

OPERATOR INTERFACE PRODUCTS APPLICATION NOTE

Subject: Connecting a GP/GLC to a remote Pro-server Installation

AN# 1110B

Date: 06/12/2002

Name: Paul Derbyshire

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Description: Connect one or more GP/GLCs to a remote computer running Pro-server.

Affected Products:

- GP 2xxx, x77R(with Ethernet)
- GLC 2xxx

Problem:

If I have one or more GP/GLCs at site A, how do I have them automatically connect to a PC running Pro-server at Site B in order to send E-mails, upload or retrieve data.



Figure 1 – Connection Example

Solution:

We need to connect two different Ethernet networks to each other over a phone line; one network for Site A, one for Site B. This is accomplished using a router. This application note refers to the 3COM 3C886A-US OfficeConnect 56K LAN Modem as the router used in this case. This modem currently retails for ~ \$249 US Dollars(06/12/2002, www.3com.com).

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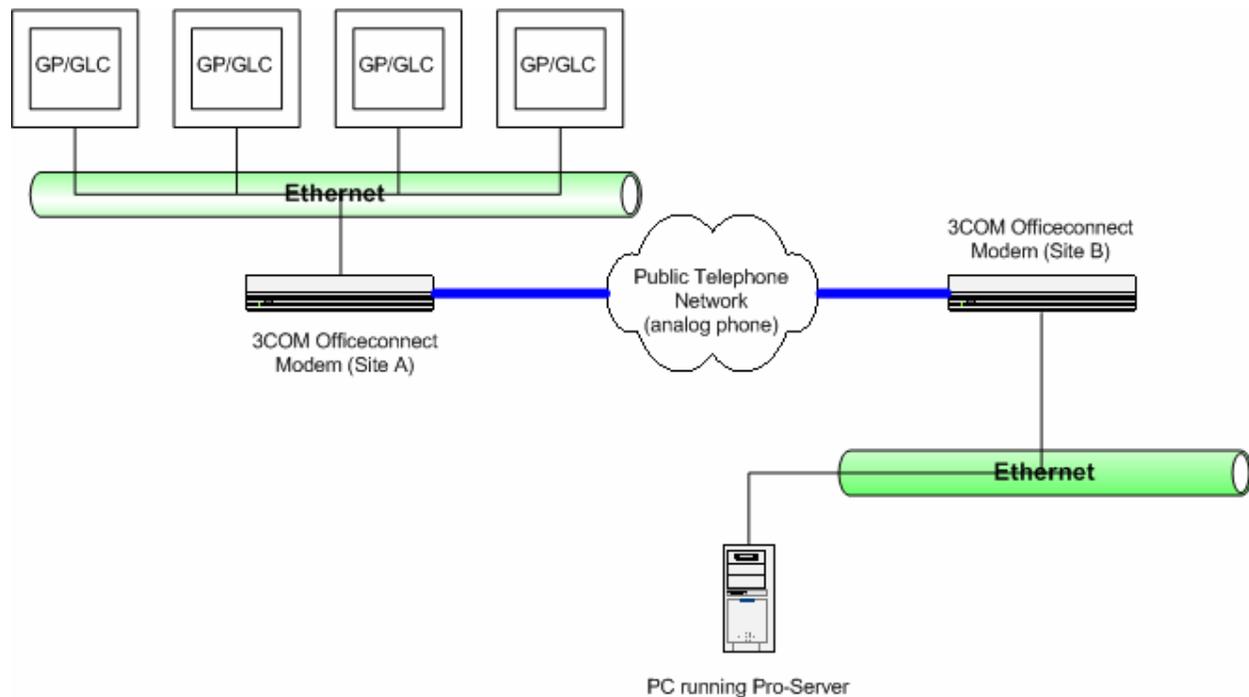


Figure 2 - Site A and Site B connected by Router

As shown in Figure #2, we will require two LAN Modems, one for each site, Site A and Site B. Each modem will be connected to unique phone line. When a command is sent to the PC running Pro-Server Site A will dial and connect to site B.

Site A will have network IP range, for example 192.168.1.x (x is a number between 0 and 255). Site B will have another, 192.168.2.x. In this instance we will use the same subnet mask for both networks, 255.255.255.0

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Configuring the LAN Modem for Site A

The LAN Modem ports are shown in Figure 3

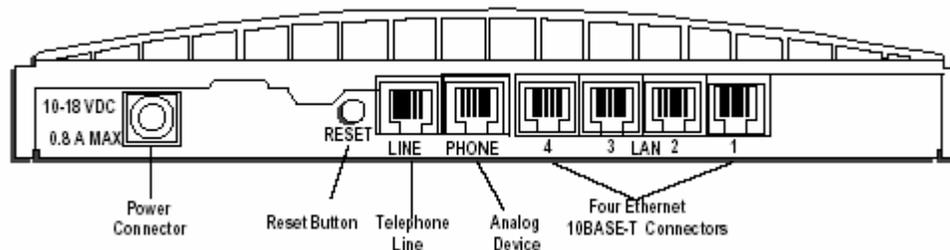


Figure 3 - 3COM OfficeConnect Modem Connectors

Notice that there are four Ethernet ports. This modem allows you to connect four Ethernet devices directly to the modem. The modem will act like a hub. Should you have more than four devices you can connect Ethernet hubs to the modem.

The 3COM OfficeConnect Modem allows you to make all changes to the modem using your internet browser. This application note shows the screens you would see in Internet Explorer 6.x.

When first receiving your Modem it will have a preset address which is provided in your documentation. If it is not brand new you will need to determine the IP address in order to program the LAN Modem.



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NOTE: To access the modem your PC's network card must be configured so that the first three Octets of its IP address match the CURRENT setting of the LAN Modem and the subnet masks are exactly the same. For example, if the LAN modem is IP 175.172.0.1 with subnet mask 255.255.255.0, the PC must be IP 175.172.0.x (where x = 2 to 255), with subnet mask.

Type in the IP address of your modem in the Address section of your browser and hit enter. After the time has synchronized you will see the screen shown in Figure 4. (if used before the modem may be locked and require a password. Enter the password to get the main menu).

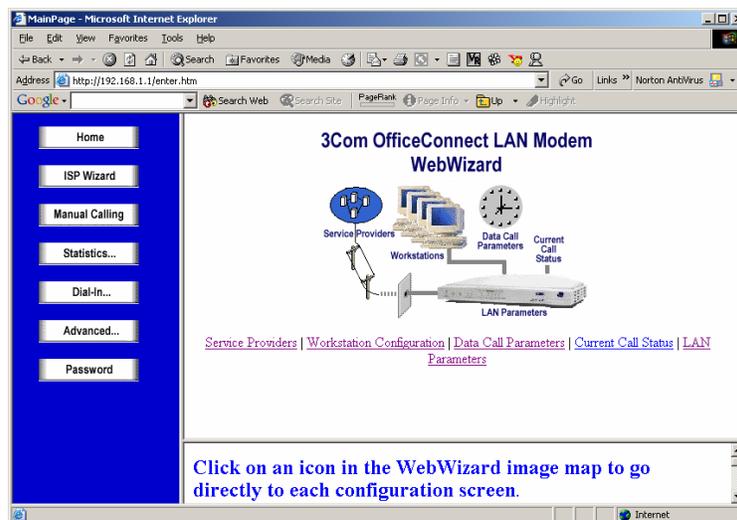


Figure 4 - LAN Modem Main Menu

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Click on *LAN Parameters*.

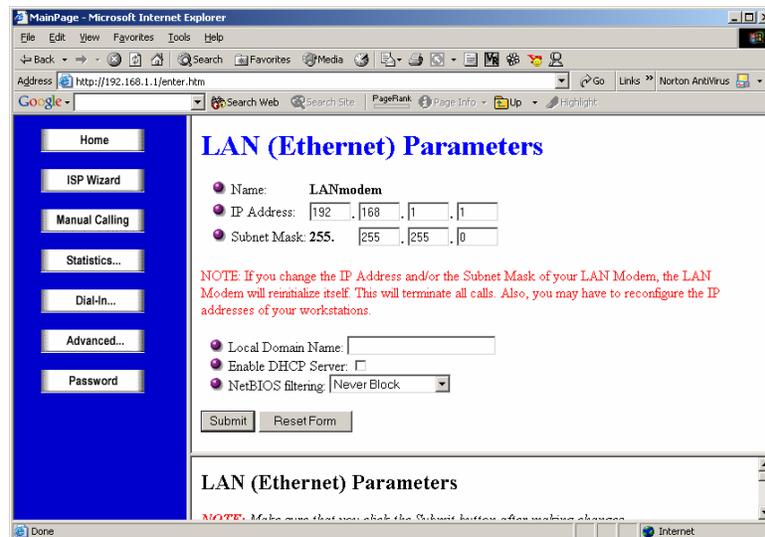


Figure 5 - LAN Paramters

Enter the IP Address 192.168.1.1, subnet mask 255.255.255.0. Set the NetBIOS filtering to NEVER BLOCK.

Click Submit when finished. We have now changed the IP address of the modem. If necessary, you may need to the change your PC's IP address so that it is with the same range as the modem.

Type in the new IP address of the modem, 192.168.1.1, into you browser address bar and press enter. You should return to the Main Menu of the Modem once again.

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Select 'Service Providers'. The Service Providers menu will appear as shown in Figure 6

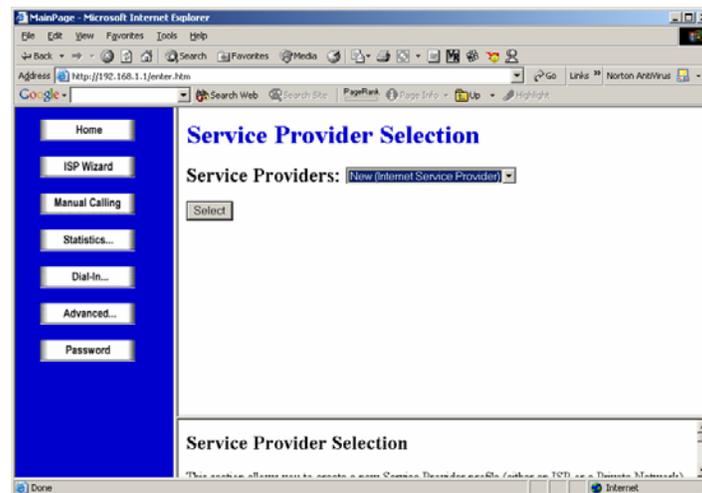


Figure 6 - Service Provider Selection Screen

Drop the Service Providers drop-box and select 'New(Private Network)'.

Press the 'Select' button. The Private Network Parameter screen appears, Figure 7.

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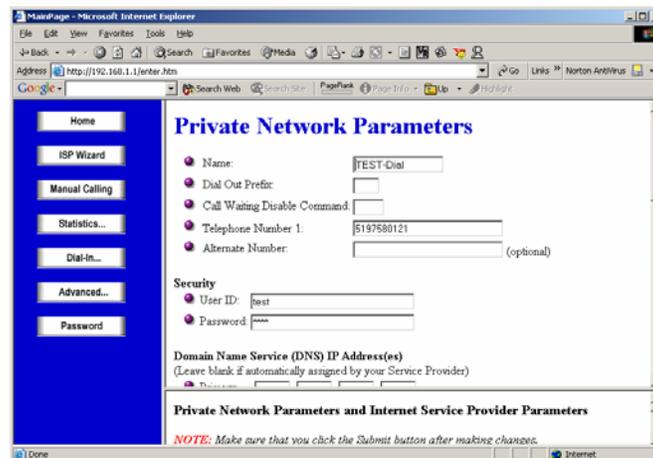


Figure 7 - Private Network Parameters Screen

Enter the following:

- Name: Test-dial
- Telephone Number: Enter the telephone # to dial to connect to Site B. Enter any prefixes required to dial-out in the appropriate sections.

Security

- User ID: test
- Password: test

Domain Name Service (DNS) IP Address(es)

- Leave both Blank



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Private Network Parameters

- Private Network IP Address: 192.168.2.0 (represents the RANGE of the Site B LAN Modem IP addresses, just like saying 192.168.2.x)
- Subnet Mask: 255.255.255.0 (Subnet mask of the Site B LAN Modem)

Call Back Parameters

- Leave blank

Miscellaneous

- Leave as default, EXCEPT 'Use Network Address Translation (NAT)' = NO

Click 'Submit' to save your changes.

Configuration of the Site A LAN Modem is complete.

Configuring the LAN Modem for Site B

Set the IP address of the Site B LAN Modem to 192.168.2.1. Follow the same steps to accomplish this as you did with the Site A modem.

From the Main Menu of the LAN Modem Configuration screen in your browser, select 'Dial-In...'. The Menu on the left will change.

Select 'Dial-In Users'. The Dial-In User Selection Screen will appear, Figure 8.

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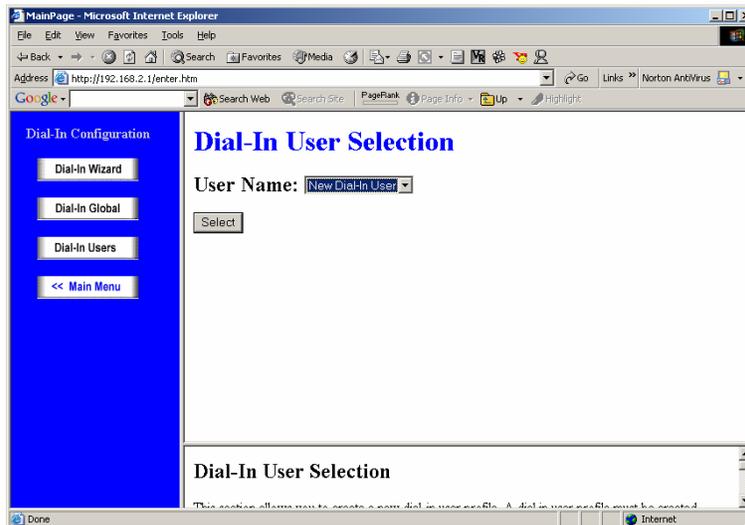


Figure 8 - Dial-In User Selection Screen

From the 'User Name' drop-down box select 'New(Dial-In User)'. Press 'Select'. The 'Dial-In User Parameter Screen' Appears, Figure 9.

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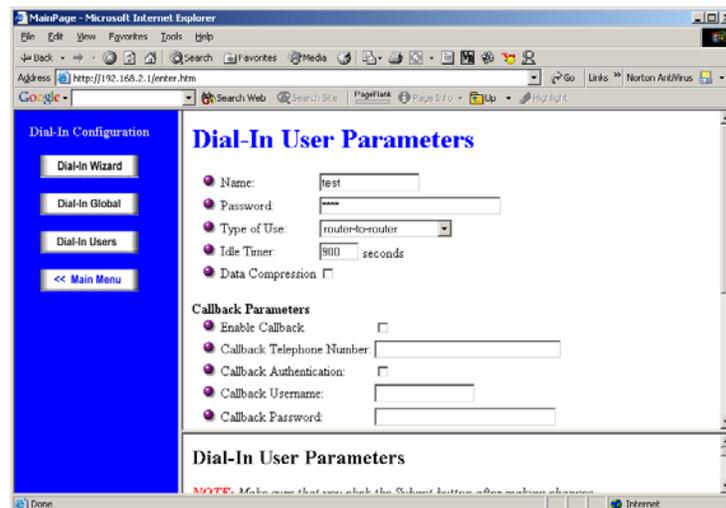


Figure 9 - Dial-In User Parameter Screen

Enter the Following:

- Name: test (same as the username we entered for the Site A LAN Modem Service Provider)
- Password: test (same as the username we entered for the Site A LAN Modem Service Provider)
- Type of Use: router-to-router

Call Back Paramters

- Leave blank



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WAN Parameters

- LAN Modem WAN IP: Leave Blank
- Remote LAN IP: 192.168.1.1 (IP Address of the Site A LAN Modem)
- Remote LAN Subnet Mask: 255.255.255.0 (Subnet mask of the Site A LAN Modem)
- Primary DNS: 192.168.2.1 (IP Address of Site B LAN Modem)
- Secondary DNS: Leave Blank

Press 'Submit' to enter the user.



Auto Answer must be enabled for your LAN Modem to receive an incoming data call. Note that Auto Answer is disabled by default.

Auto Answer

The Auto Answer feature allows your LAN Modem to automatically answer an incoming call after a user-specified number of rings. By default, Auto Answer is disabled. You can choose to have your LAN Modem automatically answer incoming calls, or you can leave Auto Answer disabled (the default). To set or change this value, do the following.

1. From the LAN Modem's main page, click the *Maintenance* button from the left frame. The Maintenance page opens.
2. From the "Auto Answer on ring number" drop down list, choose the number of rings before your LAN Modem automatically answers an incoming call. To set your LAN Modem to never answer incoming calls, choose "Disable."



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3. Click *Submit*.

Testing the Connection

Now that we have Site A and B modems configured lets test the connection by using the windows command, PING.

Connect the LAN Modems to their respective phone lines.

Connect one PC to the Site A LAN modem and give it the IP address 192.168.1.2, subnet mask 255.255.255.0 and gateway address 192.168.1.1.

Connect a second PC to the Site B LAN Modem and give it the IP address 192.168.2.2, subnet mask 255.255.255.0 and gateway address 192.168.2.1.

Open a DOS prompt window (cmd.exe in WinNT, Win2000, WinXP. Win9x and WinME use the Command Prompt Shortcut).

At the DOS prompt on the Site A computer type in the following:

Ping 192.168.2.2

Press Enter to execute the command. The Site A LAN Modem should begin to dial.

Notice that you get timeouts. This is ok. This occurs because the command only retries three times, once a second to get a response. Don't worry, GP/GLCs are automatically configured by Pro-Server to retry in a different manner.



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Once the connection is fully established (~10-30 seconds) try the ping command again. Try pinging from the Site B computer to site A.

From the Site B computer type the following:

Ping 192.168.1.2

You can ping the modems themselves as well. You will see that the connection continues to exist. Eventually the modem will timeout and disconnect when there is no more traffic. You can also disconnect manually using the configuration menus for the Modem.

Hooking up GP/GLCs and Pro-Server to the LAN Modems

Leave your Site A PC connected for the moment.

Connect your GP/GLC(s) to the Site A LAN Modem by plugging into an open Ethernet port. Set the IP Address of each GP/GLC as 192.168.1.x (where x can be 3 through 26).

Connect your Pro-Server PC to the Site B LAN Modem. Set its address to 192.168.2.3.

Using the PC connected to the Site A LAN Modem initiate a call by using the ping command or using the Configuration Menus for the LAN Modem (Manual Dialing).

Once the modems are connected you can ping the GP/GLC units to make sure they can be seen from both sides of the network.



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Pro-Server configuration is best done at this time so that you can transfer network projects to the GP/GLCs. Unfortunately as a result of the way IP networks operate, to communicate to the GP/GLCs you must have the router active. Pro-server, 192.168.2.3, is only able to communicate with other IP addresses on its network 192.168.2.x(x=0 to 255). IP address 192.168.2.3 is unable to communicate with the network 192.168.1.x because they are in different *IP Logical networks*. The router allows Pro-Server and all other PCs or Ethernet units on the range 192.168.2.x to communicate with 192.168.1.x and vice-versa.

Adjust the LAN modem disconnection times by using the LAN Modem Configuration Menus.

Notice that the GP/GLCs don't continually communicate with Pro-server. They will send packets based on the Provider information triggers you have set in Pro-server. This can be as a result of a bit change, time interval or other condition.

Keep in mind that communication on the Site A network among Site A units does not cause the Site A modem to dial. When addresses within 192.168.2.x are communicated to the modem will automatically initiate a call.

Other Benefits from this Setup

- Ability to direct dial into one single LAN modem using LAPTOP or Desktop PC for remote setup of LAN Modem or use of GP-Pro (CF card, SRAM upload, Maintenance of GP/GLCs). This allows you access to LAN modem and its connected network.

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- Have more than one remote site and dial into a single Pro-server PC. No need for a Pro-Server computer at every location.
 - No complicated RAS setups using various PCs and internal/external modem types. LAN Modems can be sold to customer as a package deal.
 - Modems have built-in DHCP Server. No Static Addresses needed on the network the modem is connected to. (Keep in mind that all GP/GLCs must have a unique static IP address.)