

Fusion Embedded™ NAT

Every device connected to a TCP/IP network requires a unique IP address to identify it from other devices on the network. With the continual growth of the Internet using IPv4, soon all IP addresses will be exhausted. Fusion provides a solution in the form of Network Address Translation and routing, known as NAT.

Fusion Embedded NAT router connects multiple devices on a private network through a single router to a public network where only a limited number of IP addresses are available. It modifies the IP layer header's source address and selected fields in upper layer protocol, so that the private internal IP address is replaced with a single assigned public IP address which can safely traverse the Internet.

Fusion Embedded NAT is compatible with the most popular Internet protocols, such as HTTP, FTP, Telnet, PING, DNS, etc. There is no loss of functionality, which means you can have an office full of computers on the Internet, and only use one, or a few, public IP addresses. Fusion Embedded NAT is the perfect solution for SOHO and enterprise network routers and firewalls. With the Fusion Embedded NAT router you can assign one "Real" IP address and up to 64,000 IP clients can share this address simultaneously to access the Internet.

API Function Overview

Fusion Embedded NAT uses four simple API calls:

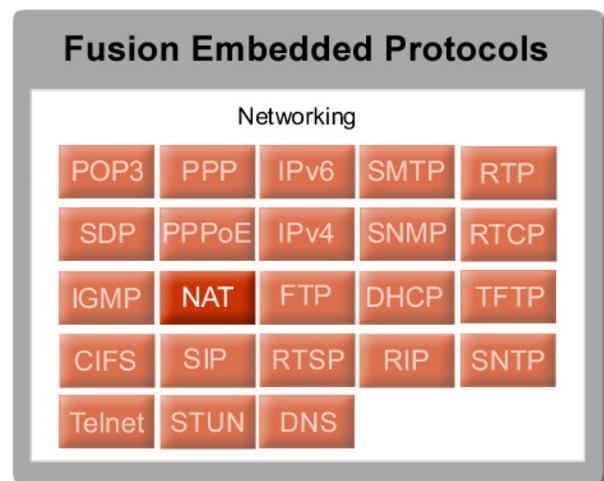
fnsNatAddRoute()
adds a NAT route from a private network to a public network. Fusion Embedded NAT will translate the IP source address in datagrams originated on the private network to the public address. For the first datagram of a protocol conversation, NAT will create a record of the conversation, then incoming datagrams for that connection will be converted to the appropriate address.

fnsNatDelRoute()
removes a NAT route that was added with `fns_nat_add_route()` and removes all associated records of the protocol conversation.

fnsPatAddService()
adds a route to a server on the private network. Normally, clients on the public network cannot reach servers on the private side of a NAT route. PAT enables this communication path.

fnsPatDelService()
removes a NAT route from a server on the private network and deletes the PAT route previously created with `fnsPatAddService()`.

To facilitate your product development and testing Fusion Embedded NAT implements NAT_TRACE and NAT_TRACE_EXTRA definitions which provide detailed information for all private, public and peer protocol conversions that exist on a NAT router.



NAT Features

- ICMP, TCP, UDP routing includes PING, Telnet, FTP,
- HTTP, DNS and other Internet protocols
- Special pseudo-port ranges for TCP and UDP from the public network's perspective
- Connection aging, TCP open and TCP closed, UDP and ICMP
- Number of simultaneous connections is limited only by the available memory
- Outbound FTP PORT command translation
- Port Address Translation allows specific services on a private network to be accessed from the public network
- Custom built code, optimized for embedded systems
- Completely portable (OS/processor/ compiler independent)
- Completely ROMable with reentrant code
- Mature code deployed in a wide range of applications and backed by many years of embedded networking experience