

In response to growing customer demand to reduce the complexity involved with setting up and configuring our products to communicate over TCP/IP networks, we have begun integrating Zero Configuration Networking into the Gryphon product family.

Zeroconf (also known as Rendezvous) is an emerging set of protocols designed to bring the ease of use found in other networking protocols such as AppleTalk and NetBEUI to TCP/IP -- without disrupting existing networks. This involves three main objectives:

Address Auto-configuration

In order to successfully communicate on a network, each host must have a unique address. While DHCP does provide a means for automatic addressing, there are times when a server may not be available or even desired. Zeroconf avoids the pitfalls of DHCP by allowing hosts to assign their own addresses as needed.

To obtain a unique address, a Zeroconf enabled device broadcasts a request within the link-local address range (169.254/16) to determine if a particular address is in use. If so, it will try a different address. The process is repeated until an unused address is found. Windows 98 and later already support this method of self-assigned link-local addressing and will do so in the absence of a DHCP server.

Name Resolution (mDNS)

To allow name-to-address resolution without a centralized DNS server, Zeroconf uses a multicast DNS approach. Requests are sent to a well known multicast IP address. Each host on the network listens for these requests and responds if it is configured with the requested name.

Service Discovery (DNS-SD)

Also based on multicast DNS, service discovery provides a method for applications to browse the network for services. For example, on startup an FTP client could broadcast a request for the FTP service type and then any available servers would respond back.

System Administration Zeroconf Section

The “Zeroconf Name & Device Locator” section has been added to the system administration web page to provide a location for assigning the device a name if desired. Doing so is not required however.

If no name has been assigned, a default name will be used instead. The default name is composed of the device type followed by the last three bytes of the Ethernet MAC address. For example, a Gryphon with the MAC address 00:90:5A:01:01:1A would therefore be named GRYPHON-01:01:1A.

If any other Zeroconf aware Gryphons are present on the network, they will be listed in a table at the bottom of this section.

Device identification

In situations where it may be difficult to distinguish one of several similarly named Gryphons on a network, it is now possible to have the device identify itself. In the Zeroconf section of the System Administration page, click on the Identify button to toggle identification on and off. While enabled, the Gryphon will use one or more of the following methods to identify itself:

- Display a banner on the LCD display. (Gryphon)
- Emit a beeping sound. (Gryphon, S-CAT)
- Blink the status LED rapidly. (S-CAT2)

DHCP Client Operation

The behavior of the 10/100 BaseT automatic configuration (DHCP) option has been adapted to support Zeroconf self addressing. Upon startup, the Gryphon will first attempt to obtain an IP address from a DHCP server. If successful, no further action is taken. Otherwise the Gryphon will assign itself an unused address within the standard link local address range.

Useful Zeroconf Links:

<http://www.zeroconf.org/>

<http://www.multicastdns.org/>

<http://www.dns-sd.org/>

<http://developer.apple.com/macosx/rendezvous/>

<http://www.porchdogsoft.com/products/howl/>

<http://en.wikipedia.org/wiki/Zeroconf>

http://www.linux-mag.com/2003-08/zeroconf_01.html