



Dell ProSupport Plus with SupportAssist warns you about hardware issues so you can fix them before they cause downtime

Dell laptops alerted us to a failing hard drive—HP and Lenovo laptops did not

You're driving home from work when the check engine light comes on. Conveniently, you're around the corner from your regular garage and your mechanic can diagnose the problem and fix it before the car stops running. Think how much worse off you would have been had your car broken down suddenly, on the other side of town, with no indication that something was amiss.

Just as we rely on our automobiles, most of us rely heavily on our computers. Dell SupportAssist is an automated, predictive technology installed as part of Dell's standard image on all Dell devices running Microsoft® Windows® operating systems (excluding systems running Windows RT). It monitors the health of your computer's components and alerts you to imminent problems before they happen. To benefit from all the proactive and predictive features of SupportAssist, you must purchase Dell's ProSupport™ Plus support package.

We conducted hands-on testing using five laptops and a hard drive we knew to be failing. The Dell laptops with SupportAssist detected the failing drive before it failed and sent information about the issue to Dell and a notification to us in the lab. When we tested laptops from HP and Lenovo®, their support tools, HP Support Assistant and Lenovo Diagnostics, didn't detect the failing drive, and therefore did not alert us to the impending failure. Read on to learn more about how Dell ProSupport Plus with SupportAssist can keep you from getting stranded.

Advance knowledge is power

Like all electronic components, the parts that make up computers occasionally fail. The causes range from electrostatic discharge to excessive dust and heat to physical damage from being dropped. Some users might (1) meticulously back up their data and (2) have access to a spare system. For these users, a sudden hard drive failure could register as an inconvenience. Most users aren't as consistent when it comes to performing backups or may not have an extra computer available. For this group, a hard drive that stops working without warning can be an emergency.

For everyone, knowing the hard drive is likely to fail soon is incredibly helpful. A support solution that not only provides that information but also gives a head start on solving your problem is a great benefit.

We conducted hands-on testing to learn how several support solutions handled a failing hard drive. We used a known failing hard drive and the following laptops:

- Dell Latitude™ E5250 with Dell ProSupport Plus with SupportAssist 3.1.0
- Dell Latitude E5450 with Dell ProSupport Plus with SupportAssist 3.1.0
- Dell Latitude E5470 with Dell ProSupport Plus with SupportAssist 3.1.0
- HP ProBook 640 G3 with HP Priority Services with HP Support Assistant
- Lenovo ThinkPad® T470 with Lenovo Premier Support with Lenovo Diagnostics



About Dell ProSupport Plus with SupportAssist

Dell calls SupportAssist “the industry’s first automated proactive and predictive support technology in a support package.”¹ Dell describes its use of artificial intelligence to predict failures as follows: “System data is collected with SupportAssist which is securely processed through the Dell AI engine. Using machine learning, future failures are detected. With an immediate alert, based on preferred method of communication and issue resolution, resolution can be as simple as having a replacement part dispatched and replaced to keep employees up and running.”² Learn more about Dell ProSupport Plus with SupportAssist at <https://www.DellEMC.com/ProSupportforPCs>.

Note: This report focuses on the predictive capabilities of Dell ProSupport Plus with SupportAssist. We tested its proactive capabilities in June 2018 in a report titled “Spend less time and effort troubleshooting laptop hardware failures.” Read the report at <http://facts.pt/L52XKM>.

Putting the support solutions to the test

For each of the five test laptops, we replaced the working hard drive with a hard drive we knew was failing. To isolate the problem to the hardware, we copied the laptop's image to the bad hard drive so it would be running the same operating system and vendor software as the original good drive. (For more details, see the [science behind the report](#).) We then observed what happened after each of the support solutions performed a scan. In real life, the support solutions would execute these scans on a regular schedule.

Model	Support solution	Detected failing hard drive and alerted the user
Dell Latitude E5250	Dell ProSupport Plus with SupportAssist 3.1.0	
Dell Latitude E5450	Dell ProSupport Plus with SupportAssist 3.1.0	
Dell Latitude E5470	Dell ProSupport Plus with SupportAssist 3.1.0	
HP ProBook 640 G3	HP Priority Services with HP Support Assistant	
Lenovo ThinkPad T470	Lenovo Premier Support with Lenovo Diagnostics	

The Dell laptops we tested using ProSupport Plus with SupportAssist detected the failing hard drive, alerted the user, and provided instructions to open a support ticket with Dell (see box below for details). Neither HP Support Assistant nor Lenovo Diagnostics detected the failing drive and provided no warning of the impending failure or potential loss of files.

Automatic alerts with SupportAssist

In order to re-use the same drive on all laptops, we did not register the laptops with SupportAssist and stopped the process at the point of detection. Normally, however, if a user registers the laptop with SupportAssist, the software will automatically open a support ticket and send an email alert to notify the user of the ticket. For a description of that process, see our June 2018 report titled "Spend less time and effort troubleshooting laptop hardware failures," available at <http://facts.pt/L52XKM>.

Conclusion

It's a hassle when the technology that you rely on to do your job or handle your personal tasks runs into a problem, but it's much easier when you know about the issue before it happens. When your support solution alerts you to an imminent hard drive failure and also helps you initiate contact with technical support, you can begin troubleshooting right away.

In our testing, Dell ProSupport Plus with SupportAssist was the only support package to detect an impending hard drive failure and alert us. That makes ProSupport Plus with SupportAssist a great choice for minimizing the headaches and downtime that can occur when hard drives fail.

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- 1 "Dell SupportAssist for PCs and tablets: Automated, proactive and predictive support," accessed April 2, 2019, <https://www.dell.com/support/contents/us/en/04/article/product-support/self-support-knowledgebase/software-and-downloads/supportassist>.
 - 2 "Unlock the value of your data with adaptive AI for predictive, effortless support" accessed April 29, 2019, <https://www.DellEMC.com/ServicesAI>.



On December 17, 2018, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on January, 30, 2019.

Our results

The table below presents our findings in detail.

Model	Support solution	Detected failing hard drive and alerted the user
Dell™ Latitude™ E5250	Dell ProSupport Plus with SupportAssist 3.1.0	Yes
Dell Latitude E5450	Dell ProSupport Plus with SupportAssist 3.1.0	Yes
Dell Latitude E5470	Dell ProSupport Plus with SupportAssist 3.1.0	Yes
HP ProBook 640 G3	HP Priority Services with HP Support Assistant	No
Lenovo® ThinkPad® T470	Lenovo Premier Support with Lenovo Diagnostics	No

System configuration information

The table below presents detailed information on the systems we tested.

System	Dell Latitude E5250	Dell Latitude E5450	Dell Latitude E5470
Processor			
Vendor	Intel®	Intel	Intel
Model number	Core™ i5-5300U	Core i5-5200U	Core i5-6300U
Core frequency (GHz)	2.3 – 2.9	2.2 – 2.7	2.4 – 3.0
Cache	3MB L3	3MB L3	3MB L3
Memory			
Amount (GB)	8	4	8
Type	PC3-12800	PC3-12800	DDR4-2134
Integrated graphics			
Vendor	Intel	Intel	Intel
Model number	HD Graphics 5500	HD Graphics 5500	HD Graphics 520

System	HP ProBook 640 G3	Lenovo ThinkPad T470
Processor		
Vendor	Intel	Intel
Model number	Core i5-7200U	Core i5-7200U
Core frequency (GHz)	2.5 – 3.1	2.5 – 3.1
Cache	3MB L3	3MB L3
Memory		
Amount (GB)	4	4
Type	DDR4-2400	DDR4-2400
Integrated graphics		
Vendor	Intel	Intel
Model number	HD Graphics 620	HD Graphics 620

How we tested

Testing the predictive failure on the Dell laptops

1. Capture an image:
 - a. Connect the external HDD to the test system.
 - b. If no internal optical drive is present, connect the USB CD/DVD drive to the test system.
 - c. Press the Windows® key, type `backup` and press Enter.
 - d. Select More options→See advanced settings→System Image Backup→Create a system image.
 - e. Verify that the external HDD is selected as the save drive, and click Next.
 - f. Verify that all drives are selected to back up, and click Start backup.
 - g. At the Do you want to create a system repair disk? screen, select Yes, and close the dialogs.
 - h. Select Create disc.
 - i. Select Close to finish the disc creation process.
2. Power down the laptop.
3. Replace the HDD in the laptop with the known failing HDD.
4. Restore an image:
 - a. Connect the external HDD with recovery image and external CD drive with the recovery CD to the test system.
 - b. Turn on the laptop, and press any key to boot from the recovery CD.
 - c. Select Troubleshoot.
 - d. Select System image recovery.
 - e. Verify the recovery image is selected, and click Next.
 - f. Accept the default selections for additional restore options, and click Next.
 - g. Select Format and repartition disks, and click Next.
 - h. On the Re-image your computer screen, click Finish.
 - i. Once the recovery is complete, click Finish.
 - j. Disconnect the external HDD.
5. Boot into Windows 10.
6. Download and install the latest version of ProSupport Plus with SupportAssist (3.1.0).
7. Launch SupportAssist.
8. Close SupportAssist.
9. Press the Windows key, and type `Power`
10. Select Power & sleep settings.
11. Change the power settings to Never turn off or go to sleep when plugged in.
12. Allow the laptop to run for 24 hours.
13. Verify that in the bottom-right corner of the screen, Windows Action Center displays a "1".
14. Click the Windows Action Center icon, and verify that there is a SupportAssist notification stating "Hardware Failure Detected. Learn more about the issue and how to resolve it."
15. Click the Hardware Failure notification, and verify that SupportAssist is opened to a Solution screen.

Note: We did not perform the step that would follow, where a user would log in using their Dell My Account and resolve the issue.

Testing the predictive failure on the HP laptop

1. Capture an image:
 - a. Connect the external HDD to the test system.
 - b. If no internal optical drive is present, connect the USB CD/DVD drive to the test system.
 - c. Press the Windows key, type `backup` and press Enter.
 - d. Select More options→See advanced settings→System Image Backup→Create a system image.
 - e. Verify that the external HDD is selected as the save drive, and click Next.
 - f. Verify that all drives are selected to back up, and click Start backup.
 - g. At the Do you want to create a system repair disk? screen, select Yes, and close the dialogs.
 - h. Select Create disc.
 - i. Select Close to finish the disc creation process.
2. Power down the laptop.
3. Replace the HDD in the laptop with the known failing HDD.

4. Restore an image:
 - a. Connect the external HDD with recovery image and external CD drive with the recovery CD to the test system.
 - b. Turn on the laptop and press any key to boot from the recovery CD.
 - c. Select Troubleshoot.
 - d. Select System image recovery.
 - e. Verify the recovery image is selected, and click Next.
 - f. Accept default selections for additional restore options, and click Next.
 - g. Select Format and repartition disks, and click Next.
 - h. On the Re-image your computer screen, click Finish.
 - i. Once the recovery is complete, click Finish.
 - j. Disconnect the external HDD.
5. Boot into Windows 10.
6. Download and install the latest version of HP Support Assistant.
7. Launch HP Support Assistant.
8. Close HP Support Assistant.
9. Press the Windows key, and type `Power`
10. Select Power & sleep settings.
11. Change the power settings to Never turn off or go to sleep when plugged in.
12. Allow the laptop to run for 72 hours.
13. Check to see whether the laptop detected the failing HDD.

Testing the predictive failure on the Lenovo laptop

1. Capture an image:
 - a. Connect the external HDD to the test system.
 - b. If no internal optical drive is present, connect the USB CD/DVD drive to the test system.
 - c. Press the Windows key, type `backup` and press Enter.
 - d. Select More options→See advanced settings→System Image Backup→Create a system image.
 - e. Verify that the external HDD is selected as the save drive, and click Next.
 - f. Verify that all drives are selected to back up, and click Start backup.
 - g. At the Do you want to create a system repair disc? screen, select Yes, and close the dialogs.
 - h. Select Create disc.
 - i. Select Close to finish the disc creation process.
2. Power down the laptop.
3. Replace the HDD in the laptop with the known failing HDD.
4. Restore an image:
 - a. Connect the external HDD with recovery image and external CD drive with the recovery CD to the test system.
 - b. Turn on the laptop and press any key to boot from the recovery CD.
 - c. Select Troubleshoot.
 - d. Select System image recovery.
 - e. Verify the recovery image is selected, and click Next.
 - f. Accept default selections for additional restore options, and click Next.
 - g. Select Format and repartition disks, and click Next.
 - h. On the Re-image your computer screen, click Finish.
 - i. Once the recovery is complete, click Finish.
 - j. Disconnect the external HDD.
5. Boot into Windows 10.
6. Download and install the latest version of Lenovo Solution Center.
7. Launch Lenovo Solution Center.
8. Close Lenovo Solution Center.
9. Press the Windows key, and type `Power`
10. Select Power & sleep settings.
11. Change the power settings to Never turn off or go to sleep when plugged in.
12. Allow the laptop to run for 72 hours.
13. Check to see whether the laptop detected the failing HDD.

This project was commissioned by Dell Technologies.



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