FreeNAS A Great Choice For A Home Server

Don Arrowsmith, President Philadelphia Area Computer Society

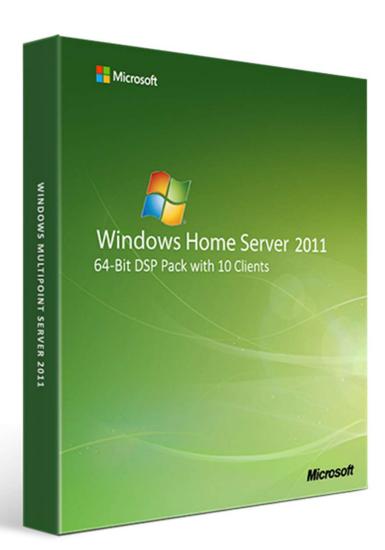


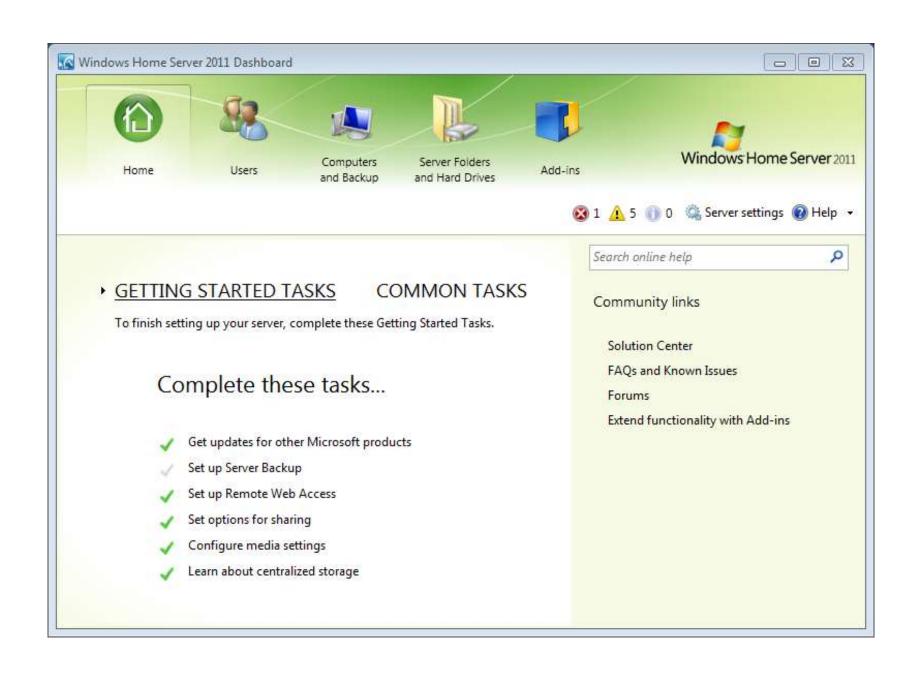
We'll cover:

- My home server history
- Features of my current system
- My hardware configuration
- About FreeBSD and FreeNAS
- Obtaining, planning, and installing FreeNAS
- Configuring and controlling FreeNAS
- Sharing files with PCs
- Remote connection via OpenVPN, DDNS
- PC backups
- Media server



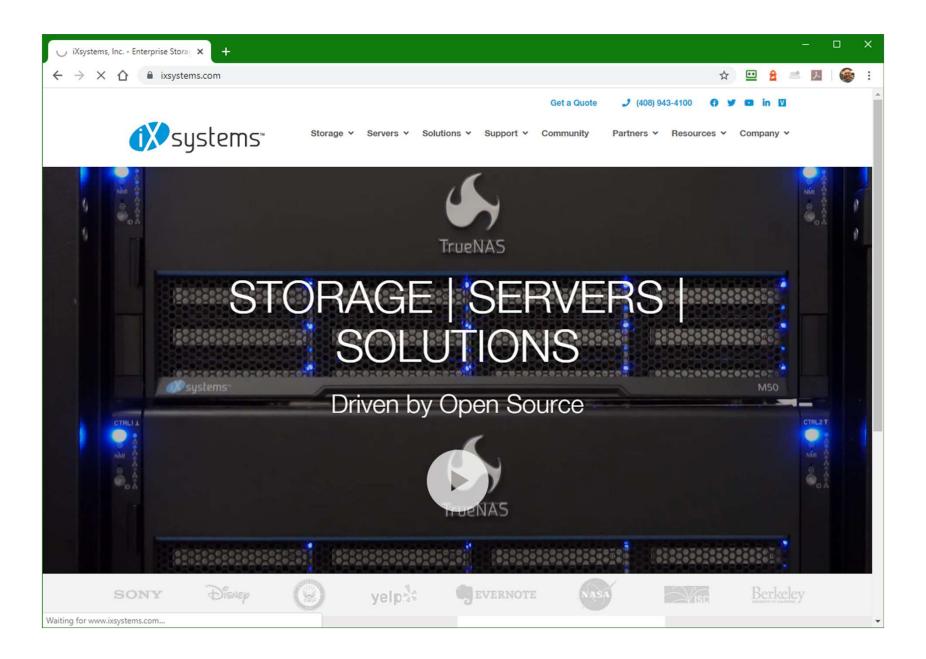




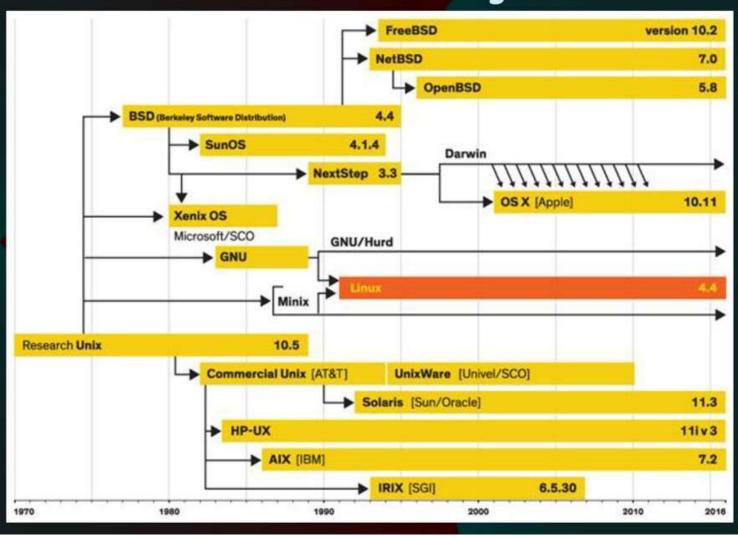


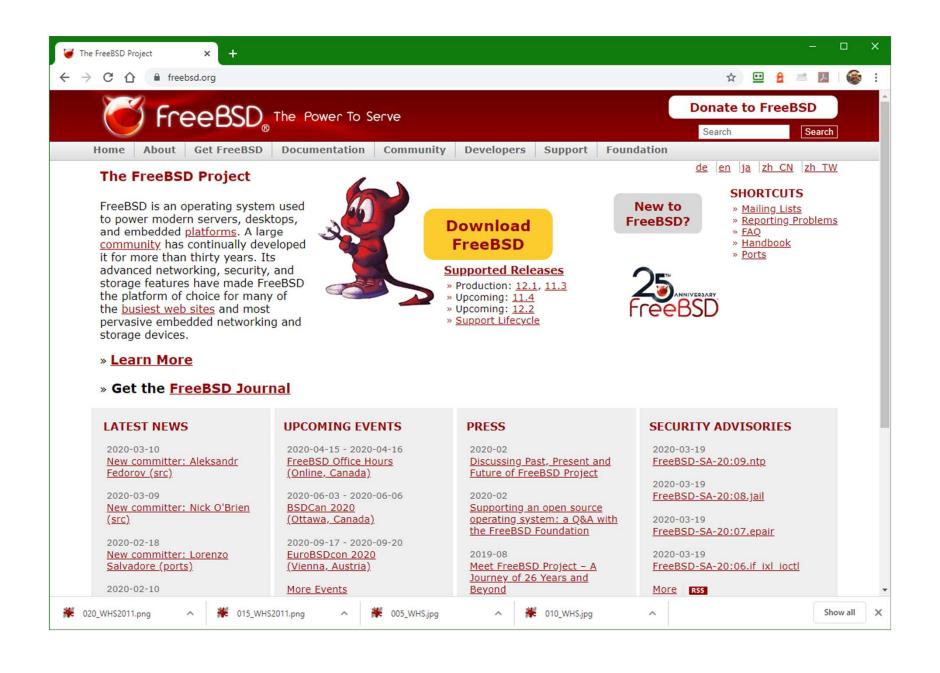
Operating System	Windows Home Server 2011
Shared files	
Client backups	Native to WHS2011
Remote access	
Server backups	
File System Addon	Drive Pool & Scanner by StableBit
UPS control	APC Powerchute
DDNS updates	Marc's Updater
Music server	Logitech Media Server

Operating System	FreeNAS 11.3
Shared files	SMB/CIFS is native to FreeNAS
Client backups	Veeam Agent for Windows
Remote access	OpenVPN (via router)
Server backups	Karen's Replicator
UPS control	Network UPS Tools (FreeNAS)
DDNS updates	Via router
Music server	Logitech Media Server

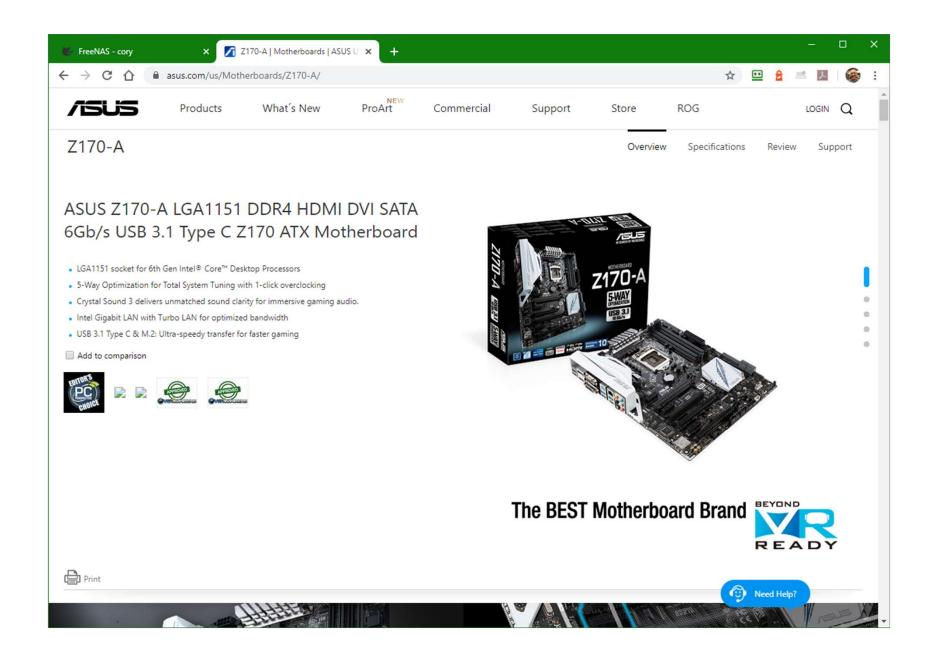


The UNIX Family Tree





Motherboard	ASUS Z170-A
CPU	Intel Core i5-6600 @ 3.30GHz
Memory	24GB non-ECC DDR4 2.133GHz
Boot Disk	Samsung SSD 850 PRO 256GB
Data Disks	4 Western Digital Red+ 2TB WD20EFRX
Disk controller	StarTech 4-Port PCIe SATA III 6GBs
Network	on-board Intel I219-V 1GB Ethernet
Uninterruptible Power Supply	APC Back-UPS RS-900
Router	ASUS RT-AC86U













SAMSUNG Solid State Drive

If you buy these disks, make sure you get WD Red Plus (new name) which uses CMR (common magnetic recording) and not WD Red which use SMR (shingled magnetic recording)!









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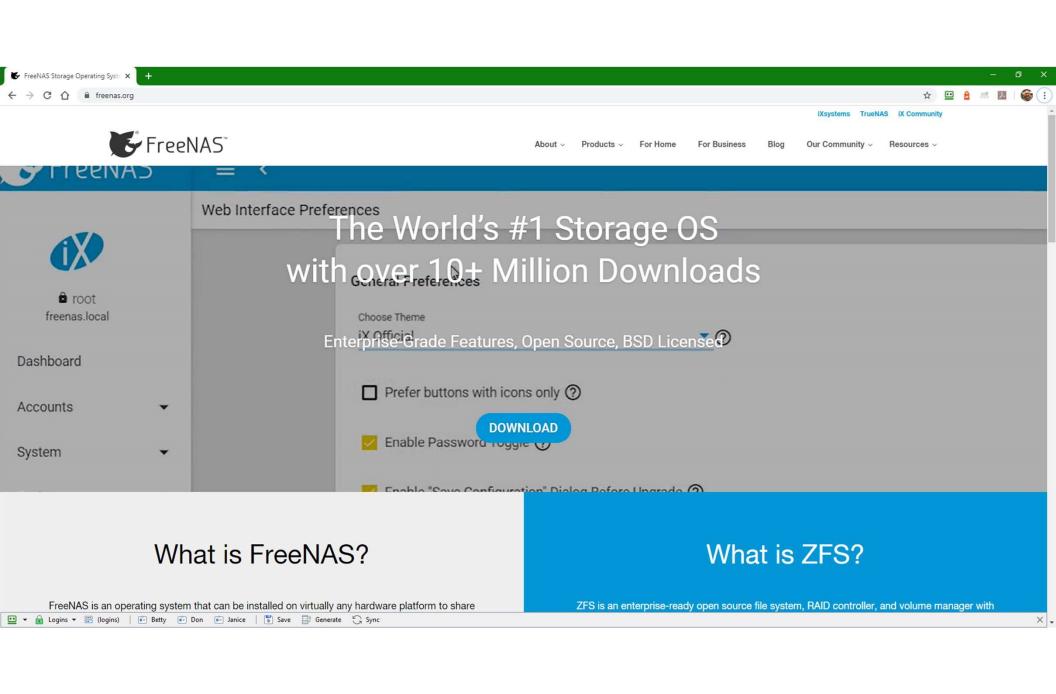
BX1000M

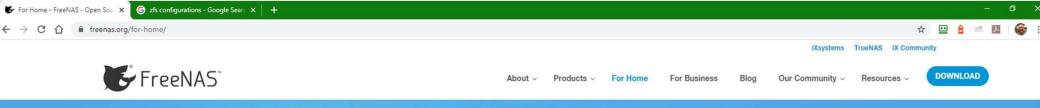
- *** 4.8 (4) Write a review
- High Performance Computer and Electronics UPS for Premium Power Protection
- Includes: USB cable, User Manual

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- Product FAQs
- Replacement Battery
- Product Registration





FreeNAS At Home



FreeNAS is a powerful storage solution that makes it easy to share movies and music, back up your photos, protect your files and much, much more. Make your life easier by using FreeNAS to build and set up the perfect home storage system that does exactly what you need.

Consolidate Files

Too much stuff? There's a simple solution for that. Keep all of your files in one place and access them from any of your devices over your home network. Not only does this free up storage space, it saves time and makes it convenient when you need to transfer things across devices. Simply copy your files to a FreeNAS system and set up the proper protocol to access them. That's it, you're ready to go. FreeNAS supports sharing protocols for all major operating systems including CIFS/SMB (Windows), AFP (Apple), and NFS (Unix).





Stream Movies and Music

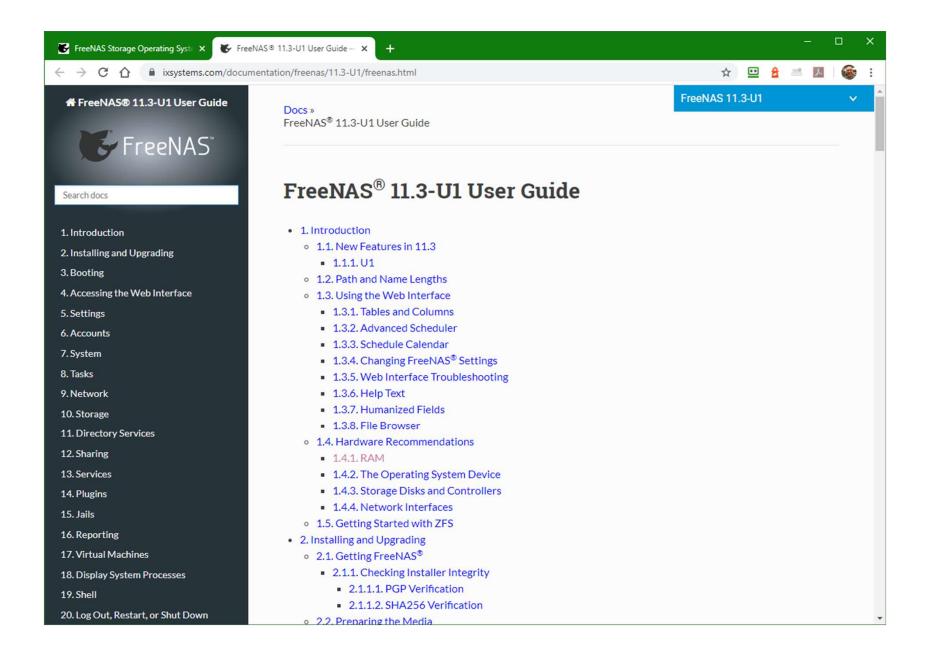
FreeNAS makes it easy to stream and share your movies and music with your family on any number of devices. Watch a movie on your TV then finish it on your laptop upstairs. FreeNAS does not restrict the number of users that can access your data. When you have friends over for movie night, set up permissions and groups so authorized users can only access the files you allow them to.

Back Up Everything

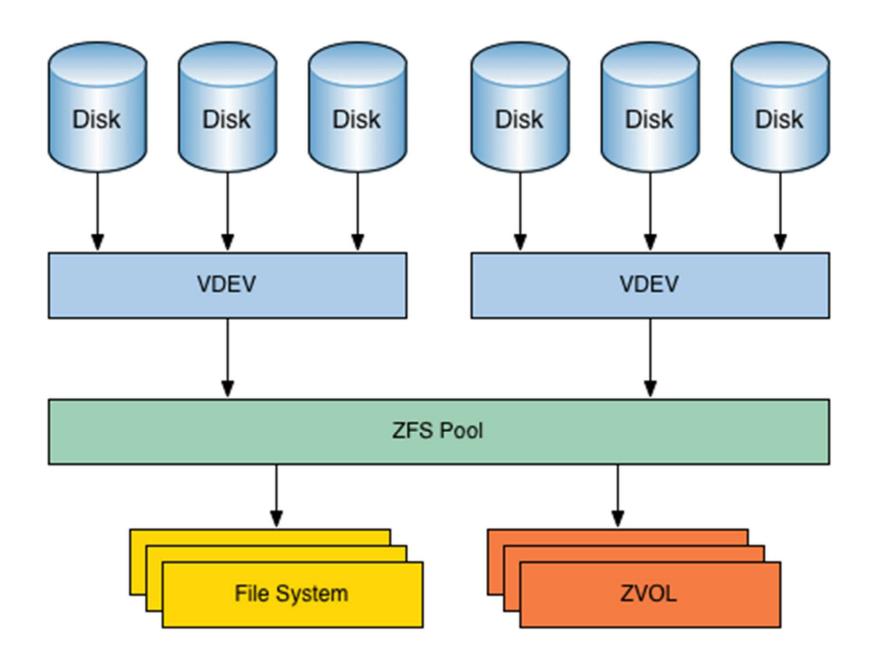
With FreeNAS, there are no storage quotas or bandwidth caps. The only limit is your own hardware. Local and remote backups can be made with just a few clicks. Replicate a snapshot to an offsite FreeNAS system to create a complete copy of your file system there. Checksums ensure only error-free data gets written to disk and the self-healing file system can repair silent bitrot as long as a redundant copy of the file exists on the system.



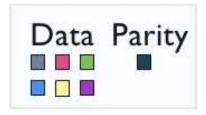




```
ZFS = 128-bit file system = max of 16 exabytes
1 exabyte =
 10^{18} bytes =
 1,000^6 bytes =
 1,000,000,000,000,000,000 bytes =
 1,000 petabytes =
 1 million terabytes =
 1 billion gigabytes.
```



Vdev Types



Non-redundant

Single disk



Mirror



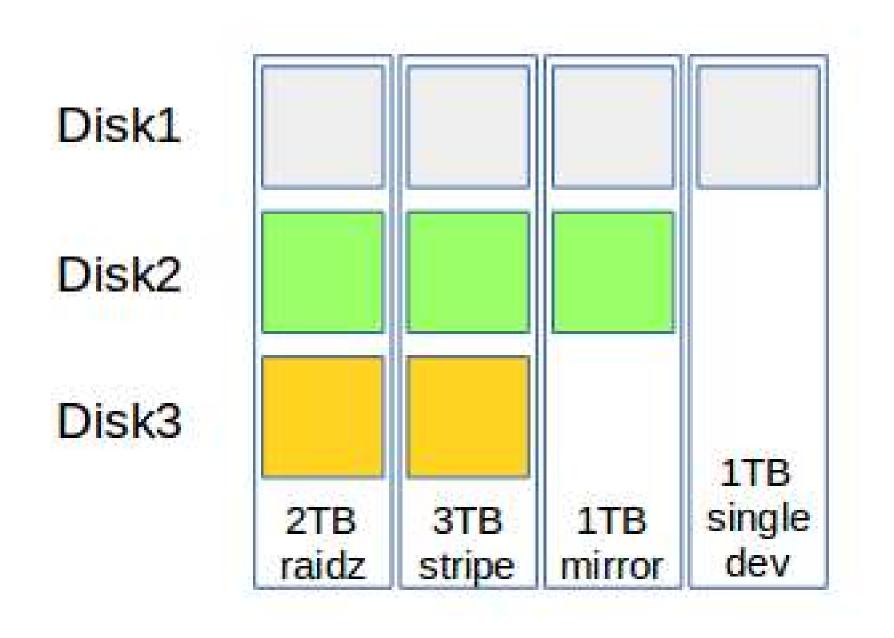
Redundant

Striped

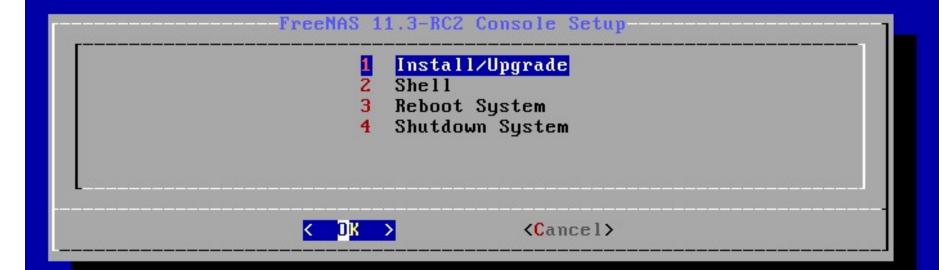


RAIDZ

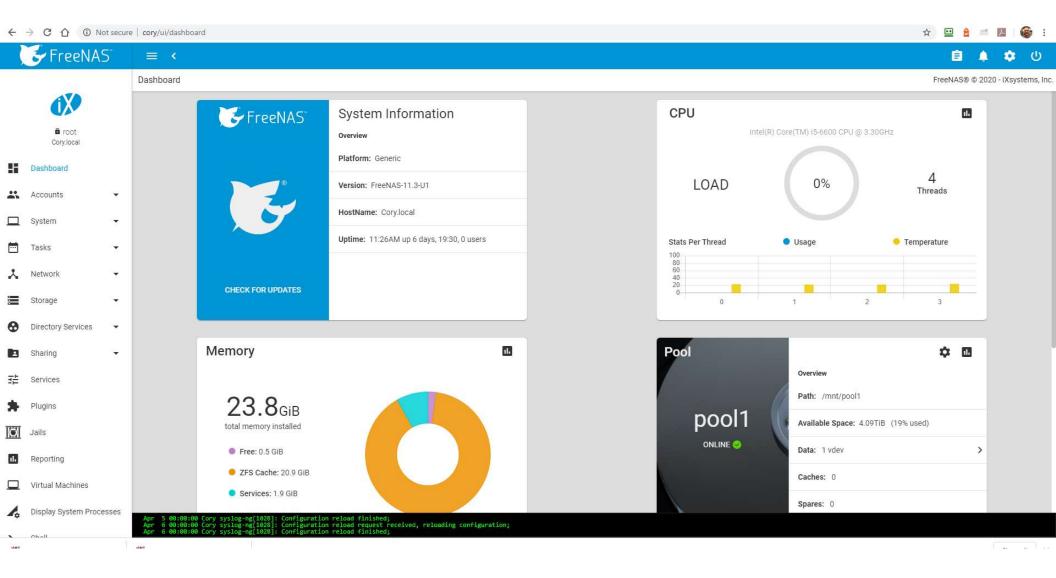


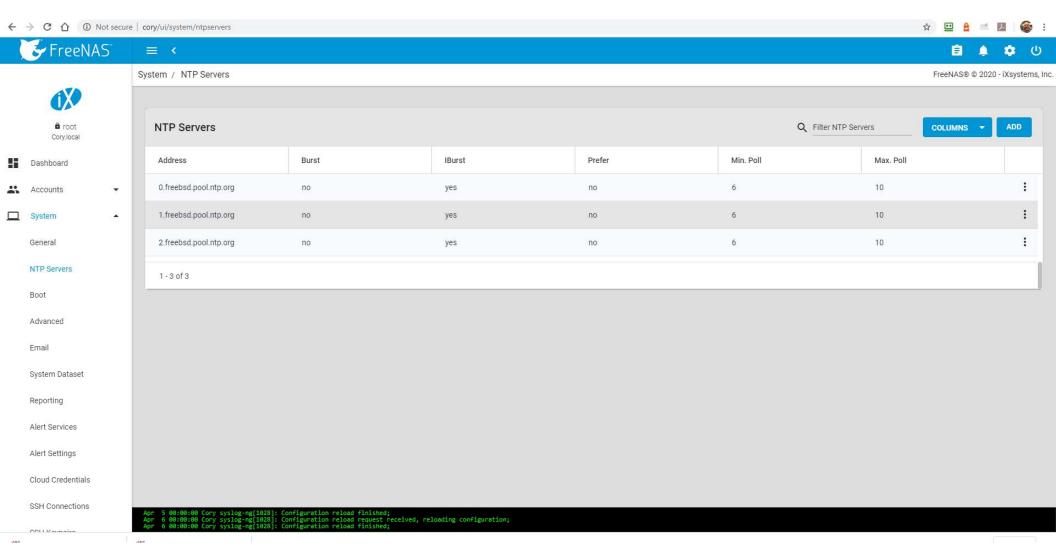


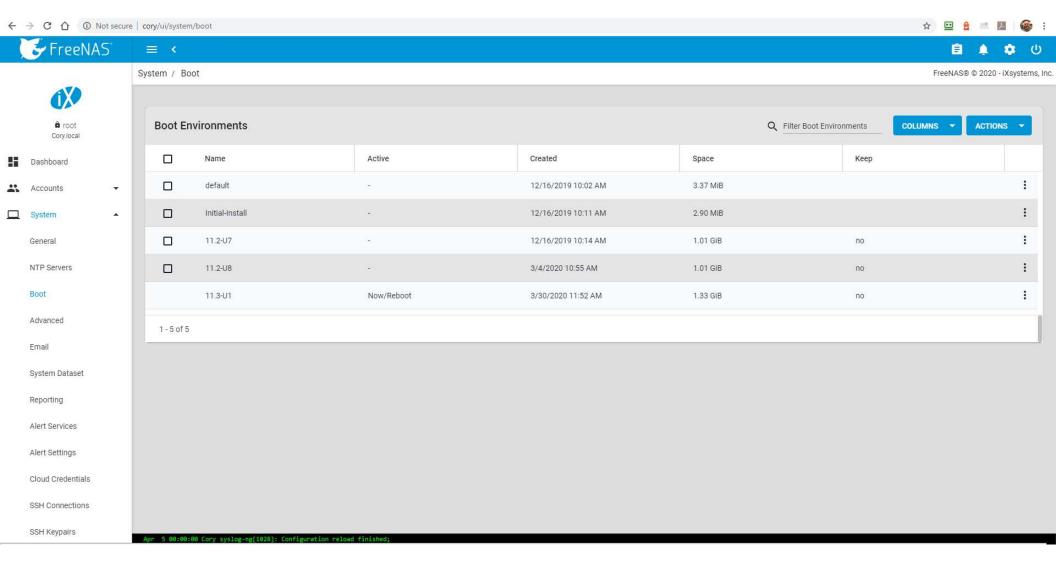


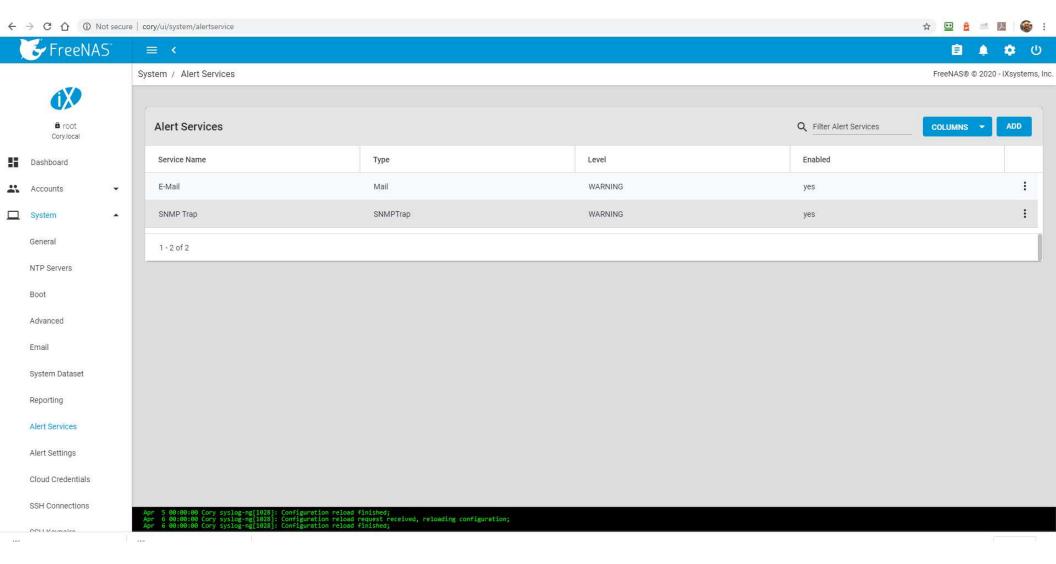


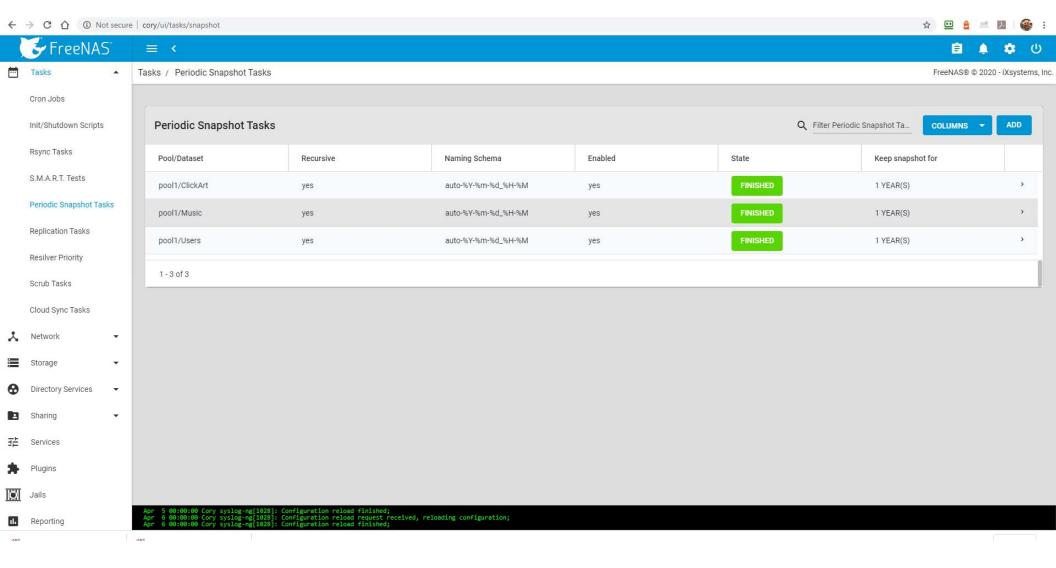


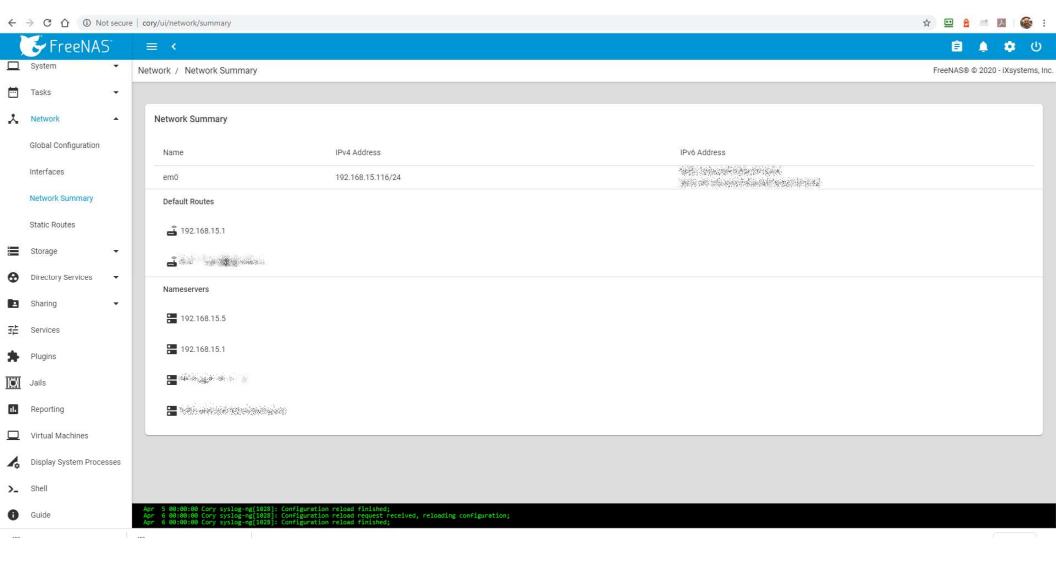


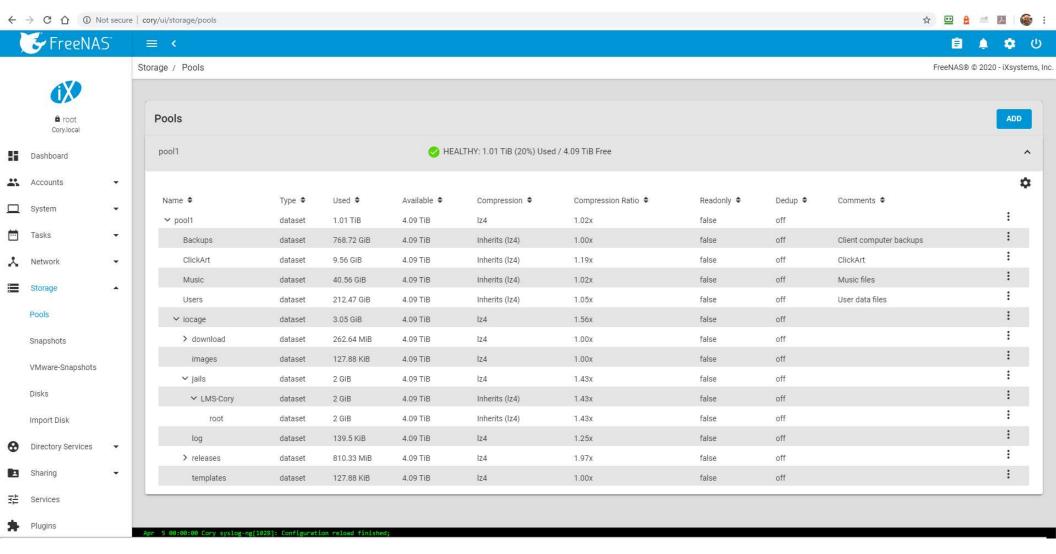


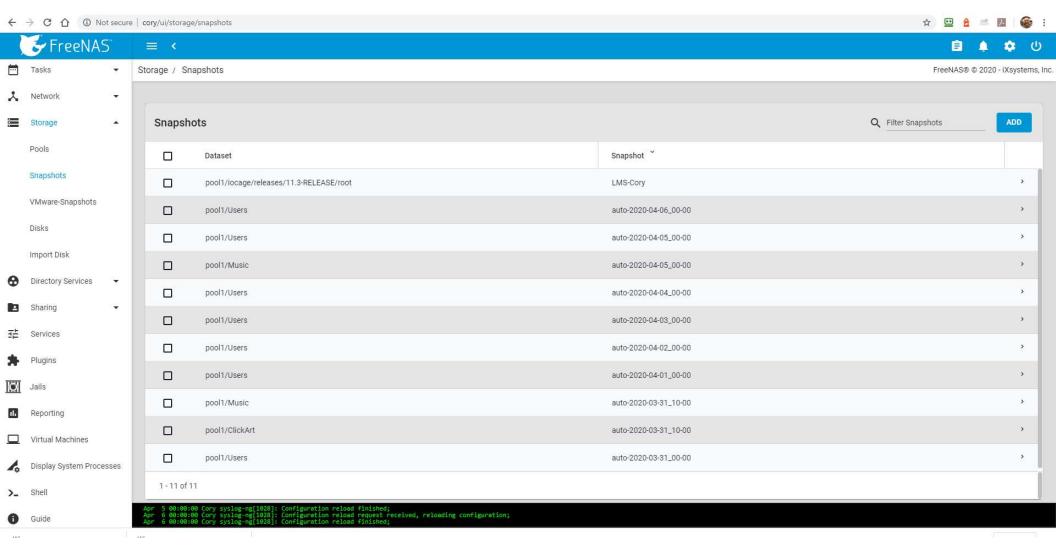


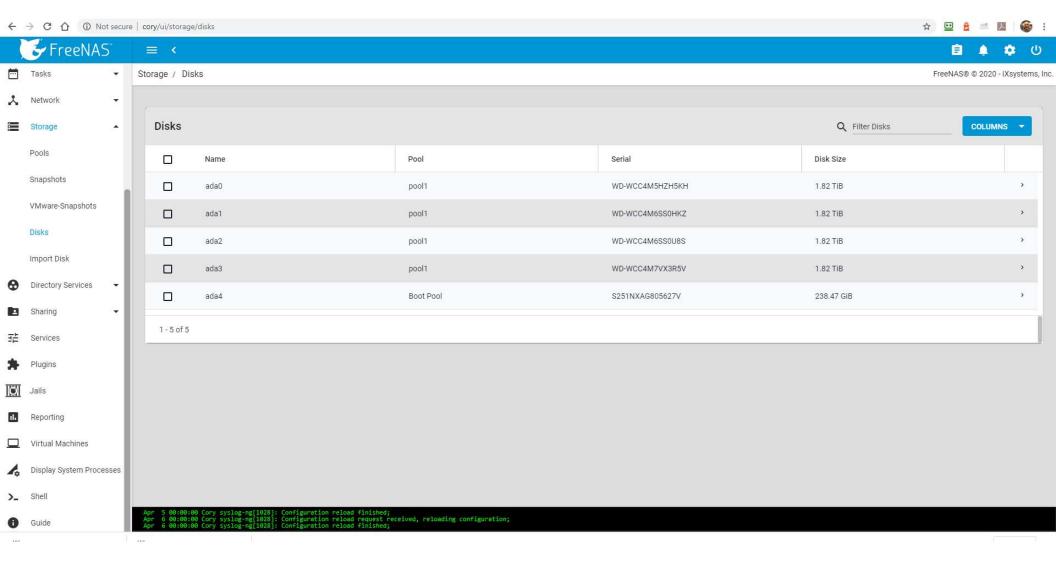


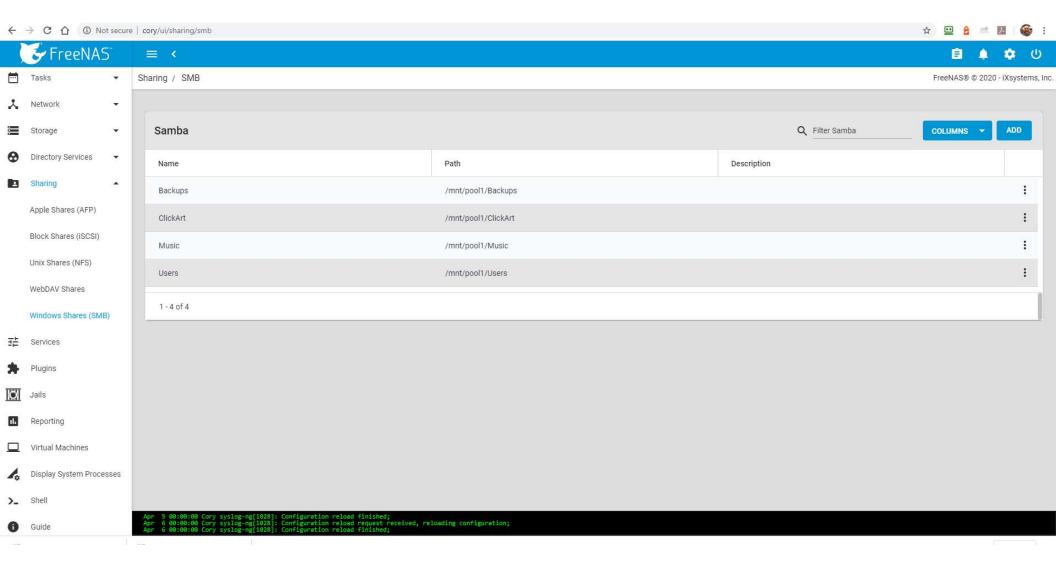


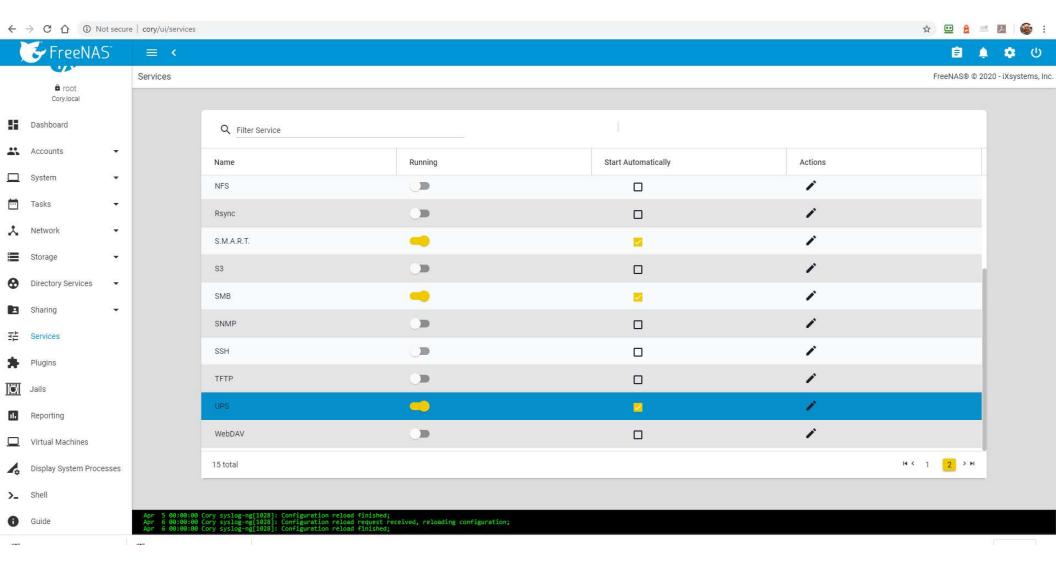


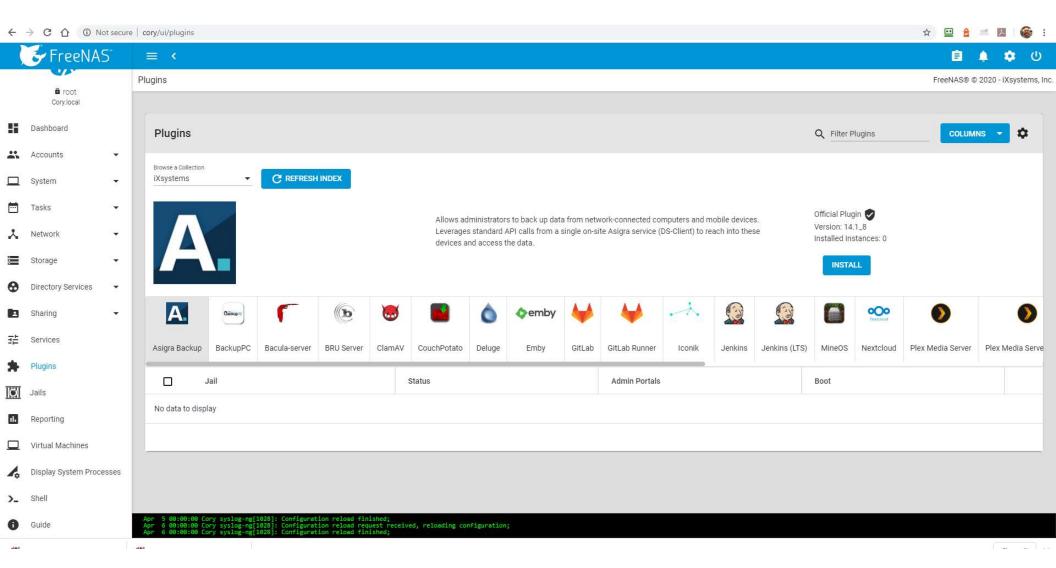


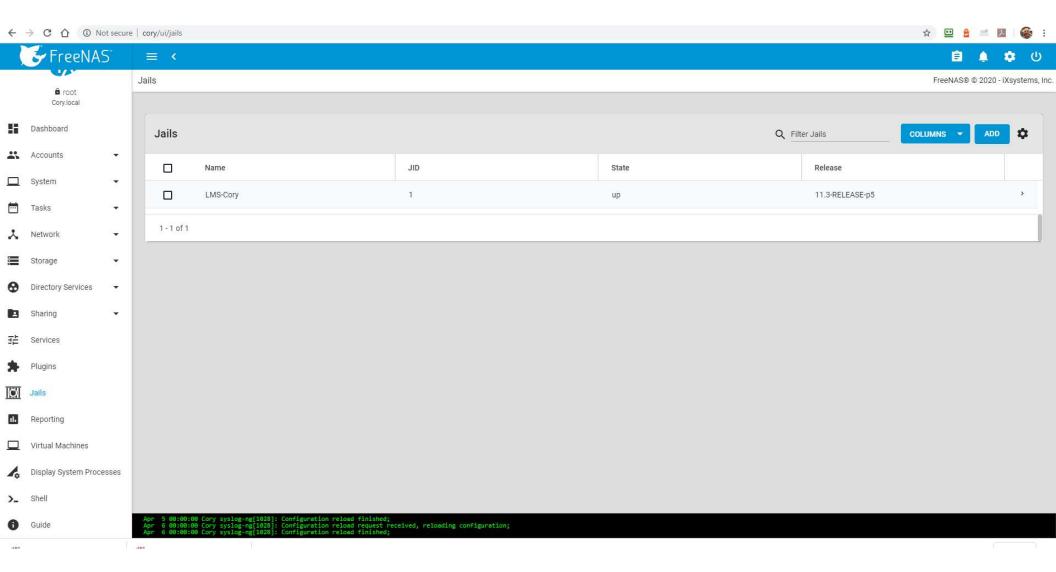


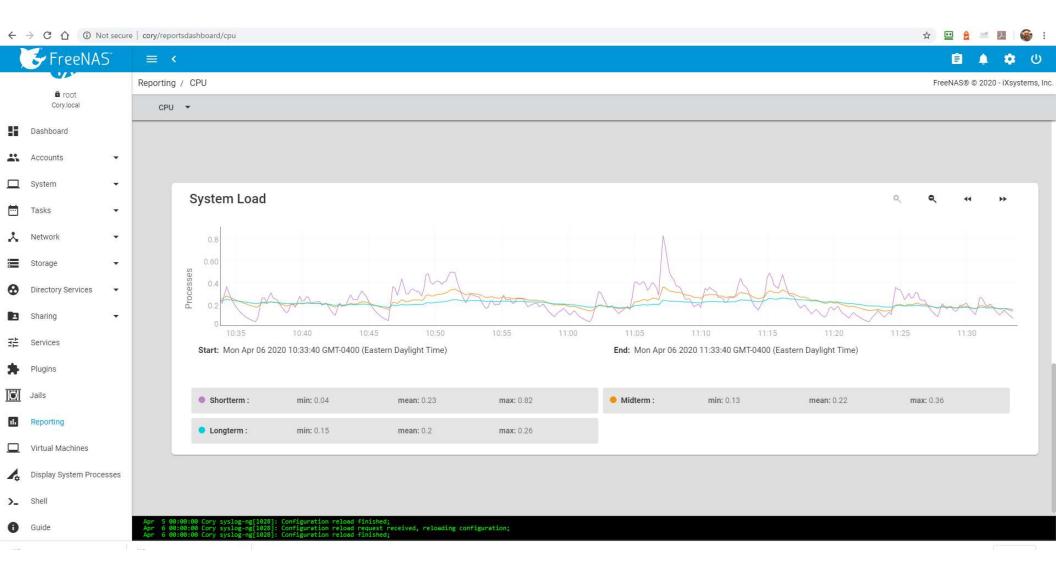


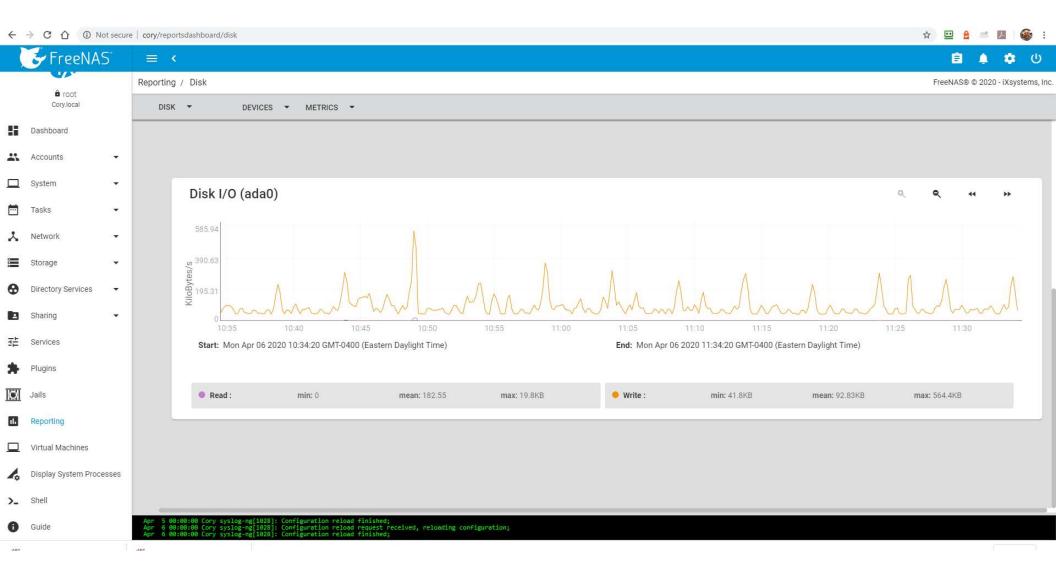


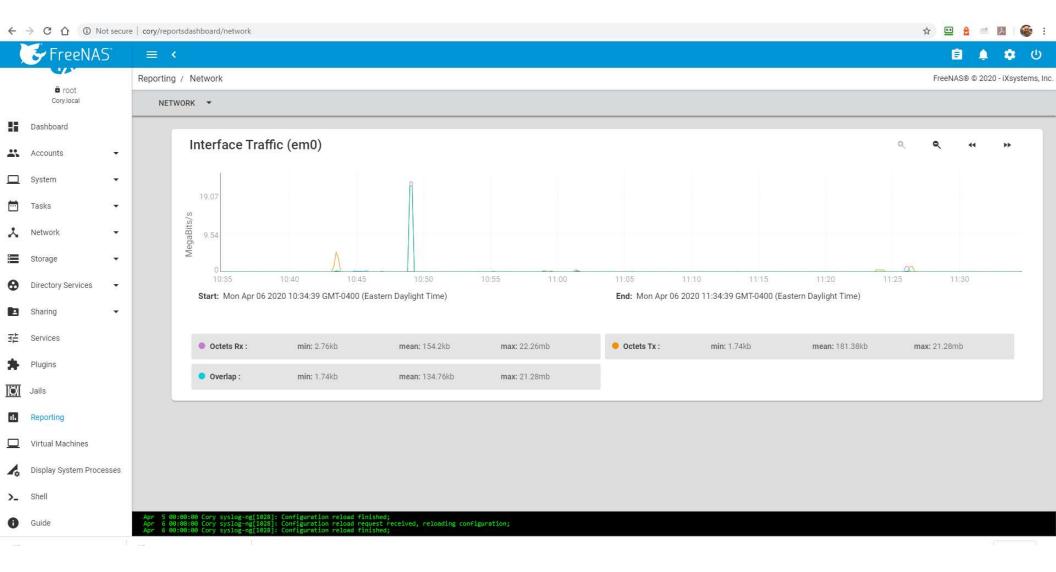


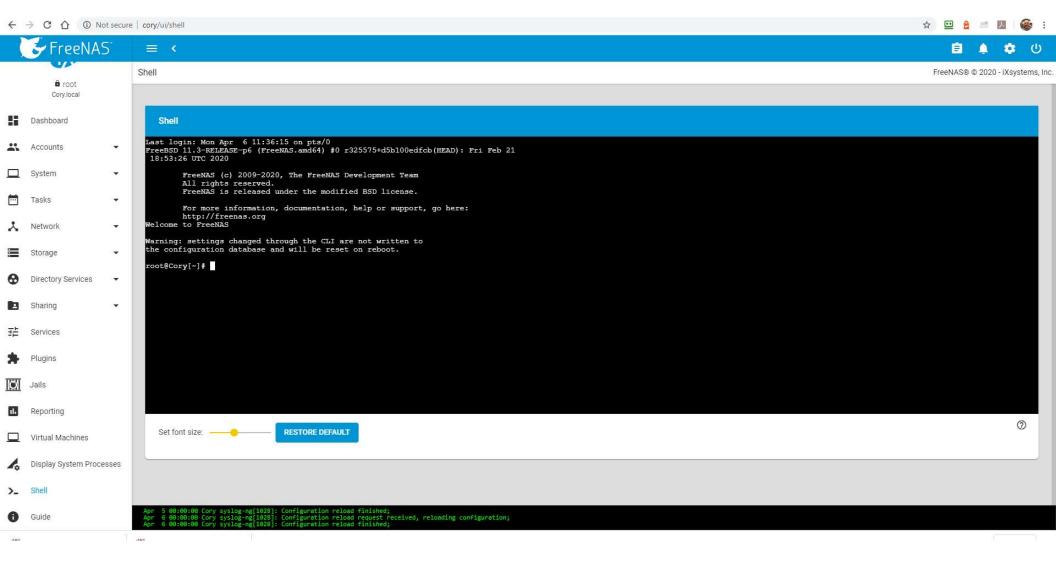


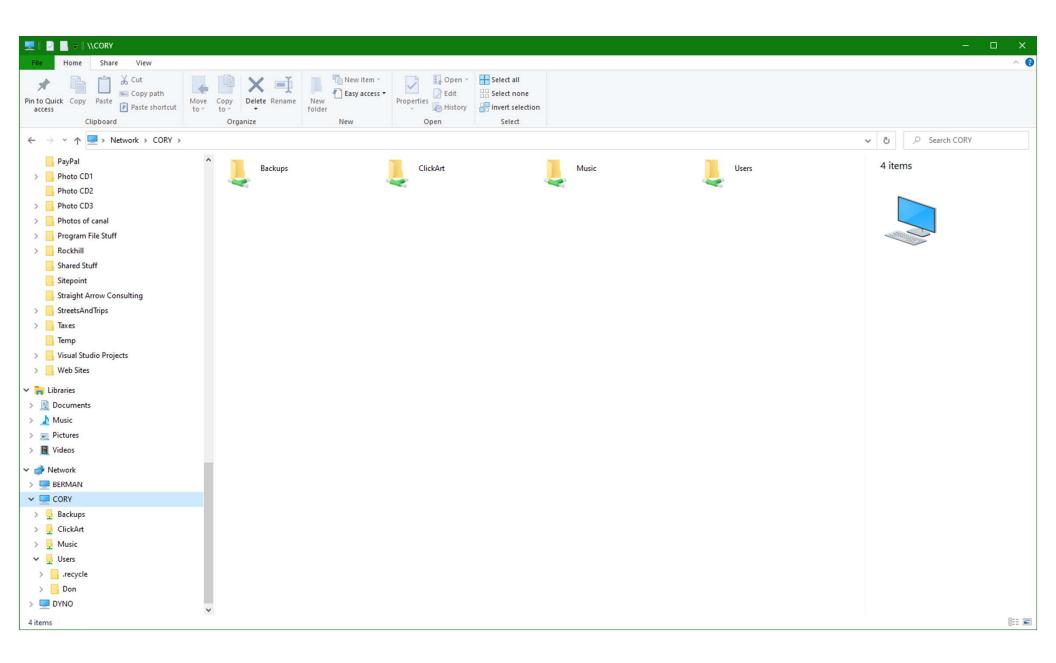




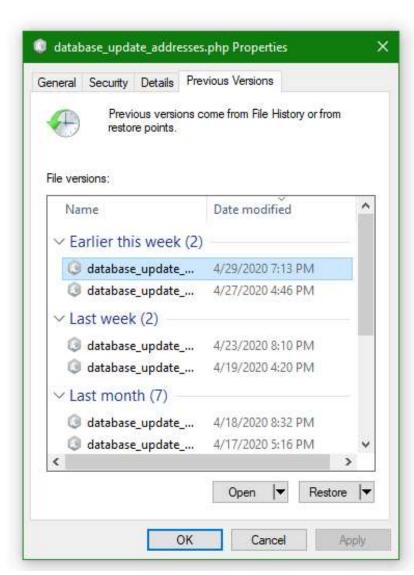


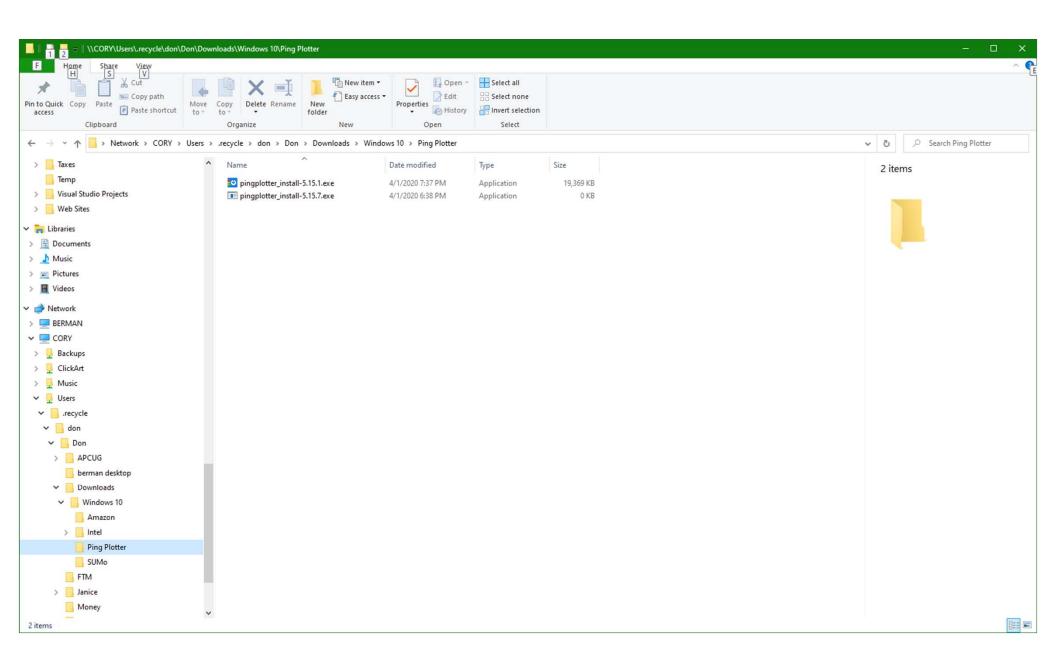






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checkin_lister.php	9/18/2019 12:59 PM	PHP File	3 KB
common.phpOBS	9/21/2019 11:07 AM	PHPOBS File	1 KB
© common2.php	4/29/2020 4:15 PM	PHP File	5 KB
@ database_access.php	1/14/2017 5:17 PM	PHP File	1 KB
@ database_access_forum.php	7/30/2017 4:05 PM	PHP File	1 KB
database_backup_cron.php	7/26/2017 8:37 PM	PHP File	1 KB
database_backup_forum_cron.php	8/2/2017 3:52 PM	PHP File	6 KB
database_errorcheck_addresses.php	4/27/2020 3:49 PM	PHP File	19 KB
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database_lister_balances.php	4/29/2020 7:30 PM	PHP File	7 KB
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database_purge_calendar.php	7/14/2017 4:53 PM	PHP File	5 KB
database_update_addresses.php	5/1/2020 7:51 PM	PHP File	101 KB
database_update_addresses.phpXXX	4/12/2020 12:56 PM	PHPXXX File	92 KB
database_update_calendar.php	4/18/2020 8:02 PM	PHP File	40 KB
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database_yearly_finances.php	4/30/2020 5:01 PM	PHP File	12 KB
③ dates.php	4/8/2020 11;28 AM	PHP File	1 KB
dropdown-about.php	7/17/2017 3:55 PM	PHP File	1 KB
dropdown-connect.php	7/30/2017 2:28 PM	PHP File	1 KB
dropdown-groups.php	9/4/2019 3:05 PM	PHP File	2 KB
dropdown-meetings.php	7/30/2019 5:03 PM	PHP File	2 KB
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RT-AC86U

AC2900 Dual Band Gigabit WiFi Gaming Router with MU-MIMO, AiMesh for mesh wifi system, AiProtection network security by Trend Micro, WTFast game accelerator and Adaptive QoS

- Dual-band (2.4 + 5 GHz) AC2900 wireless router with the latest 802.11ac MU-MIMO technology for data transfer speeds up to 2900 Mbps
- 1.8GHz 64bit Dual-Core processor optimizes network traffic and connectivity speeds from the USB 3.1 Gen1 and 4x Gigabit LAN ports
- Designed for lag-free online gaming and flawless 4K UHD streaming with WTFast® Game Accelerator and Adaptive QoS
- AiProtection Powered by Trend Micro™ provides built-in 24/7 protection from external attacks and threats, neutralizing them before they reach your network or connected devices
- Manage your network with the ASUS Router app setup your network, manage usage and parental controls, even get instant notifications about important network-based events
- AiMesh Supported Connect to other compatible ASUS routers to create a powerful and flexible whole-home Wi-Fi network
- Add to comparison







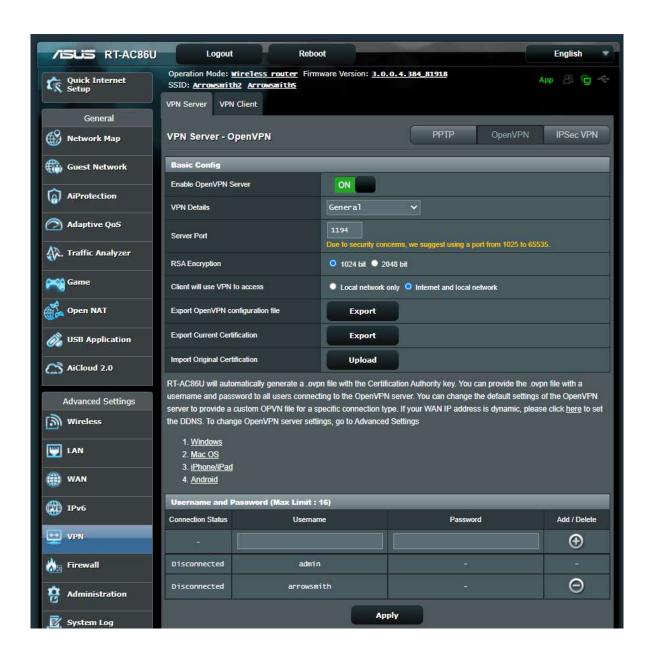


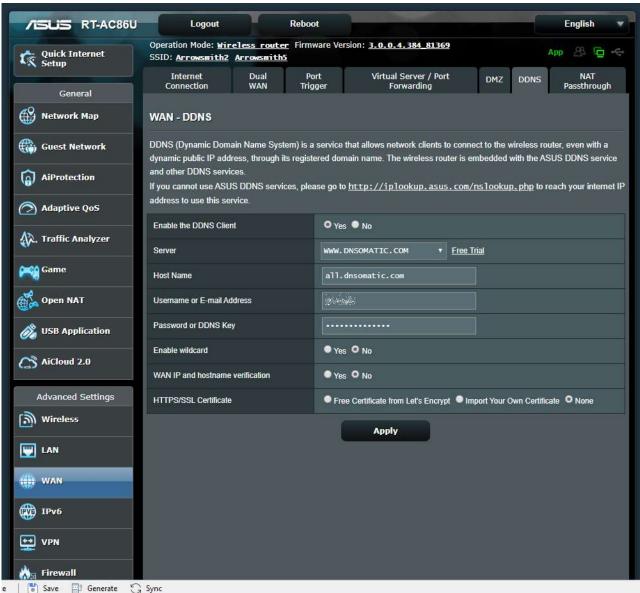






RT-AC86U	Overview Specifications Gallery Review Support Where to buy
Encryption	64-bit WEP, 128-bit WEP, WPA2-PSK, WPA-PSK, WPA-Enterprise , WPA2-Enterprise , WPS support
Firewall & Access Control	Access control: Parental control, Network service filter, URL filter, Port filter
Management	UPnP, IGMP v1/v2/v3, DNS Proxy, DHCP, NTP Client, DDNS, Port Trigger, Port Forwarding, DMZ, System Event Log
VPN Support	IPSec Pass-Through PPTP Pass-Through L2TP Pass-Through PPTP server OpenVPN server PPTP client L2TP client OpenVPN dient
WAN Connection Type	Internet connection type: Automatic IP, Static IP, PPPoE(MPPE supported), PPTP, L2TP
Utilities	Router setup wizard; Firmware restoration; Device discovery; printer setup utility
Ports	RJ45 for Gigabits BaseT for WAN x 1, RJ45 for 10/100/1000/Gigabits BaseT for LAN x 4 USB 2.0 x 1 USB 3.0 x 1
Features	MU-MIMO Traffic Analyzer Adaptive QoS WTFast Gamers Private Network AiProtection Parental Control Guest Network: 2.4 GHz x 3, 5 GHz x 3 Mac OS Backup







Signed in: a expan (Sign out)

YOUR SERVICES DOCUMENTATION ACCOUNT

Your Services / expand all

SERVICE	STATUS	DETAIL	ACTIVE?
ChangeIP	69. Jun 12, 2020 7:16 am		0
No-IP	69. Jun 12, 2020 7:16 am		0
OpenDNS articles::: Arreview (%)	69. Supplementation of the supplementation		9



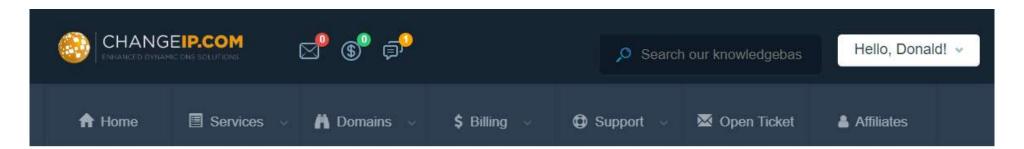
- ▶ How does this work?
- ▶ What is DNS-O-Matic?
- ▶ Why DNS-O-Matic?

Are you a developer?

Getting started with the DNS-O-Matic API is easy. Read the documentation...

Contact

Questions or inquiries? Please email dnsomatic@opendns.com



DNS Manager

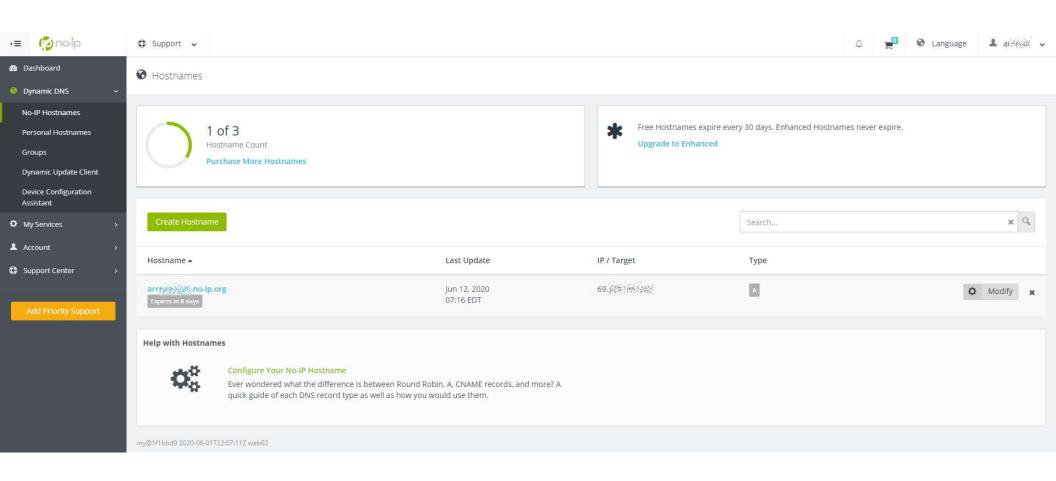
Portal Home / Domain Management

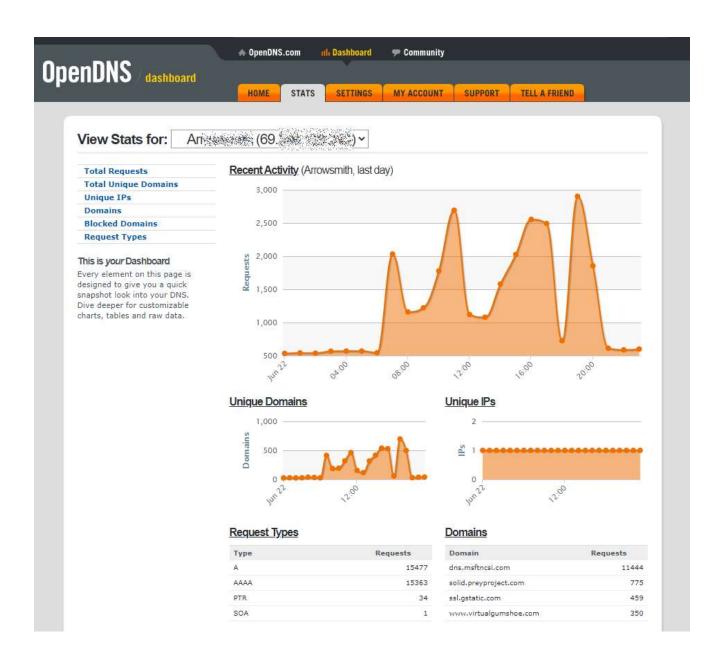
Total Records:1

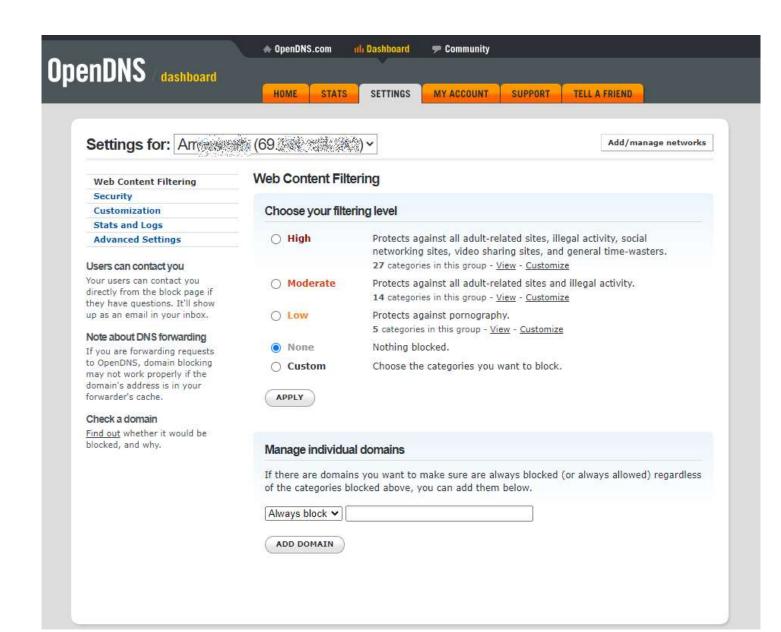
Select All | Cancel All

Hostname	Туре	Value	ПL	Set 1	Set 2
@	А	69.34.	30	No	No

Save Add Record Cancel









BUSINESS VPN

PERSONAL VPN

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OUR PRIVATE TUNNEL: VPN AS A SERVICE

Connecting Your World Securely

Downloaded by millions of people and businesses worldwide and used by IT and Fortune 500 Companies, OpenVPN is the provider of next-gen secure and scalable communication services. Our award-winning open source VPN protocol is the de-facto standard for accessing private information securely. That's the legacy of our software. That's what Private Tunnel is built on.

Wherever you are surfing the net, whether it's at home, over a public wi-fi or traveling, know that your connection is encrypted and your IP address is anonymous. Your devices and network will remain secure and defended with Private Tunnel VPN.

Our mission is to connect your world securely by providing a more safe and secure experience online.



PRIVATE ACCESS

- Encrypt Traffic
- · Secure Connections on WiFi Hot Spots
- Keep your IP address anonymous



CYBER SECURITY

- · Protect your network against online threats
- · Shield your devices from cyber threats
- · Reduce cyber attacks, spoofing and DDoS attacks



VIRTUAL PRESENCE

- · Connect to our servers worldwide
- Access the free world
- Maintain your location while traveling

TAKE ME TO PRIVATE TUNNEL

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Community Downloads

OpenVPN 2.4.8 - released on 2019.10.31

CLOSE

This is primarily a maintenance release with bugfixes and improvements. The Windows installers (1601) have several improvements compared to the previous release.

- New tap-windows6 driver (9.24.2) which fixes some suspend and resume issues
- Latest OpenVPN-GUI
- Considerable performance boost due to new compiler optimization flags

A summary of the changes is available in Changes.rst, and a full list of changes is available here.

Please note that LibreSSL is not a supported crypto backend. We accept patches and we do test on OpenBSD 6.0 which comes with LibreSSL, but if newer versions of LibreSSL break API compatibility we do not take responsibility to fix that.

Also note that Windows installers have been built with NSIS version that has been patched against several NSIS installer code execution and privilege escalation problems. Based on our testing, though, older Windows versions such as Windows 7 might not benefit from these fixes. We thus strongly encourage you to always move NSIS installers to a non-user-writeable location before running them. We are moving to MSI installers in OpenVPN 2.5, but OpenVPN 2.4x will remain NSIS-only.

Compared to OpenVPN 2.3 this is a major update with a large number of new features, improvements and fixes. Some of the major features are AEAD (GCM) cipher and Elliptic Curve DH key exchange support, improved IPv4/IPv6 dual stack support and more seamless connection migration when client's IP address changes (Peer-ID). Also, the new --tls-crypt feature can be used to increase users' connection privacy.

OpenVPN GUI bundled with the Windows installer has a large number of new features compared to the one bundled with OpenVPN 2.3. One of major features is the



BUSINESS VPN

PERSONAL VPN

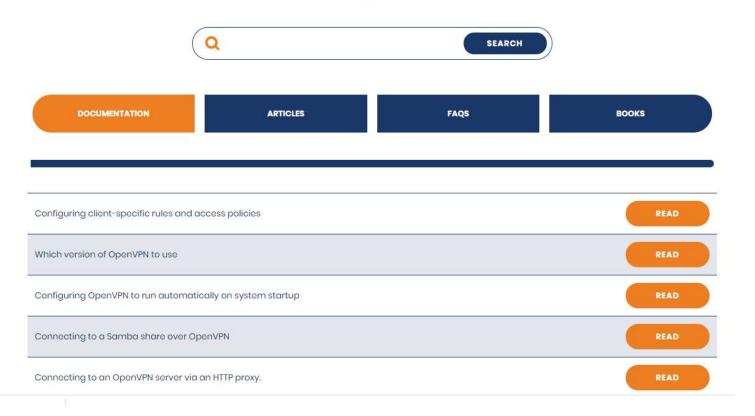
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OPENVPN OPEN SOURCE

Community Resources





Free products > Veeam Agent for Microsoft Windows FREE

Simple, FREE Backup for Windows — Anywhere!

The FREE standalone Veeam® Agent for Microsoft Windows provides a simple solution for backing up Windows-based desktops and laptops. With Veeam Agent for Microsoft Windows FREE, you can easily back up your computer to an external hard drive, NAS (network-attached storage) share or a Veeam Backup & Replication™ repository.

And, should **ransomware** encrypt your files, your system fail to boot, your hard drive crash or an important file get corrupted or accidentally deleted, you can recover what you need in minutes — like it never happened.



Veeam Agent for Windows

Main ← Products ← Veeam Agent for Windows







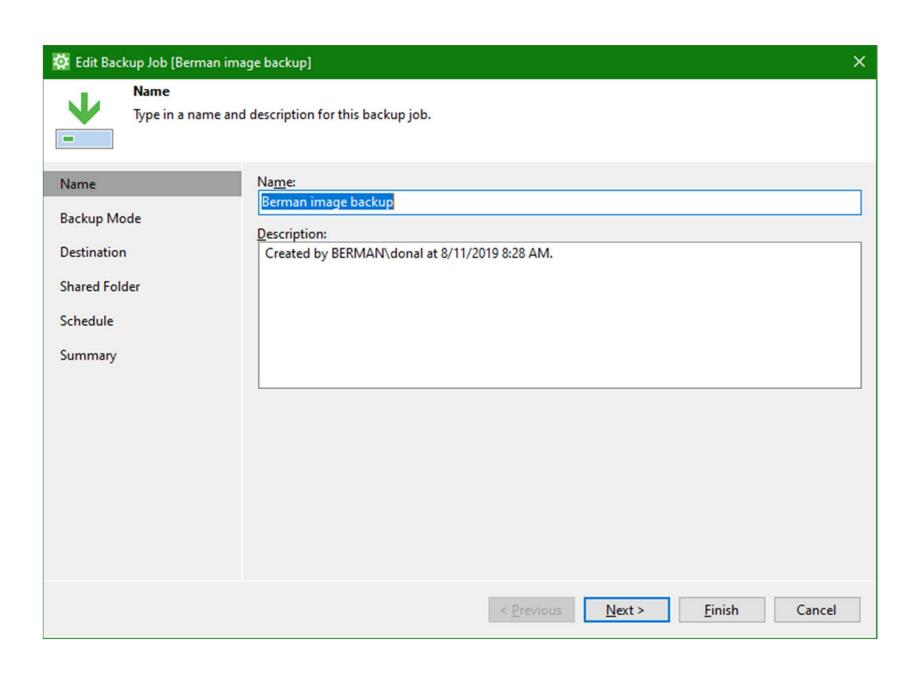


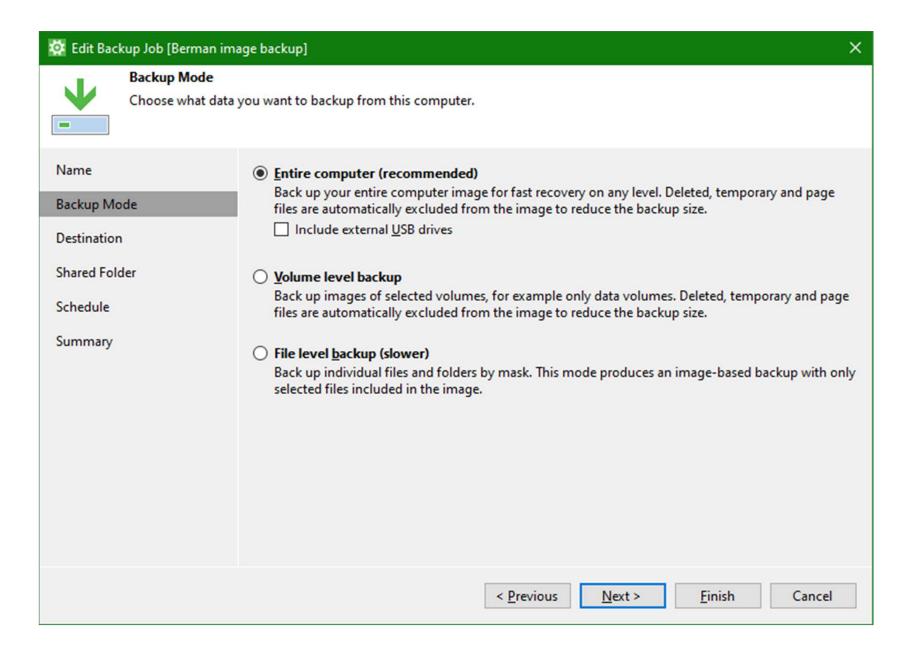


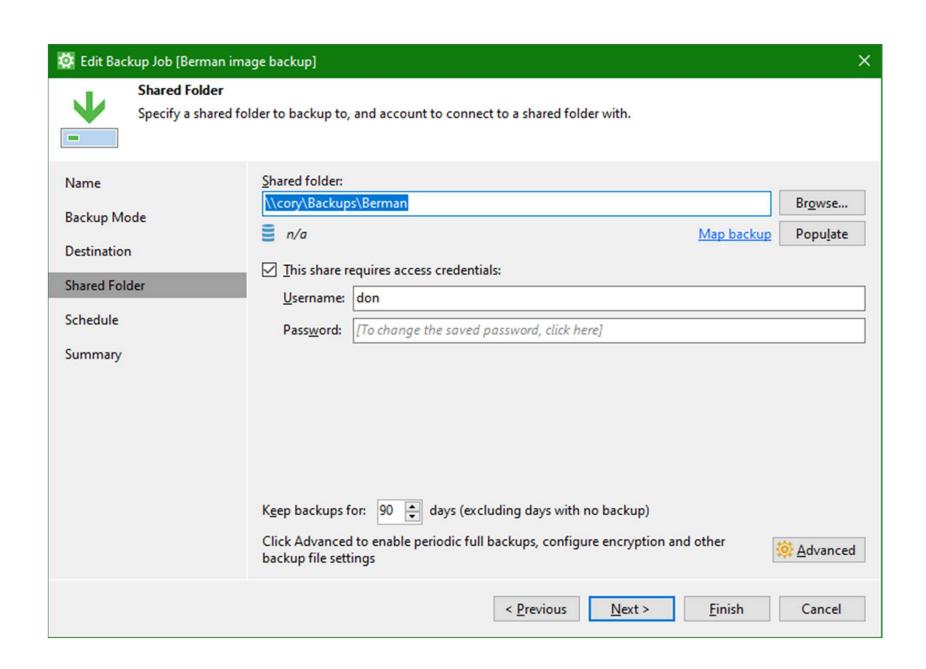


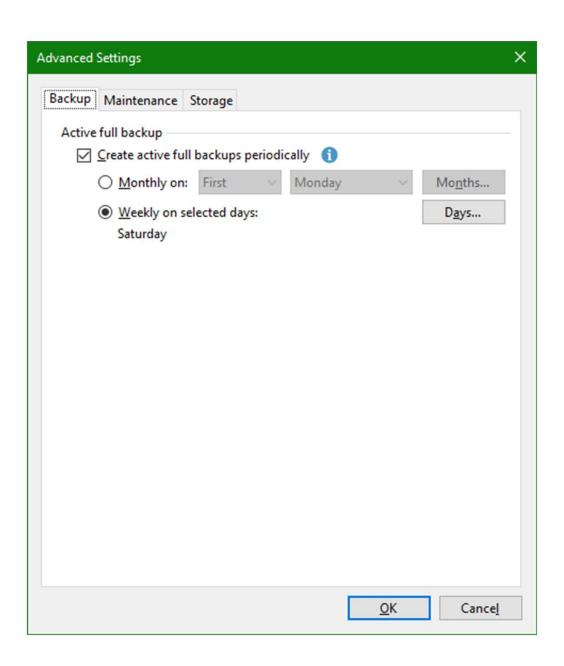
NEW TOPIC 🖋

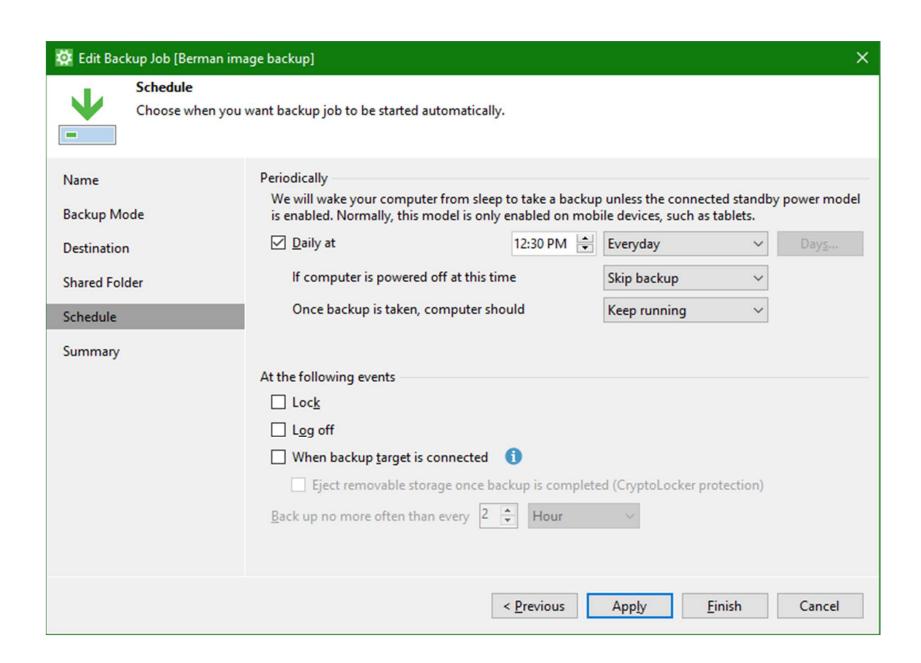
OPICS CONTRACTOR OF THE PROPERTY OF THE PROPER	REPLIES	VIEWS	LAST POST
[ALL VERSIONS] Current version is 4.0 (February 18, 2020) by Dima P. » Aug 04, 2015 2:51 pm	7	212807	by Dima P. © Feb 18, 2020 12:32 pm
Veeam NAS Backup cache repository by rpop » Apr 06, 2020 2:02 pm	0	17	by rpop Apr 06, 2020 2:02 pm
Dedupe Value shown in Report by stevendt » Apr 05, 2020 4:58 pm	1	48	by HannesK ☑ Apr 06, 2020 6:53 am
Veeam Agent notifications TLS 1.2 Support for Office365 by Luther T > Mar 19, 2020 5:15 pm	5	623	by Dima P. 2 Apr 05, 2020 8:45 pm
Backup Chain by SaberGFX » Apr 04, 2020 2:28 pm	4	88	by SaberGFX ☑ Apr 04, 2020 7:22 pm
Veeam Endpoint Backup and Truecrypt by csarli » Dec 17, 2014 5:16 pm	70	13899	by MikhailZ 🚨 Apr 04, 2020 4:44 pm
missing update to 9.5 but i run 10 by vroom * Mar 31, 2020 5:46 pm	4	75	by vroom ☑ Apr 03, 2020 5:59 pm
Encryption Standard by richie94127 » Apr 02, 2020 8:50 pm	3	37	by richie94127 Apr 03, 2020 5:07 pm
Baremetal recovery from SSD to NVMe? by Tobias.F » Apr 02, 2020 1:32 pm	3	74	by Tobias.F 2 Apr 03, 2020 3:28 pm
Impossible to delete Veeam Register Key by Julien Aesir » Jan 31, 2018 9:54 am	11	3822	by lubos 2 Apr 03, 2020 11:51 am
Failed to resolve IP's for repository ?	9	297	by agrob ☑

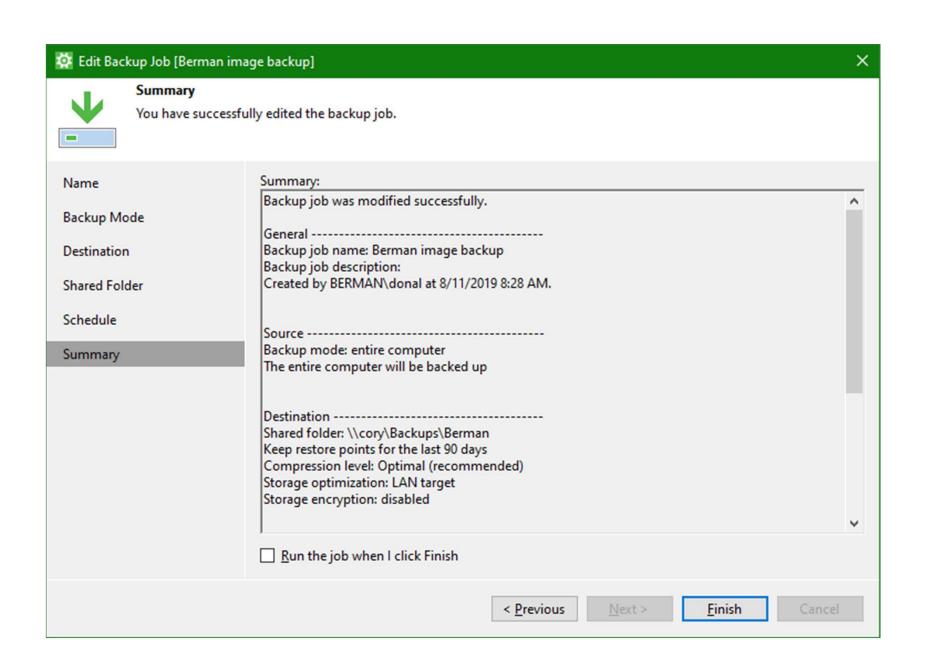


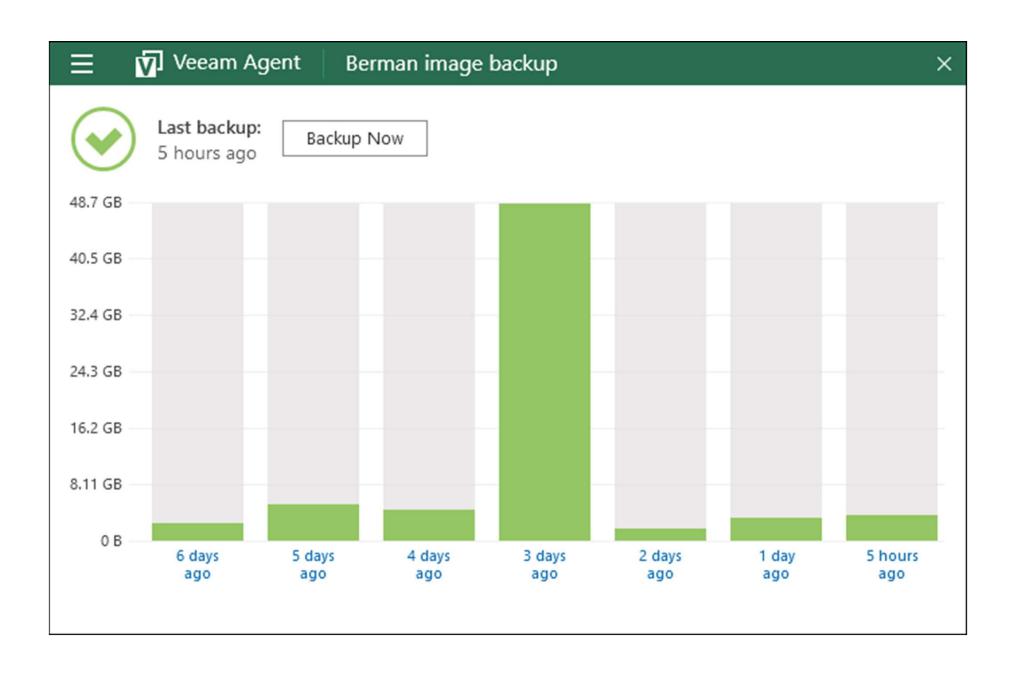














Restore point details

Berman image backup

Backed up items: Recovery;EFI system partition (dis...

Backup duration: 0:02:29

Restore point size: 3.61 GB

Total backup size: 1.07 TB

Average backup duration: 0:03:43

Free disk space: calculating...

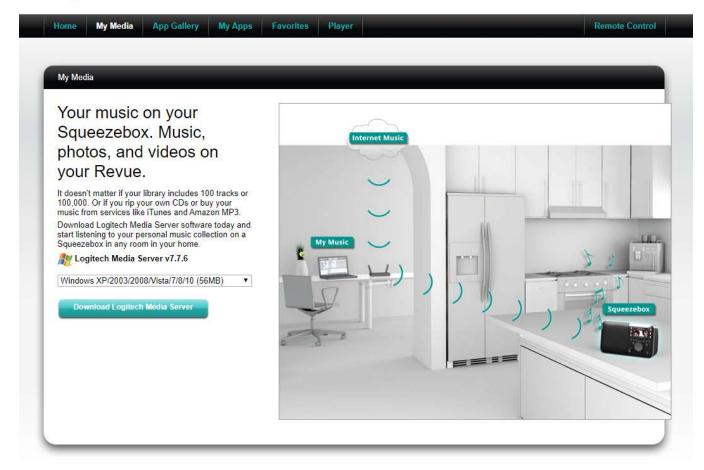
Action	Duration
☑ Initializing	0:00:05
O Preparing for backup	0:00:21
Creating VSS snapshot	0:00:10
Calculating digests	0:00:06
Recovery (disk 0) (450.0 MB) 14.5 MB read at 9 MB/s [CBT]	0:00:01
EFI system partition (disk 0) (100.0 MB) 100.0 MB read at 100 MB/s	
Berman (C:) (106.3 GB) 17.2 GB read at 305 MB/s [CBT]	0:00:57
Recovery partition (disk 0) (520.0 MB) 433.0 MB read at 433 MB/s	
Sinalizing	0:00:02
O Incremental backup created	
Processing finished at 6/23/2020 12:32:29 PM	

Restore Files

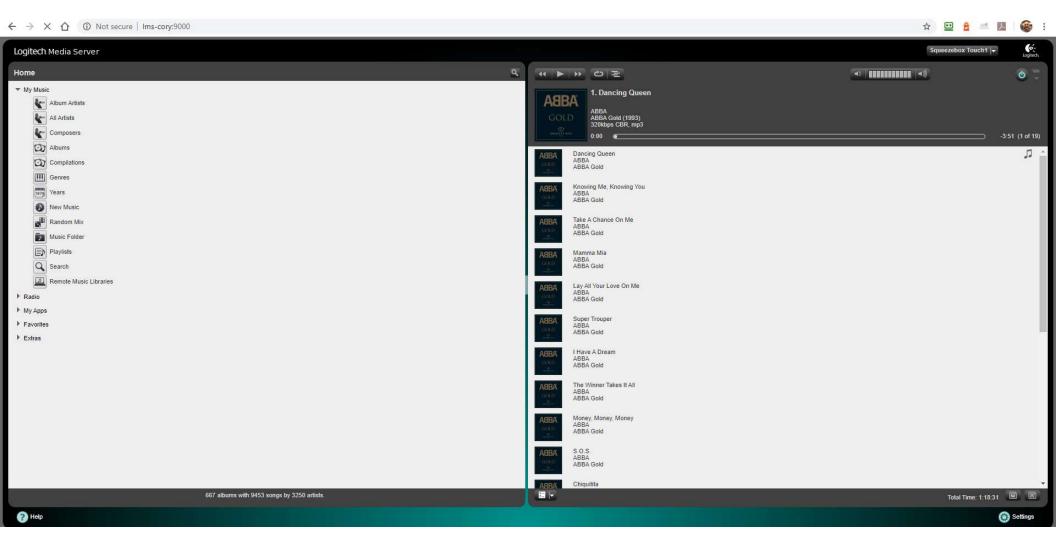
Restore Volumes

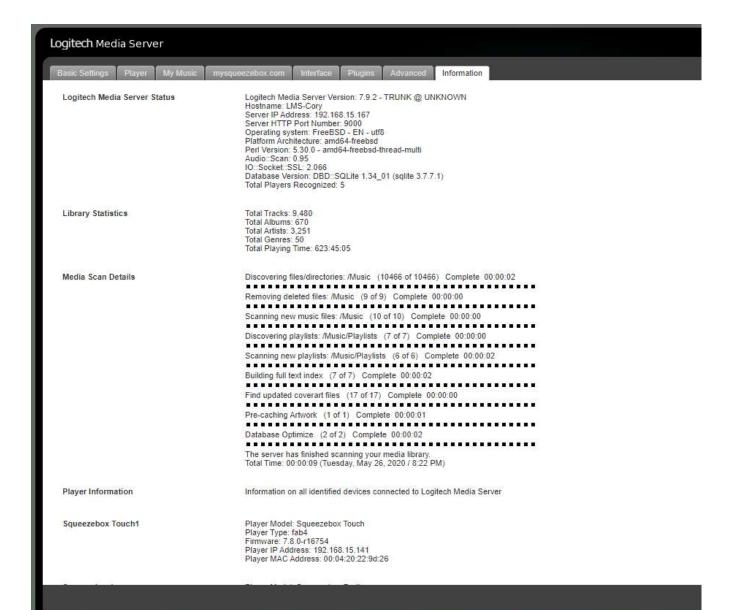
X

schedules	^ Name	Date modified	Туре	Size
survey	Bugsy image backup.vbm	4/29/2020 12:17 PM	Veeam Backup &	999 K
forum_password_change.zip	Bugsy image backup2020-01-01T104127.vbk	1/1/2020 10:53 AM	Veeam Backup &	42,194,872 K
PFMS	Bugsy image backup2020-02-11T143155.vbk	2/11/2020 2:44 PM	Veeam Backup &	42,212,740 k
PowerSentences	Bugsy image backup2020-02-13T124512.vib	2/13/2020 12:49 PM	Veeam Backup &	12,470,884 (
PRS	Bugsy image backup2020-02-16T124509.vib	2/16/2020 12:47 PM	Veeam Backup &	3,287,360
	Bugsy image backup2020-02-17T124511.vib	2/17/2020 12:47 PM	Veeam Backup &	1,964,4481
Rooms Rejuvenated	Bugsy image backup2020-02-23T124509.vib	2/23/2020 12:48 PM	Veeam Backup &	5,113,356
Urban Connection Salon	🔁 Bugsy image backup2020-02-24T124508.vib	2/24/2020 12:47 PM	Veeam Backup &	2,896,480
Very Seldom	Bugsy image backup2020-02-27T124509.vib	2/27/2020 12:47 PM	Veeam Backup &	4,929,464
WastelsATerribleThingToMind	Bugsy image backup2020-03-03T124511.vib	3/3/2020 12:48 PM	Veeam Backup &	5,773,764
WritingWand	Bugsy image backup2020-03-04T134023.vbk	3/4/2020 1:53 PM	Veeam Backup &	44,286,588
WTSRlegacy	Bugsy image backup2020-03-21T121510.vbk	3/21/2020 12:27 PM	Veeam Backup &	43,686,168
	Bugsy image backup2020-03-24T170254.vib	3/24/2020 5:06 PM	Veeam Backup &	5,809,524
Libraries	Bugsy image backup2020-03-25T121509.vib	3/25/2020 12:17 PM	Veeam Backup &	2,645,556
Documents	Bugsy image backup2020-03-28T121509.vbk	3/28/2020 12:31 PM	Veeam Backup &	55,270,644
Music	Bugsy image backup2020-04-01T121510.vib	4/1/2020 12:17 PM	Veeam Backup &	1,583,576
Pictures	🔁 Bugsy image backup2020-04-07T121510.vib	4/7/2020 12:17 PM	Veeam Backup &	4,132,044
Videos	Bugsy image backup2020-04-09T121509.vib	4/9/2020 12:17 PM	Veeam Backup &	3,851,268
- ABITY SELP II	Bugsy image backup2020-04-14T162908.vib	4/14/2020 4:33 PM	Veeam Backup &	8,296,872
Network	🔁 Bugsy image backup2020-04-15T121512.vib	4/15/2020 12:17 PM	Veeam Backup &	1,315,768
BERMAN	Bugsy image backup2020-04-18T121510.vbk	4/18/2020 12:27 PM	Veeam Backup &	42,885,596
CORY	Bugsy image backup2020-04-22T121509.vib	4/22/2020 12:18 PM	Veeam Backup &	7,949,492
Backups	Bugsy image backup2020-04-25T121509.vbk	4/25/2020 12:27 PM	Veeam Backup &	44,387,972
Berman	🔁 Bugsy image backup2020-04-27T121509.vib	4/27/2020 12:17 PM	Veeam Backup &	2,420,044
	🔁 Bugsy image backup2020-04-28T121509.vib	4/28/2020 12:17 PM	Veeam Backup &	2,537,932
Bugsy Bugsy image backup	Bugsy image backup2020-04-29T121511.vib	4/29/2020 12:17 PM	Veeam Backup &	1,809,460



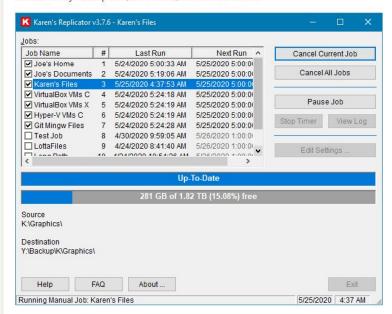








Automatically backup files, directories, even entire drives!



Karen's Replicator copies selected files from one drive/folder to another. Source and Destination folders can reside anywhere on your network.

```
FreeBSD - <a href="https://www.freebsd.org/">https://www.freebsd.org/</a>
```

ixSystems - https://www.ixsystems.com/

FreeNAS - https://www.freenas.org/

ASUS RT-AC86U - https://www.asus.com/us/Networking/RT-AC86U/

DNS-O-Matic - https://www.dnsomatic.com/

ChangeIP - https://www.changeip.com/

No-IP - https://www.noip.com/

OpenDNS - https://www.opendns.com/

OpenVPN - https://openvpn.net/

Veeam - https://www.veeam.com/

Logitech Media Server - https://mysqueezebox.com/download

Karen's Replicator - https://www.karenware.com/powertools/

Questions?

FreeNAS

A Great Choice For A Home Server

Don Arrowsmith, President
Philadelphia Area Computer Society
FreeNAS@ArrowsmithFamily.com



