



## Snabb

Snabb (formerly “Snabb Switch”) is a simple and fast packet networking toolkit.

We are also a grassroots community of programmers and network engineers who help each other to build and deploy new network elements. We care about practical applications and finding simpler ways to do things.

The Snabb community are active in applying modern programming techniques, do-it-yourself operator networking, high-level device drivers, fast userspace virtio networking, universal SIMD protocol offloads, and applying compiler technology to networking.

You are welcome to join our community! Scroll down to the bottom for tips on how you can get involved.

## Documentation

- [API Reference](#)
- [Contributor Hints](#)

## How does it work?

Snabb is written using these main techniques:

- Lua, a high-level programming language that is easy to learn.
- LuaJIT, a just-in-time compiler that is competitive with C.
- Ethernet I/O with no kernel overhead (“kernel bypass” mode).

Snabb compiles into a stand-alone executable called `snabb`. This single binary includes multiple applications and runs on any modern Linux/x86-64 distribution. (You could think of it as a busybox for networking.)

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## How is it being used?

The first generation of Snabb applications include:

### **snabbnfv**

Snabb NFV makes QEMU/KVM networking performance practical for applications that require high packet rates, such as ISP core routers. This is intended for people who want to process up to 100 Gbps or 50 Mpps of Virtio-net network traffic per server. We originally developed Snabb NFV to support Deutsche Telekom's TeraStream network.

You can deploy Snabb NFV stand-alone with QEMU or you can integrate it with a cloud computing platform such as OpenStack.

### **lwAFTR**

Snabb lwAFTR is the internet-facing component of "lightweight 4-over-6" (lw4o6), an IPv6 transition technology. An ISP can use lwAFTR functions to provide its users with access to the IPv4 internet while maintaining a simple IPv6-only internal network. An ISP deploying Snabb lwAFTR can also configure lw4o6 to share IPv4 addresses between multiple different customers, ameliorating the IPv4 address space exhaustion problem and lowering costs. See the lwAFTR documentation for more details.

### **VPWS**

VPWS (Virtual Private Wire Service) is a Layer-2 VPN application being developed by Alexander Gall at SWITCH. His Github [vpn](#) branch is the master line of development.

### **packetblaster**

packetblaster generates load by replaying a pcap format trace file or synthesizing customizable packets onto any number of Intel 82599 10-Gigabit network interfaces. This is very efficient: only a small % of one core per CPU is required even for hundreds of Gbps of traffic. Because so little CPU resources are required you can run packetblaster on a small server or even directly on a Device Under Test.

### **snsh**

snsh (Snabb Shell) is a tool for interactively experimenting with Snabb. It provides direct access to all APIs using a Lua shell. You can operate snsh either from script files or from an interactive shell.

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## How do I get started?

Setting up a Snabb development environment takes around one minute:

```
1 $ git clone https://github.com/SnabbCo/snabb
2 $ cd snabb
3 $ make -j
4 $ sudo src/snabb --help
```

The `snabb` binary is stand-alone, includes all of the applications, and can be copied between machines.

For example, to install on the local machine and use as a load generator:

```
1 $ cp src/snabb /usr/local/bin/
2 $ sudo snabb packetblaster replay capture.pcap 01:00.0
```

### snabb container

Basic support for building and running snabb in a Docker container is available via

```
1 $ make docker
```

This will build a tiny snabb container (8MB), ready to be used:

```
1 $ docker run -ti --rm snabb --help
```

Or simply run snabb, as you would under linux. This is made possible by using a wrapper shell script that gets linked to as part of ‘make docker’:

```
1 $ src/snabb --help
```

## How do I get involved?

Here are the ways you can get involved:

- Use the Snabb applications in your network.
- Create your very own application: Getting Started.
- Create Github Issues with your ideas and questions and problems.
- Join the Snabb Slack chat to hang out and shoot the breeze.