

# NexGenNAT

## Embedded Network Address Translation

- Fully written in ANSI C
- Highly optimized (8-10 KB)
- Reentrant & Romable
- Small critical section
- RTOS open interface
- Easy to plug a firewall
- Fast and reliable
- Polling or RTOS mode
- No CPU/OS dependencies
- No compiler dependencies
- Fully tested
- Source code, royalty-free

### Optional protocols:

- HTTP client & server
- SNMP v1/v2/v3
- Dual TCP/IP v4/v6
- POP3/SMTP/IMAP4
- PPPv6
- DHCP server (v4)
- FTP client & server
- SSL
- RTP/RTSP

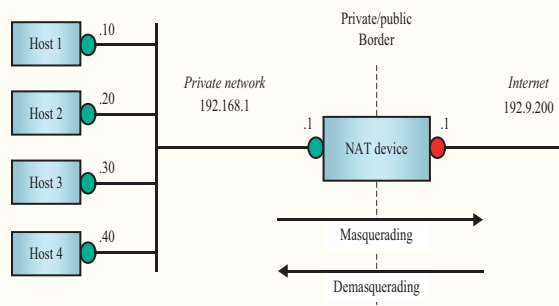
### BUILT FROM THE GROUND UP

NexGenNAT was designed from the ground up to satisfy both embedded constraints and OEM specificities. It is compact, highly portable and can be easily extended to add new services. NexGenNAT is specifically designed to work with NexGenIP.

### ARCHITECTURE

It is a fact that the Internet's transport protocol IPv4 does not provide enough unique addresses for all the new hosts on the internet. A solution is to convert private internal addresses to official addresses when crossing the border to the internet. This works because the number of hosts that communicate over the internet at a given time is considerably lower than the total number of hosts "potentially" connected. This idea greatly helps to save address space, because only hosts currently communicating will dynamically use an official address assigned by a NAT-router.

NexGen provides what is often referred as "IP masquerading", also known as Network Address Port Translation (NAPT), in conjunction of a Basic NAT. NAPT allows "n to 1" NAT translation, meaning that a single IP address, valid across the Internet, can be used by several hosts behind NAT on some private network. However Basic NAT may be used if a pool of valid external IP addresses is available (not just one), allowing some form of "n to m" NAT. NexGenNAT does not support features like network translation (changing network part and preserving host part of IP addresses) which implies another kind of "n to m" NAT. NexGenNAT also falls into the category of unidirectional NAT, which only allows private network to initiate connection to the Internet. To allow incoming connection from external network, one should use some other bi-directional NAT services.



### PORTABILITY

NexGenNAT can be used either in polling or RTOS mode. All dependencies have been isolated in a porting layer called NexGenOS. By using a such architecture the stack is totally portable in few days. NexGenOS includes a wrapper of the most popular RTOS including Nucleus, pSOS, VxWorks, Linux, DOS, Win32k, OS20/21, EmBOS, OSE, Neutrino, QNX4, RTC, RTKernel, RTXC, µC/OS, and virtually any others RTOS. There are also numerous Ethernet drivers included.

### SUPPORTED PROCESSORS & RTOS

Most of the 16-32 -64 bit processors are supported. x86, SH-series, ARM, 68K, Coldfire, ARC, M16/32C, C166, StrongARM, MIPS, ST20, ST40, DSP, PowerPC, 320C5416. A new port takes a couple of days to develop.

### TECHNICAL SUPPORT

6 months free of charge. Extended annual support available. Specific development or porting are possible. Please call us.

### LICENSING

Source code, per-projet, royalty-free

### SUPPORTED RFCs

- RFC 1631 [Egevang 1994]
- RFC 2663 [Srisurech, Holdrege 1999]
- RFC 1597 [Rekhter, de Groot 1994]
- NAT IETF working group (Transport Area)

**StacLan**  
Embedded IP Protocols

46 Avenue des Frères Lumière  
78190 TRAPPES - FR  
tel: +33 (0)1 3013 2085  
fax: +33 (0)1 3013 1727  
<http://www.staclan.com>