

Hurricane Preparedness and Recovery of Computer Equipment and Software¹

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When a major storm is forecasted to strike in the area, a number of precautions can be taken to minimize the destruction to computer equipment and software. Once the necessary steps have been taken to protect life-and-limb, a few minutes devoted to securing and protecting office or home computer equipment, software programs and valuable data files can prevent untold hours of frustration drying out soaked equipment, attempting to replace missing software or reconstructing lost data files.

The incredible destructive force of Hurricane Andrew that demolished Homestead, Florida in August, 1992 is a prime example of what can occur during a major storm. Hurricane Andrew proved that for a direct hit, virtually nothing will survive the unbridled fury of 150 mph or higher winds. However, the area affected by a direct hit and the resulting almost-total destruction, is relatively small compared to the much larger area affected by the overall size of the hurricane. This larger "peripheral" area is the primary subject discussed in this document.

If a structure will not be able to withstand a direct hit of a major hurricane, there is only one basic option to save computers and related software. If time

permits, move all hardware and software to another location that will be affected to a lesser degree by the storm's fury. In most cases, unless the structure has concrete walls and ceilings and re-enforced doors and windows, the integrity of the building will be questionable during the hurricane's strike. In the aftermath of Hurricane Andrew, not much survived in the direct strike area --if the building was made of wood, only splinters remained. In addition, even the integrity of concrete structures was compromised when windows broke and doors caved in, thus allowing wind, rain and air-borne objects to freely travel through the building. Plan for the worst, and expect the worst.

The surrounding area affected by a hurricane's destructive force is much larger and is of primary concern. In preparing for a hurricane's strike, a couple of minutes of work will save countless hours of frustration. Thought must be given to the effects of the wind and water on the contents of a home or office should the integrity of the structure be compromised.

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STORM PREPARATION

Personal safety should always take priority over computer equipment and software when preparing for a storm. Once personal safety is ensured and if adequate time remains before the storm is expected to arrive, some time may be allotted to protection of computer equipment and software.

Equipment

The major cause of damage to computer hardware and software will be from rain and wind. Broken doors and windows will allow the wind with its rain and debris to whistle through buildings. By moving computer equipment (i.e. monitors, CPUs, printers, keyboards) to protected locations and wrapping with plastic, the chances of damage will be greatly reduced.

To select a protected location, survey the room in question. Try to determine what would occur if the window broke and allowed the wind and rain to enter. Naturally the wind that enters through a broken window has to exit somewhere -- which could be through a door, a ceiling (roof), or another window. This creates a wind-tunnel effect in the room. As a result the computer equipment can not only be damaged by the rain, but also by airborne articles flying around the room.

Computer equipment can be stored in any number of locations:

- in the corner of a room, out of the path of possible wind drafts, or

- a closet or small windowless room.

There are four additional precautions that can be taken to minimize damage.

- Double wrap equipment in plastic garbage bags to reduce rain/water damage.

- Bear in mind that a collapsing ceiling or roof can send potentially damaging debris falling on your equipment; locate equipment under a sturdy desk or piece of furniture that could possibly withstand the effects of falling debris.

- If equipment is to be located directly on the floor, take into consideration the possible effects of flooding. Placing equipment on or in water resistant objects, such as garbage cans, may be appropriate.

- Last and probably most important -- **unplug your computer equipment**. As a major storm begins to pummel the area, the chances of severe power fluctuations are very high as electrical transmission lines and power plants are affected. These power fluctuations can have extremely serious consequences for any equipment left plugged in or turned on.

Software

Much of the same precautions taken for computer equipment would also apply for software. The one thing to remember is that rain and wind can completely destroy books and disks. In addition, the wind may cause those valuable books and disks to take flight and end up miles from their starting location. Meanwhile, proof of legal ownership of the software has now vanished. After Hurricane Andrew struck South Florida, this was a major problem with a number of software vendors who were reluctant or refused to replace software without the original disk or manual being presented. Since software is more easily transported than hardware, IF TIME ALLOWS, collect your manuals and original disks and take them to a safe location to ride out the storm. Remember also to gather any disks that may have important data

STORM AFTERMATH

In the aftermath of a hurricane the size of Andrew, the difficulty of everyday living is going to seem mind-numbing.

In all the resulting confusion, three basic principles need to be remembered.

- Protect any valuable equipment or software from looters.

- Do not plug in any equipment that may be water damaged.
- If undamaged computers and power are available, be very careful of power spikes and surges that can take place during the cleanup process. Caution should also be used when running a computer on power supplied by a generator -- this "unclean" power source can be riddled with power spikes, voltage drops, and surges.

Clean-up

The most destructive element of a hurricane is most often the storm surge that inundates the targeted coastal area. Hurricane Andrew's storm surge was relatively minor for the size and fury involved; the majority of damage was done by storm-generated wind. The wind can drive rain into the smallest of places with ease. In the aftermath of Hurricane Andrew, a great deal of computer equipment was soaked with water. But that was not all: in some cases, the rain also was heavily laden with a very fine talc-like powder or grit. Many types of equipment other as CPUs, printers, modems, floppy drives, keyboards, mice, monitors, and scanners do not tolerate water well, but when adding a fine grit, additional problems can develop. The water-borne grit can coat the insides of keyboards and such equipment, making them non-functional. At this point many hours of cleaning will be required to make such equipment usable.

Before undertaking any cleaning of computer equipment the following three questions should be addressed:

- Is the warranty in effect for this equipment?

- Will the warranty be voided by this action?
- Is a professional technical person available to do the required work?

A great deal of thought should be used when contemplating cleaning any type of equipment. Many types of equipment can retain a powerful charge of stored electricity (in capacitors) for long periods of time after the power has been disconnected. For example, power supplies and monitors can contain potentially dangerous or fatal charges of electricity that can effect an unaware person who is attempting to cleanup. It is strongly recommended that only a qualified technical person undertake the process of salvaging or cleaning a power supply or monitor.

The two most important things to remember while cleaning are to make sure the equipment is unplugged from the electric source and that the equipment is dry. The cleaning process can be undertaken with the following items: toothbrush or painter's brush for dislodging debris; a vacuum for removing dirt and grit; compressed air for blowing-out unreachable debris; towels for drying; and a lot of patience.

The issue of software recovery can be very difficult. If the diskettes have only been soaked with water, then drying the media should be sufficient to recover data. It would be strongly recommended to copy the contents of the recovered diskette to a fresh one as soon as possible. However, if the diskette has been soaked with water that also deposited grit or dirt, then any attempt to use this diskette in a floppy drive will possibly damage valuable equipment. Contacting a professional data recovery company that specializes in this type of problem may be the only course of action in these circumstances.

CONCLUSION

In the best of circumstances an ounce of prevention will result in countless returns. A little foresight can make the difference between having usable equipment and a pile of water-soaked junk. As the devastation of the storm becomes more apparent, and people begin to recover from the trauma, the working computer equipment may be a real salvation in recording experiences, writing claim letters, and communicating with the outside world.