

Fusion Embedded™ DNS

The Internet uses IP addresses to locate and communicate with host computers. Every computer has its own unique IP address. For example, www.yourhost.com might be 198.105.232.6. It would be impossible for a person to remember all the IP address numbers and correlate them to their respective host. In fact, it would be impractical to maintain a centrally located list of host names and addresses.

To overcome this problem the Internet maintains a hierarchical network of domain name servers which share and store this cross-reference information. However, an intelligent networked device or its user must have a method of accessing these domain name servers. Unicoi Systems provides an easy solution. Fusion Embedded DNS is comprised of a library of easy-to-use routines that a client application can call to perform the domain name to IP address translation function.

With only a few simple programmatic calls, it is easy to define a list of domain name servers, build a query to interrogate the servers, issue server requests and process the responses. This enables a device or the device operator to have desktop-like network capability in an embedded product.

In addition to find-host-by-name functions, Fusion Embedded DNS includes a number of useful utility routines that facilitate the integration of DNS server responses with the client application. These routines make the product development engineer's job much easier by providing out-of-the-box services such as conversion between network format addresses and base 256 d.d.d.d representation, ASCII hexadecimal to binary conversion, domain name compression and expansion and query construction.

To facilitate your product development, Fusion DNS includes debug and test routines to verify the proper operation of your client application.

DNS Features

- Custom built code, optimized for embedded systems
- Completely portable (processor and compiler independent)
- Requires no operating system interfaces
- Completely ROMable
- Gets host by name
- Gets host by address
- Provides functions to add and remove DNS server names
- Includes utility functions to facilitate the use of DNS-server responses
- Performs domain name compression and expansion
- DSP and microprocessor support
- Built-in debug diagnostics

RFC Compliance

- RFC 1034
- RFC 1035
- RFC 1535

Fusion Embedded Protocols

Networking				
POP3	PPP	IPv6	SMTP	RTP
SDP	PPPoE	IPv4	SNMP	RTCP
IGMP	NAT	FTP	DHCP	TFTP
CIFS	SIP	RTSP	RIP	SNTP
Telnet	STUN	DNS		

API Function Overview

All it takes to implement DNS capability into your product are these simple API calls:

`gethostbyname()`

looks up a host IP address based on name

For example, when passed “www.netsilicon.com” it returns “199.93.124.75”

`gethostbyaddr()`

looks up a host name based on IP address

For example, when passed “199.93.124.75” it returns “www.netsilicon.com”

`dns_rslv_add_name_server()`

adds a DNS server name to the list of available servers

`dns_rslv_set_name_servers()`

creates a list of name servers to be used for address resolution

`dns_rslv_delete_name_server()`

removes a DNS server name from the list of available servers.

`dns_rslv_set_name_server()`

establishes a list of DNS servers that will be queried when a DNS request is made

`dns_rslv_get_name_server()`

retrieves a list of DNS servers that will be queried

Fusion Embedded™ Fully Integrated Protocols

Voice & Video Protocols

RTP	SRTP	SIP
SIPS	STUN	

Networking Protocols

TCP/IPv4/IPv6	FTP
DHCP	HTTP
NAT	DNS Resolver
RIP	Telnet Server
PPP	PPPoE
SNTP	SNMP

Security Protocols

HTTPS	IPsec	SSL/TLS
IKE	SIPS	SRTP