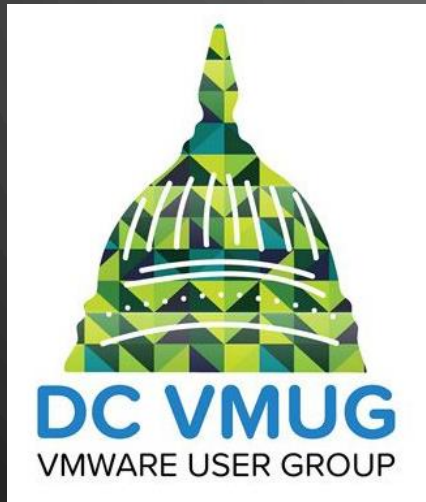


August 20 2020 Washington DC VMUG

TinkerTry home lab's VMware vSphere 7.0 upgrade challenges, successes, and lessons learned.



Paul Braren

TinkerTry.com/contact

vExpert 2014-2020

Veeam Vanguard 2015-2019

VCP # 2681 in 2005

Founder of TinkerTry.com, LLC

Advisory Systems Engineer for New England, Enterprise at
Dell Technologies - Storage, Platforms & Solutions

**Today's presentation is available by 5:00pm
Eastern time on August 20 2020 at:**

bit.ly/dcvmugaug2020

Sorry, bit.ly wouldn't let me create the planned bit.ly/dcvmugaug2020 URL that was in the chat.
Also note that most images in this deck are hyperlinked to the original source.

Feedback always appreciated!

**Public comments left below topic-related
TinkerTry.com articles are preferred.**

See also

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Efficiency, virtualization, storage, backup and more

Efficiency

Virtualization

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Aug 20 2020

Main Presenter.

Washington D.C. VMUG

• Wed Aug 20 2pm - 4pm Eastern

TinkerTry home lab's VMware vSphere 7.0 upgrade challenges, successes, and lessons learned.

by Paul Braren, Founder of TinkerTry.com, LLC

Come see Paul Braren's latest adventures in workbench testing of "TinkerTry'd" home lab Xeon D servers. His close look at the vSphere 7.0 upgrade process has produced numerous revelations about VMware licensing (vExpert/VMUGAdvantage/Essentials) and support, and about various upgrade techniques.

DC VMUG

VMWARE USER GROUP

Washington DC VMUG Presentation on Aug 20 2020 - TinkerTry home lab's VMware vSphere 7.0 upgrade challenges, successes, and lessons learned.

Posted by Paul Braren on Aug 19 2020 in UserGroup, Presentations, VMUGAdvantage

I wanted to let folks know that I'll be presenting tomorrow, and I'm hoping folks can join us from all across the world to not just hear my experiences, but to share yours as well. In case you didn't know, Al Rasheed is a co-leader for this VMUG, and it's my very first time presenting to this particular VMUG. I sure am looking forward to it!



Some silly tourist doing selfies on United States Capitol Grounds - July 12, 2019.

TinkerTry

IT@home

Efficiency, virtualization, storage, backup and more

TinkerTry

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Efficiency, virtualization, storage, backup and more

August 20 2020 Washington DC VMUG

Disclaimer:

My presentation today is not associated with my employer, my day job. I'm here as content creator at TinkerTry.com. All major product releases have issues, this presentation focuses on helpful, constructive, positive stories of success in hopes of helping others smooth out the inevitable rough edges they'll experience too. After lab testing, we'll all be that much more ready for when vSphere 7.0 Update 1 arrives!



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Come see Paul Braren's latest adventures in workbench testing of "TinkerTry'd" home lab Xeon D servers. His close look at the vSphere 7.0 upgrade process has produced numerous revelations about VMware licensing (vExpert/VMUGAdvantage/Essentials) and support, and about various upgrade techniques. Many of his challenges were of the self-induced variety, others were related to unusual use-cases. Once the rough edges were resolved, he used the lessons-learned to finalize his configuration on his 4th node, the 12 core production server. This crucial always-on system is where his VCSA 7.0b, automated backups, and Windows 10 workstation VM all reside, used heavily for all content creation at TinkerTry including vSphere 7 articles and videos, even 4K video editing on triple monitors! He'll cover automated graceful ESXi shutdowns, UPS battery failures, brutal Folding at home workloads, router and network issues, and long shipping delays that all conspired to slow progress. Come along for this deeper dive into exactly what went down during Paul's relentless evening and weekend tinkering, and also learn exactly how he ultimately prevailed over some small and not-so-small issues with audio support and GPU passthrough quirks. Along the way, you'll see the variety of simple tools he's come to rely upon in the 15 years since his first VCP, part of his planned live demo of his compact and efficient home datacenter, now running the latest VMware ESXi 7.0b hypervisor on all 4 nodes!

Online Only - Virtual Event - [Register free here](#), wherever you live.



Outline

- Background
 - TinkerTry's home lab's history and current state, including Who, What, Where, When, and Why?
 - Ways of thinking about getting the maximum value from a home lab
 - Demo/overview of my vSphere 7.0 home lab
 - Explanation and demonstration of challenges I encountered
 - Discussion about challenges others encountered
 - Discuss effective ways home lab enthusiasts with supported hardware but no support contract can report bugs to VMware effectively
- 

Introduction

My IT Career Timeline

Cornell University Help Desk

Mar 1993 - Jul 1994 - Worked for free that first week, on the promise of reducing PC (DOS/Windows) help ticket backlog. Did some development as we rapidly got students online in those very early days of explosive internet growth.



MindShare Associates

Sep 1994 - Oct 1997 - OS/2 Technical Consultant / Trainer

Got myself OS/2 Certified, earning myself a chance to train corporate resellers. I became the technical lead as we grew from 12 to 180 employees in a 6 month span, driving extensively because we couldn't afford to fly. Worked from 1995 to 1997 as a contractor at IBM Waltham Solution Partnership Center which became the IBM Innovation Center, training, and creating a new computing infrastructure and standing up all new datacenter equipment at a lovely customer-facing facility. Curator of the ThinkPad museum in the lobby too!



IBM

Oct 1997 - Dec 2016 - World Wide Technical Team Lead of IBM

ServerProven Program, helping build then run the customer datacenter.

We helped customers speed up their application, and I helped

automated the OS deployments for all those labs and classes. I then

flew around for 5 years as a Lab Services Technical Consultant and Trainer, doing many rack-and-stacks and *VMware JumpStart!* deployment/trainings, deployed datacenter hardware and software in 35 of the 50 states in nearly all industry sectors, including Federal. My last 7 years at IBM as a Senior Storage Technical Advisor were focused on IBM XIV and FlashSystem Storage, performing and overseeing hundreds of successful installations of half-million dollar deployments. This role included customer risk-reduction through careful, proactive change management, along with emergency response management. yes, that meant I was on-call duty nearly 24x7, for 7 years!. I also did root-cause analysis after data available events. Gladly, of my dozens of customers, none experienced a data loss event.



I announced the end of my international adventures at IBM in my thank you article titled [Thank you IBM](#), for 21 amazing years!.

VMware

Jan 2017 - Jun 2019 - VMware Systems Engineer (vSAN)

While airborne, I proudly announced [Today is my first day at VMware!](#).

I went in with my eyes wide open, knowing full well that such a career

pivot to a pre-sales role would be rather new to me, as it was not the sort of role

I had been in since the early 1990s. My title was Systems Engineer, reporting to

incredibly well-liked [Peter Keilty](#). I got to witness the team double in size several

times, an awesome rocket-ship ride trajectory was a very good thing for

employees. I was one of only 4 hired in the Commercial sector, covering a

massive patch, from Michigan to Maine to Virginia!

Aug 2018 - VMware Senior Systems Engineer (vSAN). This was a promotion, and a relief. Perhaps I can do this job after all!

Feb 2018 - VMware Senior Solutions Engineer (HCI)

Promotion! Paried with my [Account Executive](#), we beat all sales objectives and

then some, and received team awards. By the end of the year, our territory had

shrunk to New England and Metro New York City, which is perfect for where I live

in Central Connecticut, [right between Boston and New York!](#) Driving now more

than flying, but still helping with booth duty at industry events too, which I quite

enjoy.

Feb 2019 - Even more hiring, wow! This is sales, where change is to be expected.



Pivot3

Jun 2019 - Advisory Systems Engineer / vArchitect

Details at [Just started my next adventure in infrastructure IT at](#)

Pivot3 as a Solutions Architect!



Dell Technologies

Oct 2019 - Advisory vArchitect

Details at [Today is my first day at Dell](#)

Technologies as an Advisory vArchitect!



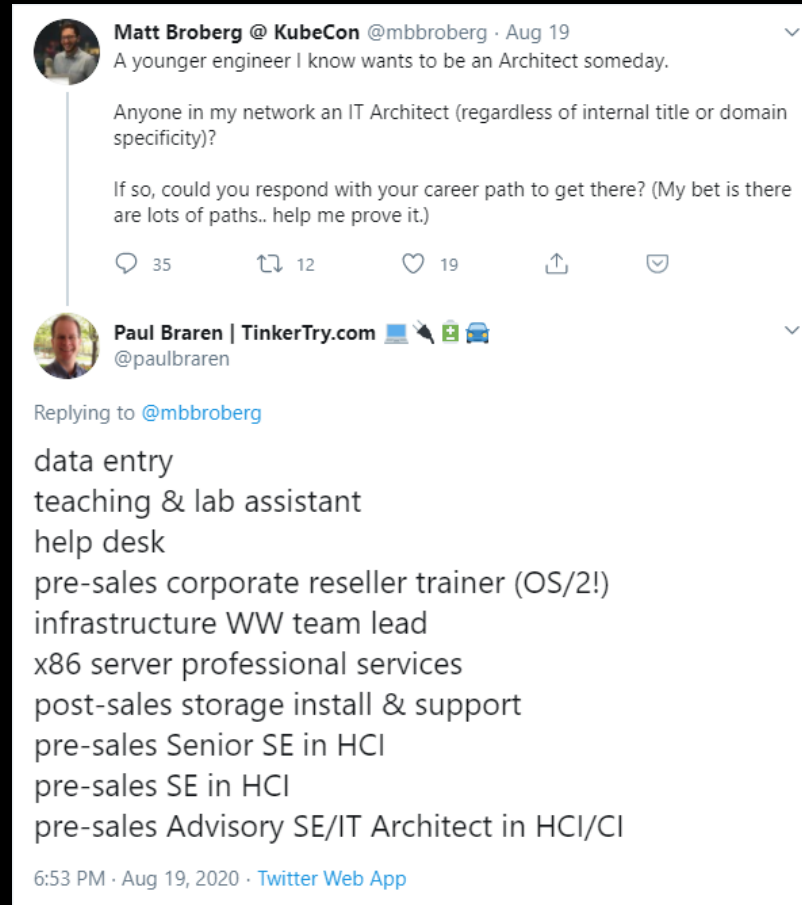
[TinkerTry.com/about](https://tinkerttry.com/about)

Introduction



@paulbraren

See also



Introduction



TinkerTry IT@home

Efficiency, virtualization, storage, backup and more

[Efficiency](#) [Virtualization](#) [Storage](#) [Backup](#) [Smart Home](#) [Tesla](#) [vSphere 7](#) [Videos](#) [More](#)



VMware's software defined storage, get your VVol (Virtual Volume) overview here!

Posted by Paul Braren on Mar 1 2015 (updated on Apr 17 2015) in [ESXi](#), [Virtualization](#), [Storage](#)

My work with IBM on VVol (**Virtual Volume**) over at [IBM's European Storage Competence Center](#) is now published! If you read TinkerTry last September, you know I went to work at Mainz Germany for a month. Now, you also know what I was really doing there. I love immersing myself in tech that's at the leading, speeding, and sometimes bleeding, edge. Using the latest software and microcode, pushing the boundaries of what's possible forward. Right up my alley. Months before it's "ready." I'm so glad I had my family's support for me to be thousands of miles away for a month, tackling this challenging work and a finicky Fiat stick-shift, in a very foreign land. With incredibly smart, experienced authors who were clearly way ahead of me.



The lovely farmer's market in downtown Mainz, on a beautiful Saturday Sep 27th, 2014. Right near the Gutenberg Museum.

Many reasons for home labs

Who, what, when, where, and why

We'll get back to vSphere 7.0 upgrade stories in a bit, just setting the table first.



Who?

Anybody interested in furthering their hands-on sysadmin skills, certification, and/or career.

The screenshot shows the VMware website for the VCP-DCV 2020 certification. The page features the VMware logo, navigation links (Cloud, Solutions, Products, Support & Services, Downloads, Partners, Company), and a search bar. The main heading is "VMware Certified Professional - Data Center Virtualization 2020 (VCP-DCV 2020)". Below this, there is a section for the certification path, which includes a diagram showing the progression from "VCP-DCV 2020" to "VCP-DCV 2020" and "VCP-DCV 2020". The page also includes a "Testimonials" section and a "Cookie Settings" button.

VMware Certified Professional - Data Center Virtualization 2020 (VCP-DCV 2020)

The VCP-DCV 2020 certification validates candidate skills to implement, manage, and troubleshoot a vSphere V6.7 infrastructure, using best practices to provide a powerful, flexible, and secure foundation for business agility that can accelerate the transformation to cloud computing.

Certification Path

Testimonials

Cookie Settings

What?

Both hardware and software is required to get started.



March 1st Connecticut VMUG UserCon - one lucky attendee will win a TinkerTry'd SuperServer, thanks to the VMware User Group!

Posted by Paul Braren on Feb 21 2018 (updated on Dec 7 2018) in ESXi, Virtualization, HomeLab, HomeServer, Presentations, UserGroup, VMUGAdvantage 3 Comments

March 1, 2018 - New Haven, Connecticut
Don't forget to [register](#), it's free. Don't forget to enter the raffle when you stop by my pedestal, and stick around for this very special end-of-day give-away!

REGISTER NOW!



Mike Foley
@mikefoley

Following

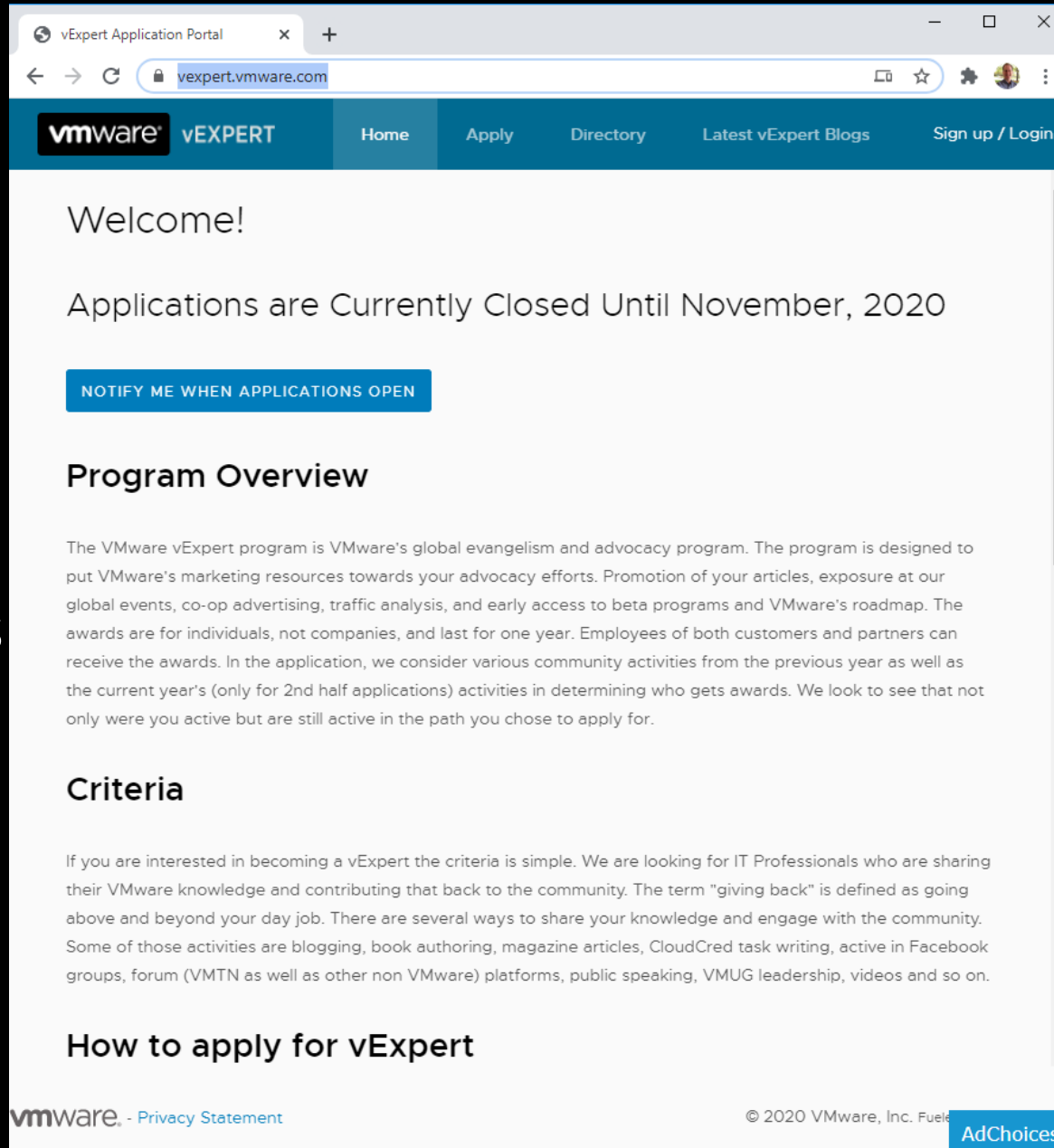
On the fence about going to the [@CT_VMUG](#)? Come listen to [@shawnbass](#),

When?

Any time you have the inclination and the budget to leave an efficient lab running 24x7. The actual work tends to begin after-hours, when family demands are typically lessened.

Where?

To get the software, the VMware vExpert advocacy program is one way.



The screenshot shows the VMware vExpert Application Portal. The browser address bar displays 'vexpert.vmware.com'. The navigation bar includes the VMware logo, 'vEXPERT', and links for 'Home', 'Apply', 'Directory', 'Latest vExpert Blogs', and 'Sign up / Login'. The main content area starts with a 'Welcome!' message, followed by a notice that 'Applications are Currently Closed Until November, 2020'. Below this is a blue button labeled 'NOTIFY ME WHEN APPLICATIONS OPEN'. The 'Program Overview' section describes the VMware vExpert program as a global evangelism and advocacy program designed to support individuals' marketing efforts. The 'Criteria' section outlines the requirements for becoming a vExpert, emphasizing the need for IT professionals to share their knowledge and contribute to the community. The 'How to apply for vExpert' section is partially visible at the bottom. The footer contains the VMware logo, a link to the 'Privacy Statement', the copyright notice '© 2020 VMware, Inc. Fuel', and an 'AdChoices' button.

vExpert Application Portal

vexpert.vmware.com

vmware vEXPERT Home Apply Directory Latest vExpert Blogs Sign up / Login

Welcome!

Applications are Currently Closed Until November, 2020

NOTIFY ME WHEN APPLICATIONS OPEN

Program Overview

The VMware vExpert program is VMware's global evangelism and advocacy program. The program is designed to put VMware's marketing resources towards your advocacy efforts. Promotion of your articles, exposure at our global events, co-op advertising, traffic analysis, and early access to beta programs and VMware's roadmap. The awards are for individuals, not companies, and last for one year. Employees of both customers and partners can receive the awards. In the application, we consider various community activities from the previous year as well as the current year's (only for 2nd half applications) activities in determining who gets awards. We look to see that not only were you active but are still active in the path you chose to apply for.

Criteria

If you are interested in becoming a vExpert the criteria is simple. We are looking for IT Professionals who are sharing their VMware knowledge and contributing that back to the community. The term "giving back" is defined as going above and beyond your day job. There are several ways to share your knowledge and engage with the community. Some of those activities are blogging, book authoring, magazine articles, CloudCred task writing, active in Facebook groups, forum (VMTN as well as other non VMware) platforms, public speaking, VMUG leadership, videos and so on.

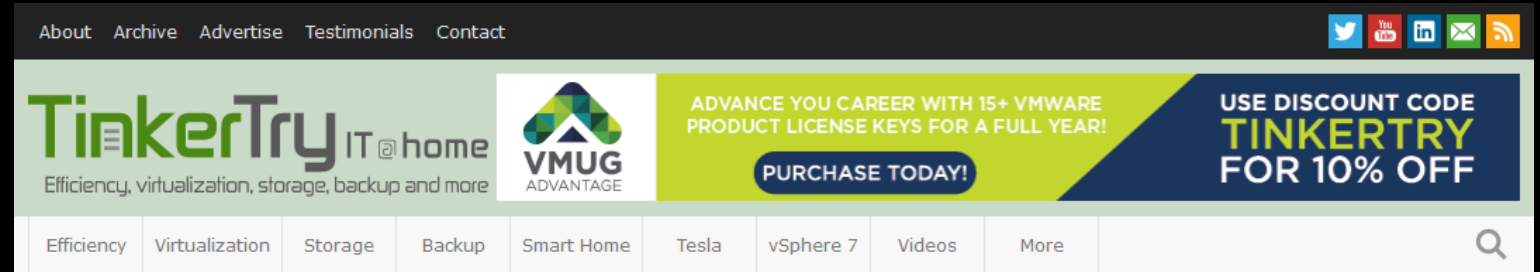
How to apply for vExpert

vmware - Privacy Statement

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AdChoices

Where?




VMUG Advantage EVALExperience is another way, use discount code **TINKERTRY** to bring the \$200 cost down 10%.



Where?

Even if you're back-level, don't worry, we got your back

Paul Braren | TinkerTry.com @paulbraren · Oct 31, 2019
Oh gosh, no problem, glad [TinkerTry.com/easy-update-to...](#) helped! Just looked up the page stats, turns out it has passed 100,000 views, apparently there's a need, geez! Notice the new @VMUGAdvantage ad atop TinkerTry? I'm so thankful for their support, such a great match!




2 1 2

VMUG Advantage @VMUGAdv · Nov 1, 2019
Congrats on 100,000 views! We appreciate your support for the @MyVMUG community and #VMUGAdvantage!

1 4

Paul Braren | TinkerTry.com @paulbraren
Replying to @VMUGAdv @jdwallace and 2 others
Wow @VMUGAdv, what an awesome surprise to have such great swag waiting for me at the post office today, THANK YOU for your support of the #vCommunity! Happy to wear it proudly, and glad to distribute those pamphlets at any VMUGs I attend! [TinkerTry.com/vmug-advantage...](#) @MyVMUG #vExpert



9:33 PM · Nov 21, 2019 · Twitter Web App

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Efficiency, virtualization, storage, backup and more

Efficiency Virtualization Storage Backup Smart Home Tesla vSphere 7 Videos More

xd-1541-5028d.lab.local - VMware ESXi

root@xd-1541-5028d.lab.local | Help | Search

Manage with vCenter Server | Create/Register VM | Shut down | Reboot | Refresh | Actions

xd-1541-5028d.lab.local

Version: 7.0.0 (Build 18324042)
State: Normal (connected to vCenter Server a...
Uptime: 0 days

CPU: FREE: 583 MHz / USED: 16.2 GHz / CAPACITY: 16.8 GHz / 97%
MEMORY: FREE: 28.4 GB / USED: 35.5 GB / CAPACITY: 63.9 GB / 56%
STORAGE: FREE: 542.22 GB / USED: 828.53 GB / CAPACITY: 1.34 TB / 60%

How to update any VMware ESXi Hypervisor to the latest using ESXCLI for easy download and install


Posted by Paul Braren on Aug 14 2018 (updated on Aug 17 2020) in ESXi, HowTo, HomeLab, Virtualization, vSphere7 78 Comments

The below list of one-liner SSH commands allow **all ESXi enthusiasts** to get to the very latest ESXi version (or any particular version) at any time. Seriously easy, much like `apt get` in Linux. Yes, even these folks:

- users of the **Free Hypervisor** (limited functionality)
- sysadmins for small labs with ESXi only and **no vCenter or VCSA**, thus, no VMware Update Manager (VUM), the preferred way to upgrade
- folks like me who have a VCSA appliance on the ESXi host we're trying to update but it won't let us proceed because we don't have DRS set to on for our small cluster (or single server)
- VMUG Advantage **EVALExperience Subscribers**, well worth every penny (full functionality, no need to rebuild, just re-up every year)

Let that sink in for a moment. It doesn't really matter that the **Free Hypervisor** and **EVALExperience** download sites aren't updated very often, you don't have to wait to get the latest version of the ESXi Hypervisor! For example, you can easily test the very latest Hypervisor-Specific Mitigations.

Warning!



Try vSphere for Free

Two easy ways to try vSphere: Get up and running in minutes with our H on Labs, or download vSphere in your testing environment.

Start Hands-on Labs > Download Now >

VMUG Advantage gives me value end-to-end. I was able to use EVALExperience licenses to build my home lab, got discounts on both training and certification, and used my VMUG Advantage discount for VMworld (the only discount that stacks!). As long as I'm using VMware products, I'll be upgrading to VMUG Advantage.

- VMUG Advantage Member

Why?

Maybe you're so done with mere exam cramming with the bare minimum of gear, using VMware Workstation or the like with SATA SSDs. Instead, you're ready to dedicate a workstation or server to ESXi 7.0 Hypervisor, running many VMs efficiently, 24x7.

Why?

I feel there's a need for both articles that help IT professionals just getting started with vSphere, for articles and videos that detail step-by-step deployment techniques, and for articles and videos on more advanced topics surrounding virtualization. This includes the physical aspects of running your own home datacenter efficiently, such as noise and heat, along with the variety of software that adds considerable value while still keeping things safe and simple, even for those who share my affinity for life at the bleeding edge.

Tip:

Use hostnames instead of IP addresses

Use this \$177 router

[TinkerTry.com/edge-router-lite-update](https://tinkerttry.com/edge-router-lite-update)



EdgeRouter™4

4-Port Gigabit Router with 1 SFP Port

The EdgeRouter™ 4 delivers 3.4 million packets per second routing performance in a compact and cost-effective unit.

Model: ER-4

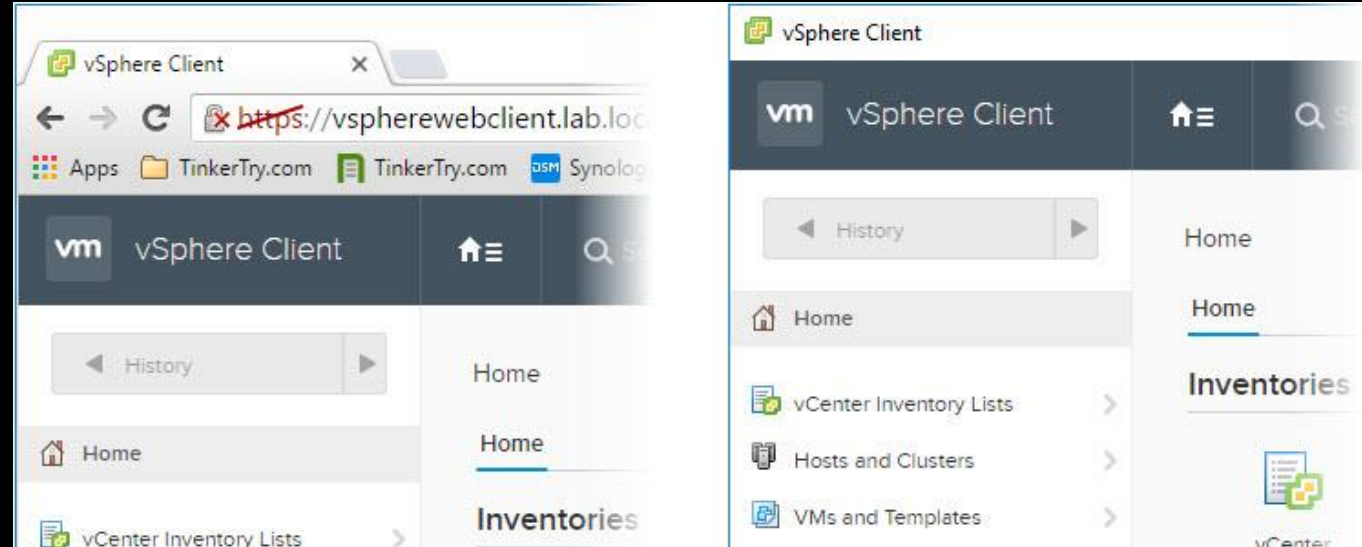
Tip:

Make your “vSphere Web Client” look and work more like an installed application

Use Chrome’s “Create application shortcuts...” menu to create a launch icon in your Windows Task Bar, see:

“Use Chrome for VMware-related taskbar shortcuts, unclutter your browser-based UIs so they look like native apps!”

[TinkerTry.com/appify-your-vmware-related-web-uis](https://tinkerttry.com/appify-your-vmware-related-web-uis)



One Solution, 2016 – 2020

Over 1,000 folks bought Bundles from Wiredzone, with less than a 0.5% return rate.

Ready for VMware ESXi 6 / Microsoft Windows 10 / Windows Server / Hyper-V!

NEW

SUPERMICRO

Supermicro Mini Tower Intel Xeon D-1540 Bundle 2

SKU: 10024470B2
MFG Part Number: SYS-5028D-TN4T-BUNDLE2
In stock


(write a review)

• 64GB DDR4 2133MHz RDIMM ECC Memory
• Assembly and Testing Included

Bonus Items

• SanDisk Ultra Fit CZ43 32GB USB 3.0 Flash Drive
• Internal System Speaker
• 6th SATA3 Supermicro Cable
• TinkerTry Stickers

WARRANTY 3 YEAR




TinkerTry'd Supermicro SuperServer Bundle - powerful and efficient home virtualization lab solutions

TinkerTry IT@home
Efficient virtualization, storage, backup and more

TinkerTry'd Home Datacenter
Powerful, quiet, compact, efficient solution bundles.

intel **SUPERMICRO**



- Intel Xeon D-1541 or Intel Xeon D-1567 14nm SoC (System on a Chip)
8 or 12 cores (vs. Skylake's 4)
6 2x/3x more L3 cache, up to:
 - ◊ 128GB DDR4 RAM (4x32GB 2400MHz), 64GB included (2x32GB)
 - ◊ 6 SATA3 drive bays (2 int. 2.5" + 4 3.5" hot-swap (2.5" opt.))
 - ◊ 1 NVMe drive slot (PCIe 3.0x4/M.2/U.2) for fastest SSD., opt. 2nd M.2 adapter, 3,500/2,700 MB/sec read/write! (~6x SATA3)
- 4 RJ45 NICs — 2 Intel X557 10GbE + 2 Intel I-350 1GbE
- 1 RJ45 1GbE for IPMI mgmt./iKVM Console Redirection w/ HTML5
- Supermicro SuperServer SYS-5028D-TN4T w/ ESXi 6.7 is easy, and is the only mini-tower on the **VMware Compatibility Guide**, not Intel NUC, HPE Gen8/9 MicroServer, Apple Mac mini, ASUS, ASRock Rack, or GIGABYTE Server
- VMware vSphere 6.0/6.5/6.7, Win 10/Server 2012/16/19/Hyper-V, RHEL, SuSE, Nutanix CE/Acropolis, FreeNAS, or XenServer
- Details and reseller's prices at TinkerTry.com/superservers

Announcing the Intel® Xeon® Processor D-1500
Utilizing 20 Years of Data Center Experience

IN PRODUCTION

Intelligent
Xeon performance and features
RAS, Intel® Virtualization Tech,
Platform Storage Extensions, Intel® AES-NI

Dense
Integrated Intel® Ethernet & I/Os
~20 - 45 W

Agile
IA Software Compatible
Software scalability across platforms

System on a Chip (SoC)
Intel 14nm process technology

Solutions 2021 - future

More cowbell?

- How about more NVMe, M.2 and/or U.2? Do we even bother with 3.5" SATA drive bays and/or 2.5" SATA drive bays?
- Is hot swap drive functionality really that important at home?
- How about silent/fanless designs?
- How does 4 "starter" nodes in one chassis (vSAN/VxRail) sound?



[This Photo](#) by Unknown Author is licensed under [CC BY-NC-ND](#)

Fanless 10G networking



My reasonably quiet 10G networking

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EfficiencyVirtualizationStorageBackupSmart HomeTeslavSphere 7VideosMore



Netgear XS708T managed 8 port 10GbE switch unboxed, noise and power draw measured - suited for Xeon D cluster

Posted by Paul Braren on Jul 31 2016 (updated on Aug 1 2016) in Network, Efficiency, HomeLab, Review 22 Comments

What do you look for when you're trying to build a 3 node test/demo cluster, with each Xeon D system blessed with two copper 10GbE ports each?

How about a relatively quiet switch that doesn't burn more power than the servers its connecting!

Just so happens Netgear recently release just such a 10GbE switch, see also the very recent (and very good) review with lots of pictures over at Serve The Home here:

- **Netgear ProSAFE XS708T Review: Quiet 8 port 10Gbase-T switch**
JUL 07 2016 by PATRICK KENNEDY at STH

NETGEAR
XS708T – ProSAFE® 10 Gigabit Smart Managed Switch
Model / Version: XS708T
[Downloads](#) [Documentation](#) [Looking to buy?](#) [New Model Search >](#)
Product Page - XS708T – ProSAFE® 10 Gigabit Smart Managed Switch, Model / Version: XS708T



My Home Lab Workbench



My Home Lab Workbench Live View screenshot



Demo Time! (1 of 2)

- NVMe storage speeds featuring Samsung 960 PRO M.2 2TB NVMe, let's full clone a Windows 10 VM and see how long it takes!
- VMFS Datastore labels.
- Updating VMware Tools
- Updating VM Hardware
- Skyline Health
Easy Event viewing, even in ESXi Host Client!
- [Folding@home VMs](#) for virus research
- The latest HTML5 vSphere Client (VCSA 7.0.0c and ESXi 7.0b).
- *Snapshot based backups of 7.0 U1 or later not supported*
- **vLCM** (vSphere Lifecycle Manager)
- Anything else you would like to try?

Issues & Workarounds

- 10G cable length
10G NICs
1G sometimes has networking slowdowns, even with just one vSwitch attached to one physical 1G NIC, but this only happens if more than 1 1G or 10G connection is made



Issues & Workarounds

GPU pass through mappings lost after ESXi reboot, workaround at TinkerTry here:

[VMware vSphere / ESXi 7.0 GA work-around for GPU passthrough issues including disabled-after-reboot bug and UI bug](#)

Issues & Workarounds

This is a self-inflicted issue, noticed when pushing the limits of what's possible by using a Windows 10 VM running on ESXi 7.0 acting as [my primary workstation](#) with GPU pass through. This is a “brittle” solution that also had some issues going from 6.5 to 6.7.

USB mapping of audio devices and USB-over-IP issues

Host USB devices mapped to my Windows 10 VM such as sound devices worked in 6.5 and 6.7, but not in 7.0, so I had to move them to my [Silex DS-600](#) USB-over-IP device. For keyboard/mouse, I'm using my [Digi AnywhereUSB/2](#).

Issues & Workarounds

- VCSA VAMI Updates tab occasionally shows this warning that goes away when you check for updates, as seen in my Aug 19 2020 video upgrading from 7.0.0b to 7.0.0c, [at this spot](#):

Error in method invocation [Errno 2] No such file or directory: '/storage/core/software-update/updates/index'

The screenshot shows the vCenter Server Management interface. The left sidebar contains navigation links: Summary, Monitor, Access, Networking, Firewall, Time, Services, Update (selected), Administration, Syslog, and Backup. The main content area is titled 'Current version details' and shows the product type as 'vCenter Server with an embedded Platform Services Controller' and the version as '7.0.0.10600'. Below this, the 'Available updates' tab is selected, showing the last checked time as 'Aug 20, 2020, 02:59:52 PM'. A red error message is displayed: 'Error in method invocation [Errno 2] No such file or directory: '/storage/core/software-update/updates/index''. Below the error message, there is a table with columns: Version, Type, Release Date, Reboot Required, and Severity. The table is empty, and a message at the bottom states 'No applicable update found.'.

Version	Type	Release Date	Reboot Required	Severity
---------	------	--------------	-----------------	----------

Issues & Workarounds

- Upgrading from VCSA 7.0 to 7.0b was problematic for me, fix was easy, as reported on Reddit, and now documented and shown in video at TinkerTry:
[How to workaround "Update installation failed. vCenter Server is non-operational." message during VCSA 7.0 update](#)

Issues & Workarounds

- Recent Tasks still not always showing recent activity, this is not easily reproduced, and I've seen this on prior versions as well.

Related to turning off auto-logout for vSphere Client?

See also at TinkerTry:

[How to change or disable your VMware vSphere Client default inactivity timeout](#)

Issues & Workarounds

- Overheating / throttling systems that required a BIOS update

[Strange thermal Issue after Update to ESXi 7.0b](#) by Michael Schroeder at ELASTICSKY

4. JULY 2020 BY MICHAEL SCHROEDER


Strange thermal Issue after Update to ESXi 7.0b

Patch build 16324942 for ESXi 7.0 has been released on June 23rd 2020. It will raise ESXi 7.0 GA to [ESXi 7.0b](#). As usual I'm patching my [homelab systems](#) ASAP. As all hosts are fully compliant with HCL, I chose a fully automated cluster remediation by vSphere Lifecycle Manager (vLCM).

The specs

Server	SuperMicro SYS-E300-9D-8CN8TP
BIOS	1.3
ESXi	7.0 GA build 15843807 (before) / 7.0b build 16324942 (after)
HCL compliant	yes

During host reboot I realized a temperature warning LED on the chassis. A look into IPMI revealed a critical CPU temperature state. Also the fans responsible for CPU airflow ran at maximum speed.

	Name	Status	Reading
	CPU Temp	Upper Critical	98 degrees C
	PCH Temp	Normal	65 degrees C
	System Temp	Normal	31 degrees C

As you can see, system temperature was moderate and fans usually run at low to medium speed under these conditions. Air intake temperature was 25°C.

Issues & Workarounds

- Storage

This one didn't affect me on any of my systems, but here it is, just in case:

[Quick Fix – No Datastores after ESXi 7.0 Upgrade on SuperMicro with Intel Based SATA Adapters](#) by Anthony Spiteri at VIRTUALIZATION IS LIFE!

Issues & Workarounds

- 10G networking issues continued...

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TinkerTryIT@home

Efficiency, virtualization, storage, backup and more

Efficiency

Virtualization

Storage

Backup

Smart Home

Tesla

vSphere 7

Videos

More

vSphere - xd-1567-5028d.lab.local - Physical adapters

vmvSphere Client

Menu

Search

Administrator@VSPHERE.LOCAL

vcsla.lab.local

TinkerTry Datacenter

TinkerTry Cluster

17-2600-vzill.la...

xd-1541-5028d.l...

xd-1567-5028d...

Summary

Monitor

Configure

Permissions

VMs

Datastores

Networks

xd-1567-5028d.lab.local

ACTIONS

Networking

Virtual switches

VMkernel adapters

Physical adapters

TCP/IP configuration

Virtual Machines

VM Startup/Shutdown

Agent VM Settings

Default VM Compati

Swap File Location

Physical adapters

Add Networking...

Refresh

Edit...

Device	Actual Speed	Configured Speed	Switch	MAC Address
vmnic0	1000 Mb	1000 Mb	vSwitch0	0cc4:7a:95:00:ec
vmnic1	1000 Mb	1000 Mb	vSwitch1	0cc4:7a:95:00:ed
vmnic2	Down	Auto negotiate	vSwitch1	0cc4:7a:95:01:50
vmnic3	Down	Auto negotiate	vSwitch1	0cc4:7a:95:01:51

Workaround and fix for intermittent Intel X552/X557 10GbE/1GbE network link-down outages on Xeon D-1500 Series

Posted by Paul Braren on Dec 26 2017 (updated on May 23 2020) in Network, HowTo 120 Comments

If you really want to skip the interesting backstory, jump right down to the [symptom](#), the [workaround](#), the proposed [fix](#), and the [actual fix](#) done at [Supermicro](#). This issue never affected the popular Xeon D-1541 systems with 8 cores.

Backstory

Yeah, it's a bit long, and somewhat complicated. At least I know it will feel good when this is all completely behind us!

I'm glad that there are now hundreds of happy Supermicro SuperServer [Bundle](#) owners in the world who by-and-large have greatly enjoyed their product ownership experience, sharing a lot of positive experiences [publicly](#), with under <0.5% of Bundle buyers returning their SuperServer to Wiredzone

VirtualizationHowtoVirtual Howto Solutions

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VIRTUALIZATIONVMWAREHYPER-VWINDOWS SERVER 2019ABOUT

YOU ARE AT:Home»Author: brandon.lee

AUTHORBRANDON.LEE

BRANDON.LEE

Brandon Lee is the Senior Writer and owner at Virtualizationhowto.com and has many years of experience in Information Technology. Having worked for numerous Fortune 500 companies as well as in various industries, Brandon has extensive experience in various IT segments. Brandon loves the outdoors

Brandon Lee · 3 days ago

Paul,

Brandon Lee here, just wanted to post behavior I saw in my lab this morning. Running ESXi 7.0, with the latest Supermicro firmware on the 5028D and experienced the issue where 10 gig connectivity dropped on a host. I had to "drain flea power" on the server to get 10 gig to come back alive. I have (2) other hosts however that I am running the ESXi 7.0 and same firmware without issue so far. Just wanted to put this out there in case others are seeing this issue still.

Brandon

Paul Braren · 3 days ago

I very much appreciate the heads-up here at TinkerTry, thank you! I'm curious roughly how many seconds you removed power from the system before plugging it back in?

blogthis · 3 months ago · edited

After literally years of my tinkering with my system, and my scattered posts and replies to now somewhat-buried posts throughout the original articles comments.. it has become a bit unclear where to dig to find a concise "Latest Info" of consolidated findings.

So.. SUMMARY of my Stable setup this past year, an update all in one place, what I keep getting asked in reply post chains - I hope this helps clarify my fragmented findings as of today, my currently working config:

Mini-tower SYS-5028 Series:
SYS-5028D-TN4T-12C (MBD-X10SDV-12C+-WD002 in Chassis SC721TQ-250B)
Deprecated Prior 10G Firmware (Intel SDV-23A); ESXCLI = 0x800005ad
Upgraded New 10G Firmware (Intel SDV-23B); ESXCLI = 0x800006b7
(update from SuperMicro TW using "SDV23B_UEFI.zip")
TPM 2.0 module (AOM-TPM-9665V-S)
Datacenter Management Package (SFT-DCMS-SINGLE)
IPMI = v3.86
BIOS = v2.1
ESXi = v6.7-Update3b

VIB's:
Disabled Intel "legacy" IGB-1G "and" IXGB-10G
Install-Enabled: Intel next-gen IGBN-1G (e.g. for I350 chips):
((vmm-esx-6.7.0-igbn-1.4.10-offline_bundle-14160242.zip))
Install-Enabled: Intel next-gen IXGBEN-10G (e.g. for X557 chips):
((vmm-esx-6.7.0-ixoben-1.7.20-offline_bundle-14162871.zip))

TinkerTryIT@home

Efficiency, virtualization, storage, backup and more

General Upgrade Challenges

Filling SSDs to 100% (just format VMFS using 95% of space instead)

Migrating from 6.7 to 7.0

Intermittent CPU and memory exhaustion warnings in VCSA 7.0
could be symptom of some other underlying issue

Confidence inhibitors

As seen in [my video at this spot](#).

The screenshot shows the vSphere Client interface for the vcsa.lab.local environment. The left sidebar shows the navigation tree with the following structure:

- vcsa.lab.local
 - TinkerTry Datacenter
 - TinkerTry Xeon D Cluster
 - xd-1541-5028d.lab.local
 - xd-1541-prototype.lab.local
 - xd-1567-5028d.lab.local
 - xd-2123it-mb51ps0.lab.local

The main content area displays the Summary tab for vcsa.lab.local. The summary includes the following information:

- Version: 7.0.0
- Build: 16620013
- Last Updated: Apr 2, 2020, 1:16 PM
- Last File-Based Backup: Aug 18, 2020, 7:59 PM
- Clusters: 1
- Hosts: 4
- Virtual Machines: 51

On the right side, there are progress bars for CPU, Memory, and Storage usage. The CPU usage is 21.55 GHz out of 46 GHz. Memory usage is 82.05 GB out of 319.05 GB. Storage usage is 23.97 TB out of 44.09 TB.

Below the summary, there are three health alerts:

- CPU Exhaustion on vcsa (Red alert)
- VMware vAPI Endpoint Service Health Alarm (Yellow alert)
- vSphere Health detected new issues in your environment (Yellow alert)

The Health Status section shows the Overall Health as Good. Below this, there are sections for APPLIANCE MANAGEMENT, Custom Attributes, and Tags.

The Recent Tasks section shows a list of tasks:

Task Name	Details	Target	Status	Initiator	Queued For	Start Time	Completion Time	Server
Deploy plug-in	VMware vRops Client Plugin (com.vmware...)	vcsa.lab.local	Completed	VSPHERE.LOCAL\vsphere-webclient-80c9eb89-1d8e-4045-b824-8e5c8dae9227	10 ms	08/19/2020, 7:16:10 PM	08/19/2020, 7:16:10 PM	vcsa.lab.local
Deploy plug-in	VMware vSAN H5 Client Plugin (com.vmware...)	vcsa.lab.local	Completed	VSPHERE.LOCAL\vsphere-webclient-80c9eb89-1d8e-4045-b824-8e5c8dae9227	25 ms	08/19/2020, 7:16:10 PM	08/19/2020, 7:16:10 PM	vcsa.lab.local

Support Challenges & Mythbusting

The VMUG Advantage EVAExperience and the VMware vExpert programs do not include any VMware vSphere support, and are intended for non-production workloads.

While Xeon D-1500 CPUs are on the VMware Compatibility Guide (VCG), VMware support goes by your system model, e.g. Supermicro SuperServer SYS-5028D-TN4T.

I paid ~\$576 for [vSphere Essentials](#), as I run some “production” VMs and I need to know what my readership experiences.

I paid \$308 for [Per Incident Support - vSphere Essentials](#).

I tried opening a ticket in mid-April, and failed to get an SR# assigned due to my system [SYS-5028D-TN4T](#) not being on the VCG for ESXi 7.0.

How do you do bug reports for complex issues when you can’t even open a ticket?

This story above hasn’t yet been published in blog post form, I need to validate what I’m claiming here is 100% correct first, and I’ll need some more time to do that.

Support Challenges & Mythbusting

How do you do bug reports for complex issues when you can't even open a ticket?

vm vSphere Client

Administrator@VSPHERE.LOCAL

1

Send Feedback

Help us improve the vSphere Client by sharing your feedback with the team!

Select a type

Problem Compliment Idea

Description

Select a feedback type first

Email address

(Optional) In case we need additional information

Additional details

TAKE SCREENSHOT

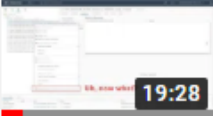

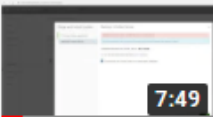
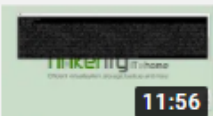
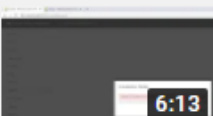
UPLOAD IMAGE .png, .jpeg files supported

CANCEL SEND

2

VMware Support Challenges & Mythbusting

How about Camtasia videos that demonstrate the issue, seen here and here?

-  **How to easily kill a zombie datastore in your VMware vSphere lab**
Paul Braren
19:28
-  **How to workaround vCenter Update Planner Update installation failed during VCSA 7.0 update**
Paul Braren
14:22
-  **vSphere 7.0 VCSA update to 7.0.0b using vSphere Lifecycle Manager or VAMI not working on Jun 25 2020**
Paul Braren
7:49
-  **VMware ESXi 7.0 update to 7.0b using ESXCLI failed the first time but worked the second time**
Paul Braren
11:56
-  **vSphere 7.0 VCSA update to 7.0.0b using vSphere Lifecycle Manager or VAMI not working on Jun 24 2020**
Paul Braren
6:13

TinkerTry.com/vsphere7videos

Self Support Challenges for used hardware

How about systems that integrated/free vSphere 7.0 version of Skyline finds doesn't have any deprecated hardware components under Compute Health Checks, worry less?

The screenshot displays the vSphere Client interface with the Skyline Health section selected. The left sidebar shows the navigation tree with 'xd-1541-5028d.lab.local' highlighted. The main panel shows the 'Monitor' tab for Skyline Health, last checked on 08/20/2020 at 11:19:15 AM. The interface is divided into several sections:

- Issues and Alarms:** Includes links for All Issues, Triggered Alarms, Performance (Overview, Advanced), Tasks and Events (Tasks, Events), Hardware Health, and Skyline Health.
- Online Health Availability:** Shows a green checkmark for 'Customer experience improvement program (CEIP)', 'Online health connectivity', and 'Advisor'. It also indicates 'Audit CEIP Collected Data' and '91 Online health checks performed successfully'.
- Compute Health Checks:** Shows green checkmarks for 'Devices deprecated and unsupported in ESXi 7.0 (Beta)' and 'Devices deprecated but still supported in ESXi 7.0 (Beta)'.
- Security Health Checks:** Shows a yellow warning icon for 'Concurrent-context attack vector vulnerability in Intel processors'. Other checks like 'L1 Terminal Fault - VMM sequential-context attack vector vulnerability in Intel proces...', 'ESXi', 'Default ESXi root password is not changed', 'MDS sequential-context attack vector vulnerability in Intel processors at the Hypervi...', and 'MDS sequential-context attack vector vulnerability in Intel processors at the Virtual ...' all show green checkmarks.
- Storage Health Checks:** Shows a green checkmark.
- General Health Checks:** Shows a green checkmark.

The bottom of the interface includes 'Recent Tasks' and 'Alarms' tabs.

Future

Rebuild my primary 2TB Windows 10 VM onto my new [Sabrent 4TB Rocket NVMe M.2 SSD](#). Why? My primary workstation VM is ~4 years old of Windows 10 upgrades, and I've messed up the certificates so Chrome and Chromium Edge malfunction. No reset will fix that, time to build from scratch.

Be on the lookout for new Intel Xeon D systems, extensively test the one with the most suited for most home labs.

Be on the lookout for new AMD EPYC systems, extensively test the one with the most promise for most home labs.

Keep an eye on new developments in efficiency, virtualization, storage, and backup. Hands-on test the most promising new technologies for home labs.

Publish update to my CyberPower UPS article about automated graceful shutdown of all VMs then ESXi. Power inevitably goes out.

Publish update to my Ubiquiti EdgeRouter Lite article to reflect that I've (easily) moved to the Ubiquiti EdgeRouter 4.

Publish updates to my [About TinkerTry](#) page, to reflect that I've moved from DigiCert EV Multi-Domain to Let's Encrypt Wildcard, for both the main TinkerTry.com site and for all CDN content at [cdn.tinkertry.com](#).

Do some testing of nested 4 node VCF in my modest 128GB of RAM home lab that doesn't meet the minimum specs.

Look into ways of shutting down a VCF cluster gracefully when AC power is lost, using just UPS's USB signal cable.

More, more, more

The screenshot shows the TinkerTry IT@home website with the 'vSphere 7' category selected in the navigation bar. The main content area displays a list of articles related to vSphere 7, including 'How to easily kill a zombie datastore in your VMware vSphere lab', 'How to workaround "Update installation failed. vCenter Server is non-operational." message during VCSA 7.0 update', and 'How to change or disable your VMware vSphere Client default inactivity timeout'. The 'vSphere 7' category is highlighted with a red box.

The screenshot shows the TinkerTry IT@home website with the 'Videos' category selected in the navigation bar. The main content area displays a list of videos related to vSphere 7, including 'How to easily kill a zombie datastore in your VMware vSphere lab', 'How to workaround "Update installation failed. vCenter Server is non-operational." message during VCSA 7.0 update', and 'How to change or disable your VMware vSphere Client default inactivity timeout'. The 'Videos' category is highlighted with a red box.

Open Q&A



I would greatly appreciate it if attendees that are interested in home labs would be willing to fill in this anonymous 2 minute survey form:

bit.ly/itprofeedback

Addendum:

Props used on camera:

[Intel Optane SSD 900P](#)

[Intel Optane SSD Series 2 U.2 MiniSAS Cable](#)

[Intel Optane SSD 900P Series U.2 M.2 Cable](#)

[NVIDIA Quadro K1200 GPU](#)

[VisionTek AMD 7750 GPU](#)

[Supermicro AOC-SLG3-2E4](#)



Addendum: Efficiency

My recent articles about ultra-efficient EV (Electric Vehicles) have spared the earth of far more carbon emissions than the 8 prior years of blogging about compact and efficient home servers. I experimented with train, planes, and cars when getting from CT to DC many times last year, and the door-to-door time was best by car, and the cost to my family was the least. Turn the page if you're interested in learning more.



2006 Honda Civic Hybrid | 2018 Tesla Model 3 LR AWD



First year and 25,000 miles of Tesla Model 3 ownership went very well, far exceeding our expectations. It's going well! So well that my wife and I carefully decided to do this last week: Tesla Tuesday for my wife, getting rid of our last gas car ever, a 2005 Honda Civic Dec 16 2019 We

Dec 23 2019



Tesla Tuesday for my wife, getting rid of our last gas car ever, a 2005 Honda Civic. Ready for departure! We both went for even more efficient cars than we already had, and let's be real, those Civics were more like 30 mpg and 25 mpg in the winter. Free Supercharging: If you find this article of value and decide to order a Tesla,

Dec 16 2019 4 Comments

Tesla Model 3 replacing my 13 year old Honda Civic Hybrid, let's see how that goes. So far, so good!

Posted by Paul Braren on Dec 23 2018 (updated on May 12 2020) in Efficiency, IoT, Tesla 12 Comments

At the start of this video this video, Roadshow's Tim Stevens proclaims:

What you're looking at is the most anticipated car of all time. With more than a half million pre-orders on the books, the Tesla Model 3 has piqued the interest of more people around the world than any car in history.



See also these lofty claims:

• Tesla Model 3 = Most Efficient Electric Car On Highways

Aug 19 2018 by Dr. Maximilian Holland at CleanTechnica

New aggregated data from the gurus over at A Better Route Planner show that Tesla Model 3 efficiency is the highest of any production car at highway speeds, with



Exclusives EV Reviews EV News Tesla News

Tesla Model 3 = Most Efficient Electric Car On Highways

More videos

This first video gives you a tour of my garage's two overhead charging configurations, and the second video is a close look at the handy bracket and cable loop hangar.



TinkerTry YouTube Channel - Affordable and convenient way to get Tesla cables off garage floor, trip-free charging from above!



TinkerTryd Model 3 LR AWD Is Idling
1 Hour 7 Minutes

Charger Connected
90 / 90 %

Rated Range
274.89 Miles

Inside Temp 56 F
Outside Temp 52 F

Doors
Locked



Estimated Range
263.56 Miles

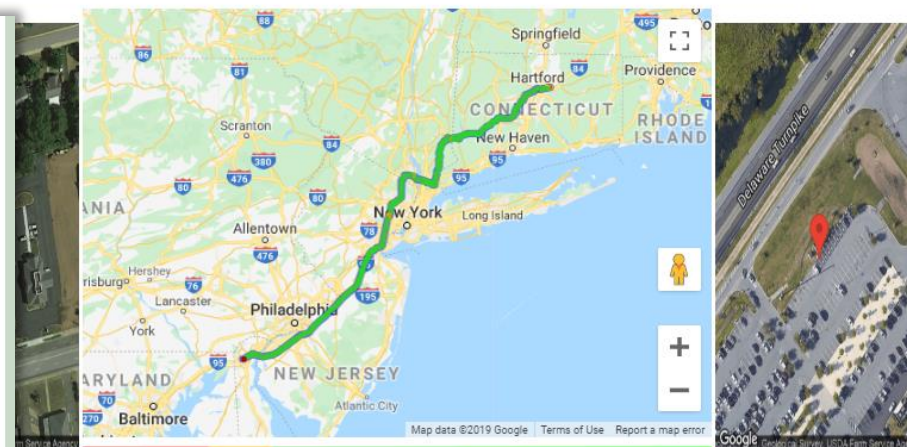
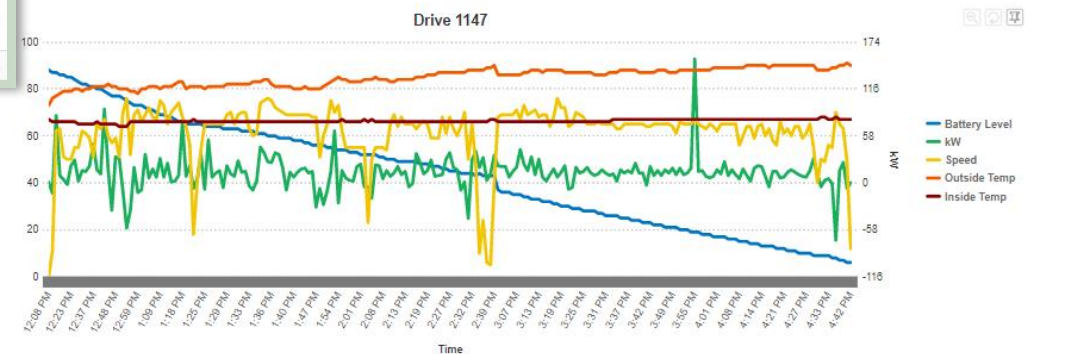
Odometer
24,780.52 Miles

Settings Drives Charges Calendar Controls Fleet Help

Logout

< Previous Drive Next Drive >

Starting Address	Ending Address	Driving Time	Miles	Wtu/Mile	Battery Usage	Cost	Elevation / Speed	Avg Temp	Drive 1147
307 Middle Turnpike West, Manchester, Connecticut 06042, United States	1295 Newark, Delaware 19713, United States	4 Hours 34 Minutes 12:08 PM-4:42 PM Data Accuracy 92%	273.44 Miles Driven 253.71 Rated Miles Used ODO 17,914.66 - 18,188.10	207 Wtu/Mile 107.8% Efficiency	82% 56.54 kWh	Cost \$ 10.18 Gas Savings \$ 27.16 163 MPGe	-99.1 ft Avg Speed 62 MPH Max Speed MPH	Outside 85 F Inside 66.3 F Fan Avg 5	



[TinkerTry.com/Tesla](https://www.tinkerttry.com/Tesla)