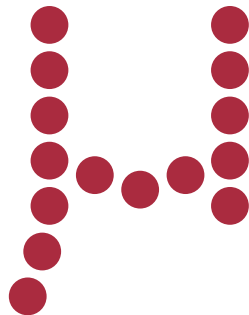


Configuring WAN routers for Internet Access



Getting Access to Internet



The purpose of this application note is to offer users an introduction to the configuration of Internet Access when using 3EMR and 3GAT uSysCom routers.

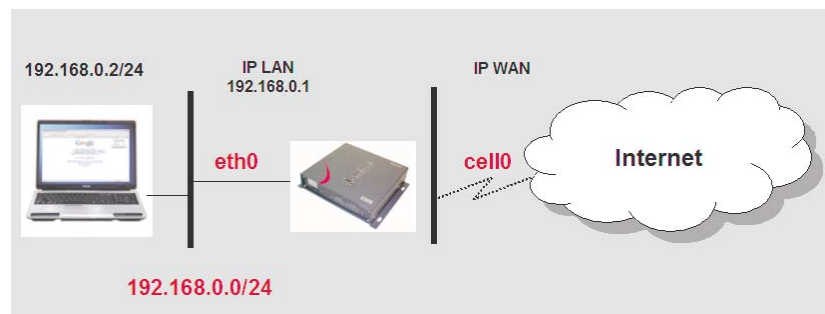
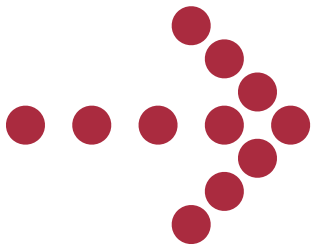
In the following pages, complete explanation step by step about how to configure WAN routers in order to access the Internet will be shown.





W

AN routers manufactured by uSysCom provide easy configurable access to Internet. The picture below shows the configuration example that will be explained in the following sections of this application note.



Before starting, make sure you have all the elements necessary for the configuration of the internet access:

- uSyscom WAN router (3EMR, 3GAT models).
- Personal Computer or Laptop.
- 3G PC Card(PCMCIA) from the corresponding wireless network operator (only for 3EMRU and 3GATU models, supporting UMTS) and SIM card.
- RJ45 Ethernet cable for configuración via web browser (http).
- RS232 serial cable, for configuration through the console.
- Adequate Power Supply Cable or adapter.
- Make sure the SIM card is activated and connection data (APN - Access Point Name, LOGIN and PASSWORD) are correct.

Getting Started

After checking all the previous things, follow these steps:

- . Insert the PC Card and/or SIM card in the router.
- . Connect the ethernet or serial cable from the router to the computer.
- . Connect the router to the power source.

Accessing the router from the computer

The router can be accessed either through an ethernet cable (via web browser) or through a serial cable (via serial port).

Access via web browser

To perform the configuration using the web server embedded within the router it is necessary to know the IP address of the router's ethernet interface. This is the easiest and most intuitive way of configuration, just follow these steps:

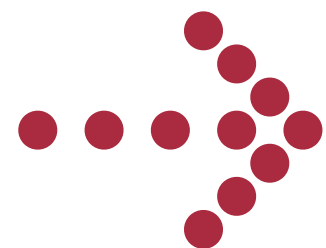
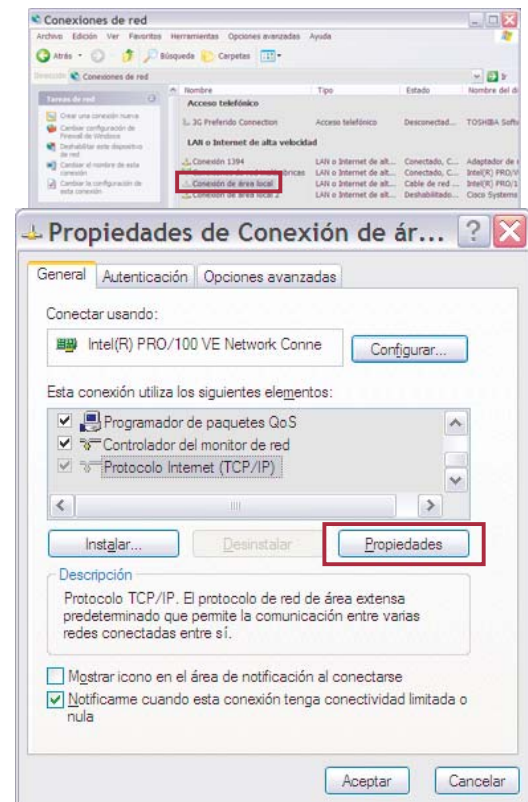
As explained before, the IP address of the router's LAN interface is necessary. There are two possibilities here:

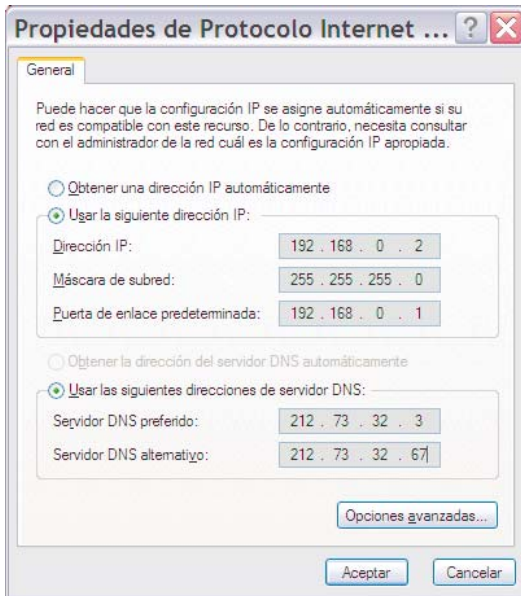
- 1.- If this is the first time someone is accessing the router, then the IP address is 192.168.0.1 (by default)
- 2.- If the router has been previously accessed and the IP address has been changed (we cannot access it with the default IP), the only way to obtain the unknown IP is accessing the router through the serial port.

Remember to always write down changes in logins, passwords, IP addresses,...

Once the IP address of the router is known we have to configure the *Network Properties* of our computer, as both the router and the computer need to belong to the same subnetwork

- Go to **Start/Control Panel/Network Connections**.
- Right-click on the **Local Area Network** icon and then click on **Properties**.
- In the next dialog window select **TCP/IP Protocol** and then click on **Properties**.





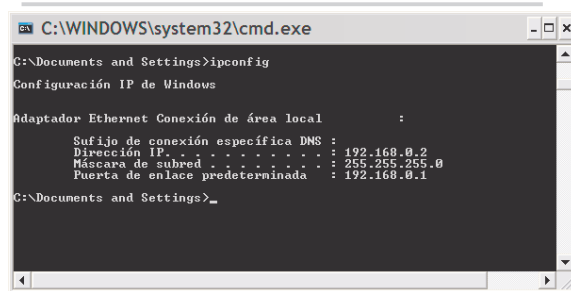
In the next window, the following parameters need to be entered when the router has default IP 192.168.0.1:

- . IP address: **192.168.0.2** (Belonging to the 192.168.0.0 network)
- . Subnet mask: **255.255.255.0**
- . Default gateway: **192.168.0.1**

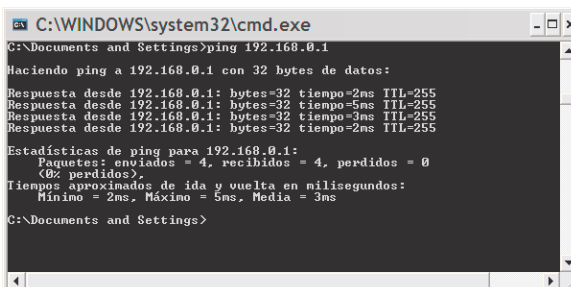
Enter the *DNS addresses* provided by your operator so Domain Names can be resolved properly.

If the IP address and mask of the router are not the default ones, enter an IP address and mask for your PC that belong to the same subnetwork.

The IP address for the Default Gateway must always be the router's IP



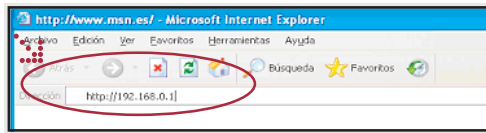
Check that the network has been properly configured and that the changes have been saved, opening an MS-DOS console and checking the network configuration with the **ipconfig** command.



Make sure there is connectivity between the router and the computer. To do so, use the command line and send a ping to the routers IP, if the previous steps have been followed, the router should answer the ping. If this is not the case, check if the ethernet cable is in good condition or redo the previous steps.

From a PC in your local area network open a Web browser (Internet Explorer, Mozilla...) window and type:

http://192.168.0.1

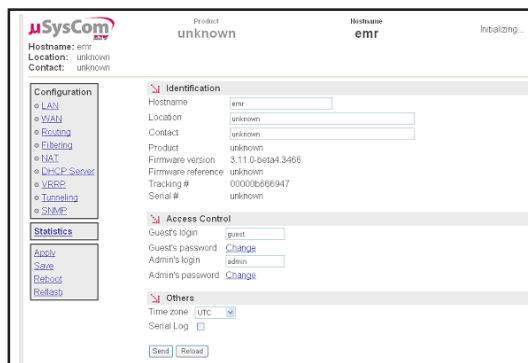


The router will ask login and password for access.

Login: **admin**

Password: **passwd02**

Once you are successfully authenticated the main screen of the router will appear:



Setting the WAN connection

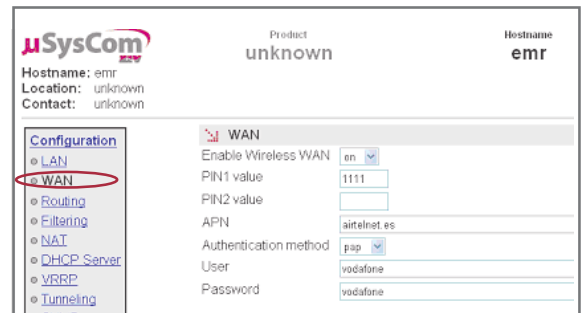
Open the WAN Configuration page, enable the WAN connection and fill the following fields:

- PIN1:** The PIN code of the SIM card. Leave this field in blank if the PIN of the card is disabled. Make sure the PIN is correct, otherwise the PIN card could be blocked (the PUK code would be necessary then).

- APN:** Access Point Name provided by the network operator.

- Login:** Login provided by the network operator.

- Password:** Password provided by the network operator.



Remember to SEND, APPLY and SAVE all the changes required so configuration is available next time the router reboots

Adding Masquerading NAT Rule

An adequate NAT rule for those IP addresses that require an access to Internet, (192.168.0.0/24) is required. The defined rule sets that all packets coming from the (Origin) IP address 192.168.0.0/24 and (Destination) any, should translate their original source IP address to the router cell0 IP address (Translated Origin).





Checking the Connection

To see if the router is correctly connected to GPRS/Edge/UMTS service and it has obtained a suitable IP address, go to **WAN section** in the **Statistics** page.

In the Current Data Session, you will see **Status** as ACTIVE and the field **IP Address will include the IP address provided by the operator**.

If this field is empty, it means the router is not connected to the network, so accessing the Internet will not be possible.

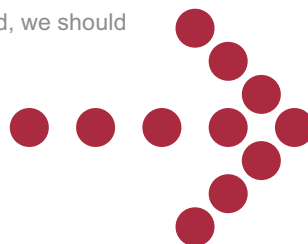
In this case check:

- . That the data of the SIM are correct (PIN, APN...)
- . That there is enough coverage and GPRS/3G service is available in that location.

The screenshot shows the USysCom 3G Router web interface. At the top, it displays 'Product 3G ROUTER' and 'Hostname emr'. Below this, there are fields for 'Hostname: emr', 'Location: unknown', and 'Contact: unknown'. A navigation menu on the left includes 'Configuration', 'Statistics', 'LAN', 'WAN', 'Routing', 'DHCP Server', 'VRRP', and 'Tunneling'. The 'Statistics' section is expanded to show 'General Data' and 'Current Data Session'. The 'General Data' section lists: IMEI (353018000020771), IMSI (21407500022444), PIN Status (READY), Operator (M'YK6), Roaming (H-PLMN), Network (3G), Signal Strength (-99 dBm), Total TX KBytes (0), Total RX KBytes (0), and Number of Session failures (0). The 'Current Data Session' section lists: Status (Active), IP Address (80.29.199.64), Connection Date (Mon Jan 10 15:32:23 UTC 2000), TX Bytes (29761), and RX Bytes (315589).

Surfing the Web

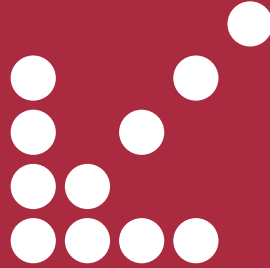
Once the router is properly configured, we should be able to access the internet.



Troubleshooting

If you cannot access Internet, check the following points:

- . Make sure there is a direct connection to the router. You can check this by sending a ping to the router from the computer you want to access the internet from.
- . Make sure the router has obtained a proper WAN IP from the operator. You can see this in the WAN Statistics of the router.
- . Make sure you have access to the Internet by sending a ping to a known host (for example, Google's IP is 64.233.161.104).
- . Check that DNSs of your operator are configured in your PC if you are using static IP address in your PC (if you are using DHCP server inside the router to get a LAN IP address you will obtain DNSs automatically).
- . Check that configuration in your PC is correct.



Spain

Headquarters:

Parque Tecnológico, 210
48170 Zamudio, Vizcaya, España
Tel.: +34 94 403 74 00
Fax: +34 94 403 13 43
<http://www.ziv.es>

Madrid:

Avda. Via Dos Castillas 23, Chalet 16
28224 Pozuelo de Alarcón, Madrid, España
Tel.: +34 91 352 7056
fax: +34 91 352 6304

Barcelona:

Biscaia, 383
08027 Barcelona, España
Tel.: +34 93 349 0700
Fax: +34 93 349 2258

U.S.A. and Canada:

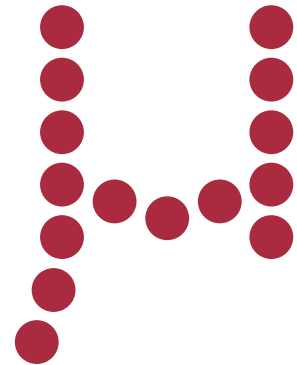
2340 Des Plaines River Road
60018 Des Plaines, Chicago, Illinois
Tel.: +1 847 299 65 80
Fax: +1 847 299 65 81

Brazil:

Rua Dr. Carlos Maximiliano, 18
24120-000 Fonseca, Niteroi, Rio de Janeiro
Tel.: +55 21 27 29 0170
Fax: +55 21 26 20 2398



<http://www.usyscom.com>



uSysCom continually strives to improve the quality and performance of its products and services. Consequently, technical information contained in this document is subject to change without prior notice.

For other locations, please consult uSysCom website in order to locate the best authorized distributor to serve your country.