Test Scenario 2

Configuring TCP/IP over SNA Gateway

In Scenario 2, a customer has TCP/IP LANs which are represented by Node A and Node E in the following figure. They would like to access each other's socket applications over an SNA network backbone.

The recommended solution is to configure AnyNet® Sockets over SNA Gateway on each of two Communications Server for Windows NT servers.

To complete this scenario, you will need to perform the following steps:

Step 1: Configure the TCP/IP address for Node A

**Step 2:** Configure the TCP/IP address for Node B

Step 3: Configure the TCP/IP address for Node D

Step 4: Configure the TCP/IP address for Node E

Step 5: Configure Communications Server for Windows NT on Node B(this includes configuring the Gateway Adapter device driver)

Step 6: Configure Communications Server for Windows NT on Node D
(this includes configuring the Gateway Adapter device driver)

Step 7: PING Node E from Node A to test your configurations

AnyNet sockets over SNA gateway
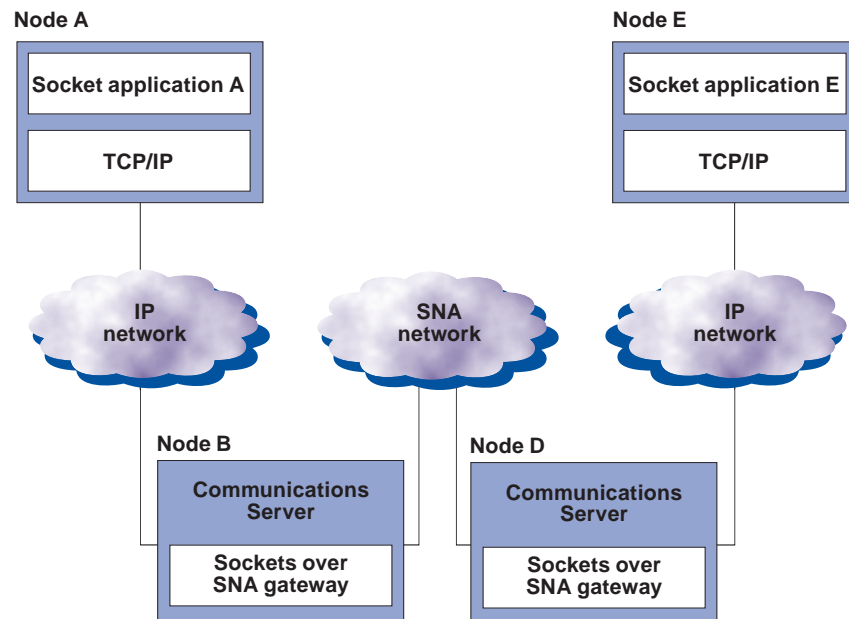
Scenario 2: Configuring TCP/IP over SNA gateway

In this scenario, you will enable communication between a sockets application on Node A on a TCP/IP network and a sockets application on Node E on a TCP/IP network. Node A and Node E, connected by an SNA network, will communicate through two AnyNet® sockets over SNA gateways.

Before beginning this scenario, collect the following information that is unique to your machines:

- Local IP addresses for Nodes A, B, D, and E. (Issue ipconfig at the command prompt at each node to determine if you have an adapter installed, and what the native IP address is once it is configured.)

- 12-character hexadecimal LAN adapter node address (MAC address) for Node B and Node D. (Issue *net config wksta* at the command prompt.)

Note: For purposes of this example, the following values will be used:

Node A: **Microsoft TCP/IP Configuration**
    IP address = 10.10.10.1
    Subnet mask = 255.255.255.0
    Default gateway = 10.10.10.2 (GW B)

Node B: **Microsoft TCP/IP Configuration**
    IP address interface = 10.10.10.2
    Subnet mask = 255.255.255.0

Node D: **Microsoft TCP/IP Configuration**
    IP address interface = 30.30.30.2
    Subnet mask = 255.255.255.0

Node E: **Microsoft TCP/IP Configuration**
    IP address = 30.30.30.1
    Subnet mask = 255.255.255.0
    Default gateway = 30.30.30.2 (GW D)

Node B: **Sockets over SNA Configuration**
    Local: sna0 configuration
        IP address = 20.20.20.2
        Subnet Mask = 255.255.255.0
    LUs: IP address to LU mapping;
    generate LU names
        IP address = 20.20.20.2
        Subnet Mask = 255.255.255.0
        Netid = NETZ
        Template = ITSO

    Routes
        Route type = Network
        Destination address = 30.30.30.0
        Destination mask = 255.255.255.0
        Router address = 20.20.20.3
        Direct connection: No

    Gateway Adapter Configuration
        IP address interface = 20.20.20.2
        Subnet mask = 255.255.255.0
        Enable IP forwarding

    SNA Configuration
        Node: CP name NETZ.CPB
        Network Node
        Devices: LAN

Connections: Destination address = Address of Gateway D SNA adapter (use *net config wksta* from command line to get this information)

Node D: **Sockets over SNA Configuration**
    Local: sna0 configuration
        IP address = 20.20.20.3
        Subnet Mask = 255.255.255.0
    LUs: IP address to LU mapping;
    generate LU names
        IP address = 20.20.20.3
        Subnet Mask = 255.255.255.0
        Netid = NETZ
        Template = ITSO

Routes
   Route type = Network
   Destination address = 10.10.10.0
   Destination mask = 255.255.255.0
   Router address = 20.20.20.2
   Direct connection: No

Gateway Adapter Configuration
   IP address interface = 20.20.20.3
   Subnet mask = 255.255.255.0
   Enable IP forwarding

SNA Configuration
   Node: CP name NETZ.CPD
   Network Node
   Devices: LAN

Connections: Destination address = Address of Gateway B SNA adapter (use *net config wksta* from command line to get this information)

Step 1: Configure the TCP/IP address for Node A
Using the values provided at the beginning of this scenario for Node A, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.

2. Select **TCP/IP Protocol**.

3. Click **Properties**.

4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.

5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node A.

6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.

7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 2: Configure the TCP/IP address for Node B
Using the values provided at the beginning of this scenario for Node B, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.

2. Select **TCP/IP Protocol**.

3. Click **Properties**.

4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.

5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node B.

6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.

7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 3: Configure the TCP/IP address for Node D
Using the values provided at the beginning of this scenario for Node D, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.

2. Select **TCP/IP Protocol**.

3. Click **Properties**.

4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.

5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node D.

6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.

7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 4: Configure the TCP/IP address for Node E

Using the values provided at the beginning of this scenario for Node E, perform the following:

To configure the TCP/IP address (and to configure native TCP/IP mode), go to Control Panel, Network applet.

1. On the Network Settings panel of the NT Network Installation program, click **Protocols**.

2. Select **TCP/IP Protocol**.

3. Click **Properties**.

4. Click the **IP Address** tab and from the Adapter pull down, select your native adapter.

5. Click the **Specify an IP Address** tab and enter the **TCP/IP address**, **subnet mask**, and **default gateway** listed for Node E.

6. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.

7. When the Network Settings Change warning is displayed, click **Yes** to restart the computer.

Step 5: Configure Communications Server for Windows NT on Node B (this includes configuring the Gateway Adapter device driver)

Using the values provided at the beginning of this scenario for Node B, perform the following:

1. Click **Start** on the task bar, then select:

   – Programs
   – IBM Communications Server
   – SNA Node Configuration

2. The Communications Server SNA Node Configuration window is displayed.

   Select **File**, then select **New**
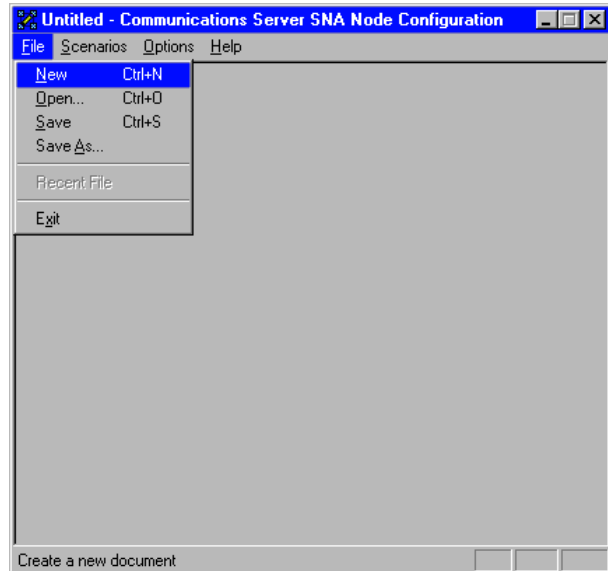
3. Select **Scenarios**, then select **AnyNet Sockets over SNA….**
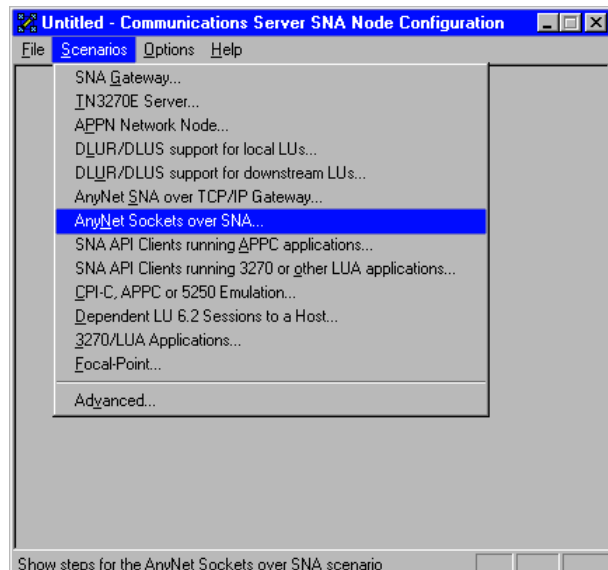
Configure the Node

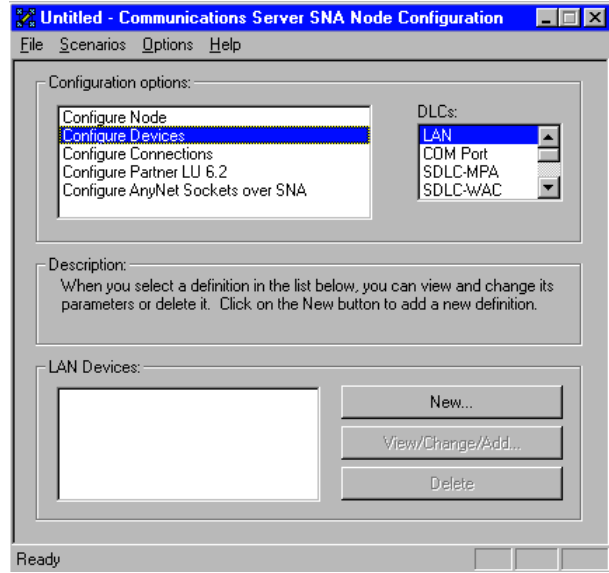1. Highlight **Configure Node**, then click **New**.
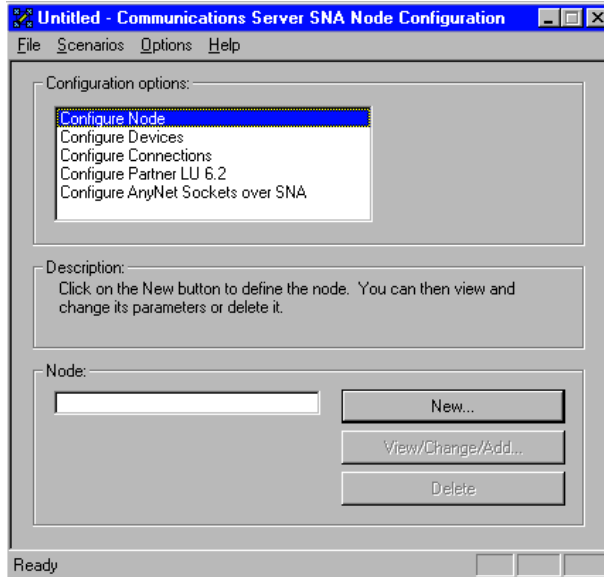
2. The Define the Node window is displayed. Select the **Basic** tab, and provide the following information.

    – Fully qualified CP name = **NETZ.CPB**
    – Node Type = **Network Node**
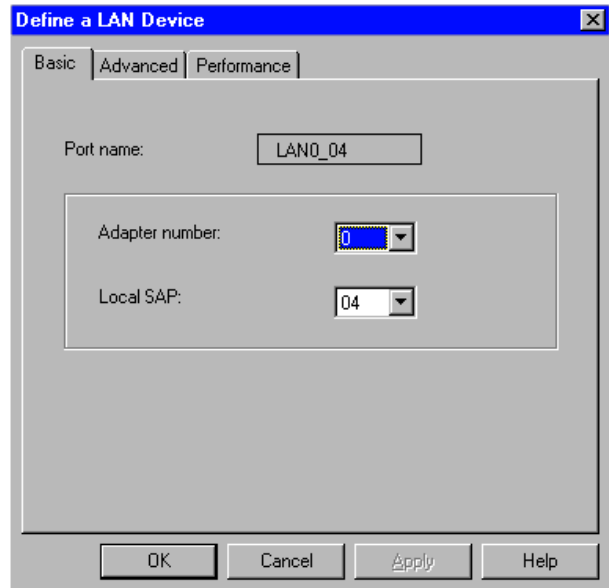   – When you are done, click **OK**
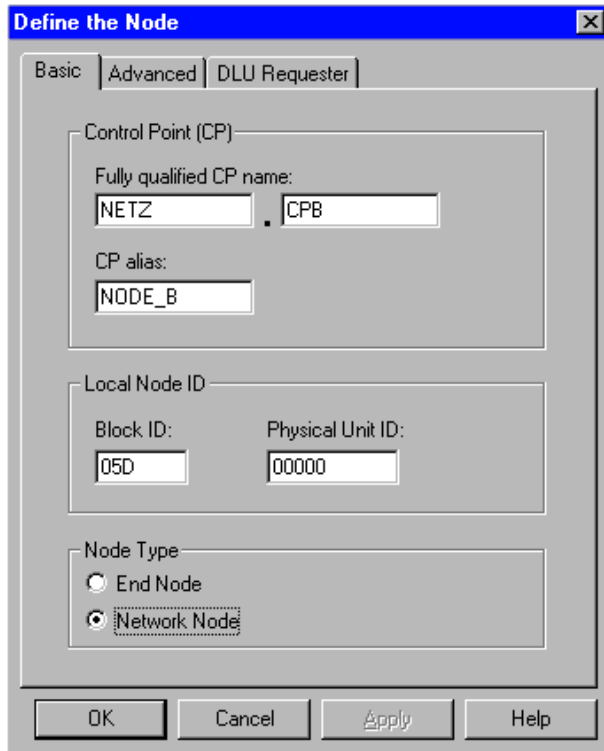
Configure Devices

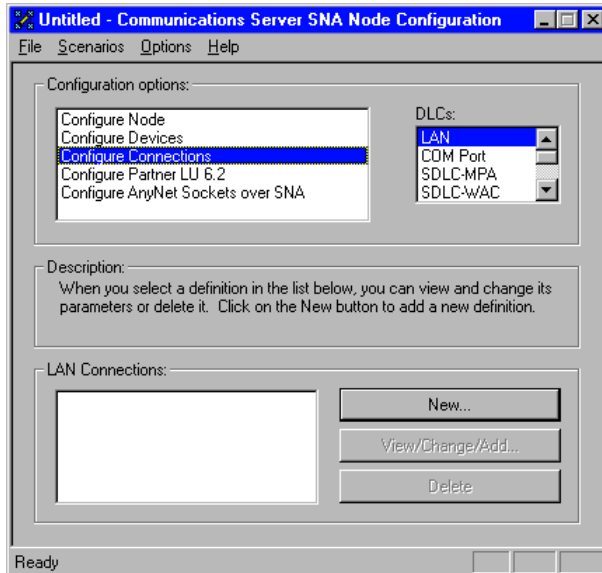1. Highlight **Configure Devices**, then select **New**.

2. The Define a LAN Device window is displayed. Click **OK** to accept the default values.

Configure Connections

1. Select **Configure Connections**, then select **New**.

2. The Define a LAN Connection window is displayed.

   – Select the **Basic** tab
   – Issue the net config wksta command at the command prompt to obtain the **12-character hexadecimal destination address** requested. In this example, it is **400050000000**.
   – When you are done, click **OK**
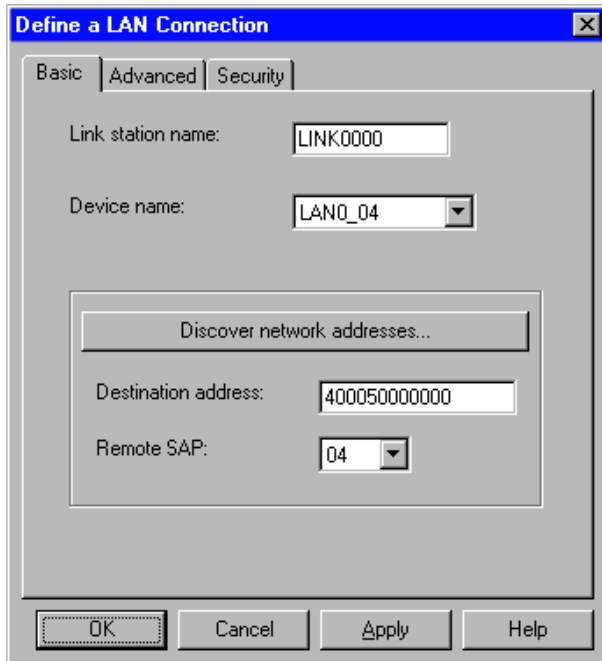
Configure AnyNet Sockets over SNA
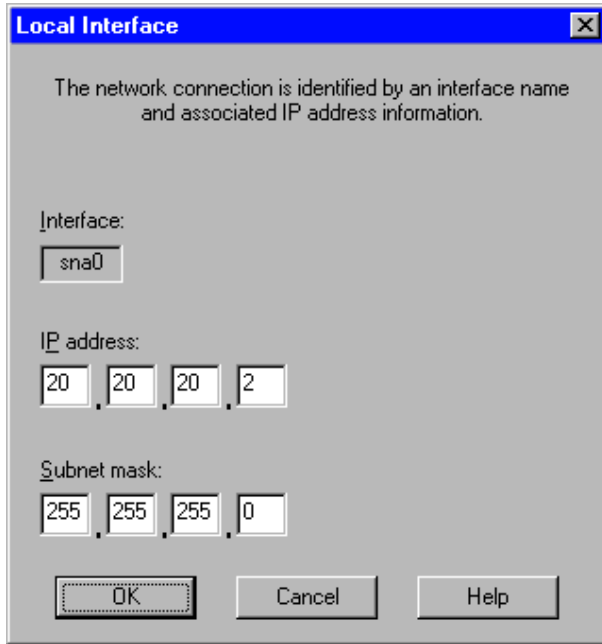
1. Select **Configure AnyNet Sockets over SNA**, then click **New**.
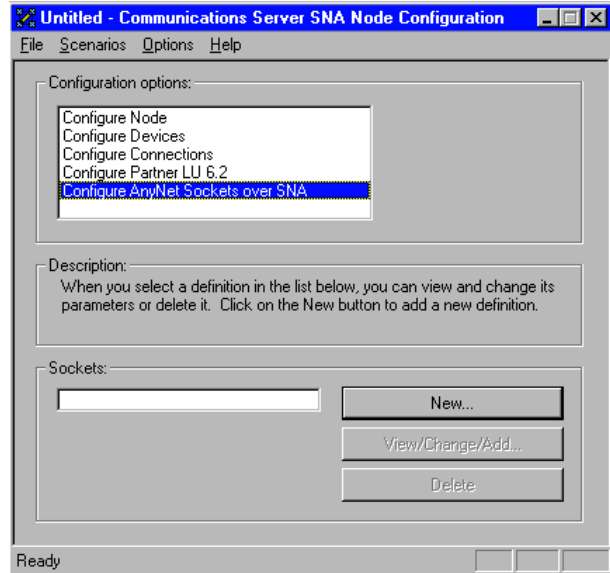
2. The AnyNet Sockets over SNA window is displayed.

   – Select the **Local** tab
   – Click **Change**
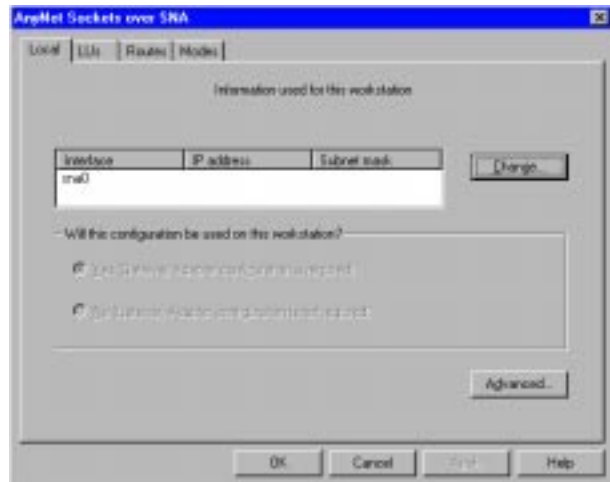
3. The Local Interface window is displayed.

   – Specify the IP address **(20.20.20.2)**
     and subnet mask **(255.255.255.0)**
   – When you are done, click **OK**

4. When you return to the AnyNet Sockets over SNA window, ensure that **Yes** is selected for Gateway Adapter Configuration is required. When you are done, select the **LUs** tab.
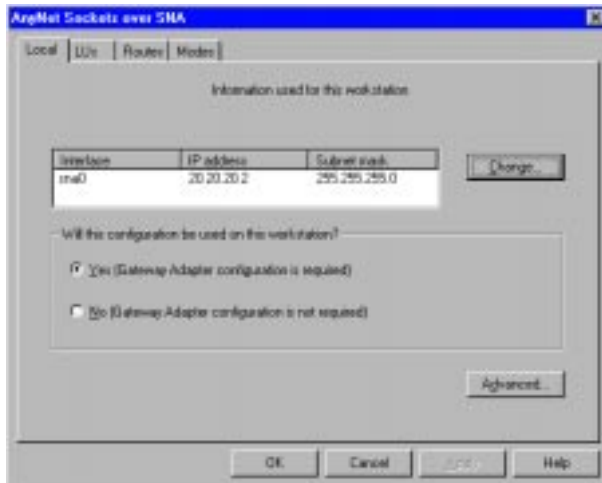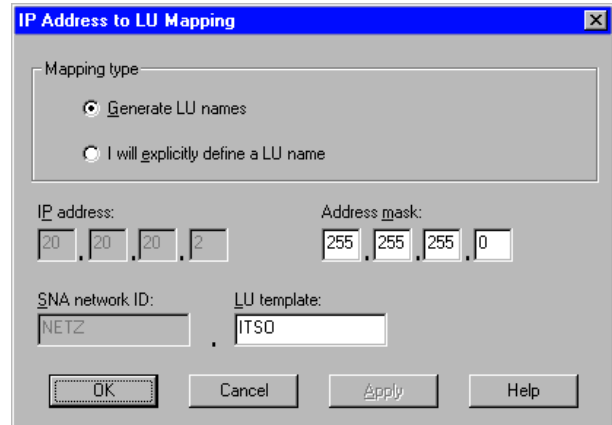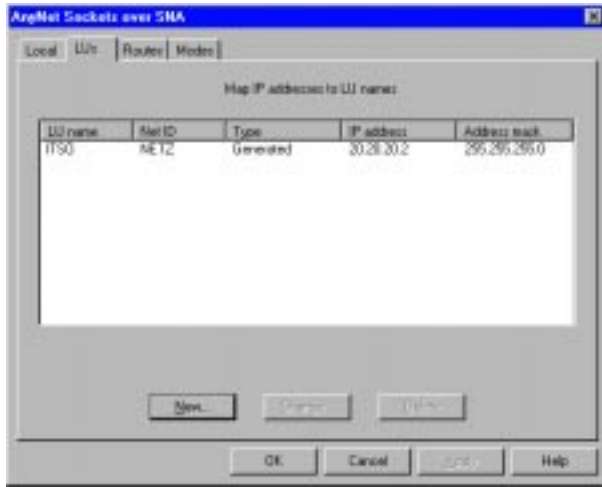

5. The LUs tab is displayed. Click **New….**
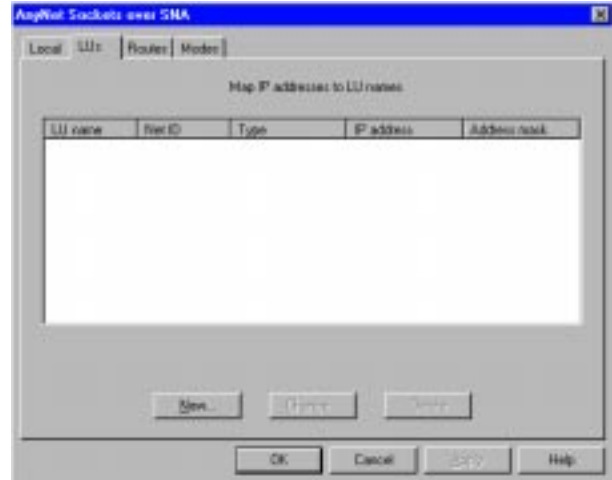
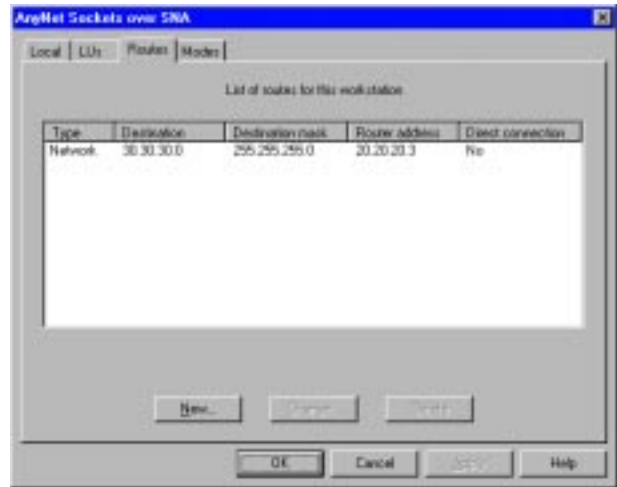6. The IP Address to LU Mapping window is displayed.

   – Leave **Generate LU names** selected
   – Enter the following information for this example:
     IP address = **20.20.20.2**
     Address mask = **255.255.255.0**
     SNA network ID = **NETZ** (Default)
     LU Template = **ITSO**
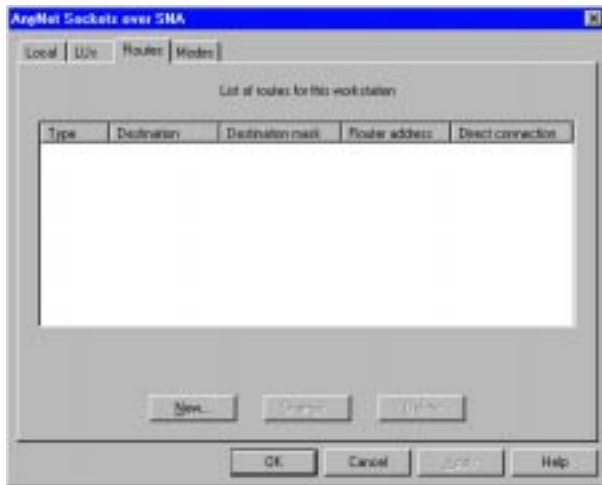   – When you are done, click **OK**

7. When you return to the AnyNet Sockets over SNA property sheet, select the **Routes** tab.

8. The Routes property page is displayed. Select **New....**

9. The Route Types window is displayed. Select **Network**, then enter the values listed for Node B. When you are done, click **OK**.

10. When you return to the AnyNet Sockets over SNA window, click **OK**.

11. The Communications Server SNA Configuration Help window is displayed. Be sure to follow the instructions on this Help window before proceeding.
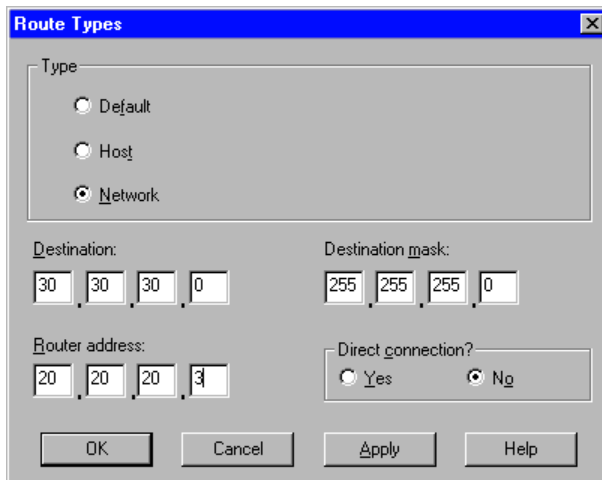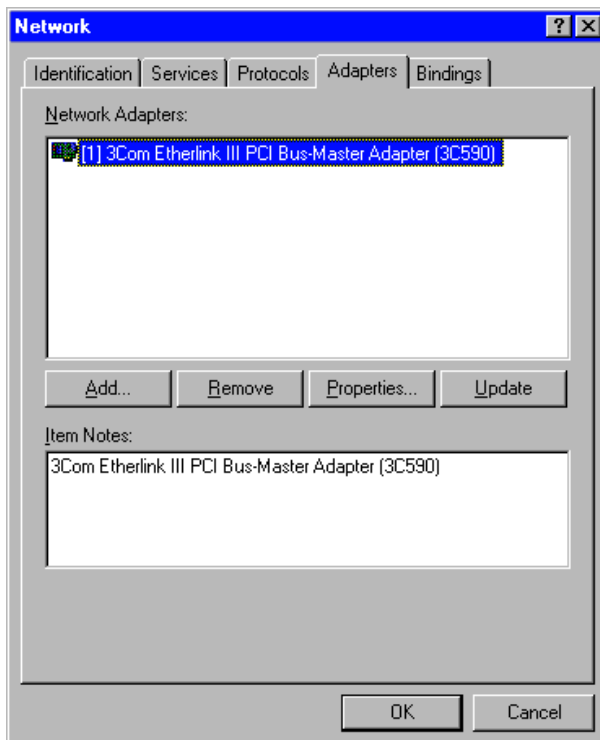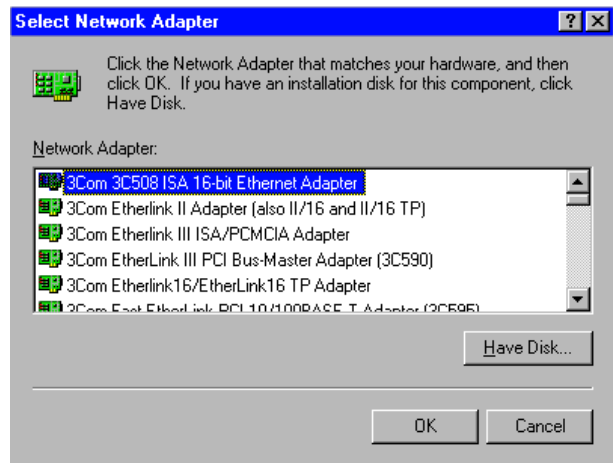
12. On the Gateway Adapter Information screen, write down the Software Location, TCP/IP address, and subnet mask information (you will need this later), then click **Configure…**.
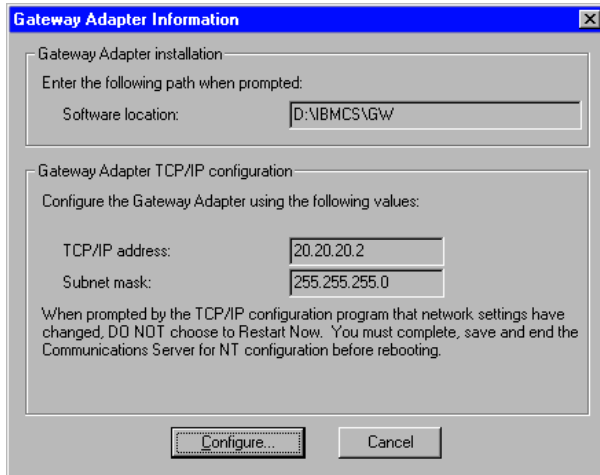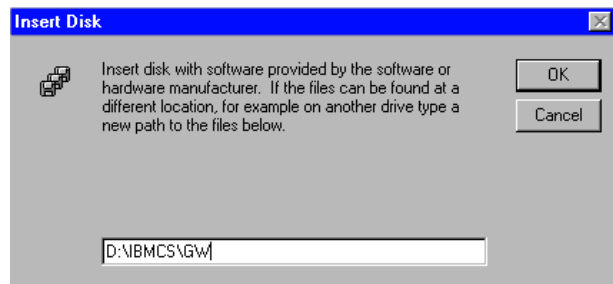

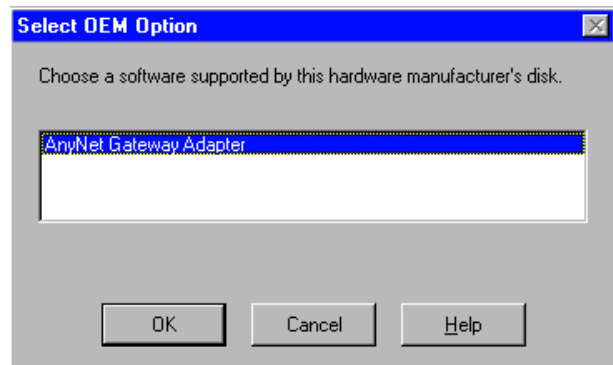13. On the Network panel, select the **Adapters** tab, then click **Add…**.

14. The Select Network Adapter panel is displayed. Click **Have Disk…**.
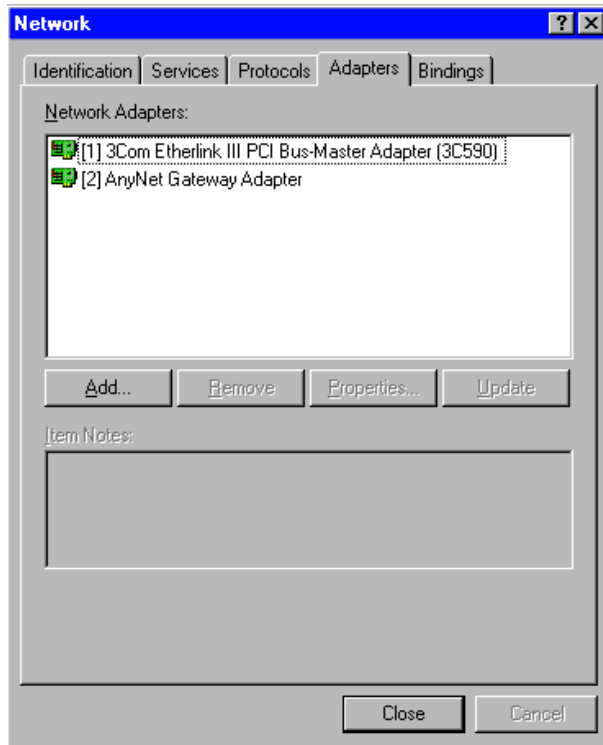

15. The Insert Disk window is displayed. Enter **D:\IBMCS\GW**, then click **OK**.

16. The Select OEM Option panel is displayed. Select **AnyNet Gateway Adapter** and click **OK**.

17. The Network panel is displayed, indicating the AnyNet Gateway Adapter is installed.

Next, configure the Gateway Adapter device driver.

The following describes the configuration sequence for Microsoft TCP/IP (this is the same information that appears on the Communications Server SNA Configuration Help panel).

1. From the Network panel, click **Close**. TCP/IP Configuration will be invoked.

2. Click the **IP Address** tab and from the Adapter pull down, select **AnyNet Gateway Adapter**.

3. Click the **Specify an IP Address** tab and enter the TCP/IP address and subnet mask that were displayed in the Gateway Adapter Information panel. No other fields should be entered on the IP Address panel.

4. Click the **Routing** tab, and then click **Enable IP Forwarding** so that IP forwarding is enabled.

5. Click the **WINS Address** tab and, from the Adapter pull down, select **AnyNet Gateway Adapter**.

6. Deselect the **Enable DNS for Windows Resolution** option. No other fields should be selected or filled in on this panel.

Note: The DNS Configuration panel may contain data pertinent to other adapters. These fields should not be modified.

7. Click **OK** on the TCP/IP Properties panel. Ignore the warning that one of the adapters has an empty WINS address, and click **Yes** to continue.

8. When the Network Settings Change warning is displayed, click **No** so that the computer is not restarted.

9. Click **OK** on the Gateway Adapter Information panel and save your configuration. Restart the computer for the adapter changes to take effect.

Step 6: Configure Communications Server for Windows NT on Node D (this includes configuring the Gateway Adapter device driver)

1. To configure Node D:

   – Repeat the procedure followed when configuring Node B but do not Configure Connections.
   – Substitute the appropriate values provided at the beginning of this scenario.

2. You have completed the AnyNet Sockets over SNA Gateway configuration.

3. After configuring and rebooting Nodes A, B, D, and E, start Communications Server for Windows NT on Nodes B and D using the configurations that you previously saved.

4. Next, you will want to start the node, and then verify that the link is active.

Step 7: PING Node E from Node A to test your configurations
Enter the following from the command line:

ping 30.30.30.1