Application Note
Configuring the Netopia R2020 for use with
ClipMail Pro and ClipExpress

T E L E S T R E A M

Introduction

This Application Note guides the ClipMail user through the Netopia R2020 router configuration process by using a simple dial up connection example. Please refer to the attached network diagram. It is highly recommended that you also read the Netopia technical literature supplied with the Netopia R2020, to become familiar with the features and functions not covered here.

Basic Configuration Procedure (ClipMail send only)

1. Connect the Netopia R2020 analog router (use port Line 1 or port Line 2) to a phone jack with standard telephone cord. If you are going to use the line doubling features of the router you will need an extra phone line and an extra phone cord. With standard Category-5 ethernet cable, connect your desktop/laptop and your ClipMail unit to the ethernet ports on the router. Turn all of the units on.

2. Confirm that all units have their ethernet link LEDs on. Note that Port 1 on the R2020's built-in hub has a Normal/Uplink Select switch. This switch may need to be changed depending on your ethernet cabling.

3. Setup the ClipMail unit to use DHCP to receive a network address. (Under 'Set Up' choose the Network tab, then click 'Get IP Address from DHCP Server') Reboot the unit.

4. Setup the desktop/laptop to use DHCP to receive a network address.

   For PC's running Windows go to the control panel, open network, double-click TCP/IP, select 'Obtain an IP address automatically,' click OK. Reboot the machine.

   For PC's running Windows NT go to the control panel, open network, select the protocols tab, double-click TCP/IP, select 'Obtain an IP address from a DHCP server,' click OK. Reboot the machine.

   For Macs go to the system menu, control panels, TCP/IP, select Use DHCP, Reboot the Machine.

5. Insert the Netopia installation CD into the desktop/laptop and run Smart Start.

6. Choose 'Easy Setup' and click Next.

7. Choose 'Manual Entry' and click Next.

8. Enter your Internet Service Provider's dial-up access number and DNS server address. (You will need to call your ISP and ask them if your not sure what it is.) For authentication most ISPs use PAP. Click Next.

9. Enter your username and password for your internet account. Click Next.

10. The Smart Start application will test your internet connection and report back. If the test fails, check the data you entered in steps 8 and 9.

11. The application will state that it needs to reboot the router. After about 15 seconds it should be back up. Now you may use your ClipMail unit to **send** clips.

Note: When you first try to send a clip, the router will detect that it needs to bring the internet connection up and it will begin dialing your ISP. It will take about 30-45 seconds for this to occur and during this time the ClipMail will report that the remote ClipMail unit is not responding.Immediately after this, try accessing the remote system again. This attempt should succeed.

Note: If your ISP account allows dual logins and you have two phone lines to use for internet access then the second line will connect after the first line has filled its bandwidth and the two lines will aggregate the bandwidth between them.

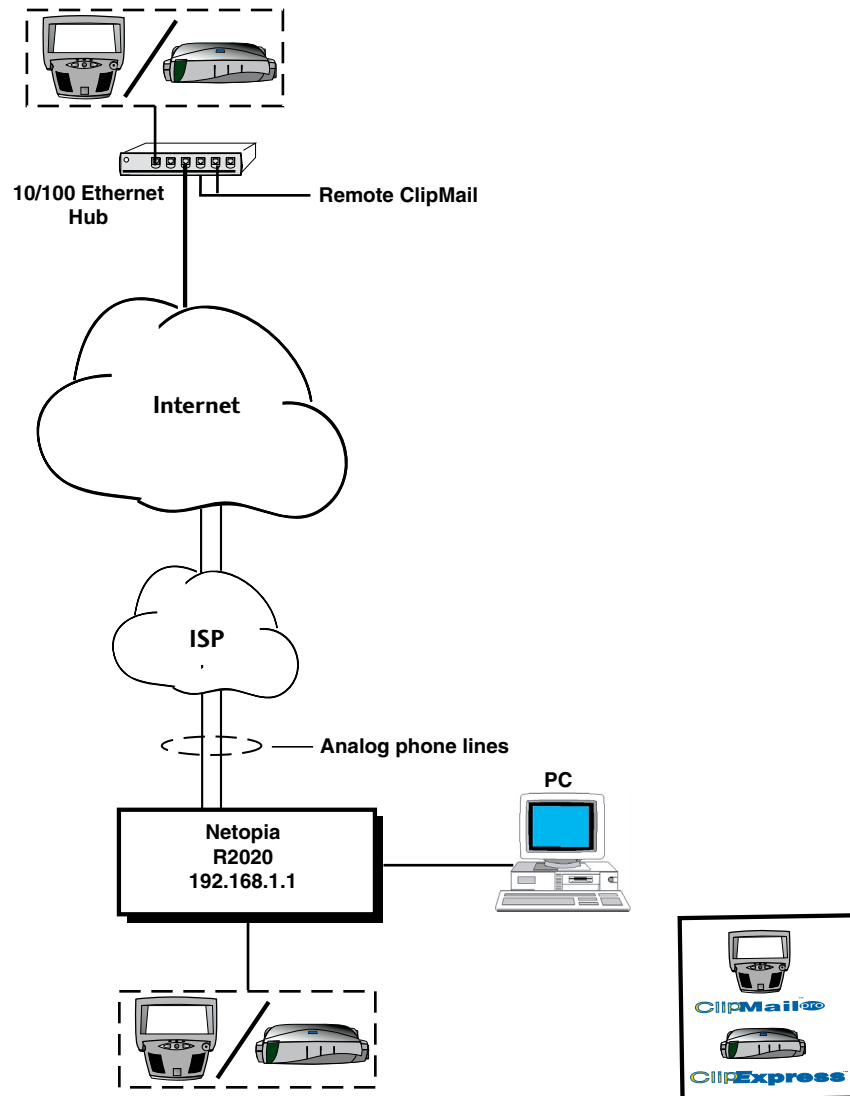## Advanced Configuration (ClipMail can send and receive)

1. Connect the Netopia R2020 analog router to a phone jack with standard telephone cord. If you are going to use the line doubling features of the router you will need an extra phone line and an extra phone cord. With standard Category-5 ethernet cable, connect your desktop/laptop and your ClipMail unit to the ethernet ports on the router. Turn all of the units on.

2. Confirm that all units have their ethernet link LEDs on. Note that Port 1 on the R2020's built-in hub has a Normal/Uplink Select switch. This switch may need to be changed depending on your ethernet cabling.

3. Give your ClipMail a Static IP address that is on the same network as the Netopia Router. For example, 192.168.1.10. (The router is shipped with an IP of 192.168.1.1). Reboot the unit.

4. Setup the desktop/laptop to use DHCP to receive a network address.

    For PC's running Windows go to the control panel, open network, double-click TCP/IP, select 'Obtain an IP address automatically,' click OK. Reboot the machine.

    For PC's running Windows NT: go to the control panel, open network, select the protocols tab, double-click TCP/IP, select 'Obtain an IP address from a DHCP server,' click OK. Reboot the machine.

    For Macs: go to the system menu, control panels, TCP/IP, select Use DHCP, Reboot the Machine.

5. Insert the Netopia installation CD into the desktop/laptop and run Smart Start.

6. Choose 'Easy Setup' and click Next.

7. Choose 'Manual Entry' and click Next.

8. Enter your Internet Service Provider's dial-up access number and DNS server address. (You will need to call your ISP and ask them if your not sure what it is.) For authentication most ISPs use PAP. Click Next.

9. Enter your username and password for your internet account. Click Next.

10. The Smart Start application will test your internet connection and report back. If the test fails, check the data you entered in steps 8 and 9.

11. The application will state that it needs to reboot the router. After about 15 seconds it should be back up. Now you may use your ClipMail unit to **send** clips. Remember the address you assigned as you will use it in Step 19 below.

12. From the desktop/laptop, telnet into the router (should be 192.168.1.1).

13. The Netopia R2020 Router Menu comes up. Go to 'Quick Menus…'

14. Choose 'Network Address Translation'.

15. Choose 'Show/Change Server List'.

16. Select 'Easy-Servers' (This will only appear if your ran Smart Start, if you did not, you will need to create a new Server List.)

17. Select 'Show/Change Server'.

18. Select the server shown. (There should be only one and it should say '0.0.0.0 0.0.0.0 1-49151')

19. Change the 'Private IP Address' to the address you assigned your ClipMail in Step 3.

20. Choose Accept Changes.

    If you receive a static address from your ISP then this is the address that ClipMail units on the internet can send media clips to you. Your configuration is complete. If you do not receive a static address from your ISP then you will need to follow the next 4 steps to find out what address was dynamically assigned to you by your ISP.

21. Using the desktop/laptop computer or the ClipMail, force the internet connection on the router to come up (browse a web page or try to send a clip; anything that will generate internet traffic).

22. After the link is up, open up a web browser (Internet Explorer/Netscape/or any other) and browse to the address of the router (should be http://192.168.1.1)

23. A browser interface will come up with menu options on the left. Under 'Event History', click on 'WAN'

24. At the top of the log there will be an entry that reads 'PPP: IPCP negotiated, session 1, rem: xxx.xxx.xxx.xxx local: yyy.yyy.yyy.yyy

25. yyy.yyy.yyy.yyy will be your address that people on the internet can send clips to. Your configuration is now complete. This address will need to be manually communicated to remote sites that want to send media to you.

Note: When you first try to send a clip, the router will detect that it needs to bring the internet connection up and it will begin dialing your ISP. It will take about 30-45 seconds for this to occur and during this time the ClipMail will report that the remote ClipMail unit is not responding. Immediately after this, try accessing the remote system again. This attempt should succeed.

Note: If your ISP account allows dual logins and you have two phone lines to use for internet access then the second line will connect after the first line has filled its bandwidth and the two lines will aggregate the bandwidth between them.

10/100 Ethernet Hub

Remote ClipMail

Internet

ISP

Analog phone lines

PC

Netopia R2020 192.168.1.1

Clip**Mail**pro

Clip**Express**

NAT Limitations

NAT (Network Address Translation) is the process used by the Netopia router to translate a single public IP address (assigned by the ISP), into multiple private IP addresses. The TCP port number is used to perform this translation. Any internet activity initiated on the private side of the router (the PC or ClipMail in our example), will be translated properly by the router. Internet activity initiated on the public side (for example, a login request to an ftp server running on the PC), may get confused with ftp traffic coming in that is intended to go to the ClipMail. The only configurations that could cause a problem are:

◆ Multiple ClipMails residing on the private network, or

◆ A single ClipMail and an FTP server residing on the private network.

This problem is easily solved by changing to a non-default FTP port number on the ClipMail:

1. Go into the Setup Menu, select the Network tab, then click on the FTP Setup button.
2. In the "Ftp Port" field, enter an easy to remember port number (2100 for example). There are several reserved port numbers (listed in any good TCP/IP reference book) that should NOT be used.
3. In Step 18 under "Advanced Configuration", change the TCP Port number field on the Netopia Router (numbers 1-49151) to the port number chosen when entering the ClipMail's private IP address.

Like the dynamically assigned IP address, this number will need to be manually communicated to all remote users wishing to send clips to this ClipMail, and they will need to add this port number to that entry in the address book.

For More Information

For more information on ClipMail products, please contact us via any of the following methods:

> **web:** www.telestream.net
> **e-mail:** information@telestream.net
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