical Support Organization

GG24-4485-00

## **Multiplatform APPC Configuration Guide**

December 1994

**Take Note!**

Before using this information and the product it supports, be sure to read the general information under "Special Notices" on page xvii.

**First Edition (December 1994)**

This edition applies to:

- Version 3, Release 3 of ACF/VTAM for MVS/ESA, Program Number 5695-117
- Version 1, Release 2 of AIX SNA Services/6000, Program Number 5601-287
- Version 2, Release 1 of AIX SNA Server/6000, Program Number 5765-247
- Version 2, Release 3 of Operating System/400 (OS/400), Program Number 5738-SS1
- Version 3, Release 3 of CICS/ESA, Program Number 5685-083
- Version 1, Release 0 of Networking Services/DOS, Program Number 5621-344
- Version 2, Release 0 of Extended Services for OS/2, Program Number 5621-213
- Version 2, Release 1 of Communications Manager/2, Program Number 5622-078

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

An ITSO Technical Bulletin Evaluation Form for reader's feedback appears facing Chapter 1. If the form has been removed, comments may be addressed to:

IBM Corporation, International Technical Support Organization  
Dept. 545 Building 657  
P.O. Box 12195  
Research Triangle Park, NC 27709-2195

When you send information to IBM, you grant IBM a non-exclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 1994. All rights reserved.**

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

---

## Abstract

This publication explains how to configure APPC and APPN on a variety of system platforms. It describes the steps needed to configure APPC and APPN, it explicitly states which values in one computer's configuration need to match values in a partner computer's configuration, and clarifies the terminology differences between computers by mapping to a set of standard terms and confining platform-specific terms to the chapter that describes that platform.

(185 pages)



---

# Contents

<b>Abstract</b> .....	iii
<b>Special Notices</b> .....	xvii
<b>Preface</b> .....	xix
How This Document Is Organized .....	xix
Related Publications .....	xx
International Technical Support Organization Publications .....	xxi
Acknowledgments .....	xxii
<b>Chapter 1. Introduction</b> .....	1
1.1 APING .....	2
1.2 Using This Guide .....	3
1.3 A Brief Introduction to Terminology .....	4
1.3.1 What Is APPC? .....	4
1.3.2 What Are Transaction Programs and Conversations? .....	4
1.3.3 What Are Logical Units and Sessions? .....	5
1.3.4 What Is a Mode? .....	5
1.3.5 What Is CPI-C Side Information? .....	5
1.3.6 What Is a Network? .....	6
1.3.7 What Is APPN? .....	6
1.3.8 What Is a Control Point (CP)? .....	6
1.3.9 What Is Subarea Networking? .....	7
1.3.10 What Is a Node Identifier? .....	7
1.4 How Do I Configure a Network? .....	7
<b>Chapter 2. AIX SNA Services/6000 Configuration</b> .....	9
2.1 Prerequisites .....	9
2.2 Terminology .....	9
2.3 SNA Services/6000 Configuration Worksheet .....	10
2.4 Working with APPC Configuration .....	14
2.4.1 Quick Configuration .....	15
2.4.2 Verifying Configuration .....	15
2.4.3 Starting and Stopping APPC .....	15
2.5 Configuration .....	16
2.5.1 Starting from Scratch .....	16
2.5.2 Quick Configuration .....	16
2.5.3 Define Yourself to the Network .....	17
2.5.4 Define a Link to a Partner or Network Node .....	18
2.5.5 Configure to Run as a Client .....	21
2.5.6 Configure to Run as a Server .....	23
2.6 Running APING .....	25
2.7 How to Find... .....	25
<b>Chapter 3. AIX SNA Server/6000 Configuration</b> .....	27
3.1 Prerequisites .....	27
3.2 Terminology .....	27
3.3 SNA Server/6000 Configuration Worksheet .....	28
3.4 Working with APPC Configuration .....	30
3.4.1 Verifying Configuration .....	31
3.4.2 Starting and Stopping APPC .....	32

3.5 Configuration	32
3.5.1 Starting from Scratch	32
3.5.2 Define Yourself to the Network	32
3.5.3 Configure to Run as a Client	33
3.5.4 Configure to Run as a Server	35
3.6 Running APING	36
3.7 How to Find...	36
<b>Chapter 4. AS/400 Configuration</b>	<b>37</b>
4.1 Prerequisites	37
4.2 Terminology	37
4.3 AS/400 APPC Configuration Worksheet	37
4.4 Working with AS/400	40
4.4.1 Starting/Stopping APPC	40
4.4.2 Other Commands	41
4.5 Configuration	41
4.5.1 Working with APPC Configuration	41
4.5.2 Define Yourself to the Network	41
4.5.3 Define a Link to a Partner or Network Node	43
4.5.4 Configure to Run as a Client	45
4.5.5 Configure to Run as a Server	45
4.6 Running APING	46
4.7 How to Find....	46
<b>Chapter 5. OS/2 Extended Services and Networking Services/2 Configuration</b>	<b>49</b>
5.1 Prerequisites	49
5.2 Terminology	49
5.3 Working with OS/2 Configuration	51
5.3.1 Starting/Stopping APPC	51
5.3.2 Other Commands	51
5.4 Configuration	52
5.4.1 Working with APPC Configuration	52
5.4.2 Define Yourself to the Network	53
5.4.3 Define a Link to a Partner or Intermediate Node	54
5.4.4 Configure to Run as a Client	57
5.4.5 Configure to Run as a Server	59
5.4.6 Verifying Configuration	60
5.5 Running APING	61
5.6 How to Find...	61
5.6.1 Panel Configuration	61
5.6.2 NDF File	61
<b>Chapter 6. OS/2 Communications Manager/2 Configuration</b>	<b>63</b>
6.1 Prerequisites	63
6.2 Terminology	63
6.3 Communications Manager/2 APPC Configuration Worksheet	63
6.4 Working with CM/2	66
6.4.1 Starting/Stopping APPC	66
6.4.2 Other Commands	66
6.5 Configuration	66
6.5.1 Working with APPC Configuration	66
6.5.2 Define Yourself to the Network	67
6.5.3 Define a Link to a Partner or Intermediate Node	69
6.5.4 Configure to Run as a Client	74
6.5.5 Configure to Run as a Server	76



6.6	Verifying Configuration	77
6.7	Running APING	78
6.8	How to Find...	78
6.8.1	Panel Configuration	78
6.8.2	NDF File	78
<b>Chapter 7. Networking Services/DOS Configuration</b>		<b>81</b>
7.1	Prerequisites	81
7.2	Terminology	81
7.3	Networking Services/DOS Configuration Worksheet	82
7.4	Working with Networking Services/DOS	84
7.4.1	Starting/Stopping APPC	84
7.4.2	Displaying Active Sessions	84
7.4.3	Other Commands	84
7.5	Configuration	84
7.5.1	Working with APPC Configuration	84
7.5.2	Define Yourself to the Network	85
7.5.3	Additional Common Configuration	85
7.5.4	Define a Link to a Partner or Network Node	86
7.5.5	Configure to Run as a Client	86
7.5.6	Configuring to Run as a Server	87
7.5.7	Running APINGD	87
7.6	Running APING	88
7.7	How to Find...	88
<b>Chapter 8. Networking Services for Windows Configuration</b>		<b>89</b>
8.1.1	Prerequisites	89
8.2	Terminology	89
8.3	Networking Services for Windows Configuration Worksheet	90
8.4	Working with Networking Services for Windows	92
8.4.1	Starting/Stopping APPC	92
8.4.2	Displaying Active Sessions	92
8.4.3	Other Operations	93
8.5	Configuration	93
8.5.1	Working with APPC Configuration	93
8.5.2	Define Yourself to the Network	93
8.5.3	Define a Link to a Partner or Network Node	94
8.5.4	Configure to Run as a Client	95
8.5.5	Configuring to Run as a Server	96
8.6	Running APING	97
8.7	Running APINGD	97
8.8	How to Find...	97
<b>Chapter 9. CICS Configuration</b>		<b>99</b>
9.1	Prerequisites	99
9.2	Terminology	100
9.3	CICS Configuration Worksheet	100
9.4	Working with CICS and VTAM	103
9.4.1	Starting/Stopping APPC	104
9.4.2	Other Commands	104
9.5	Configuration	105
9.5.1	Working with APPC Configuration	105
9.5.2	Defining Yourself to the Network	105
9.5.3	Define a Link to a Partner or Intermediate Node	109
9.5.4	Configure to Run as a Server	110

9.5.5 Configure to Run as a Client	115
9.6 Running APING	119
9.7 How to Find...	120
<b>Chapter 10. APPC/MVS Configuration</b>	<b>123</b>
10.1 Prerequisites	123
10.2 Terminology	124
10.3 APPC/MVS Configuration Worksheet	124
10.4 Working with APPC/MVS	126
10.4.1 Starting/Stopping APPC	126
10.4.2 Other Commands	127
10.5 Configuration	127
10.5.1 Working with APPC Configuration	127
10.5.2 Define Yourself to the Network	127
10.5.3 Define a Link to a Partner or Intermediate Node	131
10.5.4 Configure to Run as a Client	131
10.5.5 Configure to Run as a Server	133
10.6 Running APING	136
10.7 How to Find ...	137
<b>Chapter 11. APPC/VM Configuration</b>	<b>139</b>
11.1 Prerequisites	139
11.2 Terminology	139
11.3 APPC/VM Configuration Worksheet	140
11.4 Working with APPC/VM	142
11.4.1 Starting/Stopping APPC	142
11.4.2 Other Commands	142
11.5 Configuration	142
11.5.1 Working with APPC Configuration	142
11.5.2 Define Yourself to the Network	143
11.5.3 Define a Link to a Partner or Intermediate Node	147
11.5.4 Configure to Run as a Client	147
11.5.5 Configure to Run as a Server	148
11.6 How to Find....	151
<b>Appendix A. Using Node IDs in VTAM</b>	<b>153</b>
A.1 Node ID for SNA Services/6000 or SNA Server/6000	153
A.2 Node ID for AS/400	154
A.3 Node ID for Networking Services/DOS	154
A.4 Node ID in OS/2 Extended Services	155
<b>Appendix B. The 3174 Establishment Controller</b>	<b>157</b>
B.1 Configuring a 3174 Establishment Controller as an APPN Network Node	157
B.2 3174 Definitions	158
B.2.1 3174 Channel Address Questions	158
B.2.2 3174 Basic SNA Information Questions	158
B.2.3 3174 Network Resources Panels	158
B.2.4 3174 APPN Definitions	159
B.3 LEN VTAM Definitions (VTAM Version 3)	161
B.3.1 Version 3 Release 3 Definitions	161
B.3.2 VTAM Version 3 Release 4 Definitions	162
B.3.3 Additional Definitions for 3270 Sessions	163
B.4 APPN VTAM (VTAM Version 4)	163
B.4.1 VTAM Version 4 Release 1 Definitions	164
B.5 Connecting to the 3174 NN from OS/2	164

B.6 Software/Hardware Requirements for 3174 Network Node	165
B.7 Further Help	165
<b>Appendix C. Working with Dependent LUs in OS/2</b>	<b>167</b>
C.1 Configuring VTAM	167
C.1.1 VTAM PU Definition for Workstation Dependent LU	167
C.1.2 VTAM Mode Table Entry for Single-Session Mode	168
C.1.3 VTAM Network Identifier (NETID)	168
C.2 Configuring the Dependent LU in Communications Manager	169
C.2.1 Defining the Dependent LU in OS/2	169
C.2.2 Defining the Host LU to OS/2	169
C.2.3 Defining the OS/2 Link and PLU Location	169
C.2.4 Defining the OS/2 Single-Session Mode	170
C.3 Running APING	171
C.4 Additional Tips and Details	171
<b>Appendix D. CICS: Autoinstalling Parallel Sessions</b>	<b>173</b>
D.1 Setting Up CICS and VTAM for Autoinstall	173
D.1.1 CICS Model Definitions	174
D.1.2 VTAM Mode Table Entry	175
D.2 Autoinstalling OS/2 Communications Manager ILUs	175
D.2.1 Starting the Autoinstall	175
D.3 Setting Up OS/2 CM for Autoinstall	176
D.3.1 Defining the Mode Name	176
D.3.2 Defining the Partner LU (CICS)	176
D.4 Autoinstalling Networking Services/DOS ILUs	177
D.4.1 Starting the Autoinstall	177
D.5 Autoinstall Details	177
<b>List of Abbreviations</b>	<b>179</b>
<b>Index</b>	<b>181</b>



---

## Figures

1.	Results from APING	3
2.	CPI-C Side Information	10
3.	Quick Configuration Panel	16
4.	Control Point Profile Panel	17
5.	Local LU 6.2 Profile Panel	18
6.	Token-Ring Attachment Profile Panel (Listen or Incoming)	19
7.	Token-Ring Attachment Profile Panel (Call or Outgoing)	19
8.	Logical Connection Profile (Call) Panel	20
9.	Logical Connection Profile (Listen) Panel	20
10.	Mode List Panel	21
11.	Remote TP Name Profile Panel	22
12.	Remote TP Name List Profile Panel	22
13.	CPI-C Side Information	23
14.	TP Name Profile Panel	24
15.	Transaction Program Name List	24
16.	CPI-C Side Information	28
17.	Initial Node Setup: DLC Type	33
18.	Initial Node Setup: Information	33
19.	Side Information Panel	34
20.	Local LU 6.2 Profile Panel	35
21.	TP Name Profile Panel	36
22.	Display Network Attributes	42
23.	Add Communications Entry	43
24.	Create/Change Line Description	44
25.	Create/Change Controller Description	44
26.	Create/Change Device Description	44
27.	Create CPI-C Side Information	45
28.	CALL Program	46
29.	Local Node Characteristics Panel	53
30.	NDF File Excerpt from BASE.NDF for DEFINE_LOCAL_CP	54
31.	Creating a Connection Panel	55
32.	NDF File Excerpt from BASE.NDF for DEFINE_LOGICAL_LINK for Network Node Link	55
33.	NDF File Excerpt from BASE.NDF for DEFINE_LOGICAL_LINK for Partner Link	55
34.	Define Partner LU Panel	56
35.	NDF File Excerpt for define_partner_lu and define_partner_lu_location	56
36.	CPI-C Side Information Panel	57
37.	NDF File Excerpt for Defining a CPI-C Side Information Entry	57
38.	Partner LU Panel	58
39.	NDF File Excerpt for Partner LU	58
40.	TP Definition Panel	59
41.	NDF File Excerpt from BASE.NDF for DEFINE_TP	59
42.	NDF File Excerpt for implicit_inbound_plu_support	60
43.	NDF File Excerpt from BASE.NDF for DEFINE_LOCAL_CP	61
44.	Local Node Characteristics Panel	68
45.	Local Node Options	68
46.	NDF File Excerpt from BASE2.NDF for DEFINE_LOCAL_CP	69
47.	Create a Connection to a Network Node	70
48.	Create a Connection to a LEN Node	70
49.	Create a Connection to a Host	71

50.	NDF File Excerpt from BASE2.NDF for DEFINE_LOGICAL LINK for Network Node Link	72
51.	NDF File Excerpt from BASE2.NDF for DEFINE_LOGICAL LINK for Partner Link	72
52.	Partner LU Panel	73
53.	NDF File Excerpt for DEFINE_PARTNER_LU and DEFINE_PARTNER_LU_LOCATION	73
54.	CPI-C Side Information	74
55.	NDF File Excerpt for Defining a CPI-C Side Information Entry	74
56.	Partner LU Panel	75
57.	NDF File Excerpt for Partner LU	75
58.	TP Definition Panel	76
59.	NDF File Excerpt from BASE2.NDF for DEFINE_TP	77
60.	NDF File Excerpt for implicit_inbound_plu_support	77
61.	NDF File Excerpt from BASE2.NDF for DEFINE_LOCAL_CP	79
62.	Define Yourself to the Network - (in CONFIG.NSD)	85
63.	Define a Link - (in CONFIG.NSD)	86
64.	Define CPI-C Side Information - (in SIDEINFO.NSD)	87
65.	Define a Transaction Program - (in DEFINETP.NSD)	87
66.	Startup Procedure for CICS - ?PROCLIB?(?CICSPROC?)	106
67.	CICS SIT Override Parameters - CICS330.SYSIN(DFH\$SIP1)	107
68.	VTAM Application Major Node - SYS1.VTAMLST(?APPLNODE?)	108
69.	VTAM Mode Definitions - SNASVCMG and ?MODE?	108
70.	VTAM Switched Major Node - SYS1.VTAMLST(?SWNETNODE?)	109
71.	VTAM Switched Major Node, Nonnative Network - SYS1.VTAMLST(?SWN ETNODE?)	110
72.	CEDA DEFINE GROUP(?GROUP?) CONNECTION	111
73.	CEDA DEFINE GROUP(?GROUP?) SESSIONS	112
74.	CEDA DEFINE GROUP(?GROUP?) PROGRAM	113
75.	CEDA DEFINE GROUP(?GROUP?) TRANSACTION	114
76.	CEDA DEFINE GROUP(?GROUP?) PARTNER	116
77.	CEDA DEFINE GROUP(?GROUP?) PROFILE	117
78.	CEDA DEFINE GROUP(?GROUP?) PROGRAM	118
79.	CEDA DEFINE GROUP(?GROUP?) TRANSACTION	119
80.	CICS Status for Connection ?CON?	120
81.	The VTAM Start Parameter List - SYS1.VTAMLST(ATCSTR00)	120
82.	Portion of NCP Gen with LAN Address	121
83.	SYS1.PARMLIB(ASCHPM00) - ASCHPM00.LIB	128
84.	SYS1.PARMLIB(APPCPM00) - APPCPM00.LIB	129
85.	VTAM Definition of APPC LU - APPLMVS.VTM	129
86.	APPC Logon Mode Entries - APPCMODE.ASM	130
87.	LAN Definitions on NCP	131
88.	SYS1.VTAMLST(WSN) - WSN.VTM	131
89.	Sample JCL for Side Information VSAM Data Set - ATBSIVSM.JCL	132
90.	Sample JCL CPI-C Side Information Job - SIADD.JCL	132
91.	JCL for TP Profile VSAM Data Set - ATBTPVSM.VTM	134
92.	JCL to Add a TP Profile to the VSAM Data Set - TPADD.JCL	135
93.	JCL to Add a TP Profile to the VSAM Data Set - TPADD.JCL	136
94.	JCL to Run APING - APING.JCL	136
95.	CP Directory Entry for AVSVM - AVSVM.DIR	143
96.	PROFILE GCS - PROFILE.GCS	144
97.	AGWPROF GCS - AGWPROF.GCS	144
98.	VTAM Definition of APPC LU - APPLVM.VTM	145
99.	APPC Logon Mode Entries - APPCMODE.ASM	146
100.	LAN Definitions on NCP	147

101.	WSN.VTM	147
102.	Sample Communications Directory Entry - COMDIR.SMP	148
103.	EXEC to Schedule a Global Resource - RESAPING.EXC	149
104.	EXEC to Enable Server Operation - RESAPING.EXC	150
105.	\$\$SERVER\$ NAMES - TP to Executable Mapping - \$\$SERVER\$.NAM	151
106.	SNA Services/6000: Control Point Profile	153
107.	SNA Server/6000: Initial Node Setup: Information	153
108.	Node ID Definition for AS/400	154
109.	Local Node Characteristics for Extended Services	155
110.	NDF File Excerpt DEFINE_LOCAL_CP with Node ID	155
111.	Network Configuration for Channel-Attached 3174 Network Node	157
112.	Local Major Node for 3174 and OS/2 PUs	161
113.	VTAM Version 3 Release 4 Local Major Node	162
114.	CDRSC Major Node for OS/2 and Networking Services/DOS	162
115.	VTAM Version 4 Release 1 Local Major Node	164
116.	Communications Manager/2 Node Definitions File	164
117.	VTAM PU Definition with Dependent LU for SDLC Device	167
118.	VTAM PU Definition with Dependent LU for Channel-Attached Device	168
119.	VTAM Mode Entry for Single-Session Mode	168
120.	OS/2 Local Dependent LU Definition	169
121.	OS/2 Partner LU Definition	169
122.	OS/2 Link and PLU Location Definitions	170
123.	OS/2 Single-Session Mode Definition	170
124.	LU62 TERMINAL Definition in Group DFHTERM	174
125.	DFHLU62T TYPETERM Definition in Group DFHTYPE	174
126.	Sample Mode Entry for Single-Session, PLU Contention-Winner Mode	175
127.	Contention-Winner Mode Definition for Communications Manager	176
128.	Communications Manager Partner LU Definition	176
129.	Contention-Winner Mode Definition for Networking Services/DOS	177





---

## Tables

1.	AIX SNA Services/6000 Terminology . . . . .	9
2.	AIX SNA Services/6000 Configuration Worksheet . . . . .	11
3.	AIX SNA Server/6000 Terminology . . . . .	27
4.	AIX SNA Server/6000 Configuration Worksheet . . . . .	29
5.	AS/400 Terminology . . . . .	37
6.	AS/400 Configuration Worksheet . . . . .	38
7.	OS/2 ES and NS/2 Terminology . . . . .	49
8.	OS/2 ES and NS/2 Configuration Worksheet . . . . .	50
9.	CM/2 Terminology . . . . .	63
10.	CM/2 Configuration Worksheet . . . . .	64
11.	NS/DOS Terminology . . . . .	81
12.	NS/DOS Configuration Worksheet . . . . .	83
13.	Networking Services for Windows Terminology . . . . .	89
14.	Networking Services for Windows Configuration Worksheet . . . . .	91
15.	CICS Terminology . . . . .	100
16.	CICS Configuration Worksheet . . . . .	101
17.	APPC/MVS Terminology . . . . .	124
18.	APPC/MVS Configuration Worksheet . . . . .	125
19.	APPC/VM Terminology . . . . .	139
20.	APPC/VM Configuration Worksheet . . . . .	140
21.	3174 Channel Address Questions . . . . .	158
22.	3174 Basic SNA Questions . . . . .	158
23.	3174 Network Resources Panel . . . . .	159
24.	3174 Associated LUs Panel . . . . .	159
25.	3174 APPN Questions . . . . .	160
26.	3174 Network Resources Panel for APPN VTAM Connection . . . . .	163
27.	3174 Associated LUs Panel for APPN VTAM Connection . . . . .	163



---

## Special Notices

This publication is intended to help customer system programmers and IBM system engineers to configure APPC and APPN on a variety of system platforms. The information in this publication is not intended as the specification of any programming interfaces that are provided by the different products implementing APPC and APPN. See the PUBLICATIONS section of the IBM Programming Announcement for those products for more information about what publications are considered to be product documentation.

References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent program that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program or service.

Information in this book was developed in conjunction with use of the equipment specified, and is limited in application to those specific hardware and software products and levels.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594 USA.

The information contained in this document has not been submitted to any formal IBM test and is distributed AS IS. The use of this information or the implementation of any of these techniques is a customer responsibility and depends on the customer's ability to evaluate and integrate them into the customer's operational environment. While each item may have been reviewed by IBM for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere. Customers attempting to adapt these techniques to their own environments do so at their own risk.

Reference to PTF numbers that have not been released through the normal distribution process does not imply general availability. The purpose of including these reference numbers is to alert IBM customers to specific information relative to the implementation of the PTF when it becomes available to each customer according to the normal IBM PTF distribution process.

The following terms, which are denoted by an asterisk (\*) in this publication, are trademarks of the International Business Machines Corporation in the United States and/or other countries:

ACF/VTAM	Advanced Peer-to-Peer Networking
AIX	APPN
AS/400	C/370
CICS	CICS/ESA
CICS/MVS	Extended Services
IBM	ImagePlus
MVS/ESA	NetView
OS/2	OS/400
RACF	RISC System/6000
S/370	S/390

SAA  
VM/ESA

System/370  
VTAM

The following terms, which are denoted by a double asterisk (\*\*) in this publication, are trademarks of other companies:

Microsoft, Windows  
CompuServe

Microsoft Corporation  
CompuServe, Incorporated and H&R  
Block, Incorporated

---

## Preface

This publication explains how to configure APPC and APPN on a variety of system platforms. It describes the steps needed to configure APPC and APPN. It explicitly states which values in one computer's configuration need to match values in a partner computer's configuration, and clarifies the terminology differences between computers by mapping to a set of standard terms, and confining platform-specific terms to the section that describes that platform.

This document is intended as a quick APPC configuration guide for system programmers who may have skills of one system platform and need to define matching APPC and APPN definition parameters on other platforms.

---

## How This Document Is Organized

The document is organized as follows:

- Chapter 1, "Introduction" gives an overview on how to use this document and briefly explains the concepts and terminology of APPC and APPN.
- Chapter 2, "AIX SNA Services/6000 Configuration" explains how to configure AIX SNA Services/6000, IBM's first implementation of APPC for AIX.
- Chapter 3, "AIX SNA Server/6000 Configuration" explains how to configure AIX SNA Server/6000 that provides full APPN support for AIX.
- Chapter 4, "AS/400 Configuration" describes how to configure APPC on the AS/400.
- Chapter 5, "OS/2 Extended Services and Networking Services/2 Configuration" describes how to configure APPC on an OS/2 workstation using OS/2 EE 1.3 with either Network Services/2 or OS/2 2.0 Extended Services.
- Chapter 6, "OS/2 Communications Manager/2 Configuration" describes how to configure APPC for an OS/2 workstation using Communications Manager/2.
- Chapter 7, "Networking Services/DOS Configuration" describes how to configure Networking Services/DOS to provide APPC support in a DOS or Microsoft Windows environment.
- Chapter 8, "Networking Services for Windows Configuration" describes how to configure Networking Services for Windows to provide APPC support in a Microsoft Windows environment.
- Chapter 9, "CICS Configuration" describes how to configure a CICS system to support APPC transactions.
- Chapter 10, "APPC/MVS Configuration" describes how to configure APPC/MVS.
- Chapter 11, "APPC/VM Configuration" describes how to configure APPC/VM.
- Appendix A, "Using Node IDs in VTAM" describes how to define the node ID on the different platforms; the node ID is sent in an XID to identify a workstation that dials in to VTAM.
- Appendix C, "Working with Dependent LUs in OS/2" describes the definitions when using a 3174 network node as a host gateway. in CM/2.

- Appendix C, “Working with Dependent LUs in OS/2” describes how to define APPC functions using dependent LUs in CM/2.
- Appendix D, “CICS: Autoinstalling Parallel Sessions” describes how to use CICS autoinstall for independent LUs.

---

## Related Publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this document.

- *Systems Network Architecture Technical Overview*, GC30-3073
- *Using AIX SNA Services/6000*, SC31-7002-00
- *AIX SNA Server/6000: User’s Guide*, SC31-7002-01
- *AIX SNA Services/6000 Reference*, SC31-7014-00
- *AIX SNA Server/6000: Configuration Reference*, SC31-7014-01
- *AS/400 Programming: Command Reference Summary*, SC21-8076
- *AS/400 Programming: Control Language Reference*, SC41-0030
- *AS/400 Communications: APPC Programmer’s Guide*, SC41-8189
- *AS/400 Communications: APPN Guide*, SC41-8188
- *CICS/ESA Resource Definition (Online)*, SC33-0666
- *CICS/ESA System Definition Guide*, SC33-0664
- *VTAM Resource Definition Reference*, SC31-6438
- *VTAM Network Implementation Guide*, SC31-6434
- *NCP Resource Definition Reference*, SC30-3448
- *Networking Services/DOS User’s Guide and Reference*, S20G-0438
- *MVS/ESA Planning: APPC Management*, GC28-1110
- *MVS/ESA APPC/MVS Handbook for OS/2 System Administrator*, GC28-1133
- *SAA Networking Services/2 Installation and Network Administrator’s Guide*, SC52-1110
- *ES OS/2 Communications Manager APPC Programming Reference*, S04G-1025
- *ES OS/2 APPN/LU 6.2 Connection and Management*, SG22-1052
- *CM/2 APPC Programming Guide and Reference*, SC31-6160
- *CM/2 Network Administration and Subsystem Management Guide*, SC31-6168
- *CM/2 Workstation Installation Guides*, SC31-6169
- *CM/2 Host Connection Reference*, SC31-6170
- *CM/2 Configuration Guide*, SC31-6171
- *VM/ESA Connectivity Planning, Administration, and Operation*, SC24-5448
- *Using the 3172 for LAN to Host Connectivity*, SG22-1053
- *3174 Planning Guide CS-C*, GA27-3918
- *APPC System Definitions in MVS/ESA and OS/2*, GG66-3224

---

## International Technical Support Organization Publications

- *APPN Architecture and Product Implementations Tutorial*, GG24-3669
- *APPC and CPI-C Product Implementations*, GG24-3520
- *S/3/X and AS/400 APPN Nodes Using the SNA/LEN Subarea Network*, GG24-3288
- *AS/400, S/38 and PS/2 as T2.1 Nodes in a Subarea Network*, GG24-3420
- *Network Services/2 Installation, Customization and Operations APPN for OS/2*, GG24-3662
- *3174 APPN Implementation Guide*, GG24-3702
- *AS/400 APPN with PS/2 APPN, 3174 APPN, 5394 and Subarea Networking*, GG24-3717
- *APPC Programming Considerations in MVS/ESA and OS/2*, GG24-3818
- *APPC Application Examples in MVS/ESA and OS/2*, GG24-3819
- *MVS/ESA and CICS/ESA: APPC Programming and Definitions*, GG24-3895
- *VTAM V4.1 for MVS/ESA Planning Guide*, GG24-3914
- *VTAM V4.1 for MVS/ESA Implementation Guide*, GG24-4011
- *AS/400 APPN Configuration Guide*, GG24-4023
- *A Guided Tour of SNA Server/6000 V2.1*, GG24-4189
- *VTAM V4.2 Early User Experience*, GG24-4250
- *CICS Cross Platforms Intersystem Communications Sample Definitions*, GG24-4320

A complete list of International Technical Support Organization publications, with a brief description of each, may be found in:

*International Technical Support Organization Bibliography of Redbooks*, GG24-3070.

To get a catalog of ITSO technical publications (known as “redbooks”), VNET users may type:

```
TOOLS SENDTO WTSCPOK TOOLS REDBOOKS GET REDBOOKS CATALOG
```

### How to Order ITSO Technical Publications

IBM employees in the USA may order ITSO books and CD-ROMs using PUBORDER. Customers in the USA may order by calling 1-800-879-2755 or by faxing 1-800-284-4721. Visa and Master Cards are accepted. Outside the USA, customers should contact their local IBM office.

Customers may order hardcopy ITSO books individually or in customized sets, called GBOFs, which relate to specific functions of interest. IBM employees and customers may also order ITSO books in online format on CD-ROM collections, which contain books on a variety of products.

---

## Acknowledgments

The authors of this document are:

Don Andrews  
IBM Research Triangle Park

Bruce Dean  
IBM Research Triangle Park

Virginia Hillsberg  
IBM Research Triangle Park

Marshall Lamb  
IBM Research Triangle Park

Amy Matas  
IBM Research Triangle Park

Heidi Porter  
IBM Research Triangle Park

Neal Scheunemann  
IBM Cary

Peter Lenhard  
International Technical Support Organization, Raleigh Center



---

## Chapter 1. Introduction

This publication explains how to configure APPC and APPN\* on the following platforms:

- RISC System/6000\* SNA Services
- RISC System/6000 SNA Server/6000
- OS/2\* Extended Services\*
- Communications Manager/2
- Networking Services/DOS
- Networking Services for Windows\*\*
- OS/400\*
- CICS\*
- MVS
- VM
- IBM 3174

See the individual chapters for details on product versions and prerequisites.

To configure APPC on different system platforms you need to know multiple configuration methods. Terminology varies from one platform to another. There is a set of values that needs to match between two systems that want to communicate.

This guide is designed to do three things:

1. Describe the steps needed to configure APPC.
2. Explicitly state which values in one computer's configuration need to match values in a partner computer's configuration.
3. Clarify the terminology differences between computers by mapping to a set of standard terms, and confining platform-specific terms to the section that describes that platform.

This guide is not a tutorial on APPC or APPN concepts, although some APPC and APPN terms are introduced in this first section. It is also not a network design tutorial. A good introduction to APPC and APPN concepts is provided in two publications: *Networking with APPN: An Overview*, G325-0204 and *Communicating with APPC and CPI-C: A Technical Overview*, G325-0202. Both are available from IBM\*.

To keep things simple, configuration for a token-ring local area network is explicitly presented in this guide. The information here should help you configure other types of networks, but additional information from the platform's installation guide may be necessary in those cases.

---

## 1.1 APING

This guide uses a widely available APPC program named APING in the configuration examples. APING is a small program that sends data across a network and receives data back. APING is used to test connectivity between two machines on a network, and to provide diagnostic information when APPC communications fail. APING is shipped as a sample program with Networking Services/DOS and Communications Manager/2. It is also available on several bulletin boards:

- CompuServe\*\*

There is an APPC Info Exchange forum on CompuServe (type G0 APPC to access this forum). In the Sample Programs Library section, there are several packages related to APING:

- APING.ZIP: The OS/2 APING executables, C source code, and makefiles for many platforms.
- APINGS.ZIP: The C source portion of the APING.ZIP package.
- PNGFAM.ZIP: The executables from the APING.ZIP package.
- APINGC.ZIP: The CICS COBOL source for the APINGD server.

- MKTTOOLS

MKTTOOLS is an IBM-internal bulletin board containing packages that can be distributed to customers. IBM marketing representatives and technical specialists have access to this bulletin board and can request packages from it. The packages related to APING are:

- APING PACKAGE: The OS/2 APING executables, C source code, and makefiles for many platforms.
- APINGCIC PACKAGE: The CICS COBOL source for the APINGD server.

- OS2BBS

The OS2BBS is a bulletin board accessible through the IBM Information Network. You can acquire and register for the service by calling 1-800-547-1283. The APING package is available on the OS2BBS.

- APING.ZIP: The OS/2 APING executables, C source code, and makefiles for many platforms.

The APING package consists of a client program, APING, and a server program APINGD. We recommend that you obtain APING and use it when you configure APPC in your network.

When you finish configuring both partners, run APING on the client machine. When APING successfully exchanges information with a partner, the following information (with timing variations) is displayed.

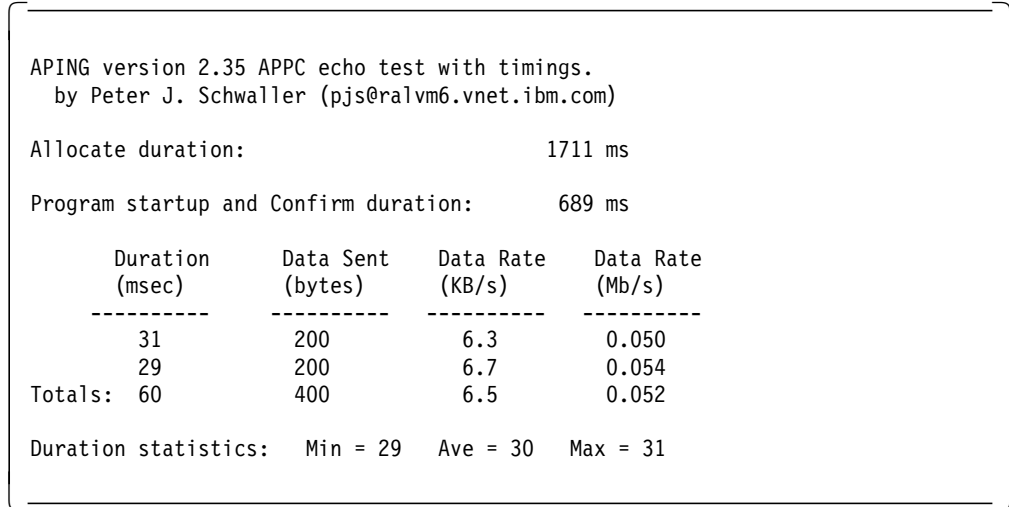


Figure 1. Results from APING

## 1.2 Using This Guide

This guide contains a chapter for each platform. Each chapter describes that platform's configuration independent of the type of machine it will be connecting to. Within each chapter, when parameter values are needed from a partner computer, the instructions will say: *See the "How to Find..." section of the partner computer's configuration chapter.* The person using that partner computer's configuration chapter should be able to read the "How to find..." instructions and provide the proper value.

Each chapter assumes some knowledge of the operation of that platform. No APPC or APPN knowledge is required, but someone configuring Networking Services/DOS needs to know how to edit a text file in DOS, and how to copy files, for example.

If there are different people configuring different platforms (for example, when trying to connect OS/2 to an AS/400\*) this is what you should do:

1. Give the chapter on OS/2 to the person configuring OS/2.
2. Give the AS/400 chapter to the person configuring AS/400.
3. Each person fills in the values in the platform's configuration worksheet at the beginning of their chapter. You need to obtain specific values from the person who is configuring the platform that you want to connect to. Instructions for finding this information are in the "How to Find..." section of their chapter.
4. Each person follows the configuration directions in his chapter, filling in the appropriate values from the configuration worksheet.
5. If you need more details about a platform's configuration, you should refer to documents listed at the beginning of each chapter.

In this manner, the person configuring OS/2 never needs to learn the AS/400 configuration terminology (unless the same person configures both platforms).

Each chapter in this book is not only independent of the partner computer's platform, but also independent of the network structure. This means that the connection between computers is described as a direct connection from one computer to the other. However, the configuration task can get complex when a computer is being connected to several partner computers. This complexity is unnecessary when a special kind of node called a network node is added to the network. A network node is used to locate partners in a network. (Network nodes are discussed in more detail in 1.3.7, "What Is APPN?" on page 6.)

If you have an APPN network node in your network, you should define just one link to it, and avoid defining the many individual links to the other computers in the network that can be located by the network node. The chapter for each platform describes how to substitute a link to a network node for many direct links to partner machines. The way to find out if you have a network node in your network is to ask someone who set up the network. That person should be able to provide you with the necessary information about the network node for you to include it in your configuration. If you don't have a network node, or don't know if you have one, you can continue to follow the directions that assume there is no network node. The only drawback is that this may add unnecessary complexity to your network.

---

## 1.3 A Brief Introduction to Terminology

In the following you will find a brief description of some expressions and abbreviations that are often used when speaking about APPC and APPN.

### 1.3.1 What Is APPC?

Advanced Program-to-Program Communication (APPC) is software that enables communications between programs on different computers, from portables and workstations to midrange and host computers. APPC software is available for many different IBM and non-IBM operating systems, either as part of the operating system or as a separate software package.

APPC serves as a translator between application programs and the network. When an application on your computer passes information to the APPC software, APPC translates the information and passes it to a network interface, such as a LAN adapter card. The information travels across the network to another computer, where the APPC software receives the information from the network interface. APPC translates the information back into its original format and passes it to the corresponding partner application.

### 1.3.2 What Are Transaction Programs and Conversations?

The part of an application that initiates or responds to APPC communications is called a *transaction program* or TP. A transaction program on your workstation is not an entire, stand-alone program. Instead, it is the part of the program that handles transactions (exchanges of data) with another program.

When people talk with each other, we say that they are having a conversation. Likewise, the communication between two transaction programs is called a *conversation*.

A conversation between two programs is similar to conversation between two people. When you have a conversation with another person, you follow unwritten rules that govern how you begin and end the conversation, take turns

speaking, and exchange information. Similarly, APPC is called a *protocol* because it provides the rules that govern how conversations between transaction programs start and stop, which program “speaks” first, and how data is exchanged.

A program in your computer may have several conversations active at one time, with the same transaction program or with different transaction programs.

### 1.3.3 What Are Logical Units and Sessions?

When two people in different buildings want to talk to each other, they must use their telephones. Similarly, transaction programs in different computers cannot talk directly to each other. Instead, they converse over sessions between two logical units.

A *logical unit* or LU is APPC software that serves as an interface or translator between a transaction program and the network. A logical unit manages the exchange of data between transaction programs.

An *LU* is located on your computer. A *partner LU* is located on a partner computer.

Before a transaction program can start a conversation with a partner transaction program, APPC must establish a *session*, the session that connects the local LU and the partner LU.

There is a one-to-one relationship between a conversation and a session. A session can support only one conversation at a time; however, as soon as that conversation ends, another conversation can use the session. So, compared to conversations, sessions are long-lived connections.

### 1.3.4 What Is a Mode?

A mode is a set of parameters that defines the characteristics of a session between two LUs. Modes have names that must match exactly. There are four modes predefined on most platforms that can be used by most applications:

**#INTER** for interactive jobs

**#BATCH** for batch jobs

**#INTERSC** for interactive jobs with security

**#BATCHSC** for batch jobs with security

### 1.3.5 What Is CPI-C Side Information?

The Common Programming Interface - Communications (CPI-C) provides a consistent application programming interface for network applications.

CPI-C programming provides a mechanism, called side information, which associates a set of parameters with a specified symbolic destination name. The CPI-C program then uses the symbolic destination name to initialize a conversation. This information includes:

**CPI-C Symbolic Destination Name**

The name used to refer to the CPI-C side information entry.

**TP Name**

The name used to identify which program to start on the partner computer.

**LU Name**

The name of the partner LU.

**Mode Name**

The characteristics associated with the session between the LUs.

### 1.3.6 What Is a Network?

Transaction programs in different computers must use a network to communicate with each other. APPC provides the interface between the programs and networking software and hardware.

In simplest terms, a network consists of components that connect computers. These components are:

**Nodes**

A node is any computer in the network. For example, if your DOS workstation is connected to an OS/2 workstation, both computers are nodes.

**Links**

A link is a physical or logical connection between two adjacent nodes.

Before data can be sent between two nodes, a link must be active between them.

### 1.3.7 What Is APPN?

Advanced Peer-to-Peer Networking\* (APPN) provides networking functions for APPC applications. When configuring a node in a network, you must decide which type of node to configure. Types of nodes in an APPN network are:

**Low-Entry Networking (LEN) Node**

Low-entry networking nodes are the simplest node type and have the least function. A LEN node must be an end point in the network; it cannot function as an intermediate node. A LEN node is capable of peer-to-peer communication, but unable to make direct use of APPN functions. Most end-user computers should be end nodes. However, some platforms can only be LEN nodes, for example NS/DOS.

**End Node (EN)**

An end node (EN) provides the functions of a LEN node plus the ability to register information about itself with a network node. This ability helps reduce the amount of network configuration required.

**Network Node (NN)**

Network nodes (NNs) are used to locate partners in an APPN network. If there is an NN in the network, an end node can define one link to the network node. The EN then requires no other link definitions. Typically, there is at least one network node in a network but the addition of more requires informed network analysis.

### 1.3.8 What Is a Control Point (CP)?

In APPN, a control point is responsible for managing the node and its resources and, in an APPN end node, for communicating with an adjacent network node server's control point to obtain APPN network services. A control point is an LU and it might be the only LU at that node. *Whenever possible the CP should be the only LU at a node.* Platforms that can only be LEN nodes do not use the control point.

### 1.3.9 What Is Subarea Networking?

Subarea networks existed prior to APPN. As opposed to APPN, subarea networks are hierarchical in nature. The software that implements subarea networks runs in host computers and communication controllers attached to those hosts. The host software is called Virtual Telecommunications Access Method (VTAM\*) and the communication controller software is called Network Control Program (NCP).

Nodes in APPN networks can have links to subarea networks and can establish sessions and conversations with LUs and TPs in those networks. From the perspective of the APPN node the entire subarea network is viewed as a LEN node. Resources in the subarea network can then be defined in the APPN node as though they all were contained in one LEN node.

### 1.3.10 What Is a Node Identifier?

Some SNA products require partner systems to code a specific value for a parameter called the *node identifier* or *node ID* for short. The two systems pass this node identifier during the link activation in a message unit called exchange identification or XID. Node identifiers for each specific platform are described in Appendix A, "Using Node IDs in VTAM" on page 153.

We discourage use of node identifiers, preferring the CP name because it is more generic and less confusing.

---

## 1.4 How Do I Configure a Network?

This section provides an overview of the steps required to configure APPC. The configuration is described by using a standard terminology. These standard terms are used throughout the guide to discuss configuration. Each platform may use platform-specific terms in its configuration instead of the standard terms. Therefore, each chapter contains a terminology mapping chart that cross-references the terms below with platform-specific terms.

The steps to APPC configuration are:

- Define yourself to the network.

To define yourself to the network, you must define these parameters:

- Network ID

A network is a set of interconnected nodes that are grouped by a common identifier called a *network ID* or *net ID*. The net ID is a 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code, and a network suffix. This format insures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID.

- LU name

1 to 8-character field consisting of alphanumeric characters which is the LU name of the node. Choose a name that is unique within the net ID.

The fully qualified name (also referred to as network-qualified name) is represented as two concatenated names, the net ID and the LU name, separated by a period (NETID.LUNAME). This unique name identifies a CP or an LU.

- Define a link to your partner
  - You can define a direct link between the local node and the partner node if both nodes are in the same local network.
  - If there is a network node (NN) in the local network, you can define a link to the NN, and the NN can locate the partner node.
  - If the partner node is located in a VTAM subarea, you can define a link to the VTAM subarea, and the VTAM subarea can locate the partner node for you.

To define a link, you must define these parameters:

- Network ID

This is the net ID of the partner machine. To determine this value, refer to the “How to Find...” section of the partner machine’s configuration chapter.

- Partner LU name

This is the LU name of the partner machine. To find this value, refer to the “How to Find...” section of the partner machine’s configuration chapter.

- Adjacent LAN address

This is the address of the adjacent node or the network node you are connecting to. In a token-ring network, this is the address of the token-ring card at the adjacent node. To find this value, refer to the “How to Find...” section of the partner machine’s configuration chapter.

- Define partner LU name

If you *are not* using a network node in your network, you must define a partner LU name. This will allow the partner to be located.

- Partner LU name

This is the local LU name defined on the partner machine. To find this value, refer to the “How to Find...” section of the partner machine’s configuration chapter.

If you *are* using a network node in your network, you do not need to define an explicit partner LU name. However, you will need to know the partner LU name when running transaction programs.

CPI-C side information may be used to associate a set of parameters, including the partner LU name, with a symbolic destination name. The symbolic destination name can then be used when running transaction programs to specify the partner. Each platform has directions for configuring CPI-C side information.

- Configure to run as a server

If you are configuring your computer to run as a server, a transaction program must be configured on your computer. The transaction program will be the target of a conversation started by a client.

- TP name

1 to 64 alphanumeric characters. This is the name specified by the partner APPC application when it wants to start a conversation with a TP on your computer.



---

## Chapter 2. AIX SNA Services/6000 Configuration

This chapter explains how to configure AIX\* SNA Services/6000. AIX SNA Services/6000 is IBM's implementation of APPC for AIX. Version 1.2 supports only being a LEN node (see 1.3.7, "What Is APPN?" on page 6 for a discussion of SNA node types). The system to be configured should have AIX Version 3.2 and SNA Services Version 1.2 with the latest updates applied. This is necessary to get the maximum benefit of APPC, including CPI-C support, and mode definitions. To check the level of SNA Services you have installed, run the following command:

```
lslpp -h sna.sna.obj
```

The result should contain four numbers similar to the following:

```
01.02.0000.0000
```

If the last number is "0000," you do not have the latest updates. You should apply PTFs U411903 and U411904. If the last number is "0224" (indicating the July 1992 quality refresh) or "0244" (indicating the December 1992 quality refresh), then your SNA Services are sufficiently updated.

This document describes all of the profiles that need to be created to configure an AIX machine to run APING to another machine. A few profiles may be left out if you don't plan to run this AIX machine as a server. These will be noted.

---

### 2.1 Prerequisites

- AIX V3.2
- AIX SNA Services/6000 V1.2 with PTFs U411903 and U411904
- Token-ring adapter

For more detailed configuration information, refer to the following publications:

- *Using AIX SNA Services/6000*, SC31-7002-00
- *AIX SNA Services/6000 Reference*, SC31-7014-00

---

### 2.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by SNA Services/6000.

<b>Standard Term</b>	<b>AIX SNA Services/6000 Term</b>
Link name	Attachment profile name
Net ID	Network name
LU name	Local LU name
Partner LU name	Remote LU name
LAN address	Link address
Adjacent LAN address	Remote link address

---

## 2.3 SNA Services/6000 Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following the recommendations in the worksheet, you will write #INTER in the right column on the ?MODE? line. Then in Figure 13 on page 23 you will type #INTER in the *MODE name* field to replace ?MODE? like this:

---

### CPI-Communications Side Information

PROFILE name	= ?SYMDEST?
PARTNER LU name	= ?CALLCONNPRO?
REMOTE TRANSACTION PROGRAM name	= ?TPNAME?
SERVICE transaction program?	= no
MODE name	= #INTER

---

*Figure 2. CPI-C Side Information*

**Note:** In the following chart and throughout this chapter, be aware that all of the values entered are case sensitive. So if you enter a particular value in lowercase in one place, remember to enter the same value in lowercase when it appears again.

Table 2 (Page 1 of 3). AIX SNA Services/6000 Configuration Worksheet

Symbol	How to determine the value for this symbol	Fill in value here
<b>Values that must match with other places</b>		
?LOCALLU?	This is the symbol that refers to the LU name of the machine you are defining to the network. It is a 1 to 8-character field consisting of uppercase alphanumeric characters which represent the LU name of the node. Choose a name that is unique within the same network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information about LU names.	
?LOCALCP?	This is the symbol that refers to the control point (CP) name of your machine. It is the same as your ?LOCALLU?. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.	
?LOCALNET?	This is the symbol that refers to the net ID of the machine you are defining to the network. While it can be any 1 to 8-character field consisting of uppercase alphanumeric characters, there is a structured format that can be followed to ensure uniqueness of the net ID around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs.	
?PARTNERLU?	This is the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. For AIX SNA Services/6000, this value is to be entered in uppercase. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.	
?PARTNERNET?	This is the symbol for the net ID of the partner computer. Use the net ID from the partner computer's "How to Find..." section. For AIX SNA Services/6000, this value is to be entered in uppercase. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner net ID.	
?LANADDRESS?	This is the symbol for the LAN address of the partner computer. (Or the LAN address of a network node, if the link is being made to a network node.) For AIX SNA Services/6000, the letters in this value are to be entered in uppercase. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.	
?TPNAME?	This is the symbol for the transaction program name. This is the name of the transaction program at the partner computer. It is 1-64 bytes long, and it is case sensitive. For APING, the TP name on the server is <b>APINGD</b> .	
?TPPATH?	This is the symbol for the fully specified path and file name of the executable code for a server transaction program located on your machine. For APINGD, this may be: <b>/local/sna/apingd</b> .	

Table 2 (Page 2 of 3). AIX SNA Services/6000 Configuration Worksheet

Symbol	How to determine the value for this symbol	Fill in value here
?MODE?	This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section. For AIX SNA Services/6000, this value must be entered in uppercase.	
<b>Local Values</b>		
?SYMDEST?	This is the symbol for the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It will be used locally on the AIX machine to refer to a CPI-C side information entry. See 1.3.5, "What Is CPI-C Side Information?" on page 5 for more information on CPI-C Side Information.  <b>Note:</b> The December 1992 quality refresh of SNA Services/6000 fixes an error that would require you to specify a symbolic destination that is exactly 8 characters long when running APING. If you only have the July 1992 quality refresh (see Chapter 2, "AIX SNA Services/6000 Configuration" on page 9), you should specify an 8-character symbolic destination name.	
<p>The following are the names of the profiles that must be configured. The profile names must be 1 to 14 characters long (unless otherwise indicated). The profile names are referenced only on the machine you are configuring, and do not need to match any values on other machines. Some suggestions for profile names are provided.</p> <p>If you are using Quick Configuration, you only need to fill in a value for the first symbol below (?QUICKPRO?). All the profile names generated for the Quick Configuration will be the same (except the transaction program and mode profile names, which are slightly modified).</p>		
?QUICKPRO?	The symbol for the name that Quick Configuration uses to generate profile names for all the profiles it creates. You don't need this value if you are not using Quick Configuration. This value is 1-12 characters long. Suggestion: use the same value as that used for the <b>?PARTNERLU?</b> symbol.	
?CPPRO?	The symbol for the name of the Control Point profile. Suggested profile name: <b>CPPRO</b>	
?LUPRO?	The symbol for the name of the Local Logical Unit 6.2 profile. Suggested profile name: <b>LUPRO</b>	
?CALLATTACHPRO?	The symbol for the name of the outgoing (call) attachment profile. Suggested profile name: <b>CALLATT</b>  <b>Note:</b> The attachment profile names are only 1-8 characters long.	
?LISTATTACHPRO?	The symbol for the name of the incoming (listen) attachment profile. Suggested profile name: <b>LISTATT</b>  <b>Note:</b> The attachment profile names are only 1-8 characters long.	
?CALLCONNPRO?	The symbol for the name of the outgoing (call) connection profile. Suggested profile name: <b>CALLCONN</b>	
?LISTCONNPRO?	The symbol for the name of the incoming (listen) connection profile. Suggested profile name: <b>LISTCONN</b>	

Table 2 (Page 3 of 3). AIX SNA Services/6000 Configuration Worksheet

<b>Symbol</b>	<b>How to determine the value for this symbol</b>	<b>Fill in value here</b>
?MODEPRO?	<p>The symbol for the name of the Mode Profile. To avoid defining new modes, use one of the mode profiles already supplied by SNA Services/6000:</p> <ul style="list-style-type: none"> <li>• INTER</li> <li>• BATCH</li> <li>• INTERSC</li> <li>• BATCHSC</li> </ul> <p>Note that these are the mode profile names. The actual modes defined by them are: #INTER, #BATCH, #INTERSC, and #BATCHSC. Which one to choose may depend on the requirements of your client/server application, as specified in its documentation. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of these modes. To use the default mode that APING uses, specify <b>INTER</b>.</p>	
?MODELISTPRO?	<p>The symbol for the name of the mode list profile. Suggested profile name: <b>MODELIST</b></p>	
?RTPNAMEPRO?	<p>The symbol for the name of the remote transaction program name profile. This value must not be the same as any local transaction program name profiles (denoted by ?TPNAME? below). Suggested profile name: use the ?TPNAME? value, followed by an "R." (For APING, this would be <b>APINGDR</b>.) If this machine is being configured as a server only, you do not need to create any remote transaction program name profiles.</p>	
?RTPLISTPRO?	<p>The symbol for the name of the remote transaction program list profile. Suggested profile name: <b>RTPLIST</b>. If this machine is being configured just as a server (i.e. it will not try to start transaction programs on the partner machine), you do not need to create a remote transaction program list profile and can use the default profile provided by SNA Services/6000 called <b>RDEFAULT</b>.</p>	
?TPNAMEPRO?	<p>The symbol for the name of the local transaction program name profile. Suggested profile name: If the value for ?TPNAME? is less than 12 characters long, use the value for ?TPNAME? followed by "PRO," for example <b>APINGDPRO</b>. Otherwise, make up a profile name that is 1-14 characters long. If you will not be running this machine as a server, you do not need to configure any local transaction program names, and will therefore not need this value.</p>	
?TPNLISTPRO?	<p>The symbol for the name of the transaction program list profile. Suggested profile name: <b>TPNLIST</b>. If you will not be running this machine as a server, you do not need to configure transaction programs on it. In this case, use the default transaction program list profile name, <b>TDEFAULT</b>. Again, if you will not be running this machine as a server, you do not need to configure a local transaction program list profile, and will therefore not need this value.</p>	

---

## 2.4 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

SNA Services/6000 stores its configuration information within encoded profiles that are accessed using the System Management Interface Tool (SMIT). SMIT presents panels on which you enter your configuration values. All of the values used in AIX SNA Services/6000 are case sensitive, so be sure to always enter profile names and other configuration values in the same case throughout the SMIT panels.

Within SMIT, SNA Services/6000 configuration panels can be accessed by selecting the following series of panels:

```
--Communications Applications
  --SNA Services
    --Configure
      --Advanced Configuration
```

For the rest of this discussion, other panels will be specified from this base level within SMIT.

The user should have the base configuration of AIX SNA Services installed and have "system group" access to the system in order to run SMIT and start the SNA subsystem. "System group" authority is required to make the changes suggested in this document. See the document *Using AIX SNA Services/6000*, SC31-7002, for more information on SNA Services installation.

For this discussion, we will progress through a basic configuration that allows both an outgoing and incoming APING operation to be performed. This chapter describes how to configure a workstation that is attached to a token-ring LAN and assumes the token-ring DLC has been created by the system. Other DLCs will require attachment profile definitions that would replace the token-ring attachment profile described below.

There are several profiles that need to be defined:

1. A control point profile
2. A local LU (6.2) profile
3. Two token-ring attachment profiles
4. Two logical connections profiles

5. A mode list profile
6. A remote TP name profile
7. A remote TP name list profile
8. A CPI-C side information entry
9. A TP name profile
10. A TP name list profile

### 2.4.1 Quick Configuration

AIX SNA Services/6000, with the PTFs specified in Chapter 2, “AIX SNA Services/6000 Configuration” on page 9, provides a “Quick Configuration” utility that creates all of the above profiles based on information entered on just one or two SMIT panels. This quick configuration is an excellent way to configure a simple connection to a partner machine using a single mode definition and a single transaction program definition. Quick configuration is designed for just such a scenario. Quick configuration does not reuse profiles that have already been defined. So, if you repeatedly use quick configuration to define connections to partners, then multiple LU profiles, mode profiles, mode list profiles, etc. will be defined. If you choose to use Quick Configuration it is recommended that you use it to define the first connection to a partner, but from then on to follow the explicit instructions for adding or updating the other profiles.

### 2.4.2 Verifying Configuration

Once the profiles are created, they can be verified using either the command `verifysna`, or in SMIT by following this hierarchy of panels:

```
--Communications Applications and Services
--SNA Services
--Configure SNA Profiles
--Advanced SNA Configuration
--Verify SNA Configuration Profiles
```

### 2.4.3 Starting and Stopping APPC

APPC is part of the AIX SNA Services/6000 subsystem. You can use the following command to test the status of the SNA subsystem:

```
lssrc -l -s sna
```

If the SNA subsystem is not started, it can be started with the command:

```
startsrc -s sna
```

If you want the partner computer to be able to initiate a conversation to this AIX machine, you need to start the listen attachment before your partner attempts to activate the link between the two. Do this with this command:

```
startsrc -t attachment -o ?LISTATTACHPRO?
```

**Note:** The “?LISTATTACHPRO?” value must match the “PROFILE name” of the token-ring attachment profile defined as the incoming, or “listen” attachment.

To stop the SNA subsystem, execute this command:

```
stopsrc -s sna
```

---

## 2.5 Configuration

### 2.5.1 Starting from Scratch

If you would like to set your SNA configuration to its default values, run this command:

```
/usr/lpp/sna/bin/peu
```

To run this command, you need “root” authority, and you should delete or move all the files in /etc/opjrepos/sna.

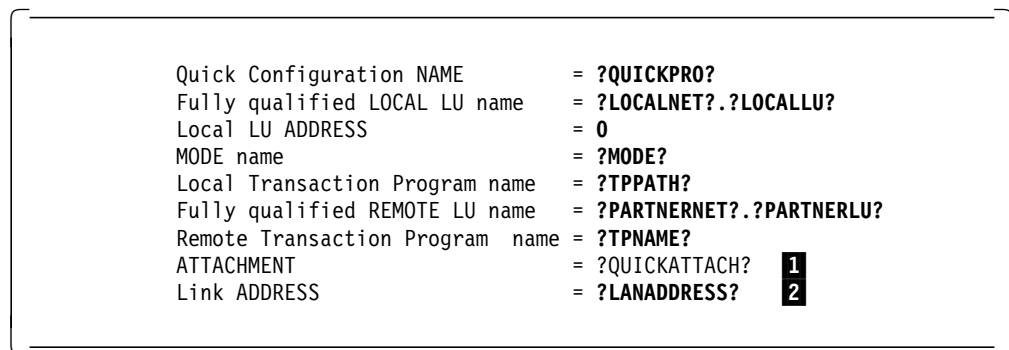
### 2.5.2 Quick Configuration

1. From within SMIT, follow these panels:

```
-- Communications Applications and Services
--SNA Services
  --Configure SNA Profiles
    --Quickly Configure an LU 6.2 Connection
```

2. Enter a 1 to 12-character name (this is the value you filled in for the **?QUICKPRO?** symbol in the worksheet). All profiles created during this quick configuration will contain this name.
3. Specify “no” when asked if you wish to configure to an existing network attachment.
4. Select a default network attachment type: “token\_ring\_listen” if your partner will initiate the conversation, “token\_ring\_call” if you will be initiating the conversation. To allow both actions, you will need to add another attachment profile after quick configuration, or follow the non-quick configuration instructions below.

The following figure shows the Quick Configuration panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.



```
Quick Configuration NAME      = ?QUICKPRO?
Fully qualified LOCAL LU name = ?LOCALNET?.?LOCALLU?
Local LU ADDRESS              = 0
MODE name                     = ?MODE?
Local Transaction Program name = ?TPPATH?
Fully qualified REMOTE LU name = ?PARTNERNET?.?PARTNERLU?
Remote Transaction Program name = ?TPNAME?
ATTACHMENT                    = ?QUICKATTACH? 1
Link ADDRESS                   = ?LANADDRESS? 2
```

Figure 3. Quick Configuration Panel

#### Notes:

- 1 The value of the *ATTACHMENT* field is already fixed when this panel is displayed.
- 2 The field *Link Address* only appears if this configuration is based on a call attachment.



5. You should now have a connection to a partner properly configured. Skip to 2.6, "Running APING" on page 25. The following descriptions for adding profiles can be used to understand the profiles that were created by quick configuration, and to expand the configuration (by adding transaction program profiles, mode profiles, and more connection profiles that reference the profiles already created by quick configuration).

## 2.5.3 Define Yourself to the Network

### 2.5.3.1 Create Control Point Profile

A control point must be defined to run APPC on SNA Services. This definition is done by adding a control point profile.

From within SMIT, the control point profile can be accessed by following this series of panels:

```
--Nodes
  --Control Point
```

The following figure shows the Control Point Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

PROFILE name	=	?CPPRO?	
XID node ID	=	00000000	<b>1</b>
NETWORK name	=	?LOCALNET?	
CONTROL POINT name	=	?LOCALCP?	

Figure 4. Control Point Profile Panel

#### Note:

**1** It is recommended that you do not use an XID node ID for identification of the workstation on a switched host connection but instead use the CP name. See Appendix A, "Using Node IDs in VTAM" on page 153 for a discussion of whether you should define an XID node ID, and if so, what value to use here.

### 2.5.3.2 Create a Local LU 6.2 Profile

The local LU 6.2 profile must also be added. Its definition follows.

From within SMIT, this can be accessed via:

```
--Logical Units
  --LU 6.2
    --LU 6.2 Local Logical Unit
```

The following figure shows the Control Point Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

PROFILE name	=	?LUPRO?
TPN LIST profile name	=	?TPNLISTPRO?
NETWORK name	=	?LOCALNET?
Local LU NAME	=	?LOCALLU?
INDEPENDENT LU?	=	yes
Local LU ADDRESS	=	1
SSCP ID	=	*

Figure 5. Local LU 6.2 Profile Panel

## 2.5.4 Define a Link to a Partner or Network Node

Next, the partner LU and link need to be defined in order for a connection to the partner LU to be established. There are two types of links that can be defined. One type of link allows this machine to initiate a connection to the partner computer. This link is called a *call attachment*. The other allows the partner computer to initiate a connection with the local computer. This link is called a *listen attachment*. Both attachments must be defined if both partner and local computers wish to be able to initiate a connection. The listen attachment must be started before the partner attempts to activate the link. Instruction on starting the link can be found in 2.4.3, "Starting and Stopping APPC" on page 15.

### 2.5.4.1 Create a Token-Ring Attachment Profile (Listen or Incoming)

From within SMIT, the token-ring attachment profile can be accessed by following this series of panels:

```
--Physical Units
  --Token Ring
    --Token Ring Attachment
```

The following figure shows the Listen (Incoming) Attachment Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

```

PROFILE name                = ?LISTATTACHPRO?
CONTROL POINT profile name  = ?CPPRO?
LOGICAL LINK profile name   = TDEFAULT
PHYSICAL LINK profile name  = TDEFAULT
STOP ATTACHMENT on inactivity? = no
inactivity TIMEOUT         = 0
LU address REGISTRATION     = no
REGISTRATION PROFILE name   = LDEFAULT
CALL type                   = listen
AUTO-LISTEN?                = yes
MINIMUM SAP address         = 04
MAXIMUM SAP address         = EC
ACCESS ROUTING               = link_name
REMOTE LINK name            =
Remote LINK address         = 000000000000
Remote SAP address          = 04

```

Figure 6. Token-Ring Attachment Profile Panel (Listen or Incoming)

### 2.5.4.2 Create a Token-Ring Attachment Profile (Call or Outgoing)

The following figure shows the Call (Outgoing) Attachment Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

```

Token Ring Attachment profile (CALL)
PROFILE_name                = ?CALLATTACHPRO?
CONTROL POINT profile name  = ?CPPRO?
LOGICAL LINK profile name   = TDEFAULT
PHYSICAL LINK profile name  = TDEFAULT
STOP ATTACHMENT on inactivity? = no
inactivity TIMEOUT         = 0
LU address REGISTRATION     = no
REGISTRATION PROFILE name   = LDEFAULT
CALL type                   = call
AUTO-LISTEN?                = no
MINIMUM SAP address         = 04
MAXIMUM SAP address         = EC
ACCESS ROUTING               = link_address
REMOTE LINK name            =
Remote LINK address         = ?LANADDRESS?
Remote SAP address          = 04

```

Figure 7. Token-Ring Attachment Profile Panel (Call or Outgoing)

### 2.5.4.3 Define Logical Connections

The connection profile specifies the attachment profile to be used to activate the partner, the partner LU name, and the remote transaction program (RTP) name list. Again, in order to act as both client and server, separate connection profiles must be defined.

From within SMIT, the logical connection profiles can be accessed by following this series of panels:

--Logical Units  
--LU 6.2  
--LU 6.2 Logical Connection

**Create Logical Connection Profile (Call):** The following figure shows the Call Logical Connection Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

PROFILE name	= ?CALLCONNPRO?
ATTACHMENT profile name	= ?CALLATTACHPRO?
LOCAL LU profile name	= ?LUPRO?
NETWORK name	= ?PARTNERNET?
STOP CONNECTION on inactivity?	= no
TIMEOUT	= 0
REMOTE LU name	= ?PARTNERLU?
SECURITY Accepted	= <b>conversation</b>
CONVERSATION SECURITY ACCESS LIST profile	= CONVDEFAULT
REMOTE TPN LIST profile name	= ?RTPLISTPRO?
MODE LIST profile name	= ?MODELISTPRO?
INTERFACE type	= extended
SESSION CONCURRENCY	= <b>parallel</b>
Node VERIFICATION?	= no

Figure 8. Logical Connection Profile (Call) Panel

#### 2.5.4.4 Create Logical Connection Profile (Listen)

The following figure shows the Listen Logical Connection Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

PROFILE name	= ?LISTCONNPRO?
ATTACHMENT profile name	= ?LISTATTACHPRO?
LOCAL LU profile name	= ?LUPRO?
NETWORK name	= ?PARTNERNET?
STOP CONNECTION on inactivity?	= no
TIMEOUT	= 0
REMOTE LU name	= ?PARTNERLU?
SECURITY Accepted	= conversation
CONVERSATION SECURITY ACCESS LIST profile	= CONVDEFAULT
REMOTE TPN LIST profile name	= ?RTPLISTPRO?
MODE LIST profile name	= ?MODELISTPRO?
INTERFACE type	= extended
SESSION CONCURRENCY	= <b>parallel</b>
Node VERIFICATION?	= no

Figure 9. Logical Connection Profile (Listen) Panel

## 2.5.5 Configure to Run as a Client

To run as a client, the following information needs to be configured:

- The modes to be used (unless using the predefined modes already provided with the product)
- The names of the transaction programs to run on the target machines
- Optionally, CPI-C side information

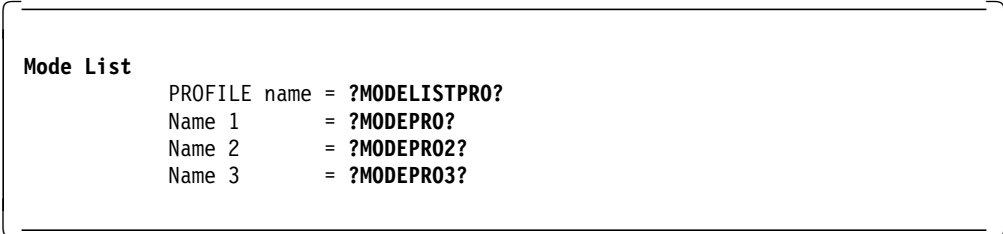
### 2.5.5.1 Define the Mode List

The mode list contains the names of the mode profiles that can be used by a transaction program.

From within SMIT, the mode profile list can be accessed by following this series of panels:

```
--Logical Units
--LU 6.2
--LU 6.2 Mode List
```

The following figure shows the Mode List Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You can add more than one profile to this list.



```
Mode List
PROFILE name = ?MODELISTPRO?
Name 1       = ?MODEPRO?
Name 2       = ?MODEPRO2?
Name 3       = ?MODEPRO3?
```

Figure 10. Mode List Panel

### 2.5.5.2 Create the Remote TP Name Profile

The remote TP name profile specifies a transaction program that will be run on the partner machine. A remote TP name list is then created to collect a set of remote TP name profiles. Neither the remote TP name profiles nor the remote TP name list needs to be created if this machine will only be running as a server.

From within SMIT, the remote TP name profile can be accessed by following this series of panels:

```
--Logical Units
--LU 6.2
--LU 6.2 Remote Transaction Program Name
```

The following figure shows the Remote TP Name Profile panel. Replace the symbols (the words beginning and ending with question marks) with the

corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

<b>Remote TP Name profile</b>		
PROFILE name	=	?RTPNAMEPRO?
RTPN name is in HEXADECIMAL?	=	no
RTPN name	=	?TPNAME?
PIP data?	=	no
CONVERSATION type	=	mapped
RECOVERY level	=	no_reconnect
SYNC level	=	confirm

Figure 11. Remote TP Name Profile Panel

### 2.5.5.3 Create Remote TP Name List Profile

From within SMIT, the remote TP name list profile can be accessed by following this series of panels:

```
--Logical Units
--LU 6.2
--LU 6.2 Remote Transaction Program Name List
```

The following figure shows the Remote TP Name List Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

PROFILE name	=	?RTPLISTPRO?
Name 1	=	?RTPNAMEPRO?

Figure 12. Remote TP Name List Profile Panel

**Note:** More remote transaction programs can be configured by creating more remote transaction name profiles and adding them to this list.

### 2.5.5.4 Defining CPI-C Side Information

Some applications, such as APING, do not require CPI-C side information. These applications use programming calls available on a particular platform to dynamically create side information when running. SNA Services/6000 provides the programming calls that allow APING (and other applications) to do this dynamic definition, so you do not need to create this side information profile for APING. For those applications that require CPI-C side information, this is how to create a profile:

From within SMIT, the CPI-C Side Information panel can be accessed by following this series of panels:

```
--Logical Units
--LU 6.2
--LU 6.2 CPI-Communications Side Information
```

The following figure shows the CPIC-C Side Information panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

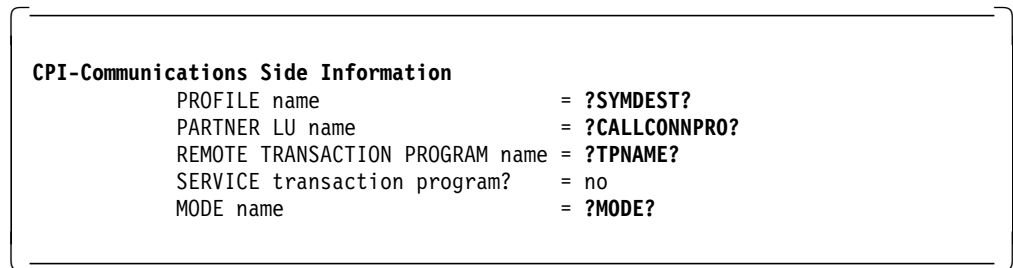


Figure 13. CPI-C Side Information

## 2.5.6 Configure to Run as a Server

### 2.5.6.1 Define Local Transaction Programs

To run AIX as a server, you must define the transaction programs (TPs) on your machine with which a client can start a conversation. For each TP, you must define a TP profile, and then you need to create a TP name list profile that lists the TP profiles you have defined. This TP name list profile will then be referenced in the definition of a connection. (If you will not be running this machine as a server, you do not need to create either the transaction program name profile or the transaction program name list profile.)

### 2.5.6.2 Create Transaction Program Name

From within SMIT, the Transaction Program Name Profile panel can be accessed by following this series of panels:

```
--Logical Units
--LU 6.2
--LU 6.2 Transaction Program Name
```

The following figure shows the Transaction Program Name Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

```

PROFILE name = ?TPNAMEPRO?
Transaction program name is in HEXADECIMAL? = no
TRANSACTION program name = ?TPNAME?
PIP data? = no
SUBFIELDS = 0
CONVERSATION type = mapped
RECOVERY level = no_reconnect
SYNC level = confirm
Full PATH to TPN executable = ?TPPATH?
MULTIPLE INSTANCES supported? = yes
User ID = 100
SERVER synonym name = TDEFAULT
RESTART action = once
COMMUNICATION type = signals
IPC queue key = 0
Standard INPUT file/device = /dev/null
Standard OUTPUT file/device = /dev/console
Standard ERROR file/device = /dev/console
SECURITY Required = none
communication_ipc_queue_key = 0
RESOURCE SECURITY ACCESS LIST profile = RSRCDEFAULT

```

Figure 14. TP Name Profile Panel

### 2.5.6.3 Create Transaction Program Name List

From within SMIT, the TP Name List Profile panel can be accessed by following this series of panels:

```

--Logical Units
  --LU 6.2
    --LU 6.2 Transaction Program Name List

```

The following figure shows the TP Name List panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

```

TP Name List
  PROFILE name = ?TPNLISTPRO?
  Name 1 = ?TPNAMEPRO?

```

Figure 15. Transaction Program Name List

**Note:** You can define more transaction programs to be run between two machines by adding more TP name profiles and adding them to this TP name list.



---

## 2.6 Running APING

Execute APING to contact the partner LU defined by the outgoing connection, ?CALLCONNPRO?, by typing:

```
aping -n ?CALLCONNPRO?
```

with the APING executable being located in a directory in the system's PATH (for example, /local/appctps). If you ran quick configuration to generate your profiles, the value to use for ?CALLCONNPRO? is the same value used to name your quick configuration, ?QUICKPRO?.

You can alternatively specify the CPI-C symbolic destination name:

```
aping -n ?SYMDEST?
```

Once an incoming session is established, the RS/6000\* can communicate with this caller only on this session (and not on a new outgoing call). This problem will be fixed in a later release. Thus, if an incoming session is already established, you would not specify ?CALLCONNPRO? as the target. You would specify the listen connection, ?LISTCONNPRO?.

---

## 2.7 How to Find...

- LU name

The LU name is specified in a local LU 6.2 profile as the "Local LU NAME" parameter. To find out which local LU 6.2 profile to look at, see the listen logical connection profile parameter "LOCAL LU profile name." There may be many logical connection profiles. The one to use is the one that specifies as its "attachment profile name" the same token-ring attachment profile used in the startsrc command that starts the listen attachment.

For example, in the configuration recommended above, the token-ring attachment profile specified in the startsrc command is LISTEN. The logical connection profile that specifies LISTEN as its "attachment profile name" is called ?CALLCONNPRO?. The "local LU profile name" in the ?CALLCONNPRO? logical connection profile is ?LUPRO?. Therefore, the LU name is the value specified as the "Local LU NAME" parameter of the ?LUPRO? Local LU 6.2 profile.

- Net ID

See the discussion for how to find the local LU name. The net ID is also specified in the local LU 6.2 profile, as the "NETWORK name" parameter.

- Control point (CP) name

The CP name is specified in the control point profile as the "CONTROL POINT name." The actual control point profile being used is specified in the attachment profiles as the "CONTROL POINT profile name."

- LAN address

The LAN address is hard-coded on the token-ring adapter in the AIX machine or is overridden by a value called the "locally administered LAN address." It is a 12-digit hexadecimal value. You can find the LAN address by running the command `lscfg -v`. The LAN address is specified by the Network Address parameter under the tok0 resource. This parameter will specify the locally administered address if there is one.



---

## Chapter 3. AIX SNA Server/6000 Configuration

This chapter explains how to configure AIX SNA Server/6000. AIX SNA Server/6000 is IBM's implementation of APPN for AIX. Version 2.1 supports APPN network nodes, end nodes, and LEN nodes (see 1.3.7, "What Is APPN?" on page 6 for a discussion of SNA node types). The machine to be configured must have AIX Version 3.2 and SNA Server Version 2.1 installed. To check the level of SNA Server you have installed, use the command:

```
lslpp -h sna.sna.obj
```

The result should contain four numbers similar to this:

```
01.03.0000.0000
```

The first 0000 contains a number identifying the year in which this level was made available (0093 is equivalent to 1993). The last 0000 represents the week of the year (0115 is equivalent to the 11th week, 5th build of that week).

This document describes all of the profiles that need to be created to configure an AIX machine to run APING to another machine. You may leave a few profiles out if you don't plan to run this AIX machine as a server; these will be noted.

---

### 3.1 Prerequisites

- AIX V3.2
- AIX SNA Server/6000 V2.1
- Token-ring adapter

For more detailed configuration information, refer to the following publications:

- *AIX SNA Server/6000: User's Guide*, SC31-7002-01
- *AIX SNA Server/6000: Configuration Reference*, SC31-7014-01

---

### 3.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by SNA Server/6000.

<b>Standard Term</b>	<b>AIX SNA Server/6000 Term</b>
Link name	Link station profile name
Net ID	Network name
LU name	Local LU name
Partner LU Name	Partner LU name
LAN address	Link address
Adjacent LAN address	Remote link address

---

### 3.3 SNA Server/6000 Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following the recommendations in the worksheet, you will write #INTER in the right column on the ?MODE? line. Then in Figure 19 on page 34 you will type #INTER in the MODE name field to replace '?MODE?' like this:

---

Profile name	= "?SYMDEST?"
Local LU or Control Point alias	= ""
Partner LU alias	= ""
Fully qualified partner LU name	= "?PARTNERNET?.?PARTNERLU?"
Mode name	= "?MODE?"
Remote transaction program name (RTPN)	= "?TPNAME?"
RTPN in hexadecimal	= no
Comments	= ""

---

Figure 16. CPI-C Side Information

**Note:** In the following chart and throughout this chapter, all of the values entered are case sensitive. So if you enter a particular value in lowercase in one place, remember to enter the same value in lowercase when it appears again.

Table 4 (Page 1 of 2). AIX SNA Server/6000 Configuration Worksheet

Symbol	How to determine the value for this symbol	Fill in value here
<b>Values that must match with other places</b>		
?LOCALLU?	This is the symbol that refers to a LU name in the machine you are defining to the network. It is a 1 to 8 character field consisting of uppercase alphanumeric characters which represent an LU name in the node. Choose a name that is unique within the same network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information about LU names. A local LU name is not necessary for communicating with other nodes in the network. The local CP name may function as the default LU name, in which case you do not need a local LU name defined.	
?LOCALCP?	This is the symbol that refers to the control point (CP) name of your machine. It must be unique in the network. The local CP name may be used as the local LU for establishing sessions with remote stations. If sessions with local LUs besides the local CP are desired, then a local LU name must be defined. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.	
?LOCALNET?	This is the symbol that refers to the net ID of the machine you are defining to the network. While it can be any 1 to 8-character field consisting of uppercase alphanumeric characters, there is a structured format that can be followed to ensure uniqueness of the network name around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs.	
?PARTNERLU?	This is the symbol for the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.	
?PARTNERNET?	This is the symbol for the net ID of the partner computer. Use the network name from the partner computer's "How to Find..." section. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner net ID.	
?LANADDRESS?	This is the symbol for the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node). Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.	
?TPNAME?	This is the symbol for the transaction program name. This is the name of the transaction program at the partner computer. It is 1-64 bytes long, and it is case sensitive. For APING, the TP name on the server is <b>APINGD</b> .	
?TPPATH?	This is the symbol for the fully specified path and file name of the executable code for a server transaction program located on your machine. For APINGD, this may be: <b>/local/sna/apingd</b> .	

Table 4 (Page 2 of 2). AIX SNA Server/6000 Configuration Worksheet

<b>Symbol</b>	<b>How to determine the value for this symbol</b>	<b>Fill in value here</b>
?MODE?	This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section.	
<b>Local values</b>		
?SYMDEST?	This is the symbol for the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It will be used locally on the AIX machine to refer to a side information profile. See 1.3.5, "What Is CPI-C Side Information?" on page 5 for more information on side information.	
?LUPRO?	The symbol for the name of the local logical unit 6.2 profile. Suggested profile name: <b>LUPRO</b>	
The following are the names of the profiles that must be configured. The profile names must be 1 to 14 characters long (unless otherwise indicated). The profile names are referenced only on the machine you are configuring, and do not need to match any values on other machines. Some suggestions for profile names are provided.		
?CALLSPRO?	The symbol for the name of the outgoing (call) link station profile. Suggested profile name: <b>CALLS</b>  <b>Note:</b> The link station profile names are only 1-8 characters long.	
?TPNAMEPRO?	The symbol for the name of the local transaction program name profile. Suggested profile name: If the value for ?TPNAME? is less than 12 characters long, use the value for ?TPNAME? followed by "PRO," for example <b>APINGDPRO</b> . Otherwise, make up a profile name that is 1-14 characters long. If you will not be running this machine as a server, you do not need to configure any local transaction program names, and will therefore not need this value.	

### 3.4 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

SNA Server/6000 stores its configuration information within encoded profiles that are accessed using the system management interface tool (SMIT). SMIT presents panels on which you enter your configuration values.

**Note:** All of the values used in AIX SNA Server/6000 are case sensitive, so be sure to always enter profile names and other configuration values in the same case throughout the SMIT panels.

Within SMIT, SNA Server/6000 configuration panels can be accessed by selecting the following series of panels:

```
--Communications Applications
  --SNA Server/6000
    --Configure SNA Profiles
```

All other panels referenced in this section are accessed from this base level within SMIT.

You must have the base configuration of AIX SNA Server/6000 installed and have “system group” access to the system before you can start the SNA subsystem. You need “system group” authority to make the changes described in this document. See the document *AIX SNA Server/6000: User's Guide*, SC31-7002-01, for more information on SNA Server/6000 installation.

This chapter describes a basic configuration that allows both an outgoing and incoming APING operation to be performed and describes how to configure a workstation that is attached to a token-ring LAN. A token-ring DLC must already exist on the system. Other DLCs will require link station profile definitions that would replace the token-ring link station profile described below.

You need to define:

1. A control point profile
2. A token-ring link station profile
3. A token-ring SNA DLC profile
4. A TP name profile (if configured as the server)

These profiles are optional:

1. A local LU (6.2) profile
2. A side information profile

### 3.4.1 Verifying Configuration

Once the profiles are created, they must be verified using either the command `verifysna`, or in SMIT by following this hierarchy of panels:

```
--Advanced SNA Configuration
  --Verify Configuration Profiles
```

Before profiles can be used by SNA and APPC, they must be verified with the update option (either normal or dynamic, depending upon whether SNA is running). Verification ensures that changes are correct and that no profiles are in conflict with each other. Profile additions, changes, or deletions will not take effect until the profile database is verified and updated.

## 3.4.2 Starting and Stopping APPC

APPC is part of the AIX SNA Server/6000 subsystem. You can use the following command to test the status of the SNA subsystem:

```
sna -display global
```

or, for short:

```
sna -d g
```

If the SNA subsystem is not started, it can be started with the command:

```
sna -start sna
```

or, for short:

```
sna -s
```

SNA Server/6000 can be configured to accept incoming link activation requests from remote stations automatically without the need for additional “listening” link station profiles. (These “listening” link station profiles were required in SNA Services/6000 V1.2.) This function, known as dynamic link station support, is configured by default.

To stop the SNA subsystem, execute this command:

```
sna -stop sna
```

---

## 3.5 Configuration

### 3.5.1 Starting from Scratch

If you would like to set your SNA configuration to its default values, run these commands:

```
rm -fr /etc/objrepos/sna/*  
/usr/lpp/sna/bin/mksnadb
```

To use these command, you need “root” authority.

### 3.5.2 Define Yourself to the Network

#### 3.5.2.1 Initial Node Setup

SNA Server/6000 has one control point profile, **node\_cp**, which is used to identify the local node to the network. You must complete the control point profile before you can start SNA and use APPC. Configuration of this profile is handled through initial node setup. The initial node setup function also allows you to configure a single link station to provide a link to one remote station. This gives the user a single entry point to define the minimum amount of information for SNA Server/6000 to operate.

From within SMIT, initial node setup can be accessed on this panel:

```
--Initial Node Setup
```



Figure 17 on page 33 and Figure 18 on page 33 show the panels that will display using initial node setup. The first panel requires you to select the primary link type you will use for this configuration. You will select **token\_ring** for this example. Be sure to select the appropriate identifier if the link type you plan to use is not for a token-ring network. The second panel requests the information necessary to configure the control point, link station, and SNA DLC profiles. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

```

Choose the DLC type you wish this configuration to represent.      token_ring

```

Figure 17. Initial Node Setup: DLC Type

```

Control Point name      = ?LOCALCP?
Control Point type     = appn_end node      1
Local network name     = ?LOCALNET?
XID node ID            = *                  2

Optional link station information:

Link station type      = token_ring
Link station name     = ?CALLSPRO?
Calling link station? = yes
Link address           = ?LANADDRESS?

```

Figure 18. Initial Node Setup: Information

**Notes:**

**1** By default, your machine is configured as an APPN end node. Change this value only if you are certain that you are to function as an APPN network node.

**2** It is not recommended that you use an XID node ID for configuration. See Appendix A, “Using Node IDs in VTAM” on page 153 for a discussion of whether you should, and if so, what value to use here.

### 3.5.3 Configure to Run as a Client

To configure as a client, the following information needs to be configured:

- The modes to be used (unless using predefined modes already provided with the product)
- Optionally, local LU or side information

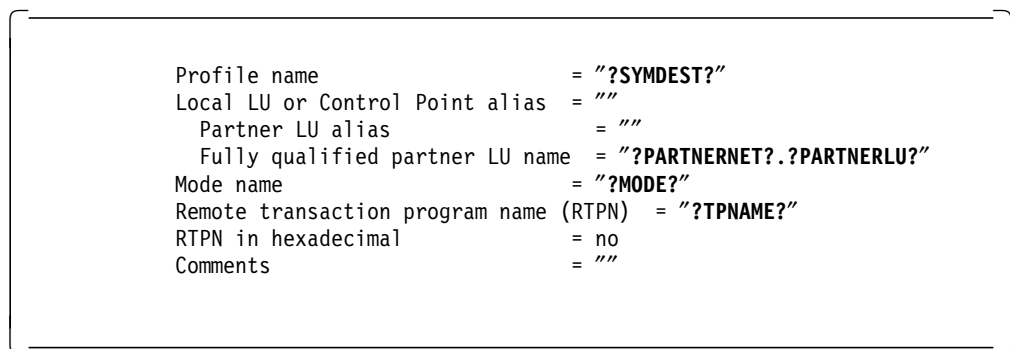
### 3.5.3.1 Defining Side Information

Some applications, such as APING, do not require side information. These applications use programming calls available on a particular platform to dynamically create side information when running. SNA Server/6000 provides the programming calls that allow APING (and other applications) to do this dynamic definition, so you do not need to create a side information profile for APING. For those applications that require side information, this is how to create a profile:

From within SMIT, the Side Information panel can be accessed by following this series of panels:

```
--Advanced Configuration
  --Sessions
    --LU 6.2
      --LU 6.2 Side Information
```

The following figure shows the Side Information panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.



```
Profile name                = "?SYMDEST?"
Local LU or Control Point alias = ""
  Partner LU alias          = ""
  Fully qualified partner LU name = "?PARTNET?.?PARTNERLU?"
Mode name                   = "?MODE?"
Remote transaction program name (RTPN) = "?TPNAME?"
RTPN in hexadecimal        = no
Comments                    = ""
```

Figure 19. Side Information Panel

### 3.5.3.2 Create a Local LU 6.2 Profile

You can also add the local LU 6.2 profile if you plan to use a local LU name that is different from the local CP name. If you create a local LU name using a LU 6.2 local LU profile, then the local LU alias field in that profile must be specified in the "Local LU or Control Point alias" field in the side information profile. If no local LU alias is specified in the side information profile, or side information is not used with **APING**, the local CP name will be used as the local LU by default.

The local LU name definition follows.

From within SMIT, this can be accessed via:

```
--Advanced Configuration
  --Sessions
    --LU 6.2
      --LU 6.2 Local LU
```

The following figure shows the Local LU Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet.

Profile name	= ?LUPRO?
Local LU name	= ?LOCALLU?
Local LU alias	= ?LOCALLU?
Local LU is dependent?	= no
If yes,	
Local LU address	= 1
SSCP ID	= *
Link Station Profile name	= ""
Conversation Security Access List Profile name	= ""

Figure 20. Local LU 6.2 Profile Panel

## 3.5.4 Configure to Run as a Server

### 3.5.4.1 Define Local Transaction Programs

To run AIX as a server, you must define the transaction programs (TPs) on your machine with which a client can start a conversation. For each TP, you must define a TP profile (if you will not be running this machine as a server, you do not need to create the transaction program name profile).

### 3.5.4.2 Create Transaction Program Name Profile

From within SMIT, the Transaction Program Name Profile panel can be accessed by following this series of panels:

```
--Advanced Configuration
--Sessions
--LU 6.2
--LU 6.2 Transaction Program Name
```

The following figure shows the Transaction Program Name Profile panel. Replace the symbols (the words beginning and ending with question marks) with the corresponding values from the configuration worksheet. You will also need to change any other values that are highlighted.

```

Profile name                = ?TPNAMEPRO?
Transaction program name    = ?TPNAME?
Transaction program name is in hexadecimal? = no
PIP data?                   = no
    If yes, subfields       = 0
Conversation type           = mapped
Sync level                  = confirm
Resource security level     = none
    If access, Resource Security Access List Prof. =
Full PATH to TPN executable = ?TPPATH?
Multiple instances supported? = yes
User ID                     = 100
Server synonym name        =
Restart action              = once
Communication type         = signals
    If IPC, Communication IPC queue key = 0
Standard input file/device  = /dev/null
Standard output file/device = /dev/console
Standard error file/device  = /dev/console

```

Figure 21. TP Name Profile Panel

---

### 3.6 Running APING

You can specify the CPI-C side information symbolic destination name on the APING command like this:

```
aping -n ?SYMDEST?
```

or, you can supply the fully qualified LU name of the partner like this:

```
aping ?PARTNERNET?.?PARTNERLU?
```

---

### 3.7 How to Find...

- LU name

The LU name is specified in a local LU 6.2 profile as the “Local LU name” parameter.

- Net ID

The net ID is specified in the control point profile, **node\_cp** as the “Local network name” parameter.

- Control point (CP) name

The CP name is specified in the control point profile **node\_cp** as the “Control Point name” parameter.

- LAN address

The LAN address is hard-coded on the token-ring adapter in the AIX machine or is overridden by a value called the “locally administered” LAN address. It is a 12-digit hexadecimal value. You can find the LAN address by running the command `lscfg -v`. The LAN address is specified by the network address parameter under the tok0 resource. This parameter will specify the locally administered address if there is one.

---

## Chapter 4. AS/400 Configuration

This chapter describes configuration for APPC on AS/400. The chapter uses a step-by-step methodology to describe how to configure APPC communications on the AS/400 with an IBM token-ring adapter connection to the network.

---

### 4.1 Prerequisites

- APPC/APPN support is part of the OS/400 operating system of AS/400.
- Token-ring adapter.

For more information refer to the following publications:

- *AS/400 Programming: Command Reference Summary*, SC21-8076
- *AS/400 Programming: Control Language Reference*, SC41-0030
- *AS/400 Communications: APPC Programmer's Guide*, SC41-8189
- *AS/400 Communications: APPN Guide*, SC41-8188

---

### 4.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by the AS/400.

<i>Table 5. AS/400 Terminology</i>	
<b>Standard Term</b>	<b>AS/400 Term</b>
Net ID	Remote network identifier
LU name	Local location
CP name	Local control point name
Partner LU name	Remote location
Local LAN address	Local adapter address
Adjacent LAN address	LAN remote adapter address

---

### 4.3 AS/400 APPC Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following our recommendations, you will write #INTER in the right column on the ?MODE? line. Then in Figure 27 on page 45 you will type #INTER on the AS/400 screen that looks like this:

Modename ==> #INTER

<i>Table 6 (Page 1 of 2). AS/400 Configuration Worksheet</i>		
<b>Symbol</b>	<b>How to determine the value for this symbol</b>	<b>Fill in value here</b>
<b>Values that much match with other places</b>		
?LOCALLU?	This is the symbol that refers to the LU name of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters which is the LU name of the node. Choose a name that is unique within the same network name. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names.	
?LOCALCP?	This is the symbol that refers to the control point name of your machine. It should be the same as your ?LOCALLU?. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.	
?LOCALNET?	This is the symbol that refers to the net ID of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code and a network suffix. This format ensures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs.	
?PARTNERLU?	This is the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.	
?PARTNERCP?	This is the control point (CP) name of your partner. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.	
?PARTNERNET?	This is the symbol for the net ID of the partner computer. Use the net ID from the partner computer's "How to Find..." section. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner net ID.	
?LANADDRESS?	This is the symbol for the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node). Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.	
?TPNAME?	This is the symbol for the transaction program name. This is the name of the transaction program at the partner computer. For APING, the TP name on the server is <b>APINGD</b> .	

Table 6 (Page 2 of 2). AS/400 Configuration Worksheet

<b>Symbol</b>	<b>How to determine the value for this symbol</b>	<b>Fill in value here</b>
?MODE?	This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section.	
?NODEID?	This is the symbol for the node identifier. Refer to 1.3.10, "What Is a Node Identifier?" on page 7 for information on whether or not you need this value, and if so, how to define it. If you do use the node identification, the required IDBLOCK value (the first part of the node ID) on this platform is <b>056</b> .	
<b>Local values</b>		
?CONTRNAME?	This is the symbol for the controller description name. 1 to 10 letters or numbers will be used as a local name on the AS/400 machine to refer to the controller description. You can choose any name you like, but since you will use this name later to refer to this controller, choose a meaningful name (such as PARTNERCP).	
?DEVNAME?	This is the symbol for the device description name. 1 to 10 letters or numbers will be used as a local name on the AS/400 machine to refer to the device description. You can choose any name you like, but choose a meaningful name (such as PARTNERLU). Note: These device descriptions are automatically created for APPN(*YES) controllers.	
?NODETYPE?	This is the symbol for your AS/400's APPN node type. This can be *ENDNODE to be configured as an end node, or *NETNODE to be configured as a network node.	
?LINENAME?	This is the symbol for the line description name. 1 to 10 letters or numbers which will be used as a local name on the AS/400 machine to refer to the line description. You can choose any name you like, but since you will use this name later to refer to this controller, choose a meaningful name (such as TRLANXX, where XX is the LAN adapter number)	
?RESNAME?	This is the symbol for the resource name. You can use the command "WRKHDWRSC" to find out the resource name of the adapter you are using.  WRKHDWRSC TYPE(*CMN)	
?PLUALIAS?	This is the symbol for the partner LU alias. 1 to 8 characters that designate a nickname for the partner LU. Alias names are case sensitive. (Suggestion: PARTLU0)	
?SYMDEST?	This is the symbol for the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It will be used locally on the AS/400 machine to refer to a CPI-C side information entry. (Suggestion: PLUALIAS)	

---

## 4.4 Working with AS/400

### 4.4.1 Starting/Stopping APPC

Before you can start APPC, the line description which is being used for communications must be activated.

You can start and stop a line description by using the VRYCFG command. To activate or start a line between two systems type the following from the command entry (CL commands):

```
VRYCFG CFGOBJ(?LINENAME?) CFGTYPE(*LIN) STATUS(*ON)
```

To stop a link type the following from the command entry:

```
VRYCFG CFGOBJ(?LINENAME?) CFGTYPE(*LIN) STATUS(*OFF)
```

You can start and stop an APPC controller by several methods:

- VRYCFG command
- Following menu panels
- WRKCFGSTS command
- VRYCFG

The VRYCFG command can be used to activate and deactivate a controller, or link. To activate or start a link between two systems, type the following from the command entry (CL commands):

```
VRYCFG CFGOBJ(?CONTRNAME?) CFGTYPE(*CTL) STATUS(*ON)
```

To stop a link type the following from the command entry:

```
VRYCFG CFGOBJ(?CONTRNAME?) CFGTYPE(*CTL) STATUS(*OFF)
```

- Menu panels

To activate or start a link between two systems using menu commands, follow this sequence:

```
-- AS/400 Main panel
-- 7. Define or change the system
-- 1. Configuration
-- 1. Configure devices and communication
-- 2. Configure communications and remote hardware
-- 1. Work with communications controllers
-- 8. next to desired ?CONTRNAME? entry.
-- 1. or 2. for Vary on or Vary off
```

- WRKCFGSTS

The WRKCFGSTS command can be used to activate and deactivate a controller, or link. To activate or start a link between two systems type the following from the command entry (CL commands):

```
WRKCFGSTS (*CTL)
```

Type 1 to vary on and type 2 to vary off the desired controller or device description.



## 4.4.2 Other Commands

- APING.DOC - refer to the APING documentation for information on how to compile the APING and other programs on the AS/400.

---

## 4.5 Configuration

### 4.5.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

When using AS/400 APPC configuration commands, you can enter the commands in one of three ways:

- Using the command prompt: Enter the command and press PF4 (Prompt).
- Using direct entry: Enter the command and its parameters following the syntax described in the *CL Reference*.
- Proceed through a series of menu-driven panels.

### 4.5.2 Define Yourself to the Network

1. To communicate within an APPN network you must have an LU name. During the AS/400 installation process, at least one LU name was configured. Your local LU is displayed on the Display Network Attributes panel. You can view this display either by using the DSPNETA command, or by following this sequence of panels:

```
-- AS/400 Main panel
-- 7. Define or change the system
-- 1. Configuration
-- 4. Network management
-- 1. Display network attributes
```

You will see a panel similar to Figure 22 on page 42.

```

                                Display Network Attributes
                                System:
Current system name . . . . . >
  Pending system name . . . . . >
Local network ID . . . . . > ?LOCALNET?
Local control point name . . . . . > ?LOCALCP?
Default local location . . . . . > ?LOCALLU?
Default mode . . . . . > BLANK
APPN node type . . . . . > ?NODETYPE?
Maximum number of intermediate sessions . . . . . > 200
Route addition resistance . . . . . > 128
Server network ID/control point name . . . . . >

```

Figure 22. Display Network Attributes. This screen displays the configured network attributes.

If you wish to change the network attributes, use the command CHGNETA command or follow this panel sequence:

- AS/400 Main panel
- 7. Define or change the system
- 1. Configuration
- 4. Network management
- 2. Change network attributes

2. For APPC on the AS/400, an entry called a communications entry must be created in a subsystem to handle APPC program evoke (or allocate) requests. To check to see if the communications entry has already been defined:
  - a. Type WRKSBS.
  - b. Type 5 in the blank next to your communications subsystem (for example, QCMN).
  - c. Type 8 to view communications entries or type 9 to view remote location entry.

If there is not a communications entry for device APPC, you must add one. To add a communications entry, the communications subsystem must be stopped. To stop the subsystem, use the following commands:

- Type WRKSBS
- Type 4 to end the subsystem

For further information, see the *AS/400 Operators Guide*. To add a Communications Entry for device APPC, type the CL command ADDCMNE.

```

          ADDCMNE
Subsystem Description ..... > QCMN
  Library ..... > *LIBL
Device ..... > APPC
Remote Location ..... >
Job Description ..... > QDFTJOB
  Library ..... >
Default User Profile ..... > QUSER
Mode ..... > *ANY
Maximum active jobs ..... > *NOMAX

```

Figure 23. Add Communications Entry. This screen displays the add communications entry parameters.

The subsystem must be stopped and restarted for the communications entry to be added.

### 4.5.3 Define a Link to a Partner or Network Node

There are three “descriptions” used for APPC communications on the AS/400. These are:

- Line description

The line description describes the physical line connection to be used between the AS/400 and the network.

- Controller description

The controller description is used to describe all the characteristics of a link to an adjacent computer.

- Device description

The device description is used to describe all the characteristics of the logical connection between two locations in the network.

The AS/400 has a feature called automatic configuration. APPN controllers are auto-created if the line description is defined with automatic configuration. The autcreate happens when a partner tries to start a conversation with the AS/400.

The configuration directions below describe how to create or change line, controller, and device descriptions. If you wish to autcreate a controller and/or device description, you can skip those respective steps.

1. Create or change line description.

You must have a line description to be used with the controller description. If there is a line description already available, you should not create a new one and can skip this step. This example creates a token-ring line description named TRLAN. To create or change line descriptions for token-ring, use CRTLINTRN or CHGLINTRN (create or change T-R line).

```

          CRTLINTRN
Line Description ..... > ?LINENAME?
Resource name ..... > ?RESNAME?
Online at IPL ..... > *YES
Vary on wait ..... > *NOWAIT
Maximum controllers ..... > 40
Line speed ..... > 4M
Maximum frame size ..... > 1994
Local adapter address ..... > *ADPT

```

Figure 24. Create/Change Line Description. This screen displays the line description attributes.

2. Create or change controller description (link definition).

You can access controller descriptions through the CRTCTLAPPC or CHGCTLAPPC commands (Create/Change Controller Description, APPC).

The following example shows only the fields of the controller description that need to be changed. You can allow the other fields to default.

```

          CRTCTLAPPC
Controller Description ..... > ?CONTRNAME?
Link type ..... > *LAN
Online at IPL ..... > *YES
APPN-capable ..... > *YES
Switched line list ..... > ?LINENAME?
Remote network identifier ..... > ?PARTNERNET?
Remote control point ..... > ?PARTNERLU?
LAN remote adapter address ..... > ?LANADDRESS?
APPN CP session support ..... > *YES
APPN node type ..... > *CALC
APPN transmission group number ..... > CALC

```

Figure 25. Create/Change Controller Description. This screen displays the controller description attributes.

3. Create or change device description (LU definition) - optional step for APPN(\*YES) devices.

You can access controller descriptions through the CRTDEVAPPC or CHGDEVAPPC commands (Create/Change Device Description, APPC). The following example shows only the fields of the device description that need to be changed. You can allow the other fields to default.

```

          CRTDEVAPPC
Device Description ..... > ?DEVNAME?
Remote Location..... > ?PARTNERLU?
Local Location ..... > ?LOCALLU?
Remote network identifier ..... > ?PARTNERNET?
Attached Controller ..... > ?CONTRNAME?

```

Figure 26. Create/Change Device Description. This screen displays the device description attributes.

## 4.5.4 Configure to Run as a Client

### 4.5.4.1 Define CPI-C Side Information

To use a CPI-C symbolic destination name, a CPI-C side information entry or CSI should be defined.

The following are CL commands that allow you to create, display, print, change, delete, and work with the side information:

- CRTCSI - Create the \*CSI
- DSPCSI - Display or print the \*CSI object
- CHGCSI - Change the \*CSI object
- DLTCSI - Delete the \*CSI object
- WRKCSI - Provides a menu interface for the \*CSI object

```
CRTCSI
Side Information..... > ?SYMDEST?
Library.....>
Remote Location..... > ?PARTNERLU?
Transaction Program name..... > ?TPNAME?

Additional Parameters
Local location..... > ?LOCALLU?
Mode..... > ?MODE?
Remote network identifier..... > ?PARTNERNET?
```

Figure 27. Create CPI-C Side Information. This screen displays the CPI-C side information parameters. Press PF10 for additional parameters.

## 4.5.5 Configure to Run as a Server

### 4.5.5.1 Define Transaction Programs

To run AS/400 as a server, you must, in addition to the configuration steps above, define a transaction program (TP) on your machine which will be started when the client establishes a conversation.

To define the TP for AS/400, the user library list needs to list the library that contains the transaction program. If the library that contains the TP is not in the list, it should be added. To access the user library list, do the following:

- Type WRKSYSVAL from a command line.
- Page down until you find the QUSRLIBL system value.
- Select 2 for Change.
- Type your server program's library name (for example, APING) in the space next to the desired sequence number. The library should contain the server program to be started (for example, APINGD).

- Stop and restart your communications subsystem in order to update the subsystems and user library list. To stop your communication subsystem, use the following commands:

- Type STRSBS.
- Type your subsystem name and press Enter.

To start your communication subsystem, use the following commands:

- Type WRKSBS.
- Type 4 to end the subsystem.

## 4.6 Running APING

You should now be able to reach with APING any of the computers you configured using the steps above.

To run APING, from the AS/400 command line, type the CL command CALL from the command entry line.

```

Call Program (CALL)
Program..... > APING
Library..... > APING
Parameter..... > ?PARTNERLU? or ?SYMDEST?
                  or?PLUALIAS?

```

Figure 28. CALL Program. This screen displays the call program parameters.

## 4.7 How to Find....

- LU name

During the AS/400 installation process, at least one LU name was configured. Your LU name can be found on the display network attributes panel. Use DSPNETA command or follow this panel sequence:

- ```

-- AS/400 Main panel
-- 7. Define or change the system
-- 1. Configuration
-- 4. Network management
-- 1. Display network attributes

```

On the display network attributes panel, the LU name is the default local location.

- CP name

On the display network attributes panel, the CP name is the local control point name.

- Net ID

On the display network attributes panel, the net ID is the local network ID.

- LAN address

The LAN address is found by accessing the line description:

- Type WRKLIND \*TRLAN (work with line descriptions).
- Page down to the token-ring line description entry.
- Type 5 in front of the token-ring line description entry to display the definitions.
- Look in the panel entry for local adapter address. This is the value that a partner will enter for its remote address when connecting.





---

## Chapter 5. OS/2 Extended Services and Networking Services/2 Configuration

This chapter describes how to configure APPC on an OS/2 workstation that is connected to a token-ring local area network.

---

### 5.1 Prerequisites

- OS/2 EE 1.3 with Networking Services/2 or OS/2 2.0 Extended Services
- Token-ring adapter

For more information, see the following:

- *SAA Networking Services/2 Installation and Network Administrator's Guide*, SC52-1110
- *ES OS/2 Communications Manager APPC Programming Reference*, S04G-1025
- *ES OS/2 APPN/LU 6.2 Connection and Management*, SG22-1052

---

### 5.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by OS/2.

*Table 7. OS/2 ES and NS/2 Terminology*

| <b>Standard Term</b> | <b>OS/2 Panel Config Term</b> | <b>OS/2 NDF Term</b> |
|----------------------|-------------------------------|----------------------|
| Net ID               | Network name                  | Network name         |
| LU name              | Local node name               | Local LU name        |
| CP name              | CP name                       |                      |
| Partner LU name      | Partner node name             | Partner LU name      |
| Local LAN address    | Local MAC address             | N/A                  |
| Adjacent LAN address | LAN destination address       | Destination address  |

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following our excellent recommendations, you will write *#INTER* in the right column on the *?MODE?* line. Then in Figure 36 on page 57 you will type *#INTER* on the OS/2 screen that looks like this:

M0dename ==> *#INTER*

Table 8 (Page 1 of 2). OS/2 ES and NS/2 Configuration Worksheet

| Symbol                                          | How to determine the value for this symbol                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Fill in value here |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Values that much match with other places</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |
| ?LUNAME?                                        | This is the symbol that refers to the LU name of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters which is the LU name of the node. Choose a name that is unique within the same network name. An LU name is defined by defining a CPNAME in OS/2. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names.                                                                                                               |                    |
| ?CPNAME?                                        | This is the symbol that refers to the control point name of your machine. It should be the same as your ?LUNAME?. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.                                                                                                                                                                                                                                                                                                                 |                    |
| ?NETWORK?                                       | This is the symbol that refers to the net ID of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code, and a network suffix. This format insures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs. |                    |
| ?PARTNERLU?                                     | This is the symbol for the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.                                                                                                                                                                                                                                                            |                    |
| ?PARTNERCP?                                     | This is the symbol for the control point (CP) name of your partner. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                                                                                                              |                    |
| ?PARTNERNET?                                    | This is the symbol for the net ID of the partner computer. Use the net ID from the partner computer's "How to Find..." section.                                                                                                                                                                                                                                                                                                                                                                                        |                    |
| ?LANADDRESS?                                    | This is the symbol for the LAN address of the partner computer (or the LAN Address of a network node, if the link is being made to a network node). Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                              |                    |
| ?TPNAME?                                        | This is the transaction program name. It is a name that is sent across the network to the server machine. The server machine then maps this TP name to an executable program. The TP name is usually specified in a client/server product's documentation. For APING, the TP name on the server is <b>APINGD</b> .                                                                                                                                                                                                     |                    |
| ?TPPATH?                                        | This is the fully specified path and file name of the transaction program's executable code. For example, if OS/2 is installed on the C:\ drive, this value could be: <b>C:\OS2\SAMPLES\APING\APINGD.EXE</b>                                                                                                                                                                                                                                                                                                           |                    |

| <i>Table 8 (Page 2 of 2). OS/2 ES and NS/2 Configuration Worksheet</i> |                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Symbol</b>                                                          | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Fill in value here</b> |
| ?MODE?                                                                 | This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section. |                           |
| <b>Local values</b>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| ?NODETYPE?                                                             | This is the symbol for the APPN node type. This should be <b>EN</b> to be configured as an end node, or <b>NN</b> to be configured as a network node. In most cases, you will configure as an EN.                                                                                                                                                                                                                             |                           |
| ?PLUALIAS?                                                             | This is the symbol for the partner LU alias. 1 to 8 characters that designate a nickname for the partner LU. Alias names are case sensitive.                                                                                                                                                                                                                                                                                  |                           |
| ?LINKNAME?                                                             | This is the symbol for the link name of a logical link. 1 to 8 letters or numbers which will be used as a local name on the OS/2 machine to refer to the link to a partner computer. You can choose any name you like, but since you will use this name later to refer to this link, choose a meaningful name (suggestion: <b>LINK001</b> ).                                                                                  |                           |
| ?SYMDEST?                                                              | This is the symbol for the CPI-C side information symbolic destination name. It is any 1-8 character name you choose. It will be used locally on the OS/2 machine to refer to a CPI-C side information entry.                                                                                                                                                                                                                 |                           |

## 5.3 Working with OS/2 Configuration

### 5.3.1 Starting/Stopping APPC

APPC is started and ended by starting and stopping Communications Manager.

- Starting: Type STARTCM from the OS/2 command prompt or mouse click on "Communications Manager."
- Stopping: In Communications Manager, choose **Exit** from the Action Bar.

### 5.3.2 Other Commands

- Displaying link information: To display link information, choose "Manage SNA Logical Links" from the Communications Manager Folder or type APPNLINK from an OS/2 command prompt. You can also use APPNLINK to activate and deactivate links. This command is only available in ES OS/2 2.0.
- Displaying active SNA configuration information: To display active configuration information, choose **Display active SNA Configuration** from the Communications Manager folder or type PMDSPLAY from an OS/2 command prompt to display active configuration information.
- APPNV.CTL: This file serves two purposes. It gives a description of the node definitions file and the format of the commands that can be placed in

this file. This file also defines the command, parameter, and value names that are allowed in the node definitions file.

---

## 5.4 Configuration

### 5.4.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

OS/2 configuration for APPC/APPN can be accomplished using several methods:

- Panel configuration for OS/2 2.0
- Text editing a node definitions file (NDF) for OS/2 1.3 or OS/2 2.0
- Panel configuration for OS/2 1.3 + NS/2.

The panel configuration facility accomplishes the same function as text editing the NDF file and adding the configuration statements. This chapter will discuss both panel configuration for OS/2 2.0 and NDF file editing for OS/2 1.3+NS/2 and OS/2 2.0. It will not discuss panel configuration for NS/2.

Your NDF file is located in the \CMLIB\APPN directory. It has the same file name as your Communications Manager configuration file whose file extension is ".CFG." However, the NDF file has the file extension ".NDF."

There are example NDF and CFG files provided with this guide called BASE.NDF and BASE.CFG. If you wish to configure a machine from with no current configuration, copy the BASE.NDF file into the \CMLIB\APPN directory and the BASE.CFG file into the \CMLIB directory. If you do not want to lose a current configuration, do not copy the BASE files. You can, however, cut and paste the commands needed from the BASE.NDF file to your own NDF file. The NDF File Configuration instructions show what commands and parameters should be in the NDF file.

If you wish to use the panel configuration for OS/2 2.0, follow the panel configuration instructions in this chapter. This method also will place the correct commands in your NDF file.

## 5.4.2 Define Yourself to the Network

Before an OS/2 machine can communicate on a network, it must define itself to the network. This configuration is usually done when OS/2 is installed.

### 5.4.2.1 Panel Configuration

#### 1. Define LU name.

You can define (or find if it is already configured) your LU name in the Local Node Characteristics panel.

Follow this sequence of panels:

- Select Communications Manager from the OS/2 Window List
- Advanced
  - Configuration, (type Config file name and press ENTER)
  - SNA feature profiles
  - SNA Network Definitions
  - Create/Change
  - Local Node Characteristics

```
Required Features:

Network ID:      ?NETWORK?

Local node name: ?LUNAME?

Node type:

    o End Node to Network Node Server
    o End Node - No Network Node Server
    o Network Node

Your network node server address:  ?LANADDRESS?

Optional Features

Local Node ID      05D _____
Local Node Alias Name _____
Comment            Configuration is Fun!_____

_ Activate Attach Manager at start up
```

Figure 29. Local Node Characteristics Panel. This screen displays the local node characteristics. The LU name is the local node name on this screen.

**Note:** Check the “Activate Attach Manager at start up” box so that programs can be started by the attach manager.

#### 2. Define your node type.

OS/2 can be either an end node or network node. If you choose the end node to network node server and fill in the network node address, a connection will automatically be configured to your network node and you can skip the “Define a link to a partner or intermediate node” configuration step.

### 5.4.2.2 NDF File Configuration

1. Define LU name.

You can define (or find if it is already configured) your LU name in the DEFINE\_LOCAL\_CP command in the following node definitions file (NDF) excerpt:

---

```
define_local_cp
  fq_cp_name(?NETWORK?.?LUNAME)
  cp_alias(mylu)
  node_id(x'00000')
  node_type(?NODETYPE?);
```

---

Figure 30. NDF File Excerpt from BASE.NDF for DEFINE\_LOCAL\_CP

2. Define node type.

OS/2 can be either an end node or a network node.

- End node - ?NODETYPE?=EN
- Network node - ?NODETYPE?=NN

### 5.4.3 Define a Link to a Partner or Intermediate Node

A link is configured by defining a connection on the panels or a logical link in the NDF file.

#### 5.4.3.1 Panel Configuration

1. To define a link, follow this sequence of panels:

```
-- Communications Manager from the OS/2 Window List
-- Advanced
-- Configuration. type configuration file name and press ENTER
-- SNA feature profiles
-- SNA Network Definitions
-- Connections
```

2. A list of nodes will be display. Select the type of node you are connecting to:
  - Network node - choose network node
  - Partner node - choose peer node
  - Host node - choose primary host
3. Select the type of connection you desire (for example, IBMTRNET for token-ring).
4. The Creating a Connection to a Peer Node panel will be shown. Fill in the appropriate values from the required values table.

```

Creating a Connection to a Peer Node - ESBASE

Link Name:           ?LINKNAME?
Partner network ID:  ?PARTNERNET?
Partner node name:   ?PARTNERLU?
LAN destination address: ?LANADDRESS?
Comment: _____

```

Figure 31. Creating a Connection Panel. This screen displays the parameters for defining a connection to a peer node.

### 5.4.3.2 NDF File Configuration

**Define a Link to the Network Node:** To define a link to your network node, your node definitions file should contain a “define\_logical\_link” command,

```

define_logical_link
  link_name(?LINKNAME?)
  adjacent_node_type(learn)
  preferred_nn_server(yes)
  dlc_name(ibmtrnet)
  adapter_number(0)
  destination_address(x' ?LANADDRESS?')
  cp_cp_session_support(yes)
  activate_at_startup(yes);

```

Figure 32. NDF File Excerpt from BASE.NDF for DEFINE\_LOGICAL\_LINK for Network Node Link

**Define a Link Directly to Your Partner or to a LEN Node:** To define a link directly to your partner, your Node Definitions File should contain a “define\_logical\_link” command like this:

```

define_logical_link
  link_name(?LINKNAME?)
  fq_adjacent_cp_name(?PARTNERNET?.?PARTNERCP?)
  adjacent_node_type(learn)
  dlc_name(ibmtrnet)
  adapter_number(0)
  destination_address(x' ?LANADDRESS?')
  cp_cp_session_support(no)
  activate_at_startup(no);
  solicit_sscp_session(no);

```

Figure 33. NDF File Excerpt from BASE.NDF for DEFINE\_LOGICAL\_LINK for Partner Link

For a link to a host LEN or APPN node that requires 3270 support, specify solicit\_sscp\_session(yes). Also, to configure 3270 sessions the ?LANADDRESS? should match the destination address in 3270 feature profile connections.

### 5.4.3.3 Additional Configuration

**Define Partner LUs:** When the partner LU is *not* accessible through a NN, as in a LEN node connection or a direct link to your partner, you must define the path to the partner LU.

For your machine to be able to locate the partner LU, a correlation between your link definition and the partner LU must be established. This is done by associating the partner LU to a particular link.

**Panel Configuration:** Follow this sequence of panels:

```
-- Communications Manager from the OS/2 Window List
-- Advanced
-- Configuration, type config file name and press ENTER
-- SNA feature profiles
-- SNA Network Definitions
-- Connections
-- Link Name defined above for the host or partner connection
-- Define Partner LUs
```

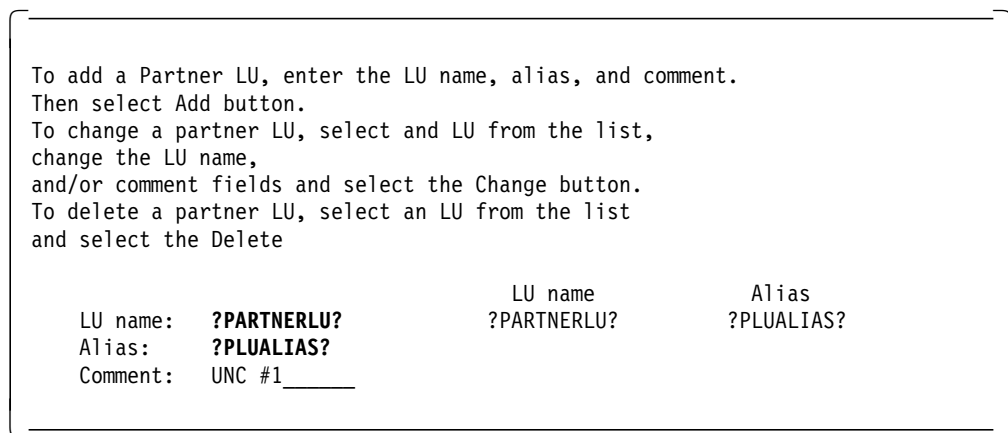


Figure 34. Define Partner LU Panel. This panel displays the partner LU parameters.

**NDF File Configuration:**

```
define_partner_lu
  fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
  description(partner lu for appc on the host)
  partner_lu_alias(?PLUALIAS?)
  partner_lu_uninterpreted_name(?PARTNERLU?)
  max_mc_ll_send_size(32767)
  conv_security_verification(NO)
  parallel_session_support(YES);

define_partner_lu_location
  fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
  wildcard_entry(NO)
  fq_owning_cp_name(?PARTNERNET?.?PARTNERCP?)
  local_node_nn_server(NO);
```

Figure 35. NDF File Excerpt for define\_partner\_lu and define\_partner\_lu\_location



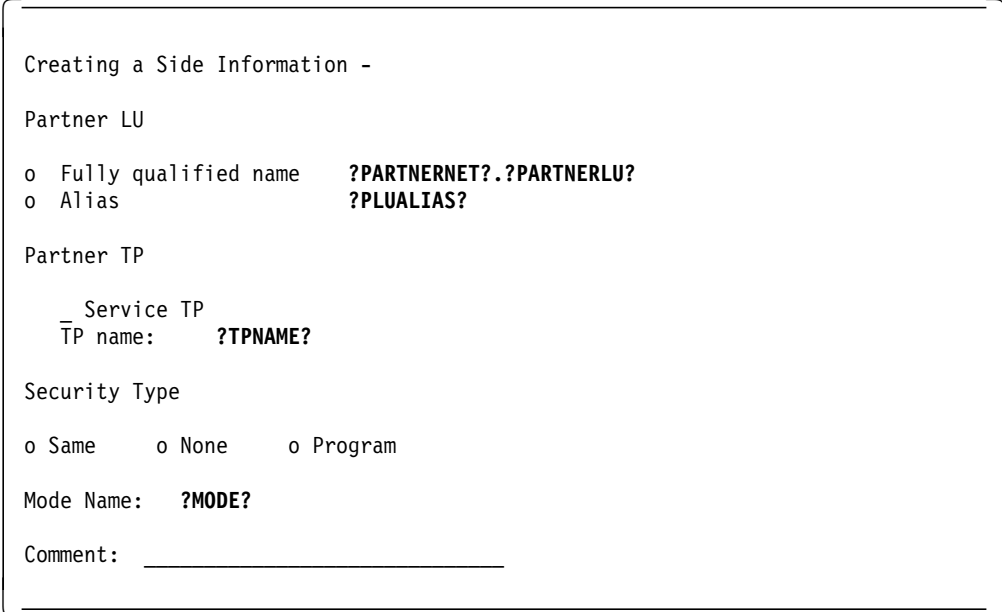
## 5.4.4 Configure to Run as a Client

### 5.4.4.1 Define CPI-C Side Information

APING and many other applications do not require CPI-C side information. Refer to 1.3.5, “What Is CPI-C Side Information?” on page 5 for a discussion of CPI-C side information entries. If you wish to use a symbolic destination name as the target of a conversation, you must define a CPI-C side information entry.

**Panel Configuration:** Follow this sequence of panels:

```
-- Communications Manager from the OS/2 Window List
-- Advanced
-- Configuration, type config file name and press ENTER
-- SNA feature profiles
-- SNA Network Definitions
-- Additional SNA Features
-- CPI-C Side Information
```



```
Creating a Side Information -

Partner LU

o Fully qualified name    ?PARTNET?.?PARTNERLU?
o Alias                   ?PLUALIAS?

Partner TP

  _ Service TP
  TP name:    ?TPNAME?

Security Type

o Same    o None    o Program

Mode Name:  ?MODE?

Comment: _____
```

Figure 36. CPI-C Side Information Panel. This screen displays the CPI-C side information parameters.

**NDF File Configuration:** To define a CPI-C side information entry, your node definitions file should contain a “define\_cplic\_side\_info” command.

```
define_cplic_side_info symbolic_destination_name(?SYMDEST?)
                        fq_partner_lu_name(?PARTNET?.?PARTNERLU?)
                        mode_name(?MODE?)
                        tp_name(?TPNAME?);
```

Figure 37. NDF File Excerpt for Defining a CPI-C Side Information Entry

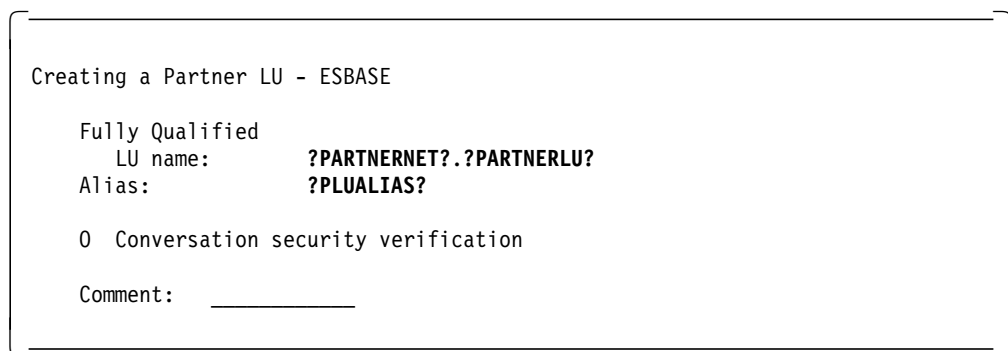
### 5.4.4.2 Other Client Configuration

**Define Partner LU Alias:** An additional feature of defining partner LUs is that you can provide an alias for the actual partner LU name. For example, you could define SERVER to be an alias for PARTNERNET.PARTNERLU. Aliases are case sensitive; SERVER is a different alias than “server.”

If you choose to define partner LUs, either to provide an alias for use when running a client program, or to restrict the names of partner clients that can contact you, use a “define\_partner\_lu” command as follows in the NDF.

**Panel Configuration:** Follow the below sequence of panels:

```
-- Communications Manager from the OS/2 Window List
-- Advanced
-- Configuration, type config file name and press ENTER
-- SNA feature profiles
-- SNA Network Definitions
-- Connections
-- Link Name defined above for the host connection
-- Define Partner LUs
```



Creating a Partner LU - ESBASE

Fully Qualified  
LU name:           ?PARTNERNET?.?PARTNERLU?  
Alias:               ?PLUALIAS?

0 Conversation security verification

Comment: \_\_\_\_\_

Figure 38. Partner LU Panel. This panel displays the partner LU parameters.

**NDF File Configuration:**

```
define_partner_lu
  fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
  partner_lu_alias(?PLUALIAS?,?plualias?);
```

Figure 39. NDF File Excerpt for Partner LU

**Note:** Because the alias is case sensitive, it is recommended that you define the alias (PLUALIAS) in both upper and lowercase. This can only be done in the NDF file as in the example above.

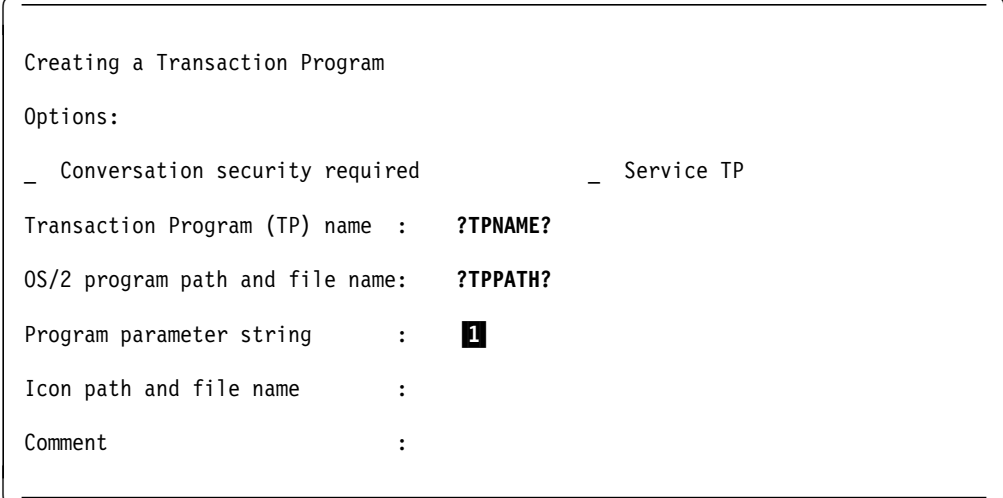
## 5.4.5 Configure to Run as a Server

### 5.4.5.1 Define Transaction Programs

To run OS/2 as the target of a conversation, you must, in addition to the common configuration steps above, define a TP on your machine that will be the target program of the conversation.

**Panel Configuration:** Follow this sequence of panels:

```
-- Communications Manager from the OS/2 Window List
-- Advanced
-- Configuration, type config file name and press ENTER
-- SNA feature profiles
-- SNA Network Definitions
-- Additional SNA Features
-- Transaction Program Definitions
```



```
Creating a Transaction Program

Options:
_ Conversation security required          _ Service TP

Transaction Program (TP) name :   ?TPNAME?
OS/2 program path and file name:   ?TPPATH?
Program parameter string      :    1
Icon path and file name       :
Comment                        :
```

Figure 40. TP Definition Panel. This panel displays the TP definition parameters.

Click on the **Continue** button and see note 2 below for TP program operation parameter.

**NDF File Configuration:** To define a transaction program to your network node, your node definitions file should contain a “define\_tp” command.

```
define_tp
  tp_name(?TPNAME?)
  filespec(?TPPATH?)
  parm_string()
  tp_operation(nonqueued_am_started)
  program_type(vio_windowable);
```

Figure 41. NDF File Excerpt from BASE.NDF for DEFINE\_TP

**Notes:**

**1** Any command line parameters that need to be run with the program are entered in the `parm_string` parameter.

**2** The `tp_operation` parameter indicates how the local TP is started as a server. It can be one of the following:

- `QUEUED_OPERATOR_STARTED`
- `QUEUED_OPERATOR_PRELOADED`
- `QUEUED_AM_STARTED`
- `NONQUEUED_AM_STARTED`

### 5.4.5.2 Other Server Configuration

Since both Extended Services and Networking Services/2 support APPN, you do not need to define partner LU names. The partner LU can be located through APPN services.

When inbound implicit partner LU support is enabled, the computer has the capability to accept an incoming BIND request that contains a partner LU name that is not defined at the local node. To enable any partner to call you when your computer is a server, make sure your node definitions file contains the following:

---

```
define_defaults
    implicit_inbound_plu_support(yes);
```

---

*Figure 42. NDF File Excerpt for `implicit_inbound_plu_support`*

**Note:** The `implicit_inbound_plu_support` cannot be changed from the panel configuration.

## 5.4.6 Verifying Configuration

You must verify the changes you make to the configuration by using one of the following methods.

- Panel configuration: Choose **Verify** from the action bar to verify and update your configuration. Answer “Yes” to “Do you want to update active configuration?”
- Panel Configuration: Choose the Verify icon from the Communications Manager folder
- NDF Configuration - Run the following `appnv` command from the OS/2 command prompt with the `/e` option to verify and update your configuration. Type APPNV, then your NDF file name:

```
appnv <NDF file name>.NDF
```

You must stop and restart Communications Manager to make changes active.

---

## 5.5 Running APING

Run the APING executable from the OS/2 command prompt with the following parameters:

- Parameter = **?PARTNERNET?.?PARTNERLU?** or **?PLUALIAS?** or **?SYMDEST?**
- Options = Any options flags you wish to run with APING. Type APING ? for list.

```
APING ?PARTNERNET?.?PARTNERLU?
```

---

## 5.6 How to Find...

### 5.6.1 Panel Configuration

- LU name

You can find your local LU in the Local Node Characteristics panel.

```
-- Communications Manager from the OS/2 Window List
-- Advanced
  -- Configuration, type Config file name and press ENTER
    -- SNA feature profiles
      -- SNA Network Definitions
        -- Local Node Characteristics
```

The LU name is the local node name on the panel.

- CP name

The CP name is the same as the LU name found above (local node name).

- Net ID

The net ID is the network ID in the above panel.

- Local LAN address - cannot be found in the panels

### 5.6.2 NDF File

- LU name

You can find your LU name in the DEFINE\_LOCAL\_CP command in the following node definitions file excerpt:

---

```
define_local_cp
  fq_cp_name(?NETWORK?.?LUNAME?)
  cp_alias(mylu)
  node_id(x' ?NODEID?')
  node_type(en);
```

---

Figure 43. NDF File Excerpt from BASE.NDF for DEFINE\_LOCAL\_CP

The LU name is LUNAME.

- CP name

The CP name is the same as the LU name found above.

- Net ID

The net ID is the NETWORK variable in the excerpt of the DEFINE\_LOCAL\_CP command.

- Local LAN address

The LAN address is a 12-digit hexadecimal value that identifies your token-ring adapter to the network. There is a LAN address hard-coded on the token-ring adapter. This hard-coded value can be overridden with something called a “locally administered address.” You can find your LAN address in the following ways.

- Check the computer’s \IBMCOM\LANTRAN.LOG file if you are using OS/2 2.0. or in the \CMLIB\ACSLAN.LOG file if you are using OS/2 1.3 plus NS/2. You will see a line that says:

Adapter X has node address LANADDRESS. The value in LANADDRESS is your local LAN address.

- Run diagnostics on the computer’s reference diskette:
  1. Boot the machine on its reference diskette.
  2. Press Enter to clear the main panel.
  3. Press Ctrl+A to start advanced diagnostics.
  4. Select **System checkout**.
  5. Press Y to indicate the list is correct.
  6. Select **Run tests one time**.
  7. Cursor down to “Primary Token-Ring Adapter” and press Enter.
  8. Select the proper cable type.
  9. Press Enter on the panel asking you to disconnect your cable (you don’t actually need to disconnect it for this exercise).
  10. Press Enter when told the next screen will contain important information.
  11. On the information screen, the value after Adapter Address is your LAN address (you may need to page down to see this value).
  12. After making note of the adapter address, remove the reference diskette, reconnect your cable if you disconnected it, and press Ctrl+Alt+Delete to re-boot your machine.

---

## Chapter 6. OS/2 Communications Manager/2 Configuration

This chapter describes how to configure APPC for a Communications Manager/2 (CM/2) workstation that is connected to a token-ring local area network.

---

### 6.1 Prerequisites

- OS/2 2.0 or later
- Communications Manager/2 1.0 or later
- Token-ring adapter

For additional information about configuring CM/2, see:

- *CM/2 Installation, Configuration and Administration*, SBOF-4386
- *CM/2 Configuration Guide*, SC31-6171
- *CM/2 APPC Programming Guide and Reference*, SC31-6160
- *CM/2 Network Administration and Subsystem Management Guide*, SC31-6168

---

### 6.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by CM/2.

| <b>Standard Term</b> | <b>CM/2 Panel Term</b>  | <b>CM/2 NDF Term</b> |
|----------------------|-------------------------|----------------------|
| Net ID               | Network name            | Network name         |
| LU name              | Local node name         | Local LU name        |
| Partner LU name      | Partner node name       | Partner LU name      |
| Local LAN address    | Local MAC address       | N/A                  |
| Adjacent LAN address | LAN Destination address | Destination address  |

---

### 6.3 Communications Manager/2 APPC Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following our recommendations, you will write APING in the right column on the *?TPNAME?* line. Then in Figure 54 on page 74, you will type APING on the CM/2 screen that looks like this:

TP name:        **?TPNAME?**

Also, in Figure 58 on page 76, you will type APING on the CM/2 screen that looks like this:

Transaction Program (TP) name :        **?TPNAME?**

| <i>Table 10 (Page 1 of 2). CM/2 Configuration Worksheet</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Symbol</b>                                               | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Fill in value here</b> |
| <b>Values that must match with other places</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                           |
| ?LUNAME?                                                    | This is the symbol that refers to the LU name of the machine you are defining to the network. An LU name is defined by defining a CPNAME in CM/2. This should be the only LU in your workstation. ?LUNAME? = ?CPNAME?. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names.                                                                                                       |                           |
| ?CPNAME?                                                    | This is the symbol that refers to the control point name of your machine. 1 to 8-character field consisting of alphanumeric characters which is the CP name of the machine. Choose a name that is unique within the same network. By defining the ?CPNAME?, you also define an LU of the same name ?LUNAME?; In this case ?LUNAME?=?CPNAME?. The control point is an LU in CM/2. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.                                                  |                           |
| ?NETWORK?                                                   | This is the symbol that refers to the net ID of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code, and a network suffix. This format ensures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs. |                           |
| ?PARTNERLU?                                                 | This is the symbol for the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.                                                                                                                                                                                                                                                            |                           |
| ?PARTNERCP?                                                 | This is the symbol for the control point (CP) name of your partner. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                                                                                                              |                           |
| ?PARTNERNET?                                                | This is the symbol for the net ID of the partner computer. Use the net ID from the partner computer's "How to Find..." section.                                                                                                                                                                                                                                                                                                                                                                                        |                           |
| ?LOCALPU?                                                   | This is the symbol for VTAM's PU name. See your host platform's instructions to determine your PU name.                                                                                                                                                                                                                                                                                                                                                                                                                |                           |



Table 10 (Page 2 of 2). CM/2 Configuration Worksheet

| <b>Symbol</b>       | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Fill in value here</b> |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| ?LANADDRESS?        | This is the symbol for the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node). Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                     |                           |
| ?TPNAME?            | This is the transaction program name. It is a name that is sent across the network to the server machine. The server machine then maps this TP name to an executable program. The TP name is usually specified in a client/server product's documentation. For APING, the TP name on the server is <b>APINGD</b> .                                                                                                            |                           |
| ?TPPATH?            | This is the fully specified path and file name of the transaction program's executable code. For example, if OS/2 is installed on the C:\ drive, this value could be:<br><b>C:\OS2\SAMPLES\APING\APINGD.EXE</b>                                                                                                                                                                                                               |                           |
| ?MODE?              | This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section. |                           |
| <b>Local values</b> |                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| ?NODETYPE?          | This is the symbol for the APPN node type. This should be <b>EN</b> to be configured as an end node, or <b>NN</b> to be configured as a network node. In most cases, you will configure as an EN.                                                                                                                                                                                                                             |                           |
| ?LUALIAS?           | This is the symbol for the local LU alias. 1 to 8 characters that designate a nickname for the local LU. Alias names are case sensitive.                                                                                                                                                                                                                                                                                      |                           |
| ?PLUALIAS?          | This is the symbol for the partner LU alias. 1 to 8 characters that designate a nickname for the partner LU. Alias names are case sensitive.                                                                                                                                                                                                                                                                                  |                           |
| ?LINKNAME?          | This is the symbol for the link name of a logical link. 1 to 8 letters or numbers which will be used as a local name on the OS/2 machine to refer to the link to a partner computer. You can choose any name you like, but since you will use this name later to refer to this link, choose a meaningful name (suggestion: <b>LINK001</b> ).                                                                                  |                           |
| ?SYMDEST?           | This is the symbol for the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It will be used locally on the OS/2 machine to refer to a CPI-C side information entry.                                                                                                                                                                                                              |                           |

---

## 6.4 Working with CM/2

The terms used to maneuver through CM/2 screens are described below:

- **Select** - place mouse pointer on desired item and click with left mouse button. The screen will not change when clicked as this is simply a selection pointer.
- **Click** - place mouse pointer on desired item and click with left mouse button. Screen data will be processed when clicked.
- **Double-click** - place mouse pointer on desired item and double-click the left mouse button. Screen data will be processed.

### 6.4.1 Starting/Stopping APPC

APPC can be started and ended by starting and stopping CM/2. To start or stop CM/2, double-click on the **Start CM/2** icon. To stop CM/2, double-click on the **Stop CM/2** icon.

### 6.4.2 Other Commands

- **Displaying logical links:** double-click on **CM/2 Subsystems**, then click on **SNA Subsystems**, then double-click on **Logical links** to display the logical links. You can also use this screen to activate and deactivate links by click on **Link** on the action bar and click on the **Activate** or **Deactivate** action item.
- **Displaying active configuration:** Double-click on **CM/2 Subsystems**, then double-click on **SNA Subsystems**, then double-click on **Display active configuration** to display active configuration information. You can instead type PMDSPLAY from an OS/2 command prompt.
- **CMVERIFY.TXT:** This file serves two purposes. It gives a description of the node definitions file and the format of the configuration verbs that can be placed in this file. This file also defines the command, parameter, and value names that are allowed in the node definitions file. Prior to CM/2 1.0, the control file is called APPNV.CTL.

---

## 6.5 Configuration

### 6.5.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

There are two ways to configure APPC/APPN:

- CM/2 panel configuration
- Text editing a CM/2 node definitions file (NDF)

The panel configuration facility accomplishes the same function as text editing the NDF file and adding the configuration statements. This chapter will discuss both CM/2 panel configuration and CM/2 NDF file editing.

Your NDF file is located in the \CMLIB directory. It has the same file name as your Communications Manager configuration file which has a file extension of “.CFG.” The NDF file has the file extension “.NDF.”

There are example NDF and CFG files. These files are provided with the CM/2 configuration guide files. If you want to configure a machine from scratch, copy the BASE2.NDF and BASE2.CFG files into the \CMLIB directory. If you want to modify an existing configuration, do not copy the BASE2 files. You can, however, cut and paste the verbs needed from the BASE2.NDF file to your own NDF file. The NDF file configuration instructions in this chapter show what commands and parameters should be in the NDF file.

If you want to use CM/2 panel configuration, follow the panel configuration instructions. This method will place the correct commands in your NDF file. Follow this panel sequence to enter the CM/2 configuration setup.

1. Double-click the **CM/2 Setup** icon in the Communications Manager/2 folder.
2. Click on **OK**.
3. Click on **Setup**.
4. Type desired configuration file name and click on **OK**. This configuration file name will be ‘BASE2’ if you are using the configuration files provided with the CM/2 Configuration Guide files.
5. Select **Token-ring or other LAN types** from Workstation Connection Type column. Select **APPC APIs** from Feature or Application type column. Click on **Configure**.

You now have a list of the profiles that need to be configured for APPC.

## 6.5.2 Define Yourself to the Network

Before a CM/2 can communicate in a network, it must define itself to the network. This is usually done during installation.

### 6.5.2.1 Panel Configuration

You can define (or find if it is already configured) your LU name on the Local Node Characteristics panel.

To define or view your local LU name, follow this sequence of panels:

- Select “A local node characteristics”
- Click on “Configure” to view the “Local Node Characteristics” panel

```

Local Node Characteristics

Network ID      ?NETWORK?

Local node name ?LUNAME?

Node type
  o End Node to Network Node Server
  o End Node - No Network Node Server
  o Network Node

Your network node server address:  ?LANADDRESS?

Local Node ID      05D _____

-----
| OK | | Options... | | NetWare(R) | | Cancel | | Help |
-----

```

Figure 44. Local Node Characteristics Panel. This panel displays the local node characteristics. The LU name is the local node name on this screen. The Node Id is the local Node ID.

Fill in the highlighted parameters as determined for the CM/2 configuration worksheet at the beginning of the chapter.

Click on **Options...** to proceed to the Optional Features panel and fill in the **?LUALIAS?** from the CM/2 configuration worksheet.

```

Optional Features

Local Node Alias Name      ?LUALIAS?
Maximum Compression Level  -----
Maximum Compression Tokens -----
Optional Comment           Configuration is Fun! _____

_ Activate Attach Manager at start up

-----
| OK | | Cancel | | Help |
-----

```

Figure 45. Local Node Options. This screen displays the local node options. The local LU alias is the Local Node Alias Name on this screen.

Click on **OK** to go back to Local Node Characteristics panel.

Click on **OK** to process data.

**Notes:**

1. If you choose the End Node to Network Node Server and fill in the network node address, a connection will automatically be configured to your network node and you can skip the “Define a link to a partner or intermediate node” step.

**6.5.2.2 NDF File Configuration**

1. Define LU name

You can define (or find if it is already configured) your LU name using the DEFINE\_LOCAL\_CP command in the node definitions file excerpt. A portion of the BASE2.NDF file is shown in the figure below.

---

```
define_local_cp
  fq_cp_name(?NETWORK?.?LUNAME)
  cp_alias(mylu)
  node_id(x'00000')
  node_type(?NODETYPE?);
```

---

Figure 46. NDF File Excerpt from BASE2.NDF for DEFINE\_LOCAL\_CP

2. Define node type

OS/2 can be either an end node or a network node.

- End node - Fill in EN for **?NODETYPE?**
- Network node - Fill in NN for **?NODETYPE?**

**6.5.3 Define a Link to a Partner or Intermediate Node**

A link is configured by defining a “connection” via the panels or a “logical link” in the NDF file.

**6.5.3.1 Panel Configuration**

1. To define a link to a partner, or to an intermediate node, follow this sequence of panels:

```
-- Select "SNA Connections"
-- Click on "Configure" to view the "Connections List" panel
```

2. Select the type of node you are connecting to:

- Network node - choose **to network node**
- End node or if you are unsure of partner node type - choose **to peer node**
- Host node - choose **to host**

3. Click on **Create** to view the “Adapter List” panel

4. Select the type of data link connection you desire (for example, token-ring or other LAN types)

5. Click on **Continue** to view the creating connection panels

6. Substitute the highlighted parameters with the appropriate values from the CM/2 APPC configuration worksheet at the beginning of this chapter.

```

Connection to a Network Node

Link Name ?LINKNAME?      0 Activate at Startup

LAN destination address(hex)  Address Format      Remote SAP
?LANADDRESS?                Token Ring          ___

Adjacent Node ID(hex)        _____

0 Use this network node connection as your preferred network node server
0 Solicit SSCP-PU Session

Optional comment
_____

  -----
 | OK |   | Cancel |   | Help |
  -----

```

Figure 47. Create a Connection to a Network Node. This panel displays the parameters that need to be defined for connecting to a network node.

**Notes:**

1. The “Solicit SSCP-PU Session” is checked when your network node is the gateway to a host.

```

Connection to a peer node

Link Name ?LINKNAME?      0 Activate at Startup

LAN destination address(hex)  Address Format      Remote SAP
?LANADDRESS?                Token Ring          ___

Adjacent Node ID(hex)        _____

Partner network ID           ?PARTNERNET?
Partner node name            ?PARTNERCP?

Optional comment
_____

  -----
 | OK |   | Define Partner LUs... |   | Cancel |   | Help |
  -----

```

Figure 48. Create a Connection to a LEN Node. This panel displays the parameters that need to be defined for connecting to a peer node.

```

Connection to a Host

Link Name           ?LINKNAME?           0 Activate at Startup
Local PU name       ?LOCALCP?           1           0 APPN support           3
Node ID (hex)       ?NODEID?           2

LAN destination address(hex)  Address Format      Remote SAP
?LANADDRESS?              Token Ring          _____

Adjacent Node ID(hex)  _____

Partner network ID  ?PARTNET?

Partner node name    ?PARTNERCP? (Required for partner  4
   LU definitions)

0 Use this host connection as your focal point support  5

Optional comment
_____

| OK | | Define Partner LUs... | | Cancel | | Help |
|-----|-----|-----|-----|

```

Figure 49. Create a Connection to a Host. This panel displays the parameters that need to be defined for connecting to a host node.

**Notes:**

- 1** The ?LOCALCP? cannot match the PU name in VTAM. If you are defining links to multiple hosts, consult the *CM/2 Network Administration and Subsystem Management Guide*.
- 2** See Appendix A, “Using Node IDs in VTAM” on page 153 for information on when to use the ?NODEID? parameter.
- 3** Check this box when the host you will be connecting to supports CP-CP sessions. If this box is checked, leave Partner Node Name field blank.
- 4** If not using APPN support on the host, the partner node name will usually be the VTAM system services control point (SSCP) name.
- 5** Check this box when you want this host connection to be the focal point.

**6.5.3.2 NDF File Configuration**

**Define a Link to the Network Node:** To define a link to your network node, your node definitions file must contain a define\_logical\_link command, as shown in the example below.

---

```

define_logical_link
  link_name(?LINKNAME?)
  adjacent_node_type(learn)
  preferred_nn_server(yes)
  dlc_name(ibmtrnet)
  adapter_number(0)
  destination_address(?LANADDRESS?')
  cp_cp_session_support(yes)
  activate_at_startup(yes);

```

---

Figure 50. NDF File Excerpt from BASE2.NDF for DEFINE\_LOGICAL LINK for Network Node Link

**Define a Link Directly to Your Partner or to a LEN Node:** To define a link directly to your partner, your node definitions file should contain a “define\_logical\_link” command, as shown in the example below:

---

```

define_logical_link
  link_name(?LINKNAME?)
  fq_adjacent_cp_name(?PARTNERNET?.?PARTNERCP?)
  adjacent_node_type(learn)
  dlc_name(ibmtrnet)
  adapter_number(0)
  destination_address(?LANADDRESS?')
  cp_cp_session_support(no)
  activate_at_startup(no);
  solicit_sscp_session(no);

```

---

Figure 51. NDF File Excerpt from BASE2.NDF for DEFINE\_LOGICAL LINK for Partner Link

When defining a link to a host LEN node or any host node that requires 3270 sessions (not using dependent LU requester/server (DLUR/S) support), the following define\_logical\_link parameter must be changed to yes.

```
solicit_sscp_session(yes);
```

Also, to configure 3270 sessions the ?LANADDRESS? must match the destination address on the 3270 Feature Profile Connections panel.

### 6.5.3.3 Additional Configuration for LEN Nodes

When the partner LU is not accessible through a NN, as in a LEN node connection or a direct link to your partner, the following additional configuration must be done.

For your machine to be able to locate the partner LU, a correlation between your link definition and the partner LU must be established. This is done by associating the partner LU to a particular link.

**Panel Configuration:** To add partner LU definitions for LEN nodes, follow this sequence of panels:

- SNA Connections
  - Select Link Name defined above for the host or LEN connection
    - Click on “Change” to view “Adapter List” panel
      - Select DLC type defined above for the host or LEN connection
        - Click on ‘Continue’ to view “Change a connection to a Host” panel
          - Click on Define Partner LU’s to view “Partner LU” panel



To add a Partner LU, enter the LU name, alias, and comment. Then select Add.

To change a Partner LU, select an LU from the list, change the LU name, and/or comment fields, and select the Change button.

To delete a Partner LU, select an LU from the list and select Delete.

|                           | LU name | Alias  |
|---------------------------|---------|--------|
| Network ID: ?NETWORK?     |         |        |
| LU name: ?PARTNERLU?      |         |        |
| Alias: ?PLUALIAS?         |         |        |
|                           |         | -----  |
|                           |         | Delete |
|                           |         | -----  |
| Dependent partner LU      |         |        |
| 0 Partner LU is dependent |         |        |
| Uninterpreted name _____  |         |        |
| Optional Comment _____    |         |        |
| -----                     | -----   |        |
| Add                       | Change  |        |
| -----                     | -----   |        |
| -----                     | -----   | -----  |
| OK                        | Cancel  | Help   |
| -----                     | -----   | -----  |

Figure 52. Partner LU Panel. This panel displays the parameters that need to be defined for a partner LU.

Click on **Add** to add the Partner LU definition.

### NDF File Configuration

```

define_partner_lu
    fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
    description(partner lu for appc on the host)
    partner_lu_alias(?PLUALIAS?)
    partner_lu_uninterpreted_name(?PARTNERLU?)
    max_mc_ll_send_size(32767)
    conv_security_verification(NO)
    parallel_session_support(YES);

define_partner_lu_location
    fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
    wildcard_entry(NO)
    fq_owning_cp_name(?PARTNERNET?.?PARTNERCP?)
    local_node_nn_server(NO);

```

Figure 53. NDF File Excerpt for DEFINE\_PARTNER\_LU and DEFINE\_PARTNER\_LU\_LOCATION

## 6.5.4 Configure to Run as a Client

### 6.5.4.1 Define CPI-C Side Information Entry

APING and many other applications do not require CPI-C side information.

If you wish to use a symbolic destination name as the target of a conversation, define a CPI-C side information entry.

**Panel Configuration:** To define CPI-C side information, follow this sequence of panels:

- SNA Features
  - Click on "Configure" to view "SNA Features" panel
  - Select CPI-C Side Information
  - Click on "Create" to view "Create CPI-C" panel

```
CPI-C Side Information
Symbolic destination name  ?SYMDEST?.

Partner LU
-----
o Fully qualified name    ?PARTNERNET?.?PARTNERLU?
o Alias                   ?PLUALIAS?

Partner TP
-----
  Service TP
  TP name      ?TPNAME?

Security Type                               Mode name
-----
o Same        o None        o Program      ?MODE?

Optional Comment _____

| OK | | Cancel | | Help |
-----
```

Figure 54. CPI-C Side Information. This screen displays the parameters that need to be defined for a CPI-C side information entry.

**NDF File Configuration:** To define a CPI-C side information entry, your node definitions file must contain a `define_cplic_side_info` command.

```
define_cplic_side_info symbolic_destination_name(?SYMDEST?)
                        fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
                        mode_name(?MODE?)
                        tp_name(?TPNAME?);
```

Figure 55. NDF File Excerpt for Defining a CPI-C Side Information Entry

### 6.5.4.2 Other Client Configuration

**Define Partner LU Alias:** An additional feature of defining partner LUs is that you can provide an alias for the actual partner LU name. For example, you could define “SERVER” to be an alias for ?PARTNERNET.PARTNERLU?. Aliases are case sensitive; “SERVER” is a different alias from “server.”

You may choose to define partner LUs, either:

1. To provide an alias for use when running a client program, or,
2. To restrict the names of partner clients that can contact you

**Panel Configuration:** To define a partner LU alias, follow the sequence of panels below:

```
-- SNA Connections
-- Select Link Name defined above for the host or LEN connection
-- Click on 'Change'
-- Select DLC type defined above for the host or LEN connection
-- Click on 'Continue'
-- Click on Define Partner LUs
```

```
Partner LU

Fully Qualified
LU name      ?PARTNERNET?.?PARTNERLU?
Alias        ?PLUALIAS?

0 Conversation security verification

Dependent partner LU
0 Partner LU is dependent
Uninterpreted name _____

Optional comment
_____

| OK | | Cancel | | Help |
|-----| |-----| |-----|
```

Figure 56. Partner LU Panel. This panel displays the parameters that need to be defined for a partner LU and partner LU alias.

#### **NDF File Configuration:**

```
define_partner_lu
fq_partner_lu_name(?PARTNERNET?.?PARTNERLU?)
partner_lu_alias(?PLUALIAS?,?plualias?);
```

Figure 57. NDF File Excerpt for Partner LU

**Note:** Because the PLU alias is case sensitive, you should define the PLUALIAS both in uppercase and lowercase. This can only be done in the NDF file as shown in Figure 57.

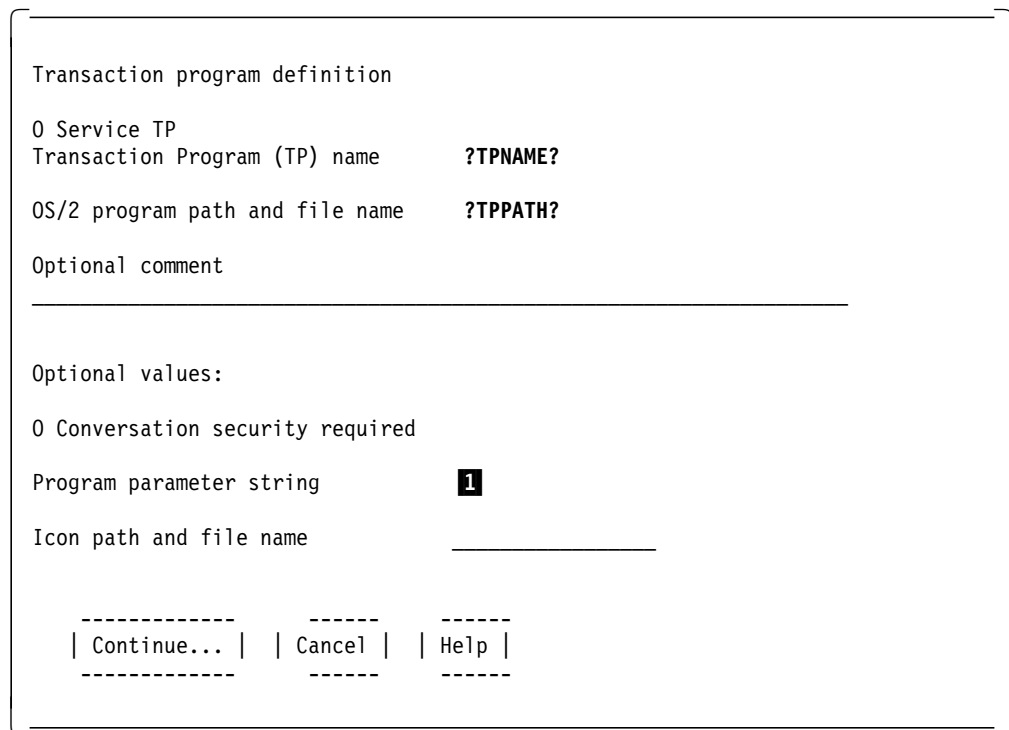
## 6.5.5 Configure to Run as a Server

### 6.5.5.1 Define Transaction Programs

To run CM/2 as the server, you must, in addition to the common configuration steps above, define a transaction program on your machine that will be the target program of conversations that will be started by client programs.

**Panel Configuration:** To define a transaction program, follow this sequence of panels:

- SNA Features
- Click on "Configure" to view "SNA Features" panel
- Select "Transaction program definitions"
- Click on "Create" to view "Create a TP" panel



```
Transaction program definition

0 Service TP
Transaction Program (TP) name      ?TPNAME?

OS/2 program path and file name    ?TPPATH?

Optional comment
_____

Optional values:

0 Conversation security required

Program parameter string           1

Icon path and file name            _____

-----
| Continue... | | Cancel | | Help |
-----
```

Figure 58. TP Definition Panel. This panel displays the parameters that need to be defined for a transaction program definition.

**NDF File Configuration:** To define a transaction program to your network node, your node definitions file must contain a DEFINE\_TP command, as shown in the example below.

---

```
define_tp
  tp_name(?TPNAME?)
  filespec(?TPPATH?)
  parm_string() 1
  tp_operation(nonqueued_am_started)
  program_type(vio_windowable); 2
```

---

Figure 59. NDF File Excerpt from BASE2.NDF for DEFINE\_TP

**Notes:**

**1** Enter any command line parameters that need to be run with the program.

**2** This parameter indicates how the TP is started. It can be one of the following:

- QUEUED\_OPERATOR\_STARTED
- QUEUED\_OPERATOR\_PRELOADED
- QUEUED\_AM\_STARTED
- NONQUEUED\_AM\_STARTED

### 6.5.5.2 Other Server Configuration

Because CM/2 supports APPN, you do not need to define partner LU names.

When your computer is the client, you will simply need to specify the fully qualified name of your partner LU. This fully qualified name includes the net ID and LU name concatenated with a period. To enable any partner to call you when your computer is a server, make sure your node definitions file contains the following:

---

```
define_defaults
  implicit_inbound_plu_support(yes);
```

---

Figure 60. NDF File Excerpt for implicit\_inbound\_plu\_support

Note: The implicit\_inbound\_plu\_support cannot be changed from the panel configuration.

---

## 6.6 Verifying Configuration

You must verify the changes you make to the configuration by using one of the following methods.

- Panel configuration: When you click on **Close** from the CM setup screens the program will check your configuration. Answer “Yes” to “Do you want to update active configuration?”
- Panel Configuration: Choose the **Verify** icon from the Communications Manager folder.

- NDF Configuration - Run the following cmverify command from the OS/2 Command prompt with the /e option to verify and update your configuration. Type CMVERIFY, then your NDF file name:

```
'cmverify <NDF file name>.NDF'
```

For releases prior to CM/2 1.0, the verify command is APPNV.

You should stop and restart Communications Manager to make changes active.

---

## 6.7 Running APING

To verify configuration between two computers, run APING from the OS/2 Command prompt with the following parameters:

- Parameter = ?PARTNERNET?.?PARTNERLU? or ?PLUALIAS? or ?SYMDEST?
- Options = Any options flags you wish to run with APING. Type APING ? for list.

```
APING ?PARTNERNET?.?PARTNERLU?
```

---

## 6.8 How to Find...

### 6.8.1 Panel Configuration

- LU name

You can find your local LU name in the Local Node Characteristics panel by following the following sequence of panels:

- Select "SNA local node characteristics"
- Click on "Configure" to view the "Local Node Characteristics" panel

The LU name is the local node name on the panel.

- CP name

The CP also is an LU; that means, the CP name is the same as the LU name found above (local node name).

- Net ID

The net ID is the network ID in the Local Node Characteristics panel.

- Local LAN address - the local LAN address cannot be found by the CM/2 panels.

### 6.8.2 NDF File

- LU name

You can find your LU name in the DEFINE\_LOCAL\_CP command in the following node definitions file excerpt:

```

define_local_cp
  fq_cp_name(?NETWORK?.?LUNAME?)
  cp_alias(mylu)
  node_id(?NODEID?)
  node_type(?NODETYPE?);

```

Figure 61. NDF File Excerpt from BASE2.NDF for DEFINE\_LOCAL\_CP

The LU name is LUNAME.

- CP name

The CP name is the same as the LU name found above.

- Net ID

The net ID is the ?PARTNERNET? in the excerpt of the DEFINE\_LOCAL\_CP command.

- Local LAN address

The LAN address is a 12-digit hexadecimal value that identifies your token-ring adapter to the network. There is a LAN address hard-coded on the token-ring adapter in the CM/2 machine. This hard-coded value is sometimes be overridden with something called a “locally administered address.” You can find your LAN address in the following ways.

- Check the computer’s \IBMCOM\LANTRAN.LOG file. You will see a line that says:

Adapter X has node address “LANADDRESS.” The value in LANADDRESS is your local LAN address.

- Run diagnostics on the computer’s reference diskette:

1. Boot the machine on its reference diskette.
2. Press Enter to clear the main panel.
3. Press Ctrl+A to start advanced diagnostics.
4. Select **System checkout**.
5. Press “Y” to indicate the list is correct.
6. Select **Run tests one time**.
7. Cursor down to “Primary Token-Ring Adapter” and press Enter.
8. Select the proper cable type.
9. Press Enter on the panel asking you to disconnect your cable (you don’t actually need to disconnect it for this exercise).
10. Press Enter when told the next screen will contain important information.
11. On the information screen, the value after Adapter Address is your LAN address (you may need to page down to see this value).
12. After making note of the Adapter Address, remove the reference diskette, reconnect your cable if you disconnected it, and press Ctrl+Alt+Del to re-boot your machine.





---

## Chapter 7. Networking Services/DOS Configuration

IBM Networking Services/DOS is a software product that supports the CPI-C interface APPC in the DOS and Microsoft\*\* Windows 3.0 and 3.1 environments. Networking Services/DOS allows a DOS machine to participate as a LEN node (see 1.3.7, "What Is APPN?" on page 6 for a discussion of node types). This chapter describes how to configure Networking Services/DOS running on DOS 3.3 or later on a workstation with a token-ring adapter connecting it to a token-ring local area network.

---

### 7.1 Prerequisites

- Networking Services/DOS, Version 1.0, part number 20G0437
- DOS, Version 3.3 or higher
- Local Area Network Support Program, Version 1.3 (supplied with Networking Services/DOS)
- Token-ring adapter

For additional configuration information, refer to the *Networking Services/DOS User's Guide and Reference*, S20G-0438.

---

### 7.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by Networking Services/DOS.

*Table 11. NS/DOS Terminology*

| <b>Standard Term</b> | <b>Networking Services/DOS Term</b> |
|----------------------|-------------------------------------|
| Link name            | Link name                           |
| Net ID               | Network ID or NETID                 |
| LU name              | Local LU name                       |
| Partner LU name      | Partner LU name                     |
| Local LAN address    | Adapter address                     |
| Adjacent LAN address | Remote computer LAN address         |

---

### 7.3 Networking Services/DOS Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following the recommendations in the worksheet, you will write *#INTER* in the right column on the *?MODE?* line. Then in Figure 64 on page 87 you will type *#INTER* on the line to replace *?MODE?* like this:

**?SYMDEST? ?PARTNERNET?.?PARTNERLU? #INTER ?TPNAME?**

Likewise, the other symbols on the line above will be replaced with the appropriate values from the right column of the configuration worksheet.

| <i>Table 12. NS/DOS Configuration Worksheet</i> |                                                                                                                                                                                                                                                                                                                                                                                         |                           |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Symbol</b>                                   | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                       | <b>Fill in value here</b> |
| <b>Values that must match with other places</b> |                                                                                                                                                                                                                                                                                                                                                                                         |                           |
| ?LOCALLU?                                       | This is the LU name of the machine you are defining to the network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information on how to define this value.                                                                                                                                                                                                                |                           |
| ?LOCALNET?                                      | This is the net ID of the machine you are defining to the network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information on how to define this value.                                                                                                                                                                                                                 |                           |
| ?PARTNERLU?                                     | This is the partner's LU name. Refer to the "How to find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                    |                           |
| ?PARTNERNET?                                    | This is the net ID of the partner computer. Use the net ID from the partner computer's "How to find..." section.                                                                                                                                                                                                                                                                        |                           |
| ?LANADDRESS?                                    | This is the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node). Refer to the "How to find..." section of the partner computer's configuration chapter for this value.                                                                                                                                              |                           |
| ?TPNAME?                                        | This is the name of the transaction program at the partner computer. It is a name that is sent across the network to the server machine. The server machine then maps this TP name to an executable program. The TP name is usually specified in a client/server product's documentation. For APING, the TP name on the server is <b>APINGD</b> .                                       |                           |
| ?MODE?                                          | See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section. |                           |
| <b>Local values</b>                             |                                                                                                                                                                                                                                                                                                                                                                                         |                           |
| ?LINKNAME?                                      | 1 to 8 letters or numbers which will be used as a local name on the Networking Services/DOS machine to refer to the link to a partner computer. Suggestion: <b>LINK0001</b>                                                                                                                                                                                                             |                           |
| ?SYMDEST?                                       | This is the CPI-C side information symbolic destination name. It is any 1-8 character name you choose. It will be used locally on the Networking Services/DOS machine to refer to a CPI-C side information entry. Suggestion: use the same value as ?LOCALLU?.                                                                                                                          |                           |
| ?TPPATH?                                        | This is the fully specified path and file name of the executable code for a server transaction program located on your machine. For example, if Networking Services/DOS is installed on the C:\ drive, this value could be:<br><b>C:\NSD\SAMPLES\APING\APINGD.EXE</b>                                                                                                                   |                           |

---

## 7.4 Working with Networking Services/DOS

### 7.4.1 Starting/Stopping APPC

Once your Networking Services/DOS configuration files are set up, you start Networking Services/DOS by issuing this command:

```
NSD START CONFIG.NSD
```

You can stop Networking Services/DOS and unload it from memory by issuing the command:

```
NSD STOP /U
```

### 7.4.2 Displaying Active Sessions

You can display active APPC sessions by issuing the command:

```
NSD LIST /SESSION
```

This command may be useful in determining where an error may be occurring if APING does not run successfully.

### 7.4.3 Other Commands

The other NS/DOS commands are documented in the *Networking Services/DOS User's Guide and Reference*, S20G-0438.

---

## 7.5 Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

### 7.5.1 Working with APPC Configuration

Networking Services/DOS configuration is done through configuration files that are loaded and interpreted when an NSD START command is issued. These files are:

- CONFIG.NSD
- SIDEINFO.NSD
- DEFINETP.NSD
- MODE.NSD

All these files need to be in the same directory. When Networking Services/DOS is started, it searches for these files in the current directory. To get Networking Services/DOS up and running from the .NSD files supplied with NS/DOS (in the \NSD\EXAMPLES subdirectory), you only need to alter the CONFIG.NSD and DEFINETP.NSD files.

## 7.5.2 Define Yourself to the Network

Before a Networking Services/DOS machine can communicate on a network, it must define itself to the network. This is done with an NSDN statement in the Networking Services/DOS's CONFIG.NSD file. The NSDN statement specifies the fully qualified LU name of the DOS machine.

Networking Services/DOS provides many sample configuration files in the \NSD\EXAMPLES directory. To use the token-ring example as your base configuration file, copy TKRING.NSD from the \NSD\EXAMPLES directory to \NSD\CONFIG.NSD. Then, throughout this chapter, make changes to this CONFIG.NSD as indicated in the examples.

---

```
NSDN ?LOCALNET?.?LOCALLU?
```

---

Figure 62. Define Yourself to the Network - (in CONFIG.NSD)

## 7.5.3 Additional Common Configuration

There are several more statements that can be added to your CONFIG.NSD to improve performance or to specify more detailed information about how Networking Services/DOS runs in your machine. See the *Networking Services/DOS User's Guide and Reference* to learn more about them. Here we will discuss just two of these statements that you may have to configure to get Networking Services/DOS to run. These statements control access to resources within your machine that may already be used by something else.

The NSDI statement controls which DOS interrupt Networking Services/DOS will claim. You only need to use this statement if there are problems running the NSD START command. The default interrupt is 0x68. When running the NSD START command, if you receive an error message that indicates that an interrupt is already in use, change (or add) the following line in your CONFIG.NSD, specifying a different interrupt number:

```
NSDI 68 /* valid values are 60 through 68 */
```

Another problem you may encounter, due to possible conflicts with other software running on your machine, is a conflict in which SAP (service access point) Networking Services/DOS uses when it opens the LAN adapter. The default value is 04. If you receive an error message when running the NSD START command that indicates there is a SAP conflict, add the following line to your CONFIG.NSD, specifying a different SAP:

```
TRSS 04 /* valid values are X'04' through X'FC' and must be */  
/* divisible by 4. X'08' is recommended as a */  
/* second choice. Then try '0C', '10', '14', '18'...*/
```

**Note:** The SAP you use must also be within the partner computer's valid range, so try to use as small a value as possible, such as 08 or 0C.

## 7.5.4 Define a Link to a Partner or Network Node

In order to start a conversation with another node, you must define a link to that node, or a link to a network node.

If you choose to define multiple links, you may also need to execute a command that tells Networking Services/DOS which link to use to find a particular partner LU.

### 7.5.4.1 Defining a Link

A link is defined with the TRLD statement:

---

```
TRLD ?LINKNAME?, ?LANADDRESS?
```

---

*Figure 63. Define a Link - (in CONFIG.NSD)*

### 7.5.4.2 Other Link Configuration

You can define more than one link by including more than one TRLD statement in your CONFIG.NSD file. When an APPC program attempts to establish a conversation with another node, Networking Services/DOS has to determine which link to route APPC traffic on. Networking Services/DOS will first search to see if a link has been assigned to the partner LU by a previous session activation. If so, that link is used; if not, Networking Services/DOS will send the request to find the partner LU to the first link specified in your CONFIG.NSD. If the partner LU is to be located through a different link, you must, in addition to defining the link with a TRLD statement, specify through which link the LU should be found. To do this, you must run the NSD ACTIVATE command after starting Networking Services/DOS with NSD START. The NSD ACTIVATE command looks like this:

```
NSD ACTIVATE LU=?PARTNERNET?.?PARTNERLU? LINK=?LINKNAME?
```

## 7.5.5 Configure to Run as a Client

### 7.5.5.1 Define CPI-C Side Information

Some applications, like APING, do not require CPI-C side information to run. These applications use programming calls available on a particular platform to dynamically create side information when running. Networking Services/DOS provides the programming calls that allow APING (and other applications) to do this, so for APING, you do not need to create this side information profile.

For those applications that require CPI-C side information, CPI-C side information is defined in the SIDEINFO.NSD file. To add a CPI-C side information entry, edit

this file and add a line specifying the symbolic destination name, partner LU name, mode name, and transaction program name as follows:

---

```
?SYMDEST? ?PARTNERNET?.?PARTNERLU? ?MODE? ?TPNAME?
```

---

Figure 64. Define CPI-C Side Information - (in SIDEINFO.NSD)

## 7.5.6 Configuring to Run as a Server

### 7.5.6.1 Define Transaction Programs

To run Networking Services/DOS as a server, you must, in addition to the common configuration steps above, define a transaction program (TP) on your machine that will be started when the client establishes the conversation. The TP is defined in the DEFINETP.NSD configuration file. Here is the syntax of this statement in DEFINETP.NSD:

---

```
?TPNAME? ?TPPATH? * * OPERATOR_STARTED
```

---

Figure 65. Define a Transaction Program - (in DEFINETP.NSD). The asterisks indicate that you want to accept the default timeout values when starting the transaction program.

The last value on the line specifies the “TP program operation.” This parameter indicates how the TP is started. It can be one of the following:

#### **AM\_STARTED**

The Program Launcher starts the program. The Program Launcher operates only in the Microsoft Windows environment.

#### **OPERATOR\_STARTED**

The Networking Services/DOS user starts the program. If you are not running in the Microsoft Windows environment, this is your only option. (Actually, if you’re not running in the Microsoft Windows environment, the TP program operation parameter is ignored because OPERATOR\_STARTED is the only valid operation).

## 7.5.7 Running APINGD

After running NSD START with the updated information in DEFINETP.NSD, you should be able to reach the Networking Services/DOS machine from another machine using the APING transaction. If you are using the Program Launcher in the Microsoft Windows environment, you must start the Program Launcher before starting APING on the partner machine. To start the Program Launcher, double-click an icon created from the \NSD\NSDPLW.EXE file, or place this icon in the startup folder to have the program launcher started whenever Windows is started.

If you are not using the Program Launcher, you will have to manually start APINGD.EXE on the Networking Services/DOS machine. This can be done before or after you start APING on the partner machine.

---

## 7.6 Running APING

With the APING transaction you should now be able to reach any of the computers you configured using the steps above.

To run APING, issue this command:

```
APING -n ?SYMDEST?
```

or you can specify the fully qualified LU name of your partner:

```
APING -n ?PARTNET?.?PARTNERLU?
```

If Networking Services/DOS should try to locate the partner machine on a link other than the first one specified in your CONFIG.NSD, you need to run the NSD ACTIVATE command after starting Networking Services/DOS, and before APING that partner machine. For example:

```
NSD ACTIVATE LU=?PARTNERLU?.?PARTNET? LINK=?LINKNAME?
```

---

## 7.7 How to Find...

- LU name

The LU name is specified in the CONFIG.NSD file on the NSDN line. The LU name consists of the entire string following the period.

- Net ID

The net ID is specified in CONFIG.NSD on the NSDN line. The net ID is the 1-8 characters preceding the period. See 7.5.2, "Define Yourself to the Network" on page 85 for details on the syntax of the NSDN statement.

- Control Point (CP) name

The CP name is the same as the LU name.

- LAN address

The LAN address is a 12-digit hexadecimal value that identifies your token-ring adapter to the network. There is a LAN address hard-coded on the token-ring adapter in the Networking Services/DOS machine. This hard-coded value can be overridden with something called a "locally administered address." You can find the LAN address on your token-ring card by running the program LANADDR, which is supplied with Networking Services/DOS. When you run LANADDR, the LAN address of your machine will be displayed as the "Adapter 0 in-use address." Use the 12 hexadecimal digits displayed. (If you have a secondary adapter installed and are accessing it with the Networking Services/DOS optional keyword TRAN, you would use the "Adapter 1 in-use address.") The "in-use address" displays the "locally administered address" if there is one being used.



---

## Chapter 8. Networking Services for Windows Configuration

Networking Services for Windows is a software product that supports the APPC (LU6.2) CPI-C interface in the Microsoft Windows 3.1 environment. Networking Services for Windows is based on the Networking Services/DOS product, with added features that allow better memory management and provide easy-to-use graphical user interfaces for configuring and operating your workstation.

Networking Services for Windows allows a workstation to participate as a low-entry networking (LEN) node (see 1.3.7, "What Is APPN?" on page 6 for a discussion of node types). This chapter describes how to configure a workstation running Networking Services for Windows with a token-ring adapter connecting it to a token-ring local area network.

### 8.1.1 Prerequisites

- Networking Services for Windows, Version 1.0, program number 5871-AAA, feature 9737
- DOS Version 5.0 or later
- Windows 3.1 or greater
- Local Area Network Support Program, Version 1.35 (supplied with Networking Services for Windows)
- Token-ring adapter

For additional configuration information, refer to the following Networking Services for Windows manuals:

- *APPC Networking Services for Windows: Configuration Parameters Reference for Administrators and Application Programmers*, SC31-8138-00. In the rest of this chapter, this book is called the *Configuration Parameters Reference*.
- *APPC Networking Services for Windows: Administrator's Guide*, SC31-8125-00. In the rest of this chapter, this book is called the *Administrator's Guide*.

---

## 8.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by Networking Services for Windows.

| <b>Standard Term</b> | <b>Networking Services for Windows Term</b> |
|----------------------|---------------------------------------------|
| Link name            | Link name                                   |
| Net ID               | Network name or NETID                       |
| LU Name              | Local LU name                               |
| Partner LU Name      | Partner LU name                             |
| Local LAN address    | Adapter address                             |
| Adjacent LAN Address | Remote address                              |

Table 13. Networking Services for Windows Terminology

---

### 8.3 Networking Services for Windows Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following the recommendations in the Worksheet, you will write #INTER in the right column on the ?MODE? line. Then in the instructions shown in 8.5.4.1, "Define CPI-C Side Information" on page 95 you will type #INTER to replace ?MODE?.

| <i>Table 14. Networking Services for Windows Configuration Worksheet</i> |                                                                                                                                                                                                                                                                                                                                                                                               |                           |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Symbol</b>                                                            | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                             | <b>Fill in value here</b> |
| <b>Values that must match with other places</b>                          |                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| ?LOCALLU?                                                                | This is the LU name of the machine you are defining to the network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information on how to define this value.                                                                                                                                                                                                                      |                           |
| ?LOCALNET?                                                               | This is the net ID of the machine you are defining to the network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for information on how to define this value.                                                                                                                                                                                                                       |                           |
| ?PARTNERLU?                                                              | This is the partner's LU name. Refer to the "How to find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                          |                           |
| ?PARTNERNET?                                                             | This is the net ID of the partner computer. Use the network name from the partner computer's "How to find..." section.                                                                                                                                                                                                                                                                        |                           |
| ?LANADDRESS?                                                             | This is the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node). Refer to the "How to find..." section of the partner computer's or network node's configuration chapter for this value.                                                                                                                                  |                           |
| ?TPNAME?                                                                 | This is the name of the transaction program at the partner computer. It is a name that is sent across the network to the server machine. The server machine then maps this TP name to an executable program. The TP name is usually specified in a client/server product's documentation. For APING, the TP name on the server is <b>APINGD</b> .                                             |                           |
| ?MODE?                                                                   | See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies which mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in 1.3.4, "What Is a Mode?" on page 5. |                           |
| <b>Local values</b>                                                      |                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| ?LINKNAME?                                                               | 1 to 8 letters or numbers (the first character must be a letter) which will be used as a local name on the Networking Services for Windows machine to refer to the link to a partner computer. Suggestion: <b>LINK0001</b>                                                                                                                                                                    |                           |
| ?SYMDEST?                                                                | This is the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It will be used locally on the Networking Services for Windows machine to refer to a CPI-C side information entry.                                                                                                                                                                  |                           |
| ?TPPATH?                                                                 | This is the fully specified path and file name of the executable code for a server transaction program located on your machine. For example, if Networking Services for Windows is installed on the C:\ drive, this value could be: <b>C:\NSD\SAMPLES\APINGD.EXE</b>                                                                                                                          |                           |

---

## 8.4 Working with Networking Services for Windows

### 8.4.1 Starting/Stopping APPC

Once you have completed configuration for Networking Services for Windows (as described in the section below), start Networking Services for Windows by doing one of the following:

- Using the *Autostart* program in one of these ways:
  - Double-click on the **Autostart Networking Services** icon in the IBM APPC Networking Services program group window
  - Drag the icon to the **Windows Startup** group
- Using the *Advanced Operations* program:
  1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.
  2. Click on **Operation**.
  3. Select **LU Control** from the pull-down menu.
  4. Click on **Initialize LU**.

You can stop Networking Services for Windows and unload it from memory by doing the following:

1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.
2. Click on **Operation**.
3. Select **LU Control** from the pull-down menu.
4. Click on **Terminate LU**.

### 8.4.2 Displaying Active Sessions

You can display active APPC sessions by doing the following:

1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.
2. Click on **Operation**.
3. Select **Connections** from the pull-down menu.
4. The next panel displays the following information:
  - Active links
  - The number of active sessions and conversations carried over the highlighted link, as well as other link information
  - All partner LUs with which your workstation has active sessions for the highlighted link
  - The number of active sessions and conversations with the highlighted partner LU, as well as whether single or parallel sessions are supported with that partner LU
5. You can also get additional information about the sessions and modes for the highlighted partner LU by clicking on the appropriate button in the Additional LU Information box:

- Session information is displayed with a panel for each session. If multiple sessions are activated with a given partner LU, click on **Next** to display information for each session.
  - Mode information is displayed by highlighting the mode for which you want to display mode data.
6. To get information about a different link or different partner LU, highlight the appropriate link or partner LU and repeat the steps above.

### 8.4.3 Other Operations

Other Networking Services for Windows operations are documented in the *Administrator's Guide*.

---

## 8.5 Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

### 8.5.1 Working with APPC Configuration

Use the Networking Services for Windows *Configure* program to enter configuration information. For information about other methods that Networking Services for Windows allows for providing configuration information, refer to the *Configuration Parameters Reference*.

### 8.5.2 Define Yourself to the Network

Before a Networking Services for Windows machine can communicate on a network, it must define itself to the network and know which data link protocol to use. This is done by specifying your local LU name and your connection type using the *Configure* program:

1. Double-click on the **Configure** icon in the IBM APPC Networking Services program group window.
2. Click on **Step 1**.
3. Type in your fully qualified local LU name by typing the following parameters from your worksheet on page 91.  
**?LOCALNET?. ?LOCALLU?**
4. Select **LAN** for your connection type.
5. Click on **OK**.

For other configuration parameters relating to the workstation as a whole, refer to the *Configuration Parameters Reference*.

### 8.5.3 Define a Link to a Partner or Network Node

In order to start a conversation with another node, you must define a link to that node, or a link to a network node.

#### 8.5.3.1 Defining a Link

You can either use the *Configure* program to define links that will be activated when you start Networking Services for Windows, or you can use the *Advanced Operations* program after you have started Networking Services for Windows to define links to be activated at that time.

To define one or more links using the *Configure* program, do the following:

1. Double-click on the **Configure** icon in the IBM APPC Networking Services program group window.
2. Click on **Step 2**.
3. For each link you want to activate, type in the **?LINKNAME?** parameter from your worksheet on page 91 in the Link Name field, and type in the **?LANADDRESS?** parameter from your worksheet on page 91 in the Remote Address field.
4. Click on **OK**.

To define one or more links using the *Advanced Operations* program, do the following:

1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.
2. Click on **Operation**.
3. Select **Connections** from the pull-down menu.
4. Click on **New Link** in the Link Control box.
5. Type in the **?LINKNAME?** parameter from your worksheet on page 91 in the Link Name field, and type in the **?LANADDRESS?** parameter from your worksheet on page 91 in the Remote Address field.
6. Repeat steps 4 and 5 for each new link that you want to activate.

#### 8.5.3.2 Configuring Other Links

Networking Services for Windows allows you to activate up to six LAN links. If more than one link is active when an APPC program attempts to establish a conversation with another node, Networking Services for Windows has to determine which link to route APPC traffic on. Networking Services for Windows first searches to see if a link has been assigned to the partner LU by a previous session activation. This link is called the *assigned link*. If so, that link is used; if not, Networking Services for Windows sends the request over the link that was activated first. This link is called the *default link*. If the partner LU is to be located through a different link, specify the link over which the LU should be found by doing the following:

1. Double-click on the **Advanced Operations** program icon.
2. Click on **Operation**.
3. Select **Connections** from the pull-down menu.

4. The Connections panel displays all active links. Click on the link you want to use so that it is highlighted.
5. Click on **Activate** in the LU Sessions box.
6. Type the following parameters from your worksheet on page 91:  
**?PARTNET?.?PARTNERLU?**  
 Also, type the **?MODE?** parameter from your worksheet in the Mode Name field. Fill in any other parameters you desire.
7. Click on **OK**.

## 8.5.4 Configure to Run as a Client

### 8.5.4.1 Define CPI-C Side Information

Some applications, like APING, do not require CPI-C side information to run. These applications use programming calls available on a particular platform to dynamically create side information when running. Networking Services for Windows provides the programming calls that allow APING (and other applications) to do this, so for APING, you do not need to create this side information definition.

For those applications that require CPI-C side information, you can either use the *Configure* program to create a side information definition when you start Networking Services for Windows, or you can use the *Advanced Operations* program after you have started Networking Services for Windows to create a side information definition that will exist until you delete it or you stop Networking Services for Windows.

To create a side information definition with the *Configure* program:

1. Double-click on the **Configure** icon in the IBM APPC Networking Services program group window.
2. Click on **Step 3**.
3. Click on the Side Information option button.
4. Click on **Define**.
5. In the Symbolic Destination Name field, type in the **?SYMDEST?** parameter from your worksheet on page 91.
6. In the Partner LU Name field, type in the following parameters from your worksheet on page 91:  
**?PARTNET?.?PARTNERLU?**
7. In the Mode Name field, type in the **?MODE?** parameter from your worksheet on page 91.
8. In the Transaction Program Name field, type in the **?TPNAME?** parameter from your worksheet on page 91.
9. Add security parameters if you desire.
10. Click on **OK**.

To create a side information definition with the *Advanced Operations* program:

1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.

2. Click on **Operation**.
3. Select **Connections** from the pull-down menu.
4. Perform steps 3 on page 95 through 10 on page 95 from the list above.

## 8.5.5 Configuring to Run as a Server

### 8.5.5.1 Define Transaction Programs

To run Networking Services for Windows as a server, you must, in addition to the common configuration steps above, define a transaction program (TP) on your machine that will be started when the client establishes the conversation.

You can either use the *Configure* program to create a TP definition when you start Networking Services for Windows, or you can use the *Advanced Operations* program after you have started Networking Services for Windows to create a TP definition that will exist until you delete it or you stop Networking Services for Windows.

To create a TP definition with the *Configure* program:

1. Double-click on the **Configure** icon in the IBM APPC Networking Services program group window.
2. Click on **Step 3**.
3. Click on the **Transaction Programs** option button.
4. Click on **Define**.
5. In the Transaction Program Name field, type in the **?TPNAME?** parameter from your worksheet on page 91.
6. In the File Specification field, type in the **?TPPATH?** parameter from your worksheet on page 91.
7. Click on the box titled *Started by Program Launcher* if you want to change the value. An *X* in the box indicates that the server program will be started automatically by the Program Launcher, if it is active, when an incoming conversation request arrives. If no *X* is in the box, you must manually start the server program.
8. Add other parameters if you desire.
9. Click on **OK**.

To create a TP definition with the *Advanced Operations* program:

1. Double-click on the **Advanced Operations** icon in the IBM APPC Networking Services program group window.
2. Click on **Operation**.
3. Select **Connections** from the pull-down menu.
4. Perform steps 3 through 9 from the list above.



---

## 8.6 Running APING

You should now be able to reach with the APING transaction any of the computers you configured using the steps above. In this case, your workstation is the APING client.

To run APING:

1. Double-click on the **Check Connection (APING)** program icon in the IBM APPC Networking Services program group.
2. In the Destination field, type in the following parameters from your worksheet on page 91:

**?PARTNET?.?PARTNERLU?**

3. Fill in or change any other parameters, if desired.
4. Click on **OK**.

---

## 8.7 Running APINGD

After defining the APINGD program at your workstation, you should be able to reach your workstation with the APING transaction from another machine. In this case, your workstation is the APING server.

If you are using the Program Launcher, you must start the Program Launcher before starting APING on the partner machine.

To start the Program Launcher:

1. Double-click on the **Advanced Operations** program icon.
2. Click on **Operation**.
3. Select **Attach Management** from the pull-down menu.
4. In the Attach Management window, if an *X* appears in the box titled Run Program Launcher, the Program Launcher is already active. If the *X* does not appear, click on the box to make it appear.

If you are not using the Program Launcher, you will have to manually start APINGD.EXE on the Networking Services for Windows machine. This can be done before or after you start APING on the partner machine.

---

## 8.8 How to Find...

- LU name

To display the LU name:

1. Double-click on the **Advanced Operations** program icon.
2. Click on **Operation**.
3. Select **LU Control** from the pull-down menu.
4. The LU name is displayed in the box titled Local LU Name.
5. The LU name is the string appearing after the period (if a period is present).

- Net ID

To display the net ID:

1. Double-click on the **Advanced Operations** program icon.
2. Click on **Operation**.
3. Select **LU Control** from the pull-down menu.
4. The net ID is displayed in the box titled Local LU Name.
5. The net ID is the string appearing before the period (if a period is present). If no period is present, there is no net ID.

- Control point (CP) name

The CP name is the same as the LU name.

- LAN address

The LAN address is a 12-digit hexadecimal value that identifies your token-ring adapter to the network. There is a LAN address hard-coded on the token-ring adapter in the Networking Services for Windows machine. This hard-coded value can be over-ridden with the so-called locally administered address. You can find the LAN address on your token-ring card by running the program LANADDR, which is supplied with Networking Services for Windows.

Run LANADDR before you start Windows. If you have already started Windows, exit Windows, and then run LANADDR.

When you run LANADDR, the LAN address of your machine will be displayed as the "Adapter 0 in-use address." Use the 12 hexadecimal digits displayed. (If you have a secondary adapter installed and you have edited the NSD.INI configuration file to change the adapter number parameter to 1, you would use the "Adapter 1 in-use address.") For more information about the adapter number parameter and about editing the NSD.INI file, refer to the *Configuration Parameters Reference*.

The "in-use address" displays the "locally administered address" if there is one being used; otherwise, the "in-use address" displays the hard-coded address.

---

## Chapter 9. CICS Configuration

The IBM Customer Information and Control System (CICS) provides an environment optimized for running very short programs called *transactions* on System/370\* and System/390\* processors. (CICS has been made available also for other system platforms, but we will describe in this chapter only the host environment.) Transactions consist of a program (that may perhaps call other programs) with an associated transaction identifier or *transaction ID*. The transaction ID is 1-4 characters long but typically is always four characters. For example, the transaction CEDA starts the program that performs online resource definition.

This chapter describes how to configure CICS to use the APING and APINGD sample programs.

---

### 9.1 Prerequisites

The following software levels are required for the definitions in this chapter:

- CICS/ESA\* Version 3 Release 3
- ACF/VTAM\* Version 3 Release 4.1 or Version 3 Release 3
- MVS/ESA\* Version 4 Release 3 or Version 4 Release 2
- NCP Version 5 Release 2 or later
- Token-ring adapter

In most cases, you will find CICS has already been installed and an LU name has been assigned. In addition, you will almost certainly find VTAM installed and the net ID has already been defined. Therefore, while we give instructions on how to set the LU name in CICS and VTAM, you probably will not need to make any changes. The information is very useful, however, because you will need it to configure other platforms that wish to communicate with CICS.

In addition, you should have the APING and APINGD sample programs for CICS.

These publications provide detailed information on the configuration process for CICS Version 3 Release 3 and VTAM Version 3 Release 4.1:

- *CICS/ESA Resource Definition (Online)*, SC33-0666
- *CICS/ESA System Definition Guide*, SC33-0664
- *VTAM Resource Definition Reference*, SC31-6438
- *VTAM Network Implementation Guide*, SC31-6434
- *NCP Resource Definition Reference*, SC30-3448

---

## 9.2 Terminology

Below is a table of standard APPC terms and the equivalent CICS terms. Using standard terms makes configuring two dissimilar platforms easier, so standard terms are used whenever possible. Some terms have no CICS equivalent but instead are set in VTAM or NCP.

| <b>Standard Term</b> | <b>CICS Term</b>          |
|----------------------|---------------------------|
| Link name            | PU name (VTAM)            |
| Net ID               | Network, NETID (see note) |
| LU name              | APPLID, ACBNAME           |
| Partner LU name      | Netname                   |
| LAN address          | LOCADD (NCP)              |
| Adjacent LAN address | DIALNO (VTAM)             |

**Note:** CICS uses network names only when defining CPI-C side information. VTAM keeps track of partner LUs and routing traffic to the partner LUs, in the same network or different networks.

---

## 9.3 CICS Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

For example, if you are following our excellent recommendations, you will write #INTER in the right column on the ?MODE? line. Then in Figure 73 on page 112 you will type #INTER on the CICS screen that looks like this:

```
MOdename ==> #INTER
```

Likewise, in Figure 70 on page 109 the substitution would look like this:

```
?PARTNERLU? LU LOCADDR=0,ISTATUS=ACTIVE, X  
MODETAB=?MODETABLE?,DLOGMOD=#INTER
```

Table 16 (Page 1 of 3). CICS Configuration Worksheet

| Variable                                      | How to determine the value for this symbol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fill in value here |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Values that must match in other places</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
| ?LOCALLU?                                     | This is the LU name of the CICS region you are configuring. It can be 1-8 characters (letters or numbers) but must begin with a letter. In CICS this is called the <i>APPLID</i> ; in VTAM this is called the <i>APPLID</i> or <i>ACBNAME</i> . Refer to 1.4, "How Do I Configure a Network?" on page 7 for information on how to define this value. If CICS is installed and running, you will not be able to choose this. You will have to get this value from the CICS or VTAM system programmer.                                                            |                    |
| ?LOCALNET?                                    | This is the net ID, called the <i>NETID</i> in VTAM. It can be 1-8 characters (letters or numbers) but must begin with a letter. CICS uses the value defined in VTAM. See 9.7, "How to Find..." on page 120 for information on how to find this value.                                                                                                                                                                                                                                                                                                          |                    |
| ?LOCALCP?                                     | This is the control point name of your machine. It can be 1-8 characters (letters or numbers) but must begin with a letter. Its value is set in VTAM, where it is called the <i>SSCPNAME</i> . See 9.7, "How to Find..." on page 120 for more details.                                                                                                                                                                                                                                                                                                          |                    |
| ?PARTNERCP?                                   | This is the control point name of the partner computer. VTAM uses this name in the <i>CPNAME</i> parameter to identify partner computers. Refer to the "How to find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                                                                                                                                                                 |                    |
| ?PARTNERLU?                                   | This is the partner's LU name. CICS calls this the <i>netname</i> . This is <i>NOT</i> the same as the ?LOCALNET? name described earlier. Refer to the "How to find..." section of the partner computer's configuration chapter for this value. In many cases this value will be the same as the preceding value (?PARTNERCP?).                                                                                                                                                                                                                                 |                    |
| ?PARTNERNET?                                  | This is the net ID of the partner computer. VTAM does all processing of net ID. Use the net ID from the partner computer's "How to find..." section. If this value is different from the value for ?LOCALNET?, special coding is required in VTAM (see Figure 71 on page 110 for an example).                                                                                                                                                                                                                                                                   |                    |
| ?LANADDRESS?                                  | This is the LAN address of the network processor that connects the host to the LAN. It is 12 hexadecimal digits (for example, x'10005A25EEF0' or x'400085950001'). This chapter assumes that the network processor is an IBM 3745 running NCP V5R2 or later.<br><br>VTAM's preferred method for connecting to APPN or LEN nodes requires the partner computer to initiate the connection. This relieves VTAM (and VTAM system programmers) from having to know the LAN Address of the partner computer. VTAM uses the ?PARTNERCP? name to identify the partner. |                    |
| ?TPNAME?                                      | This is the transaction program name. It is the name that is sent across the network to the server machine and can be 1-64 characters, including a period (.). The server machine then maps this TP name to an executable program. The TP name is usually specified in a client/server product's documentation. For <b>APINGD</b> , the default TP name is <b>APINGD</b> , but this can be changed.                                                                                                                                                             | <b>APINGD</b>      |

Table 16 (Page 2 of 3). CICS Configuration Worksheet

| <b>Variable</b>                                                                                                                                             | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Fill in value here</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| ?SERVERTRAN?                                                                                                                                                | A 4-character name for the CICS server transaction, that is, the transaction initiated by an APPC partner LU. This must match the first four characters of the transaction program name and must be in uppercase.                                                                                                                                                                                                                                                           | <b>APIN</b>               |
| ?MODE?                                                                                                                                                      | See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Sometimes a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> .                                                                                                                                                                                          | <b>#INTER</b>             |
| <b>Local values</b>                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
| ?LINKNAME?                                                                                                                                                  | 1 to 8 letters or numbers which will be used as a local name to refer to the link to a partner computer. You can choose any name you like, but since you will use this name later to refer to this link, choose a meaningful name. CICS relies on VTAM to handle this type of information. VTAM calls the link name the PU name and it must begin with an alphabetic character. See Figure 70 on page 109 for more information.                                             |                           |
| ?SYMDEST?                                                                                                                                                   | This is the CPI-C side information symbolic destination name. It is any 1-8 character name you choose. CICS does not require you to create side information. Example: <b>JOE</b> .                                                                                                                                                                                                                                                                                          |                           |
| <b>Profile names, file names</b> - these are names of CICS resources or members of MVS data sets. Unless otherwise noted, you can choose any name you want. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                           |
| ?PROCLIB?                                                                                                                                                   | The data set that contains the CICS startup procedure. This procedure library should already exist and will probably have a member for CICS. Examples: <b>SYS1.PROCLIB</b> or <b>IPO1.PROCLIB</b> .                                                                                                                                                                                                                                                                         |                           |
| ?CICSPROC?                                                                                                                                                  | The procedure name (a member in ?PROCLIB?) that starts CICS. This job must run <i>after</i> the VTAM application node (APPL) is active. Example: <b>CICS330</b> .                                                                                                                                                                                                                                                                                                           |                           |
| ?SITPARMS?                                                                                                                                                  | The data set with just those CICS System Initialization Table (SIT) parameters that are set at startup time. There are several dozen SIT parameters. If several CICS regions have the same settings for most of them, they can use the same pre-assembled table but change the ones that need to be unique (like the LU name) when starting CICS. One way to do this is with a data set containing the parameters to be changed. Example: <b>CICS330.SYSIN(DFH\$SIP1)</b> . |                           |
| ?SWNETNODE?                                                                                                                                                 | The VTAM switched major node containing the PU definition for the remote peripheral node (if the partner LU is in a DOS, OS/2, AIX, or AS/400 or other APPN platform). VTAM V3R4, the basis for the examples in this book, has a feature that dynamically creates the PU definition. This may already be defined. Example: <b>LANSW</b> .                                                                                                                                   |                           |
| ?APPLNODE?                                                                                                                                                  | The VTAM application major node with the CICS APPL statement. This must be varied active before starting CICS. This typically will already exist so contact your VTAM systems programmer for this. If you are looking on your own, it will usually have APPL in the name. Example: <b>CICSAPPL</b> .                                                                                                                                                                        |                           |

| <i>Table 16 (Page 3 of 3). CICS Configuration Worksheet</i> |                                                                                                                                                                                                                                                                |                           |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Variable</b>                                             | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                              | <b>Fill in value here</b> |
| ?GROUP?                                                     | A 1 to 8-character name for the collection of CICS definitions. CICS reserves for its own use names beginning with DFH. You can choose any name. Example: <b>OS2</b> or <b>AIX</b> ).                                                                          |                           |
| ?CON?                                                       | A 1 to 4-character <i>connection</i> name used as a nickname for the partner LU. The CICS connection defines the partner LU. Several other parameters are tied to the connection name. It does not have to match anything outside CICS. Example: <b>DWA1</b> . |                           |
| ?SESSION?                                                   | A 1 to 8-character name for the sessions with a given mode name.                                                                                                                                                                                               |                           |
| ?CLIENTTRAN?                                                | A 1 to 4-character name for the CICS client transaction, that is, a transaction started by a terminal user signed on to this CICS region. Example: <b>APNG</b> .                                                                                               |                           |
| ?CLIENTPGM?                                                 | A 1 to 8-character name for the client program. This typically is the same as the real program name and this chapter will use that convention. Example: <b>APING</b> .                                                                                         |                           |
| ?SERVERPGM?                                                 | A 1 to 8-character name for the server program. This typically is the same as the real program name and this chapter will use that convention. Example: <b>APINGD</b> .                                                                                        |                           |
| ?PROFILE?                                                   | A 1 to 8-character name for the partner characteristics in CICS's CPI-C side information. See 9.5.5.1, "Define CPI-C Side Information (Optional)" on page 115.                                                                                                 |                           |
| ?APINGLIB?                                                  | The load library containing the compiled and link-edited programs for APING and APINGD. Example: <b>CICSAPPS.LOADLIB</b> .                                                                                                                                     |                           |
| ?MODETABLE?                                                 | The binary table containing mode names that VTAM searches, usually a member of SYS1.VTAMLIB. This may already exist but may not have the preferred mode names (#INTER, #BATCH, etc.). Check to make sure. Example: <b>APPCMODE</b> .                           |                           |

## 9.4 Working with CICS and VTAM

This section describes commands that you (or an MVS system operator) must issue from an MVS operator console to make CICS and VTAM work. There are programs, such as the JES Spool Display and Search Facility (SDSF), that allow authorized users to view the system log and enter MVS commands from any 3270 session. If you have such a program then you don't have to be at the System/390 console to issue these commands.

VTAM definitions are grouped into *major nodes*, each of which is a separate member of SYS1.VTAMLST. The VBUILD TYPE= statement determines the type of major node. The two types you will use are *application* major nodes and *switched* major nodes. Application major nodes define host LUs using APPL statements, while switched major nodes define peripheral nodes using PU statements and LU statements. All of these will be described in more detail.

## 9.4.1 Starting/Stopping APPC

APPC is part of CICS; it starts automatically when CICS is started, and stops automatically when CICS is stopped. Starting CICS consists of two steps:

1. Starting the VTAM application major node that contains the CICS APPL definition. To do this, issue the following command from the MVS operator console:

```
v net,act,id=?APPLNODE?
```

2. Running an MVS job that starts CICS. This job (called a *procedure* or *proc*) is usually in a *procedure library* such as SYS1.PROCLIB. To start CICS, issue following command from the MVS console:

```
s ?CICSPROC?
```

The procedure can be included in the MVS startup list or a system operator can run it from the console. For more details on the startup procedure, see 9.5.2, “Defining Yourself to the Network” on page 105.

## 9.4.2 Other Commands

Other MVS and CICS commands that are necessary or just useful include the following:

MVS console commands

- If the partner LU is in a computer connected to an NCP (a common case for CICS), the VTAM definition for the partner computer must be active before the computer can even connect to NCP. (There are some exceptions to this. See *VTAM: Network Implementation Guide*, Chapter 5, Section 2 for more details.) In VTAM, a *switched major node* is a set of definitions for partner computers on a LAN (in this example). The following command activates the switched major node and all the partner computer definitions in it:

```
v net,act,id=?SWNETNODE?
```

If the major node is active the following commands deactivate and activate the link to the partner computer:

```
v net,inact,id=?LINKNAME?,i  
v net,act,id=?LINKNAME?
```

- Displaying an active LU shows all the sessions and session partners of that LU. The following commands display the CICS LU and the partner LU:

```
d net,id=?LOCALLU?,e  
d net,id=?PARTNERLU?,e
```



## CICS Commands

- In CICS, the CEMT transaction allows you to display and modify the status of connections, netnames, and mode names (that is, all sessions with a particular mode name):

```
cent inq conn(?CON?)
cent inq netname(?PARTNERLU?)
cent inq netname(?MODE?)
```

---

## 9.5 Configuration

This guide provides instructions for using CICS Resource Definition Online (RDO) to create and modify CICS definitions. To start Resource Definition Online, you must be logged on to CICS and your user ID must be authorized to run the CEDA transaction.

### 9.5.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

Since the primary role of CICS is being a server, the server discussion will come before the client discussion.

### 9.5.2 Defining Yourself to the Network

Typically, the LU name for CICS has already been defined by the CICS systems programmer. If you are logged on to CICS, for example, the CICS LU name appears in the lower right corner of the 3270 screen. If this is the case for you, skip directly to 9.5.3, “Define a Link to a Partner or Intermediate Node” on page 109.

If you must start from scratch, this section describes how to create the CICS LU name. The APPLID parameter in the CICS System Initialization Table (SIT) determines the LU name for CICS. These macro statements are assembled and link-edited into a binary table that CICS loads at startup time. The APPLID must match the ACBNAME used in the VTAM APPL statement.

The APPLID in the SIT can be overridden at start time by including some statements in the startup procedure. In particular, the APPLID can be (and usually is) specified this way. Figure 66 on page 106 is a CICS startup

procedure. The data set with the override parameters must be in the SYSIN DD concatenation list.

The highlighted sections are discussed in the notes below. This is not the complete listing, just the section from the beginning down to the DFHRPL DD statement.

---

```

//DFHSTART PROC START=' AUTO' ,
// INDEX1=' CICS330' ,
// INDEX2=' CICS330' ,
// REGNAM1=,
// REGNAM2=,
// REG='32M' ,
// DUMPTR=' YES' ,
// RUNCICS=' YES' ,
// OUTC=' *' ,
// RDRC=' A' ,
// SIP=1
      etc.

//*****
//***** EXECUTE CICS *****
//*****
//CICS EXEC PGM=DFHSIP,REGION=&REG,TIME=1440,
// COND=(1,NE,CICSCNTL),
// PARM=' START=&START,SYSIN'
//*
//* THE CAVM DATA SETS - XRF
//DFHXRMMSG DD DISP=SHR,
// DSN=&INDEX1..CNTL.CICS&REGNAM1..DFHXRMMSG
//DFHXRCTL DD DISP=SHR,
// DSN=&INDEX1..CNTL.CICS&REGNAM1..DFHXRCTL
//*
//* THE "FILEA" APPLICATIONS SAMPLE VSAM FILE
//* (THE FILEA DD STATEMENT BELOW WILL
//* OVERRIDE THE CSD DEFINITION IN GROUP DFHMROFD)
//FILEA DD DISP=SHR,
// DSN=&INDEX1..CICS&REGNAM1..FILEA
//*
//SYSIN DD DSN=?SITPARMS?,DISP=SHR
//DFHCMACD DD DSN=CICS330.DFHCMACD,DISP=SHR
//* THE CICS STEPLIB CONCATENATION
//STEPLIB DD DSN=EDC.V2R1MO.SEDCLINK,DISP=SHR
// DD DSN=&INDEX2..SDFHAUTH,DISP=SHR
// DD DSN=SYS1.COB2CICS,DISP=SHR
// DD DSN=SYS1.COB2LIB,DISP=SHR
//* DD DSN=IMS.RESLIB,DISP=SHR
//* THE CICS LIBRARY (DFHRPL) CONCATENATION
//DFHRPL DD DSN=EDC.V2R1MO.SEDCLINK,DISP=SHR
// DD DSN=&INDEX2..SDFHLOAD,DISP=SHR
// DD DSN=?APINGLIB?,DISP=SHR
// DD DSN=SYS1.COB2CICS,DISP=SHR
// DD DSN=SYS1.COB2LIB,DISP=SHR
      etc.

```

**1**

**2**

---

Figure 66. Startup Procedure for CICS - ?PROCLIB?(?CICSPROC?)

**Notes:**

**1** The ?SITPARMS? data set contains the overrides to the system initialization table. This file must be in the SYSIN DD list.

**2** The DFHRPL DD concatenation list is where CICS looks for executable programs and must contain the load library containing the APING and APINGD modules. In this example, the load library is ?APINGLIB?.

Figure 67 shows a data set with SIT override parameters, in particular the APPLID. Once CICS has started, these parameters become part of the SIT for this CICS region.

---

```
SIT=6$,  
XRF=NO,  
SEC=YES,  
XAPPC=YES,  
XCMD=NO,  
XDCT=NO,  
XJCT=NO,  
XPCT=NO,  
XPPT=NO,  
XTST=NO,  
XTRAN=YES,  
XFCT=NO,  
XPSB=NO,  
AUXTR=ON,  
AUXTRSW=NEXT,  
APPLID=(?LOCALLU?), 1  
ISC=YES,  
GRPLIST=MNFLIST,  
.END
```

---

*Figure 67. CICS SIT Override Parameters - CICS330.SYSIN(DFH\$SIP1)*

**Note:**

**1** The APPLID must match the VTAM ACBNAME parameter.

To define the CICS LU name in VTAM, you will need to set up an application major node with a minor node for this CICS region. In VTAM, the name of a resource (LU, APPL, etc.) is the name that precedes the key word in the definition. Figure 68 on page 108 shows an example of a VTAM application major node with one minor node (that is, one APPL statement).

---

```

?APPLNODE? VBUILD TYPE=APPL
?LOCALLU?  APPL  ACBNAME=?LOCALLU?,           X
              AUTH=(ACQ,PASS,VPACE),           X
              MODETAB=?MODETABLE?,         X
              EAS=200,                          X
              PARSESS=YES,                      X
              VPACING=0,                        X
              SONSCIP=YES

```

---

Figure 68. VTAM Application Major Node - SYS1.VTAMLST(?APPLNODE?)

**Notes:**

1. By convention, the major node name (the label on the VBUILD statement) is also the name of the member in SYS1.VTAMLST.
2. The ACBNAME must match the APPLID parameter in the CICS system initialization table. If the ACBNAME is not specified, it defaults to the name directly preceding the APPL keyword (?LOCALLU? in this figure).
3. The mode table ?MODETABLE? must contain the mode names used by partner LUs that initiate connections to this CICS. VTAM only checks the name (the parameters can be anything or nothing). VTAM does not check outbound BINDs for mode names, only inbound BINDs. So you may run into a situation where you can acquire a session from CICS successfully but a CNOS from a remote system will fail.
4. The continuation character (X in this example) must be in column 72, and continuation lines (here the MODETAB=...) must begin in column 16.
5. PARSESS=YES indicates this CICS will use parallel sessions.
6. Another parameter, APPC, is not coded here because the default, APPC=NO, is the desired value. CICS uses its own APPC implementation and does not use VTAM's APPC support.

There are two mode names that must be in the mode table (?MODETABLE?) named in Figure 68. They are SNASVCMG and ?MODE? (the mode name from the worksheet in 9.3, "CICS Configuration Worksheet" on page 100). The assembler source code in Figure 69 provides working definitions. Add this source code to the source code for the mode table, assemble it, and re-link it to SYS1.VTAMLIB.

---

```

*          LOGMODE TABLE ENTRY FOR LU 6.2 CNOS SESSION
SNASVCMG MODEENT LOGMODE=SNASVCMG,FMPROF=X'13',TSPROF=X'07',   *
              PRIPROT=X' B0', SECPROT=X' B0', COMPROT=X' DOB1',   *
              RUSIZES=X'8686',ENCR=B'0000',SSNDPAC=7,           *
              PSERVIC=X'0602000000000000000000000000300',      *
              SRCVPAC=7,PSNDPAC=7,TYPE=0
*          LOGMODE TABLE ENTRY FOR LU 6.2 INTERACTIVE SESSIONS
?MODE?  MODEENT LOGMODE=?MODE?,           *
              ENCR=B'0000',SSNDPAC=7,                       *
              SRCVPAC=7,PSNDPAC=7

```

---

Figure 69. VTAM Mode Definitions - SNASVCMG and ?MODE?

### 9.5.3 Define a Link to a Partner or Intermediate Node

To define a link to a partner or intermediate node, create a VTAM switched major node with a physical unit (PU) definition. If the partner LU is in the same system (APPC/MVS or another CICS region, for example), skip this section and go to 9.5.4, “Configure to Run as a Server” on page 110.

**Note:** The examples here are for APPN nodes and LEN nodes. If the partner LU is in another S/390\* host, subarea routing must be used and VTAM on both hosts must have proper paths defined to allow CICS to communicate with the partner LU.

Since the next node in the path to the partner LU may be just an intermediate hop, the term *adjacent link* will be used to name the link chosen to route the traffic to the partner LU.

For most APPC systems communicating with CICS, the link to the host S/390 is activated by the remote system, not by VTAM. (CICS does not know about link definitions at all.) The examples shown here represent APPN nodes or LEN nodes that activate links to VTAM.

The following is a sample VTAM switched major node:

---

```
?SWNETNODE? VBUILD TYPE=SWNET
?LINKNAME? PU ADDR=04, X
              CPNAME=?PARTNERCP?, X
              PUTYPE=2, X
              MAXDATA=2057, X
              MAXPATH=1
?PARTNERLU? LU LOCADDR=0,
              ISTATUS=ACTIVE, X
              MODETAB=?MODETABLE?, X
              DLOGMOD=?MODE?
```

---

Figure 70. VTAM Switched Major Node - SYS1.VTAMLST(?SWNETNODE?)

#### Notes:

1. The name of the switched node (?SWNETNODE?) is the label of the VBUILD statement.
2. VTAM thinks of PUs as links; this name is strictly internal to VTAM.
3. The CPNAME in this definition is obtained from the partner (or defined by the VTAM system programmer and given to the person setting up the partner computer). It *must* match exactly. The net ID is by default the same as VTAM’s (see 9.7, “How to Find...” on page 120).
4. On the platforms that will use this form of VTAM definition, it is quite likely that ?PARTNERLU? and ?PARTNERCP? are one and the same. In fact, for Networking Services/DOS, this is a requirement.
5. VTAM only requires that the mode name be in the mode table. Making it the default (DLOGMOD) just makes things tidier. Note that the mode name SNASVCMG must also be in the mode table.

If the partner computer has a different net ID from VTAM's, then you must have VTAM Version 3 Release 4 or later to use the following definition. The partner computer is said to be in a *nonnative* network.

---

```

?SWNETNODE? VBUILD TYPE=SWNET,MAXGRP=6,MAXNO=6
?LINKNAME? PU ADDR=04, X
              CPNAME=?PARTNERCP?, X
              PUTYPE=2, X
              MAXDATA=2057, X
              MAXPATH=1, X
              XNETALS=YES, X
              NETID=?PARTNERNET?
?PARTNERLU? LU LOCADDR=0,ISTATUS=ACTIVE, X
              MODETAB=?MODETABLE?,DLOGMOD=?MODE?

```

---

Figure 71. VTAM Switched Major Node, Nonnative Network - SYS1.VTAMLST(?SWNETNODE?)

**Notes:**

1. You must code XNETALS=YES here and in the VTAM start options. It is valid only with VTAM V3R4 or later.
2. The NETID is the partner net ID from the worksheet in 9.3, "CICS Configuration Worksheet" on page 100.

### 9.5.4 Configure to Run as a Server

To configure CICS as a server you must define the following:

- A CONNECTION object (with the partner LU name)
- A SESSIONS object (with the mode name for the session)
- A TRANSACTION object (with the TP Name to be started)
- A PROGRAM object (used by the TRANSACTION object)

In CICS, *objects* have properties such as authorization lists (what user IDs can use the object), resources required (memory, buffers), etc. CICS manages all these to provide low response time.

**Note:** To distinguish CICS objects, such as a CONNECTION, from more generic usages, the CICS object names will be in uppercase. For example, a PROGRAM refers to the CICS definition for a program object, while a program can be any executable file or load module.

To create and modify definitions in CICS, start the CEDA transaction. All definitions in CICS are kept in *groups*. Most object identifiers must be globally unique, that is, cannot be used in any other group. SESSIONS objects are an exception to this rule. In the following sections all the definitions are in the same group.

### 9.5.4.1 Defining a Connection

To define a connection in CICS, type the following at a clear screen:

```
ceda define group(?GROUP?) connection(?CON?)
```

CICS folds all characters to uppercase, so you don't have to worry about typing lowercase characters. If the group does not exist, CICS will create it for you automatically. Figure 72 shows the 3270 screen that results from this command. CICS fills in the group name and the CONNECTION identifier from the values you typed. On this screen and all other CICS screens, if a value must be selected from a list, then the part of the list value that is uppercase serves as an abbreviation. For example, the ACcessmethod parameter has options of Vtam, IRc, INdirect, and Xm. To select Vtam, typing V is the same as typing VTAM.

```
OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFINE
Connection      : ?CON?
Group           : ?GROUP?
Description     ==> PARTNER LU
CONNECTION IDENTIFIERS
Netname        ==> ?PARTNERLU?
INDsys         ==>
REMOTE ATTRIBUTES
REMOTESystem   ==>
REMOTENAME     ==>
CONNECTION PROPERTIES
ACcessmethod   ==> Vtam          Vtam | IRc | INdirect | Xm
Protocol       ==> Appc          Appc | Lu61
Singlesess     ==> No           No | Yes
DATAstream     ==> User         User | 3270 | SCs | STRfield | Lms
RECORDformat   ==> U           U | Vb
OPERATIONAL PROPERTIES
+ Autoconnect  ==> No           No | Yes | All
INService      ==> Yes         Yes | No
SECURITY
SEcurityname   ==>
ATTachsec      ==> Local       Local | Identify | Verify | Persistent
                                     | Mixidpe
BINDPassword   ==>             PASSWORD NOT SPECIFIED
BINDSecurity   ==> No         No | Yes

APPLID=TOCICS3
```

Figure 72. CEDA DEFINE GROUP(?GROUP?) CONNECTION

#### Required parameters:

1. *Connection* is a 1-4 character nickname for this partner LU.
2. *Netname* is the partner LU name. The netname must match a VTAM definition, either from a dynamically defined cross-domain resource (CDRSC) or from a static definition in a VTAMLST member. (See Figure 70 on page 109.) CICS uses netname to refer to ?PARTNERLU? and does not allow you to set the partner net ID. Remember, the fully qualified partner name is ?LOCALNET?.?PARTNERLU? (for example, USNET1.PARTNER).
3. *Protocol* must be entered and must be APPC.

4. *Singlesess* must be set to NO. The example definitions in this guide all require parallel sessions.
5. The “+” sign indicates the bottom of the first screen displayed by CEDA. The function key settings are displayed at the bottom of the screen (but not shown here).
6. *Attachsec* specifies the type of security that can be used. Persistent means that this partner sends a user ID and password the first time it tries to start a transaction; subsequent transactions are sent with just the user ID and some bits that say “persistent verification - already signed on.” CICS V3R3 will keep a table of logged-on users. The partner system can still try to start a program with no security and if the transaction does not require security, it will run. However, transactions that require RACF\* user-ID authorization would fail in such cases.

Here the default, “Local,” means that any transaction that can be run by the default user ID, CICSUSER, can be run by this partner LU.

### 9.5.4.2 Defining Sessions

To define the mode name and session characteristics for the partner LU, a SESSIONS definition must be created. The following command builds a 3270 screen that allows you to do so.

```
ceda define group(?GROUP?) sessions(?SESSION?)
```

Figure 73 shows the 3270 screen that you should see as a result.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFine
Sessions      : ?SESSION?
Group         : ?GROUP?
Description   ==> ?MODE? SESSIONS FOR PARTNER LU
SESSION IDENTIFIERS
Connection    ==> ?CON?
SESSName      ==>
NETnameq      ==>
MODename      ==> ?MODE?
SESSION PROPERTIES
Protocol      ==> Appc           Appc | Lu61
Maximum       ==> 008 , 004     0-999
RECEIVEPfx    ==>
RECEIVECount  ==>              1-999
SENDPfx       ==>
SENDCount     ==>              1-999
SENDSize      ==> 04096         1-30720
+ RECEIVESize ==> 04096         1-30720

APPLID=TOCICS3

```

Figure 73. CEDA DEFINE GROUP(?GROUP?) SESSIONS



#### Required parameters:

1. *Sessions* is the CICS name for this session set. The name must be unique within this group.
2. *Connection* identifies the CICS connection in this group (in other words, the partner LU) associated with this mode name.
3. *MOdename* specifies the mode for this group of sessions.
4. *Maximum* specifies the number of sessions for this mode name. The values shown here match the default values for the mode names #INTER and #BATCH as defined in APPN end nodes and network nodes.

#### 9.5.4.3 Define Transaction Program - Server

To define a transaction program in CICS requires two things, a TRANSACTION and a PROGRAM. The TRANSACTION definition assigns the unique four-character transaction identifier for this CICS region, while the PROGRAM establishes characteristics of the executable code. The examples here show the server side of APING, namely APINGD.

To define the APINGD program, type the following command:

```
ceda define group(?GROUP?) program
```

You should see the screen shown in Figure 74.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFine
  PROGram      : ?SERVERPGM?
  Group       : ?GROUP?
  DEscription ==> TEST PROGRAM TO ALLOCATE AND DEALLOCATE
  Language    ==> C                                CObo1 | Assembler | Le370 | C | P1i
  | Rpg
  RELoad      ==> No                                No | Yes
  RESident    ==> No                                No | Yes
  USAge       ==> Normal                            Normal | Transient
  USElpacopy  ==> No                                No | Yes
  Status      ==> Enabled                          Enabled | Disabled
  RS1         : 00                                  0-24 | Public
  Cedf        ==> Yes                               Yes | No
  DATalocation ==> Below                            Below | Any
  EXECKey     ==> User                              User | Cics
  REMOTE ATTRIBUTES
  REMOTESystem ==>
+  REMOTENAME ==>
  APPLID=TOCICS3
```

Figure 74. CEDA DEFINE GROUP(?GROUP?) PROGRAM

**Required parameters:**

1. *PROGram* is the name of the member of ?APINGLIB? that contains the APINGD executable code. (See Figure 66 on page 106 for the JCL to include this load library in CICS's search list.)
2. *Language* specifies the source language of the program. The APINGD sample program is written in C, so the default, Cobol, must be changed. There is a Cobol version of APINGD that will run on CICS systems that do not have CPI-C support (such as CICS Version 2 Release 1.2) or that do not have the C run-time libraries. The Cobol source code is available on CompuServe, the IBM BBS, and MKTTOOLS.

To define the transaction, type the following command:

```
ceda define group(?GROUP?) transaction
```

The resulting screen should resemble that shown in Figure 75.

```
OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFINE
Transaction   : ?SERVERTRAN?
Group         : ?GROUP?
Description   ==> APING SERVER TRANSACTION
PROGm         ==> ?SERVERPGM?
TWasize       ==> 00000                0-32767
PROFile       ==> DFHCICST
PArTitionset  ==>
.
.
.
ALIASES
Alias         :
TASKReq       :
XTRanid       :
+ TPName      : APINGD

APPLID=TOCICS3
```

Figure 75. CEDA DEFINE GROUP(?GROUP?) TRANSACTION

**Required parameters:**

1. *TRansaction* is the 1 to 4-character transaction ID. The APING client specifies a remote TP name of APINGD (as a default). When CICS receives a request to start a transaction, it only looks at the first four characters of the TP name. Therefore APING must be the transaction ID used by this program.
2. *PROGm* is a pointer to the PROGRAM definition. In this case the PROGRAM definition has the same name as the program.
3. The *TPName* parameter is not supported in CICS/MVS\* Version 2,

The other values shown in this example are local system defaults.

#### 9.5.4.4 Installing the Definitions

Before *any* definitions can be used they must be added to the running CICS System Definition (CSD) using the INSTALL command. This is accomplished by typing:

```
CEDA INSTALL GROUP(?GROUP?)
```

This command will install all the objects in the group - CONNECTIONs, SESSIONs, PROGRAMs, etc. Some objects can be installed individually, too. Here is an example of installing a change to the program APING:

```
CEDA INSTALL GROUP(?GROUP?) PROGRAM(APING)
```

If a resource is in use, or *In Service* in CICS terms, the installation will fail. If you get the INSTALLATION FAILED message, you can display the messages by pressing the PF9 key. This shouldn't happen the first time, however.

If you need to take a CONNECTION out of service, or disable a TRANSACTION or PROGRAM, use the CEMT transaction (see 9.4, "Working with CICS and VTAM" on page 103).

### 9.5.5 Configure to Run as a Client

Only the client has to deal with CPI-C side information and CICS provides a default entry that allows programs to use CPI-C with no predefined side information. APING will accept a fully qualified partner LU name (?LOCALNET?.?PARTNERLU?) as the partner LU parameter. Therefore, the following two definitions are not necessary if the connection and sessions definitions follow the guidelines stated above.

The PARTNER definition contains most of the details, but the default profile uses a blank mode name. The PROFILE definition uses the #INTER mode name.

#### 9.5.5.1 Define CPI-C Side Information (Optional)

To define CPI-C side information in CICS you must create a PARTNER definition and a PROFILE definition. Both are optional. You can invoke APING with either the CICS netname (?PARTNERLU?) or a fully qualified partner LU name (?LOCALNET?.?PARTNERLU?) and APING will work properly.

To create a PARTNER definition, type the following command in CICS:

```
ceda define group(?GROUP?) partner
```

The 3270 screen shown in Figure 76 on page 116 should appear. Type in the values for Partner, Netname, Network, and TP name from the worksheet in 9.3, "CICS Configuration Worksheet" on page 100.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFine
PARTner      : ?SYMDEST?
Group        : ?GROUP?
Description  ==> CPI-C SIDE INFO
REMOTE LU NAME
NETName      ==> ?PARTNERLU?
NETWork      ==> ?PARTNERNET?
SESSION PROPERTIES
Profile      ==> DFHCICA
REMOTE TP NAME
Tpname       ==> ?TPNAME?
              ==>
Xtpname      ==>
              ==>
              ==>

APPLID=TOCICS3

```

Figure 76. CEDA DEFINE GROUP(?GROUP?) PARTNER. The CPI-C side information.

**Required parameters:**

1. *PARTner* is the name for this resource in CICS.
2. *NETName* is the partner's LU name. *NETWork* is the partner's net ID.
3. *Profile* is the set of characteristics this partner has. The most important of these is the modename. The default profile, DFHCICA, works if the program sets the mode name explicitly. APING does set the mode name to #INTER as the default.
4. *Tpname* is the initial setting for the remote TP name. This can be overridden in the program using Set\_TP\_Name (CMSTPN). The TP name must match a corresponding TP definition at the remote system.

To define a PROFILE to explicitly set the mode name for the CPI-C side information, type the following command:

```
ceda define group(?GROUP?) profile
```

The screen shown in Figure 77 on page 117 should appear. Type in the values for ?PROFILE? and ?MODE? from the worksheet in 9.3, "CICS Configuration Worksheet" on page 100.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFINE
PROFile      : ?PROFILE?
Group        : ?GROUP?
DEscription  ==> CPI-C PROFILE TO CHANGE MODE NAME
Scrnsize     ==> Default          Default | Alternate
Uctran       ==> No              No | Yes
MOdename     ==> ?MODE?
PRIntercomp  ==> No              No | Yes
JOURNALLING
Journal      ==> No              No | 1-99
MSGJrn1     ==> No              No | INPut | Output | INOut
PROTECTION
MSGInteg    ==> No              No | Yes
Onewte      ==> No              No | Yes
PROtect     ==> No              No | Yes
Chaincontrol ==> No              No | Yes
PROTOCOLS
+ DVsuprt   ==> All             All | Nonvtam | Vtam

APPLID=TOCICS3

```

Figure 77. CEDA DEFINE GROUP(?GROUP?) PROFILE

**Required parameters:**

1. *PROFile* is the name for this resource. This name must match the *PROFile* parameter in the PARTNER definition.
2. *MOdename* identifies the mode for this side information entry. There must be a SESSIONS definition with the same mode name. (Remember, this profile entry is optional if the application uses a default mode name, as APING does.) We recommend that ?MODE? be #INTER or one of the other mode names that ship with APPN products - #BATCH, #INTERSC, or #BATCHSC.

**9.5.5.2 Define Transaction Program - Client**

Defining the client TRANSACTION and PROGRAM is just like defining the server as described in 9.5.4.3, "Define Transaction Program - Server" on page 113. To define the PROGRAM, type the following in CICS:

```
ceda define group(?GROUP?) program
```

You should get the screen shown in Figure 78 on page 118.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFINE
PROGRAM      : ?CLIENTPGM?
Group       : ?GROUP?
Description ==> APING CLIENT PROGRAM
Language    ==> C                                CObol | Assembler | Le370 | C | Pli
  | Rpg
RELoad      ==> No                               No | Yes
RESident    ==> No                               No | Yes
USAge       ==> Normal                            Normal | Transient
USEIpcopy   ==> No                                No | Yes
Status      ==> Enabled                           Enabled | Disabled
RSI         : 00                                  0-24 | Public
Cedf        ==> Yes                               Yes | No
DAtalocation ==> Below                            Below | Any
EXECKey     ==> User                              User | Cics

REMOTE ATTRIBUTES
REMOTESystem ==>
REMOTENAME ==>
Transid     ==>
EXECUTIONset ==> Fullapi                          Fullapi | Dplsubset

APPLID=TOCICS3

```

Figure 78. CEDA DEFINE GROUP(?GROUP?) PROGRAM. Here you tell CICS about the executable program.

**Required parameters:**

1. *PROGRAM* is a member of the MVS load library ?APINGLIB? included in the DFHRPL DD concatenation list in the CICS startup procedure. (See Figure 66 on page 106.)
2. *Language* must be set to C.

To define the TRANSACTION, type the following in CICS:

```
ceda define group(?GROUP?) transaction
```

You should get the screen shown in Figure 79 on page 119. Modify the Transaction and Program fields as described in the notes.

```

OVERTYPE TO MODIFY                                CICS RELEASE = 0330
CEDA DEFINE
Transaction   : ?CLIENTTRAN?
Group         : ?GROUP?
Description   ==> APING CLIENT TRANSACTION
Program      ==> ?CLIENTPROG?
TWasize      ==> 00000                      0-32767
PROFile      ==> DFHCICST
PARTitionset ==>
STatus       ==> Enabled                    Enabled | Disabled
PRIMedsize   : 00000                      0-65520
TASKDATAloc  ==> Below                      Below | Any
TASKDATAkey  ==> User                       User | Cics
REMOTE ATTRIBUTES
DYNAMIC      ==> No                         No | Yes
REMOTESystem ==>
REMOTENAME   ==>
TRProf      ==>
+ Localq    ==>                             No | Yes

APPLID=TOCICS3

```

Figure 79. CEDA DEFINE GROUP(?GROUP?) TRANSACTION

**Required parameters:**

1. *TRansaction* is the four-character transaction ID. This must be unique in this CICS region. As this transaction is started by a local terminal user, it does not need to match anything specified at the remote system.
2. *PROGram* is a pointer to the PROGRAM object defined in Figure 78 on page 118

**Remember:**

to CEDA INSTALL your new definitions! (See 9.5.4.4, "Installing the Definitions" on page 115.)

## 9.6 Running APING

To run APING, type any of the following commands at a clear CICS screen (don't forget the period if you use the first format):

```

?CLIENTTRAN? -n ?PARTNERNET?.?PARTNERLU?
?CLIENTTRAN? -n ?PARTNERLU?
?CLIENTTRAN? -n ?SYMDEST?

```

You should see the APING logo and output. The "-n" switch tries to start the APINGD transaction on the remote computer without any security information (user ID and password).

**Note:** If you are running with RACF, your transaction must be authorized and your user ID must be authorized to use it. If you get an error message like DFHAC2033 ... You are not authorized to use transaction XXXX, you will need to contact your RACF administrator.

You may need to manually start a session between CICS and the partner LU, since CICS does not do this automatically. To start a session with the partner session, at a CICS screen type this command:

```
cent inq con(?CON?)
```

You will get the screen shown in Figure 80. By the connection and netname for the partner LU you should see “Ins Acq.” This is CICS shorthand for “In-service, acquired.” If the status is “Ins Rel,” overtyping the Rel with Acq and pressing the Enter key. The resulting screen should now have “Ins Acq” as the status. If not, contact your VTAM systems programmer and make sure that the partner LU is active. You can also use the commands described in 9.4.2, “Other Commands” on page 104 to display or activate the partner LU or switched major node.

```

INQ CON(?CON?)
STATUS: RESULTS - OVERTYPE TO MODIFY
Con(?CON?) Net(?PARTNERLU?)      Ins Rel          NORMAL

```

Figure 80. CICS Status for Connection ?CON?

## 9.7 How to Find...

- LU Name

If you can log on to the CICS region to begin defining partners, the CICS LU name appears on the bottom right of the screen as **APPLID=?LOCALLU?**. Here that’s TOCICS3.

- Control Point (CP) Name

In MVS systems, the CP name is equivalent to the name of the VTAM system services control point (SSCP). It takes its value from the SSCPNAME parameter in ATCSTRxx (see Figure 81).

- Net ID

The net ID can be found in the VTAM start list member of SYS1.VTAMLST. Look for a member named ATCSTRxx, where xx is 00 or TS or something. It should look like this:

```

HOSTSA=1,                X
SSCPID=01,               X
SSCPNAME=?LOCALCP?,     X
DYNASSCP=NO,            X
NETID=?LOCALNET?,       X
MAXSUBA=63,             X
CONFIG=00,              X
NOPROMPT,               X
etc.

```

Figure 81. The VTAM Start Parameter List - SYS1.VTAMLST(ATCSTR00)



- LAN Address

The LAN address for a CICS host connected to a token-ring through a 3745, 3720, or 3725 is in the NCP gen in SYS1.VTAMLST. Look for a GROUP macro statement with ECLTYPE=PHYSICAL and immediately after that should be a LINE macro with a LOCADD parameter. That is the LAN address. An example is shown in Figure 82.

---

```
*   BUILDING RING DEFINITIONS (PHYSICAL)
T030T2PG GROUP ECLTYPE=(PHYSICAL,ANY),          *
              TYPE=NCP,                          *
              etc.
T030T2PL LINE ADDRESS=(1089,FULL),LOCADD=?LANADDRESS?,PORTADD=2,  *
              RCVBUFC=4095,MAXTSL=692,ADAPTER=TIC2,TRSPEED=4,    *
              UACB=(X$P2AX,X$P2AR)
```

---

*Figure 82. Portion of NCP Gen with LAN Address*



---

## Chapter 10. APPC/MVS Configuration

This chapter describes how to configure APPC/MVS. The configuration involves the APPC/MVS subsystem, VTAM, and NCP. Examples of configuration of each are shown. The file names shown are sample files created for VTAM, NCP, and APPC/MVS.

---

### 10.1 Prerequisites

Software and hardware prerequisites for APPC/MVS include:

- MVS/ESA V4.2 or later
- VTAM V3.3 or later for MVS/ESA
- NCP V5.2 or later
- 3745 with token-ring attachment
- Using the transaction program (TP) APING as a sample TP
- Single SNA domain.

While the 3745 is not a strict prerequisite this chapter describes only configuration with a 3745 as token-ring gateway. When using a 3172 as a host token-ring gateway, you will find end-to-end configuration definitions and installation considerations in *Using the 3172 for LAN to Host Connectivity*, SG22-1053. Appendix B, "The 3174 Establishment Controller" on page 157 discusses customizing parameters for a 3174 providing host access as an APPN network node.

For more detailed information on APPC/MVS configuration and operation refer to:

- *MVS/ESA Planning: APPC Management*, GC28-1110
- *VTAM Resource Definition Reference*, SC31-6438
- *NCP Resource Definition Reference*, SC30-3448
- *APPC/MVS Handbook for OS/2 System Administrator*, GC28-1133
- *APPC Sys Defs in MVS/ESA and OS/2*, GG66-3224

---

## 10.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, “How Do I Configure a Network?” on page 7 to the terms used by APPC/MVS.

| <b>Standard Term</b> | <b>APPC/MVS Term</b>                                           |
|----------------------|----------------------------------------------------------------|
| Net ID               | NETID                                                          |
| LU name              | Name supplied for APPL definition in APPL major node           |
| Partner LU name      | Name supplied for LU definition in major nodes other than APPL |
| Local LAN address    | LOCADD (in NCP gen)                                            |
| Adjacent LAN address | DIALNO (on PATH definition in switched major node)             |

---

## 10.3 APPC/MVS Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

Table 18 (Page 1 of 2). APPC/MVS Configuration Worksheet

| Symbol                                          | How to determine this value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fill in value here |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Values that must match with other places</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                    |
| ?LOCALLU?                                       | <p>This is the symbol that refers to the LU name you are defining to the network. 1 to 8-character field consisting of alphanumeric characters which is the LU name of the node. Choose a name that is unique within the same network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names.</p> <p>The value specified for the ACBNAME on the LUADD statement in the PARMLIB member APPCPMxx defines an APPC/MVS LU. Look in this PARMLIB member to see if one has already been created.</p>                                                                                                                                         |                    |
| ?LOCALCP?                                       | <p>This is the symbol that refers to the control point name of your machine. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.</p> <p>VTAM, being a LEN node, does not have a control point (CP) name for APPN use. It does, however, have a system services control point name (SSCPNAME). Use the SSCPNAME in lieu of a CP name. It is the value specified for SSCPNAME in the VTAM start options member (ATCSTRxx is the start options member of the VTAMLST data set).</p>                                                                                                                                                            |                    |
| ?LOCALNET?                                      | <p>This is the symbol that refers to the net ID of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code, and a network suffix. This format ensures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs.</p> <p>For systems with VTAM already configured, this value is found in the VTAMLST start options (ATCSTRxx) member. The option name is NETID.</p> |                    |
| ?PARTNERLU?                                     | <p>This is the partner's LU name. Refer to the "How to find..." section of the partner computer's configuration chapter for this value.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |
| ?LANADDRESS?                                    | <p>This is the LAN address of the partner computer (or the LAN address of a network node, if the link is being made to a network node.) Refer to the "How to find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner net ID.</p>                                                                                                                                                                                                                                                                                                                     |                    |
| ?TPNAME?                                        | <p>This is the symbol for the transaction program name. This is the name of the transaction program at the partner computer. For APING, the TP name on the server is <b>APINGD</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |
| ?MODE?                                          | <p>This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b>. It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section.</p>                                                                                                                                                                                                                                          |                    |

Table 18 (Page 2 of 2). APPC/MVS Configuration Worksheet

| <b>Symbol</b>       | <b>How to determine this value</b>                                                                                                                                                                                                                                     | <b>Fill in value here</b> |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Local values</b> |                                                                                                                                                                                                                                                                        |                           |
| ?NCPLANADDR?        | This is the local LAN address coded in NCP on a LINE macro using the LOCADD parameter.                                                                                                                                                                                 |                           |
| ?MODETAB?           | Name of a logon mode table in VTAM. It is assembled and link-edited into a VTAM LOADLIB data set. The systems programmer should know the names of the logon mode tables defined on the system. This should be the name of the table where the APPC modes are included. |                           |
| ?SYMDEST?           | This is symbol for the CPI-C side information symbolic destination name. It is any 1-8 character name you choose. It is included when creating a side information entry. Its value matches that provided on the DESTNAME parameter of the side information entry.      |                           |
| ?VOL?               | This is the symbol for the name of a volume on which VSAM data sets for APPC/MVS will be created. It is a maximum of six characters.                                                                                                                                   |                           |
| ?JES?               | The actual JES subsystem type (JES2 or JES3) should be substituted for this.                                                                                                                                                                                           |                           |
| ?CLIST.DATASET?     | The CLIST data set in which you put the transaction program (APINGD) CLIST.                                                                                                                                                                                            |                           |
| ?APPC.LOADLIB?      | The load library data set in which you put the transaction program (APING).                                                                                                                                                                                            |                           |
| ?SIFILE?            | This is the symbol for the VSAM data set where CPI-C side information profiles will be permanently located. This value is normally <b>SYS1.APPCSI</b> .                                                                                                                |                           |
| ?TPFILE?            | This is the symbol for the VSAM data set where TP profiles will be permanently located. This value is normally <b>SYS1.APPCTP</b> .                                                                                                                                    |                           |
| ?TPLEVEL?           | This is the symbol for specification of where to begin searching for TP profiles. USER provides the search order. You may also specify GROUP (USER profiles ignored) or SSYSTEM (USER and GROUP profiles ignored).                                                     |                           |

## 10.4 Working with APPC/MVS

### 10.4.1 Starting/Stopping APPC

The commands to start APPC/MVS are:

```
START APPC,SUB=MSTR,APPC=xx
START ASCH,SUB=MSTR,ASCH=xx
```

The xx is the identifier of the parmlib member. The default is 00.

APPC/MVS is ended by issuing:

```
C APPC
C ASCH
```

## 10.4.2 Other Commands

Once APPC/MVS is activated, there are several commands that can be used to monitor APPC/MVS operation. A subset of these commands is shown below:

```
DISPLAY APPC,TP,ALL
DISPLAY APPC,LU,ALL
DISPLAY ASCH,ALL
```

These commands provide information on APPC/MVS TPs, LUs, and scheduler operations, respectively.

---

## 10.5 Configuration

### 10.5.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

For APPC/MVS, configuration is done in the following places:

- SYS1.PARMLIB - Two parmlib members are added with parameters for the APPC and ASCH subsystems, respectively.
- VSAM - Data sets are needed for TP definitions and CPI-C side information.
- VTAM - Definitions are required in an application major node for the APPC/MVS LU or LUs, as well as partner definitions in a switched major node for LAN attached nodes, such as workstations. Additions are also need in logon mode tables for APPC modes.
- NCP - The token-ring adapter must be configured and a parameter added to the NCP definition to support reserve storage for APPC LUs.

### 10.5.2 Define Yourself to the Network

1. Create parmlib members.

The samples below show placement of two members (ASCHPM00 and APPCPM00) in SYS1.PARMLIB. These two members have startup parameters for the two applications that make up APPC/MVS: APPC (the base APPC support) and ASCH (the job scheduler that handles starting applications when incoming requests are received).

ASCHPMXX members define classes of APPC/MVS transaction scheduler initiators and provides default scheduling information when it is missing from a TP profile.

---

```

CLASSADD CLASSNAME(FAST) /* Specify the name of the class to be */
                        /* added */
                        MAX(10) /* Specify that the maximum number */
                        /* of transaction initiators allowed */
                        /* for this class is 10 */
                        MIN(2) /* Specify that the minimum number */
                        /* of transaction initiators to be */
                        /* brought up for this class is 2 */
                        RESPGOAL(.02) /* Specify that the response time */
                        /* goal for transaction programs */
                        /* executing within this class is 0.02 */
                        /* seconds */
                        MSGLIMIT(500) /* Specify that the maximum size of */
                        /* the job logs for TPs is 500 */
                        /* messages */
OPTIONS DEFAULT(FAST) 1 /* Specify the default class - */
      SUBSYS(?JES?) /* name of subsystem under which */
                        /* all newly created APPC/MVS */
                        /* transaction initiators are stored */
TPDEFAULT REGION(4M) 2 /*
      OUTCLASS(A) 3 /*

```

---

Figure 83. SYS1.PARMLIB(ASCHPM00) - ASCHPM00.LIB

**Notes:**

**1** The DEFAULT(classname) is an optional parameter that specifies the default class of transaction initiators in which to run a TP when a class name is not specified in a TP profile. If the TP profile does not specify a class name, and there is no default defined by this parameter, then the request to run the TP is denied. If the DEFAULT parameter names a class that does not exist, an error message is displayed on the console.

**2** Region size - The region size assigned to TPs that do not specify a region size in their TP profile is 2MB.

**3** Output class - A is the class used as a default MSGCLASS for TPs whose profiles do not specify the MSGCLASS keyword in their JOB statements. When the SYSOUT keyword does not include a specific output class, the value of MSGCLASS can be used as a default.

APPCPMXX members control the communication functions. The sample below defines a local LU for the APPC/MVS configuration.



---

```

/*                APPCPM00                */
LUADD ACBNAME(?LOCALLU?) /* Add LU MVSLU01 to the      */
/* APPC/MVS configuration */
      SCHED(ASCH) /* Specify that the APPC/MVS      */
/* transaction scheduler is associated */
/* with this LU name */
      BASE /* Designate this LU as the base LU */
      TPDATA(?TPFILE?) /* Specify the VSAM data set for */
/* (Suggestion SYS1.APPCTP) */
/* the permanent repository for */
/* TP profiles for this LU */
      TPLEVEL(USER) /* Specify the search order for TP */
/* profiles as */
/* 1. TP profiles associated with */
/* a specific user - USER */
/* 2. TP profiles associated with */
/* a group of users - GROUP */
/* 3. TP profiles associated with */
/* all users of the LU name - SYSTEM*/
      SIDEINFO DATASET(?SIFILE?) /* Specify the VSAM data set */
/* (Suggestion SYS1.APPCSI) */
/* for the permanent */
/* repository for the side */
/* information */

```

---

Figure 84. SYS1.PARMLIB(APPCPM00) - APPCPM00.LIB

2. Create VTAM application major node.

Place the following sample in a VTAMLST library (usually SYS1.VTAMLST):

---

```

APPCAPP VBUILD TYPE=APPL
?LOCALLU? APPL ACBNAME=?LOCALLU?,APPC=YES,AUTOSES=1,DDRAIN=NALLOW, *
          DMINWNL=1,DMINWNR=1,DRESPL=NALLOW,DSESLIM=2,EAS=509, *
          MODETAB=?MODETAB?,SECACPT=CONV,VPACING=0,VERIFY=NONE, *
          SRBEXIT=YES,DLOGMOD=?MODE?

```

---

Figure 85. VTAM Definition of APPC LU - APPLMVS.VTM

This definition will define the APPC/MVS local LU to VTAM. Multiple APPC/MVS LUs may be defined. For simplicity of administration, the recommendation would be to define the smallest number of LUs needed.

3. Add APPC modes to the logmode table.

APPC modes are shown in Figure 86 on page 130. Add them to your logmode table, compile, and then link-edit the member into a VTAM library. Also include them in the default logmode table (ISTINCLM) so that dynamically created LUs can use them.

```

*****
*          LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING          *
*                               AS LU 6.2 DEVICES                          *
*****
SNASVCMG MODEENT LOGMODE=SNASVCMG,FMPROF=X'13',TSPROF=X'07',
                PRIPROT=X'B0',SECPR0T=X'B0',COMPROT=X'D0B1',
                RUSIZES=X'8686',ENCR=B'0000',SSNDPAC=7,
                PSERVIC=X'0602000000000000000000000000300',
                SRCVPAC=7,PSNDPAC=7,TYPE=0
                TITLE '#BATCH'
*****
*          LOGMODE TABLE FOR BATCH SESSIONS ON RESOURCES CAPABLE      *
*          OF ACTING AS LU 6.2 DEVICES                                  *
*****
#BATCH  MODEENT LOGMODE=#BATCH,
                ENCR=B'0000',SSNDPAC=3,
                SRCVPAC=3,PSNDPAC=3,RUSIZES=X'F7F7'
                TITLE '#INTER'
*****
*          LOGMODE TABLE FOR INTERACTIVE SESSIONS ON RESOURCES        *
*          CAPABLE OF ACTING AS LU 6.2 DEVICES                          *
*****
#INTER  MODEENT LOGMODE=#INTER,
                ENCR=B'0000',SSNDPAC=7,
                SRCVPAC=7,PSNDPAC=7,RUSIZES=X'F7F7'
                TITLE '#BATCHSC'
*****
*          LOGMODE TABLE FOR BATCH SESSIONS REQUIRING SECURE          *
*          TRANSPORT ON RESOURCES CAPABLE OF ACTING AS LU 6.2          *
*          DEVICES   *
*****
#BATCHSC MODEENT LOGMODE=#BATCHSC,
                ENCR=B'0000',SSNDPAC=3,
                SRCVPAC=3,PSNDPAC=3,RUSIZES=X'F7F7'
                TITLE '#INTERSC'
*****
*          LOGMODE TABLE FOR INTERACTIVE SESSIONS REQUIRING          *
*          SECURE TRANSPORT ON RESOURCES CAPABLE OF ACTING AS          *
*          LU 6.2 DEVICES  *
*****
#INTERSC MODEENT LOGMODE=#INTERSC,
                ENCR=B'0000',SSNDPAC=7,
                SRCVPAC=7,PSNDPAC=7,RUSIZES=X'F7F7'
                TITLE 'CPSVCMG'
*****
*          LOGMODE TABLE FOR CP-CP SESSIONS ON RESOURCES CAPABLE      *
*          OF ACTING AS LU 6.2 DEVICES                                  *
*****
CPSVCMG MODEENT LOGMODE=CPSVCMG,
                RUSIZES=X'8686',ENCR=B'0000',
                SSNDPAC=7,SRCVPAC=7,PSNDPAC=7

```

Figure 86. APPC Logon Mode Entries - APPCMODE.ASM

### 10.5.3 Define a Link to a Partner or Intermediate Node

1. Define the token-ring adapter in NCP.

The following is a sample token-ring connection from NCP:

---

```
T030T2PG GROUP ECLTYPE=(PHYSICAL,ANY)
T030T2PL LINE ADDRESS=(1089,FULL),LOCADD=?NCPPLANADDR?,PORTADD=2,      X
          RCVBUFC=4095,MAXTSL=2044,ADAPTER=TIC2,TRSPEED=4
*
T030TRLO GROUP ECLTYPE=LOGICAL,AUTOGEN=10,PHYPORT=2,CALL=INOUT
```

---

Figure 87. LAN Definitions on NCP

2. Provide for use of independent LUs on the token-ring connection.

Once the token-ring is defined in the NCP, the only additional parameter that is required is NUMILU on the LUDRPOOL macro. An example is:

```
POOL1    LUDRPOOL NUMILU=100,NUMTYP1=20,NUMTYP2=20
```

In this example the NCP will be able to support up to 100 independent LUs that are using dial connections (token-ring or switched lines).

#### 10.5.3.1 Additional LEN Configuration

Place the following in a VTAM switched major node definition. It assumes that the partner is not another VTAM. If the partner LU is on another VTAM system, then the link definitions for the token-ring shown above need to be for a subarea link, or the cross-domain links need to be defined so that normal LU routing within the subarea network will resolve the locations of the session partners.

---

```
WSN      VBUILD TYPE=SWNET,MAXGRP=2,MAXNO=2
PARTPU   PU    ADDR=04,                                X
          CPNAME=?PARTNERLU?,                          X
          PUTYPE=2,                                     X
          MAXDATA=2012,                                 X
          MAXPATH=1
?PARTNERLU? LU  LOCADDR=0,MODETAB=?MODETAB?,DLOGMOD=?MODE?
```

---

Figure 88. SYS1.VTAMLST(WSN) - WSN.VTM

### 10.5.4 Configure to Run as a Client

#### 10.5.4.1 Define CPI-C Side Information

1. Create VSAM data set for CPI-C side information.

The following example job creates the VSAM data set for Common Programming Interface-Communications (CPI-C) side information. It is needed for APPC/MVS to be able to initiate TPs that use side information. While it is used exclusively when APPC/MVS is acting as a client, it is included here so that the side information entry in

SYS1.PARMLIB(APPCPM00) will reference an existing data set. Later, new side information entries may be added to the data set.

---

```
//APPC002 JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1)

/*JOBPARM LINES=9999,TIME=1440
//SISAMPLE EXEC PGM=IDCAMS
//TSSC01 DD DISP=OLD,UNIT=3380,VOL=SER=?VOL?
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//AMSDUMP DD SYSOUT=*
//SYSIN DD *
DEFINE CLUSTER (NAME(?SIFILE?) - /* side info data set name = SYS1.APPCSI */
              VOLUME(?VOL?) - /* the volume for VSAM data sets */
              INDEXED REUSE -
              SHAREOPTIONS(3 3) -
              RECORDSIZE(248 248) -
              KEYS(112 0) -
              RECORDS(50 25)) -
DATA -
(NAME(?SIFILE?.DATA)) - /* side info data set name = SYS1.APPCSI */
INDEX -
(NAME(?SIFILE?.INDEX)) /* side info data set name = SYS1.APPCSI */
```

---

Figure 89. Sample JCL for Side Information VSAM Data Set - ATBSIVSM.JCL

CPI-C side information is saved in the VSAM data set created by the sample JCL file ATBSIVSM.JCL.

---

```
//SIADD JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1)
//*****
//STEP EXEC PGM=ATBSDFMU
//SYSPRINT DD SYSOUT=*
//SYSSDLIB DD DSN=SYS1.APPCSI,DISP=SHR
//SYSSDOUT DD SYSOUT=*
//SYSIN DD *
SIADD
DESTNAME(?SYMDEST?)
TPNAME(?TPNAME?)
MODENAME(?MODE?)
PARTNER_LU(?PARTNERLU?)
/*
```

---

Figure 90. Sample JCL CPI-C Side Information Job - SIADD.JCL

## 2. Add new CPI-C side information entries.

The above example SIADD.JCL shows the JCL to add new CPI-C side information entries to the CPI-C side information data set.

**Notes:**

1. If no mode name is specified, a default mode name might be available.
2. If no partner LU name is specified, APPC/MVS assumes the TP resides in the local LU.

**10.5.4.2 Other Client Configuration**

It will not usually be necessary to connect from VTAM out to other nodes. However, if it becomes necessary to do so, a line must be added to the switched major node defined above (WSN.VTM). The following line can be added just before the LU definition:

```
PATH1    PATH  GRPNM=TO30TRLO,DIALNO=?LANADDRESS?,PID=1
```

The GRPNM parameter references a group of logical LAN lines defined in the NCP. See Figure 87 on page 131 for an example of defining logical LAN lines in the NCP.

**10.5.5 Configure to Run as a Server****10.5.5.1 Define Transaction Programs (TPs)**

A VSAM data set must first be created in order for APPC/MVS to be able to associate TP names with particular job streams when an incoming request to start a TP is received. Once the data set is created, new TPs may be added by following step 2 and step 3 below.

When adding new transaction programs, you may have a server transaction program CLIST or REXX EXEC, or a compiled program. Regardless of how your TP is written, it needs to be defined to APPC/MVS by creating a TP profile for the program, and by adding the TP profile to the TP VSAM data set.

1. Create VSAM data set for transaction program (TP) profiles

The following job creates the VSAM data set for TP profiles.

---

```

//APPC001 JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1)
/*JOBPARM LINES=9999,TIME=1440
//TPSAMPLE EXEC PGM=IDCAMS
//VOL1 DD DISP=OLD,UNIT=3380,VOL=SER=?VOL? /* vol. for VSAM data sets */
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//AMSDUMP DD SYSOUT=*
//SYSIN DD *
  DEFINE CLUSTER (NAME(?TPFILE?)) - /* TP profile data set name=SYS1.APPCTP */
    VOLUMES(?VOL?) - /* vol. for VSAM data set definition */
    INDEXED REUSE -
    SHAREOPTIONS(3 3) -
    RECORDSIZE(3824 7024) -
    KEYS(112 0) -
    RECORDS(300 150)) -
  DATA -
    (NAME(Hp2.?TPFILE?.DATA)) - /* TP profile data set name = SYS1.APPCTP */
  INDEX -
    (NAME(?TPFILE?.INDEX)) /* TP profile data set name = SYS1.APPCTP */
/*

```

---

Figure 91. JCL for TP Profile VSAM Data Set - ATBTPVSM.VTM

2. Add transaction program to library.

- REXX EXEC - If you have the transaction program (APINGD) REXX CLIST, add it to a public CLIST data set (?CLIST.DATASET?). The TP profile for the REXX example in Figure 92 on page 135 assumes it has been added to data set APPC.CLIST.
- Compiled program - If you have the transaction program (APINGD) compiled program, add the program to the ?APPC.LOADLIB?.

3. Create TP profile for transaction program (APINGD).

- REXX EXEC - The following job runs the APPC/MVS administrative utility to add a TP profile for the transaction program (APINGD). It starts the TSO terminal monitor program IKJEFT01, which in turn calls the REXX CLIST located in the APPC.CLIST data set.

---

```

//TPADDO JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1)
//STEP EXEC PGM=ATBSDFMU
//SYSPRINT DD SYSOUT=*
//SYSSDLIB DD DSN=?TPFILE?,DISP=SHR
//SYSSDOUT DD SYSOUT=*
//SYSIN DD DATA,DLM=XX
TPADD
TPNAME(?TPNAME?)
ACTIVE(YES)
TPSCHED_DELIMITER(##)
TAILOR_SYSOUT(NO)
TAILOR_ACCOUNT(NO)
CLASS(FAST)
TPSCHED_TYPE(STANDARD)
JCL_DELIMITER(END_OF_JCL)
//APPC04 JOB MSGLEVEL=(1,1),MSGCLASS=A
//IKJACCNT EXEC PGM=IKJEFT01,
// PARM=' EXEC '' ?CLIST.DATASET?(APINGD)''
//SYSUADS DD DISP=SHR,DSN=SYS1.UADS
//SYSLBC DD DISP=SHR,DSN=SYS1.BROADCAST
//STEPLIB DD DSN=ISP.V3R2MO.ISPLOAD,DISP=SHR
//SYSTSPRT DD SYSOUT=*,FREE=CLOSE
//SYSTSIN DD DUMMY
//SYSPRINT DD SYSOUT=*,FREE=CLOSE
END_OF_JCL
KEEP_MESSAGE_LOG(NEVER)
##
XX
/*

```

---

Figure 92. JCL to Add a TP Profile to the VSAM Data Set - TPADD.JCL

**Note:** To log messages, specify KEEP\_MESSAGE\_LOG(ALWAYS) or KEEP\_MESSAGE\_LOG(ERROR) along with MESSAGE\_DATA\_SET(name).

- Compiled program - The following job runs the APPC/MVS administrative utility to add a TP profile for the transaction program (APINGD). It starts the TSO Terminal Monitor Program IKJEFT01, which in turn calls the REXX CLIST located in the APPC.CLIST data set.

---

```

//TPADD JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1)
//STEP EXEC PGM=ATBSDFMU
//SYSPRINT DD SYSOUT=*
//SYSSDLIB DD DSN=SYS1.APPCTP,DISP=SHR
//SYSSDOUT DD SYSOUT=*
//SYSIN DD DATA,DLM=XX
TPADD
TPNAME(?TPNAME?)
ACTIVE(YES)
TPSCHED_DELIMITER(##)
TAILOR_SYSOUT(NO)
TAILOR_ACCOUNT(NO)
CLASS(FAST)
TPSCHED_TYPE(STANDARD)
JCL_DELIMITER(END_OF_JCL)
//APPC04 JOB MSGLEVEL=(1,1),MSGCLASS=A
//IKJACCNT EXEC PGM=?TPNAME?,
//SYSUADS DD DISP=SHR,DSN=SYS1.UADS
//SYSLBC DD DISP=SHR,DSN=SYS1.BROADCAST
//STEPLIB DD DSN=?APPC.LOADLIB?,DISP=SHR
//SYSTSPRT DD SYSOUT=*,FREE=CLOSE
//SYSTSIN DD DUMMY
//SYSPRINT DD SYSOUT=*,FREE=CLOSE
END_OF_JCL
KEEP_MESSAGE_LOG(NEVER)
##
XX
/*

```

---

Figure 93. JCL to Add a TP Profile to the VSAM Data Set - TPADD.JCL

**Note:** To log messages, specify KEEP\_MESSAGE\_LOG(ALWAYS) or KEEP\_MESSAGE\_LOG(ERROR) along with MESSAGE\_DATA\_SET(name).

---

## 10.6 Running APING

To run APING from TSO enter:

```
CALL '?APPC.LOADLIB?(APING)' '?SYMDEST?'
```

It can also be run from a batch program. Below is a sample job:

---

```

//APINGO JOB CLASS=A,MSGCLASS=A,MSGLEVEL=(1,1),NOTIFY=NEALS
//*****
//STEP EXEC PGM=APING,PARM=?SYMDEST?
//STEPLIB DD DSN=?APPC.LOADLIB?,DISP=SHR
// DD DSN=PLI.V2R3MO.SIBMLINK,DISP=SHR
// DD DSN=EDC.V2R1MO.SEDCLINK,DISP=SHR
//SYSPRINT DD SYSOUT=*
/*

```

---

Figure 94. JCL to Run APING - APING.JCL



**Note:** It may be necessary to change the PLI.V2R3M0.SIBMLINK and the EDC.V2R1M0.SEDCLINK DD statements to match levels of C and PL/1 on your system.

---

## 10.7 How to Find ...

- LU name  
For APPC/MVS, this is configured in SYS1.PARMLIB(APPCPMxx). The LUADD parameter includes an ACBNAME. The ACBNAME defines an APPC/MVS LU Name. This name is also included on an APPL definition statement in an APPL major node of VTAM.
- Control point (CP) name  
VTAM, being a LEN node, does not have a CP name for APPN use. It does, however, have an SSCPNAME (system services control point name). If in configuring a partner platform a CP name is needed, use the SSCPNAME instead. It is also set in the ATCSTRxx member of the VTAMLST data set.
- Net ID  
It is defined in a member named ATCSTRxx of a data set with the DDNAME of VTAMLST in the VTAM start procedure. The "xx" is two digits, and the default is 00. ATCSTRxx is the VTAM start options. The NETID parameter defines the net ID.
- LAN address  
The LAN address is coded in NCP on a LINE macro using the LOCADD parameter.



---

## Chapter 11. APPC/VM Configuration

This chapter describes how to configure APPC/VM. The configuration involves the APPC/VM VTAM support service machine (AVS), VTAM, and NCP. Examples of the configuration of each are shown.

---

### 11.1 Prerequisites

Software and hardware prerequisites for our chapter examples of APPC/VM include:

- VM/ESA\* V1.0 or later
- VTAM V3.3 or later
- NCP V5.2 or later
- 3745 with token-ring attachment

These examples also assume that the software listed above have already been installed on the appropriate hardware platforms.

For more detailed information on APPC/VM configuration and operation refer to:

- *VM/ESA Connectivity Planning, Administration, and Operation*, SC24-5448
- *VTAM Resource Definition Reference*, SC31-6438
- *NCP Resource Definition Reference*, SC30-3448

---

### 11.2 Terminology

The terminology table maps the standard networking terms defined in 1.4, "How Do I Configure a Network?" on page 7 to the terms used by APPC/VM.

| <b>Standard Term</b> | <b>APPC/VM Term</b>                                            |
|----------------------|----------------------------------------------------------------|
| Net ID               | NETID                                                          |
| LU name              | Name supplied for APPL definition in APPL major node           |
| Partner LU name      | Name supplied for LU definition in major nodes other than APPL |
| Local LAN address    | LOCADD (in NCP gen)                                            |
| Adjacent LAN address | DIALNO (on PATH definition in switched major node)             |

## 11.3 APPC/VM Configuration Worksheet

Use the configuration worksheet to determine all the parameters you will need to configure this platform. The worksheet is split into two parts:

- Parameters determined by referring to the introduction or other platform chapters
- Parameters that are local to this platform which you create

There are three columns in the worksheet:

1. The first column defines the name of a variable that starts and ends with a question mark (?).
2. The second column describes what the variable is used for and how to determine its value.
3. The third column is left blank so you can fill in your value of the variable.

Whenever there is a reference in this chapter to a variable in the left column, substitute the value you have written in the right column.

Table 20 (Page 1 of 2). APPC/VM Configuration Worksheet

| <b>Symbol</b>                                   | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Fill in value here</b> |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Values that must match with other places</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                           |
| ?LOCALLU?                                       | <p>This is the symbol that refers to the LU name of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters which is the LU name of the node. Choose a name that is unique within the same network. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about LU names.</p> <p>You may already have an LU name defined. If so, it is the value specified in an "AGW ACTIVATE GATEWAY" command. This command can be included in the AGWPROF GCS exec of the AVS service machine, or it can be issued from the AVS console.</p> <p>You may also have more than one LU. There are two major types of gateways in APPC/VM, global and private. If you want to use both you will need a minimum of one LU for each type. See 11.5.5, "Configure to Run as a Server" on page 148 for more information on gateways. A private gateway will be referred to by ?LOCALLU_P?, while a global gateway will be called ?LOCALLU_G?.</p> |                           |
| ?LOCALCP?                                       | <p>VTAM prior to V4 does not have a control point. Refer to 1.3.7, "What Is APPN?" on page 6 for more information about control points.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                           |
| ?LOCALNET?                                      | <p>This is the symbol that refers to the net ID of the machine you are defining to the network. 1 to 8-character field consisting of alphanumeric characters. There is a structured format for the net ID which includes a country code, an enterprise code, and a network suffix. This format insures uniqueness around the world. Call your local IBM branch office for the format information and to register your net ID. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about net IDs.</p> <p>For systems with VTAM already configured, this value is found in the VTAMLST start options (ATCSTRxx) member. The option name is NETID.</p>                                                                                                                                                                                                                                                                                                                         |                           |

Table 20 (Page 2 of 2). APPC/VM Configuration Worksheet

| <b>Symbol</b>       | <b>How to determine the value for this symbol</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>Fill in value here</b> |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| ?PARTNERLU?         | This is the partner's LU name. Refer to the "How to Find..." section of the partner computer's configuration chapter for this value. Refer to 1.4, "How Do I Configure a Network?" on page 7 for more information about the partner LU name.                                                                                                                                                                                  |                           |
| ?LANADDRESS?        | This is the symbol for the LAN address of the partner computer (or the LAN Address of a network node, if the link is being made to a network node). Refer to the "How to Find..." section of the partner computer's configuration chapter for this value.                                                                                                                                                                     |                           |
| ?TPNAME?            | This is the symbol for the transaction program name. This is the name of the transaction program at the partner computer. For APING, the TP name on the server is <b>APINGD</b> .<br><br>When using private gateways, an entry is made in the \$SERVER\$ NAMES file that maps the TP name to an EXEC or module. The actual TP name follows a ":nick." parameter in the file.                                                  |                           |
| ?MODE?              | This is the symbol for the mode name. See 1.3.4, "What Is a Mode?" on page 5 for a discussion of modes. Often, a client/server product's documentation specifies what mode must be used by that product. APING can use any mode (this can be specified on the APING command line), but the default is <b>#INTER</b> . It is recommended that you use one of the architected modes discussed in the "What Is a Mode?" section. |                           |
| <b>Local values</b> |                                                                                                                                                                                                                                                                                                                                                                                                                               |                           |
| ?NCPLANADDR?        | This is the local LAN address coded in NCP on a LINE macro using the LOCADD parameter.                                                                                                                                                                                                                                                                                                                                        |                           |
| ?MODETAB?           | Name of a logon mode table in VTAM. It is assembled and link-edited into a VTAM LOADLIB data set. The systems programmer should know the names of the logon mode tables defined on the system. This should be the name of the table where the APPC modes are included.                                                                                                                                                        |                           |
| ?SYMDEST?           | This is the CPI-C side information symbolic destination name. It is any 1 to 8-character name you choose. It is included when creating a side information entry. The side information is stored in communications directory files which are similar to NAMES files.                                                                                                                                                           |                           |

---

## 11.4 Working with APPC/VM

### 11.4.1 Starting/Stopping APPC

APPC/VM is usually started by autologging the AVS/VM virtual machine. It can also be started by issuing AGW START once GCS is IPLed in the AVSVM machine. Stopping APPC/VM is accomplished via the AGW STOP command.

### 11.4.2 Other Commands

APPC/VM is a VTAM application that runs in its own disconnected virtual machine (typically AVSVM) under GCS. Once APPC/VM is logged on there are several commands that can be used to monitor its operation. A subset of these commands is shown below:

```
AGW QUERY ALL
AGW CNOS
AGW ACTIVATE GATEWAY
```

The QUERY ALL command provides a listing of all resources in use by APPC/VM. AGW CNOS will negotiate session limits with partner LUs. ACTIVATE GATEWAY makes an LU available to APPC/VM for its own use.

---

## 11.5 Configuration

### 11.5.1 Working with APPC Configuration

The following configuration steps will be discussed:

1. Define yourself to the network.
2. Define a link to a partner or intermediate node.
  - a. Additional LEN configuration
  - b. Other link configuration
3. Configure to run as a client.
  - a. Define CPI-C side information
  - b. Other client configuration
4. Configure to run as a server.
  - a. Define transaction programs
  - b. Other server configuration

For APPC/VM, configuration is done in the following places:

- AVSVM DIRECT - The directory entry for APPC/VM.
- AGWPROF GCS - This exec is called by AVSVM during startup. It starts resources for AVS/VM.
- Server commands - Certain commands are issued in any virtual machine that will be used as a server.
- COMDIR - For client virtual machines, the communications directory must be established for CPI-C applications with the SET COMDIR command.
- \$SERVER\$ NAMES - For server virtual machines, this file contains the mapping of transaction program names to executables. It is used only with private gateways.

- VTAM - Definitions are required in an application major node for the APPC/VM LU or LUs, as well as partner definitions in a switched major node for LAN-attached T2.1 nodes, such as workstations. Additions are also need in logon mode tables for APPC modes.
- NCP - The token-ring adapter must be configured, and a parameter added to the NCP definition to support independent LUs.

## 11.5.2 Define Yourself to the Network

1. Create CP Directory Entry for the APPC/VM VTAM service machine.

APPC services in VM access an SNA network through the APPC/VM VTAM service machine (AVSVM). AVSVM's directory entry should look similar to the one shown below:

---

```

USER AVSVM AVSVM 32M 64M G 64
ACCOUNT 1 AVSVM
MACH XA
IUCV ANY
IUCV *IDENT GATEANY ?LOCALLU? REVOKE
IUCV ALLOW
OPTION COMSRV MAXCONN 20 ACCT
NAMESAVE GCS
IPL GCS PARM AUTOLOG
CONSOLE 01F 3215
SPOOL 00C 2540 READER A
SPOOL 00D 2540 PUNCH A
SPOOL 00E 1403
LINK MAINT 190 190 RR
LINK MAINT 19D 19D RR
LINK MAINT 19E 19E RR
LINK MAINT 193 193 RR
MDISK 191 3380 2209 003 SSKN05 MR RAVSOBJ WAVSOBJ MAVSOBJ
*
```

---

Figure 95. CP Directory Entry for AVSVM - AVSVM.DIR

2. Load AVS from the product tape.

This step is described in the *VM/ESA Installation Guide*, SC24-5526. It is done by issuing the command:

```
vmfins install ppf esains avs (nomemo nolink
```

It is strongly recommended in the *VM/ESA Installation Guide* that none of the disk addresses in the user directory be modified. The directory entry shown above is the entry shipped with VM/ESA.

The example above is for installation on mini-disks. It may be advantageous to install AVS in the shared file system (SFS). For more information on this, see both the *VM/ESA Installation Guide* and *VM/ESA: CMS Planning and Administration Guide*, SC24-5445.

3. Create the AVS Virtual Machine Profile and AGWPROF GCS.

The PROFILE GCS contains commands to start AVS when the virtual machine is started. It is stored on the AVS 191 disk. AGWPROF GCS is

called after AVS initialization, and contains commands to execute as soon as AVS is available. Samples of each are shown below.

---

```

/*****/
/*  */
/*  SAMPLE PROFILE GCS FOR AVS          */
/*  */
/*****/
Trace 0
'CP SET IMSG ON'
'CP SET EMSG ON'
'CP SET RUN ON'
'CP SET PF01 IMMED AGW QUERY ALL'
'CP SET PF02 IMMED AGW QUERY GATEWAY ALL'
'CP SET PF03 IMMED AGW QUERY CNOS ALL'
'CP SET PF04 IMMED AGW QUERY USERID ALL'
'CP SET PF05 IMMED AGW QUERY CONV ALL'
'CP SET PF12 RETRIEVE'
/*****/
/*  */
/*  Determine mode of operation.  Load AGW370 loadlib if running  */
/*  in 370 mode.  Load AGW LOADLIB if running in XA mode.        */
/*****/
'GLOBAL LOADLIB AGWUTIL' /* Contains AGWGMD */
'OSRUN AGWGMD'          /* AGWGMD returns 0 if running in XA mode,
                        and 4 if running in 370 mode */

IF RC=0 THEN           /* Virtual machine is in XA mode */
  'GLOBAL LOADLIB AGW'
ELSE
  'GLOBAL LOADLIB AGW370' /* Virtual machine is in 370 mode */

'LOADCMD AGW AGW'
'Q LOADLIB'
'Q LOADCMD'
'AGW START'           /* Start AVS */
exit rc

```

---

Figure 96. PROFILE GCS - PROFILE.GCS

---

```

/*****/
/* AGWPROF GCS FOR AVS */
/*****/
'AGW ACTIVATE GATEWAY ?LOCALLU_P? PRIVATE'
'AGW ACTIVATE GATEWAY ?LOCALLU_G? GLOBAL'

```

---

Figure 97. AGWPROF GCS - AGWPROF.GCS

**Note:** The names substituted for **?LOCALLU?** should be different. **?LOCALLU?** was used to designate both since they are both local LUs. Gateways define paths (logical units or LUs) into the SNA network. As such these names must match names of LUs defined in a VTAM application major node described below.



4. Create VTAM application major node.

Place the following in a VTAMLST library (usually SYS1.VTAMLST):

---

```
APLAVS  VBUILD  TYPE=APPL
?LOCALLU_G? APPL APPC=YES,                X
           AUTHEXIT=YES,                   X
           AUTOSES=1,                       X
           DSESLIM=8,                       X
           DMINWNL=4,                       X
           DMINWNR=4,                       X
           PARSESS=YES,                     X
           SYNCLVL=CONFIRM,                 X
           SECACPT=ALREADYV
?LOCALLU_P? APPL APPC=YES,                X
           AUTHEXIT=YES,                   X
           AUTOSES=1,                       X
           DSESLIM=8,                       X
           DMINWNL=4,                       X
           DMINWNR=4,                       X
           PARSESS=YES,                     X
           SYNCLVL=CONFIRM,                 X
           SECACPT=ALREADYV
```

---

Figure 98. VTAM Definition of APPC LU - APPLVM.VTM

**Notes:**

- a. The names substituted for **?LOCALLU?** should be different. **?LOCALLU?** was used to designate both since they are both local.
- b. If a logon mode table other than the default table (ISTINCLM) will contain the APPC mode entries, a **MODETAB** parameter should be added to the entries above.
- c. Depending on security requirements on the VM system, the **SECACPT** parameter may also need to be changed.

5. Add APPC modes to the logmode table.

APPC modes are shown in Figure 99 on page 146. Add them to your logmode table, compile, and then link-edit the member into a VTAM library. Also include them in the default logmode table (ISTINCLM) so that dynamically created LUs can use them.

```

*****
*          LOGMODE TABLE ENTRY FOR RESOURCES CAPABLE OF ACTING          *
*          AS LU 6.2 DEVICES   *
*****
SNASVCMG MODEENT LOGMODE=SNASVCMG,FMPROF=X'13',TSPROF=X'07',
                PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1',
                RUSIZES=X'8686',ENCR=B'0000',SSNDPAC=7,
                PSERVIC=X'0602000000000000000000000000300',
                SRCVPAC=7,PSNDPAC=7,TYPE=0
                TITLE '#BATCH'
*****
*          LOGMODE TABLE FOR BATCH SESSIONS ON RESOURCES CAPABLE      *
*          OF ACTING AS LU 6.2 DEVICES                                   *
*****
#BATCH  MODEENT LOGMODE=#BATCH,
                ENCR=B'0000',SSNDPAC=3,
                SRCVPAC=3,PSNDPAC=3,RUSIZES=X'F7F7'
                TITLE '#INTER'
*****
*          LOGMODE TABLE FOR INTERACTIVE SESSIONS ON RESOURCES        *
*          CAPABLE OF ACTING AS LU 6.2 DEVICES                         *
*****
#INTER  MODEENT LOGMODE=#INTER,
                ENCR=B'0000',SSNDPAC=7,
                SRCVPAC=7,PSNDPAC=7,RUSIZES=X'F7F7'
                TITLE '#BATCHSC'
*****
*          LOGMODE TABLE FOR BATCH SESSIONS REQUIRING SECURE          *
*          TRANSPORT ON RESOURCES CAPABLE OF ACTING AS LU 6.2          *
*          DEVICES   *
*****
#BATCHSC MODEENT LOGMODE=#BATCHSC,
                ENCR=B'0000',SSNDPAC=3,
                SRCVPAC=3,PSNDPAC=3,RUSIZES=X'F7F7'
                TITLE '#INTERSC'
*****
*          LOGMODE TABLE FOR INTERACTIVE SESSIONS REQUIRING          *
*          SECURE TRANSPORT ON RESOURCES CAPABLE OF ACTING AS          *
*          LU 6.2 DEVICES   *
*****
#INTERSC MODEENT LOGMODE=#INTERSC,
                ENCR=B'0000',SSNDPAC=7,
                SRCVPAC=7,PSNDPAC=7,RUSIZES=X'F7F7'
                TITLE 'CPSVCMG'
*****
*          LOGMODE TABLE FOR CP-CP SESSIONS ON                        *
*          RESOURCES CAPABLE  *
*          OF ACTING AS LU 6.2 DEVICES                                   *
*****
CPSVCMG MODEENT LOGMODE=CPSCVMG,
                RUSIZES=X'8686',ENCR=B'0000',
                SSNDPAC=7,SRCVPAC=7,PSNDPAC=7

```

Figure 99. APPC Logon Mode Entries - APPCMODE.ASM

### 11.5.3 Define a Link to a Partner or Intermediate Node

1. Define the token-ring adapter in NCP.

The following is a sample token-ring connection from NCP:

---

```
T030T2PG GROUP ECLTYPE=(PHYSICAL,ANY)
T030T2PL LINE ADDRESS=(1089,FULL),LOCADD=?NCPPLANADDR?,PORTADD=2,      X
          RCVBUFC=4095,MAXTSL=2044,ADAPTER=TIC2,TRSPEED=4
*
T030TRLO GROUP ECLTYPE=LOGICAL,AUTOGEN=10,PHYPORT=2,CALL=INOUT
```

---

Figure 100. LAN Definitions on NCP

2. Provide for use of independent LUs on the token-ring connection.

Once the token-ring is defined in the NCP, the only additional parameter that is required is NUMILU on the LUDRPOOL macro. For example:

```
POOL1 LUDRPOOL NUMILU=100,NUMTYP1=20,NUMTYP2=20
```

In this example the NCP will be able to support up to 100 independent LUs that are being connected via dial connections (token-ring or switched lines).

#### 11.5.3.1 Additional LEN Configuration

Place the following in a VTAM switched major node definition. It assumes that the partner node is not another VTAM. If the partner LU is on another VTAM system, then the link definitions for the token-ring shown above need to be for a subarea link, or the cross-domain links need to be defined so that normal LU routing within the subarea network will resolve the locations of the session partners.

---

```
WSN      VBUILD TYPE=SWNET,MAXGRP=2,MAXNO=2
PARTPU   PU   ADDR=04,                                X
          CPNAME=?PARTNERLU?,                        X
          PUTYPE=2,                                    X
          MAXDATA=2012,                                X
          MAXPATH=1
?PARTNERLU? LU   LOCADDR=0,MODETAB=?MODETAB?,DLOGMOD=?MODE?
```

---

Figure 101. WSN.VTM

**PARTNERLU** should be changed to match the partner LU name. See the “How to find...” section of the partner computer’s configuration chapter for this value.

### 11.5.4 Configure to Run as a Client

Place the APING MODULE and APINGD MODULE on a minidisk to which you have access. It is recommended that you use a shared minidisk.

#### 11.5.4.1 Define CPI-C Side Information

In APPC/VM, side information is stored in what is called a *communications directory*. It is a VM file similar in definition and use to VM NAMES files. Defining CPI-C side information is optional. Below is a sample entry:

---

```
:nick.?SYMDEST?    :APINGD
                  :luname.?LOCALLU? ?PARTNERLU?
                  :modename.?MODE?
                  :security.NONE
```

---

Figure 102. Sample Communications Directory Entry - COMDIR.SMP

If this entry is included in a VM file called SAMPLE COMDIR, then it can be activated in the client virtual machine by issuing:

```
SET COMDIR FILE USER SAMPLE COMDIR
```

More information on this command can be found by looking at the online help text for SET COMDIR.

### 11.5.5 Configure to Run as a Server

Place the APING MODULE and APINGD MODULE on a minidisk to which you have access. It is recommended that you use a shared minidisk.

**Configure the Virtual Machine to Run APINGD:** There are two principle methods of execution for transaction programs in APPC/VM, as global resources or as private resources. A global resource can be thought of as a resource or program available to a number of users, while a private resource or program is run within a particular users virtual machine. Which type is used by APPC/VM on incoming requests is determined by the type of gateway; if a global gateway is used, the transaction program is scheduled as a global resource, and if a private gateway is used, the transaction program is assumed to be private. Gateways are APPC/VM LUs.

**Configuring a Global Gateway:** A global resource must be registered as such with VM. There are two ways to do this. First, an entry can be added to the directory of the virtual machine owning the resource, as is shown below:

```
IUCV *IDENT resrc1 GLOBAL
```

This will identify resrc1 as a resource managed by the virtual machine in which it is included.

The other way is to use the Identify\_Resource\_Manager (XCIDRM) call. This call can be used from within a program or EXEC to register the resource with VM. This still requires an additional directory entry similar to the one below:

```
IUCV *IDENT RESANY GLOBAL
```

The RESANY parameter allows the resource manager virtual machine to register any resource name using the XCIDRM call. Below is a sample EXEC called RESAPING which registers a resource called APINGD as a global resource, and

then waits for events (such as an incoming attach) to schedule the transaction program.

---

```
/**/  
/* ARG resid */  
'set ldrtbls 20'  
'rtnload * (FROM VMLIB SYSTEM GROUP VMLIB)'  
'global loadlib edclink'  
'GLOBAL TXTLIB EDCBASE IBMLIB CMSLIB CMSSAA'  
resid = word(resid userid(), 1)  
original_resid = resid  
'EXECIO * DISKR CMREXX COPY * (FINIS STEM CPICONST.'  
if rc<>0 then exit rc  
do i=1 to cpiconst.0  
    interpret cpiconst.i  
end  
/* TRACE 'I' */  
server_scope=XC_GLOBAL  
service_mode=XC_SEQUENTIAL  
secnone=XC_ACCEPT_SECURITY_NONE  
address cpicomm  
RESID='APINGD '  
'XCIDRM RESID SERVER_SCOPE SERVICE_MODE SECNONE IDSRV_RC'  
IF IDSRV_RC <> 0 & IDSRV_RC <>24 THEN DO  
    SAY 'Unable to start resource' RESID  
    exit idsrv_RC  
end  
do forever  
say 'Waiting for ALLOCATION event, TERMINATE, STOP or CMS command'  
'XCWOE resid conversation_id event length buffer WOE_rc'  
select  
    WHEN event=XC_ALLOCATION_REQUEST then do  
        address cms 'VMFCLEAR'  
        say 'Allocation request received for' resid  
        CALL Process_Request  
    end  
    WHEN event=XC_CONSOLE_INPUT then  
        CALL user_input left(buffer,length)  
    WHEN event=XC_REVOKE_RESOURCE then do  
        say 'Resource management for' resid 'has been revoked'  
        SIGNAL Terminate_Server  
    end  
    OTHERWISE  
        say 'Wait_On_Event returned event XC_INFORMATION_INPUT'  
        SIGNAL Terminate_Server  
    end  
end  
Process_Request:  
ADDRESS COMMAND  
RESID  
RETURN  
User_Input:  
arg user_buffer  
select  
    WHEN USER_BUFFER = 'STOP' THEN DO  
        say 'Terminating because of stop'  
        exit  
    end  
    OTHERWISE DO  
        ADDRESS CMS USER_BUFFER  
    END  
end  
return
```

---

Figure 103. EXEC to Schedule a Global Resource - RESAPING.EXC

**Configuring a Private Gateway:** A private gateway runs in a user's "private" virtual machine. Within that virtual machine the appropriate TXTLIB and LOADLIB members must be globalled to run a program such as APING that is written in C. The following EXEC gives an example of an EXEC that can be

called from a user's PROFILE EXEC to set up the virtual machine to act as a server:

---

```
/* This exec sets parameters for APPC/VM server operation */
PARSE ARG HELP1
IF HELP1 = '?' THEN DO
  say 'This EXEC sets a user virtual machine for use as an APPC server.'
  say 'It:'
  say ' 1. Performs SET SERVER ON'
  say ' 2. Performs SET FULLSCREEN OFF'
  say ' 3. Performs SET AUTOREAD OFF'
  say ' 4. GLOBALs loadlib and txtlibs needed for C/370.'
  say
  say 'It can be called from the PROFILE EXEC to automatically enable'
  say 'APPC server function.'
  exit 0
end
TRACE 0
SET CMSTYPE HT
/* Test for existing LOADLIB defs. Add EDCLINK (C runtime) if not */
/* configured. */
'QUERY LOADLIB (STACK LIFO)'
PARSE UPPER PULL LLIBS
I = WORDS(LLIBS)
EDCADD='YES'
LOADCMD = 'GLOBAL LOADLIB '
DO J=3 TO I
  IF WORD(LLIBS,J)<>'NONE' THEN LOADCMD=LOADCMD || ' ' || WORD(LLIBS,J)
  IF WORD(LLIBS,J)='EDCLINK' THEN EDCADD='NO'
END
IF EDCADD='YES' THEN LOADCMD=LOADCMD || ' EDCLINK'
INTERPRET LOADCMD
/* Test for existing TXTLIB defs. Add EDCBASE (C libraries) and */
/* and CMSSAA (contains CPI-C routines), if necessary. */
'QUERY TXTLIB (STACK LIFO)'
PARSE UPPER PULL TLIBS
I = WORDS(TLIBS)
EDCADD='YES'
IBMADD='YES'
SAAADD='YES'
LIBCMD = 'GLOBAL TXTLIB '
DO J=3 TO I
  IF WORD(TLIBS,J)<>'NONE' THEN LIBCMD=LIBCMD || ' ' || WORD(TLIBS,J)
  IF WORD(TLIBS,J)='EDCBASE' THEN EDCADD='NO'
  IF WORD(TLIBS,J)='CMSSAA' THEN SAAADD='NO'
  IF WORD(TLIBS,J)='IBMLIB' THEN IBMADD='NO'
END
IF EDCADD='YES' THEN LIBCMD=LIBCMD || ' EDCBASE'
IF SAAADD='YES' THEN LIBCMD=LIBCMD || ' CMSSAA'
IF IBMADD='YES' THEN LIBCMD=LIBCMD || ' IBMLIB'
INTERPRET LIBCMD
'SET SERVER ON'
'SET FULLSCREEN OFF'
'SET AUTOREAD OFF'
```

---

Figure 104. EXEC to Enable Server Operation - RESAPING.EXC

**Note:** The last three lines (SET commands) are required for private server operation.

### 11.5.5.1 Define Transaction Programs (TPs)

When a private gateway is used, APPC/VM converts TP names received on ATTACHes to executable program names by mapping the TP names to entries in a file called \$SERVER\$ NAMES.

To add new transaction programs, edit the \$SERVER\$ NAMES file and add the following entry:

---

```
* This file is used by APPC server to determine what module or exec
* to call based on the TP name received in an ATTACH.
:nick.APINGD      :list.*
                  :module.APINGD
```

---

*Figure 105. \$SERVER\$ NAMES - TP to Executable Mapping - \$SERVER\$.NAM*

In the above example, the TP name APINGD specified in the “:nick” field is mapped to the executable. The “:list” field specifies a list of userids authorized to run this TP. The asterisk implies that any userid may run the TP.

If the userid on the ATTACH matches the userid of the virtual machine where the TP is to run, then the “:list” entry is not needed. Similarly, if the TP name received in the ATTACH matches the executable name then the “:module” entry is not required. If both of these conditions are true then the entire entry in the file can be omitted.

To add other transaction programs, edit the \$SERVER\$ NAMES file and add the following entry:

```
:nick.?TPNAME?   :list.*
                  :module.?TPNAME?
```

---

## 11.6 How to Find....

- LU Name

For APPC/VM, this is configured in AGWPROF GCS. The command:

```
AGW ACTIVATE GATEWAY ?LOCALLU? GLOBAL
```

defines a global resource manager with name ?LOCALLU?.

- Control point (CP) name

VTAM, being a LEN node, does not have a CP (control point) name for APPN use. It does, however, have a SSCPNAME (system services control point name). If in configuring a partner platform a CP name is needed, use the SSCPNAME instead. It is also set in the ATCSTRxx file on the VTAM 191 disk.

- Net ID

It is defined in a file named ATCSTRxx on VTAM's 191 disk. The "xx" is two digits, and the default is 00. ATCSTRxx is the VTAM start options. The NETID parameter defines the net ID.

- LAN address

The LAN address is coded in NCP on a LINE macro using the LOCADDR parameter.



## Appendix A. Using Node IDs in VTAM

Prior to VTAM Version 3 Release 2, the only mechanism VTAM had for resolving dynamic connections like dial-in was the node ID. The examples in this guide all use a LAN connection which to VTAM is just like dial-in. The node ID is set in the computer dialing in and must match the value in VTAM for that physical unit.

**Note:** Although the information regarding node IDs applies to VTAM releases earlier than Version 3 Release 2, the configurations in this guide require function that is only supported in Version 3 Release 2 and later.

The node ID itself was intended to have two parts: a *block number* that was to be unique for each product type and an *ID number* that was to be unique within each product type. These two parts correspond respectively to the *IDBLK* and *IDNUM* parameters in VTAM.

The examples below show for each of the pertinent platforms (LEN peripheral nodes and APPN nodes) how to code the node ID in the platform and the corresponding VTAM definition.

**Note:** Some platforms allow you to set the block number; in others it is fixed. If the block number is settable, you can use any matching value for IDBLK in VTAM. If the block number is fixed and VTAM does not use the CPNAME parameter as recommended, then the VTAM IDBLK *must match* the block number in the product. This will be indicated in the examples.

### A.1 Node ID for SNA Services/6000 or SNA Server/6000

SNA Services/6000 and SNA Server/6000 allow you to set the block number; the default is 071. In the example below, the “bbb” values must match in VTAM and SNA Services/6000 or SNA Server/6000.

```

PROFILE name      = ?CPPRO?
XID node ID      = bbbnnnnn
NETWORK name     = ?NETNAME?
CONTROL POINT name = ?SSCPNAME?

```

Figure 106. SNA Services/6000: Control Point Profile

```

Control Point name = ?LOCALCP?
Control Point type = appn_end_node
Local network name = ?LOCALNET?
XID node ID       = *

```

Figure 107. SNA Server/6000: Initial Node Setup: Information

The corresponding VTAM definition is as follows:

```
?LINKNAME? PU ADDR=04, X
              CPNAME=?AIXLUNAME?, X
              IDBLK=bbb, * DEFAULTS TO 071 * X
              IDNUM=nnnnn, * ANY 5 HEX DIGITS * X
              MODETAB=?MODETAB?
?AIXLUNAME? LU LOCADDR=0,DLOGMOD=#INTER
```

## A.2 Node ID for AS/400

The AS/400 calls the node id the *local exchange identifier* and *fixes* the block number at 056. Below is a sample screen from the Create Controller Description command. The controller type/class is \*HOST.

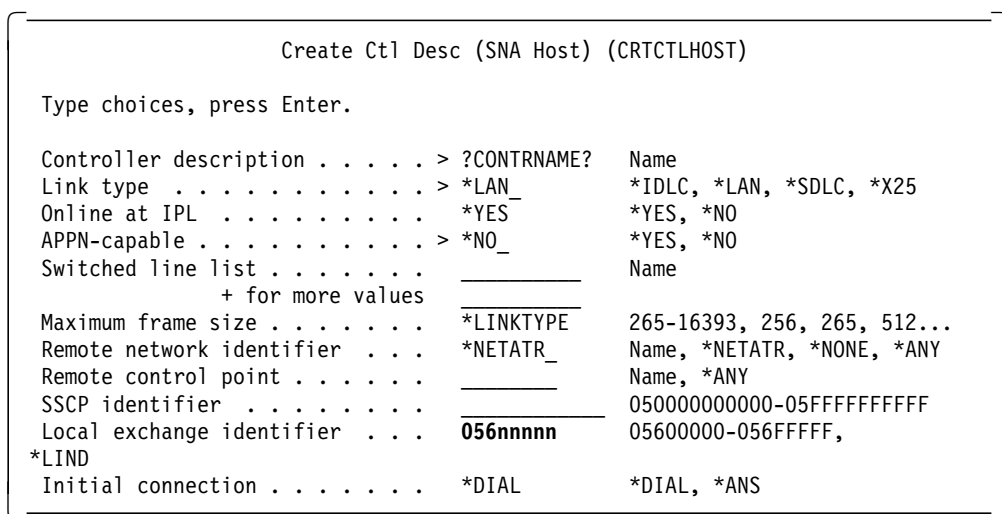


Figure 108. Node ID Definition for AS/400

The corresponding VTAM definition is as follows:

```
?LINKNAME? PU ADDR=04, X
              CPNAME=?LUNAME?, X
              IDBLK=056, * MUST BE 056 FOR AS/400 * X
              IDNUM=nnnnn, * ANY 5 HEX DIGITS * X
              MODETAB=?MODETAB?
?LUNAME? LU LOCADDR=0,DLOGMOD=#INTER
```

## A.3 Node ID for Networking Services/DOS

Networking Services/DOS calls the block number the *block\_ID* and the ID number the *ID*. The block\_ID is *settable* but defaults to 075. In the example below, the “bbb” values must match in VTAM and Networking Services/DOS.

```
NSDN ?NETWORK?.?LUNAME?,bbbnnnnn
```

The corresponding VTAM definition is as follows:

```
?LINKNAME? PU ADDR=04,                                X
              CPNAME=?LUNAME?,                          X
              IDBLK=bbb,                                * DEFAULTS TO 075 * X
              IDNUM=nnnnn,                              * ANY 5 HEX DIGITS * X
              MODETAB=?MODETAB?
?LUNAME? LU LOCADDR=0,DLOGMOD=#INTER
```

**Note:** For Networking Services/DOS, the LU name and CP name are the same. The logmode table must include the name #INTER.

## A.4 Node ID in OS/2 Extended Services

OS/2 Extended Services calls the ID number the nodeid and the block number is *fixed* at 05D. You *must* tell the VTAM system programmer to set the IDBLK to 05D. Below is the example Local Node Characteristics panel and NDF excerpt.

Required Features:

Network ID: \_\_\_\_\_

Local node name: \_\_\_\_\_

Node type:

- End Node to Network Node Server
- End Node - No Network Node Server
- Network Node

Your network node server address: ?LANADDRESS?

Optional Features

Local Node ID            05D nnnnn

Local Node Alias Name    \_\_\_\_\_

Comment                 Configuration is Fun! \_\_\_\_\_

Activate Attach Manager at start up

Figure 109. Local Node Characteristics for Extended Services

```
define_local_cp fq_cp_name(?NETWORK?.?LUNAME?)
                 cp_alias(mylu)
                 node_id(x' nnnnn')
                 node_type(?NODETYPE?);
```

Figure 110. NDF File Excerpt DEFINE\_LOCAL\_CP with Node ID

The corresponding VTAM definition is as follows:

```
?LINKNAME? PU ADDR=04, X
              CPNAME=?LUNAME?, X
              IDBLK=05D, * MUST BE 05D FOR EXT. SVCS.* X
              IDNUM=nnnnn, * ANY 5 HEX DIGITS * X
              MODETAB=?MODETAB?
?LUNAME? LU LOCADDR=0,DLOGMOD=#INTER
```

---

## Appendix B. The 3174 Establishment Controller

The purpose of this appendix is to direct the reader who is interested in using an 3174 Establishment Controller to connect APPC partners. In the APPC/MVS, APPC/VM and CICS sections of this configuration guide, the 3745 Communication Controller provides access from the LAN to the IBM mainframe. A 3174 Establishment Controller can also provide gateway function.

---

### B.1 Configuring a 3174 Establishment Controller as an APPN Network Node

The 3174 Establishment Controller allows you to connect nodes on a network to a host VTAM using SDLC, token-ring, Ethernet, X.25, Frame Relay, and a System/370 channel. The 3174 supports APPN communication between low-entry networking (LEN) nodes, end nodes (ENs), and network nodes (NNs) and also supports subarea VTAM and APPN VTAM communication. Using the 3174 as a network node allows you to benefit from the dynamic configuration capabilities of APPN in your network.

This appendix describes how to configure a 3174 as a network node (NN) based on the network shown in Figure 111. Workstations and 3174 connect to a token-ring LAN and the 3174 connects to the host by S/370 channel. The workstations require both APPC and 3270 access to the host applications. The description below requires Configuration Support C, Release 3 or later.

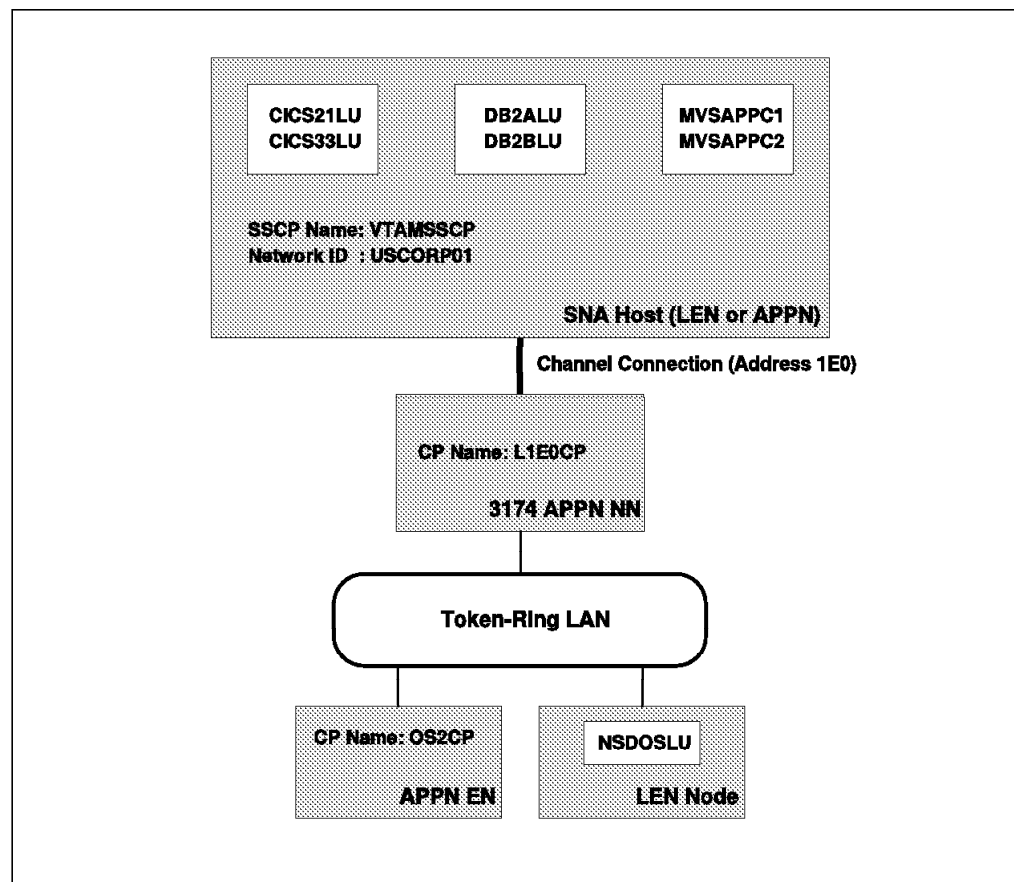


Figure 111. Network Configuration for Channel-Attached 3174 Network Node

---

## B.2 3174 Definitions

The 3174 requires definition of its channel address(es), the basic SNA information, the network resources definitions, and the APPN information.

### B.2.1 3174 Channel Address Questions

The Controller Address and Upper Limit Address define the total number of channel addresses, and therefore the number of physical units (PUs), that can be configured on this 3174. In the example, the total number of PUs available is 32, in the range x'E0' to x'FF'. The controller address specified is the low-order two digits of the channel address specified in the CUADDR parameter of the PU statement.

| <i>Table 21. 3174 Channel Address Questions</i> |                               |
|-------------------------------------------------|-------------------------------|
| <b>Question</b>                                 | <b>Sample Config Response</b> |
| 104: Controller Address                         | E0                            |
| 105: Upper Limit Address                        | FF                            |

### B.2.2 3174 Basic SNA Information Questions

The following table shows the customization questions that should be answered for basic SNA information, along with some sample responses. Your network ID and CP name are probably already defined in VTAM. If you are using connection networks, the virtual node name must match exactly the connection network name defined in Communications Manager/2.

| <i>Table 22. 3174 Basic SNA Questions</i>           |                                                                                                           |                        |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------|
| <b>Question</b>                                     | <b>Possible Responses</b>                                                                                 | <b>Sample Response</b> |
| 242: Link Type                                      | <ul style="list-style-type: none"><li>• 0=2.0 traffic only</li><li>• 1=Both 2.0 and 2.1 traffic</li></ul> | 1 (see note)           |
| 501: Network ID                                     | Up to 8 alphanumeric characters                                                                           | USCORP01               |
| 510: APPN Enabled?                                  | <ul style="list-style-type: none"><li>• 1 = Yes</li><li>• 0 = No</li></ul>                                | 1                      |
| 511: CP Name                                        | Up to 8 alphanumeric characters                                                                           | L1E0CP                 |
| 512: Virtual Node Name<br>(Connection Network Name) | 8-character maximum                                                                                       | CONNET                 |

**Note:** Respond to Q242 only when the host link type is S/370 channel.

### B.2.3 3174 Network Resources Panels

Use the Network Resources panel to define adjacent network nodes and LEN nodes; it is not necessary to define end nodes. "Adjacent" means having an SNA link directly to this machine and, for network nodes, having active CP-CP sessions. For example, on LANs this SNA link is an 802.2 logical link; on X.25 this is a QLLC link; on SDLC and S/370 channel this is a direct link. Not all network nodes on the LAN need to be configured here, just enough to give you two or more routes through the network.

**Note:** If you are using Configuration Support C Release 1 or 2, you will need to define all end nodes in addition to LEN and network nodes. That is why we recommend you use Configuration Support C Release 3 or later.

### B.2.3.1 Adjacent NN Definitions

To define adjacent network nodes on the LAN, the CPNAME of each NN is entered on the Network Resources panel, along with Node Type of 3 (NN), the DLC type (1 = token-ring), and the token-ring address.

### B.2.3.2 LEN Definitions

To define adjacent LEN nodes over token-ring connections to the 3174 NN and the independent LUs associated with each LEN node, the CPNAME of each LEN node is entered on the Network Resources panel, along with the Node Type of 1 (LEN), an "X" indicating associated LUs, the DLC type (1 = token-ring), and the token-ring address.

When you indicate on question 510 that APPN is enabled, you will automatically get the Network Resources panel. The following table shows this worksheet with sample values. The number of entries allowed depends on the range of addresses you specified in questions 104-105.

*Table 23. 3174 Network Resources Panel*

| <b>CPNAME</b> | <b>NODE TYPE / (1-4)</b> | <b>LUs / (X)</b> | <b>DLC TYPE</b> | <b>ADDRESS</b>    |
|---------------|--------------------------|------------------|-----------------|-------------------|
| NSDOSLU       | 1                        | X                | 1               | 4000 0001 00AC 04 |
| VTAMSSCP      | 4                        | X                | 3               |                   |

**Note:** For a LEN node, the CPNAME must be the value of the CP Name control vector in the XID exchange flow. For Networking Services/DOS, this is the LU name.

After all entries are made on the Network Resources panel, the Associated LUs panel is displayed to allow you to enter the LUs associated with each LEN node. The asterisk in the LUNAME shows how to use generic (wildcard) names. In this example, any LU names starting with CICS or MVS may be found in the host, which is CPNAME VTAMSSCP.

*Table 24. 3174 Associated LUs Panel*

| <b>CPNAME</b> | <b>LUNAME</b> | <b>LUNAME</b> | <b>LUNAME</b> | <b>SERVING NN</b> |
|---------------|---------------|---------------|---------------|-------------------|
| VTAMSSCP      | CICS*         | DB2*          | MVS*          |                   |
| NSDOSLU       | NSDOSLU       |               |               |                   |

## B.2.4 3174 APPN Definitions

The APPN definitions are done using the questions specified in the following table. We have just given sample responses; you will need to adjust those values depending on the size of your network.

The wildcard option is important to understand. When your VTAM does not support APPN, the network cannot dynamically determine which LUs are available on the host. To simplify telling the 3174 where LUs are located, you can use the wildcard parameter. The APPN wildcard option (question 612)

specifies that this 3174 will respond to all APPN Locate requests and for any unknown LU; the 3174 will then route the subsequent BINDs to VTAM (only for destination LUs that are not known). The idea is that the LU is somewhere in the VTAM subarea network so routing to VTAM is a smart thing to do.

**Note:** To prevent any unwanted results it is strongly recommended that there be only one node in an APPN network that uses the wildcard option to route BINDs for unknown destination LUs.

Using generic names, mentioned earlier in this section, is another method for defining resources in the subarea that is not as limiting as the wildcard. In CM/2 this is known as *partial* wildcard support.

When you use the wildcard parameter in the 3174 to define LU resources in LEN VTAM, you cannot interconnect 3174s to make an APPN network. Each 3174 is an isolated APPN cluster, and there will only be one path to the host from a workstation. However, when you move to APPN VTAM, you do not need wildcards, and can interconnect 3174s. That means any workstation can get to the host through any 3174 and the APPN class of service determines the best route.

| <i>Table 25. 3174 APPN Questions</i> |                                                                                                                                                                                    |                        |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>Question</b>                      | <b>Possible Responses</b>                                                                                                                                                          | <b>Sample Response</b> |
| 610: APPN Sessions                   | <ul style="list-style-type: none"> <li>• 1=Up to 225 sessions</li> <li>• 2=Up to 500 sessions</li> <li>• 3=Up to 750 sessions</li> <li>• 4=Up to 1000 sessions</li> </ul>          | 1                      |
| 611: APPN Nodes/Links                | <ul style="list-style-type: none"> <li>• 1=Up to 20 nodes/links</li> <li>• 2=Up to 75 nodes/links</li> <li>• 3=Up to 150 nodes/links</li> <li>• 4=Up to 225 nodes/links</li> </ul> | 1                      |
| 612: APPN Wildcard Option            | <ul style="list-style-type: none"> <li>• 1=Yes</li> <li>• 0=No</li> </ul>                                                                                                          | 0                      |
| 613: APPN Host Link                  | 1A - 1H                                                                                                                                                                            | 1A                     |



---

## B.3 LEN VTAM Definitions (VTAM Version 3)

The VTAM definitions for the sample configuration are shown in the following sections.

### B.3.1 Version 3 Release 3 Definitions

---

```
WSN      VBUILD TYPE=LOCAL,MAXGRP=2,MAXNO=2
*
* 3174 PU WITH OS/2 AND NS/DOS INDEPENDENT
*
3174PU   PU   CUADDR=1E0,                               X
          CPNAME=L1EOCP,                                 X
          PUTYPE=2,MAXDATA=2012,MAXPATH=1,PACING=0,     X
          VPACING=0,MODETAB=SAMPMODE,XID=YES
OS2CP    LU   LOCADDR=0,DLOGMODE=#INTER
NSDOCLU  LU   LOCADDR=0,DLOGMODE=#INTER
*
* OS/2 DOWNSTREAM PU FOR TYPE 2 LOGICAL UNITS
*
OS2PU    PU   CUADDR=1E1,PUTYPE=2,MAXDATA=2012,PACING=0, X
          VPACING=0,MODETAB=SAMPMODE
OS2DLU   LU   LOCADDR=2,DLOGMOD=D4C32782
```

---

Figure 112. Local Major Node for 3174 and OS/2 PUs

#### Notes:

1. You *must* specify XID=YES in the 3174 PU definition. For S/370 channel connections, both 3174 and host definitions must specify PU 2.1 support for the 3174 (Q242 = 1 and 'XID = YES', respectively). For other DLCs the 3174 ignores Q242 but VTAM must still have 'XID=YES'.
2. You must also specify XID=YES in the ATCSTRxx member of SYS1.VTAMLST (the VTAM start options) to get XID support.
3. The independent LUs are defined as being in the 3174's PU because VTAM, being a LEN node, only understands how to route to the directly adjacent node - the 3174.

### B.3.2 VTAM Version 3 Release 4 Definitions

---

```

WSN          VBUILD TYPE=LOCAL,MAXGRP=2,MAXNO=2
*
* 3174 PU WITH OS/2 AND NS/DOS INDEPENDENT
*
3174PU      PU  CUADDR=1E0,                      X
              CPNAME=L1EOCP,                      X
              PUTYPE=2,MAXDATA=2012,MAXPATH=1,PACING=0, X
              MODETAB=SAMPMODE,XID=YES,DYNLU=YES
*
* OS/2 DOWNSTREAM PU FOR TYPE 2 LOGICAL UNITS
*
OS2PU       PU  CUADDR=1E1,                      X
              PUTYPE=2,MAXDATA=2012,MAXPATH=1,PACING=0, X
              VPACING=0,MODETAB=SAMPMODE
OS2DLU      LU  LOCADDR=2,DLOGMOD=D4C32782

```

---

Figure 113. VTAM Version 3 Release 4 Local Major Node

#### Notes:

1. There are no LUs with LOCADDR=0. They have been moved to a cross-domain resource major node, shown below.
2. DYNLU=YES allows VTAM to create CDRSCs dynamically whenever the 3174 forwards a BIND from another node in the APPN network. This is crucial to allow you to add end nodes without any new definitions in VTAM. To enable dynamic LU support, you must have a cross-domain resource manager (CDRM) for this VTAM subarea, and the CDRM must have the options CDRSC=OPT,DYNLU=YES.

If APPC sessions will be initiated from the host, using cross-domain resource definitions in VTAM is the best way to define your independent LUs. For migration, VTAM V3R4 will take a VTAM V3R3 independent LU (LOCADDR=0, as in Figure 112 on page 161) and create a cross-domain resource. So, you can still use your old definitions. Using CDRSCs makes moving to APPN much easier, though.

---

```

CDRNODE     VBUILD TYPE=CDRSC
OS2CP       CDRSC MODETAB=SAMPMODE,DLOGMOD=#INTER, X
              ALSLIST=(3174PU)
NSDOSLU     CDRSC MODETAB=SAMPMODE,DLOGMOD=#INTER, X
              ALSLIST=(3174PU)

```

---

Figure 114. CDRSC Major Node for OS/2 and Networking Services/DOS

### B.3.3 Additional Definitions for 3270 Sessions

Because our example assumes that 3270 sessions are needed from the workstations, in VTAM you also need PU definitions for each of the workstations with corresponding dependent LU definitions *and* you also need to define the OS/2 end node to the 3174 in Q940. The CUADDR parm is used on the PU definition of each workstation with a unique channel address, which should correspond with the address definition done in the 3174 on question 104-105.

**Note:** If you use 3174s connected to NCP using SDLC links, replace the CUADDR with ADDR=xx, where xx is the SDLC address, and all the definitions are exactly the same.

---

### B.4 APPN VTAM (VTAM Version 4)

VTAM Version 4 Release 1 supports dependent LUs the way VTAM Version 3 did, so you still need those local PU definitions for the downstream PUs. The 3174 configuration changes because now it connects to VTAM as a network node. The VTAM configuration changes because the CDRSCs are no longer needed. APPN takes care of locating LUs in the network!

*Table 26. 3174 Network Resources Panel for APPN VTAM Connection*

| <b>CPNAME</b> | <b>NODE TYPE / (1-4)</b> | <b>LUs / (X)</b> | <b>DLC TYPE</b> | <b>ADDRESS</b>    |
|---------------|--------------------------|------------------|-----------------|-------------------|
| NSDOSLU       | 1                        | X                | 1               | 4000 0001 00AC 04 |
| VTAMSSCP      | 3 (NN)                   |                  | 3               |                   |

*Table 27. 3174 Associated LUs Panel for APPN VTAM Connection*

| <b>CPNAME</b> | <b>LUNAME</b> | <b>LUNAME</b> | <b>LUNAME</b> | <b>SERVING NN</b> |
|---------------|---------------|---------------|---------------|-------------------|
| NSDOSLU       | NSDOSLU       |               |               |                   |

**Note:** There are no entries for host LUs! APPN does it all!

## B.4.1 VTAM Version 4 Release 1 Definitions

---

```
WSN          VBUILD TYPE=LOCAL,MAXGRP=2,MAXNO=2
*
* 3174 PU WITH OS/2 AND NS/DOS INDEPENDENT
*
3174PU      PU  CUADDR=1E0,                      X
              CPNAME=L1EOCP,CONNTYPE=APPN,CPCP=YES, X
              PUTYPE=2,MAXDATA=2012,MAXPATH=1,PACING=0, X
              MODETAB=SAMPMODE,XID=YES
*
* OS/2 DOWNSTREAM PU FOR TYPE 2 LOGICAL UNITS
*
OS2PU      PU  CUADDR=1E1,                      X
              PUTYPE=2,MAXDATA=2012,MAXPATH=1, PACING=0, X
              VPACING=0,MODETAB=SAMPMODE
OS2DLU     LU  LOCADDR=2,DLOGMOD=D4C32782
```

---

Figure 115. VTAM Version 4 Release 1 Local Major Node

**Note:** There are no VTAM definitions for the CM/2 control point LU and Networking Services/DOS LU. The 3174 provides APPN services for the workstations so it keeps the directory information.

---

## B.5 Connecting to the 3174 NN from OS/2

To complete the example, the following includes the definitions you need in Communications Manager/2. The network ID (Question 501) and the connection network name (Question 512) specified in the Basic SNA Definitions panel for the 3174 are also used in OS/2.

---

```
DEFINE_LOCAL_CP  FQ_CP_NAME(USCORP01.OS2CP )
                  DESCRIPTION(Example of OS/2 connecting to 3174 NN)
                  CP_ALIAS(MYLU )
                  NAU_ADDRESS(INDEPENDENT_LU)
                  NODE_TYPE(EN)
                  HOST_FP_SUPPORT(NO);

DEFINE_CONNECTION_NETWORK  FQ_CN_NAME(USCORP01.CONNET )
                           ADAPTER_INFO( DLC_NAME(IBMTRNET)
   ADAPTER_NUMBER(0));

DEFINE_LOGICAL_LINK  LINK_NAME(SERVER )
                     ADJACENT_NODE_TYPE(NN)
                     DLC_NAME(IBMTRNET)
                     ADAPTER_NUMBER(0)
                     DESTINATION_ADDRESS(X'400000000050')
                     CP_CP_SESSION_SUPPORT(YES)
                     ACTIVATE_AT_STARTUP(YES)
                     SOLICIT_SSCP_SESSION(YES);
```

---

Figure 116. Communications Manager/2 Node Definitions File

**Notes:**

1. SOLICIT\_SSCP\_SESSIONS is set to YES to allow 3270 sessions from the workstation.
2. The DESTINATION\_ADDRESS should be the token-ring address of the 3174.

---

## **B.6 Software/Hardware Requirements for 3174 Network Node**

- Software
  - Configuration Support C - 3MB minimal storage
    - Release C5 required for Frame Relay and X.25 APPN connections
    - Release C4 required for Ethernet APPN connections
    - Release C3 required for SDLC and S/370 SNA channel connections
- Hardware
  - Sufficient storage for configurations
  - Token-ring adapter (not required for C5)
  - PU T2.0 and boundary attachment (or by gateway) to an SSCP
    - Not required if using Dependent LU Requester provided in C5

---

## **B.7 Further Help**

For more information and scenarios for configuring the 3174 as a NN, see the *3174 Planning Guide*, GA27-3918, or the *3174 APPN Implementation Guide*, GG24-3702.



---

## Appendix C. Working with Dependent LUs in OS/2

There are some situations where independent LUs just won't work. Take as an example a 3174 serving as a token-ring gateway for an MVS host. VTAM Version 3.3 for MVS will reject a BIND from the 3174 or any of its downstream PUs, which means you can't use independent LUs. So, how can you get APPC function? *Use dependent LUs, of course!*

This appendix describes how to set up VTAM and OS/2 Communications Manager (Extended Services or CM/2) to run APING to a host application (CICS, IMS, or APPC/MVS) using dependent LUs. We will wrap up with some networking considerations and tips.

Keep in mind the differences between independent and dependent LUs:

- An independent LU
  - Requires no VTAM services unless the partner LU is somewhere on the other side of the VTAM-NCP network, say on another LAN
  - Can send a BIND to start a session with any partner LU
  - Can have parallel sessions to the same partner LU
  - Can have sessions with multiple partners at the same time
  - When defined in VTAM, has local address (LOCADDR) of 0
- A dependent LU
  - Requires VTAM services and an SSCP-LU session to get them
  - Cannot start a session by sending a BIND, but must use INITSELF instead
  - Is always secondary LU in a session
  - Can only have one session to one partner at a time
  - When defined in VTAM has local address greater than 0

---

### C.1 Configuring VTAM

Dependent LUs require defining two pieces of information to VTAM: an LU definition and a mode entry in a mode table.

#### C.1.1 VTAM PU Definition for Workstation Dependent LU

---

```
?LINKNAME? PU ADDR=?PUADDR?,MODETAB=LU2TABLE,DLOGMOD=LU2MODE,      X
                MAXDATA=1927,...
TERMLU1  LU LOCADDR=02
TERMLU2  LU LOCADDR=03
?OS2DLU? LU LOCADDR=?LOCADDR?,MODETAB=?MODETABLE?,DLOGMOD=?MODE?
```

---

Figure 117. VTAM PU Definition with Dependent LU for SDLC Device

---

```
?LINKNAME? PU CUADDR=?PUADDR?,MODETAB=LU2TABLE,DLOGMOD=LU2MODE, X
          MAXDATA=1927,...
TERMLU1 LU LOCADDR=02
TERMLU2 LU LOCADDR=03
?OS2DLU? LU LOCADDR=?LOCADDR?,MODETAB=?MODETABLE?,DLOGMOD=?MODE?
```

---

Figure 118. VTAM PU Definition with Dependent LU for Channel-Attached Device

**Notes:**

1. The ADDR parameter for switched nodes is irrelevant. For SDLC devices (ADDR) and channel-attached devices (CUADDR) this parameter must be defined in the device itself to match the VTAM parameter.
2. If this PU is downstream from a 3174 token-ring gateway, the ?PUADDR? must match the "S" column in question 941 of the 3174 customization.
3. This example shows the VTAM sift-down rule in effect. That is, the terminal LUs use the modetable and default logmode from the PU statement. You could put the APPC mode in the LU2TABLE rather than using a separate mode table.
4. ?OS2DLU?,?LOCADDR?, and ?MODE? will all be used in the OS/2 definition.

### C.1.2 VTAM Mode Table Entry for Single-Session Mode

---

```
?MODE? MODEENT LOGMODE=?MODE?,FMPROF=X'13',TSPROF=X'07', X
          PRIPROT=X'B0',SECPRROT=X'B0',COMPROT=X'50B5',TYPE=X'00', X
          RUSIZES=X'F7F7',PSERVIC=X'0602000000000000000002C00'
```

---

Figure 119. VTAM Mode Entry for Single-Session Mode

**Notes:**

1. This mode entry specifies that the primary LU is contention-winner (COMPROT=x'xxBx'), a requirement for CICS autoinstall.
2. The PSERVIC is required. The x'2C' specifies that the session supports synclevel confirm and single-session only.
3. This mode entry must be assembled and link-edited with the ?MODETABLE? member of SYS1.VTAMLIB (MVS), the ?MODETABLE? VTAMLST file (VM), or the equivalent file in VSE.

### C.1.3 VTAM Network Identifier (NETID)

When working with 3174 LIC B as a token-ring gateway, the 3174 does not send XIDs from the downstream PUs to VTAM. In particular, VTAM assumes that the downstream PUs are in the same network, that is, the downstream PUs have the same net ID as VTAM. *If the downstream PU and VTAM have different net IDs, communication cannot take place.*

The VTAM NETID is found in ATCSTRxx, the VTAM start options list.



---

## C.2 Configuring the Dependent LU in Communications Manager

Configuring dependent LUs in Communications Manager involves not only the local LU but also the partner LU and the logical link. Below are definitions from a Communications Manager .NDF file.

### C.2.1 Defining the Dependent LU in OS/2

---

```
DEFINE_LOCAL_LU LU_NAME(?OS2DLU?)
                DESCRIPTION(Dependent LU for PU 2.0 host gateways)
                LU_ALIAS(?LUALIAS?)
                NAU_ADDRESS(?LOCADDR?);
```

---

Figure 120. OS/2 Local Dependent LU Definition

**Notes:**

1. ?LOCADDR? must match that in VTAM and must be greater than zero.
2. The alias of the local LU, ?LUALIAS?, can be mixed case.

### C.2.2 Defining the Host LU to OS/2

---

```
DEFINE_PARTNER_LU FQ_PARTNER_LU_NAME(?HOSTNET?.?HOSTLU?)
                  PARTNER_LU_ALIAS(?PLUALIAS?,?PLUa1ias?)
                  PARTNER_LU_UNINTERPRETED_NAME(?HOSTLU?)
                  MAX_MC_LL_SEND_SIZE(32767)
                  CONV_SECURITY_VERIFICATION(NO)
                  PARALLEL_SESSION_SUPPORT(NO);
```

---

Figure 121. OS/2 Partner LU Definition

**Notes:**

1. If ?HOSTNET? is different from the local NETID, you must code a cross-domain resource (CDRSC) definition in VTAM and name it ?HOSTLU?.
2. OS/2 allows you to specify several different aliases for partner LUs. Here we show one alias in all uppercase and one in mixed-case.
3. CM sends the partner LU uninterpreted name to VTAM to start the BIND process. This parameter is required.
4. The parallel session support *MUST be NO* for dependent LUs.

### C.2.3 Defining the OS/2 Link and PLU Location

You must tell Communications Manager where to find the partner LU. This involves the link definition to (in our example) the 3174 gateway.

---

```

DEFINE_LOGICAL_LINK LINK_NAME(?GWLINK?)
                    DESCRIPTION(Host gateway)
                    FQ_ADJACENT_CP_NAME(?NETWORK?.?GWCP?)
                    ADJACENT_NODE_TYPE(LEN)
                    DLC_NAME(IBMTRNET)
                    ADAPTER_NUMBER(0)
                    DESTINATION_ADDRESS(?LANADDRESS?)
                    CP_SESSION_SUPPORT(NO)
                    ACTIVATE_AT_STARTUP(YES)
                    SOLICIT_SSCP_SESSION(YES);

DEFINE_PARTNER_LU_LOCATION FQ_PARTNER_LU_NAME(?HOSTNET?.?HOSTLU?)
                          WILDCARD_ENTRY(NO)
                          FQ_OWNING_CP_NAME(?NETWORK?.?GWCP?)
                          LOCAL_NODE_NN_SERVER(NO);

```

---

Figure 122. OS/2 Link and PLU Location Definitions

**Notes:**

1. Communications Manager uses the adjacent node's CP name, ?GWCP?, as a dummy name when the adjacent node type is LEN. However, for smoother migration to APPN, use the rules in C.4, "Additional Tips and Details" on page 171.
2. You must set SOLICIT\_SSCP\_SESSION(YES) because the dependent LU requires one.
3. If this workstation communicates with several host LUs, you may wish to set WILDCARD\_ENTRY(PARTIAL). See C.4, "Additional Tips and Details" on page 171 for an example.

## C.2.4 Defining the OS/2 Single-Session Mode

---

```

DEFINE_MODE MODE_NAME(?MODE?)
           DESCRIPTION(Single-session mode)
           COS_NAME(#INTER )
           DEFAULT_RU_SIZE(YES)
           RECEIVE_PACING_WINDOW(4)
           MAX_NEGOTIABLE_SESSION_LIMIT(1)
           PLU_MODE_SESSION_LIMIT(1)
           MIN_CONWINNERS_SOURCE(1);

```

---

Figure 123. OS/2 Single-Session Mode Definition

**Notes:**

1. The mode name ?MODE? must match that in VTAM.
2. Set MIN\_CONWINNERS\_SOURCE(1) if programs on the workstation will start most of the APPC conversations. Set this to (0) if the host application starts most of the conversations (for example, ImagePlus\*for MVS/ESA or NetView\* Distribution Manager).

---

### C.3 Running APING

Finally, to run APING, issue the following two commands from an OS/2 command prompt:

```
[C:\]set appcllu=?LUALIAS?  
[C:\]aping -n -m ?MODE? ?PLUalias?
```

The environment variable APPCLLU tells CPI-C which local LU to use for the session. If you don't set this variable, CPI-C uses the default LU. The default LU is the control point LU. (You can change this; see the tips in C.4, "Additional Tips and Details.")

Remember when setting APPCLLU and when running APING that *aliases are case sensitive*. You must specify the mode here because APING will try to use #INTER, which will in turn try (and fail) to set up parallel sessions.

---

### C.4 Additional Tips and Details

Here are some other tricks:

- Choosing the CP names on DEFINE\_LOGICAL\_LINK
  - If your gateway is a 3745, use the VTAM SSCP name. When you migrate to APPN, the SSCP name becomes the CP name of the VTAM/NCP composite network node.
  - If your gateway is anything else, use the CP name of the gateway node (3174, 3172, CM/2, etc.). When you migrate to APPN, the gateway itself becomes the APPN network node. (The 3172 network node function is a statement of direction as of 2/94.)
- Using wildcards to reduce PLU location definitions

If your workstation communicates with many host LUs, you can get by with one statement coded like this:

```
DEFINE_PARTNER_LU_LOCATION FQ_PARTNER_LU_NAME(?PARTNERNET?.)  
                           WILDCARD_ENTRY(PARTIAL)  
                           FQ_OWNING_CP_NAME(?NETWORK?.?GWCP?)  
                           LOCAL_NODE_NN_SERVER(NO);
```

Communications Manager will route requests for all LUs in the **?PARTNERNET?** network to the gateway link.

- Changing the default LU

If you never use the parallel session capability of the CP LU, then you can change the default LU (and eliminate the "set APPCLLU" step) by coding this line in the DEFINE\_DEFAULTS stanza:

```
DEFINE_DEFAULTS DEFAULT_LOCAL_LU_ALIAS(?LUALIAS?)  
                ...
```

- Defining VTAM cross-domain resources

```
*****
* THE LOCAL NETWORK ID IS NET1, LOCAL VTAM IS N1CDRM1 *
*****
?CDRSCMAJ? VBUILD   TYPE=CDRSC
?HOSTLU1?  CDRSC    CDRM=N1CDRM1      * Host LU1 on some other NET1 VTAM
?HOSTNET?  NETWORK NETID=?HOSTNET?
?HOSTLU?   CDRSC    ISTATUS=ACTIVE    * Host LU in HOSTNET network
```

To connect two VTAMs with different network IDs requires the SNA Network Interconnect (SNI) product with one VTAM in each network connected to a gateway NCP. VTAMs are known in the network by their cross-domain resource manager (CDRM) names. VTAM Version 3.4 and later treat all independent LUs as cross-domain resources.

One of the limitations of dependent LUs is that you can't start a session from your dependent LU to an LU in another OS/2 system. The partner system MAY be able to start a session to the dependent LU if it has an independent LU. In fact, from a dependent LU you can only initiate sessions to host LUs or LUs in nodes (like the AS/400) that respond to the VTAM message CDCINIT. The node responds to the CDCINIT with a BIND to the originating LU (in OS/2 in our example).

If all you want to do is run APPC to one host application at a time, dependent LU support is adequate. If you want to do a lot of APPC with multiple host applications, then you will need several LUs per workstation. This makes working with CPI-C somewhat tedious, since CPI-C uses the "default" LU. This is nice because the application doesn't have to know anything about the local configuration. However, with lots of dependent LUs, your applications will need to use different local LUs. This is just one more reason to use one independent LU that can have multiple sessions with multiple partners.

---

## Appendix D. CICS: Autoinstalling Parallel Sessions

**Note: CICS/ESA Version 4, announced February 1, 1994, supports autoinstalling parallel sessions. See Announcement Letter 294-026 for more details.**

Customers use CICS autoinstall to conserve CICS resources for applications such as ImagePlus for MVS/ESA. Some CICS system programmers (and many IBMers as well) believe that autoinstall works only for dependent LUs. However, there are many dynamic definition features in VTAM and APPN that work only with independent LUs and cannot be used by dependent LUs. It would be very nice to get the benefits of both autoinstall and independent LUs. Well, you can! Really, it was possible all along; it just wasn't easy to figure out. Here's how. If you know all about CICS autoinstall, just skip to D.1.2, "VTAM Mode Table Entry" on page 175. Otherwise, the next few paragraphs serve as an introduction.

Many APPC platforms can build partner definitions automatically whenever an unknown partner tries to connect. Automatic definition means less administrative work, fewer mistakes, and happier users. CICS calls this function "autoinstall" and CICS has had it for a long time. That's the good news. The bad news is that CICS can autoinstall only single-session "terminals," and VTAM must start the process.

In SNA terms a CICS terminal is typically a dependent LU and SNA (VTAM in particular) works very well with dependent LUs. However, SNA with Advanced Peer-to-Peer Networking (APPN) works better with independent LUs that send BINDs directly and don't need VTAM. A typical workstation cannot just send a BIND to CICS; there must be a CINIT message (pronounced "see-init") from VTAM in order to start the autoinstall process.

So, the task boils down to two steps:

1. Setting up Communications Manager or Networking Services/DOS to properly respond to CICS
2. Starting the process in VTAM, either through system definition or operator command

For complete details on what happens between dependent LUs, VTAM, and CICS, see D.5, "Autoinstall Details" on page 177. If you just want the configuration and operation information, read on.

---

### D.1 Setting Up CICS and VTAM for Autoinstall

There are three events that will cause VTAM to send a CINIT to CICS (starting the autoinstall process):

1. An LU statement is coded with the LOGAPPL(?CICSLU?) parameter and the LU becomes active (CICSLU is the CICS applid or region name).
2. A VTAM operator issues the following command:

```
VARY NET,LOGON=?CICSLU?,ID=?ILU?,LOGMODE=?MODE?
```

where ?ILU? is the independent LU name and ?MODE? is a mode with parameters that match the CICS defaults for the LU 6.2 terminal.

3. A dependent LU sends an INIT\_SELF to VTAM naming ?CICSLU? as the “partner uninterpreted name.”

Note that only item 3 explicitly excludes independent LUs. So, to bring CICS into the dynamic world of APPN, all we have to do is implement method 1 or 2.

### D.1.1 CICS Model Definitions

The following example shows what happens with the CICS/ESA V3R3 default definitions. The two pertinent CICS resource definitions are LU62 TERMINAL in group DHFTERM and DFHLU62T TYPETERM in group DFHTYPE. You can't change the CICS defaults; these screens are shown for information only.

```
TERMINAL      : LU62
GROUP        : DFHTERM
DESCRIPTION   :
AUTINSTMODEL : ONLY NO | YES | ONLY
AUTINSTNAME  : DFHLU62T
TERMINAL IDENTIFIERS
TYPETERM     : DFHLU62T
NETNAME      : LU62
SESSION SECURITY
SECURITYNAME :
ATTACHSEC    : LOCAL          LOCAL | IDENTIFY | VERIFY | PERSISTENT | MIXIDPE
BINDPASSWORD :                PASSWORD NOT SPECIFIED
BINDSECURITY : NO   NO | YES
```

Figure 124. LU62 TERMINAL Definition in Group DHFTERM

You may wish to change the ATTACH security to VERIFY (for password checking on all transactions) or PERSISTENT (for OS/2). To do so, you must create a new model TERMINAL definition and a new model TYPETERM definition.

Figure 125 shows the important lines in the TYPETERM definition used for APPC autoinstall.

```
TYPETERM     : DFHLU62T
GROUP        : DFHTYPE
DESCRIPTION   :
RESOURCE TYPE
DEVICE       : APPC
SESSION PROPERTIES
ASCII       : NO NO | 7 | 8
SENDSIZE    : 02048 0-30720
RECEIVESIZE : 02048 0-30720
BRACKET     : YES YES | NO
LOGMODE     :
```

Figure 125. DFHLU62T TYPETERM Definition in Group DFHTYPE

## D.1.2 VTAM Mode Table Entry

The key VTAM definition is the mode name in the LU's default mode table. You must create this mode entry or one like it. Below is the assembler source for the **?MODE?** mode. Add this entry to your mode table source file, assemble it, and link-edit the result with SYS1.VTAMLIB.

---

```
?MODE?  MODEENT LOGMODE=?MODE?,FMPROF=X'13',TSPROF=X'07',          X
        PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'50B5',TYPE=X'00',X
        RUSIZES=X'8888',PSERVIC=X'060200000000000000002C00'
```

---

Figure 126. Sample Mode Entry for Single-Session, PLU Contention-Winner Mode

### Notes:

1. The common Function Management protocols (COMPROT) is x'50B5'. The third character must be x'B' to indicate "BIND-sender (CICS) is contention-winner."
2. CICS *always* tries to be the contention-winner for the session but accepts whatever the partner LU sets in the BIND response.

Once you have successfully link-edited the mode table, update the working mode table with the command:

```
modify net,table,option=load,newtab=?MODETABLE?
```

---

## D.2 Autoinstalling OS/2 Communications Manager ILUs

OS/2 Communications Manager can accept being contention-loser when the session limit is 1. If an OS/2 application tries to allocate a conversation on the session and the session is not in use, Communications Manager will send a no-op message to CICS with bits in the header that say (in effect) "I want to use this session; is it okay?" and CICS will respond, "It's okay." Then Communications Manager will return control to the program and the transaction program will proceed.

### D.2.1 Starting the Autoinstall

To autoinstall the OS/2 LU, do one of the following:

- Code the VTAM LU statement with a LOGAPPL parameter. For example

```
?OS2LU? LU LOCADDR=0,ISTATUS=ACTIVE,DLOGMOD=?MODE?,LOGAPPL=?CICSLU?
```

- Issue the VTAM operator command

```
v net,logon=?CICSLU?,id=?OS2LU?,logmode=?MODE?
```

---

## D.3 Setting Up OS/2 CM for Autoinstall

There are two cases to consider for OS/2 system definition:

1. CICS always starts the APPC conversation; this happens with Image+/ESA, for example. You need no additional definitions in Communications Manager.
2. OS/2 applications will start conversations with CICS transactions. This will require a partner LU definition that specifies a session limit of 1 and the mode definition.

### D.3.1 Defining the Mode Name

To make OS/2 the contention-winner on the single session, you must create a mode definition (see below). The session limits must be coded exactly as shown; the RU sizes and pacing values can be changed.

---

```
DEFINE_MODE MODE_NAME(?MODE?)
            DESCRIPTION(For CICS autoinstall test)
            COS_NAME(#INTER )
            DEFAULT_RU_SIZE(YES)
            RECEIVE_PACING_WINDOW(4)
            MAX_NEGOTIABLE_SESSION_LIMIT(1)
            PLU_MODE_SESSION_LIMIT(1)
            MIN_CONWINNERS_SOURCE(1);
```

---

Figure 127. Contention-Winner Mode Definition for Communications Manager

### D.3.2 Defining the Partner LU (CICS)

---

```
DEFINE_PARTNER_LU FQ_PARTNER_LU_NAME(?CICSNET?.?CICSLU?)
                 PARTNER_LU_ALIAS(?PLUALIAS?,?plualias?)
                 MAX_MC_LL_SEND_SIZE(32767)
                 CONV_SECURITY_VERIFICATION(NO)
                 PARALLEL_SESSION_SUPPORT(NO);
```

---

Figure 128. Communications Manager Partner LU Definition

#### Notes:

1. If **?CICSNET?** is different from the local NETID, you must code a cross-domain resource (CDRSC) definition in VTAM and name it **?CICSLU?**.
2. Communications Manager allows you to specify several different aliases for partner LUs. Here we show all upper-case and all lowercase aliases.
3. The parallel session support *MUST be NO* for CICS autoinstall.



---

## D.4 Autoinstalling Networking Services/DOS ILUs

This requires Networking Services/DOS at CSD level IP00898 or later. Networking Services/DOS (version 1.0 with CSD and version 1.1) will always try to be the contention winner. Figure 129 shows a sample MODE.NSD containing a proper single-session mode definition.

---

```
//           Rcv   Maximum   Minimum
//           Maximum Pacing   Negotiable Negotiable
// Mode Name RU Size Window Sessions Conwinners
// -----
// SNASVCMG   256     1         2         1
// BLANK      *       2         8         4
// #BATCH     *       3         8         4
// #INTER     *       7         8         4
// ?MODE?  1024    3         1         1
// ?MODE? is for single-session CICS autoinstall
```

---

Figure 129. Contention-Winner Mode Definition for Networking Services/DOS

As with OS/2, the RU size and pacing windows are tunable; the session limits are not. Autoinstall will not work if the mode name is omitted from the MODE.NSD file.

### D.4.1 Starting the Autoinstall

To autoinstall the Networking Services/DOS LU, do one of the following:

- Code the VTAM LU statement with a LOGAPPL parameter. For example,

```
?NSDLU? LU LOCADDR=0, ISTATUS=ACTIVE, DLOGMOD=?MODE?, LOGAPPL=?CICSLU?
```

- Issue the VTAM operator command:

```
v net, logon=?CICSLU?, id=?NSDLU?, logmode=?MODE?
```

Here, **?NSDLU?** must match the Networking Services/DOS LU definition in the NSDN statement in the CONFIG.NSD file.

```
NSDN ?NETWORK?.?NSDLU?
```

---

## D.5 Autoinstall Details

APPC sessions start with one LU sending a BIND to the partner LU. The partner LU can use information in the BIND to completely identify the origin LU. Therefore, most platforms use the BIND to start the automatic definition process. This approach does not work for dependent LUs because dependent LUs can't send BINDs.

CICS needed a solution that worked for dependent LUs. Fortunately, whenever someone at a 3270 terminal (a dependent LU to VTAM and CICS), needs to

connect to CICS, VTAM sends to CICS a message called a “control initiate” (CINIT). The CINIT contains the terminal’s LU name and all the other parameters that go in a BIND. If all those parameters match what CICS wants to send, then CICS will build a BIND to the target LU and send it.

In APPC, dependent LUs automatically send a message called INIT\_SELF to VTAM, which in turn causes VTAM to send a CINIT to CICS. Independent LUs will try to send a BIND to start a session and CICS will reject BINDs from LUs for which it does not have an existing CONNECTION or TERMINAL definition.

So, our problem becomes “How can I get VTAM to generate a CINIT for an independent LU?” or, to use VTAM terminology, “How can I logon an independent LU to CICS?” There are only two ways to do this: issue the VTAM operator command `v net,logon=...` or code the LOGAPPL parameter on the LU definition statement. D.1, “Setting Up CICS and VTAM for Autoinstall” on page 173 describes the operational steps to make this work.

---

## List of Abbreviations

|               |                                                 |             |                                          |
|---------------|-------------------------------------------------|-------------|------------------------------------------|
| <b>AS/400</b> | Application System/400                          | <b>LU</b>   | logical unit                             |
| <b>AIX</b>    | Advanced Interactive Executive                  | <b>MVS</b>  | multiple virtual storage                 |
| <b>CICS</b>   | Customer Information Control System             | <b>NCP</b>  | Network Control Program                  |
| <b>CM/2</b>   | Communications Manager/2                        | <b>NDF</b>  | node definitions file                    |
| <b>CP</b>     | control point                                   | <b>NN</b>   | network node                             |
| <b>CPI-C</b>  | common programming interface for communications | <b>OS/2</b> | Operating System/2                       |
| <b>DOS</b>    | Disk Operating System                           | <b>PLU</b>  | primary logical unit                     |
| <b>EN</b>     | end node                                        | <b>PTF</b>  | program temporary fix                    |
| <b>ESA</b>    | enterprise system architecture                  | <b>PU</b>   | physical unit                            |
| <b>APPC</b>   | advanced program-to-program communication       | <b>RACF</b> | Resource Access Control Facility         |
| <b>APPN</b>   | Advanced Program-to-Program Networking          | <b>RISC</b> | reduced instruction set computer         |
| <b>DLC</b>    | data link control                               | <b>SAA</b>  | systems application architecture         |
| <b>GCS</b>    | group control system                            | <b>SAP</b>  | service access point                     |
| <b>IBM</b>    | International Business Machines Corporation     | <b>SSCP</b> | system services control point            |
| <b>ID</b>     | identifier                                      | <b>SIT</b>  | system initialization table              |
| <b>ITSO</b>   | International Technical Support Organization    | <b>SMIT</b> | system management interface tool         |
| <b>JCL</b>    | job control language                            | <b>SNA</b>  | systems network architecture             |
| <b>JES</b>    | job entry subsystem                             | <b>TP</b>   | transaction program                      |
| <b>LAN</b>    | local area network                              | <b>VM</b>   | virtual machine                          |
| <b>LEN</b>    | low-entry networking                            | <b>VNET</b> | virtual node exchange transmission       |
|               |                                                 | <b>VSAM</b> | virtual storage access method            |
|               |                                                 | <b>VTAM</b> | virtual telecommunications access method |
|               |                                                 | <b>XID</b>  | exchange identifier                      |



---

## Index

### Special Characters

?AIXLUNAME? 154  
?APINGLIB? 103, 106, 107, 114, 118  
?APPC.LOADLIB? 126, 134, 136  
?APPLNODE? 102, 104, 108  
?CALLATTACHPRO? 12, 19, 20  
?CALLCONNPRO? 12, 20, 23, 25  
?CALLSPRO? 30, 33  
?CDRSCMAJ? 172  
?CICSLU? 173, 174, 175, 176, 177  
?CICSNET? 176  
?CICSPROC? 102, 104, 106  
?CLIENTPGM? 103, 118  
?CLIENTPROG? 119  
?CLIENTTRAN? 103, 119  
?CLIST.DATASET? 126, 134, 135  
?CON? 103, 105, 111, 112, 120  
?CONTRNAME? 39, 44, 154  
?CPNAME? 50, 64  
?CPPRO? 12, 17, 19, 153  
?DEVNAME? 39, 44  
?GROUP? 103, 111, 112, 113, 114, 115, 116, 117, 118, 119  
?GWCP? 170, 171  
?GWLINK? 170  
?HOSTLU? 169, 170, 172  
?HOSTLU1? 172  
?HOSTNET? 169, 170, 172  
?ILU? 173  
?JES? 126, 128  
?LANADDRESS? 11, 16, 19, 29, 33, 38, 44, 50, 53, 55, 65, 68, 70, 72, 83, 86, 91, 94, 101, 121, 125, 133, 141, 155, 170  
?LANADDRESS?' 72  
?LINENAME? 39, 44  
?LINKNAME? 51, 55, 65, 70, 71, 72, 83, 86, 88, 91, 94, 102, 104, 109, 110, 154, 155, 156, 167, 168  
?LISTATTACHPRO? 12, 15, 19, 20  
?LISTCONNPRO? 12, 20, 25  
?LOCADDR? 167, 168, 169  
?LOCALCP? 11, 17, 29, 33, 38, 42, 71, 101, 120, 125, 140, 153  
?LOCALLU\_G? 144, 145  
?LOCALLU\_P? 144, 145  
?LOCALLU? 11, 16, 18, 29, 35, 38, 42, 44, 45, 83, 85, 91, 93, 101, 104, 107, 108, 120, 125, 129, 140, 143, 144, 145, 148, 151  
?LOCALNET? 11, 16, 17, 18, 29, 33, 38, 42, 83, 85, 91, 93, 101, 111, 115, 120, 125, 140, 153  
?LOCALPU? 64  
?LUALIAS? 65, 68, 169  
?LUNAME 69  
?LUNAME? 50, 53, 54, 61, 64, 68, 79, 154, 155, 156  
?LUPRO? 12, 18, 20, 25, 30, 35  
?MODE? 12, 16, 23, 30, 34, 39, 45, 51, 57, 65, 74, 83, 87, 91, 95, 102, 105, 108, 109, 110, 112, 116, 117, 125, 129, 131, 132, 141, 147, 148, 167, 168, 170, 173, 175, 176, 177  
?MODELISTPRO? 13, 20, 21  
?MODEPRO? 13, 21  
?MODEPRO2? 21  
?MODEPRO3? 21  
?MODETAB? 126, 129, 131, 141, 147, 154, 155, 156  
?MODETABLE? 103, 108, 109, 110, 167, 168, 175  
?NCPLANADDR? 126, 131, 141, 147  
?NETNAME? 153  
?NETWORK? 50, 53, 54, 61, 64, 68, 69, 73, 79, 154, 155, 170, 171  
?NODEID? 39, 61, 71, 79  
?NODETYPE? 39, 42, 51, 54, 65, 69, 79, 155  
?NSDLU? 177  
?OS2DLU? 167, 168, 169  
?OS2LU? 175  
?PARTNERCP? 38, 50, 55, 56, 64, 70, 71, 72, 73, 101, 109, 110  
?PARTNERLU? 11, 12, 16, 20, 29, 34, 36, 38, 44, 45, 46, 50, 55, 56, 57, 58, 61, 64, 73, 74, 75, 78, 83, 86, 87, 88, 91, 95, 97, 101, 104, 105, 109, 110, 111, 115, 116, 119, 120, 125, 131, 132, 141, 147, 148  
?PARTNERNET? 11, 16, 20, 29, 34, 36, 38, 44, 45, 50, 55, 56, 57, 58, 61, 64, 70, 71, 72, 73, 74, 75, 78, 79, 83, 86, 87, 88, 91, 95, 97, 101, 110, 116, 119, 171  
?PLUALIAS? 46, 51, 56, 58, 61, 65, 73, 74, 75, 78, 169, 176  
?PROCLIB? 102, 106  
?PROFILE? 103, 116, 117  
?PUADDR? 167, 168  
?QUICKATTACH? 16  
?QUICKPRO? 12, 16, 25  
?RESNAME? 39, 44  
?RTPLISTPRO? 13, 20, 22  
?RTPNAMEPRO? 13, 22  
?SERVERPGM? 103, 113, 114  
?SERVERTRAN? 102, 114  
?SESSION? 103, 112  
?SIFILE? 126, 129, 132  
?SITPARMS? 102, 106, 107  
?SSCPNAME? 153  
?SWNETNODE? 102, 104, 109, 110  
?SYMDEST? 12, 23, 25, 30, 34, 36, 39, 45, 46, 51, 57, 61, 65, 74, 78, 83, 87, 88, 91, 95, 102, 116, 119, 126, 132, 136, 141, 148  
?SYMDEST?. 74  
?TPFILE? 126, 129, 134, 135  
?TPLEVEL? 126  
?TPNAME? 11, 16, 22, 23, 24, 29, 34, 36, 38, 45, 50, 57, 59, 65, 74, 76, 77, 83, 87, 91, 95, 96, 101, 116, 125, 132, 135, 136, 141, 151

?TPNAMEPRO? 13, 24, 30, 36  
?TPNLISTPRO? 13, 18  
?TPPATH? 11, 16, 24, 36, 50, 59, 65, 76, 77, 83, 87,  
91, 96  
?VOL? 126, 132, 134  
\*ENDNODE 39  
\*NETNODE 39

## Numerics

3172 123  
3174 123, 157  
3270 session 163  
3745 123

## A

abbreviations 179  
ACBNAME 101, 105, 107, 108, 125, 137  
acronyms 179  
ADDCMNE 42  
Adjacent 158  
adjacent link 109  
Advanced Operations 92  
Advanced Peer-to-Peer Networking 6  
Advanced Program-to-Program Communication 4  
AIX 9  
AIX SNA Server/6000 27  
AIX SNA Services/6000 9  
APING 2, 97  
APINGD 97  
APPC 4, 127  
APPC/MVS 123  
APPC/VM 139  
APPC.CLIST 134  
APPCLU 171  
APPCPM00 127, 129, 132  
APPL 103, 104  
APPL major node 137  
application major node 102, 103, 104, 107, 127, 129  
APPLID 101, 105, 107, 108  
APPN 6, 27, 173  
APPN node type 39  
APPNLINK 51  
appnv 60  
APPNV.CTL 51  
AS/400 37  
ASCH 127  
ASCHPM00 127  
assigned link 94  
ATBSIVSM.JCL 132  
attach manager 53  
authorization list 110  
autoinstall 173  
automatic configuration 43  
Autostart 92  
AVS 139  
AVS/VM 142

AVSVM 142, 143

## B

BIND 60, 167, 169, 177

## C

call attachment 18  
CDRM 162, 172  
CDRSC 111, 163, 169, 176  
CEMT transaction 105  
CFG file 52  
channel address 158  
CHGCSI 45  
CHGCTLAPPC 44  
CHGDEVAPPC 44  
CHGLINTRN 43  
CHGNETA 42  
CICS 99, 173  
CICS autoinstall 168, 173  
CINIT 173, 178  
client 8, 21, 33, 45, 74, 95, 131  
client program 103  
client transaction 103  
CLIST 126, 133, 134  
CM/2 63  
CM/2 Subsystems 66  
CMSTPN 116  
CMVERIFY.TXT 66  
CNOS 108  
COMDIR 148  
communications entry 42  
Communications Manager 173, 176  
Communications Manager/2 63  
CompuServe 2  
CONFIG.NSD 84, 85, 88  
Configuration Support C 157, 159, 165  
configuration worksheet 33  
connection 111  
CONNECTION identifier 111  
connection name 103  
connection network 158, 164  
connection type 93  
contention-winner 176  
control point 6, 33  
control point profile 32  
controller address 158  
controller description 39, 43, 44, 154  
conversation 4, 8, 59, 92, 94  
CP name 7, 11, 17, 25, 29, 36, 38, 46, 50, 61, 62, 64,  
78, 79, 88, 98, 120, 125, 137, 151, 155, 158, 159, 170,  
171  
CP-CP sessions 71, 158  
CPI-C 5, 114, 115, 171  
CPI-C side information 8, 12, 22, 30, 34, 36, 39, 45,  
51, 57, 65, 74, 83, 86, 91, 95, 102, 103, 115, 126, 131,  
132, 141, 148

CPI-C symbolic destination 25  
CPNAME 50, 64, 101, 109, 153, 159  
cross-domain resource 162  
CRTCSI 45  
CRTCTLAPPC 44  
CRTDEVAPPC 44  
CRTLINTRN 43  
CSI 45  
CUADDR 158, 163

## D

default link 94  
default LU 171  
define\_cplic\_side\_info 57  
DEFINE\_LOCAL\_CP 54, 61, 155  
define\_logical\_link 55  
define\_partner\_lu 56, 58  
define\_tp 59  
DEFINETP.NSD 84, 85, 87  
dependent LU 163, 167, 172, 173, 177  
DESTNAME 126  
device description 39, 43, 44  
DLC profile 33  
DLC type 159  
DLOGMOD 109  
DLTCSI 45  
downstream PU 167  
DSPCSI 45  
DSPNETA 41, 46  
dynamic link station 32

## E

end node 6, 33, 39, 51, 53, 65, 157  
Ethernet 157

## F

Frame 157

## G

gateway link 171  
gateway NCP 172  
GCS 142  
generic name 160  
global resource 148  
group name 111

## H

hierarchical 7  
host connection 71  
host LU 170  
host node 54, 71

## I

IBMTRNET 54  
IDBLK 153, 155  
IDNUM 153  
IKJEFT01 134, 135  
implicit\_inbound\_plu\_support 60  
independent LU 131, 162, 167, 172, 173  
independent LU? 178  
INIT\_SELF 178  
initial node setup 32  
INITSELF 167  
interrupt 85  
ISTINCLM 129, 145

## L

LAN address 8, 11, 25, 29, 36, 38, 47, 50, 61, 62, 65,  
78, 79, 83, 88, 89, 91, 98, 101, 125, 126, 137, 141, 152  
LANADDR 98  
LANADDRESS? 55, 71  
LEN 157  
LEN node 6, 7, 56, 70, 72, 81, 89, 125, 151, 159  
library name 45  
LINE 126, 141, 152  
line description 39, 43  
link 6, 54, 55, 69  
link name 51, 65, 89  
link station 33  
link station profile 31  
listen attachment 18  
load library 126  
LOADLIB 141, 149  
LOCADD 126, 137, 141  
LOCADDR 152, 167  
local LU 34, 41  
local LU alias 34  
local LU name 25, 89, 93  
local node characteristics 68  
local node name 53  
LOGAPPL 173, 177  
logical connection profile 20  
logical link 51, 54, 65, 69  
logical unit 5  
logmode table 129  
LU 103  
LU 6.2 profile 34  
LU alias 39, 51  
LU name 6, 7, 8, 11, 25, 29, 36, 38, 41, 46, 50, 53, 54,  
56, 61, 62, 64, 67, 69, 78, 79, 83, 85, 87, 88, 89, 91, 93,  
97, 99, 101, 105, 115, 116, 120, 125, 133, 140, 141,  
147, 155  
LUADD 125, 137  
LUDRPOOL 131, 147  
LUNAME 61, 79

## M

Microsoft Windows 81, 87, 89  
MKTTOOLS 2  
mode 5, 91, 92  
mode list 21  
mode list profile 21  
Mode name 6, 39, 51, 65, 87, 103, 108, 110, 112, 125, 133, 141  
mode table 126, 141, 175  
MODE.NSD 84  
MODETAB 145

## N

NCP 123, 139, 141, 147, 152  
NDF 52, 54, 57, 58, 59  
NDF file 67  
net ID 7, 8, 11, 25, 29, 36, 38, 46, 50, 61, 62, 64, 78, 79, 83, 88, 89, 91, 98, 99, 101, 109, 110, 111, 116, 120, 125, 137, 140, 152  
NETID 89, 101, 110, 125, 137, 152, 176  
netname 101  
network 6  
network attributes 42  
network ID 158  
network name 25, 29, 36, 89  
network node 6, 8, 33, 39, 51, 53, 54, 55, 65, 70, 71, 76, 83, 86, 91, 157  
network node server 6, 53  
Networking Services/DOS 81, 89, 109, 173, 177  
nickname 39, 51, 65, 111  
node 6  
node definitions 72, 76  
node ID 7, 17, 33, 39, 153  
node name 78  
node type 51, 53  
NSD ACTIVATE 86, 88  
NSD START 85, 87  
NSDI 85  
NUMILU 131, 147

## O

OS/2 49, 163  
OS2BBS 2

## P

panel configuration 67  
parallel session 171  
PARMLIB 125  
partner LU 5, 8, 18, 56, 58, 60, 65, 72, 73, 75, 77, 92, 93, 94, 102, 103, 104, 109, 110, 111, 112, 113, 147, 167, 169  
partner LU name 58, 89  
peer node 54, 70  
peripheral node 102

physical unit 153  
PMDSPLAY 51, 66  
primary host 54  
procedure library 104  
profile names 30  
Program Launcher 87, 96, 97  
PU 103, 158  
PU name 64, 102

## Q

quick configuration 15

## R

RACF 112, 119  
remote address 89  
resource name 39  
REXX 133, 134, 135

## S

SAP 85  
SDLC 157  
SDLC address 163  
server 8, 23, 35, 45, 60, 76, 87, 96, 110, 133  
server program 103  
service access point 85  
session 5, 92, 108  
session characteristics 112  
SIDEINFO.NSD 84, 86  
SIT 102, 107  
SMIT 14, 16, 21, 31  
SNA subsystem 32  
SNA Subsystems 66  
SNI 172  
SSCP 120  
SSCP name 171  
SSCP-LU session 167  
SSCP-PU session 70  
SSCPNAME 101, 120, 125, 137, 151  
STARTCM 51  
startup procedure 106  
subarea link 147  
subarea network 7, 147  
switched major node 102, 103, 104, 109, 127, 131, 133  
SYS1.PARMLIB 127, 132, 137  
SYS1.PARMLIB(APP00) 129  
System/370 channel 157

## T

TKRING.NSD 85  
token-ring 157  
token-ring address 159  
token-ring attachment 18  
token-ring gateway 167



TP definition 96  
TP name 5, 8, 11, 29, 38, 50, 59, 65, 83, 91, 101, 110,  
114, 115, 116, 125, 133, 141, 151  
TP name list 21, 23, 24  
TP name list profile 22  
TP name profile 21  
TP profile 23, 35, 126, 128, 133, 134  
transaction 99, 114  
transaction ID 99, 114, 119  
transaction program 4, 8, 21, 45, 65, 76, 83, 87, 91,  
113  
TRLD 86  
TXTLIB 149

## **V**

virtual node name 158  
VM/ESA 139  
VRYCFG 40  
VTAM 123, 139, 157  
VTAM start option 125  
VTAM start options 110  
VTAMLST 140, 145

## **W**

wildcard 159  
WRKCFGSTS 40  
WRKCSI 45  
WRKSBS 42

## **X**

X.25 157  
XCIDRM 148  
XID 7, 17, 33, 168  
XNETALS 110



**International Technical Support Organization  
Multiplatform APPC Configuration Guide  
December 1994**

**Publication No. GG24-4485-00**

Your feedback is very important to help us maintain the quality of ITSO Bulletins. **Please fill out this questionnaire and return it using one of the following methods:**

- Mail it to the address on the back (postage paid in U.S. only)
- Give it to an IBM marketing representative for mailing
- Fax it to: Your International Access Code + 1 914 432 8246
- Send a note to REDBOOK@VNET.IBM.COM

**Please rate on a scale of 1 to 5 the subjects below.  
(1 = very good, 2 = good, 3 = average, 4 = poor, 5 = very poor)**

|                                 |       |                                   |       |
|---------------------------------|-------|-----------------------------------|-------|
| <b>Overall Satisfaction</b>     | _____ |                                   |       |
| Organization of the book        | _____ | Grammar/punctuation/spelling      | _____ |
| Accuracy of the information     | _____ | Ease of reading and understanding | _____ |
| Relevance of the information    | _____ | Ease of finding information       | _____ |
| Completeness of the information | _____ | Level of technical detail         | _____ |
| Value of illustrations          | _____ | Print quality                     | _____ |

**Please answer the following questions:**

- a) If you are an employee of IBM or its subsidiaries:
- |                                                                |          |         |
|----------------------------------------------------------------|----------|---------|
| Do you provide billable services for 20% or more of your time? | Yes_____ | No_____ |
| Are you in a Services Organization?                            | Yes_____ | No_____ |
- b) Are you working in the USA? Yes\_\_\_\_\_ No\_\_\_\_\_
- c) Was the Bulletin published in time for your needs? Yes\_\_\_\_\_ No\_\_\_\_\_
- d) Did this Bulletin meet your needs? Yes\_\_\_\_\_ No\_\_\_\_\_

If no, please explain:

\_\_\_\_\_

\_\_\_\_\_

What other topics would you like to see in this Bulletin?

\_\_\_\_\_

\_\_\_\_\_

What other Technical Bulletins would you like to see published?

\_\_\_\_\_

**Comments/Suggestions: ( THANK YOU FOR YOUR FEEDBACK! )**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Company or Organization

\_\_\_\_\_  
Phone No.



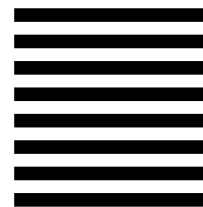
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE  
NECESSARY  
IF MAILED IN THE  
UNITED STATES



# BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

IBM International Technical Support Organization  
Department 545, Building 657  
P.O. BOX 12195  
RESEARCH TRIANGLE PARK NC  
USA 27709-2195



Fold and Tape

Please do not staple

Fold and Tape





Printed in U.S.A.

GG24-4485-00

