

# BARR/NJE

## **Host Definition Guide**

Configuring the Host Computer



Documentation Edition 3

## Editors

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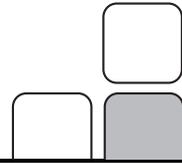
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# Preface

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Host programmers who support VTAM and the NJE system can use this manual to help them configure the host computer to communicate with BARR/NJE. Personal computer users must enter some of the same parameters in BARR/NJE. Host programmers and personal computer users must make sure these parameters match.

BARR/NJE supports the JES2, JES3, and POWER IBM mainframe environments.

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When you contact Technical Support, please include the hardware serial number and software version number in your correspondence.

## Software version number

Once Barr Enterprise Print Server has been installed, from the taskbar, click Start | Programs | Barr Enterprise Print Server | BARR SPOOL | **Spool Window**. From the Spool Window's menu bar, select Help | **About Spool Window**. The serial number for both the hardware and the software, and the software version number displays in this window.

The Barr technical support analyst may also request version numbers for additional program files. Use the Windows Explorer and navigate to the folder where you installed the Barr software (usually \\Program Files\\Barr\\Spooler\\Exe). Select the **Spoolui.exe** program file name, right-click, and then select **Properties**. Select the **Version** tab and note the **File version** number.

## Hardware serial numbers

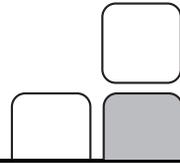
You can obtain the hardware key serial number from the blue sticker on the hardware key. Once Barr Enterprise Print Server has been installed, you can obtain the hardware key serial number, from the taskbar, click Start | Programs | Barr Enterprise Print Server | BARR SPOOL | **Spool Window**. From the Spool Window's menu bar, select Help | **About Spool Window**. The serial number for both the hardware and the software displays in this window.

If you purchased an optional Barr adapter, you can obtain the adapter serial number from any of the following places:

- Blue sticker on the adapter edge, visible from the rear of the computer
- Back of the adapter, where the serial number is handwritten in permanent ink
- Blue sticker on the adapter box

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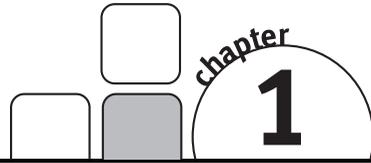
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# Configure the Host



For BARR/NJE to communicate with your host, you must define BARR/NJE to your host as one or more NJE nodes. Each BARR/NJE node requires a separate host definition. Before you begin, you must gather some information based on your connection type and host.



We recommend that you record the information found in this section. The Logical Unit (LU) name, LU number, NJE node name, and host node name are critical in the configuration process.

The configuration process differs based on your host (JES2, JES3, or POWER), and whether you are using a Barr SNA, SNA, or CTC connection. Use the following table to determine which sections of this manual you will need to reference to configure BARR/NJE to communicate with your host.

Host	Barr SNA or SNA	CTC
JES2	1.1 VTAM host configuration	1.2 JES2 host configuration
	1.2 JES2 host configuration	1.5 CTC host configuration
JES3	1.1 VTAM host configuration	1.3 JES3/BDT host configuration
	1.3 JES3/BDT host configuration	1.5 CTC host configuration
POWER	1.1 VTAM host configuration	1.4 POWER host configuration
	1.4 POWER host configuration	1.5 CTC host configuration

## 1.1 VTAM host configuration

For Barr SNA connections, BARR/NJE connects directly through Barr-developed link services—802.2 LLC2, HPR/IP (Enterprise Extender), or SDLC—and does not require an SNA gateway. For SNA connections, BARR/NJE connects through an SNA gateway (Microsoft SNA Server or Microsoft Host Integration Server [HIS]) and requires only one Logical Unit (LU). This document assumes that there is already a working Physical Unit (PU) defined in VTAM for the SNA gateway. If you have not yet set up the PU, see your SNA gateway documentation that comes with either Microsoft SNA Server or HIS for more information.

Once the PU is defined, you only need to add a single LU to the PU, and make sure to use the appropriate logmode table. If you are using HPR/IP (Enterprise Extender), you must also configure TCP/IP and a VTAM major node definition. This section provides details for the LU definition and the logmode table entry.



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**VTAM and host programmers must use the same LU name.**

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For each Barr node, you must enter the following LU definitions in an existing PU definition. You must also create a logmode table entry and activate the VTAM PU.

1. Enter the **LU** macro for the NJE LU
2. Create a logmode table entry
3. Configure TCP/IP and a VTAM major node definition (HPR/IP only)
4. Activate the VTAM PU

## Enter the LU macro for the NJE LU

Enter the following **LU** macro, and add the following parameters to your PU definition.

LU name: \_\_\_\_\_

LU number: \_\_\_\_\_

IDBLK: \_\_\_\_\_

IDNUM: \_\_\_\_\_

MAXDATA: \_\_\_\_\_

```
PU          puname  ADDR=01, IDBLK=03D, DATMODE=FULL,           X
                                IDNUM=12345, MAXDATA=1033, MAXOUT=7,       X
                                PACING=7, VPACING=7, MODETAB=YOURMODT
luname     LU      LOCADDR=n, USSTAB=, DLOGMOD=BARRMOD
```

Parameter	Description
IDBLK= <i>bbb</i> IDNUM= <i>nnnnn</i>	Use these parameters to identify the remote's PU definition. During <b>xid</b> negotiation, the remote sends an Exchange ID that contains the <b>IDBLK</b> and <b>IDNUM</b> parameters. VTAM searches for the PU identified by <b>IDBLK</b> and <b>IDNUM</b> and uses this PU for the rest of the communications session.
MAXDATA=265 521 1033 2057	<p>The maximum amount of data you can send on the PU in one frame. This value includes nine bytes of header information plus the data length. The default value is 1033.</p> <p>To maximize performance, you can increase throughput by sending larger frames of data. Send 1024 bytes by setting <b>MAXDATA</b> to 1033 in the VTAM PU definition and the BARR/NJE configuration. This step reduces the amount of control information and total number of frames sent. Setting <b>MAXDATA</b> to 2057 can result in greater system throughput, but it is not recommended for Ethernet or other LAN equipment that will not support the larger packet size.</p>
MODETAB= <i>YOURMODT</i>	Replace <i>YOURMODT</i> with your system's mode table.
luname	Enter the LU name for the NJE LU. This value must match the <b>APPLID</b> in JES2 or POWER configuration. It must also match the LU name in the BARR/NJE and SNA gateway configuration (SNA connections only).
LOCADDR= <i>n</i>	Enter a valid local address from 1 to 255. This value must match the LU number in the BARR/NJE and SNA gateway configuration (SNA connections only).
USSTAB=	The Barr NJE LU does not support SSCP message traffic. By specifying <b>USSTAB=</b> with no parameter, the traffic is not sent.
DLOGMOD= <i>BARRMOD</i>	Replace <i>BARRMOD</i> with the logmode table entry name to use by default. This will match the <b>LOGMODE</b> parameter in the logmode table entry.

## Create a logmode table entry

Set pacing and max VTAM framesizes in the **BARRMOD** logmode table entry. Enter the following commands at your host console.

```
BARRMOD  MODEENT  LOGMODE=BARRMOD, FMPROF=X'03',
                TSPROF=X'03', PRIPROT=X'72',
                SECPROT=X'72', COMPROT=X'4020',
                RUSIZES=X'0000',
                PSERVIC=X'000000000000000000000000',
                APPNCOS=#CONNECT, SRCVPAC=X'07',
                SSNDPAC=X'07', PSNDPAC=X'07',
                TYPE=X'01'
```

Parameter	Description
LOGMODE=BARRMOD	The logmode entry name. Replace <b>BARRMOD</b> with the <b>DLOGMOD</b> value in the preceding PU definition. This is a required value.
FMPROF	The function management (FM) profile. This is a required value and will not change.
TSPROF	The transmission services profile. This is a required value that will not change.
PRIPROT	The FM primary LU protocols. This is a required value and will not change.
SECPROT	The FM secondary LU protocols. This is a required value and will not change.
COMPROT	The common LU protocols. This is a required value and will not change.
RUSIZES	The SNA frame size. Setting the <b>RUSIZES</b> entry to zeros allows VTAM to use the maximum size. This is a required value.
PSERVIC	The LU presentation services profile. This is a required value and will not change.
SRCVPAC	The secondary receive pacing count. This is a required value and will not change.
SSNDPAC	The secondary send pacing count. This is a required value and will not change.
PSNDPAC	The primary send pacing count. This is a required value and will not change.
TYPE	Indicates the bind is non-negotiable. This is a required value and will not change.

## Configure TCP/IP and VTAM (HPR/IP only)

The following TCP/IP and VTAM changes are needed to support HPR/IP (Enterprise Extender) connections. This procedure assumes you have z/OS and hardware on the mainframe to support Ethernet connections. These host changes are one time changes to your TCP/IP profile, VTAM startup, and XCA major node.

### Configure TCP/IP

Define the **VIPA** device. This will be the host name or IP address entered during BARR/NJE configuration.

Host name or IP address (**LVIPA1** parameter): \_\_\_\_\_

```
IPCONFIG SOURCEVIPA
;*****
; VTAM to TCPIP Stack
;*****
DEVICE IUTSAMEH MPCPTP
LINK EELINK MPCPTP IUTSAMEH
HOME
10.1.1.205 EELINK
START IUTSAMEH
;*****
; Enterprise Extender VIPA
;*****
DEVICE VIPA01 VIRTUAL 0
LINK LVIPA1 VIRTUAL 0 VIPA01
HOME
10.1.1.204 LVIPA1
```

### Configure VTAM

Specify the **NETID**. This must match the NETID entered during BARR/NJE configuration.

NETID: \_\_\_\_\_

```
SSCPID=06,NOPROMPT, X
CONFIG=02,MAXSUBA=31,SUPP=NOSUP, X
SSCPNAME=BAR6CDRM, X
NETID=BARRSYS, X
TCPPNAME=TCPIP
```

Setup a major node for the XCA. Only one XCA definition with a **Medium=HPRIP** is allowed for a given VTAM. XCA connections are used as the path to connect the remote Barr Enterprise Extender node to VTAM. You can use Autogen to create dynamic PU's for each connection.

```

*****
*
* NAME: XCAEE  XCA MAJOR NODE FOR HOST Enterprise Extender
*
*****
XCAEE      VBUILD      TYPE=XCA
PORT9E     PORT        MEDIUM=HPRIP,           X
SAPADDR=4, VNGROUP=GPEAA,           X
VNNAME=BARRSYS.VNEE6
*
GPEAA      GROUP      DIAL=YES,           X
ISTATUS=ACTIVE,           X
CALL=INOUT,           X
AUTOGEN=(10,V,P)

```

- If you are using Autogen, define a Model Major Node for a PU type 2.1.

```

PC  PU ADDR=01,ANS=CONT,DISCNT=NO,IRETRY=YES,CPCP=YES, -00250019
    MAXDATA=1456,MAXOUT=7,PASSLIM=7,PUTYPE=2           00260020

```

- If you are NOT using Autogen, define a switched Major Node with PU's for each NJE that will be connecting using CP – CP sessions. This will match the CPNAME entered during BARR/NJE configuration.

Because the sample **VBUILD** does not include a group, the XCA's group is applied at connection initialization.

CPNAME: \_\_\_\_\_

```

*****
*
* NAME: SMN for EE connection using static PU's
*
*****
*
EESMNMD    VBUILD      TYPE=SWNET,MAXNO=256,MAXGRP=256
TSPMN1     PU          MAXPATH=5,MAXDATA=1490,ADDR=01,   X
                                CPNAME=CPTSPMN1,         X
                                CPCP=YES,HPR=YES,          X
                                PUTYPE=2

```

## Activate the VTAM PU

Enter the following commands at your host console.

```
v net,inact,id=VTAMMEMBER
v net,act,id=VTAMMEMBER
```

Where **VTAMMEMBER** is the library member that contains the PU definition.

## 1.2 JES2 host configuration

An NJE network is made up of NJE nodes, where each node is usually a computer with its own job entry system, such as a mainframe running JES2, JES3, or POWER. BARR/NJE emulates a node and needs to be added to the NJE network of nodes.

In JES2, the list of NJE nodes is maintained in a section of the **JES2PARM** called the **NJEDEF**. The **JES2PARM** is usually located in SYS1.PARMLIB(JES2PARM). The host's **NJEDEF** lists all the NJE nodes in the NJE network, including a node definition for itself.

For BARR/NJE, you will need to create a new node definition in the **NJEDEF** to define the new BARR/NJE node, and assign a name to it. The Barr software needs this name, as well as the node name of the host to which BARR/NJE is connecting.

BARR/NJE node name: \_\_\_\_\_

Host node name: \_\_\_\_\_

The Barr software also needs the number of receiver and transmitter streams defined for the Barr node.

JTNUM = \_\_\_\_\_ (Number of SYSIN transmitters)

JRNUM = \_\_\_\_\_ (Number of SYSIN receivers)

STNUM = \_\_\_\_\_ (Number of SYSOUT transmitters)

SRNUM = \_\_\_\_\_ (Number of SYSOUT receivers)

To configure JES2, you must add an NJE node for Barr and define lines and streams for the node.

1. Add a BARR/NJE node
2. Define lines for the node
3. Define streams for the node
4. Review JES2 configuration example

## Add a BARR/NJE node

Define the BARR/NJE node to JES2 by adding another **NODE** and **APPL** macro in SYS1.PARMLIB(JES2PARM). The following JES2 NJE definition contains statements you must enter for each Barr node. More advanced macros and parameters are documented in IBM's *OS/390: JES2 Initialization and Tuning Reference*.

### For a Barr SNA or SNA connection

```
NODE (n)           NAME=nodename, PATHMGR=NO
APPL (luname)     NODE=n
```

### For a CTC connection

```
NODE (n)           NAME=nodename, PATHMGR=NO, LINE=i
```

Parameter	Description
NODE ( <i>n</i> )	Replace <i>n</i> with the node number.
NAME= <i>nodename</i>	Replace <i>nodename</i> with the BARR/NJE node name. This is the value the BARR/NJE node will be identified as on your NJE network. It is used for routing, messages, and JCL.
PATHMGR=NO	The Barr NJE node does not support the JES2 Path Manager protocol.
APPL ( <i>luname</i> )	Replace <i>luname</i> with the NJE LU name in the PU definition when you configure VTAM. This must match the LU name in BARR/NJE configuration. If you are only configuring a CTC NJE node, the <b>APPL</b> macro can be left out.
LINE= <i>i</i>	Replace <i>i</i> with the line definition, which is described in the following section. The host programmer must define a JES2 line if you are defining a CTC NJE node.

You must define a JES2 line if you need to define the number of streams in a specific line or node. You must also set the number of streams for an NJE node.



Set the JES2 parameters **TPDEF**, **EXTBUF**, and **BUFSIZE** to their maximum values.

## Define lines for the node

Lines define an NJE to NJE connection. Each line has a number of streams associated with it. Streams consist of SYSIN (job) transmitters and receivers, and SYSOUT (print data sets) transmitters and receivers. You will need to define an explicit JES2 line only if you need to define the number of streams in a specific line or node or if you are defining a CTC NJE node. An explicit JES2 line is not needed if you are using the default number of streams.

### For a Barr SNA or SNA connection

```
LINE (i)          UNIT=SNA
NODE (n)          NAME=xxxx, PATHMGR=NO, LINE=i
```

### For a CTC connection

```
LINE (i)          UNIT=yyyy
```

Parameter	Description
LINE (i)	Replace <i>i</i> with the same line number referenced in the NJE node definition.
UNIT=yyyy	Replace <i>yyyy</i> with the CTC device number entered during CTC host configuration.

## Define streams for the node

These stream values will also be entered as BARR/NJE stream numbers when the BARR/NJE software is configured. There are three ways to define streams for the node in JES2. For more information, refer to the following section, “Review JES2 configuration example.”



JES2 limits the number of transmitters to 8, and the number of receivers to 8.

### Specify streams using default settings

If you choose not to define the number of streams, JES2 uses the following defaults:

- 1 SYSIN transmitter
- 1 SYSOUT transmitter
- 1 SYSIN receiver
- 1 SYSOUT receiver

## Specify streams using LINE( ) and NODE( ) macros

Use the **LINE (i)** macro to specify the number of streams, and then link the line to a node with the **NODE** macro's **LINE** parameter. To customize the number of streams per node, set the number and type of streams in the **LINE ( )** macro. The node then indicates which line to use with the **LINE** parameter.

LINE (i)	UNIT=SNA, JTNUM=j, JRNUM=k, STNUM=l, SRNUM=m
NODE (n)	NAME=xxxx, LINE=i, PATHMGR=NO

Parameter	Description
JTNUM=j	Replace <i>j</i> with the number of SYSIN (job) transmitters.
JRNUM=k	Replace <i>k</i> with the number of SYSIN receivers.
STNUM=l	Replace <i>l</i> with the number of SYSOUT (print data sets) transmitters.
SRNUM=m	Replace <i>m</i> with the number of SYSOUT receivers.

## Specify streams using NJEDEF

To set the default number of streams per node, use the **NJEDEF** macro.

NJEDEF	JTNUM=j, JRNUM=k, STNUM=l, SRNUM=m
--------	------------------------------------

Parameter	Description
JTNUM=j	Replace <i>j</i> with the default number of SYSIN (job) transmitters.
JRNUM=k	Replace <i>k</i> with the default number of SYSIN receivers.
STNUM=l	Replace <i>l</i> with the default number of SYSOUT (print data sets) transmitters.
SRNUM=m	Replace <i>m</i> with the default number of SYSOUT receivers.

## Review JES2 configuration example

The following is a sample SYS1.PARMLIB(JES2PARAM) configuration for a single host node connected to BARR/NJE.

```

NJEDEF          NODENUM=3, OWNNODE=1
NJEDEF          JTNUM=4, JRNUM=4, STNUM=4, SRNUM=4
NJEDEF          LINENUM=2
LINE (1)        UNIT=SNA
LINE (2)        UNIT=SNA, JTNUM=2, JRNUM=4, STNUM=6, SRNUM=4
LINE (3)        UNIT=E60
LOGON1          APPLID=BAR2JES2
NODE (1)        NAME=BAR2JES2
APPL (BAR2JES2) NODE=1
NODE (2)        NAME=BAR1JES2, PATHMGR=NO
APPL (TB201N01) NODE=2
NODE (3)        NAME=BAR1JES3, PATHMGR=NO, LINE=2
APPL (TB202N01) NODE=3
NODE (4)        NAME=BAR1JES4, PATHMGR=NO, LINE=3
  
```

Parameter	Description
Line (3)	<b>E60</b> has been configured as a CTC device elsewhere on the host.
Node (1)	The host's NJE node.
Node (2)	The NJE node definition for BARR/NJE's node. It has 4 SYSIN transmitters, 4 SYSOUT transmitters, 4 SYSIN receivers, and 4 SYSOUT receivers. It can start on the lines configured for SNA or for CTC device <b>E60</b> .
Node (3)	An NJE node definition for BARR/NJE's node that starts on line 2. Using line 2 makes it an SNA node. It has 2 SYSIN transmitters, 6 SYSOUT transmitters, 2 SYSIN receivers, and 4 SYSOUT receivers.
Node (4)	An NJE node definition for BARR/NJE's node that starts on line 3. Using line 3 makes it a CTC node. It has 4 SYSIN transmitters, 4 SYSIN receivers, 4 SYSOUT transmitters, and 4 SYSIN receivers.

## 1.3 JES3/BDT host configuration

An NJE network is made up of NJE nodes, where each node is usually a computer with its own job entry system, such as a mainframe running JES2, JES3, or POWER. BARR/NJE emulates a node and needs to be added to the NJE network of nodes.

Define the BARR/NJE node to JES3 by adding another **NJERMT** and **BDT** macro in SYS1.PARMLIB(JES3IN00).

For BARR/NJE, you will need to create a new node definition to define the new BARR/NJE node, and assign a name to it. The Barr software needs this name, as well as the node name of the host to which BARR/NJE is connecting. The host node name is the NJE node name in SYS1.PARMLIB(JES3IN00) that is implied by the **HOME=YES** parameter.

BARR/NJE node name: \_\_\_\_\_

Host node name: \_\_\_\_\_

To configure JES3, you must add an NJE node for Barr.

1. Add a BARR/NJE node
2. Review JES3 configuration example

### Add a BARR/NJE node

Define the BARR/NJE node to JES3 by adding another **NJERMT** in SYS1.PARMLIB(JES3IN00) and a **BDT** macro in SYS1.PARMLIB(BDTIN00). The following JES3 NJE definition contains statements you must enter for each Barr node. More advanced macros and parameters are documented in IBM's *OS/390: JES3 Initialization and Tuning Reference*.

### Initial BDT installation

If this is an initial installation of BDT, you must define the host's NJE node to BDT. This is accomplished by defining the JES3 host node. See the following example.

```
SYSID,NJENAME=hostnodename,NJEAPPL=hostnodename  
BDTNODE,N=hostnodename,TYPE=NJE
```

For Barr SNA or SNA connectivity, add the following line.

```
NJERMT,NAME=hostnodename,HOME=YES
```

## For a Barr SNA or SNA connection

```
NJERMT, NAME=nodename, HOME=NO, TYPE=SNA, STREAM=2
BDTNODE, N=nodename, CS=NJEDUP, L=BARRMOD, APPL=luname,
A=YES, ASR=20, TYPE=NJE
```

Parameter	Description
NAME= <i>nodename</i>	Replace <i>nodename</i> with the BARR/NJE node name. This is the value the BARR/NJE node will be identified as on your NJE network. It is used for routing, messages, and JCL.
APPL= <i>luname</i>	Replace <i>luname</i> with the NJE LU name used in the PU definition during VTAM configuration. This must also match the LU name in the BARR/NJE and SNA gateway configuration (SNA connections only).
L= <i>BARRMOD</i>	Replace <i>BARRMOD</i> with the VTAM logmode table entry used during VTAM configuration.



To improve efficiency, you may choose to set other parameters such as **LU**, **BUFSIZE**, and **BUFNO**. See IBM's *OS/390: V2R6.0 BDT Installation* manual for more information.

## For a CTC connection

```
DEVICE, DTYPE=NJELINE, JNAME=BARRL1, JUNIT=(XXX, M, TP)
NJERMT, NAME=nodename, LINE=BARRL1, TYPE=BSC, CTC=YES,
STREAM=2, AUTO=YES, RDLY=nminutes, BFSIZ=4040
```

Parameter	Description
DTYPE= <i>NJELINE</i>	Replace <i>NJELINE</i> with the line for data transmission.
JNAME= <i>BARRL1</i>	Replace <i>BARRL1</i> with the name of the line. This must match the value assigned to <b>LINE=BARRL1</b> .
JUNIT=( <i>XXX, M, TP</i> )	Replace <i>xxx</i> with the device number of the CTC device. Replace <i>M</i> with the name of the main that has access to that line. Replace <i>TP</i> with the destination class for receiving messages about the line.
NAME= <i>nodename</i>	Replace <i>nodename</i> with the BARR/NJE node name. This is the value the BARR/NJE node will be identified as on your NJE network. It is used for routing, messages, and JCL.
RDLY= <i>nminutes</i>	When <b>AUTO=YES</b> , <b>RDLY=nminutes</b> sets the number of minutes to wait before restarting a connection.



---

For CTC connections, set the JES3 parameter **BUFFER**, **BUFSIZE=nnnn** to its maximum value, 4084. If you do not have the value set to 4084, then you need to set **NJERMT**, **BFSIZ=mmmm** to **BFSIZE=44**.

---

## Review JES3 configuration example

The following is a sample SYS1.PARMLIB(JES3IN00) configuration for a single host node connected to BARR/NJE.

```
NJERMT, NAME=JESA1, HOME=YES
NJERMT, NAME=BAR1NJE, HOME=NO, TYPE=SNA, STREAM=2
BDTNODE, N=BAR1NJE, APPL=TB201NO1, A=YES, ASR=50, TYPE=NJE,
BFSIZ=4096, BUFNO=8, CS=NJEDUP, L=BARRMOD, LU=17
```

Parameter	Description
JESA1	The host's NJE node.
BAR1NJE	The NJE node definition for BARR/NJE's node. It has 2 transmitters. It is an SNA connection with 17 virtual LUs and the maximum RU size.

## 1.4 POWER host configuration

An NJE network is made up of NJE nodes, where each node is usually a computer with its own job entry system, such as a mainframe running JES2, JES3, or POWER. BARR/NJE emulates a node and needs to be added to the NJE network of nodes. Define the BARR/NJE node to POWER by adding another **PNODE** in your **pnet** settings.

For BARR/NJE, you will need to create a new node definition to define the new BARR/NJE node, and assign a name to it. The Barr software needs this name, as well as the node name of the host to which BARR/NJE is connecting. The host node name is the NJE node name in the **pnet** settings that is implied by the **LOCAL=YES** parameter.

BARR/NJE node name: \_\_\_\_\_

Host node name: \_\_\_\_\_

The Barr software also needs the number of receiver and transmitter streams defined for the Barr node. These values should match the active streams on POWER's NJE node.

JOB receivers = \_\_\_\_\_ (Number of SYSIN transmitters)

JOB transmitters = \_\_\_\_\_ (Number of SYSIN receivers)

OUT receivers = \_\_\_\_\_ (Number of SYSOUT transmitters)

OUT transmitters = \_\_\_\_\_ (Number of SYSOUT receivers)

To configure POWER, you must add an NJE node for Barr, and define streams for the node.

1. Add a BARR/NJE node
2. Start the CTC connection (CTC only)
3. Define streams for the node
4. Review POWER configuration example

## Add a BARR/NJE node

Define the BARR/NJE node to POWER by adding another **PNODE** in your **pnet** settings depending on the type of connection, SNA or CTC. More advanced macros and parameters are documented in the IBM manual *VSE/Power Administration and Operation*.

### For a Barr SNA or SNA connection

Define the BARR/NJE node to POWER by adding another **PNODE** in your **pnet** settings. The following POWER NJE definition contains statements you must enter for each Barr node.

```
PNODE          NODE=nodename, BUFSIZE=32000, applid=luname, auth=net
```

Parameter	Description
NODE= <i>nodename</i>	Replace <i>nodename</i> with the BARR/NJE node name. This is the value the BARR/NJE node will be identified as on your NJE network. It is used for routing, messages, and JCL.
BUFSIZE=32000	Use 32000 for maximum performance. You can conserve host resources by using a lower setting.  Make sure your networking equipment can handle this framesize. Older equipment, such as 3174 cluster controllers, cannot handle this large framesize; therefore, you might need to set this parameter to a smaller value, such as 1024.
applid= <i>luname</i>	Replace <i>luname</i> with the NJE LU name in the PU definition used during VTAM configuration. This must also match the LU name specified during BARR/NJE and SNA gateway configuration (SNA connections only).

### For a CTC connection

Define the BARR/NJE node to POWER by adding another **PNODE** in your **pnet** settings. The following POWER NJE definition contains statements you must enter for each Barr node. More advanced macros and parameters are documented in the IBM manual *VSE/Power Administration and Operation*.

```
PNODE          NODE=nodename,BUFSIZE=1800
```

Parameter	Description
NODE= <i>nodename</i>	Replace <i>nodename</i> with the BARR/NJE node name. This is the value the BARR/NJE node will be identified as on your NJE network. It is used for routing, messages, and JCL.
BUFSIZE=1800	Use 1800 for maximum performance. You can conserve host resources by using a lower setting.

### Start the CTC connection (CTC only)

The CTC device is associated with the BARR/NJE node when the networking session is started.

```
PSTART PNET, BAR4BEPS, , D10
```



See the IBM manual, *VSE/Power Networking*, for more information.

## Define streams for the node

When you define streams for the node, you can use POWER's predefined number of streams or manually activate a node's stream. These stream values will also be entered as stream numbers when the BARR/NJE software is configured. You can view the streams for an active node by issuing the following command once the node is active.

```
pinquire node=nodename
```



---

POWER limits the number of transmitters to 8.

---

### Specify streams using default settings

If you choose not to define the number of streams, POWER uses the following default settings:

- 1 SYSIN transmitter
- 1 SYSOUT transmitter
- 8 SYSIN receivers
- 8 SYSOUT receivers

### Specify streams using the PACT command

After the command to start the node has been issued, the number of streams can be set by activating or draining streams.

To activate a stream, issue the command:

```
pact pnet, nodename, sttype, jobtype
```

Parameter	Description
<i>nodename</i>	Replace with the BARR/NJE node name. This is the Barr node name specified when the BARR/NJE software is configured.
<i>sttype</i>	Replace with either <b>tri</b> or <b>rvi</b> , where <i>i</i> is the stream number. Use <b>tri</b> for a transmitter and <b>rvi</b> for a receiver.
<i>jobtype</i>	Replace with either <b>job</b> or <b>out</b> . Use <b>job</b> for SYSIN and <b>out</b> for SYSOUT.



---

To deactivate a stream, issue **pdrain** instead of **pact**.

---

## Review POWER configuration example

The following is a sample POWER configuration for a single host node connected to BARR/NJE using an SNA connection.

```
BAR4PNET          PNODE NODE=BAR4POWR,
                  APPLID=BAR4POW, LOCAL=YES
                  PNODE NODE=BAR4JMB,
                  APPLID=TB401N08, AUTH=NET
                  PNODE NODE=BAR4JMB2,
                  APPLID=TB401N09, AUTH=NET,
                  BUFSIZE=32000
                  END
```

## 1.5 CTC host configuration

Configure the CTC device so that BARR/NJE emulates a 3088 CTC adapter. See the following CTC OS/390 configuration examples for more information.

### Sample Bus & Tag configuration

```
CHPID            PATH=(4E), PARTITION=((OS390),
                  (OS390)), TYPE=BL
CNTLUNIT         CUNUMBER=0510, PATH=(4E),
                  UNITADD=((10,008)), SHARED=N,
                  PROTOCL=S4, UNIT3088
IODEVICE         ADDRESS=(510,008), UNITADD=00,
                  CUNUMBR=(0510), TIMEOUT=N, STADET=Y,
                  UNIT=3088
```

Where in **IODEVICE ADDRESS=(510,008)**, **510** is the CTC device number that will be used in the **UNIT=yyyy** parameter when you specify streams using the **LINE ()** and **NODE ()** macros.

### Sample ESCON configuration

```
CHPID            PATH=(45), PARTITION=((OS390),
                  (OS390)), TYPE=CNC
CNTLUNIT         CUNUMBER=4510, PATH=(45),
                  UNITADD=((10,001)), UNIT=SCTC
IODEVICE         ADDRESS=(4510,001), CUNUMBR=(4510),
                  STADET=Y, UNIT=SCTC
```

Where in **IODEVICE ADDRESS=(4510,001)**, **4510** is the CTC device number that will be used in the **UNIT=yyyy** parameter when you specify streams using the **LINE ()** and **NODE ()** macros.

## Sample VM/VSE configuration

The CTC connection for the Barr Enterprise Print Server must be added both in the virtual machine (VM) and in VSE. Examples are shown for defining the CTC connection at device address **D10**.

1. Define connections
2. Dedicate to a virtual machine
3. Add channel-attached devices




---

See the IBM manual *VS/ESA Planning and Administration* for more information.

---

### Define connections

Bus & Tag CTC connections must be defined to VM in your SYSTEM CONFIG file. Use this **RDEVICE** statement to define one or more CTC adapters to the control program (CP).




---

If you are using an ESCON CTC connection, you can skip this procedure. ESCON CTC connections are automatically identified by the VM.

---

```

/*-----*/
/* Real Bus & Tag CTCA From BARR/NJE To VSE */
/*-----*/

RDEVICE D10 TYPE CTCA
```

Parameter	Description
RDEVICE D10	<b>D10</b> is the real device number of the CTC adapter that you are defining. Each <b>RDEVICE</b> must be a hexadecimal number between X'0000' and X'FFFF'.
TYPE CTCA	Tells CP that the real device you are defining is a CTC adapter.




---

Specify the 3737 Remote CTC Unit Model 2 as a CTCA.

---

## Dedicate to a virtual machine

The CTC connection is then dedicated to VSE in the USER DIRECT file entry for the VSE VM. The **DEDICATE** statement specifies that a VSE has sole use of a real device.

```
DEDICATE D10 D10
```

Where the first **D10** is used to dedicate the virtual device number, and the second **D10** is used to dedicate the real device number.

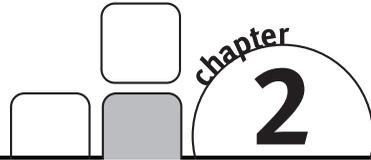
## Add channel-attached devices

The BARR/NJE CTC connection is defined in the VSE/ESA IPL procedure. The following example shows how to add channel-attached devices to VSE.

```
ADD D10,CTCA,EML BARR/NJE CTC TO POWER
```

Parameter	Description
D10	The device number of the CTC adapter.
CTCA	The device type.
EML	Indicates that the device type, as specified by the user, should be used to assign the VSE device type code. The <b>EML</b> operand causes IPL to ignore device type sensing, and add the device as the type specified in the <b>ADD</b> command.

# Sample VTAM PU Definitions



The following are sample VTAM PU definitions for Barr SNA connections, 802.2 LLC2, HPR/IP, and SDLC. For more information on sample definitions for SNA connections, refer to your Microsoft SNA Server or HIS Help.

## 2.1 802.2 LLC2 or HPR/IP definition

The following is a sample VTAM PU definition for a LAN connection (token ring or Ethernet).

```
000010 *
000020 *          SWITCHED MAJOR NODE FOR TOKEN RING OR ETHERNET
000021 *
000022 *
000023 *          NOTE: MAXDATA FOR TOKENRING SHOULD BE SET TO 4096.
000024 *          MAXDATA FOR ETHERNET MUST BE SET NO LARGER THAN 1490.
000025 *
000026 *
000027 LANETSWA  VBUILD TYPE=SWNET,MAXGRP=32,MAXNO=32
000028 *          DISCNT=NO,
000029 PB101PU    PU ADDR=01,PUTYPE=2,MAXPATH=4,ANS=CONT,          +
000030          DLOGMOD=D4A32XX3, ISTATUS=ACTIVE,MAXDATA=1490,      +
000040          IRETRY=YES, MAXOUT=7,PASSLIM=7,IDBLK=05D,          +
000050          IDNUM=FFFFFF, MODETAB=DEFMODE,USSTAB=BARRTAB,      +
000060          PACING=7,VPACING=7
000070 *
000080          PATH DIALNO=0000400031745100,GRPNM=GROUP1
000090 *
000100 RMT1LU2    LU          LOCADDR=2,DLOGMOD=#INTER,USSTAB=
```

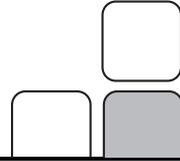
## 2.2 SDLC definition

The following is a sample VTAM PU definition for an SDLC-attached 3174 cluster controller.

```
000003          VBUILD          TYPE=SWNET
000004 RMT1PU          PU          ADDR=01,          +
000005          PUTYPE=2,          +
000006          IDBLK=03D,          +
000007          IDNUM=12345,          +
000008          MAXDATA=1033,          +
000009          MAXOUT=7,          +
000010          PASSLIM=7,          +
000011          PACING=7,          +
000012          DISCNT=NO,          +
000013          USSTAB=,          +
000014          MODETAB=DEFMODE,          +
000015          VPACING=7
000016 *
000017 **          DIAL          DIALNO=00004000DDDD0004
000018 *
000019 RMT1LU0          LU          LOCADDR=0, DLOGMOD=#INTER, USSTAB=
000020 RMT1LU1          LU          LOCADDR=1
000021 RMT1LU2          LU          LOCADDR=2
000022 RMT1LU3          LU          LOCADDR=3
000023 RMT1LU4          LU          LOCADDR=4
000024 RMT1LU5          LU          LOCADDR=5
000025 RMT1LU6          LU          LOCADDR=6
000026 RMT1LU7          LU          LOCADDR=7
000027 RMT1LU8          LU          LOCADDR=8
000028 RMT1LU9          LU          LOCADDR=9
000029 RMT1LU10          LU          LOCADDR=10
000030 RMT1LU11          LU          LOCADDR=11
```

# Glossary

---



## **adapter**

Add-on equipment you can plug into a computer to allow the computer to connect to another device.

## **channel**

(1) A path along which signals can be sent. (2) A functional unit that directs the flow of information between control units and main storage.

## **channel-attached**

Direct method of attaching printers to S/390 mainframes.

## **console**

A control unit, such as a terminal, through which a user communicates with a computer.

## **host computer**

A large computer that controls the communications network, stores databases, and has a large computing and memory capacity. Other computers can connect to the host to share its resources.

## **host programmer**

The person who installs and maintains host computer software.

## **JES**

Acronym for Job Entry Subsystems of the IBM MVS Operating System. These subsystems are used for entering jobs into the MVS operating system and dispensing the output from the jobs. JES2, a replacement for the earlier HASP II program that was used for this same purpose, is smaller and simpler than JES3 and can handle 99% of most jobs that run on IBM's MVS operating system.

## **LAN**

Acronym for Local Area Network. A high-speed communications network within a limited geographic area. LANs link several computers together within a single building or campus. (In contrast, a wide area network might span hundreds or thousands of miles.)

## **LU**

Acronym for Logical Unit. In SNA communications, an independent stream of data that is multiplexed with other streams within a physical unit.

**macro**

An instruction in a source language that points to a sequence of instructions in the same language to replace it. The macro can also specify values for parameters in the replacement instructions.

**mainframe**

Term used for a large central computer that offers a full set of computing services. The term originated in the days when the central processor, memory, and input/output channels were located in one central housing, called the mainframe. Synonymous with host computer.

**MVS**

Acronym for Multiple Virtual Storage operating system. A large IBM Operating System that operates on System/390, 3081, and 3091 processors.

**network**

An arrangement of nodes and connecting branches for information interchange.

**NJE**

Acronym for Network Job Entry. The peer-to-peer connection that mainframes use to exchange print and job data; more common than Remote Job Entry (RJE), which uses a mainframe-to-remote connection.

**parameter**

In programming, a value that is given to a variable, either at the beginning of an operation or before an expression is evaluated by a program.

**PU**

Acronym for Physical Unit. In SNA communications, an independent unit attached to an SDLC line. The component that manages and monitors the resources (such as attached and adjacent link stations) associated with a node as requested by an SSCP through an SSCP-PU session. An SSCP activates a session with a PU to indirectly manage resources of the node, such as attached links, through the PU. This term applies to type 2.0, type 4, and type 5 nodes only.

**remote**

A computer or other device located in another place (room, building, or city), but accessible through a cable or communications link.

**S/390**

IBM mainframe machine architecture.

**SDLC**

Acronym for Synchronous Data Link Control. A low-level communications protocol for synchronous communications. It is defined for both full-duplex and half-duplex operation. SNA uses SDLC as its low-level communications protocol.

**SNA**

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

**SSCP**

Acronym for System Services Control Point. A controlling program in an SNA domain. It resides in the host and is a component within VTAM.

**token ring**

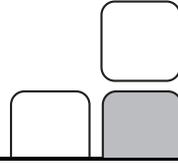
A LAN formed in a ring (closed loop) topology that uses token passing as a means of regulating traffic on the line. On a token ring network, a token governing the right to transmit is passed from one station to the next in a physical circle.

**VTAM**

Acronym for Virtual Telecommunications Access Method. An IBM operating systems program that resides on the mainframe controlling SNA communications between the mainframe applications software and the remote terminals.

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