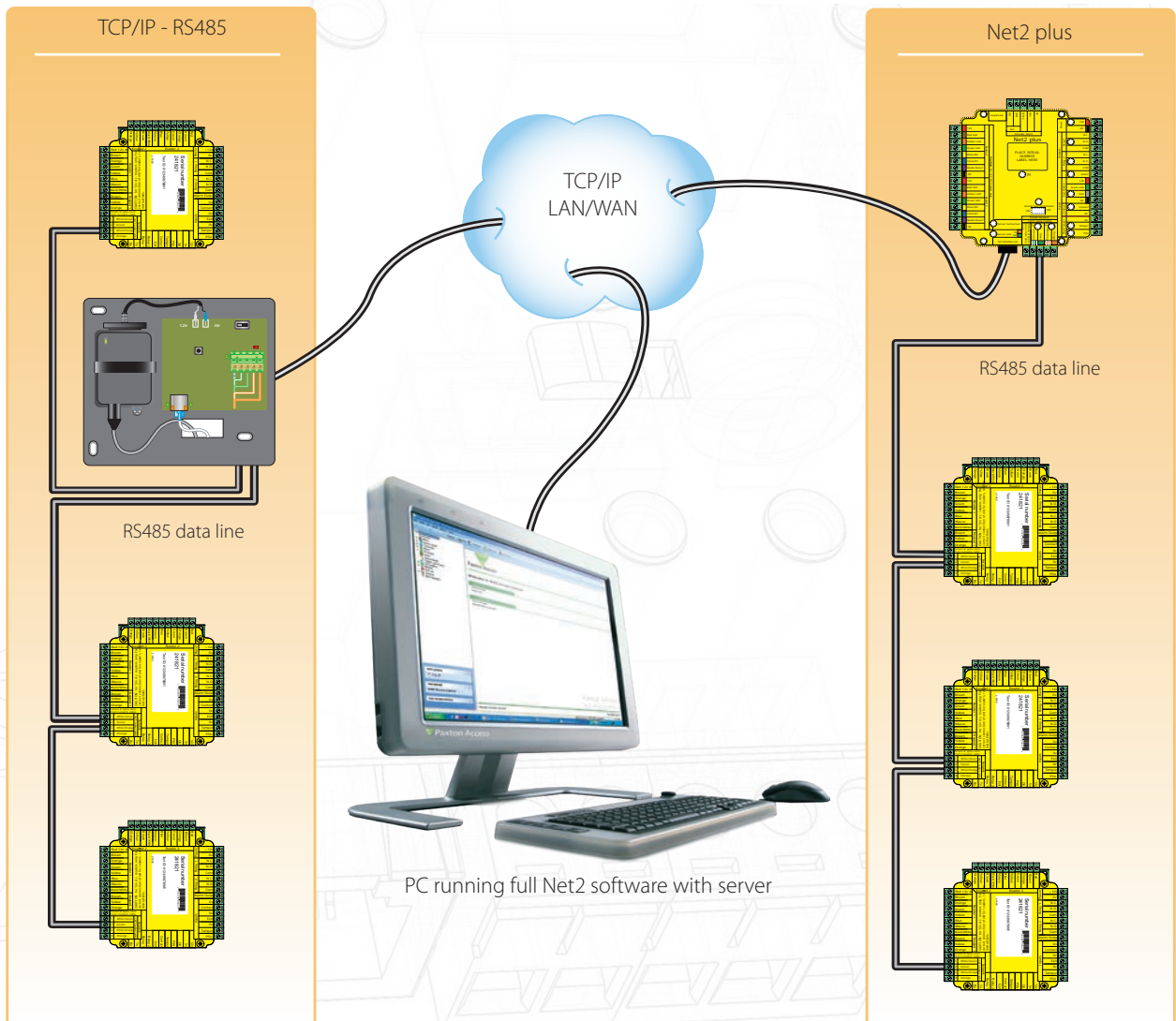
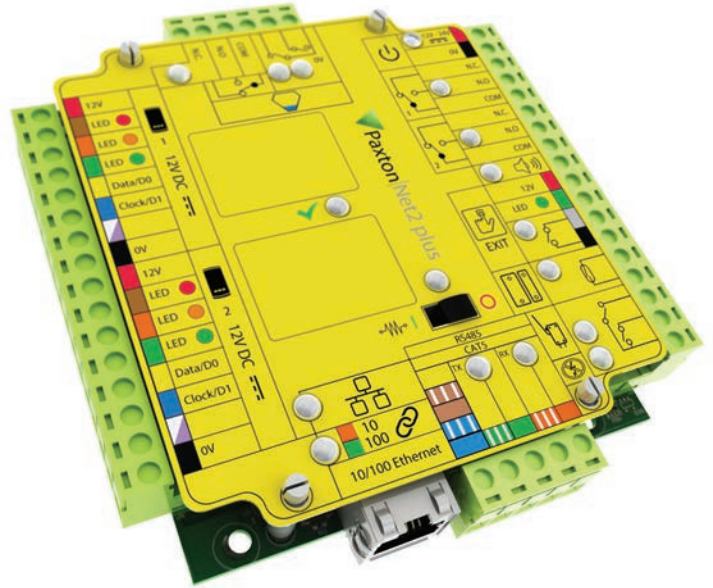


Installing remote sites using TCP/IP

Connecting Net2 via TCP/IP networks

Net2 supports the connection of control units to the Net2 server over RS485 data lines and also via nodes on TCP/IP Ethernet networks. This greatly increases the flexibility of installation options.

The diagram shows a Net2 system communicating over a LAN network using both a TCP/IP - RS485 converter and also a Net2 plus ACU that combines a converter with a door controller. This requires v4.14 software or later.



What hardware do I need?

The Net2 server PC can communicate with its' door controllers over the users network via a LAN, WAN or VPN connection.

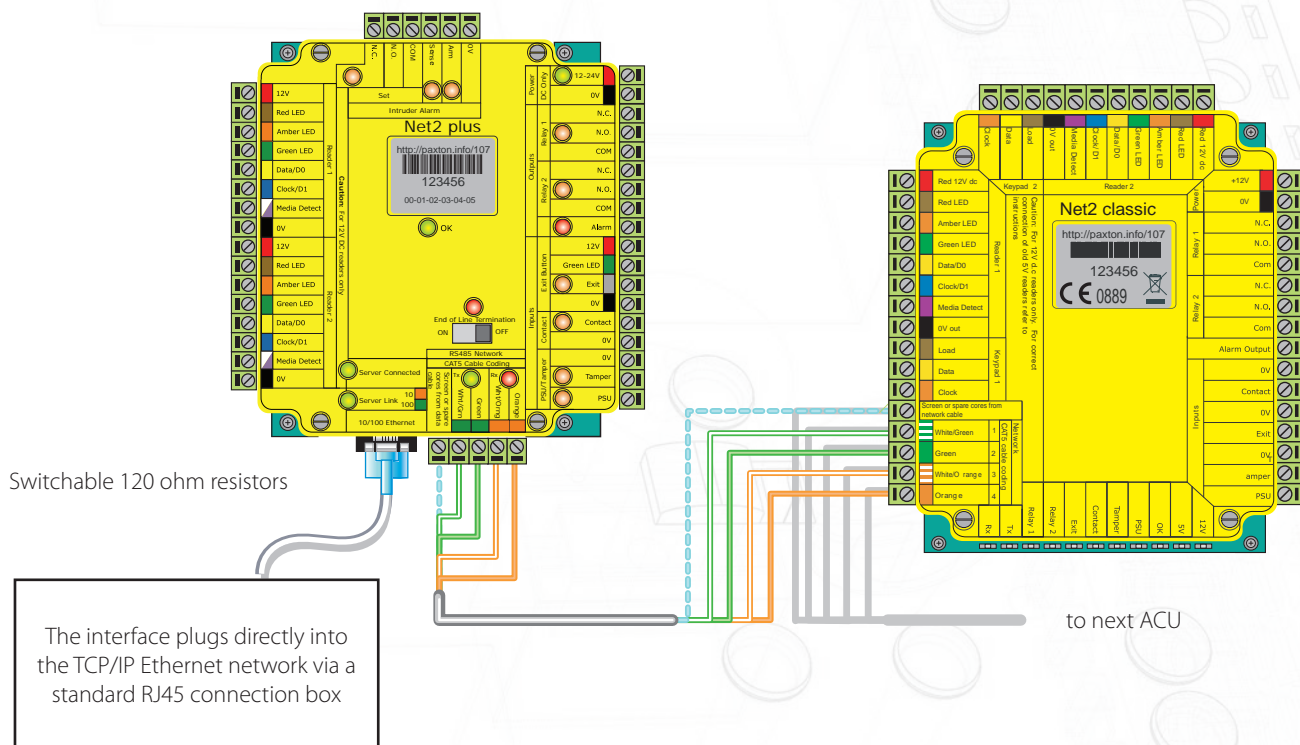
The Net2 485 TCP/IP Ethernet Interface is a complete unit with power supply that converts TCP/IP data into RS485 allowing for the connection of a Net2 data line to a network.

The Net2 plus control unit plugs directly into a standard TCP/IP network connection. It can run as a standalone controller and also drive an RS485 data line of other Net2 units.

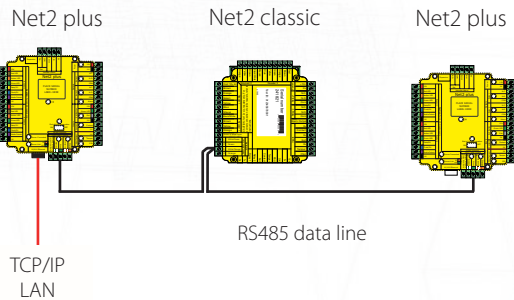
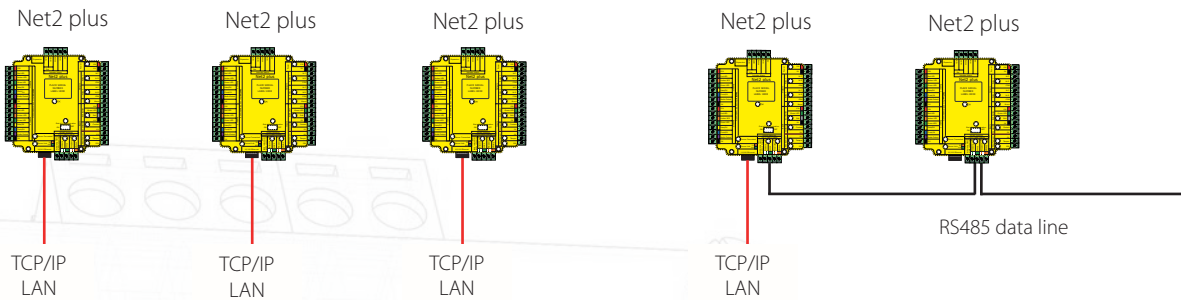
Up to 200 control units can be connected to the RS485 data line. This data line must be terminated with 120 ohm resistors switched or wired across both data pairs at each end.

The interface unit may be located at any position along the RS485 data line.

Net2 plus control unit



Site layout



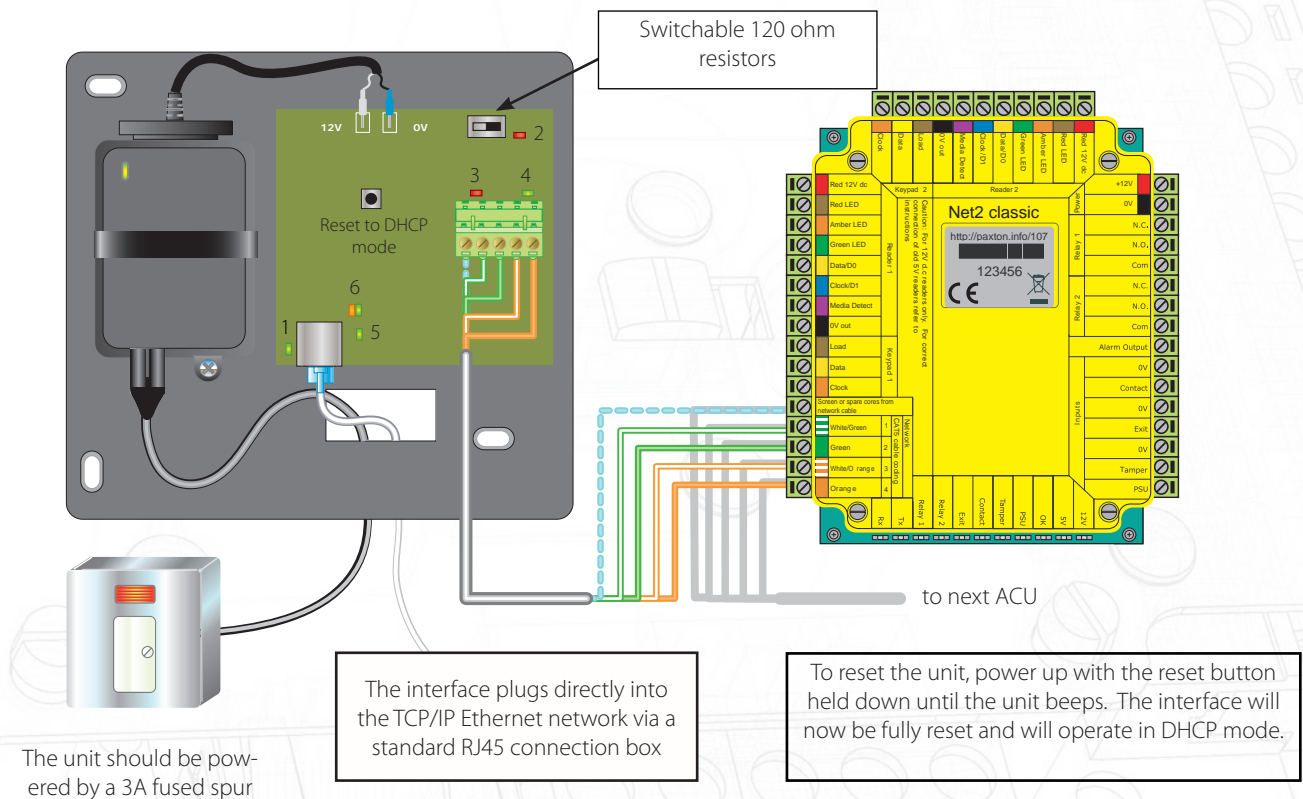
There are three basic site layouts.

1 - The Net2 plus ACU's can be individually connected to the Net2 PC via the site LAN network.

2 - The Net2 plus ACU's can be hardwired on a daisy chain RS485 data line with ONE of them connected to the Net2 PC via the site LAN network.

3 - The Net2 plus ACU can be used as the TCP/IP converter for a line of Net2 plus and Net2 classic ACU's.

Net2 485 TCP/IP Ethernet interface - Rev4 (Paxton)



LED indications

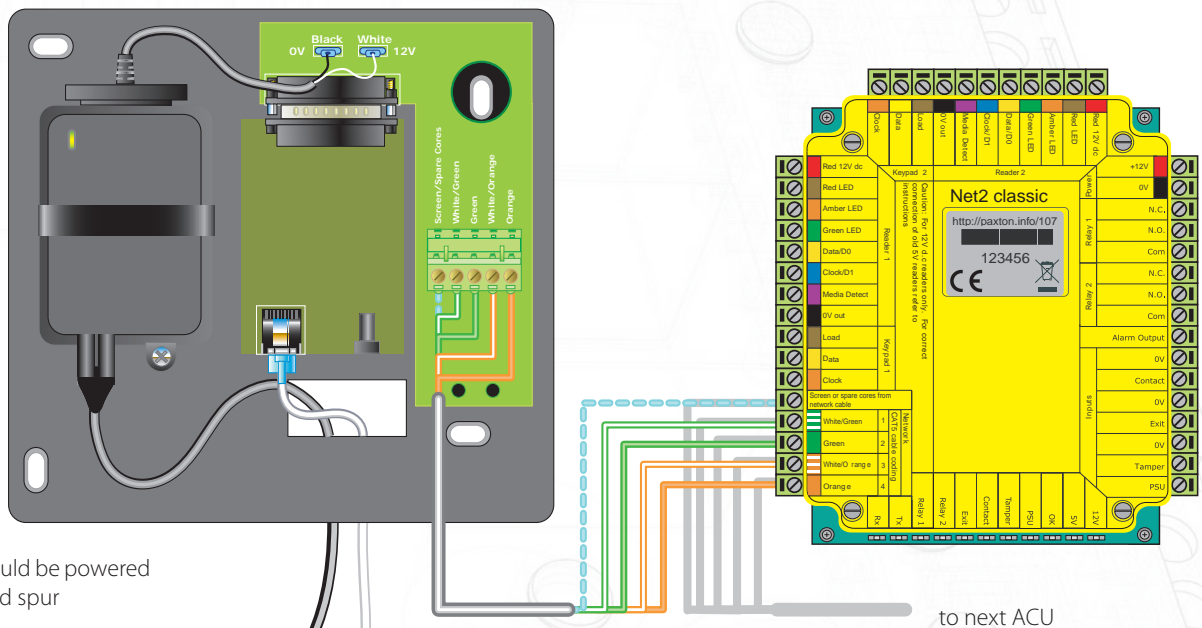
1. Power (Green) - 12V power LED.
2. Termination (Red) - The on-board resistors are in place across the RS485 data pairs.
3. Rx (Red) - The interface is receiving data (RS485).
4. Tx (Green) - The interface is sending data (RS485).
5. Server Connected (Green) - The TCP/IP interface is communicating with the PC Net2 server.
6. Server Link Green = 100 Mbit/s : Orange = 10 Mbit/s (TCP/IP speed).

****IMPORTANT****

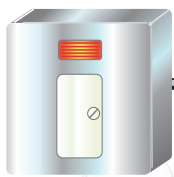
Do NOT apply power before connecting the RJ45 plug to a network point.
to a network point.

This device requires Net2 v4.07 or later to operate. Earlier Net2 software is not compatible with this unit. If your PC can only support Net2 v3 software, please contact Technical Support for further advice.

The Net2 TCP/IP Ethernet interface (Serial Number 693000 and above)



The unit should be powered by a 3A fused spur



The interface plugs directly into the TCP/IP Ethernet network via a standard RJ45 connection box

****IMPORTANT****

Do NOT apply power before connecting the RJ45 plug to a network point.

The data line must loop in and out of each controller using the same coloured cores for each unit. CAT5 colour codes are shown on the controller's wiring label. The controllers must be installed in one continuous daisy chain.

Termination resistors (120 ohm) must be linked across both data pairs at the beginning AND end of the data line. This can be done on many units with a switch or jumpers. If not, free resistors are provided with the data converter. If the converter is located at a point along the data line, termination will only be required in the two ACU's at each end of the line.

From 1st July 2007, this high speed interface was supplied as the standard unit. Some installations had experienced problems when Net2 was combined with a 100 Mbit/s networks running high levels of broadcast network traffic. This unit supports data transfer of 100 Mbit/s using Full Duplex protocol.

For earlier designs, see the following:

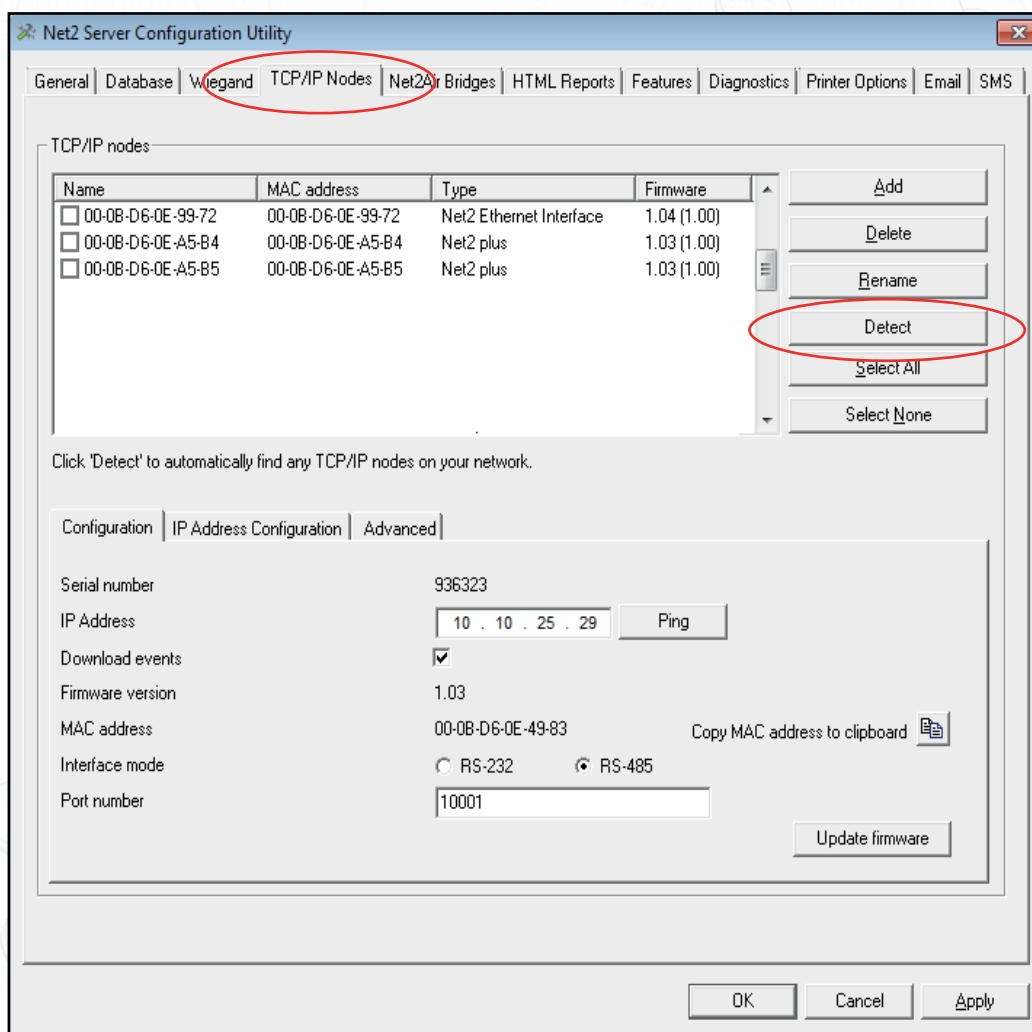
Instruction: [Ins-30032 - Paxton Net2 Ethernet Interface](http://paxton.info/819). < <http://paxton.info/819> >

Instruction: [Ins-30029 - Net2 485 TCP/IP Lantronix UDS10B Ethernet Interface](http://paxton.info/820). < <http://paxton.info/820> >

Software configuration

The TCP/IP Ethernet interface is configured using the Net2 Server Configuration Utility, by selecting the TCP/IP nodes tab. Depending on the specific details of the Ethernet network, you may be able to detect the Ethernet interface, simply by clicking Detect. If this doesn't find it, then you will have to Click 'Add' and enter the IP Address manually.

The unit supports DHCP, which means that a DHCP server can issue its IP address. Alternatively, the IP address can be manually entered. **The recommended method of obtaining an IP address is by DHCP. A reservation should be**



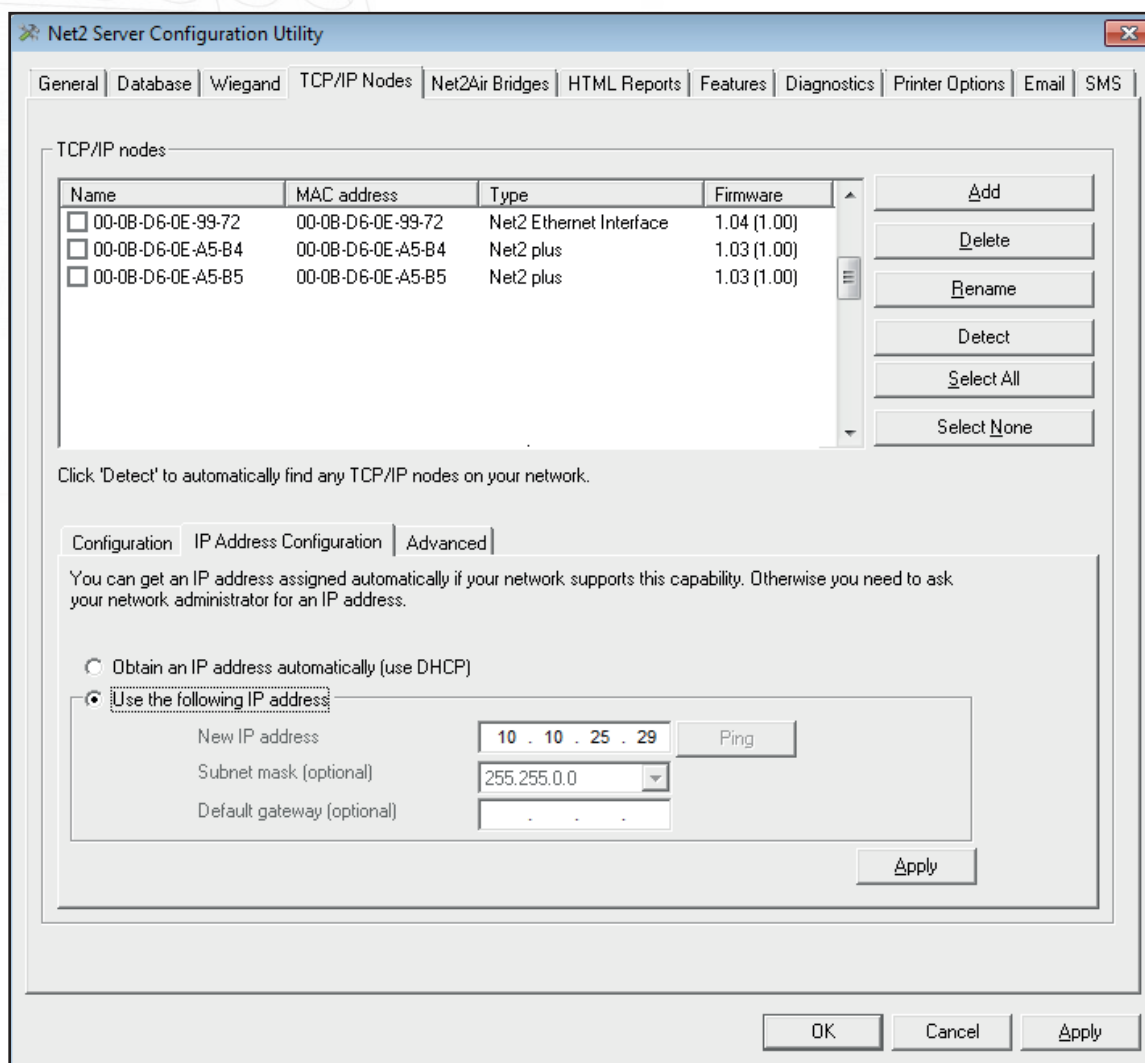
made in the DHCP server, to ensure that the same IP address is issued each time, should the unit be reset. Consult your network administrator on detail of how to reserve IP addresses. The unit's MAC address can be read from inside the plastic enclosure, and will be required by the Network administrator to enter the reservation.

The list box, at the top of the TCP/IP nodes tab, will list all of the units that have either been found or manually entered. There is a check box next to each entry, which allows each unit to be enabled or disabled.

You can test that the units are responding, by selecting them and clicking the Ping button.

How do I give the device an IP address?

If the Ethernet network does not have a DHCP server, then the IP address must be set manually, using the Net2 Server Configuration Utility. Select the IP address configuration tab. The network administrator should be able to advise you on suitable values to use. Check the 'Use the following IP address' button and enter the chosen address in the box. This will fix the IP address of the interface.



Naming TCP/IP Ethernet interfaces

The rename button can be used to give an interface a meaningful name in the system. This can be especially useful when more than one interface is used, as the name will appear in the doors screen within Net2 showing which ACU's are connected to which data line, helping in any future fault finding process.

Advanced tab of config utility

Network latency can be amended for sites with slow or busy TCP/IP networks. The advanced options should only be changed following advice from Paxton Technical Support

VLAN recommended

On sites with high levels of broadcast traffic (CCTV, etc) this option is highly recommended and should be implemented wherever possible. VLAN's allow administrators to set up their networks by logically grouping devices. IP addresses, subnet masks, and local network protocols require fewer local server resources in this environment. Services can be more effectively deployed when they span buildings within a single VLAN. See also: [AN1085 - Recommendations for using Net2 with LAN and WAN networks.](#) < <http://paxton.info/970> >

Connection over a Wide-Area Network (WAN)

If you are connecting the interface to a WAN or to a network with a different subnet, you must first fix the remote IP address, subnet mask and return gateway in the unit before taking it to the remote site.

The PC that has the Net2 server installed must be able to access the IP address range on the WAN\remote site. This may require the routers and gateways to be configured between the networks. Again, this would be done by the ITNetwork administrator of that site.

Once installed, use the Add button to create a record in the nodes table (if none was created during initial set-up) and you should then be able to detect its MAC by entering the IP address in the Configuration screen Ping box.

Connecting to the PC directly

The Net2 plus unit can be connected to the PC via a standard network patch cable.

If you need to connect your PC/Laptop directly to a TCP/IP Ethernet Interface, you must use a crossover cable instead of a standard network patch lead.

Troubleshooting

If you detect the MAC address but the device now shows 'Not Responding', check the IP address to make sure it is still in range with the PC or network. If it is not, you should either change the PC's IP address or the Ethernet interface's IP address so they are both again in the same range. Our Technical team can talk you through this if you need help.

If the MAC address does not appear when you click 'Detect' then you will need to check that the following ports are open:-

9999	TCP
10001	TCP
30718	UDP

If you still cannot detect the MAC address of the Ethernet interface then connect it directly to your PC via a crossover cable and call our Technical Help line.