How to setup TN3270 with IPv6/VSE

VTAM setup for TN3270
IPv4 and IPv6 networks
Client Setup with IBM Personal Communications and Open Text Exceed

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Changes

Sept 2011 – initial version.

1 Introduction

This paper describes the stack and TN3270 server setup with the IPv6/VSE product from Barnard Software, Inc. Also TN3270E printing is covered.

Note: TN3270 with SSL (secure Telnet) is currently not possible with the IPv6/VSE product.

The following software has been used in the test setup.

- z/VSE 4.3
- IPv6/VSE
- Microsoft Windows XP Professional, SP3
- IBM Personal Communications 5.9 for Windows
- Open Text Exceed Host Explorer for Win32 V10.0.0.0

You can find some additional information from BSI in their IPv6/VSE User's Guide, which is available online at

http://www.ibm.com/systems/z/os/zvse/documentation/#tcpip

Note:

Early versions of IPv6/VSE shipped a phase EZASOH00, which is the name of the EZA interface phase. This can cause problems with the CSI stack when initializing the EZA interface.

IPv6/VSE is installed by default into PRD2.PROD, which is before IJSYSRS.SYSLIB in the standard LIBDEFs. So the wrong phase gets accessed. So remove the EZASOH00 phase if it is located in the IPv6 installation library.

The error symptom is:

```
1RT2I TCP/IP: EZASMI MACRO-REQUEST INITAPI FAILED, RC=-0000001, ERRNO=+0040009,
TS=08, SOK=0000
```

2 Setting up VTAM for TN3270

This chapter describes the VTAM setup for a TN3270 server. Basically, the following steps must be performed:

- Adding VTAM applications to ATCCON00.B
- Cataloging the new VNETAPPL B-book
- Activating the modified setup

2.1 Changing the ATCCON00.B book

You must add following VTAM application to the ATCCON00.B member.

```
VNETAPPL
```

2.2 Cataloging the VNETAPPL.B book

You may use a JCL similar to the following to catalog the VNETAPPL B-book.

```
* $$ JOB JNM=VNETAPPL,CLASS=0,DISP=D
* $$ LST CLASS=0,DISP=D
//  JOB VNETAPPL
//  EXEC LIBR,SIZE=256K,PARM='MSHP'
ACCESS S=PRD2.CONFIG
CATALOG VNETAPPL.B REPLACE=YES
VNETAPPL VBUILD TYPE=APPL
BSTTVNET APPL
BSTTUSST APPL AUTH=(PASS,ACQ)
VNETTRM GROUP MODETAB=IESINCLM,DLOGMOD=SP3272QN
T001 APPL AUTH=(ACQ),EAS=1
T002 APPL AUTH=(ACQ),EAS=1
T003 APPL AUTH=(ACQ),EAS=1
T004 APPL AUTH=(ACQ),EAS=1
T005 APPL AUTH=(ACQ),EAS=1
T006 APPL AUTH=(ACQ),EAS=1
T007 APPL AUTH=(ACQ),EAS=1
T008 APPL AUTH=(ACQ),EAS=1
T009 APPL AUTH=(ACQ),EAS=1
T010 APPL AUTH=(ACQ),EAS=1
/+
/*
/&
* $$ EOJ
```

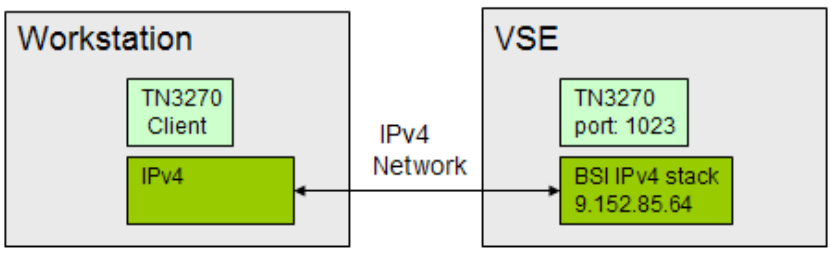
2.3 Activating the changed VTAM book

To activate the changed VTAM book, enter

```
V NET,ACT,ID=VNETAPPL
```

3 IPv4 network setup

Having both sides in an IPv4 network, the setup is rather simple.



In the following, the BSI IPv4 stack has SYSID=44.

3.1 IPv4 stack startup job

The following JCL was used in our test environment to start the IPv4 stack.

```
* $$ JOB JNM=BSI44,CLASS=S,DISP=L
* $$ LST CLASS=S,DISP=D
// JOB BSI44
// OPTION LOG,PARTDUMP,NOSYSDUMP,SADUMP=1
// LIBDEF *,SEARCH=(PRD2.CONFIG)
// ASSGN SYS000,SYSLST
// SETPFIX LIMIT=(2M,1M)
// EXEC BSTTINET,SIZE=BSTTINET,OS390,TASKS=ANY
ID 44
INTERVAL 120
*
DEVICE  OSAXD10 OSAX D10 IPV4TST D12
*
LINK    OSAXD10 0 9.152.85.64 255.255.252.0 1492
*
ROUTE   OSAXD10 9.152.85.0 255.255.252.0 0.0.0.0 0
ROUTE   OSAXD10 0.0.0.0 0.0.0.0 9.152.84.1 1
*
DNS     9.152.120.241
DNS     9.152.64.172
*
HOST    LOCALHOST   127.0.0.1
HOST    VSEC01      9.152.85.64
HOST    VSEC03      9.152.85.67
HOST    VSEC09      9.152.86.16
HOST    VSEP15      9.152.85.126
HOST    VSEP16      9.152.85.165
*
ATTACH TCP/IP
/*
/&
* $$ EOJ
```

3.2 Starting a TN3270 server

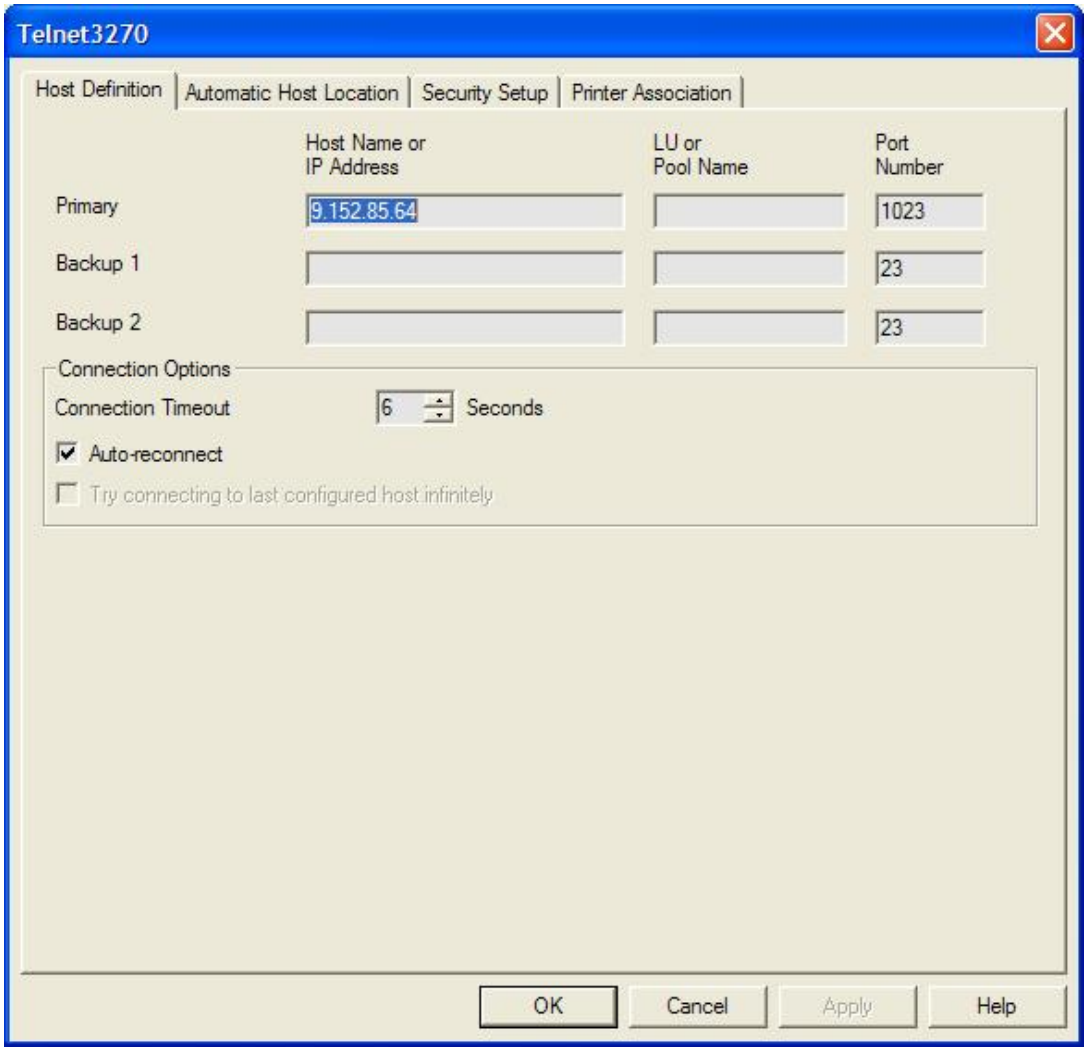
The following JCL starts the TN3270 server using the IPv4 stack.

```
* $$ JOB JNM=BSITN44,CLASS=S,DISP=D
* $$ LST CLASS=S,DISP=D
// JOB BSITN44
// OPTION LOG,PARTDUMP,NOSYSDUMP
// LIBDEF *,SEARCH=(PRD2.CONFIG)
// OPTION SYSPARM='44'
// EXEC BSTTWAIT,SIZE=BSTTWAIT
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M,TASKS=ANY,OS390
ID 44
OPEN VSEC01 1023
*
APPLID DBDCCICS CICS/TS AND ICCF
APPLID BSTTVNET PRINTER SHARING APPLICATION
*
TITLE *** *** Welcome to vse C01 test system *** ***
*
TERMINAL T001 GENERIC
TERMINAL T002 GENERIC
```

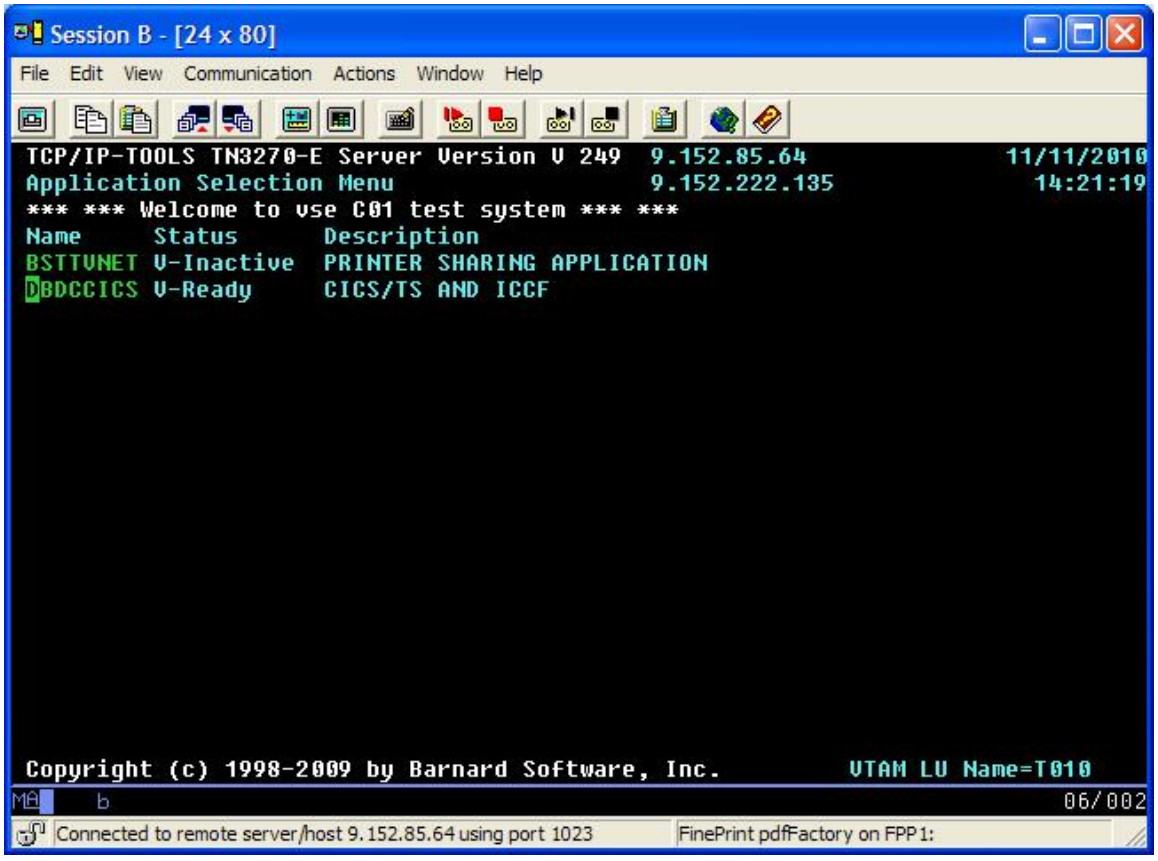
```
TERMINAL T003 GENERIC
TERMINAL T004 GENERIC
TERMINAL T005 GENERIC
TERMINAL T006 GENERIC
TERMINAL T007 GENERIC
TERMINAL T008 GENERIC
TERMINAL T009 GENERIC
TERMINAL T010 GENERIC
*
ATTACH TN3270E
/*
/&
* $$ EOJ
```

3.3 Connecting with IBM Personal Communications

In our plain IPv4 setup, we used IBM Personal Communications as the TN3270 client. For "Host Name or IP Address" enter the IP address of the VSE system: 9.152.85.64 with port number 1023.



After connecting to VSE, the following VTAM selection screen is displayed.

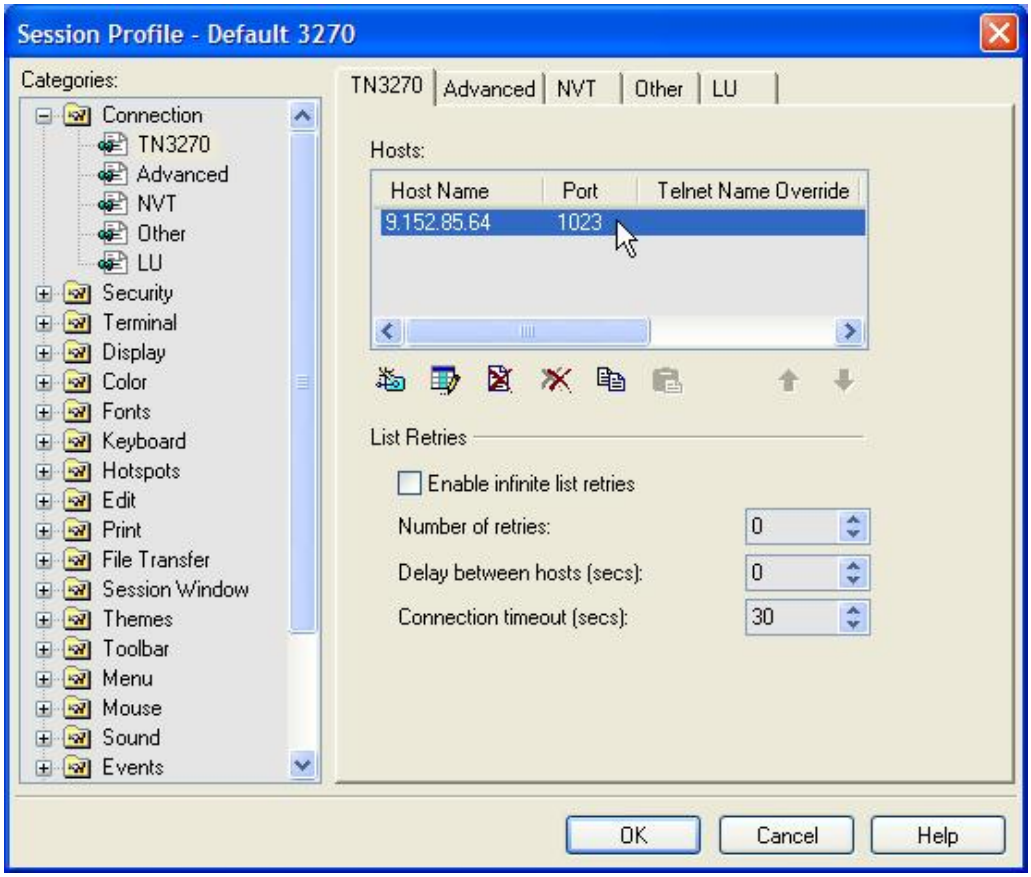


Move the cursor to DBDCCICS and press **Enter** to display the VSE signon screen.

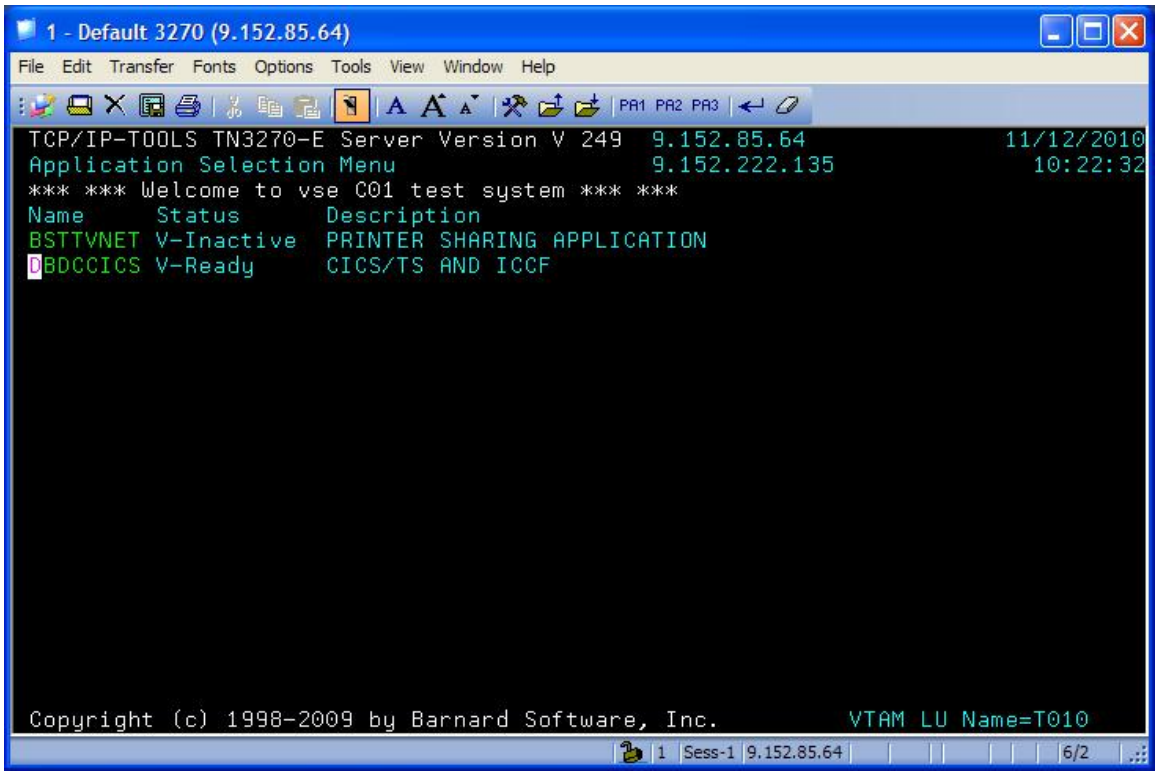
3.4 Connecting with Open Text Exceed

The Open Text Exceed product was formerly known as Hummingbird Exceed and provides a variety of connectivity tools. In the “Hummingbird Neighborhood” folder double-click a “Default 3270” icon and configure the session to VSE.

In the 3270 session window select **Options** – **Session Properties** and specify the VSE IP address and TN3270 port.

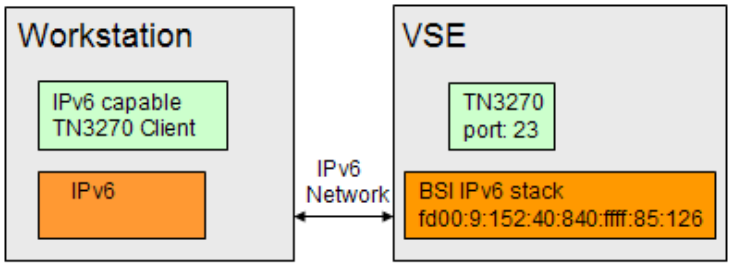


Then select **File** – **Connect** to display the VTAM selection screen.



4 IPv6 network setup

The network setup of a plain IPv6 network looks similar to plain IPv4.



However, many Telnet clients, for example IBM Personal Communications V5.9, are not IPv6 capable. Therefore we used Open Text Exceed as the TN3270 client with IPv6.

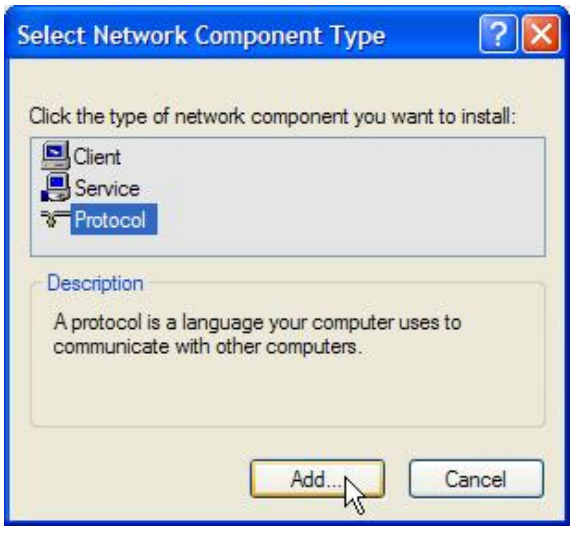
4.1 Configuring IPv6 in Windows

This section gives some brief overview of configuring IPv6 for Windows. IPv6 is not pre-installed on Windows XP, so you have to install and configure the IPv6 protocol manually. IPv6 cannot be fully installed and configured using a GUI. Instead, the netsh command must be used here. On Windows Vista and Windows 7, all steps are supported via the GUI.

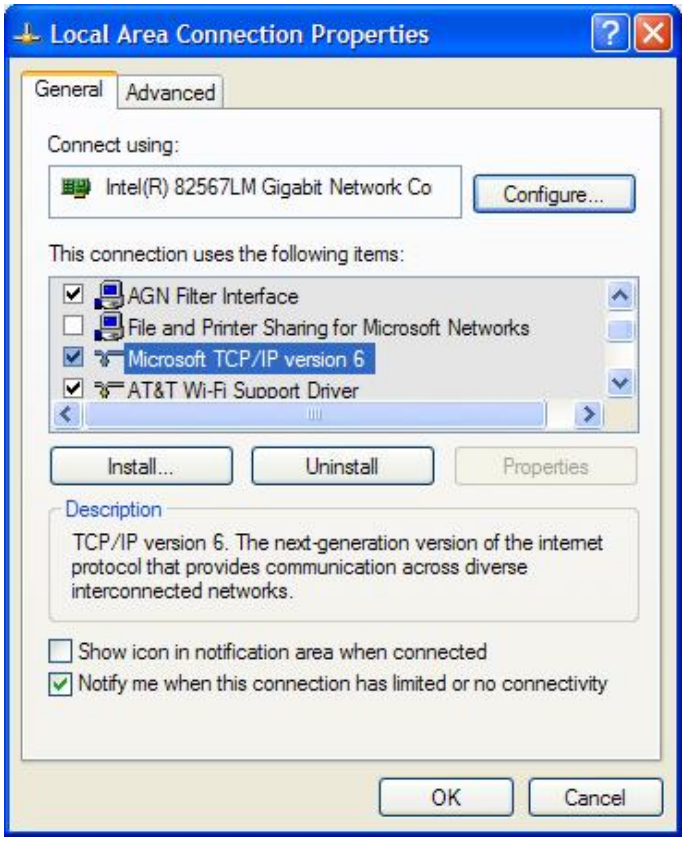
4.1.1 Installing IPv6

The following are the steps to install the Windows IPv6 protocol.

- Open the Windows Control Panel
- Open the Windows Network Connections
- Open the properties box of your LAN connection and click on the **Install** button
- On the Network Component Type box select Protocol and click on **Add**



- On the Select Network Protocol box select the IPv6 protocol and press **OK**.



Now the **Microsoft TCP/IP version 6** item should be visible in the LAN Connection Properties box.

This picture has been taken from a Windows XP SP3, so the Properties button is not available. Instead, the netsh command must be used for configuring IPv6.

4.1.2 Configuring IPv6

First you have to determine the index of your IPv6 interface.

```
D:\>netsh interface ipv6 show interface
Querying active state...

Idx  Met   MTU    State         Name
---  ----  -----  ------------  -----
  6     2   1280  Disconnected  Teredo Tunneling Pseudo-Interface
  5     0   1500  Connected     Local Area Connection
  4     0   1500  Disconnected  Wireless Network Connection
  3     1   1280  Connected     6to4 Tunneling Pseudo-Interface
  2     1   1280  Connected     Automatic Tunneling Pseudo-Interface
  1     0   1500  Connected     Loopback Pseudo-Interface
```

In this example, it is index 5 (Local Area Connection).

Then use the following netsh commands to configure a static IPv6 address. Make sure to use the right interface number from above output.

```
netsh interface IPv6 add address interface=5 address=fd00:9:152:40:840::1001
netsh interface IPv6 add prefixpolicy prefix=fd00:9:152:40:840::/80 5 6
```

```
netsh interface IPv6 add route fd00:9:152::/48 interface=5 nexthop=fd00:9:15
2:40:840::1
```

You can now go ahead and test the connection to VSE.

4.1.3 Testing the connection

On Windows you can either use "ping -6" or "ping6" to test if a computer is reachable in an IPv6 network. Here is the output from our test setup.

```
D:\>ping6 fd00:9:152:40:840:ffff:85:126
Pinging fd00:9:152:40:840:ffff:85:126
from fd00:9:152:40:840::1001 with 32 bytes of data:

Reply from fd00:9:152:40:840:ffff:85:126: bytes=32 time=4ms
Reply from fd00:9:152:40:840:ffff:85:126: bytes=32 time<1ms
Reply from fd00:9:152:40:840:ffff:85:126: bytes=32 time<1ms
Reply from fd00:9:152:40:840:ffff:85:126: bytes=32 time<1ms

Ping statistics for fd00:9:152:40:840:ffff:85:126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms
```

You may use the netsh command to display further information, for example showing neighbors (VSE shown in blue).

```
D:\>netsh interface ipv6 show neighbors

Interface 5: Local Area Connection

Internet Address                              Physical Address   Type
--------------------------------------------  -----------------  -----------
fd00:9:152:40:840::1                          00-0a-8b-bf-71-80  Stale
(router)
fd00:9:152:40:840::1001                       00-24-7e-e0-72-4a  Permanent
fe80::224:7eff:fee0:724a                      00-24-7e-e0-72-4a  Permanent
fe80::20a:8bff:febf:7180                      00-0a-8b-bf-71-80  Stale
fd00:9:152:40:840:ffff:85:126                 00-11-25-bd-98-c2  Stale
...
```

Refer to section 8.1 on page 21 if you cannot reach VSE.

4.2 IPv6 stack startup job

The following JCL is used in our test environment to start the IPv6 stack. The BSI IPv6 stack has SYSID=66.

```
* $$ JOB JNM=BSI66,CLASS=S,DISP=L
* $$ LST CLASS=S,DISP=D
// JOB BSI66
// OPTION LOG,PARTDUMP,NOSYSDUMP,SADUMP=1
/. LIBDEF *,SEARCH=(PRD2.CONFIG,PRD2.BSI)
// LIBDEF *,SEARCH=(PRD2.CONFIG)
// ASSGN SYS000,SYSLST
/. SETPFIX LIMIT=(3M,32M)
// SETPFIX LIMIT=(2M,1M)
```

```
// EXEC BSTT6NET,SIZE=BSTT6NET,OS390,TASKS=ANY
ID 66
INTERVAL 120
*
DEVICE OSAXD00 OSAX D20 IPV6TST D22
*
LINK        OSAXD00 0 FD00:9:152:40:840:FFFF:85:64 /80 1492
*
ROUTE       OSAXD00 FD00:9:152:40:840::1 /80 ::0 0
ROUTE       OSAXD00 ::0 ::0 FD00:9:152:40:840::1 1
DNS         FD00:9:152:41:2422:FFFF:4:230 PRI
*
HOST        LOCALHOST   ::1
HOST        IP6GW       fd00:9:152:40:840::1
HOST        IP6DNS1     fd00:9:152:41:2422:ffff:4:230
HOST        IP6DNS2     fd00:9:152:48:2522:ffff:5:231
HOST        VSEC01      fd00:9:152:40:840:ffff:85:64
HOST        VSEC03      fd00:9:152:40:840:ffff:85:67
HOST        LINXLFP     fd00:9:152:40:840:ffff:86:237
HOST        LINR01      fd00:9:152:40:840:ffff:84:13
HOST        LINR02      fd00:9:152:40:840:ffff:84:171
*
ATTACH TCP/IP
/*
// EXEC LISTLOG
/&
* $$ EOJ
```

4.3 Starting a TN3270 server

You can use the same JCL for starting the TN3270 server with IPv6 as used with IPv4 with just one change: specify the SYSID of the IPv6 stack.

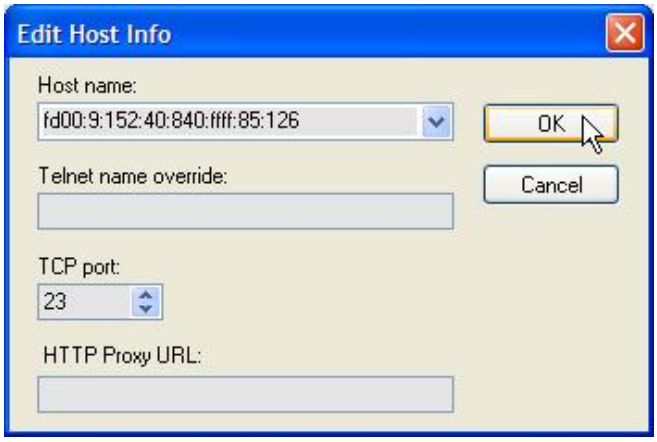
```
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M,TASKS=ANY,OS390
ID 66
OPEN VSEC01 1023
*
```

The daemon startup is shown on the VSE console.

```
S1 0045 // JOB BSITELR
        DATE 11/09/2010, CLOCK 13/23/16
S1 0045 BSTT000I INITIATED  BSTTWAIT Ver 2.46 04/01/09 18.08    EP=00520078
S1 0045 BSTT003I COPYRIGHT (C) 1998-2010 BARNARD SOFTWARE, INC.
S1 0045 BSTT001I TERMINATED BSTTWAIT
S1 0045 BSTT000I INITIATED  BSTTVNET Build248 02/15/10 16.24    EP=00520078
S1 0045 BSTT003I COPYRIGHT (C) 1998-2010 BARNARD SOFTWARE, INC.
S1 0045 BSTT004I CB=TTLA A=00569000 L=000013FC
S1 0045 BSTT019I VSE 8.20 MODE 31-BIT
S1 0045 BSTT004I CB=COMR A=0033D4F0 L=00000108
S1 0110 BSTT000I INITIATED  BSTTXVNC Build249 04/29/10 08.27    EP=005FB000
S1 0110 BSTT671I BSTTVNET VTAM FEATURE IS AVAILABLE
S1 0110 BSTT701I IPv6/VSE     BUILD  249
S1 0110 BSTT695I CONNECTING TO PORT    23 IP fd00:9:152:40:840:ffff:85:126
S1 0111 BSTT000I INITIATED  BSTTVSRV Build248 03/22/10 20.41    EP=00668000
S1 0110 BSTT042I ATTACH OF BSTTVSRV COMPLETED
```

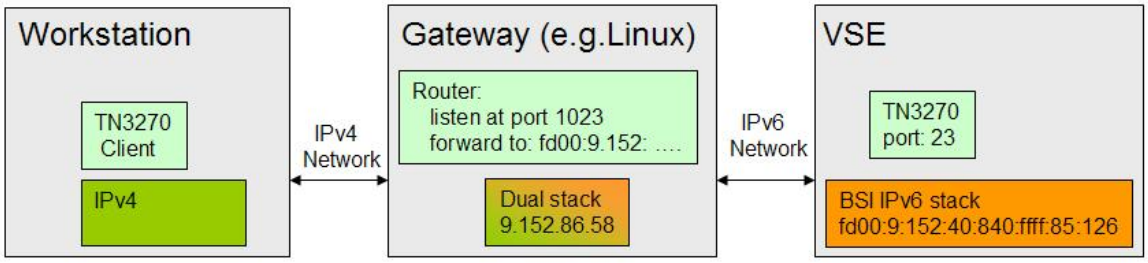
4.4 Connecting with Open Text Exceed

Just enter the IPv6 address and TN3270 port of the VSE system in the Edit Host Info box for directly connecting to VSE via IPv6.



5 Mixed IPv4 and IPv6 network setup

Having the TN3270 client and server in different network types, requires a gateway that is able to handle both IPv4 and IPv6 traffic.



In our test setup a C-program was used as the gateway. Here, the middle-tier platform is a Linux, but can be any platform with a dual stack, e.g. also Windows.

There is an example of a TCP forwarding program given at:

http://www.kernel.org/doc/man-pages/online/pages/man2/select_tut.2.html

Note: also z/VSE 4.3 can be used as the gateway when using the EZA socket interface. With EZA you can access ipv4 and IPv6 sockets in the same program. However, a C interface is not yet available.

5.1 IPv6 stack startup job

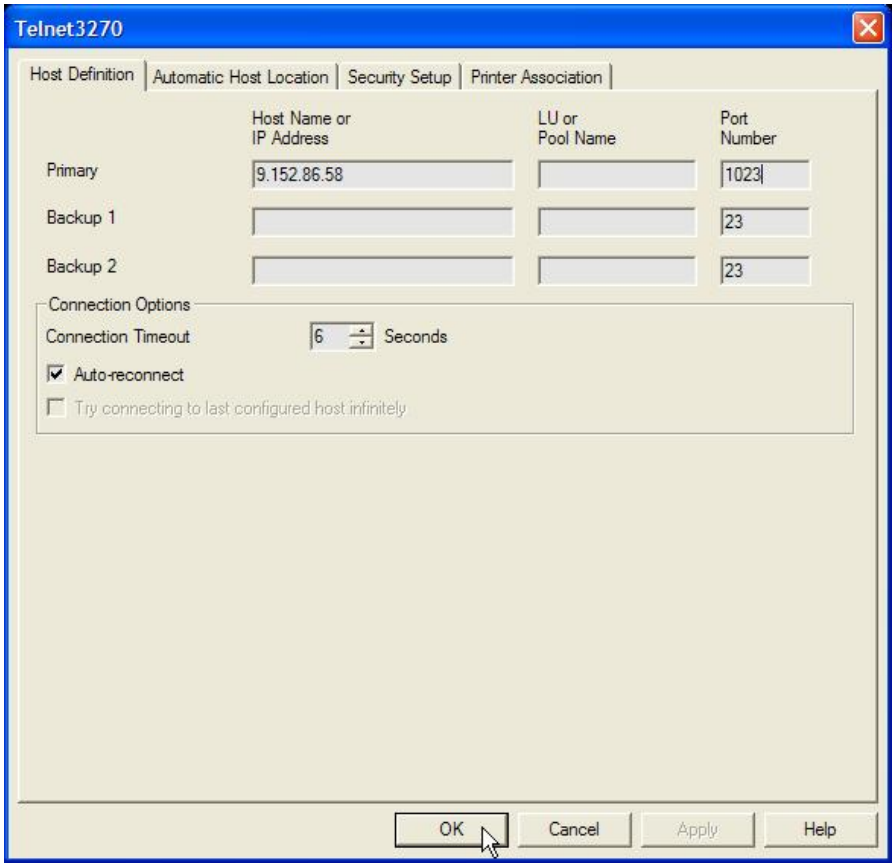
The same JCL as displayed in section 4.2 on page 12 is used to start the IPv6 stack.

5.2 Starting a TN3270 server

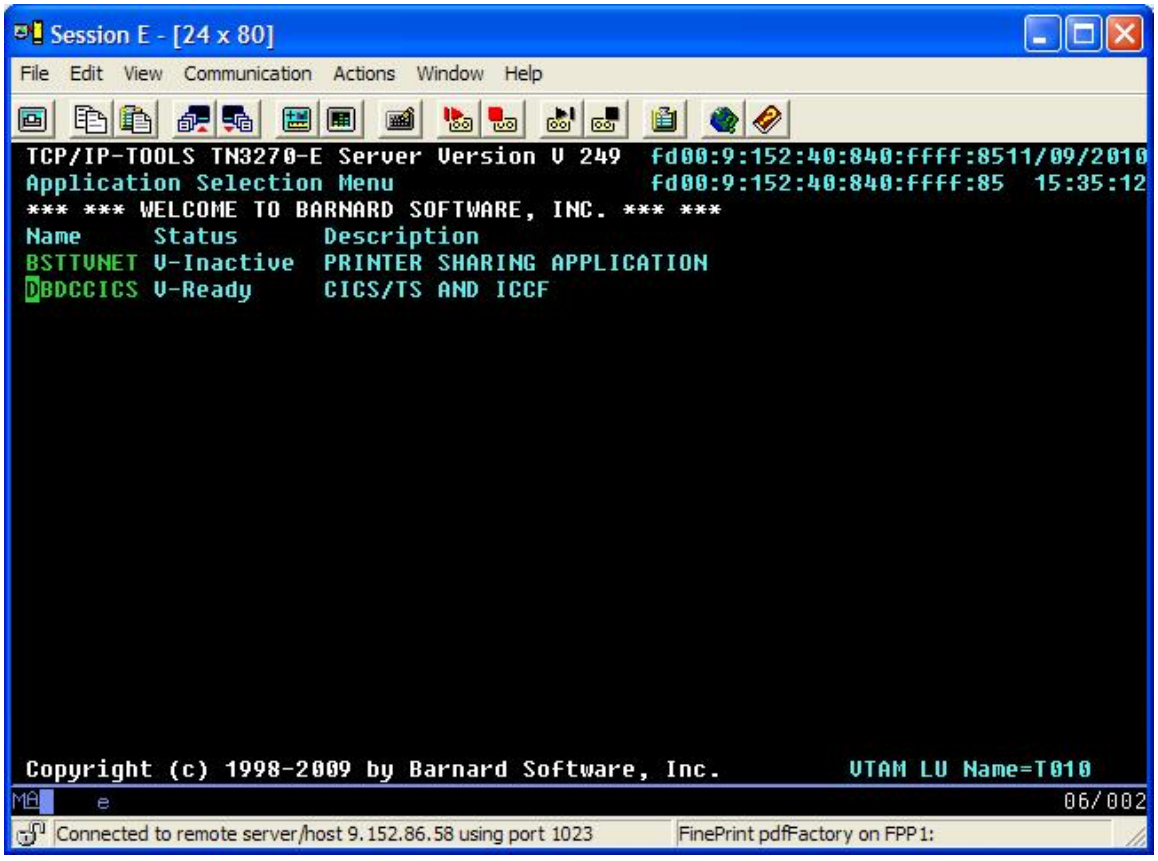
The same JCL as displayed in section 4.3 on page 13 is used to start the TN3270 server.

5.3 Connecting with a TN3270 client

Like with the plain IPv4 setup, we can use IBM Personal Communications as the TN3270 client. For "Host Name or IP Address" enter the IP address of the middle-tier platform: 9.152.86.58 with port number 1023. The gateway program forwards traffic to the VSE system in the IPv6 network where the TN3270 daemon listens on port 23.



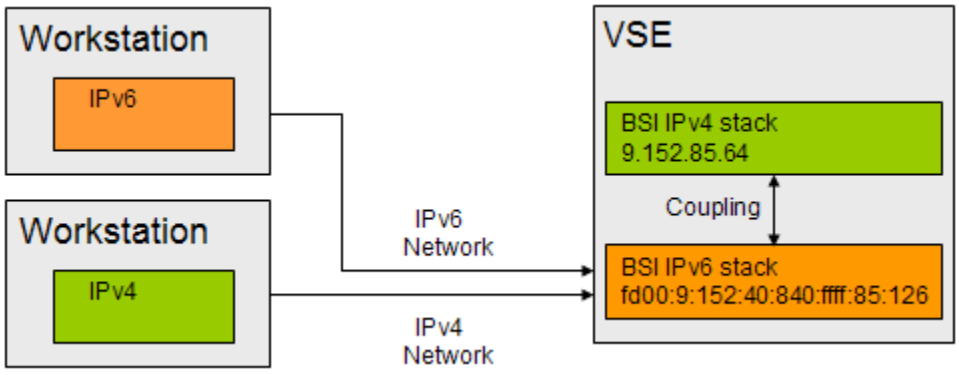
After connecting to VSE, the following VTAM selection screen is displayed.



Again, select DBDCCICS and press **Enter** to display the VSE sign-on screen. You can use the same setup with any other TN3270 client, like Open Text Host Explorer.

6 Setting up a dual-stacked system

This chapter describes the setup of a dual-stacked system with an IPv4 stack coupled to an IPv6 stack. This setup has the advantage that your applications work transparently on IPv4 and IPv6 networks.



All types of requests are first routed to the IPv6 stack, which recognizes IPv4 packets and sends them to the IPv4 stack for processing.

Refer to

- "IPv6/VSE User's Guide" for more details on the COUPLED command.
- "IPv6/VSE Installation Guide" for more details on configuring a dual-stack system.

7 Setting up printer sessions

This chapter discusses how to setup TN3270E printing.

7.1 LPR versus TN3270E

LPR/LPD is a platform-independent printing protocol for remote printing that allows multiple platforms to print to the same printer without any extra configurations. This requires an LPD (Line Printer Damon) on the platform where the printer is connected.

TN3270E provides printing to workstation printers without the need for an LPD. However, it requires an emulator program with TN3270E support. With TN3270E the 3270 print data stream is passed unchanged to the TN3270E printer client software running on a remote PC. It is the TN3270E printer client's function to translate the data and adjust the print output including font, pitch, and so on.

A TN3270E server has more than just 3270 terminal display capabilities. It can also support the SNA print data stream. It accepts the print data stream from the application and forwards it to the TN3270E client running on the workstation. The workstation can then print the data using normal workstation printer facilities.

7.2 TN3270E setup

Here is a simple BSTTVNET startup for printers. BSTTVNET will accept connections using port 5023 for the 3 TN3270E printer sessions defined. The DIRECT/LPR/FTP/FTPP sessions are non-SNA. See chapter "Printing without using a TN3270E Client" in the IPv6/VSE User's Guide. The DIRECT and LPR type printer session are widely used.

```
// OPTION SYSPARM='10'
// EXEC BSTTWAIT,SIZE=BSTTWAIT
/*
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M
ID 10
OPEN 127.0.0.1 5023
*
APPLID BSTTVNET PRINTER SHARING APPLICATION
*
PRINTER P001 BSTTVNET
PRINTER P002 BSTTVNET
PRINTER P003 BSTTVNET SCS
*
DIRECT  DIR  BSTTVNET 192.168.1.101  9100 *
LPR     LPR  BSTTVNET 192.168.1.60   *    *      hp2505
FTP     FTP  BSTTVNET 192.168.1.60   *    *      tstuser   tstpswd
FTPP    FTPP BSTTVNET 192.168.1.60   *    *      tstuser   tstpswd
*
ATTACH TN3270E
/*
```

BSI recommends running a separate BSTTVNET partition for TERMINAL and PRINTER/DIRECT/LPR sessions.

The following table shows the CICS TYPETERMs and VTAM LOGMODEs to be used for particular printers.

Printer	CICS Typeterm	VTAM Logmode
CICS printer	VSEDSCP	SPDSCPRT
SNA LU1 SCS printer	VSESCSPA	SPSCSPRT

For more details refer to chapter "Using the TN3270E Server" in the IPv6/VSE User's Guide.

7.3 Sample setup

This section shows the definitions from one sample setup with some typical printer applications.

7.3.1 List of printers

The following printers are used in the sample setup.

Printer Name	Typeterm	Logmode	Description
ADV3	BSIRAPS	SPDSCPRT	Tractor feed Matrix and Laser order form, Vertical A4
ADV4	BSIORDRE	SPSCSPRT	Matrix, Horizontal on preprinted paper
ADV5	BSIORDST	SPSCSPRT	Laser, Vertical order A4
ADV6	BSIORDRE	SPSCSPRT	Laser, Used from different applications with different layouts PCOMM client PDT
ADV7	BSIRAPS	SPDSCPRT	Matrix, commonly for printing lists from Power LST Q. Used with CA/Raps.
ADV8	BSIFRAKT	SPDSCPRT	Laser, Transport letter Vertical A4
ADV9	BSIRAPS	SPDSCPRT	Small Receipt from Cash Register machine in shops.

7.3.2 CICS Typeterm definitions

This table shows the Typeterm definitions for the above listed printers.

TYpeterm	BSIFRAKT	BSIORDRE	BSIORDST	BSIRAPS
Group	ADTYPE			
DEVice	3270P	SCSPRINT	SCSPRINT	3270P
TERmmodel	2			2
PRINTErtype	3284	3284	3284	3284
PAGesize	024 , 080	016,120	022,080	024,080
ALTPage	000 , 000			016,120
AUTOPage	Yes			
DEFscreen	024 , 080			024,080
ALTSCreen	000 , 000			016,120
FOrmfeed	No			Yes
SENdsize	256			00000
RECEivesize	256			
BRacket	Yes			

AUTOConnect	No			
ATi	Yes			
TTi	Yes			
CReatesess	Yes			
RELreq	Yes			
DIscreq	Yes			
Nepclass	0			
SIgnoff	Yes			
Xrfsignoff	Noforce			
ROutedmsgs	All			
LOGOnmsg	No			
BUildchain	No			
USerarealen	255			
Ioarealen	00001,00000			
UCtran	No			

7.3.3 BSTTVNET JCL

The following JCL starts a BSI printer server to use the sample printers. This Server setup is only for printers and should be connected through the IP4 stack.

```
* $$ JOB JNM=BSITELNP,CLASS=H,DISP=D
* $$ LST DISP=H,CLASS=Q
// JOB BSITELNP Printer Server for TELNET ACCESS FROM PCOMM V6
// LIBDEF *,SEARCH=(PRD2.CONFIG,BARNARD.IPV6)
// OPTION SYSPARM='44'
/*
// EXEC BSTTVNET,SIZE=BSTTVNET,DSPACE=3M,OS390,TASKS=ANY
ID 44
OPEN 192.168.1.61 2023
SBCS DN_03
*
APPLID BSTTVNET PRINTER SHARING APPLICATION
*
PRINTER TADV3 BSTTVNET
PRINTER TADV4 BSTTVNET SCS
PRINTER TADV5 BSTTVNET SCS
PRINTER TADV6 BSTTVNET SCS
PRINTER TADV7 BSTTVNET
PRINTER TADV8 BSTTVNET
PRINTER TADV9 BSTTVNET
ATTACH TN3270E
/*
/&
* $$ EOJ
```

7.4 Node error program

The following is a sample node error program. Note that the ZNEP example from BSI caused a loop in IESX, see lines in red color below.

```
// JOB IESZNEP ASSEMBLE
// LIBDEF *,CATALOG=PRD2.CONFIG
// LIBDEF SOURCE,SEARCH=(PRD1.BASE,PRD1.MACLIB)
// OPTION ERRS,SXREF,SYM,CATAL,NODECK
```

```
   PHASE DFHZNEP,*
   INCLUDE DFHEAI
// EXEC ASMA90,SIZE=(ASMA90,64K),PARM='EXIT(LIBEXIT(EDECKXIT)),SIZE(MAXC
               -200K,ABOVE)'
* $$ END
// ON $CANCEL OR $ABEND GOTO ENDJ2
// OPTION NOLIST,NODUMP,DECK
// EXEC DFHEAP1Å,SIZE=512K
*
         PUNCH ' CATALOG IESZNEP.OBJ  REP=YES'
         DFHSNEP TYPE=INITIAL,NAME=DFHZNEP
*
NEPBASE  EQU   10                ERROR PROCESSOR BASE REGISTER
*
         DFHSNEP TYPE=ERRPROC,                                          X
               CODE=(10,11,D1,A7,61,57,49),GROUP=01
         USING NEPROC01,NEPBASE   DEFINE BASE
         LR    NEPBASE,EPBAR      LOAD BASE REGISTER
         ST    14,NEPEPRS         SAVE  RETURN REGISTER
*
*  CATCH POWER OFF AT SNA TERMINALS
         CLI   TWAEC,X'61'        IS ERRORCODE=61 ?
         BNE   NOT61              ..NO
         CLC   TWASENSR(2),=X'0831'  IS SENSECODE=0831 ?
         BNE   RETURN             ..NO
         OI    TWAOPT3,TWAONCN    SET CLSDST BIT
         B     ACTION
*
NOT61    DS    0H
ACTION   DS    0H
*
         EXEC  CICS LINK  PROGRAM('IESCLEAN') COMMAREA(NEPCABEG) ,
*
* The below two lines from the Barnard example caused a loop in IESX.
* Removing these lines solved the problem.
*        CLI   TWAEC,X'10'             EC=10?
*        BE    YESD1                   NO.
         CLI   TWAEC,X'11'             EC=11?
         BE    YESD1                   NO.
         CLI   TWAEC,X'D1'             EC=D1?
         BNE   NOTD1                   NO.
*
YESD1    DS    0H
         OI    TWAOPT3,TWAOINT         SET CREATE
         NI    TWAOPT3,X'FF'-TWAONINT  RESET NOCREATE
NOTD1    DS    0H
*
*  Link to a vendor Znep
         EXEC  CICS LINK PROGRAM('MENUNEP')                             *
               COMMAREA(DFHNEPCA) LENGTH(=AL2(NEPCALEN))
*
RETURN   DS    0H
         L     14,NEPEPRS          RESTORE REGISTER
         BR    CSVTBAR             RETURN TO NEP
         LTORG
         DFHSNEP TYPE=FINAL
         END   DFHNEPNA            NEP ENTRY POINT
/*
/. ENDJ2
// EXEC IESINSRT
/*
// IF $MRC GT 4 THEN
```

```
// GOTO NOLNK
// EXEC LNKEDT,SIZE=256K,PARM='MSHP'
/. NOLNK
/&
* $$ EOJ
* $$ END
/&
```

8 Known problems

This section shows some problems we had in our test setup.

8.1 VSE cannot be reached

Symptom:

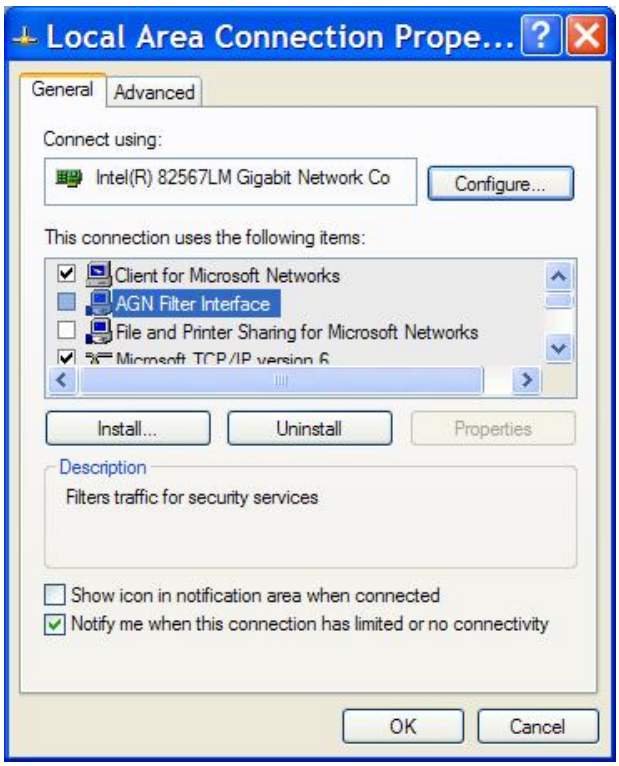
The VSE system is unreachable in the IPv6 network.

Possible reason:

In our test setup the reason for this problem was the AT&T network dialer version 7.6.3, which breaks IPv6 on Windows XP. See

http://attnetclient.com/forum/viewtopic.php?f=4&t=1129

The solution was to uncheck the "AGN Filter Interface" Box in the Local Area Connection's settings during the IPv6 tests.



If you are not using the AT&T dialer, you might check other installed programs for possibly influencing IPv6.

8.2 BSTT075E LUNAME NOT AVAIL

Symptom:

Message BSTT075E is issued repeatedly on console.

Possible reasons:

- Printer sessions are just closed without disconnecting first.
- The same printer-session is started twice.

The problem is solved by using the REACTIVATE command, e.g.

```
reactivate tpbpa
```

9 More information

You can find more information on the web pages below.

Barnard Software, Inc.
http://www.bsiopti.com

IPv6/VSE documentation on VSE homepage
http://www.ibm.com/systems/z/os/zvse/documentation/#tcpip

Personal Communications Administrator's Guide and Reference, SC31-8840
ftp://ftp.software.ibm.com/software/network/pcomm/publications/pcomm_57/pcadmin.pdf

Online admin guide for Personal Communications
http://publib.boulder.ibm.com/infocenter/pcomhelp/v5r9/index.jsp?topic=/com.ibm.pcomm.doc/books/html/admin_guide13.htm

Redbook: Personal Communications Version 4.3 for Windows 95, 98 and NT, SG24-4689
http://www.redbooks.ibm.com/abstracts/sg244689.html?Open

Open Text web site
http://connectivity.opentext.com/

Microsoft Windows netsh commands for Interface IPv6
http://technet.microsoft.com/en-us/library/cc740203%28WS.10%29.aspx

Linux man pages example for TCP forwarding
http://www.kernel.org/doc/man-pages/online/pages/man2/select_tut.2.html

TN3270E printing
http://publib.boulder.ibm.com/infocenter/zos/basics/index.jsp?topic=/com.ibm.zos.znetwork/znetwork_268.htm