



IT@Intel Technology Tips

Intel Information Technology

December 2010

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The PC that came in from the cold: Protect your laptop from winter weather

Six ways to avoid a different kind of freeze-up

It's December and Old Man Winter is making his way across the Intel campus in the usual fashion. For some of us, it means rain and temperatures in the low 40s; for others, it means a full-blown blizzard and snow-covered sidewalks. You're prepared no matter where you live, because you go through this every year. With your jacket, your parka, your umbrella or your snowshoes, the winter months will mean just another trip to the office.

But what about your laptop computer?

It's easy to forget your No. 1 work tool. During "normal" weather, you probably shuttle your faithful laptop to the office and back in a basic computer bag or backpack. What do you do when the outside temperature is less than your waist size, or the world looks like the inside of a shaken snow globe?

Here are six ways to keep your laptop safe from the elements as you make your way through winter.

1. Check the weather, adjust accordingly

Weather reports usually give you a good idea of what to expect on a given day. If the forecast calls for snow or extreme rain, don't haul your laptop to work in a cloth handbag or carry it into the building completely unprotected.



Figure 1: An insulated bag or laptop sleeve can be your computer's best protection from cold weather.

2. If you're in the market for a new bag, get an insulated bag

Anyone who's gone shopping for an actual carrying case or bag for their laptop knows there are lots of options and some of them are not cheap! If you live in an area where it rains a lot, remember to buy a bag that is waterproof. Also, look for a temperature rating on the tag: Any bag you buy should offer general insulation information along the lines of "good for outdoor temperatures of X degrees."

If the manufacturer supplied a carrying bag, use it, although don't rely on it for the best level of laptop protection if you live in harsh-climate areas. Want extra protection? Buy an insulated, zippered laptop sleeve for use with your carrying bag (see Figure 1). But regardless of what you use, put your laptop in something before you take it outdoors.

3. Don't get creative with warmth

Avoid using items such as hand warmers or pocket warmers in your bag, as these can generate too much heat, or direct it in only one place, resulting in melted internal components. Also, don't try to design your own warming device – especially when using a company machine as the test subject.

4. Don't leave your PC in your car (or any place else really cold) overnight

Nighttime cold is one of your laptop's worst enemies, as it can cause parts such as monitors to actually freeze (and possibly crack). It can also damage the unit's battery and reduce its lifespan, and possibly ruin your hard drive and any data it contains (see Figure 2).

At the very least, your ice-cold machine will be subject to condensation once you bring it back into the warmth; this moisture poses a serious danger to the internal processors and components. Think what happens when your cellular phone comes into contact with water – the same thing can happen to your laptop with just small amounts of condensation inside the case or around the drive. Remember what your fourth grade science teacher said – water and electricity don't mix!



Figure 2: Overnight cold can be one of your laptop's worst enemies, as it can freeze your monitor, damage your battery and wreck your hard drive.

5. Carefully thaw out a cold machine

As a rule, standard hard-disk drives are designed to function best at a temperature of 50 to 95 degrees Fahrenheit (10 to 35 degrees Celsius). If your laptop was left outside, or if you've been in an extremely cold climate for more than half an hour, wait at least 20 to 30 minutes before opening the unit or turning it on. A laptop that's been out in the elements for a lengthy period of time should be slowly brought up to room temperature (see Figure 3).

If you see moisture appearing on the exterior, carefully soak it up with a dry cloth towel. Do not try to "speed up" thawing by using hairdryers, microwaves or other forms of artificial warming, as they can damage components or cause potential cracking due to rapid expansion.

6. Don't panic if your laptop is actually frozen (solid)

Okay – you left your laptop in the trunk or out on the porch on a snowy winter night and it froze solid. The good news is you can probably revive it. The bad news is the computer might have sustained some permanent damage. Above all, do not attempt to open the laptop screen. If the wires connecting the screen to the board are frozen, they could snap when you lift up the screen. You'll need to warm the laptop very slowly before you can even open it.



Figure 3: If done right, even a laptop that's been left out in the freezing cold has a chance of recovery, as long as you don't try to warm it up too fast.

Take it out of the freezing environment (such as the trunk of your car) and let it thaw in a slightly warmer place, like an unheated garage. After that, move it to the next warmest place you can think of, such as an unheated room in your house. This process could take a couple days (think of when you defrost meat from the freezer). But thaw out the laptop very carefully and you do have a chance of getting it to work normally again (aside from a few dead pixels in your LCD screen).

What about solid-state drives?

With its lack of moving parts, you might think that Intel (and other) Solid-State Drive (SSD) laptops are weatherproof (see "Newer, faster SSDs go mainstream for Intel IT laptops"). Not entirely true. They are more durable against sudden impact (from dropping) than the standard hard-disk drive, and more temperature-tolerant. According to experts the recommended operating temperature range for an SSD is 32 to 176 degrees Fahrenheit (0 to 75 degrees Celsius). It's typically not a problem to use your solid-state drive for a short time – 10 minutes or so – at temperatures down to 20 degrees below zero Fahrenheit. But problems similar to those for standard hard drives may occur if you use it for an extended time in such conditions. Remember, too, that laptop screens and accessories such as web cams tend to be the same in both units, meaning they're just as susceptible to extreme temperature.

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