



# help desk

## Gateway missing – Reward offered! Part 2 | By Wayne Howell



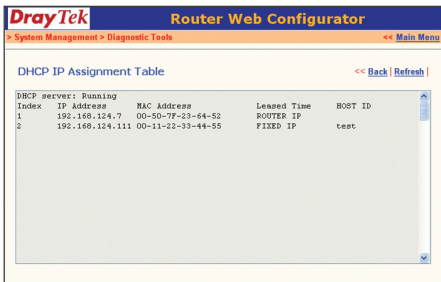
In the February edition of this column I looked at a number of ways to locate a lost gateway. The question really means: 'how do I find the IP address of a network device that has become lost?' The theme was using your laptop as a test-tool with DMX-Workshop or the 'ping' utility. This month, I look at a number of other ways to locate the IP of a device lost on your network . . .

### DHCP

DHCP stands for Dynamic Host Configuration Protocol. The IP address of network devices can be set in two ways. The first is 'static' where you decide the number and type it into the device's control interface. The second is 'dynamic' and in this scenario IP addresses are allocated automatically by the network. The DHCP protocol is used to do this, and somewhere on your network there will be a DHCP server which is responsible for allocating unique IP addresses to each device.

The DHCP server can exist in a number of different places. It may be inside a router, on a server, or indeed inside the lighting desk.

DHCP servers contain useful diagnostic information such as a list of all the IP addresses that have been allocated. These diagnostics allow you to quickly find the list of all IP addresses. You can then browse to each address to locate the lost device.



### RESET

Many gateways and network infrastructure products will output specialist information at power on or reset to the limited broadcast address. This can be a great help in locating the device. Limited broadcast is a special broadcast address of 255.255.255.255. The laptop's network interface will receive packets on the limited broadcast address irrelevant of its IP address. This means that programmes such as DMX-Workshop or Wireshark will 'see' these power on packets.

The limited broadcast address is so called because network routers (and some switches) will limit the propagation of the packet (that is - delete it). For this reason, it is best to plug your lost gateway or device directly into the laptop.

### NETBIOS

NetBIOS is an acronym for Network Basic Input Output System. Sadly, it is not supported by Apple, so only Windows browsers can use it. Network devices have both an IP address and a NetBIOS name. Either can be typed into your browser window to communicate with the device.

For example, the NetBIOS name for the Eaton N8 gateway is: 'EN8RDM'. To find the IP address you would connect

the gateway directly to your laptop and then type 'EN8RDM' into the top box.

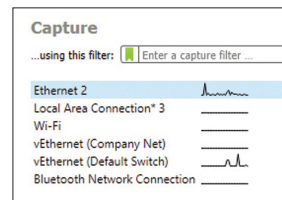
Note: NetBIOS names are case sensitive.

### WIRESHARK

Wireshark is a free network analysis tool that is available for multiple platforms and can be downloaded from wireshark.org.

The software is very sophisticated but can be used in a very simplistic manner to locate device IP addresses.

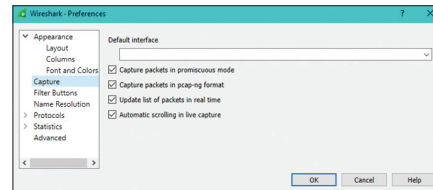
When the programme loads, it identifies the available network interfaces and asks you to select the one you want to monitor (as shown in the image below).



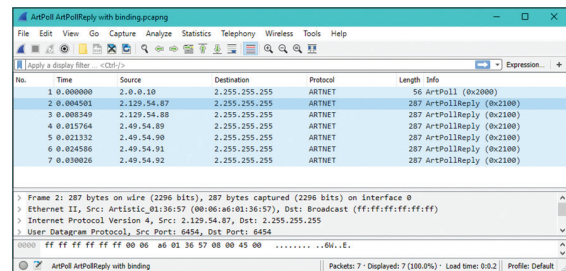
If you are not sure which you need, there is a small activity graph on the right of the display. Select any of the network interfaces that show some activity.

Wireshark is able to capture network packets

in Promiscuous Mode. This means that it will capture all packets, irrelevant of the IP address. Since you are searching for an unknown IP address, this is very important. To select Promiscuous Mode, go to the Edit - Preferences menu and select the Capture tab.



The programme will now display a scrolling display of captured packets. Much of the display may mean absolutely nothing to you - but don't worry. It is just the Source and Destination columns that interest you.



In the example above, you can see that there is Art-Net communication on a number of IP addresses. Try browsing to each one in turn to locate the lost device.

For those wishing to read more about networks, Art-Net and sACN, take a look at my books *Rock Solid Ethernet* and *Light Bytes* which are available from the Artistic Licence web site.

The PLASA 'Lighting Protocols Plugfest' (25-27 April 2018) also provides a great opportunity to learn more on this subject. ☒

[www.plasa.org/plugfest18](http://www.plasa.org/plugfest18)

Wayne Howell is the CEO of Artistic Licence, the lighting controls company that he founded in 1988. Wayne invented Art-Net and is actively involved in the ESTA technical standards programme.