

Getting Started with BARR/AFP

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BARR/AFP provides connection of channel-attached AFP printers to AS/400 systems using Token Ring. It includes BARR/SPOOL. Refer to the *BARR/SPOOL* manual for more information about installing and using BARR/SPOOL.

Follow step-by-step through this booklet to install BARR/AFP.

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1. Create the Necessary AS/400 Descriptions

The AS/400 requires several Line, Controller, and Device descriptions. You can create the descriptions interactively using parameter prompts or in a batch with a CL program. If you are unfamiliar with parameter prompts and CL programs, refer to the *AS/400 Guide to Programming for Printing* by IBM for background information about creating AS/400 descriptions. We have provided examples of both methods of creating descriptions. In most cases, we use the default parameter values. So, you need to change only the few parameters which are listed beneath each screen.

The following descriptions are required for BARR/AFP:

Token Ring Line Description (**CRTLINTRN** command)

└─Barr Computer Controller Description (**CRTCTLAPPC** command)

└─Printer Controller Description (**CRTDEVAPPC** command)

└─Printer Device Description (**CRTDEVPRT** command)

└─Mode Description

You may not need to create all of these descriptions. If you already are using a Token Ring network, then a description similar to the one needed for BARR/AFP should exist on your AS/400 system. Try using your existing Token Ring Line Description with the other descriptions given here. If you are unable to print using those descriptions, then change the Token Ring Line Description to match the description given.

Important:

Some parameters need to match across descriptions. For example, the logical unit name of the printer in the Printer Controller Description needs to match the logical unit name in the Printer Device Description. Parameters that need to match across descriptions or that need to match Barr software parameters are highlighted.

1.1 Token Ring Line Description

Display Line Description		
Line description	LIND	TRNLINE
Option	OPTION	*ALL
Category of line		*TRLAN
Resource name	RSRCNAME	LIN021
Online at IPL	ONLINE	*YES
Vary on wait	VRYWAIT	*NOWAIT
Maximum controllers	MAXCTL	40
Line speed	LINESPEED	4M
Maximum frame size	MAXFRAME	1994
TRLAN manager logging level.	TRNLOGLVL	*OFF
Current logging level.		*OFF
TRLAN manager mode	TRNMGRMODE	*OBSERVING
Log configuration changes	LOGCFGCHG	*NOLOG
Token-ring inform of beacon	TRNINFBCN	*YES
Local adapter address.	ADPTADR	4000A4000001
Exchange identifier	EXCHID	05643953
Error threshold level	THRESHOLD	*OFF
Text	TEXT	AS/400 Token Ring Lan Connection
Link speed	LINKSPEED	4M
Cost/connect time	COSTCNN	0
Cost/byte	COSTBYTE	0
Security for line	SECURITY	*NONSECURE
Propagation delay	PRPDLY	*LAN
User-defined 1	USRDFN1	128
User-defined 2	USRDFN2	128
User-defined 3	USRDFN3	128
Autocreate controller	AUTOCRTCTL	*NO
Recovery limits	CMNRCYLMT	
Count limit		2
Time interval		5

The Local adapter address (ADPTADR) is the address of the AS/400 token ring adapter.

1.2 Barr Computer Controller Description

Display Controller Description		
Controller description.	CTLD	BARRAFPPC
Option.	OPTION	*ALL
Category of controller.		*APPC
Link type	LINKTYPE	*LAN
Online at IPL	ONLINE	*YES
Character code.	CODE	*EBCDIC
Maximum frame size.	MAXFRAME	1033
Remote network identifier	RMTNETID	*NONE
Exchange identifier	EXCHID	03D12345
Initial connection.	INLCNN	*DIAL
Dial initiation	DIALINIT	*DELAY
Switched disconnect	SWTDSC	*NO
Data link role.	ROLE	*NEG
LAN remote adapter address.	ADPTADR	4000000216
LAN DSAP.	DSAP	04
LAN SSAP	SSAP	04
Text	TEXT	APPC CONTROLLER FOR BARR AFP PC (APPN=NO)
Switched line list.	TRNLINE	
APPN-capable.	APPN	*NO
LAN frame retry	LANFRMRTY	*CALC
LAN connection retry.	LANCNNRTY	*CALC
LAN response timer.	LANRSPTMR	*CALC
LAN connection timer.	LANCNTMR	*CALC
LAN acknowledgement timer	LANACKTMR	*CALC
LAN inactivity timer.	LANINACTMR	*CALC
LAN acknowledgement frequency	LANACKFRQ	*CALC
LAN max outstanding frames.	LANMAXOUT	*CALC
LAN access priority	LANACCPTY	*CALC
LAN window step	LANWDWSTP	*NONE
Recovery limits	CMNRCYLMT	
Count limit		0
Time interval		0

The **Maximum frame size** (**MAXFRAME**) is the maximum SNA frame size. BARR/AFP supports a frame size of up to 1033. For highest throughput, choose the largest frame size possible (1033).

The **Exchange identifier** (**EXCHID**) identifies the remote unit. It can be any combination of alphanumeric characters and is usually assigned by a network administrator.

The **LAN remote adapter address** (**ADPTADR**) is the address of the computer token ring adapter. It may be the address burned into the adapter card or the address assigned by a network administrator.

CL Source Statements

```
CRTCTLAPPC CTLD(BARRAFP) LINKTYPE(*LAN) ONLINE(*YES) APPN(*NO) +
CODE(*EBCDIC) MAXFRAME(521) RMTNETID(*NONE) +
EXCHID(03D12345) INLCNN(*DIAL) DIALINIT(*DELAY) +
SWTDSC(*NO) ROLE(*NEG) ADPTADR(40000000216) DSAP(04) +
SSAP(04) LANFRMRTY(*CALC) LANCNNRTY(*CALC) +
LANRSPTMR(*CALC) LANCNNTMR(*CALC) LANACKTMR(*CALC) +
LANINACTMR(*CALC) LANACKFRQ(*CALC) LANMAXOUT(*CALC) +
LANACPTY(*CALC) LANWDWSTP(*NONE) CMNRCYLM(0 0) +
TEXT('APPC CONTROLLER FOR BARR AFP PC (APPN=NO)')
```

1.3 Printer Controller Description

Display Device Description		
Device description	DEVD	APPNCTL1
Option	OPTION	*ALL
Category of device		*APPC
Remote location	RMTLOCNAME	BARRAFP1
Online at IPL	ONLINE	*YES
Local location	LCLLOCNAME	*NETATR
Remote network identifier	RMTNETID	*NONE
Attached controller	CTL	
Message queue	MSGQ	QSYSOPR
Library		*LIBL
Local location address	LOCADR	00
APPN-capable	APPN	*NO
Single session	SNGSSN	
Single session capable		*YES
Number of conversations		1
Locally controlled session	LCLCTLSSN	*YES
Pre-established session	PREESTSSN	*NO
Secure location	SECURELOC	*NO
Text	TEXT	APPC DEVICE IPDS PRN → BARR AFP PRINTER
Mode	BARRMODE	

The **Remote location** (RMTLOCNAME) is the logical unit name of the printer, chosen by a network administrator. We recommend a simple naming scheme, such as **BARRAFP1** for the first printer and **BARRAFP2** for the second printer.

The **Attached controller** (CTL) is the name of the attached computer controller.

The Mode (BARRMODE) is the session logon mode used to establish the session. Refer to Mode Description for more information about BARRMODE.

CL Source Statements

```
CRTDEVAPPC DEVD(AFPPRNCTL1) LOCADR(00) RMTLOCNAME(BARRAFP1) +
  ONLINE(*YES) LCLLOCNAME(*NETATR) RMTNETID(*NONE) +
  CTL(BARRAFPCC) MODE(BARRMODE) MSGQ(*LIBL/QSYSOPR) +
  APPN(*NO) SNGSSN(*YES 1) LCLCTLSSN(*YES) PREESTSSN(*NO) +
  SECURELOC(*NO) + TEXT('APPC DEVICE IPDS PRN → BARR AFP PRINTER')
```

1.4 Printer Device Description

Display Device Description

Device description	DEVD	AFPPRN01
Option	OPTION	*ALL
Category of device		*PRT
Device class	DEVCLS	*RMT
Device type	TYPE	*IPDS
Device model	MODEL	0
Advanced function printing	AFP	*YES
AFP attachment	AFPATTACH	*APPC
Online at IPL	ONLINE	*YES
Font	FONT	
Identifier		011
Point size		12.0
Form feed	FORMFEED	*AUTOCUT
Separator drawer	SEPDRAWER	*FILE
Printer error message	PRTERMSG	*INFO
Message queue	MSGQ	QSYSOPR
Library		*LIBL
Maximum pending requests	MAXPNDRQS	6
Print while converting	PRTCVT	*YES
Form definition	FORMDF	F1C10110
Library		*LIBL
Character identifier	CHRID	*SYSVAL
Remote location	RMTLOCNAME	BARRAFP1
Local location	LCLLOCNAME	*NETATR
Remote network identifier	RMTNETID	*NONE
Mode	MODE	BARRMODE
Text	TEXT	IPDS PRINTER DEVICE → BARR AFP

The **Remote location** (**RMTLOCNAME**) is the logical unit name of the printer, chosen by a network administrator. We recommend using a simple naming scheme, such as **BARRAFP1** for the first printer and **BARRAFP2** for the second printer.

The **Mode** (**BARRMODE**) is the session logon mode used to establish the session. Refer to Mode Description for more information about **BARRMODE**.

CL Source Statements

```

CRTDEVPRT DEVD(AFFPRN01) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0) +
AFF(*YES) AFFATTACH(*APPC) ONLINE(*YES) FONT(011 20.0) +
FORMFEED(*AUTOCUT) SEPDRAWER(*FILE) PRTERMSG(*INFO) +
MSGQ(*LIBL/QSYSOPR) MAXPNDRQS(6) PRTCVT(*YES) +
FORMDF(*LIBL/F1C10110) CHRID(*SYSVAL) +
RMTLOCNAME(BARRAFP1) LCLLOCNAME(*NETATR) RMTNETID(*NONE) +
MODE(BARRMODE) TEXT('IPDS PRINTER DEVICE -> BARR AFP')

```

1.5 Mode Description

Display Mode Description

Mode description	: MODD	BARRMODE
Class-of-service	: COS	#CONNECT
Maximum sessions	: MAXSSN	8
Maximum conversations	: MAXCNV	8
Locally controlled sessions	: LCLCTLSSN	4
Pre-established sessions	: PREESTSSN	0
Inbound pacing value	: INPACING	8
Outbound pacing value	: OUTPACING	8
Maximum length of request unit	: MAXLENRU	*CALC
Text	: TEXT	BARR

This is an example of the **BARRMODE** description. We recommend copying the default **QSPWTR** mode to a mode called **BARRMODE**, then changing the pacing values (both inbound and outbound) to 8.

1.6 Descriptions for Multiple IPDS Printers

Using multiple IPDS printers requires only a change to the Remote location (**RMTLOCNAME**) of the additional printers. Simply duplicate the Printer Controller and Printer Device Descriptions, and change the Remote location to reflect the new destination printer name.

An example of descriptions for a second printer, using the default **RMTLOCNAME**, follows.

Printer Controller Description

Display Device Description		
Device description	DEVDD	AFPPRNCTL2
Option	OPTION	*ALL
Category of device		*APPC
Remote location	RMTLOCNAME	BARRAFP2
Online at IPL	ONLINE	*YES
Local location	LCLLOCNAME	*NETATR
Remote network identifier	RMTNETID	*NONE
Attached controller	CTL	BARRAFPPC
Message queue	MSGQ	QSYSOPR
Library		*LIBL
Local location address	LOCADR	00
APPN-capable	APPN	*NO
Single session	SNGSSN	
Single session capable		*YES
Number of conversations		1
Locally controlled session	LCLCTLSSN	*YES
Pre-established session	PREESTSSN	*NO
Secure location	SECURELOC	*NO
Text	TEXT	APPC DEVICE IPDS PRN → BARR AFP PRINTER
Mode	BARRMODE	

The **Remote location (RMTLOCNAME)** is the logical unit name of the printer, chosen by a network administrator. We recommend using a simple naming scheme, such as **BARRAFP1** for the first printer and **BARRAFP2** for the second printer.

The **Attached controller (CTL)** is the name of the attached computer controller.

The **Mode (BARRMODE)** is the session logon mode used to establish the session. Refer to Mode Description for more information about **BARRMODE**.

CL Source Statements

```

CRTDEVAPPC DEVD(AFPARNCTL2) LOCADR(00) RMTLOCNAME(BARRAFP2) +
  ONLINE(*YES) LCLLOCNAME(*NETATR) RMTNETID(*NONE) +
  CTL(BARRAFP2) MODE(BARRMODE) MSGQ(*LIBL/QSYSOPR) +
  APPN(*NO) SNGSSN(*YES 1) LCLCTLSSN(*YES) PREESTSSN(*NO) +
  SECURELOC(*NO) + TEXT('APPC DEVICE IPDS PRN -> BARR AFP PRINTER')

```

Printer Device Description

```

                                Display Device Description
Device description . . . . . : DEVD          AFPARN02
Option . . . . . : OPTION          *ALL
Category of device . . . . . :             *PRT
Device class . . . . . : DEVCLS       *RMT
Device type . . . . . : TYPE          *IPDS
Device model . . . . . : MODEL        0
Advanced function printing . : AFP       *YES
AFP attachment . . . . . : AFPATTACH  *APPC
Online at IPL . . . . . : ONLINE      *YES
Font . . . . . : FONT
  Identifier . . . . . :             011
  Point size . . . . . :             12.0
Form feed . . . . . : FORMFEED       *AUTOCUT
Separator drawer . . . . . : SEPDRAWER *FILE
Printer error message . . . : PRTRRMSG *INFO
Message queue . . . . . : MSGQ        QSYSOPR
  Library . . . . . :             *LIBL
Maximum pending requests . . : MAXPNDRQS 6
Print while converting . . . : PRTCVT   *YES
Form definition . . . . . : FORMDF     F1C10110
  Library . . . . . :             *LIBL
Character identifier . . . . : CHRID    *SYSVAL
Remote location . . . . . : RMTLOCNAME BARRAFP2
Local location . . . . . : LCLLOCNAME  *NETATR
Remote network identifier . . : RMTNETID *NONE
Mode . . . . . : MODE                BARRMODE
Text . . . . . : TEXT                 IPDS PRINTER DEVICE -> BARR AFP

```

The **Remote location (RMTLOCNAME)** is the logical unit name of the printer, chosen by a network administrator. We recommend using a simple naming scheme, such as **BARRAFP1** for the first printer and **BARRAFP2** for the second printer.

The **Mode** (**BARRMODE**) is the session logon mode used to establish the session. Refer to Mode Description for more information about **BARRMODE**.

CL Source Statements

```
CRTDEVPRT DEVD(AFP02) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0) +
AFP(*YES) AFPATTACH(*APPC) ONLINE(*YES) FONT(011 20.0) +
FORMFEED(*AUTOCUT) SEPDRAWER(*FILE) PRTERMSG(*INFO) +
MSGQ(*LIBL/QSYSOPR) MAXPNDRQS(6) PRTCVT(*YES) +
FORMDF(*LIBL/F1C10110) CHRID(*SYSVAL) +
RMTLOCNAME(BARRAFP2) LCLLOCNAME(*NETATR) RMTNETID(*NONE) +
MODE(BARRMODE) TEXT('IPDS PRINTER DEVICE -> BARR AFP')
```

2. Install and Configure the Barr Software

Before setting Barr software parameters, consider that some AS/400 parameters need to match the Barr software parameters. For example, the adapter address specified in the Barr software needs to match the adapter address specified in the AS/400 definition. A table of parameters that need to match follows.

TABLE 2-1
AS/400 Parameters That Must Match Barr Software Parameters

	AS/400		Barr	
	Parameter	Description	Parameter	Description
AS/400 token ring address	ADPTADR	Token Ring Line	LOCADD	Communication Link
Maximum size of an SNA frame	MAXFRAME	Barr Computer Controller	MAXDATA	Communication Link
Exchange identifier	EXCHID	Barr Computer Controller	IDBLK IDNUM	Communication Link
Local unit name for printer	RMTLOCNAME	Printer Controller and Device	LU Name	S/370 Channel-Attached Printers

The Installation chapter of the *BARR/SPOOL* manual describes general software installation from the **Installation Description** screen. However, for BARR/AFP there are additional requirements for the **Communication Link** and the **S/370 Channel Attached Printers** parameters. Instructions follow.

2.1 Communication Link Setup

The Communication Link describes the communications protocol and the physical attachment between the Barr computer and the AS/400. You need to describe to the Barr software how your computer is linked to the AS/400.

From the **Installation Description** screen:

```

                                Installation Description

Communication Link
Devices and Printers: LPT, COM, NET, SEND, LAN
S/370 Channel Attached Printers
Print Spool Description
Assign Devices
Monitor and Adapter
Startup Screen Notes
Tuning Data (seldom used)

Exit and Save Changes

                                Selection ↑↓←→
```

1. Select **Communication Link**.

Communication Link	
SDLC	SDLC Switched (Dial) Line SDLC Nonswitched (Dedicated) Line
X.25	X.25 Switched Virtual Circuit X.25 Permanent Virtual Circuit
Token Ring	<u>3725 & 3745 Controllers</u> Local 3174 (Channel Attached) Remote 3174 (SDLC Attached)
Coax	3174 or 3274
LAN	NETBIOS Novell IPX Token Ring (802.2 LLC) TCP/IP
Async	ADLC

Selection ↑↓→←

2. Select 3725 & 3745 Controllers.

3725 & 3745 Controllers	
Token Ring Address	LOCADD= <u>400000000001</u>
VTAM Parameters	
PU Macro	
IDBLK= <u>03D</u>	
IDNUM= <u>12345</u>	
MAXDATA= <u>0521</u>	

Enter hex data

3. Enter the AS/400 token ring address in LOCADD.
4. Enter the first 3 digits of the exchange identifier in IDBLK.
5. Enter the last 5 digits of the exchange identifier in IDNUM.
6. Enter the maximum size of the SNA frame in MAXDATA.
7. Verify that these Barr software parameters match the parameters entered in the AS/400 descriptions.

2.2 S/370 Channel-Attached Printers Setup

Next, tell the Barr software how to address your AFP printer.

Installation Description	
Communication Link	
Devices and Printers: LPT, COM, NET, SEND, LAN	
<u>S/370 Channel Attached Printers</u>	
Print Spool Description	
Assign Devices	
Monitor and Adapter	
Startup Screen Notes	
Tuning Data (seldom used)	
Exit and Save Changes	
Selection ↑↓→	

1. Select S/370 Channel Attached Printers.

S/370 Channel Attached Printers			
PR0E	Disabled	3211	Equivalent
PR1E	Disabled	3211	Equivalent
PR2E	Disabled	3211	Equivalent
PR3E	Disabled	3211	Equivalent
PR4E	Disabled	3211	Equivalent
PR5E	Disabled	3211	Equivalent
Escape			
AFP Options			
Adapter Description			
Selection ↑↓→			

2. Select a device.

S/370 Channel Attached Printer

Enable or Disable device? Enabled
Printer address: 0E
Printer type? 3825 3827 ... IPDS Group3

LU Name: BARRAFP1
(AS/400 Attachment Only)

Choice + -

3. Enable the device by selecting **Enabled**.
4. Enter the printer address.
5. Select **3825 3827...IPDS Group 3** for the printer type.
6. Enter the local unit name for the printer in **LU Name**.
7. Verify that the **LU Name** matches the **RMTLOCNAME** entered in the AS/400 descriptions.

Remember to **Exit and Save Changes** when you finish entering the Barr software parameters.