OPNsense

OPNsense® Rack Security Appliance
DEC4000 Series
Datacenter Edition

27Gbps FIREWALL **2.5**Gbps IPsec VPN **1000**GB Storage **64**GB DDR4 RAM **DUAL** POWER SUPPLY

AMD EPYC™ Performance.

Rack mountable appliance, the full package at an affordable price.

Exceptional performance for <u>datacenters</u>, businesses & enterprises.

27Gbps Throughput
2.4 Mega Packets per Second

~2Gbps Inline Intrusion Prevention

Fast Filtering
Up to 50.000 Connections per Second

Hardware Assisted Encryption
2.5Gbps IPsec (AES256GCM16)

Guard Web Access Filtering (SSL) Proxy Captive Portal with Voucher support

1TB SSD
Offering Sufficient Space for Logging & Reporting

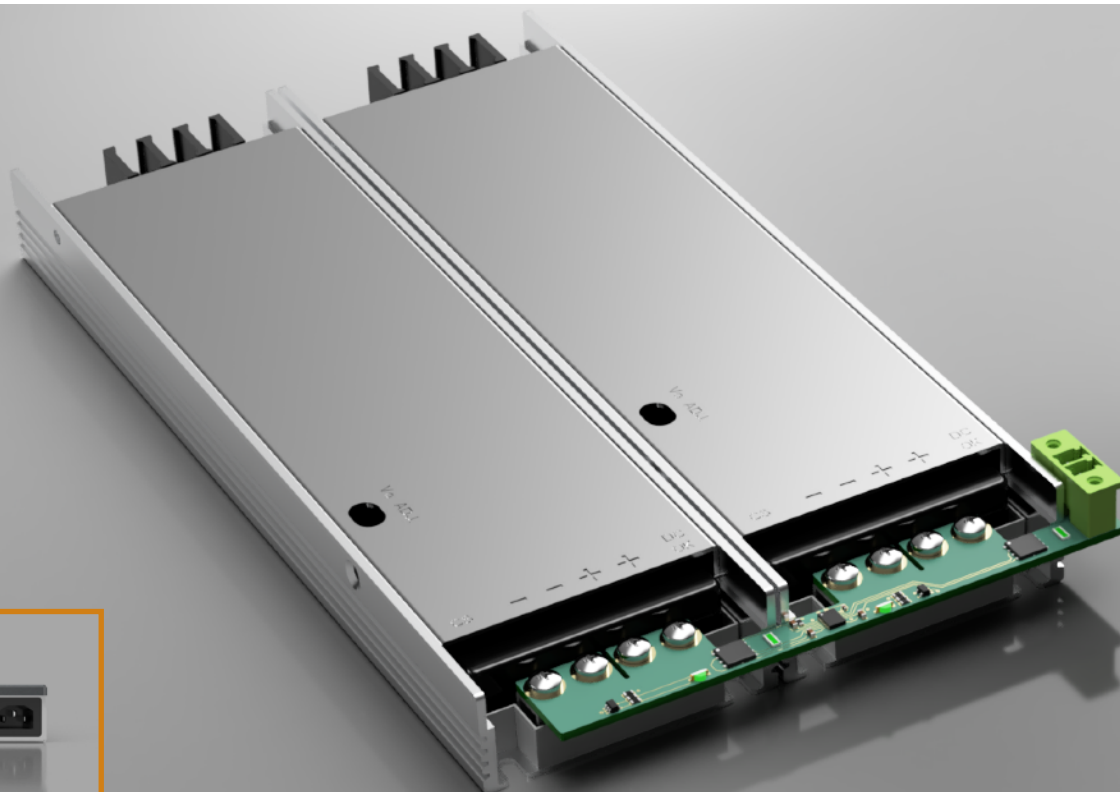**System wide two-factor authentication. Compatible with Google Authenticator.**

Dual Power Supply Failover & Load balancing

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Dual Power Supply

Custom designed Failover and Load Balancer*
Designed to last PSU's with MTBF of 2092K hrs Telcordia TR/SR-332(Bellcore) or according to MIL-HDBK-217F (25°C) 282K hrs (that is still over 32 years!).

* The integrated load balancer is not symmetric, but assures non-interrupted automatic failover.

Large Storage & RAM

One terabyte of integrated storage for logging and advanced features

Sufficient memory for most demanding features and plugins like Zenarmor (for 2000+ connected devices)

Powerful Octa Core Processor

The fastest of our single die AMD EPYC™ Embedded based solutions

Network Connectivity

A total of eight network ports.
Connect the way you want: two SFP28 ports (25Gbps), two SFP+ ports (10Gbps) and four RJ45 Ethernet ports (1Gbps)

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CERTIFIED HARDWARE
FROM THE DEVELOPERS - MADE IN THE NETHERLANDS
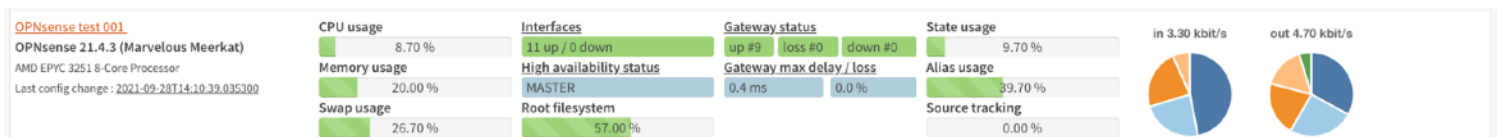
DEC4000 SERIES

OPNsense®
Certified™

Bundled with a free year OPNsense® Business Edition

√ Commercial firmware repository
√ Official OPNsense Open Virtualisation Image

√ Integrated GeoIP database
 √ Free E-Book (English & German)
√ Free professional plugins included:
   Web Application Firewall; Proxy Access;

OPNcentral™ - *Manage all your OPNsense® Firewalls Centrally*

OPNsense test 001	CPU usage	Interfaces	Gateway status	State usage	in 3.30 kbit/s	out 4.70 kbit/s
OPNsense 21.4.3 (Marvelous Meerkat)	8.70 %	11 up / 0 down	up #9 loss #0 down #0	9.70 %		
AMD EPYC 3251 8-Core Processor	Memory usage	High availability status	Gateway max delay / loss	Alias usage		
Last config change : 2021-09-28T14:10.39.035300	20.00 %	MASTER	0.4 ms 0.0 %	39.70 %		
	Swap usage	Root filesystem		Source tracking		
	26.70 %	57.00 %		0.00 %		

√ **Status Monitoring**
  Machine status
  Firmware status
  Resources Used

√ **Provisioning**
√ **Firmware Upgrade**
√ **Multi tenancy using host groups**

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SOFTWARE
VERSATILE - OPEN SOURCE - FULLY FEATURED
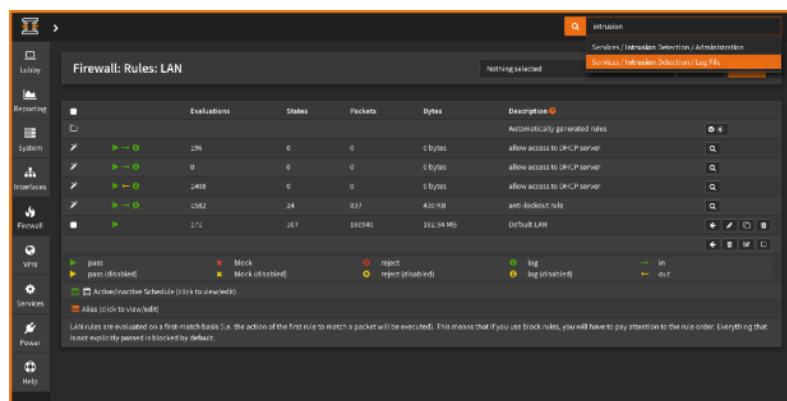
OPNsense® Secure Your Network With Ease™

OPNsense is Deciso's fast growing open source firewall and security platform released under an Open Source Initiative approved license. Its rich feature set is combined with the benefits of open and verifiable sources.

All features can be used from within the easy to use graphical interface, equipped with a build-in search feature for quick navigation. Protecting your network has never been this easy with features such as; the integrated intrusion prevention system and two-factor authentication for safely connecting mobile users.

Businesses
Protect your business network and secure your connections.
From the stateful inspection firewall to the inline intrusion detection & prevention system everything is included for free.Use the traffic shaper to enhance network performance.

Schools
Limit and share available bandwidth evenly amongst students and utilize the category based web filtering to filter unwanted traffic such as adult content and malicious websites. It is easy to setup as no additional plugins nor packages are required.

Hotels
OPNsense offers a captive portal to control guest internet access for a limited duration. Vouchers can easily be created via the graphical user interface.

On the road
Even on the road OPNsense is a great asset to your business as it offers OpenVPN and IPSec VPN solution with road warrior support and two-factor authentication. The easy client exporter make configuring your OpenVPN SSL client setup a breeze.

Remote Offices / Branches & SOHO
The integrated site to site VPN (IPsec or SSL VPN) can be used to create a secure network connection to and from your remote offices. Enjoy the easy configuration and online searchable documentation with simple how-to type of articles to get you started, quickly. Pluggable support is offered for ZeroTier, Tinc as well as Wireguard.

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- GUI
- SSH / Console

Certificates
- ◉ Certificate Authority
  - Create or Import CA's
  - Create or Import Certificates
- ◉ Let's Encrypt (Plugin)
  - Automated (Trusted) CA

802.1Q VLAN support
- ◉ max 4096 VLAN's

Link Aggregation & Failover
- ◉ Failover
- ◉ Load Balance
- ◉ Round Robin
- ◉ Cisco Ether Channel (FEC)
- ◉ 802.3ad LACP

Other Interface types
- ◉ Bridged interfaces
- ◉ Generic Tunnel Interface (GIF)
- ◉ Generic Routing Encapsulation

Network Address Translation
- ◉ Port forwarding
- ◉ 1:1 of ip's & subnets
- ◉ Outbound NAT
- ◉ NAT Reflection

Traffic Shaping
- ◉ Limit bandwidth
- ◉ Share bandwidth
- ◉ Prioritize traffic
- ◉ Rule based matching
  - Protocol
  - Source
  - Destination
  - Port
  - Direction

IGMP Proxy
- ◉ For multicast routing

Universal Plug & Play
- ◉ Fully supported

Dynamic DNS
- ◉ Selectable form a list
- ◉ Custom
- ◉ RFC 2136 support

DNS Forwarder
- ◉ Host Overrides
- ◉ Domain Overrides

DNS Server
- ◉ Host Overrides
  - A records
  - MX records
- ◉ Access Lists

DNS Filter
- ◉ Supports OpenDNS

DHCP Server
- ◉ IPv4 & IPv6
- ◉ Relay Support
- ◉ BOOTP options

Multi WAN
- ◉ Load balancing
- ◉ Failover
- ◉ Aliases

Load Balancer
- ◉ Balance incoming traffic over multiple servers

Network Time Server
- ◉ Hardware devices
  - GPS
  - Pulse Per Second

Intrusion Detection & Prevention
- ◉ Inline Prevention

Stateful firewall
- ◉ Filter by
  - Source
  - Destination
  - Protocol
  - Port
  - OS (OSFP)
- ◉ Limit simultaneous connections on a per rule base
- ◉ Log matching traffic on a per rule bases
- ◉ Policy Based Routing
- ◉ Packet Normalisation
- ◉ Option to disable filter for pure router mode

Policy organization
- ◉ Alias Support
  - IP addresses
  - Port ranges
  - Domain names (FQDN)
- ◉ Interface Groups
  - Create security zones with equal rules
- ◉ Rule Category
  - Easy access rule sets

Granular control state table
- ◉ Adjustable state table size
- ◉ On a per rule bases
  - Limit simultaneous client connection
  - Limit states per host
  - Limit new connections per second
  - Define state timeout
  - Define state type
- ◉ State types
  - Keep
  - Sloppy
  - Modulate
  - Synproxy
  - None
- ◉ Optimisation options
  - Normal
  - High latency
  - Agressive
  - Conservative

Authentication
- ◉ External Servers
  - LDAP
  - Radius
- ◉ Integrated Servers
  - Local User Manager
  - Vouchers / Tickets
  - FreeRadius (Plugin)

Authorization
- ◉ User Interface
  - Local User Manager

Accounting
- ◉ FreeRadius (Plugin & External)
- ◉ Vouchers / Tickets

2-Factor Authentication
- ◉ Supports TOTP
- ◉ Google Authenticator
- ◉ Supported services:
  - Captive Portal
  - Proxy
  - VPN

- ◉ Integrated rulesets
  - SSL Blacklists
  - Feodo Tracker
  - Emerging Threats ETOpen
- ◉ SSL Fingerprinting
- ◉ Auto rule update using configurable cron

Captive Portal
- ◉ Typical Applications
  - Guest Network
  - Bring Your Own Device (BYOD)
  - Hotel & Camping Wifi Access
  - Template Management
  - Multiple Zones
- ◉ Authenticators
  - All available authenticators
  - None (Splash Screen Only)
- ◉ Voucher Manager
  - Multiple Voucher Databases
  - Export vouchers to CSV
- ◉ Timeouts & Welcome Back
- ◉ Bandwidth Management
  - Use Traffic Shaper
- ◉ Portal bypass
  - MAC and IP whitelisting
- ◉ Real Time Reporting
  - Live top IP bandwidth usage
  - Active Sessions
  - Time left
  - Rest API

Virtual Private Networks
- ◉ IPsec
  - Site to Site
  - Road Warrior
- ◉ WireGuard (Plugin)
  - Site to Site
  - Road Warrior
- ◉ OpenVPN
  - Site to Site
  - Road Warrior
  - Easy client configuration exporter
- ◉ Tinc (Plugin)
  - Full mesh routing
- ◉ ZeroTier (Plugin)
  - VPN, SDN & SD-WAN

High Availability
- ◉ Automatic hardware failover
- ◉ Synchronized state table
- ◉ Configuration synchronisation

Caching Proxy
- ◉ Multi interface
- ◉ Transparent Mode
- ◉ Support SSL Bump
- ◉ SSL Domain only (easy filtering)
- ◉ Access Control Lists
- ◉ Blacklists
- ◉ Category Based Web-filter
- ◉ Traffic Management
- ◉ Auto sync for remote blacklists
- ◉ ICAP (supports virus scan engine)

Virus scanning (via plugins)
- ◉ External engine support (ICAP)
- ◉ ClamAV (Plugin / C-ICAP)

Reverse Proxy
- ◉ HAProxy - Load balancer (Plugin)

Online Identity Protection
- ◉ Tor - Anonymity online (Plugin)

Backup & Restore
- ◉ History & Diff support

- ◉ File Backup
- ◉ Cloud Backup
- ◉ Git Backup

SNMP
- ◉ Monitor & Traps

Diagnostics
- ◉ Filter reload status
- ◉ Firewall Info (pfInfo)
- ◉ Top Users (pfTop)
- ◉ Firewall Tables
  - Aliases
  - Bogons
- ◉ Current Open Sockets
- ◉ Show All States
- ◉ State Reset
- ◉ State Summary
- ◉ Wake on LAN
- ◉ ARP Table
- ◉ DNS Lookup
- ◉ NDP Table
- ◉ Ping
- ◉ Packet Capture
- ◉ Test Port
- ◉ Trace route

Monitoring
- ◉ Zabbix Agent (Plugin)
- ◉ Monit (Plugin)
  - Proactive System Monitoring

Enhanced Reporting
- ◉ Network Flow Analyzer 'Insight'
  - Fully Integrated
  - Detailed Aggregation
  - Graphical Representation
  - Clickable and Searchable
  - CVS Exporter
- ◉ System Health
  - Round Robin Data
  - Selection & Zoom
  - Exportable
- ◉ Traffic Graph
  - Live Traffic Monitoring

Network Monitoring
- ◉ Netflow Exporter
  - Version 5 & version 9
  - Local for 'Insight'

Firmware
- ◉ Support Virtual Installs
  - VMware tools (Plugin)
  - Xen Guest Utilities (Plugin)
- ◉ Easy Upgrade
  - Reboot warning for base upgrades
- ◉ SSL Flavour selectable
  - OpenSSL
  - LibreSSL
- ◉ Selectable Package Mirror
- ◉ Reinstall Single Package
- ◉ Lock Package (prevents upgrade)
- ◉ Audit Feature
  - Check installed packages for known security vulnerabilities
- ◉ Plugin Support

REST API
- ◉ ACL support

Online Documentation
- ◉ Free & Searchable

Securing Networks™

	DEC4020	DEC4040
Software		
Preinstalled software	OPNsense®	OPNsense®
License	Open Source + 1 year free Business Edition	Open Source + 1 year free Business Edition
Hardware Specifications		
SFP+ Ports [10Gbps]	2	2
GbE RJ45 Ports [10/100/1000Mbps]	4	4
USB 3.0 Ports	1	1
Console Port	1	1
Internal Storage	1TB M.2. Solid State Flash	1TB M.2. Solid State Flash
Memory	64GB DDR4	64GB DDR4
CPU Cores	8 (max frequency 3.1Ghz)	8 (max frequency 3.1Ghz)
Virtual Interfaces (802.1q VLANS)1	4093	4093
System Performance		
Firewall Throughput	21.1Gbps	27Gpbs
Firewall Packets Per Second	1760Kpps	2300Kpps
Firewall Port to Port Throughput	9Gbps	21Gpbs
Concurrent Sessions	63000000	63000000
New Connections Per Second	50000	50000
Firewall Latency (average)	100us	100us
Firewall Policies (Recommended Maximum)1	10000	10000
IPsec VPN Throughput (AES256GCM16)	2.5Gbps	2.5Gbps
IPsec VPN Packet Per Second (AES256GCM16)	220Kpps	220Kpps
Threat Protection Throughput Packet Per Second	163Kpps	163Kpps
Threat Protection Throughput	~2Gpbs	~2Gbps
High Availability with State Synchronisation	Requires Two	Requires Two
Dimensions		
Height x Width x Depth (mm)	44.5 (1U) x 482.6 (19") x 280 (254 excl. panel)	44.5 (1U) x 482.6 (19") x 280 (254 excl. panel)
Height x Width x Length (inches)	1.75 x 19 x 11 (10 excl. panel)	1.75 x 19 x 11 (10 excl. panel)
Form Factor	19" Rackmountable	19" Rackmountable
Weight (appliance only)	3.7Kg	3.85 Kg
Environment		
Power Requirements	100-240VAC, 50-60Hz	100-240VAC, 50-60Hz
Maximum Current (single PSU)	2.2A	2.2A
Power Consumption (Typical - single PSU)	55W	60W
Heat Dissipation	187.6 BTU/hr	204.6 BTU/hr
Operating Temperature	0 to +50°C	0 to +50°C
Storage Temperature	-20 to +70°C	-20 to +70°C
Humidity	10-90% non-condensing	10-90% non-condensing
Regulatory Compliance		
	FCC part 15 Class A, CE, Rohs	FCC part 15 Class A, CE, Rohs

[1] The user interface is designed for normal business usage, large rulesets, high number of users or interface assignments may be less practical.

All measurements are based upon TCP traffic unless stated otherwise. Total Firewall Throughput is calculated based on maximum PPS and standard 1500 byte packets. Maximum PPS is measured using 500 byte packets. IPS performance is measured using ET Open and standard 1500 byte package size. SSL VPN is measured using AES256GCM16+SHA512. Concurrent sessions are based upon memory available, where one state consumes 1KB of memory and 1GB of memory is reserved for system tasks. Latency is measured as an average over 60 seconds.

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