PC Manual For Missionaries

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Introduction

Missionaries are incredible people. Computers are incredible tools.
Together they can do incredible things… or be incredibly frustrating.
Ask any missionary with a computer and we'll tell you it's a love-hate
relationship.

Before leaving for the field we're trained on the finer points of
communicating effectively, teaching foundational doctrine, and learning
a foreign language; but so few of our seminaries or institutes give us any
practical computer training. Perhaps they think we'll learn on our own,
or that we've received that kind of training elsewhere, or maybe they're
as clueless as many of us are with the use of technology on the mission
field.

Shawn and Shannon Parrish in
Paraguay

This manual was born out of my own need to effectively use one of the greatest tools of
our lifetime, the personal computer, in a place most people would rather just see pictures
of: the mission field.

You should find this manual helpful if…

- You are preparing to go as a missionary to a place far, far from 1-800-technical
  support.
- You are a veteran missionary on the field and are learning to use all the computer
  stuff your mission board keeps sending you.
- You begin to twitch and shake like a '73 Land Rover with bad diesel when you sit
  down to fill out a quarterly report at your computer.

Learning to use a computer is like sharpening your machete. **It will take some time
away from real work but you'll be more effective and less frustrated if you do it** –
and less likely to hurt yourself as well.

Expectations

The scope of this manual is fairly narrow. It's written specifically for missionaries by a
missionary. The topics and methods were picked from my experiences helping
missionaries with their computers. If you think you've found an error or a gaping hole
where an important topic should be please feel free to email me and let me know;
Shawn@missionarytechsupport.com.

This manual is not:

- Computers 101… I won't cover how to turn on a computer or how to use a mouse. Basic computer user skills are assumed.
- Computers 410… I won't touch the architecture of a processor or how to water-cool your dual Xeon rack-mount with common household items. Advanced computer theory is left to the big boys with the big brains.
- Set in stone. The computing industry is ever changing and I try to keep this manual as up-to-date as possible with revisions available online at www.MissionaryTechSupport.com.

This manual is:

- A reference on how to get your computer running and keep it running well on the mission field.
- A good start for understanding today's popular technology and how it can be used for ministry on the mission field.
- A whole lot of work to write and keep updated. So if it benefits you or your missions work, please drop an encouraging word to Shawn@MissionaryTechSupport.com.

What if…

- This manual had hypothetical questions in the beginning of every chapter?
- Those questions were derived from real-life experience from missionaries around the globe?
- The correct answers to the questions were discussed (in principle) in the text of that chapter?
- The answers were also on the last page of that chapter?

  Did you get it?

Coming Attractions

Below is a short summary of each chapter. Some of the material builds on the information in the chapters before it, so it may be a good idea to read it straight through. If you already have a PC, then skipping chapter one won't hurt too much. If you're not happy with the PC you purchased, chapter one may point you in the right direction for a replacement.

Chapter 1: Purchasing your PC

The what, when and where of purchasing a PC for the mission field. Tips and personal advice on name brands.

Chapter 2: Transporting and Installing your PC

Getting that PC to the field in one piece and getting everything set up and running the right way.

Chapter 3: Hardware Maintenance

Maintaining your PC's hardware can be a cinch if you're prepared and aware. The monthly maintenance checklist will keep that high mileage PC running.

Chapter 4: Windows Maintenance

The information that should have been in your Microsoft Windows manual. Schedule hard drive and file system maintenance as well as anti-virus information to keep those Norton boys in business.

Chapter 5: Windows Basics

Super-D-Duper tips and need-to-know stuff for working in Microsoft Windows.

Chapter 6: Multimedia

From digital camcorders to Dolby 7.1 surround sound. How to make your PC sing and dance. DVD, digital video as well as audio mastering stuff.

Chapter 7: Email

More than just "Hi, Mom!" How to effectively use the missionary's best friend. Email etiquette and blind carbon copies - how to keep your email recipients as your friends. Fruity email.

Chapter 8: Internet

The world at your fingertips. Use it for research, communication, enjoyment, and how to protect yourself online. Spyware, content filtering, VoIP and favorites. How to securely and effectively use cyber-cafes.

Chapter 9: Peripherals

How to use many of the devices that will plug into your PC. Printers, scanners, USB drives, and the wonderful world of PDAs.

Chapter 10: Upgrading your PC

Whipping new life into an old horse. Why, when and how to upgrade your PC.

Chapter 11: Basic Troubleshooting

Common answers to common problems. A great place to start if you're having trouble. You may also want to look at the index in the back of this manual.

Appendix A: Reinstalling Windows

Sometimes a fresh start is the best fix. Step-by-step how-to for the ultimate do-it-yourselfer… could I have put any more hyphens in that sentence?

Appendix B: Near-line Imaging

Strategically located after reinstalling Windows, near-line imaging will make the re-installing Windows appendix obsolete for your system. Make your own restore CDs.

Appendix C: Networking

Why network, network hardware, and the ins and outs of networking a home or mission office. Types of networks including Ethernet and Wireless.

Appendix D: Instructions for Windows 95/98/ME

Step-by-step procedural instructions for the older versions of Windows. Look for the "Windows 95/98/ME see AD-**" throughout the manual for alternate instructions.

Chapter 1 - Purchasing a Computer for the Mission Field

"Computers in the future may weigh no more than 1.5 tons."
– Popular Mechanics, 1949

Our computer adventure begins with the purchase. If you're about to buy your first computer, this chapter will be an excellent guide. If you've already purchased your computer for the mission field, this chapter will either be a pat on the back or a kick in the pants. You kept the receipt, right?

What if...

Scenario 1.

You need a laptop before you head off to Swaziland for 3 years. You forgot to budget for this needed expenditure and so you have very little money set aside for it. Uncle Joe gives you an old laptop but says not to let it get too hot… it dies when it gets too hot.

Do you…

a. Run down to CompUSA the day before your flight and purchase one on credit.
b. Take the used laptop that Uncle Joe gave you… sure the screen's only back and white but it should work, right?
c. Pull money from other parts of your budget to get a really nice wide-screen Toshiba for watching DVDs on the plane.
d. Email info@MissionaryTechSupport.com weeks or months ahead of time and ask them what may be the best laptop for your situation and budget.

Scenario 2.

A work team has brought you a new desktop computer. Your old computer has hobbled by for nearly 5 years now and has hundreds of sensitive documents and emails on it. You have a national pastor friend who could really use a computer.

Do you…

a. Re-write all your sermons and leadership training documents and re-enter one-by-one, all your addresses from your address book.
b. Move as many files from the old computer to the new one with a floppy disc and throw away your old computer because of security concerns.
c. Transfer all your data and settings from your old computer to the new one and use security tools to wipe it out and the system's recovery CDs to prepare it for your pastor friend.

The Perfect Computer

There is no one computer system that fits every missionary's needs. The perfect computer for you is the one that meets your current needs, your foreseen future needs and your budget. Easier said than done.

Know your needs

The first step is knowing what your current and foreseen future needs are. You need to take a look over your job description.

To find out what our computer needs are, we ask three things.
What do you do?
Where will you be?
Where do you go?

What do you do?

How will you use your computer? If all you need is basic e-mail, Web surfing, and newsletter writing functionality then you won't need a top-of-the-line computer. However, if you'll be editing digital video, practicing your mountainside landings on a flight simulator and using voice recognition software, your budget just doubled or tripled! How you use your computer will be the most important factor in formulating a budget, choosing, and purchasing a new computer.

Where in the world is your mission field?

Where will you be? Will you be in a cozy, air conditioned apartment in the capital city of Costa Rica or a sweaty, 115 degree thatched hut in no man's land Burkina Faso? Will you have stable electricity or will portable solar power be your only hope? Will you be blessed with a high-speed broadband Internet connection or have to endure the snail's pace of using a dial-up modem? Where you'll be using your computer will determine many things about the type of computer you'll need.

ALLAN FINDS HIS DIAL-UP CONNECTION A LITTLE SLOWER THAN EXPECTED
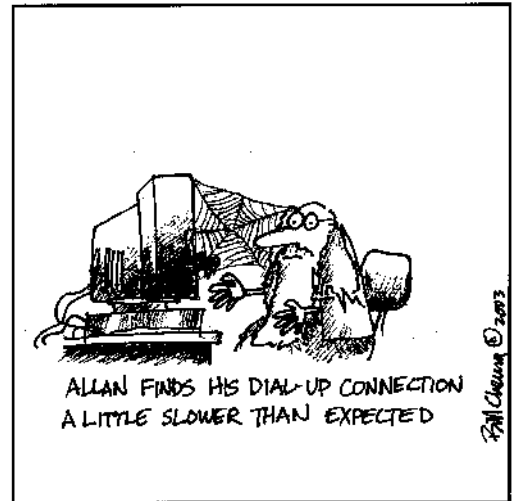
Most name brand retail computers are designed for use in a temperature-controlled, humidity-controlled buildings. Their cooling systems are not adequate for the hot, humid climates seen on many mission fields.

Mobile and Versatile

Where do you go? Will you be spending 5 years in one spot teaching at a well-established training institute or traveling to a different underground church in a different province every three days? If you need to be mobile you'll appreciate the portability of a laptop. Desktops are always cheaper to purchase and to upgrade. Most missionaries will get along better with laptops but demanding applications like video editing can only be properly done on a desktop workstation.

Not all computers are created equal

If you've done any computer shopping at all, you know from the price tags that there must be a difference between the $299 HP at Wal-Mart and the $3200 Velocity Micro at Best Buy. So what makes the $3000 difference?

For one thing, the el cheapo computer is sold without a monitor, keyboard, mouse or printer. Tack those very necessary items on and that $299 PC becomes $500. Many times a great deal becomes just a good deal after you tack on all the essentials.

The major difference is the quality and quantity of the components that make up the PC. Velocity Micros are made for people who like to play 3D games. 3D gaming on a PC requires the biggest and fastest components to give you an edge. You'd feel the shame if a newbie frags you just because your FPS is low.*

Geek Speak - Some gamer slang here that needs interpretation:
    Newbie: A new player. Usually not very good at it yet. Just learning.
    Frag: To eliminate an opponent.
    FPS: Acronym for Frames Per Second. The more FPS the better the
            game speed and the less you get fragged.

The point being… not all computers are the same. You can't just grab the first PC that that looks good and costs peanuts and expect it to fit your missionary lifestyle.

You get what you pay for

If you buy a $299 refurbished E*Machine computer, you can't expect the same stability and lifespan from it as a custom-built MissionaryMachine* that may run you six times more. In the world of computers and computer components you always get what you pay for.

I've never met a missionary that was happy with their cheap computer.

MissionaryMachines

This manual is only one part of the ministry of Missionary Tech Support. We also offer custom-built PCs at or below hardware costs. We'll get to know you and how you use your computer so we can build the best computer for your needs. Extra cooling for hot climates, special hardware for solar powered units, and always top-notch components.

If you'd like to get a quote on MissionaryMachine please e-mail MissionaryMachines@MissionaryTechSupport.com.

Balancing budget and features

Don't expect to find a computer that will run AutoCAD like lightning, edit digital video in real-time, and is bullet-proof for $1000. If you require big features… you'll need a big budget. On the other hand, don't shell out $3000 if all you're going to do is e-mail.

Most missionaries don't budget enough funds for their computers. They see the $699 specials at Circuit City and figure that will work fine for them. Then they arrive on the mission field and find that their cheap computer is now an expensive frustration.

Instead of settling for a computer that can't do all we need it to do, we should raise our budget to a more reasonable level. We'll be using this computer everyday and doing things on it we never dreamed of. Don't go cheap and be sorry.

Use the worksheet on the next page to help determine a proper budget range for your needs.

BOTH PASTOR BOB AND THE AIRLINE COMPANY WISHED THAT THE MISSION WOULD BUY HIM A LAPTOP...

Computer Needs/Budget Worksheet

Section A – place a 4 beside each feature needed/wanted

	Must be mobile (laptop)
	Must be ruggedized (tough computer for tough use)
	Edit video on your computer
	Make DVD video discs
	Play 3D games or use flight simulator
	A flat panel monitor (LCD Display)
	Use solar power to run/recharge
	Require Microsoft Office with PowerPoint, Publisher and/or Access
	Section A Score

Section B – place a 2 beside each feature needed/wanted

	Edit audio on your computer
	Make CDs or Audio CDs
	Connect to the Internet through a phone line and modem
	Watch DVD movies on your computer
	Section B Score

Section C – place a 1 beside each feature needed/wanted

	Edit photos from a digital camera or scanner
	Use for homeschooling your children
	Section C Score

	Total of Sections A, B and C

0 – 4 Score = $800 - $1400
5 – 12 Score = $1600 - $2000
> 13 score = $2400 - $4500

If I was you...

Below are my musings on retail name-brand computers in no particular order.

- **HP**: Nice printers, but I would never buy a computer from them. Most of their systems have passive heat sinks that make them inadequate for hot, humid climates. Their power supplies are the underpowered cliché. They're also notorious for not installing enough system RAM.
- **Compaq**: ... now one and the same as HP. All except for the printer thing.
- **Gateway**: Bad...not good. Their "Essentials" line of computers has the shortest lifespan in the business. Can you really trust a computer that comes out of a box that looks like a cow… and runs like one too!
- **IBM**: They make the second finest laptops but I would recommend you stay away from their desktops.
- **Toshiba**: Largest laptop manufacturer in the world. They hold over one-third of the current world market. Third-best laptops in the world.
- **E*Machines**: The worst computers in the world. I cannot fathom a situation where an E*Machine would suffice. At one time their modems would randomly burst into flames... can you spell "r-e-c-a-l-l"?
- **Dell**: These guys used to be an excellent manufacturer. They have fallen into the pit that every other big-name computer builder falls into. They started using proprietary parts. Now it seems that only Dell parts can fix Dell computers. Special power supplies, special heat sinks, and very special software. You can't even use industry standard drivers from the original manufacturer. Oh yeah, their laptops have a tendency to get real hot as well (as was proven by a series of lawsuits.)
- **Panasonic**: Awesome ruggedized notebooks… if you can afford them. Prices start at $2,500 and go up. But it's cheaper to buy one laptop for $4,000 than 3 laptops at $1,500 and deal with loosing your data every time you go into the bush.

Choose your field computer carefully. It will either be one of your best friends or you worst frustration on the mission field.

Prep an Old PC for a New Home

If you purchase a new computer and would like to give away your old machine, your should prepare it properly for use by its new owner.

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First, you need to transfer your data files from the old computer to the new one. You can use a CD-RW or a USB flash drive to make it easy. You'll want to transfer all the files in **C:\Documents and Settings**. This folder includes your **My Documents** folder. If you or your applications also store files somewhere else, find out where the files are (using Windows' Find/Search feature if necessary) and copy those as well. Quickbooks and Quicken are the worst at this. They store their data files alongside their program files in **C:\Program Files\Intuit**.

Next, destroy any sensitive files that you do not want the new owners to see. Simply deleting such files won't do, because a deleted file can be recovered even from a reformatted drive.

Darik's Boot and Nuke is a great free utility which will securely destroy all the data on your hard drive. It's US Department of Defense standard wipe writes over the data numerous times to ensure that it's completely unreadable.

Once you've destroyed your sensitive files, reformat the hard drive and reinstall the operating system. Step-by-steps of how to reinstall nearly every version of Windows are in **Appendix A**. Windows tends to collect bugs and incompatibilities that can make it unstable after just a few short months of use. Reinstalling Windows will let the new owners start off with a clean slate.

Reload any programs that came with the PC, including hardware drivers, and reload any upgrades to these programs. Most software you purchased separately can be reloaded onto the old PC or added to the new one, but check your licensing agreements first.

	Note: It is almost always illegal to put the software on both the old and the new computer. Most software licenses are for only one PC, which means you have to buy two copies… hey, what are they trying to do? Make money or something?

What if... Answers

Scenario 1.
> D. Any one of the other answers may be correct but only answer D will intelligently guide you to the best course of action.

Scenario 2.
> C. If you know where to look, you can retain all your important and sensitive documents and many of your settings and transfer them to your new computer. If security is an issue, be sure to contact your mission headquarters before donating any old computer to anyone outside your mission.

Chapter 2 - Transporting and Installing Your PC
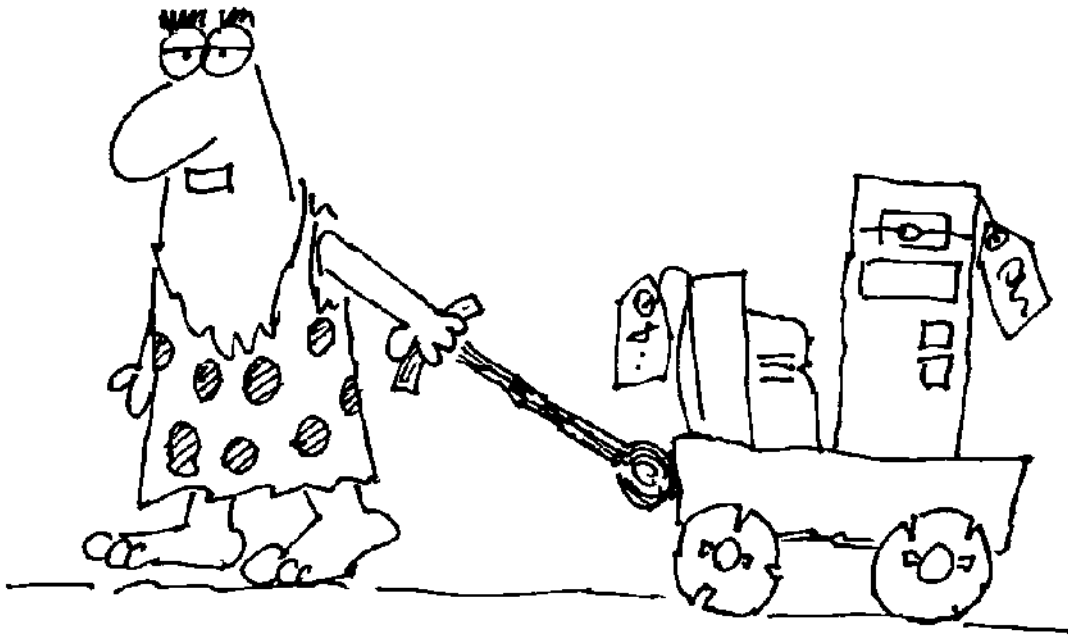
*"**Applying computer technology is simply finding the right wrench to pound in the correct screw.**"*
        - Unknown

We just shelled out $2000 for a computer that will be obsolete before we get on the plane but we want to protect our quickly depreciating investment, what's the best way to get it to the mission field?

What if...

Scenario 1.
        Uncle Joe gives you a brand new 19 inch CRT (you know, the big tube TV type) monitor to take down to Argentina with you… only he doesn't give you the box it came in stating that he knows you need to save on packing space.
Do you…

        a. Wrap the monitor in a foam mattress and encase the entire thing in a cocoon of duct tape.
        b. Find a big box that it will fit into and fill it with Styrofoam peanuts packing it real tight.
        c. Ask Uncle Joe for the box… if he doesn't have the original box, don't take the monitor with you.

Scenario 2.
        Your mission issues you a UPS (uninterrupted power supply) and expects you to use it but the infernal box goes off beeping all the time and is driving the wife mad.
Do you…

        a. Disconnect the UPS… there must be something wrong with it. Ask the mission to send you a new one.
        b. Crack open the case on the UPS and cut out the beeping speaker… now everyone's happy.
        c. Duct tape a heavy pillow around it to silence it's complaining (the UPS not your wife.)
        d. Consult the UPS's manual as to why it might be beeping...

Packing for the Trip

Few missionaries use 55-gallon drums to transport their belongings to the field anymore although some people I know have wanted to transport their children this way. Most use 35-gallon Rubbermaid tubs or army surplus duffle bags for transport (their stuff not their children.) Not many computer systems will survive a duffle shuffle so we're well advised to put it in a tub. Some airport conveyor belt systems have as much as a 4-foot drop; an improperly packed PC may not even survive getting on the plane!

First, if we've been using it, unplug and disconnect everything. Wrap up the cords including the mouse and put them into a big plastic bag. We'll tape this bag to the bottom

of the inside of the computer case, this way when we're unpacking we don't have to search everywhere for the cords. Smart, huh?

Now let's put a layer of bubble wrap around the whole thing and tape it securely. Then line the tub with clothes; put in the bubble wrapped tower and pack around it with more clothes. Only soft stuff is allowed in this tub. We should also bubble wrap our printer, scanner, etc. Lets put these peripherals in separate tubs.

If we're taking a CRT monitor, only the original packing materials will do. Nothing else will properly protect our monitor. We'll be sure to ask the airline if there is a box embargo for the dates we plan to fly, otherwise our monitor may have to stay home and we get to pretend our computer works.

Where to Put Our Computer When We Arrive

We want to find a cool, dry place to put our computer. Computer CPUs, Central Processing Unit, the brains of the machine, run at over 150°F and most have only a little heat sink and fan to cool them down. The colder we can keep them the better. Here are a couple of pointers to keep our machine cool.

- Out of direct sunlight. Sunlight will heat up our computer as well as fade or yellow any plastic and make it brittle.
- Minimize dust that can cake on components making them overheat and possibly short out.
- Vacuum or blow out the inside of the case to remove the gunk that might cake on components and keep them from releasing heat.
- Install extra case fans. It increases noise but decreases the chance of a dead computer. Most tower style cases are outfitted with brackets to hold extra case fans.
- Don't lock your computer up in a cabinet when in use. The restricted airflow may cause it to overheat.

Keep a steel case off the floor if we're in a humid area. The case, unless it's aluminum, will rust or condensation may form inside it and short out our components.

Plug It In

All kinds of problems can occur if you don't plug your computer back in properly. All but the oldest of computers comply with a color-coded jack layout. So if you're not colorblind this makes things much easier.

Mouse (Light Green)
Printer Port (Fucia)
Game Port (Light Yellow)
Serial Ports (Light Blue)
Keyboard (Purple)
USB Ports
Speaker Jack (Light Green)
Microphone Jack (Light Red)
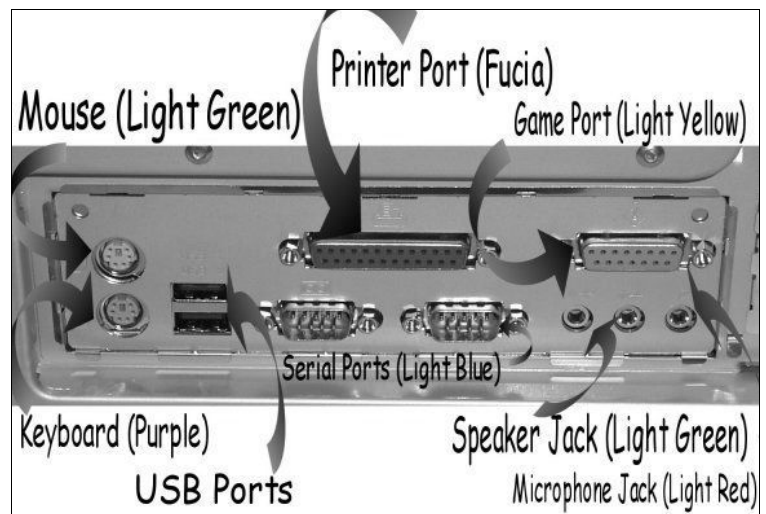
Purple is always the keyboard. The keyboard port in the back of the computer should be purple and the end of the keyboard cable should be purple. Here comes the hard part... plug in the purple end into the purple port. I knew you could do it!

Green is always the mouse. The mouse port in the back of the computer should be green and the end of the mouse cable should be green. Plug in the green end into the green port.

Don't laugh now but ninety percent of the "My keyboard doesn't work now..." problems are caused by a simple mix up between the purple and the green. So if your keyboard suddenly stops working after you've re-arranged your office... check to see if you're colorblind.

The speaker output is always green too. You may see 3, 4 or even 5, 1/8 inch audio jacks in the back of your computer. Plug your speakers into the green one. Ninety percent of sound problems are cured by plugging the speakers into the correct jack... the green jack. I've done that one myself!

Your printer may connect via the parallel port or the USB ports. The parallel port will always be fuchsia color. Plus it's the only one that the printer cable will fit into. If your printer connects via the USB ports you can plug it into any of the USB ports. It doesn't matter which one.

Electricity

Like everything else in our world, our computer is either 110 volts or 220 volts. Most towers have a switch on the back of the computer at the power supply located near the fan. This switch can slide up-and-down or side-to-side to change the input voltage. All modern laptops are dual voltage so no switching is required.

Be careful not to accidentally plug our 110 computer in a 220 socket; sparks will fly and you'll have to replace the power supply. However, if we plug a 220 into a 110, the lights may be on but nobody's gonna be home. Nothing will happen. Don't worry, no damage done. We just unplug it; slide the switch in the back to 110 and away we go.

Note: Be sure to check for any special plug adapters you may need for your mission field. If you're not sure… you can always buy them when you get there – unless it's a holiday – and it's nearly always a holiday!

Many monitors, unless purchased on the field are not 220 compatible. They run at about 90 watts so even the smallest transformer will do. Some monitors have power cables that run off the back of the computer. The voltage coming from these cables is whatever is going into the computer. If we have this computer/monitor configuration and we're running our computer off of 220, then we'd better make sure our monitor can handle 220.

Line conditioners

The old equipment and poor maintenance of the electrical service in many countries will cause the fluctuation of power most missionaries will see coming from their wall sockets. Most of these fluctuations go unnoticed by everything but the most sensitive of equipment, equipment like your computer.

Browns, spikes, and surges can all damage computer equipment and our hard disk integrity. Surge protectors can do some good and I highly recommend them for our phone lines, but the way to level out all these fluctuations is with a line conditioner.

Line conditioners use huge capacitors to absorb the spikes and surges and to fill in a bit when there's a dip in power. I recommend purchasing a line conditioner in your host country as they are very heavy and not worth the extra baggage and overweight shipping charges.

UPS: It's not just a package service anymore.

If we're running our computer and the electricity goes off, chances are we've lost everything we haven't saved... unless we have a UPS.

UPS stands for Uninterrupted Power Supply. Basically a UPS is a battery for your desktop computer. There are two types of UPSes: Inline and Switch.

With a switch UPS, our computer runs off the electricity from the wall socket and if the electricity drops below a certain level or cuts off all together, the battery kicks in. When the electricity comes back to the proper level we hear a click.

In an inline UPS system, the battery is constantly being charged from the wall socket and our computer is running off the battery. If the electricity dips or goes out, the output electricity to our computer is not affected because we are running off the UPS battery all the time.

The switch type USP is less desirable because even an electrical interruption of a hundredth of a second may do damage to our computer. However, the inline systems are much more expensive.

UPSes are rated in VoltAmps or VA. A good 500VA UPS should give us plenty of time to save
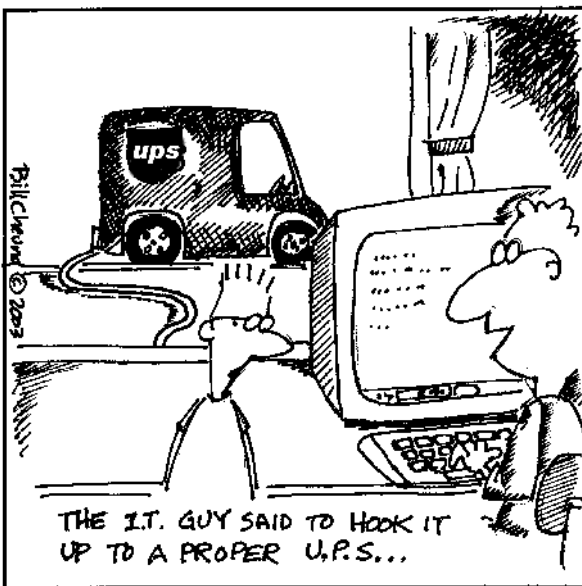
any documents we were working on and shut down our computer correctly. Some 340VA UPSes only give us 15 seconds or so. Other professional grade systems can keep a computer running for hours.

If you need a UPS, my advice is to check and see if you can purchase a quality one in the country you'll live in. They're big and heavy and if that country's electricity runs at 50Hz cycles rather than the 60Hz we use here in the USA, your $400 APC that cost you another $75 in extra baggage and $40 in overweight shipping will be just an expensive doorstop.

Alternate Power

In many places of the world, stable electricity is a faint dream or, at best, a luxury. When you can't find a wall plug cause you don't have walls… Generator power is nice, but fuel is often too expensive or just plain unavailable. When all else fails, use the bright beautiful sun God gave us.

The SunCatcher Expedition is a three-ring binder sized, solar-powered array that produces enough DC electrical current to not only run your laptop but also charge the battery… or any battery for that matter. It has a standard 12-volt auto adapter. Anything that can run off a car cigarette lighter can be run off it's solar power.

It's a bit pricey at $500 but worth every penny if you have no other reliable source of electricity.

Sit Down

Now that our computer is in the right place and plugged-in, we need to find our place in front of it. Proper working posture will reduce the long-term effects of monotonous keystrokes and Carpal Tunnel Syndrome.
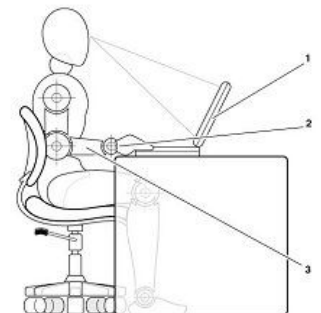
1. Position your computer directly in front of you as you work. Make sure that the monitor screen is at eye level or slightly lower. Adjust the tilt of the computer's display, its contrast and/or brightness settings, and the lighting around you (such as overhead lights, desk lamps, and the curtains or blinds on nearby windows) to minimize reflections and glare on the display. When using a monitor, set the monitor at a comfortable viewing distance (usually 510 to 610 mm [20 to 24 inches] from your eyes).
2. Keep your wrists in a neutral, comfortable position while using the keyboard or mouse. Always use a palm rest with the keyboard. Leave space to rest your hands when using a mouse. When you stop typing, vary your work activities and try to do things that use both hands. Try to organize your work so that you do not have to type for extended periods of time.
3. Keep your forearms horizontal, and let your upper arms hang naturally at your sides.

4. Sit up, with your feet resting on the floor and your thighs level. Use a chair that provides good lower back support. When sitting, make sure that the weight of your legs is on your feet and not on the front of your chair seat. Adjust your chair's height or use a footrest, if necessary, to maintain proper posture.

Computer Security

WILSON FINALLY FINDS A QUIET PLACE TO WORK...

If your laptop, or even your desktop, is lost or stolen, pray and then call a law enforcement agency to report the lost or stolen computer. Include the service tag or serial number of the computer in your description of the computer (you wrote that down somewhere, right?) Ask that a case number be assigned and write down the number, along with the name, address, and telephone number of the law enforcement agency. If possible, obtain the name of the investigating officer. If by a miracle of God they ever find it you may be able to get it back from the police.

If the computer belongs to the mission and/or has sensitive information on it, notify the security office of your mission as soon as possible.

In My Day: I knew a missionary whose computer was stolen from his home. He prayed. Five days later a boy found it up in a tree some 3 miles away. It still worked!

What if... Answers

Scenario 1.
    C. The only way a big CRT monitor will make it to the mission field is in its original box. I've met many a missionary who tried solutions A and B and all had their big, beautiful monitors broken in transit. Return the CRT if you can and purchase another one… keep the box.
Scenario 2.
    D. A UPS will beep usually when it's running off of battery power. If it's beeping often, your electricity must be dipping below the standard voltage often (brown out.) The best solution is purchasing a line conditioner to help with the brown outs and keep your UPS to only beeping when the electricity is truly gone out.

Some UPSes may also beep a different beep code when the battery no longer takes a charge or when another component in the UPS has gone bad (like a voltage regulator.) Consult the manual… find out what that beeping means.

Universal Computer Symbols

Symbol	Description
○	OFF
I	ON
🔒	KEY LOCK
⬭	HARD DRIVE
💡	POWER ON
⊘	RESET
👹	THIS COMPUTER IS POSSESSED
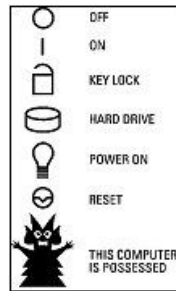
Chapter 3 - Hardware Maintenance
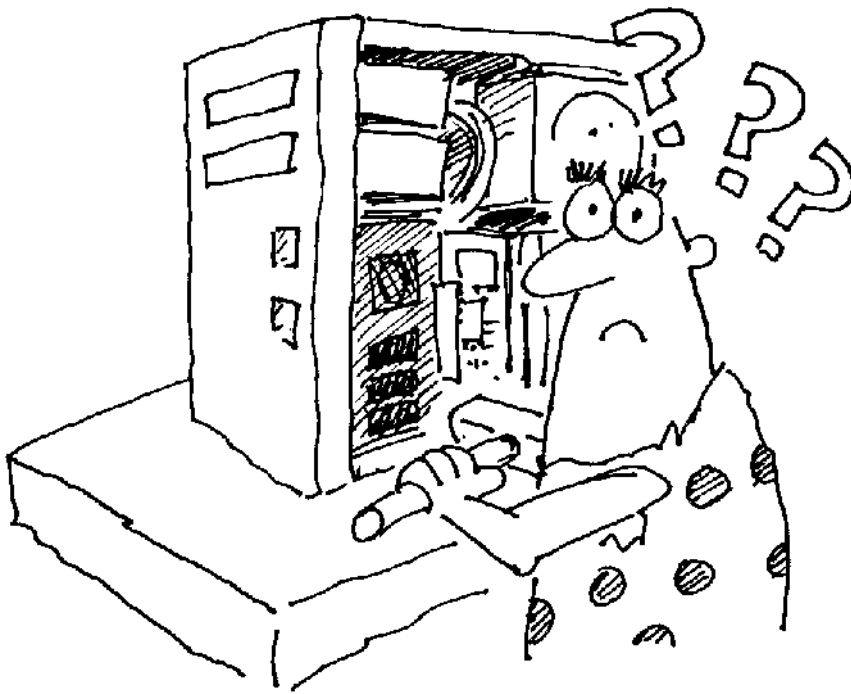
*"**If it's not on fire then it's a software problem.**"*
          – Unknown

Surrounded by 72 cubic feet of bubble wrap, our computer made it safely through the airports and is now in our new home on the mission field. How do we keep our new little friend happy and healthy so that we may continue to enslave it for many years to come?

Many missionaries confuse computer hardware with computer software. An easy rule to remember is: computer hardware is stuff you can kick. If you can only scream at it… it's software.

What if...
Scenario 1.
         Your computer begins to growl when you turn it on first thing every morning. After 10 minutes or so, it quiets down and you don't hear another peep out of it until the next morning.
Do you…
   a. Do nothing. Maybe, like you, it just growls a bit in the morning before it's had its first cup of coffee.
   b. Open up the case and start looking for the source of the growl.
   c. Leave the computer running 24/7 so the morning growl is never heard.

Scenario 2.
         Your "d" key on your keyboard quits working. You've shaken it up-side-down and even used compressed air to try to get anything that may be under that key out but it still won't "d."
Do you…
   a. Gently pry up the key and remove any Oreo crumbs underneath.
   b. Throw the keyboard in the dishwasher and run it through a cycle. That will clean it up.
   c. Throw it away and get a new one… a better one… one with a working "d."

A clean computer is a happy computer

Ministry can be dirty work. Dust, suet and even mold can find its way into every nook and cranny of our home and office, even into our computer. Our computer is a highly complex electrical machine. Keep it healthy by keeping it clean.

The case of our computer (that's the tower, not the monitor) is usually made of metal or plastic. The outside of the case can be wiped down with a damp cloth using mild detergent or glass cleaner.

When we clean the case:
   • Be sure the computer is off

- Unplug the case from the wall.
- Never submerge the case in water.
- Never spray anything into the case.
- Take care when cleaning around the floppy and CD ROM drive openings. You don't want to leave any cloth strands or particles in there.

Get off my case!

The only times we need to open the case is if we need to replace or upgrade a component (which we'll talk about in chapter 10), or if a jellybean or something is rattling around in there. Other than that it is wise to stay out of the case. The components inside are very fragile and susceptible to **ESD** (Electro Static Discharge) damage.

What is ESD? Remember when we were kids and you shuffled your feet over the carpet and then touched my nose. Zap! 4,500 volts straight into my brain. You ESDed me! A human can feel ESD beginning at about 3,000 volts. Computer components, however, can be damaged by an ESD as small as 30 volts. You wouldn't feel it, but zap; there goes our new $550 video card. …I'm telling mom.

For those times when we will be inside the case we should be sure to use a static eliminating bracelet. This is a bracelet that tethers us to the case; grounding any static electrical juice we may be walking around with so we don't damage our components. If you don't have one of these super-handy-but-useless-unless-working-in-your-computer bracelets around, be sure to touch a metal edge of the case to ground yourself before touching any of the components inside.

Your biggest fan

The innards of our computer can get pretty hot when our CPU (Central Processing Unit) starts crunching those numbers for us. Manufacturers use fans to cool the CPU, the power supply, and other chips that heat up. They may also install case fans that suck in cooler air and push out the heated air. If we're going to have to replace any component in our computer over its lifetime it will most likely be one or all of these fans.

You'll know it's time to replace a fan in your computer when it begins growling at you. When a fan begins to fail, it usually makes a funny noise. Some people ignore this growl and it eventually stops. It stops when the fan stops. This is not good. You need to find out which fan is failing and get it replaced before the growling stops.

GREAT WAFFLES HONEY… WHEN DID WE HAVE A WAFFLE IRON?

IT'S THE BLACK TOSHIBA I FOUND IN YOUR OFFICE!
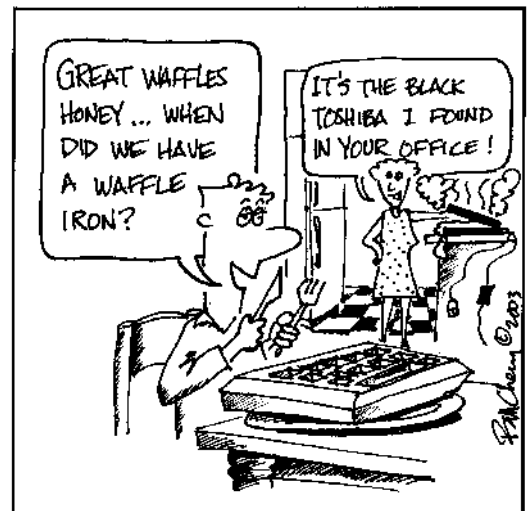
Fans are measured in millimeters. Standard power supply and case fans are 80mm. Many CPU fans are 50mm. Be sure to measure before purchasing a fan. Just measure the width of the total fan assembly – not the fan blades.

The power supply fan, which can be seen on the back of the computer, will usually be the first to quit. I don't advise replacing the power supply fan because it requires opening the power supply. Mucking around any electrical capacitors, like those inside power supplies, is dangerous. It's safer and easier to replace the entire power supply. This fan fails so commonly that I recommend every missionary take an extra power supply for their computer with them to the mission field. This will reduce the downtime from a failed power supply fan and perhaps save you from a 13-hour drive into the capital city to find a replacement.

To help all our computer fans to last as long as possible we can keep them clean. A can of compressed air works well to remove the built-up dust on all our components, especially our fans. We can also carefully use a Q-Tip on the fan blades to get off the thick gunk but we must be careful not to put too much pressure on them. Most retail computers have cheap fans with delicate sleeves instead of rugged ball bearings. These sleeves can easily be broken or misaligned by an over-zealous Q-tip cleaning.

Monitoring everything

If the monitor is the head of our computer system then its screen is its eye. And if the eye is unclear… ahh… we can't see what we're clicking on. Some try to avoid the classic dust build-up on the screen by placing a cover over the screen when not in use. CRT monitors put off quite a bit of heat when in operation and if your cover, or anything else, is sitting on top of its heat vents it will overheat and shorten the life of your monitor.

Clean your monitor only when the following conditions are met.
- The monitor is off
- The monitor is plugged in. It's important that the monitor be plugged in to give the electricity a place to go instead of through you

BOB DISCOVERS THE LIMITS
OF HIS TECHNICAL KNOWLEDGE…
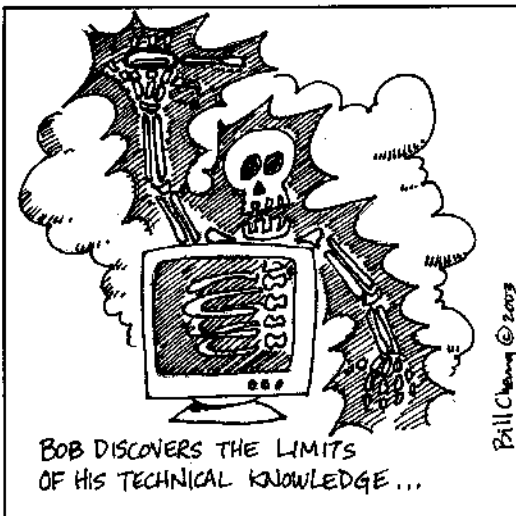
Clean the monitor, except for the screen, the same way you clean the computer case:
- Damp cloth
- Mild detergent
- No spray
- No submersion in water

Special wipes are manufactured to clean the screen that are said to eliminate static buildup and repel dust. Yeah… and I can make millions of dollars in my spare time stuffing envelopes. Glass cleaner and a soft cotton cloth work

great. Be careful though. Some screens have a special anti-glare coating that can be scratched off with anything other than soft lint-free cotton.

Never, ever disassemble or try to open a CRT monitor. CRT, cathode ray tube, monitors have large capacitors, which if discharged through the human body can kill a person. It is said a monitor could have been unplugged an entire year and still have enough charge left in its capacitors to kill. Talk about holding a grudge. Never try to repair a monitor. If you can't make it work by smacking it up side the head then take it to a technician or purchase a new monitor.

Mouse droppings

What would Windows be without the mouse? Take care of your pointing rodent with lots of cleaning.

Optical mice use a LED (light emitting diode) to track the movements of the mouse. Because they have no moving parts, the only cleaning needed is a quick wipe down with a soft damp cloth.

Non-optical mice, also know as blind mice, and trackballs have a free-floating sphere that in turn moves two rollers that track the movement. Unfortunately these spheres are made of a special rubber called "Fuzz-Magnet-Rubber." If our blind mouse seems to be staggering around more than normal, give it a good cleaning. Here's how…

Open the sphere housing by rotating the collar on the underside of the mouse counter-clockwise. Usually a quarter turn will do it. Take the sphere out and pull any fuzz off with your fingers. Further cleaning to the sphere isn't necessary unless it's sticky from a spilled Coke or such. In fact, if you use alcohol or other harsh cleaners on the rubber sphere it may melt and become deformed making the situation worse. The real problem lies with the rollers inside the mouse. They'll most likely be caked with a packed lint material. The easiest, although not very sanitary, way of cleaning them is with your finger. Rub the fuzz off to one side while rotating the roller. It should eventually break off the roller allowing you to pull it out of the sphere housing. Do this for both rollers and the little supporting wheel.

If you don't like being tethered by the mouse cord you may want to look into a mouse without a tail. Cordless mice use infrared or raido signals to transmit the mouse movements up to 30 feet way. You'll need to change batteries every 3 months or so and don't loose it. Nothing's scarier than having a blind, tailless mouse running around the house.

Another great mouse technology is the scroll wheel. I love the wheel mouse. The wheel allows you to scroll up and down web pages and documents and even right and left through spreadsheets without having to click on that barely visible arrow on the bottom right of the screen. Just roll the wheel and you're scrolling.

The Key to Keyboard Health

I can think of very few things in this world more frustrating than a key that gets stuck while your trying to typppppe. Whether from the spilled coffee or a cookie jammed between the y and the t, the good news is we can probably fix it by simply cleaning it.

Newer style keyboards, called membrane keyboards, have very few electrical parts and are easily cleaned. You can tell if you have a membrane keyboard by simply picking it up. If you can lift it with one hand and it weighs less than 700 pounds, you have a membrane keyboard. Old mechanical keyboards are very heavy and make a hideously loud mechanical click when the keys are pressed.

To clean a membrane keyboard… the moment you've all been waiting for… submerge it in water and a mild detergent! Yes, this is the only part of a computer you can dunk – no sprinkling here. That should make my Baptist missionary friends happy. Put it in the dishwasher, if you're lucky enough to have one. Give it to little Bubba to play with when he takes his bath tonight. It'll probably get cleaner than he will. Just remember to let the keyboard completely dry out before using it again. If you shake it and water comes out… well, it's not dry! To be safe use a hair dryer on it for a few minutes before plugging it into your computer. Don't use any styling mousse though. The natural look is very in.

If there's something wedged in the keyboard holding a key down or prohibiting it from going down, carefully remove the key using two screwdrivers or butter knives. Place the screwdrivers on opposite sides of the key and gently pry it off. It should go back on with a snap, just don't loose the little spring if it's got one.

Notebook Cleaning

For the most part, the notebook computer case and keyboard can be cleaned like the case of a tower only be sure that the computer is off, that it's unplugged and the battery is removed; soft damp cloth, mild detergent, no spray and no submersion.

To clean the screen or LCD, Liquid Crystal Display, you should only use a very clean, very soft, slightly damp, cotton cloth with no detergents. Spray the water on the cloth, not the screen. If a spot won't come off try using hot water to slightly dampen the cloth. These screens are easily scratched and broken and very expensive to replace.

To clean out stuff from the keyboard use a dry paintbrush or toothbrush being careful not to wedge anything deeper; use a lifting motion. While most laptop keyboards have removable keys, it takes a mechanical engineer to replace them. Be careful.

Floppy Care

Macintosh and Dell have decided that the 3 ½ inch floppy disk is obsolete and don't even have a floppy disk drive on any of their new computers. We missionaries, however, still use em'. Whether swapping important documents with the office or backing up your address book, the floppy is an important, mobile file storage tool. They are, however, very fragile so here's how to care for your floppies.

Format a Floppy

Before you use a floppy it must be formatted to accept data. Most floppies come pre-formatted for PC or Mac. If you need to format a floppy, click on the **Start** button then click on **Run**. In the little white box (called the workarea) type the letters **cmd** and then click on **OK**. **Cmd** brings up a command prompt. You can format your floppies from within the Windows graphics environment but they disabled the format summary in Windows XP. You can't see if the floppy is any good or not unless you format it from the command prompt.
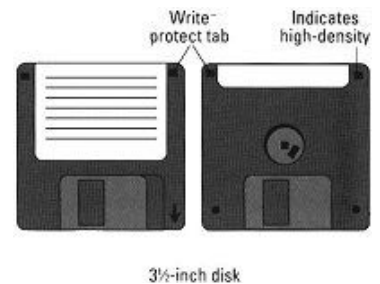
Now, at the command prompt (that's the C:\…\> line) type in **format a:**. It will ask you to put the diskette into the drive and press a key when you're ready. When the formatting is done, you'll see the summary screen. Look for the **bytes in bad sectors** line. If it reads anything other than 0 you should throw it out. It won't reliably hold your data and may not work at all.

Copy a Floppy

Why copy a floppy? Many hardware manufactures still ship the drivers for their products on floppy disks. If something were to happen to your system and you needed to reinstall your printer driver but the floppy had been sitting on top of the monitor for two years and now it's full of bad sectors, you'd be out of luck. It's always a good idea to back up your floppies either onto another floppy, CD, or hard disk.

To copy a floppy to a floppy, open **My Computer**, right-click on the **A:** drive and choose **Copy disk** and follow the on-screen instructions.

Copying Files onto a Floppy

To move files onto a floppy open **Windows Explorer** by clicking on **Start**, then right clicking on **My Computer** and choosing **Explore**. Then navigate to the folder containing the files, highlight and right click on the files you wish to copy, mouse over the **Send To** on the alternate menu and choose **3 ½ Floppy (A)** by clicking on it.

Geek Speak: **Mouse over** is a term that simply means to move the arrow of the mouse over on top of an object, word, or menu.

Be sure to check if the file is too large to fit on a floppy disk. You may do this by right clicking on the file and choosing **Properties** on the alternate menu. In the **Properties** window you can see if the file size is more than 1.38MB. If it is, you can split it into two or more pieces using a disk-spanning tool found on **The Disc**.

Take care of your floppies by keeping them away from anything that may put off an electromagnetic field, like your monitor, sound speakers, a transformer, or magnets, as this can corrupt the data and ruin the physical properties of the floppy disk.

You can wipe them off with a dry cloth if they happen to get dirty. Never open the disk sleeve as this can allow dust and other debris onto the disk and be caught between the disk and the heads. And never leave the floppy in the floppy drive because the disk sleeve is always open allowing dust and humidity in.

If a floppy gets wet or the plastic cover is broken, replace the diskette.

CD Care

CDs are the current media of choice for archiving. CDs are optical media as opposed to magnetic media. Optical means the laser inside the CD ROM drive actually "looks" at the microscopic surface of the CD to read the data. So you don't have to worry about electromagnetic fields ruining them but you do have to worry about scratching them. There are reports of a fungus eating the aluminum foil between the silicon layers in CDs (in effect destroying them) but that was under extreme heat and humidity.

Keep the discs in a case or sleeve when not in use. If you do have to set one down, set it upside down so as not to scratch the underside.

You can clean a dirty or fingerprinted CD using a soft dry cotton cloth. Wipe from the center of the disc to the edge being careful to not scratch the disc. Do not use a circular motion. Circular scratches may make the disc unreadable.

What if... Answers

Scenario 1.

　　　　b. The growling is almost always one of the fans inside the case. Start looking for it while it's growling. If you ignore it, the growling will go way but only when a much needed fan stops turning… and that's bad.

Scenario 2.

　　　　Try a. then b. and then c. – Yes, you can GENTLY remove the keys and clean behind them. Yes, you can run the keyboard through a low heat dishwasher cycle. When all else fails, replace it. They're cheap.

Chapter 4 - Windows Maintenance

Bill's Ford Pinto

Everyone knows you can't drive a car everyday for 5 years without occasionally filling up the gas tank, changing the oil, rotating the tires, and spilling some coffee on your lap. But few realize that Microsoft Windows requires regular maintenance to keep running as well. We'll discuss the various maintenance tasks and how often you should perform them. We'll also make a handy-dandy maintenance checklist to help remind our overworked memory banks to actually do it.

What if...

Scenario 1.

The electricity went out while you were using your desktop computer. You still haven't purchased a UPS so your computer turned off without properly shutting it down. Do you…

 a. Wait for the electricity to come back on and run a full Check Disk.
 b. Wait for the electricity to come back on and start up the computer and use it normally. It's OK.
 c. Hook the computer up to your Land Rover battery and keep working.

Scenario 2.

You get a panic e-mail from a friend telling you about a warning from Microsoft concerning a new virus that is not detectable by any anti-virus program. There are instructions telling you to look for a certain file and delete it, then to pass the message on to all your friends warning them.
Do you…

 a. Look to see if you are infected and do everything mentioned in the e-mail.
 b. Ignore the message and delete it.
 c. Forward the email to **info@missionarytechsupport.com** asking what to do.
 d. Buy anti-virus software.

Scenario 3.

You turn your computer on one day and nothing happens. No lights, no noise, nothing. You take it to a national technician and he returns the computer to you a month later working… but all your documents and emails are gone. You've just lost three years work of Bible translation work along with everything else.
Do you…

 a. Pull out the hardcopies of your work and start re-typing all 2,700 pages of it.
 b. Give up all hope and book the next flight to Minnesota and go back to work on the dairy farm.
 c. Restore your latest backups you made on CD and continue your Kingdom work.

Monthly Maintenance Checklist

Provided by **MissionaryTechSupport.com**. For more information, please check us out on the web at www.MissionaryTechSupport.com.

	File System and Hard Drive Integrity Check – Run a Check Disk or Scandisk in thorough mode to ensure hard drive health
	Disk Cleanup and Removing Temporary Files – Run Disk Cleanup and remove all temporary files to tidy things up a bit.
	Anti-Virus Updating and Full System Scan – Update your anti-virus software and run a full system scan.
	Adware/Spyware Detection and Removal – Update Spybot: Search and Destroy and Ad-Aware and scan for renegade programs.
	Windows Update – Get online and check Windows Update site to see if Microsoft has any critical updates for your system.
	Disk Defragmenting – Use Disk Defragmenter to line up all the data on your hard drive, making your computer a bit faster.
	Data Backup – Don't forget to back up all your original data and keep a copy off-site once a quarter just in case.

Our monthly checklist goes like this.

- **File System and Hard Drive Integrity Check**
- **Disk Cleanup and Removing Temporary Files**
- **Anti-Virus Updating and Full System Scan**
- **Adware/Spyware Detection and Removal**
- **Windows Update**
- **Disk Defragmenting**
- **Data Backup**

Welcome to the Status Quo

God made us all special. No two fingerprints are alike. No two eye retinas exactly the same. No two double chins are identical. But when it comes to a computer's operating system, we're just like the other 96% of computer owners in the world. We all use Microsoft's Windows. Whether it be 95, 98, 98SE, ME, 2000 Professional or XP we're all slaves to the Bill Gates Tax.

Step-by-step directions will be given for all the different flavors of Windows. Be sure to check and see what version you have before beginning.

To see what version of Windows you're running, right click on the **My Computer** icon and click on **Properties**. The system properties window will display one of the following:

- **Windows 95**
- **Windows 95a**
- **Windows 95b**
- **Windows 95c**
- **Windows 98**
- **Windows 98 Second Edition**
- **Windows ME**
- **Windows 2000 Professional**
- **Windows XP Home**
- **Windows XP Professional**

Some of the instructions will work on all the versions of Windows while others are very version specific. The step-by-step instructions for Windows 95/98/ME are located in **Appendix D**. Take special care in finding the right instructions for your version.

File System and Hard Drive Integrity Check

(Windows 95/98/ME see AD-1)

Our computer's hard drive is the warehouse for all our files including those of our operating system. If our hard drive fails, we loose everything on it. That's why we want

to keep our finger on the pulse of our hard working hard drive. Monthly checkups will keep it running strong and give us a little heads-up when the drive begins to fail.

We need to check the file system. Our hard drive is partitioned and formatted so we can write data to it and read data from it. Depending on our operating system, the hard drive may be formatted FAT16, FAT32 or NTFS. All these file systems need a little check-up now and again to make sure they don't write over the top of existing files and are correctly reporting our free space.

> *Geek Speak:* The **FAT** has nothing to do with eating too many carbohydrates. FAT stands for **File Allocation Table**. It's like a huge index for the hard drive. When your computer looks for a file on your hard drive, the FAT tells it what cylinder and sector it's in. Finally, FAT is good!

Disk errors can range from small miscalculations in the file indexes to bad physical sectors on the disk from a crash. If these errors were to go un-recognized or un-repaired it could corrupt more data on the disk making some files, programs, or documents unreadable. Windows can detect and fix the majority of errors it finds. Bad sectors will be marked in the index and Windows will not attempt to write anything more to them.

Hard Drive Properties
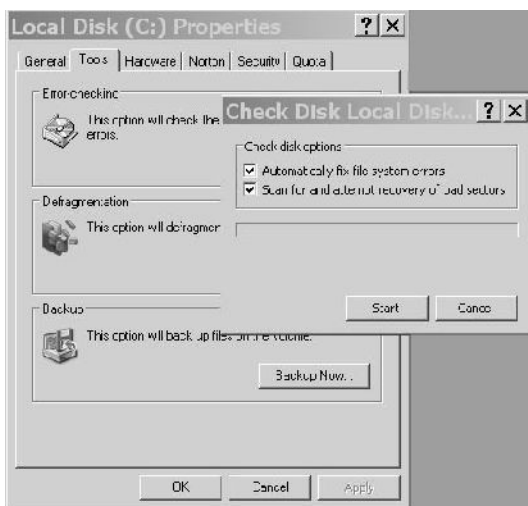
Click on **Start** – **My Computer** and then right click on **Local Disk (C:)** and choose **Properties**. Here we can see how much space we're using in our hard drive and what file system we're using.

If we have less than twenty percent of our total hard drive space free we should really start thinking about getting a new larger hard drive.

Check Disk - settings and frequency

For Windows XP and 2000 we use a program called Check Disk. It can only be accessed from the hard drive's properties **Tools** tab or from the command line.

Open up **My Computer** and right click on **Local Disk (C:)**. Now click on the **Tools** tab across the top and click on the button that says **Check for Errors**.

Check Disk has two checkboxes: **Automatically fix file system errors** and **Scan for and attempt recovery of bad sectors**. By running a scan with both checked, you assure that Check Disk does a thorough job. It will check for indexing problems to make sure you don't write over the top of another file by accident and scan the surface of the disk for bad sectors. You should scan your drive at least once a month.

A Check Disk usually takes around a half an hour but could take up to 2 hours on very large drives.

After Check Disk is finished, it will restart your computer. When your desktop reappears, you should review the Check Disk summary for some key information.

The Check Disk summary can be found in the Application Event Viewer. Click on **Start** then right-click on **My Computer**. Now click on **Manage** to open the Computer Management Console. On the left, click on the plus sign (+) next to **Event Viewer** and then click on **Application**. Somewhere down the list you'll find an entry with **Winlogon** in the **Source** column. Double click on it and you'll see the Check Disk summary. Scroll down the summary until you see the line "**0 KB in bad sectors**." If you see any number other than **0** on that line, you should start thinking about replacing your hard drive because it's headed south. Most hard drives will develop bad sectors before they completely fail so keep your eye on this number each time you do a Check Disk.

Note: Windows 2000/XP can either be formatted with the **FAT32** or **NTFS** file systems. If Windows XP came with your computer, you probably have an NTFS drive. If you upgraded from Windows 98 or ME it's probably still FAT32. You can convert from FAT32 to NTFS to get the benefits of NTFS like encryption/compression and its tendency to stay less fragmented. To convert a FAT32 drive to NTFS click on **Start** and then **Run**. In the work area type **cmd** and click **OK**. At the command prompt type **Convert c: /fs:ntfs**   Then restart your computer. The conversion process will only take a few minutes and you can be proud that you've made another convert.

SMART

Another important tool that can keep an eye on the health of your hard drive is SMART. Self Monitoring And Reporting Tool if enabled on your computer may be able to warn you of a failing hard drive while there's still time to save data off of it and get it replaced. Each manufacturer took a different path as to how you enable SMART so look for instructions on how to enter your computer's BIOS settings and enable it for all drives.

Disk cleanup

As you install, open and close programs, Windows leaves junk laying all over your hard disk; temporary data that was used but the program didn't get rid of when it was finished with it. If momma was here she'd tell us to tidy up a bit.

Windows XP ships with an application called **Disk Cleanup**. We can find it by clicking on the **Start** button-**All Programs-Accessories-System tools-Disk Cleanup**. Wait a minute or so for it to calculate the files sizes and we'll see the **Disk Cleanup for C:/** dialog box. In the white work area we'll see a few options, usually: **Temporary Internet Files**, **Downloaded Program Files**, **Recycle Bin**, and **Temporary Files**. We may also see **Windows XP Uninstall** files if we've upgraded to Windows XP from 2000, ME, or 98.

For those using the NTFS disk format, we'll see **Compress old files**. Only use this option if we absolutely need the space. Any time we compress files, it takes longer to open and save these files, thus slowing our system down. If we need the space it's a viable option, otherwise steer clear of it.

Beside these options, we'll see the amount of space each is taking on our hard drive in MB. Click on the name of each option to see a quick description below.
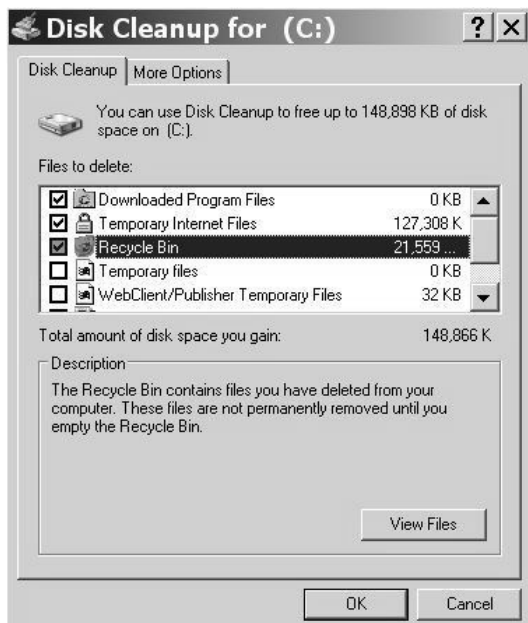
On the **More Options** tab we'll see where we can uninstall Windows components, uninstall programs we've installed earlier and delete Windows Restore points.

First let's talk about installing or uninstalling Windows components. Windows XP has a few toys and utilities that many users don't need or use. If we're short on disk space we can uninstall unneeded components of Windows XP or if we need to install a component we can do that here as well.

Click on **Clean up** and Windows opens the **Windows Components Wizard** dialog box. Windows conveniently tells us how much space all the components are taking up and as we check or uncheck the components it will update that information letting us know how much space we're saving or how much space it will need to install those components.

Nearly every option has sub-options so look around carefully. Click on **Details** to see the sub-options. Check or uncheck what we don't want or need and then click **OK**. When it's finished, it may ask us to restart our computer. After we've restarted our machine, the changes will have taken effect and we should have more disk space.

Uninstalling programs is much easier than you might think. From the **Disk Cleanup** window and the **More Options** tab we click on **Clean up** under **Installed programs**. This opens the **Add/Remove Programs** window again but this time under the **Change or Remove Programs** option.

In the right side of this window is a list of programs installed on our computer that Windows can uninstall automatically. Just highlight a program we no longer use and click on **Change/Remove**. Answer a few quick questions in the uninstall wizard and then Windows may ask us to restart. That's it!

Uninstalling a program usually doesn't remove the documents we created with that program. Some exceptions are game programs that may delete our saved games automatically.

Back at the **Disk Cleanup for (C:)** and the **More Options** tab. We may want to delete old Windows Restore points. These points are snapshots of settings and files. Windows claims that if something happens to our system, we can restore our configuration to a point before the problem occurred and thus get our system running again.

The problem is, chances are we just restore to a point before the problem had manifested itself and so we aren't really fixing the problem. It also can take up a big chunk of our hard drive. I've never been able to fix a problem with System Restore.

I suggest deleting all your restore points and disabling **System Restore** by right clicking on **My Computer** and choosing **Properties** in the alternate menu. Now click on the **System Restore** tab and put a checkmark in **Turn off system restore**.

Removing Temporary Files

Wait… didn't we already do that? Doesn't **Disk Cleanup** remove temporary files? Well, yes and no. Windows Disk Cleanup will remove temporary files that end with .tmp but nothing else. The good news is most programs use the same folder to put all the temporary files in. If we delete the contents of this folder we'll really get rid of all our temporary files.

Delete the entire contents of the folder **C:\Documents and Settings\$UserID\Local Settings\Temp** where **$UserID** is your username.

Example: **C:\Documents and Settings\Bubba\Local Settings\Temp**

FIND OUT WHO'S SENDING US ALL THOSE MESSAGES WITH VIRUSES...

43
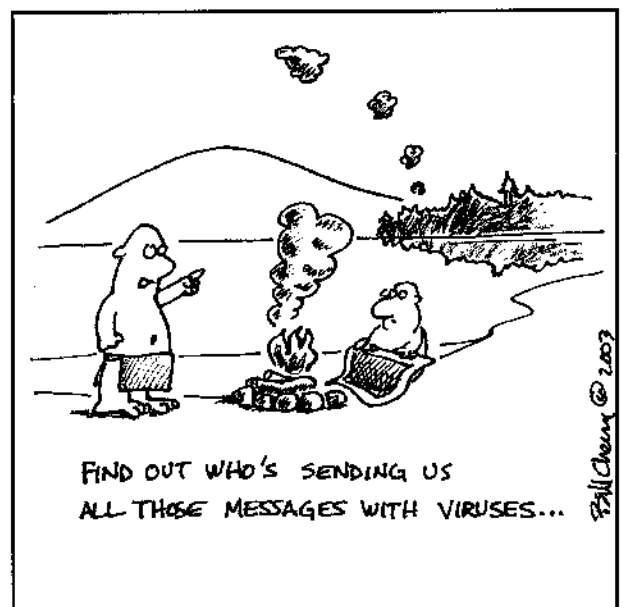
If you can not see the folder **Local Settings** you need to change your folder view to include hidden and system files and folders. Do this by double-clicking the **Folder Options** applet in the **Control Panel**. Click on the **View** tab. Check the radio button next to **Show hidden files and folders**.

Anti-Virus Updating and Full System Scan

Sasser Worm, MyTob, BugBear, SirCam, BadTrans, Nimda, and Klez are all computer viruses. Where do these computer viruses come from? Are they airborne? Should I spray the dog?

Virus Myths and Truth

Myth: A virus is a good file that has mutated by itself and gone bad.

Truth: Viruses are really computer programs that are purposely written by someone to do harm to your system. Not a very nice thing to do.

Myth: If you only open attachments from people you know you won't get a virus.

Truth: Most viruses spread by email will come from someone you know. It will look like a legitimate email from them, but it's not. It's an email from an infected system automatically generated by the virus.

Myth: If I never opened any attachments then I won't get a virus.

Truth: Some viruses are activated by the preview pane in Outlook Express. You don't even have to open the e-mail and "wham" you're infected. Other viruses aren't even spread by email. The Blaster Worm is a great example. Over 500,000 computers were infected just by dialing into the Internet.

The only way to have 100% protection from viruses is to never get on the Internet, never receive email and never put a floppy or CD into your computer again. That doesn't make computers very useful though, so we'll talk about anti-virus software.

Anti-virus Software

There are two anti-virus programs that really stand out. **Norton AntiVirus** and **McAfee VirusScan**. Chances are if you have an anti-virus program installed on your machine it's one of these two.

All anti-virus programs work in basically the same way. A group of software engineers receives samples of the viruses found every day from around the world. This adds up to over 500 a month. They take the "fingerprint" of these samples, usually a string of programming code that is unique to that virus, and add it to their database of virus "fingerprints." What you must do then is update your antivirus program by downloading

this database of "fingerprints" (usually called definitions or dat file) and allow the software to scan your hard drive for viruses.

When it finds an infected file it can:
- Repair, disable or inoculate the infected document,
- Quarantine it (set the infected file aside so it won't infect others), or
- Delete the infected file.

The biggest mistake most missionaries make is never updating their anti-virus definitions or not renewing their update subscription. We can only search for viruses that are as old as our antivirus definitions. We may be infected with a virus written last week but never know it, even though our program is running all the time in the background. Our anti-virus program is useless if it doesn't have current virus definitions.

Note: Both Norton and McAfee release new virus definitions at least twice a week, which are free for the downloading on the Internet.

A good antivirus software package will:
- Automatically update its definitions – automatically download the newest definition files
- Automatically scan incoming and outgoing e-mails
- Automatically scan floppy disks, CDs, and other types of removable media
- Automatically scan Instant Messaging services (MSN Messenger and Yahoo! Messenger)
- Work in the background while you work.

After you update your anti-virus software, be sure to do a full system scan to ensure that your system is virus free.

I highly recommend **Norton AntiVirus** over **McAfee VirusScan** or **AVG** or any other antivirus software. I've seen too many infected computers running updated McAfee and AVG to trust these products. **Norton AntiVirus** is simply the best but WARNING: Don't purchase **Norton Internet Security**. Norton Internet Security is a hobbled mess of a program that will slow your computer down to the point of uselessness.

Recap: **Norton Antivirus = Good**
       Norton Internet Security = Bad

Adware/Spyware Detection and Removal

As Internet use grows, so do the marketers unscrupulous ways of advertising. Push advertising is literally in-your-face. When we visit certain web sites a marketing company will install a small program on our computer that watches where we go on the Internet. When it sees that we're looking at a page with cell phones on it, it will pop up an ad for all the cell phone dealers and web sites that have advertising accounts on their services.

These little programs that track where we go and what we see on the Internet are called adware and spyware. Many are installed silently so we don't even know we have them. Most however are installed alongside popular programs like Hotbar, Limewire, KaZa, Comet Cursor, Bonsai Buddy, and even RealPlayer. We talk more about adware and spyware in chapter 8. It should be part of our monthly maintenance to search out and destroy these little annoying beasts.

To fight against this evil force on the Internet, you need the dymanic duo... No, not Batman and Robin. We need Spybot and Ad-Aware.

Spybot: Search and Destroy is the top-rated free adware/spyware removal package. It currently can detect and remove nearly 30,000 adware/spyware programs. You'll find **Spybot** on **The Disc** or you can download it at:
> http://www.safer-networking.org.

Ad-Aware is Spybot's sidekick. What Spybot misses, Ad-Aware will hit (POW)! You can download Ad-Aware at:
> http://www.lavasoft.de/support/download/

Just like our antivirus software, our Spybot/Ad-Aware duo must be updated to work most effectively. Unlike our antivirus software, we must update these manually. Be sure to search for updates before running these tools each month.

Updating Spybot

Open Spybot and click on the large **Search for updates button**. You will need an active Internet connection to update. Place a check mark in the box next to the updates you desire and click **Download updates** at the top of the window. If you're unsure of which updates to choose put a check in all the boxes. You may need to change the download server listed to get the updates.

Running Spybot

Open **Spybot** and click on the **Search and Destroy** button on the left. Now click on **Check for problems** on the bottom left. When it's finished scanning our hard drive for all the nasty little programs click on **Fix selected problems** on the bottom. The program may tell us that some of the junk is still running on the system and will offer to run Spybot the next time you restart your computer. This will allow Spybot to run before any of the spyware is active. Click on **OK** then restart your computer. Spybot will do its scan again and you can click on **Fix selected problems** again… Now it's time for Ad-Aware!

Updating Ad-Aware

Open Ad-Aware and it should prompt you to download the latest updates. Click **OK** and then click on **Connect**. Click **OK** on the prompt that wants your re-assurance that you really, really want these updates and it should automatically download and install the updates. You will need to be connected to the Internet to update. When it's done downloading the updates, click on **Finish**.

Running Ad-Aware

Open **Ad-Aware** and click on the **Start** button on the bottom right. Now click on the radio button next to **Perform full system scan**. When it's finished scanning click on **Next** on the bottom. Now right click on any of the items listed and choose **Select all objects** from the alternate menu. Click **Next** on the bottom right and it will once again ask if you're sure you want to remove these items. Give it the re-assurance it needs by clicking on **OK** and it will start it's cleanup. Close the program by clicking on the little x box on the top right. Now you're clean!

Windows Update

(For Windows 95/98/ME see AD-3)

It wasn't until the Blaster Worm hit that people took **Windows Update** seriously. Over 500,000 systems were infected and brought down by the exploit that had been fixed a month earlier. The patch that would have saved all those systems from infection was on the Windows Update site for over a month.

Granted, most of the Windows updates aren't that critical. But it's the one update that is important that makes it worthwhile. Making Windows Update part of your monthly maintenance will help keep you covered.

Run Windows update by clicking on **Start-All Programs-Windows Update**. Click on **Express** to download all the High Priority Updates. If you choose **Custom**, you can pick and choose what you want in the **Software, Optional** category, but be sure to stay away from the **Hardware, Optional** category unless you're ready for world of hurt. I've seen a Microsoft updated driver cause many a problem.

Windows will most likely ask you to restart after it's finished installing the updates. When it starts back up, be sure to run Windows Update again. Some updates have prerequisites of other updates. You may have to run Windows Update two or three times to get all the critical updates for your system.

Defragmenter - settings and frequency

(For Windows 95/98/ME see AD-4)

Windows writes to the hard drive every time you close a program or save a document. To make the closing and saving as fast as possible, it writes the data on the hard disk wherever it finds free space the fastest. This means some parts of a file are on one cylinder and some on another, a little piece over here and a little piece over there. Small fragments of your files are strung all over your hard drive. The next time you open that

document or program, Windows has to go looking for where it saved all that data. That can mean longer response times and that means your computer is slower.

To put everything back in linear order and speed things up Windows has **Disk Defragmenter**, which can be found in **Start-All Programs-Accessories-System Tools** or directly from the **Tools** tab in the hard disk's Properties window.

In the work area select the drive we wish to defragment and then click the **Defragment** button in the lower left. You can continue to work in Windows but it may slow the defragmenting operation some.
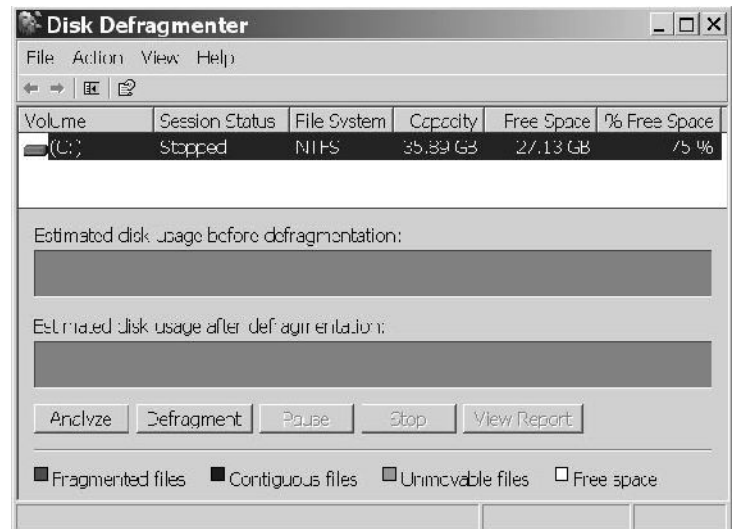
Once **Disk Defragmenter** has started it may take more than an hour to complete depending on how many files are fragmented. The more often you run the disk defragmenter the less time it will take. I suggest defragmenting your disk at least once a month as part of your monthly maintenance.

Unlike Windows 98, your screensaver does not have to be disabled for **Check Disk** or **Disk Defragmenter** to run properly. You can, however, choose to turn the screensaver off by right clicking anywhere on an empty part of the desktop and choosing **Properties**. Click on the **Screensaver** tab in the **Display Properties** window and choose **(None)** in the drop-down menu.

Note: Screensavers were developed to prevent pixel burning in older monitors. Pixel burning happened when a picture on the screen remained unchanged for an extended period of time. The pixel would become permanently "shadowed" with that color. Newer monitors use more stable pixel elements and no longer suffer from this problem. In fact, screensavers may actually shorten the life of your monitor as the CRT ray gun wears out running your screensaver instead of allowing your monitor to go into low power mode. One legitimate use of a screensaver is to password protect your running computer while you're away from your desk.

Data Backup

If you've ever lost data, you know the importance of backups. It only takes one catastrophe to make a firm backup believer. I can't stress enough that everyone who has a computer should make a personal backup policy.

A personal policy may say "**I make a full backup of my computer data the first of every month.**" Please, make a personal backup policy and stick to it religiously. Write it on your calendar. Write it on the back of your hand. Let nothing distract or detour you from your backup. Believe me, as soon as you stop making backups, something will happen and you'll wish you had stuck to your personal backup policy.

I NEED SOMETHING TO
DEFRAG MY OFFICE...
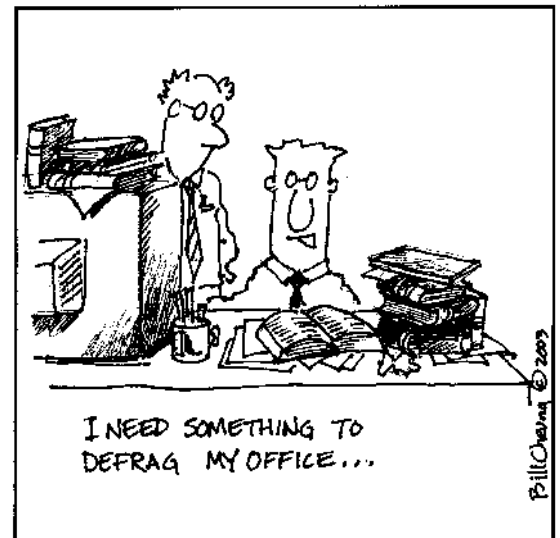
Go to **Start-All Programs-Accessories-System Tools-Backup**. If **Backup** isn't there you're running **XP Home Edition** and need to install it from the CD your manufacturer may or may not have provided. Open **Windows Explorer** and navigate to the **\Valueadd\msft\ntbackup** folder on your Windows XP Home CD where you'll find a file called **NTBACKUP.MSI**. Double click on this file and walk through the installation and in no time you too will see the backup utility in your start menu.

If you're following the monthly maintenance checklist you will have already done a **Disk Cleanup**. Be sure to run Disk Cleanup before doing a backup of your files or you may be backing up hundreds of megabytes of unneeded temporary files.

Two great backup media options are external (USB or Firewire) hard drives and DVD burners.

External USB hard drives are pretty cheap and work great for large removable storage. DVD burners are cheap too and you can use the DVD+RW discs again and again. My preferred CD/DVD writing software, **Nero Burning ROM**, has a great backup utility all its own. A demo is on **The Disc**.

If you don't have an external hard drive, DVD burner, or other large removable media like Zip or tape drive connected to your computer, you can create and save a backup job onto your hard disk. But for a backup to be worth anything it has to be stored off the primary hard disk. If your disk with the backup crashes, so does your backup! A backup that's left on the same drive as the original data is like hiding the combination to your safe inside it. You need a backup that's outside your computer, and preferably off the premises where the computer is used. In case of fire or theft, you can always buy another computer, you can't always get everyone you've emailed for the last 3 years to send you copies of those emails.

Backups may be small or large depending on how much information you have stored on your computer and what data you want to restore if your system crashes.

When you start the **Backup** program it takes you directly into the **Backup or Restore Wizard**. If you click the **Next** button twice you will see where Backup asks you what you want to backup. If you have more than one user on your system, you'll want to choose **Everyone's documents and settings**. Click **Next** and you will be asked where you want to save your backup file to. Click on the dropdown list labeled **3 ½ Floppy (A:)** and select **Let me choose a location not listed here**. Navigate to a folder on your external hard drive or another folder and click **Save**. Now click **Next** and finally **Finish**. When the backup is finished you will see a confirmation window and summary screen.

Running a Restore

A great backup is useless unless you know how to restore those files when you need them.

Re-mount your external USB hard drive or DVD disc and double click on the **.bkf** file you created during the backup process. This opens the **Backup or Restore Wizard** again, but this time you want to choose **Restore files and settings**. Click **Next** and you'll see the **What to restore** dialog box. Click on the plus sign + next to **File** and again on the plus next to your backup file name. Now put a check in the box next to any of the files you want to restore. Click **Next** and then **Finish**. When the restore process is completed, it will show you a summary screen.

A backup device of some sort is a necessary investment for anyone with a computer and especially for missionaries. I don't want to remember all the hours spent trying to save the data, bit by bit, off of failed drives of missionaries. **Please, backup your data!**

What if… Answers
Scenario 1.
        a. If your computer looses power and you're unable to shut it down normally, you should always perform a thorough Check Disk before using your computer. Disk errors could cause you to write over the top of existing data.

Scenario 2.
        b. or c. First thing, Microsoft doesn't send out emails warning of viruses. Secondly, any virus that can be identified can be removed by antivirus software and lastly, all these types of messages are hoaxes. You can safely delete such emails and ignore them or, if you're uncertain, please feel free to send a query to us at info@missionarytechsupport.com. If you haven't purchased anti-virus software before this point, go get a license for Norton Antivirus now!

Scenario 3.
        c. You did make backups, didn't you? If you didn't make backups then a. is the correct answer. If you don't have hardcopies of your work, then b. is the only answer left! Moral of the story… **MAKE BACKUPS!**

Chapter 5 - Windows Basics

This chapter is full of those special little tips that make using Microsoft Windows so special. Remember, if you can use your computer more effectively, you can spend less time in front of it and more time doing important missionary stuff.

What if...

Scenario 1.

Your son plays his games on your computer while you're away on deputation. When you return, an important file you had saved on your desktop has been deleted. "It was in the way of the new Thunderbird wallpaper!" your son explains.

Do you…

    a. Make your son type as you dictate from memory the contents of the important file.

    b. Get your son his own computer so your files don't turn up missing again.

    c. Check the Recycling Bin for the file and restore it from there or restore it from a recent backup.

    d. Create a separate limited user account for your son to play games on to protect your file from future deletion.

Scenario 2.

As your new language skills increase you decide you should use the "ñ" letter where needed for correspondence rather than the plain 'ol "n".

Do you…

    a. Draw a little squiggly over the "n" in each printout.

    b. Purchase a new localized keyboard for your computer and change keyboards every time you need each language.

    c. Install a localized keyboard layout and try to remember where the ñ key is on your keyboard.

    d. Print out a list of "Alt+164" type commands for each accented letter you need.

It's on Top of My Desk

When you start up Windows, you'll be brought to the **Desktop**. The desktop has the **Taskbar** at the bottom, the **System tray** on the bottom right and the **Start** button on the bottom left.

There are two kinds of people in this world. The ones that see the desktop as a handy place to put shortcuts and the ones those see it as a wall hanging, a place to put a pretty picture, a place to express themselves.

I personally I can't stand that Start button menu. It's a waste of time to go **Start-All Programs-Accessories-System Tools-Backup** when I can put a link on my desktop and get to it in two clicks from anywhere. My desktop is filled with the same links that are in the Start menu but I get to them more quickly.

Right click on an empty area of the desktop and choose **Properties**. This will bring up the **Display Properties** window. Here we can change how Windows looks and even the "feel" of the operating system.

On the **Themes** tab you can change Windows' appearance in mass. The default theme, **Windows XP**, looks like it was developed by a class of third graders with neon markers. If you've upgraded to Windows XP from Windows 2000, Me or 98 you will see the **Windows Classic** theme is selected. It looks much more like the older versions of Windows.

On the Appearance tab you'll see the **Effects** button on the bottom right. Click it and you can deselect some of Windows XP's more graphic hungry "features." Remove the check next to **Use the following transition or effect…** This also helps improve performance on computers with low quality on-board video cards.

If you have a LCD flat panel display you'll find that selecting **ClearType** for smoothing screen fonts to be very helpful.

On the **Settings** tab you'll find the slider to increase or decrease your screen resolution and color depth. Screen resolution is the width and height, in pixels, of the screen. The larger the resolution, the "smaller" the letters on the screen will appear. Color depth will effect how many colors your video card, and thus your monitor, will show. For those with on-board video cards or video cards of less than 8MB of video memory it is advisable to stick to 16 bit color. 32 bit color will put too much strain on your video card and slow down your system.

Multiple Users

Windows XP was made for the multiple user environment where any user can sit down at any computer, logon and see their personal desktop just the way they like it. This is a good thing for the missionary, especially those with children.

I've spent hundreds of hours repairing computers that have fallen victim to what I call **"The Thirteen Year Old Syndrome."** The Thirteen Year Old Syndrome is what happens when your child, most often around the age of thirteen, becomes technologically curious and decides to see exactly how Microsoft Windows operates. The first symptoms are Dodge Vipers shown as your desktop background. Then your Internet Explorer favorites are loaded with links to Sharky's Extreme Computing website and finally, one morning you find your computer won't start at all.

Windows XP is the cure for the Thirteen Year Old Syndrome if properly configured. As a secure multi-user system, Windows XP will allow you to add your child to your system as a separate user and then only permit them **Restricted Access** to settings and configurations. And unlike Windows 95, 98, or ME, Windows XP will not allow a user to logon without a valid account. This way, you can have safe data and they can have Star Wars mouse pointers.

Each user will have a different **My Documents** folder, as well as email settings, making it very difficult to share documents and an email account. This is a good thing.

To add a restricted user, click on **Start-Control Panel** and then choose **User Accounts**. Click on **Create a new account** and type in a username. Choose something descriptive for the username, be creative, maybe something like, oh…the child's name for instance. Click **Next** and you'll be asked to choose an account type. Be sure to choose **Limited** on this screen or your son may have the power to delete your account and lock you out of your own computer! Click **Create account** and you're done. The new account should show up in the **Welcome** screen next time you log on.

You may also want to password protect your account to keep little hands from retyping all your sermon notes. To do so, again choose **User Accounts** in the **Control Panel** but then in the bottom half click on your account name to change your account. In the next screen click on **Create a password**. Now type the password you want to use (don't use anything your kids may guess) and then type it in again for confirmation. I don't suggest using the **Password hint** option. If you can guess it from the hint, your kids probably can too. Just don't forget your password. Now choose **Create password**. If you choose to make your documents private, not even other computer administrator accounts can view your documents... This could be a very good thing. Just don't forget your password.

Quick launch

The Quick launch area of the taskbar used to be situated to the immediate right of the Start button. This area was provided to give you a quick launch to your most often used programs and files. To make this most useful little gadget reappear in Windows XP you need to right click on an empty portion of the taskbar, mouse-over **Toolbars** and click on **Quick Launch**.

WE EITHER MISSED THE RAPTURE OR SHE PRESSED THE "QUICK LAUNCH" BUTTON AGAIN!
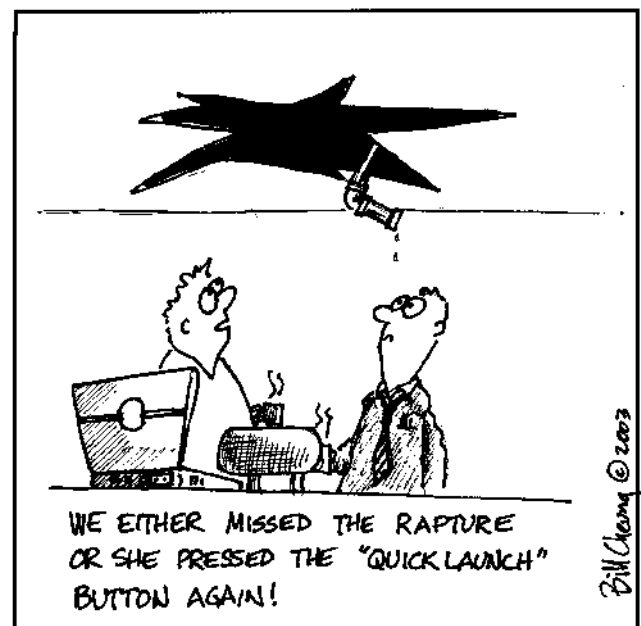
The default shortcuts are to **Internet Explorer**, **Outlook Express**, **Windows Media Player** and **Show Desktop**. The cool part is, you can add and remove shortcuts as you see fit. To remove a quick launch shortcut, right click on the shortcut and choose delete. To add a shortcut, right-drag (press down the right mouse button and hold it down while you move the mouse) a shortcut from the desktop or from the start menu to the quick launch area and choose **Copy here** from the alternate menu.

If you can't see all your quick launch icons, you need to unlock the taskbar. Right click on an empty area of the taskbar and click on **Lock the taskbar**. As un-intuitive as it seems, this will remove the little checkmark and allow you to grab that little vertical bar to the immediate right of the quicklaunch bar and drag it to the right – allowing you to see the rest of your quicklaunch icons.

The Joys of the Right Click

This next section is dedicated to my wife, Shannon, because it's the answer to 90% of her computer questions. The right, or alternate click is one of the most useful things about PCs. I pity all those Mac users who only have one mouse button.

The right click brings up the **Alternate menu** that we've talked about several times already. All of the items in the alternate menu are available up in the window's menus if you can find them. The great part about the right click is that the menu is always specific to what you right clicked on and it's always faster than searching through the window's menus.

When it doubt, right click. When you need help, right click first.

System Configuration Utility

(Windows 95 see AD-5)

This is the handiest thing. It allows you to tweak the startup settings of Windows and determine what programs will and will not run automatically when Windows starts. You can access it by clicking on **Start-Run** and typing **msconfig** and then clicking **OK**.

Stay in the **Startup** tab unless you're familiar with the **INI files** and **Services** or you may find your system won't start at all the next time you boot up. You can see what's running in the background by giving the **Three-Finger Salute** and clicking on the **Processes** tab.

Geek Speak: The **Three-Finger Salute** is pressing the **Control**, **Alternate** and **Delete** keys together (**Ctrl-Alt-Del**). In Windows XP, this will bring up the Windows Task Manager where you can close programs that are not responding or restart Windows.

In the **Startup** tab of the **System Configuration Utility** you can see all the programs that are run at some point during startup. The more things you have running in the background means less RAM and stack space is available for the applications you really want to use. I suggest un-checking everything except what you actually use. If you're not sure what an entry is, leave it checked. You may wreak havoc on your system by not loading a needed driver or program at startup.

Navigation – Aye Aye, Captain

Navigation is important because we use it every time we open a file and save a file. It's the "where" question in the file system.

My Computer Icon

If you click on the **My Computer** icon in the **Start** menu a window will appear showing you the top level of what's in your computer. You should see the floppy drive, your hard drives, your CD-ROM drives, any removable drives like a Zip drive or card reader, and the **Control Panel**.

File management, the deleting, copying, moving, what have you, can be done through the **My Computer** icon but it's much easier to use **Windows Explorer** found in **Start-All Programs-Accessories**. It's from the Windows Explorer that we're going to learn to navigate. Navigation is really moving around in the file system of Windows. To do this we need to understand how Windows files things.

Hierarchy System

You'll see that inside your computer are folders. Folders can contain other folders and/or files. Inside the **Documents and Settings** folder are the folders **All Users** and **Bubba** and inside the folder **Bubba** is the folder **My Documents**. To navigate to the folder **My Documents** we have to navigate through **Documents and Settings** and **Bubba**. The **Path Name** for **My Documents** then is **C:\Documents and Settings\Bubba\My Documents**.

In the left pane of the Windows Explorer we see the hierarchy of drives, folders and files. Every item to the right is "inside" of the item to the immediate above-left. For example: directly inside of **My Computer** are the floppy, hard drive and CD-Rom as well as the control panel. Now let's click on the + sign next to our hard drive (**C**). This expands our view to allow us to see the folders directly inside the hard drive. Now lets click on the + sign next to the folder **Program Files** and we can see all the folders directly inside that folder. The left pane of Windows Explorer will only show you drives and folders. To see individual files we need to click on a drive or folder and look in the right pane. Click on

the icon of the hard drive. In the right pane we see the folders and the files that are inside the hard drive.

My Documents - organize it!

You can open and save your files to nearly any folder on your hard drive. That also means that you can loose track of your files really fast. The geniuses at Microsoft saw that this system was a little unorganized so they came up with the **My Documents** folder.

The **My Documents** folder is the folder with the icon that has a funny little paper sticking out of it. This is to try to get you to use it, I think. I hope it works because it could make your computer life a little easier. Instead of saving all those sermon notes and recipes in 35 different places on your hard drive, it's easier to save everything in My Documents. That way, you'll know which folder to look in when you want to open it again and you know which folder to include when you want to backup your sermons.

The majority of programs under Windows will try to save any documents you create in the My Documents folder. It's the default folder so it's easy to use.

But you don't want to just dump everything into My Documents. Organize it a little using subfolders. Click on **My Documents** in the left pane of **Windows Explorer** and look at the right pane. Here are all the files inside of My Documents. You may have 15 or so sermon notes and a dozen recipes. We're going to add a folder called **Sermon notes** and another called **Recipes** so we don't have to look through all the mango bread recipes to find our sermon on gluttony.

Right click on an unused portion of the right pane. Mouse-over **New** in the alternate menu and choose **Folder**. You can also do this by clicking **File-New-Folder** in the window's menu. The new folder appears and its name is automatically highlighted waiting for you to change it. We type in **Sermon notes** and press **Enter**. Now we have an empty folder called **Sermon notes**. We do the same for **Recipes**.

Move and Copy

To move all those sermon files into that folder we need to highlight them. Here we have a bunch of options.
- If we want to select all the files and folders we can press the letter **A** while holding down the **Control** key.
- We can move each of them across by dragging them one at a time.
- We can highlight them all, one at a time, by holding down the **Control** key while clicking on them one at a time and then drag them all over or
- We can highlight them in a series by holding down the **shift** key and clicking the top file and then the bottom file.
- We can also drag a box over the files we want and drag them over.

- Some people use the **Copy** and **Paste** method. Highlight what you want, go to **Edit**-**Copy** and then click on the folder you want to copy them into and click **Edit**-**Paste**.

Windows is a little funny about its drag and drop. Sometimes a left-drag will move a file if you're moving it within the same partition. You never know if it's going to copy, move the files or create shortcuts to them. To be sure, I suggest you always right-drag. This will bring up the alternate menu where you can tell it to move here or copy here.

If you want do change the name of a document or folder:
- Highlight it and press **F2** on your keyboard
- Right click on it and choose **Rename** or
- Highlight it and click **File**-**Rename** in the menu.

Type in what you like and press **Enter**.

To delete a document or folder:
- Highlight it and press **Delete** on your keyboard
- Right click on it and choose **Delete**
- Highlight it and go **File**-**Delete** on the menu.
- You can also drag it to a **Recycling Bin** icon.

Any of these methods will send it to the Recycling Bin. You then need to right click on the **Recycling Bin** icon and choose **Empty Recycling Bin** or in Windows Explorer highlight it and choose **Empty Recycling Bin** from the **File** menu.

To permanently delete a file without sending it to the recycling bin, highlight it and hold down the **Shift** key while pressing the **Delete** key. This is very dangerous though as you cannot restore a file deleted in this manner.

Recycling Bin

When you delete something, it goes to your **Recycling Bin**. There it sits until you either restore it or permanently delete it. The recycling bin has a few options. Right-click on the **Recycling Bin** on the desktop and choose **Properties**. Here in the **Recycling Bin Properties** window you'll find settings to get rid of the annoying **Delete Confirmation** and the ever-dangerous setting of not using the recycling bin at all but deleting files right away. You can also control the amount of disk space the recycling bin can take up in a percentage of overall disk space.

Searching for Documents

To look for a document or folder go to **Start-Search-For Files or Folders** or press **F3** from the desktop. Here we see the incredibly muddled and disfigured Windows search function and a small annoying little puppy I call **Kujo**. This search utility has me scratching my head. It was very poorly designed. How on earth do you get this puppy to search for anything?

To rid yourselves permanently from this hound and its terribly confusing search interface you'll need to tweak the registry. Registry tweaking can be dangerous since there is no undo and one false move can make your computer not start up at all. That said, please be careful!

The easiest way to do this tweak is to use the **REG** file from **The Disc** or download it from our website, www.MissionaryTechSupport.com.
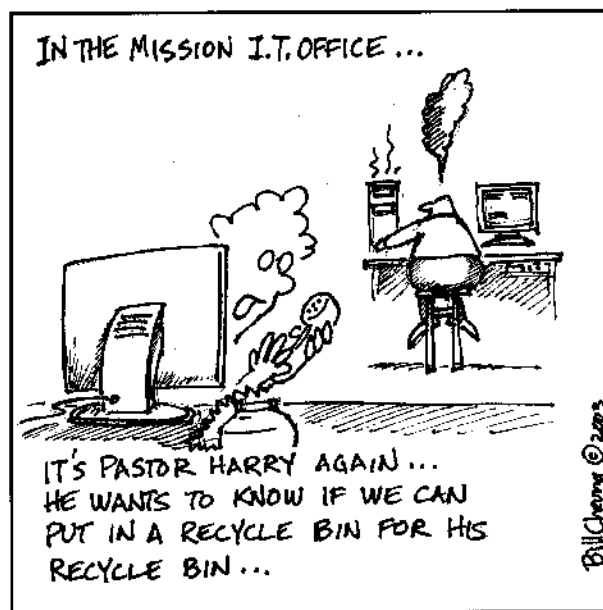
Warning: Making a mistake while editing the registry can make your system unstable or un-usable. Take extreme caution when editing the registry.

The other way is to open the registry editor by clicking on **Start-Run** and typing **regedit** and then click **OK**. Click on the plus, **+**, next to **HKEY_CURRENT_USER\Software\ Microsoft\Windows\CurrentVersion\Explorer\CabinetState** now on the right hand side right click on an empty area and mouse over **New** and then click on **String Value**. Name the new string value **Use Search Asst** and click **OK**. Now double click on the new string you just created and set the value to **no**. Close **regedit** and the next time you restart your computer, you'll see a much more friendly and easier to use search tool akin to that in Windows 2000.

Let's say you're looking for a file. If you remember the name, type it in the **Search for folders or files** named pane. If you don't remember the exact name you can type in what you do remember. If I'm looking for a file that I know has the word "bubba" in the name, I can type in "bubba" and it will find all the files that have that in its name.

To find all the files with a particular extension, use the ***** as a wildcard and then the .doc or whichever file extension your looking for. For example ***.exe** will find all the program files.

If I don't know the file name of the letter I wrote to my uncle Bubba but I remember some of what I wrote, I can use the **Containing text:** pane and type in what I remember, like "Dear Bubba,."

The **Look In:** pane changes the range of your search. You can search your whole computer, meaning the floppy, hard drive, CD-ROM and whatever else is connected or you can narrow the search down to just a single folder by navigating to that folder using the **Browse**… selection at the bottom of the drop-down menu.

Be sure to check the **Advance options** box in the **Search options** area and put a check next to:
- **Search System Folders**
- **Search Hidden Files and Folders**
- **Search Subfolders**

You can also search by date, type, or size using the other checkboxes in the **Search options** area.

When you've defined your search, click **Search Now**. The results will appear in the right hand pane. You can manipulate, open, rename, copy, delete, whatever, from that pane.

Special Keystrokes

When you do typing in another language you may need access to the accented letters and symbols. There are two ways to go about this.

You can purchase a keyboard in the country. If you type more in that language than English this is your smartest move as keyboards are fairly cheap at about $15.

If you change your keyboard, you'll also need to tell Windows you changed your keyboard to a different overlay. **Start-Settings-Control Panel-Regional and Language Options** is where you can add and remove keyboard overlays. Click on the **Languages** tab and then click on the **Details** button. Click on the **Add** button and choose the layout you wish to add. To switch back to your old layout while working in Windows, press the left **Ctl**+**Shift**. Press that combination again and you'll switch back.

Your second option is to use the **Alt** + # sequence. Every key has an **Alt** + # sequence and if you can remember the number, you're set. It's not very fast or efficient but it does work. To find the **Alt** + # sequence, install the **Character Map** from **Windows Setup** tab in the **Add/Remove Programs** applet in the **Control Panel**.

MS Office 2003/XP/2000 also has it's own way of inserting these characters using the **Control** and **Apostrophe ('')** keys.

To insert:	Press:	For Office 2003/XP/2000
á	Alt + 160	Ctrl + ' then **a**
é	Alt + 130	Ctrl + ' then **e**
í	Alt + 161	Ctrl + ' then **i**
ñ	Alt + 164	Ctrl + ~ then **n**
ó	Alt + 162	Ctrl + ' then **o**
ú	Alt + 163	Ctrl + ' then **u**
¿	Alt + 0191	**Ctrl + Alt + ?**
¡	Alt + 0161	Ctrl + Alt + !
Á	Alt + 0193	**Ctrl + ' then Shift + the letter**
É	Alt + 0201	
Í	Alt + 0205	
Ñ	Alt + 0209	
Ó	Alt + 0211	
Ú	Alt + 0218	

Notebook users who don't have the 10 key number pad cannot use the Alt + # combination and will have to switch their keyboard layout to get special characters.

Most of us use the industry standard productivity suite called **Microsoft Office** to write documents in English and Spanish. Office 2003/XP/2000 has a clear advantage over Office 97 as far as Spanish and French proofing tools are concerned. Office 2003/XP/2000 come packaged with Spanish and French proofing tools, which can be installed on demand, and are accurate and easy to use.

Office XP and 2003 have so few perceptible new features over 2000 that it's not worth the activation to bother upgrading.

To use the Spanish or French proofing tools, just click **Tools-Language-Set language** and choose your language. You can also choose to have Office automatically detect the language, which is handy. Just start typing in that language and it will recognize it and spell and grammar check it as you go along.

If you're looking for word processing (Word), spreadsheet (Excel), and presentation (PowerPoint) functionality without the Microsoft price tag, an excellent alternative is **OpenOffice.org**. OpenOffice.org is a free office suite that offers 98% of the functionality and compatibility with Microsoft's products. With the ever increasing costs of licensing, more and more missions and missionaries are moving to **OpenOffice.org**, which can be found on **The Disc** or at:
        www.openoffice.org.

Keyboard Shortcuts

There are many ways to do the same thing in Windows. The mouse is used more than the keyboard to operate through the system but the keyboard can be used to do nearly

everything the mouse can do and sometimes faster. This is good to know if your mouse becomes clogged with Smuckers Preserves and stops working.

To	Press
Activate the menu bar in programs	F10
Carry out the corresponding command on the menu	Underlined letter in menu
Close the current window in programs.	CTRL+F4
Close the current window or quit a program	ALT+F4
Copy highlighted text, files or folders	CTRL+C
Cut highlighted text, files or folders	CTRL+X
Paste copied or cut items	CTRL+V
Display Help on the selected dialog box item	F1
Display the alternate menu for the selected item	SHIFT+F10
Display the **Start** menu	CTRL+ESC
Delete	DELETE
Undo	CTRL+Z
Switch to the window you last used Switch to another window by holding down ALT while repeatedly pressing TAB	ALT+TAB

For those of you with Windows keyboards, (the ones with a key that has a little Windows logo on it) you'll find that extra key very helpful.

Cycle through buttons on the taskbar	WINDOWS+TAB
Display **Find: All Files**	WINDOWS+F
Display **Help**	WINDOWS+F1
Display the **Run** command	WINDOWS+R
Display the **Start** menu	WINDOWS
Display the **System Properties** dialog box	WINDOWS+BREAK
Display **Windows Explorer**	WINDOWS+E
Minimize or restore all windows	WINDOWS+D
Undo minimize all windows	SHIFT+WINDOWS+M

Using shortcut keys in dialog boxes

To	Press
Cancel the current task	ESC
Click a button if the current control is a button Select or clear the check box if the current control is a check box Click the option if the current control is an option button	SPACEBAR
Click the selected button	ENTER
Move backward through options	SHIFT+TAB
Move backward through tabs	CTRL+SHIFT+TAB

Move forward through options	TAB
Move forward through tabs	CTRL+TAB
Open a folder one level up if a folder is selected in the **Save As** or **Open** dialog box	BACKSPACE
Open **Save In** or **Look In** in the **Save As** or **Open** dialog box	F4

What if... Answers

Scenario 1.

      b.   then d. – Hopefully your son hasn't emptied the Recycling Bin since his convenient deletion of your important file. If he has… you made backups, right?

Scenario 2.

      c.   or d. are usually the best solution for occasional use of special keys. If you type in the other language enough, purchase a localized keyboard and install the layout. If you purchase a USB keyboard, you can actually have both keyboards plugged in at the same time.

Chapter 6 – Multimedia

<h1 style="text-align:center">Talk about Bells and Whistles!</h1>

Media is everywhere, and I'm not talking about CNN. We'll talk about Windows XP Sound schemes, MP3 encoding, DVDs, your scanners, digital cameras, and digital camcorders to round out our graphics, audio and video extravaganza.

What if...

Scenario 1.
Grandma says it takes her an hour to receive your emails with your photos attached over her dial-up connection.
Do you…

    a. Ask grandma to subscribe to a broadband connection like DSL so it will download faster.
    b. Stop sending photos.
    c. Resize and resample your photos to send a smaller file size.

Audio Properties

If you've got sound, you need to understand the audio properties. Let's right click on the little speaker in the systems tray and choose **Open volume control**. Here we see the **Volume Control** window where we can adjust the sliders up and down for volume and right and left for stereo. You can also choose to mute certain devices using the checkboxes on the bottom.

Now click on **Options-Properties** and we can see the **Properties** window allowing us to show the volume controls for **Playback** and **Recording**. This is very important for

Internet calls because the **Microphone** volume control is not shown without switching the radio button to **Recording** in the **Adjust volume for** area. In the bottom pane of **Playback**, be sure to check every box so you can adjust the volume for all your sound devices.
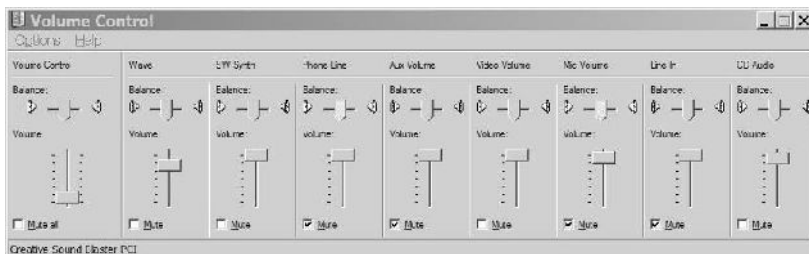
With **Recording** marked, click **OK**. A different window comes up now, the **Capture** window. If your microphone isn't working, it's probably because its volume is too low or it's not selected as the recording device. Only one input device can be selected for recording. If Grandma can't hear you when you call her, or your voice is too loud, this is where you can adjust the volume of your microphone. Some sound cards will have an **Advanced** button with which you may make further fine adjustments to your microphone settings. We'll talk more about Internet calls in chapter 8.

Windows' Sounds Schemes

Right click on the little speaker in the systems tray and choose **Adjust Audio Properties** and choose the **Sounds** tab. Here are all the events that make noise. Every noise of every program is listed here, from the noise you hear when Windows starts to the noise you hear when you click on a link in Internet Explorer. For those who want our computer to run as fast as possible, every sound that has to be played must be loaded into memory. This slows down our computer. So under the **Schemes** drop down menu choose **No Sounds**. Ahh... the silence is so sweet.

Sound Recorder

You can, in fact, record your own sounds to be played at Windows startup or other triggered events using the **Sound Recorder** that is found in **Start**-**All Programs**-**Accessories**-**Entertainment**. The sound recorder can record to a WAV file from any of your input devices such as your microphone, your CD-ROM, or a line-in from your stereo. To record a sound, click on the red circle. To stop recording, click on the black square. When you're ready to save your recording, click **File**-**Save**-**As**. You may want to save it in the **My Documents** folder. Maybe even in a **Sounds** or **My Music** folder that you can create on the spot by clicking on the folder icon that looks like it has a shiny corner. Don't ask me what that is. I don't know, but it creates a new folder. You can then rename the folder and double click on it to save your masterpiece within. Give your sound a name and click **Save**.

Your sound is saved on your hard disk in a WAV format. WAV is an audio format of very high quality sound. Unfortunately, it's creates huge files as well. A 4-minute recording can take up to 80MB. Ouch! Enter MP3...

MP3

MP3 is an audio format that has reached legendary status because it takes a 80MB WAV file and encodes it into a 2MB MP3 file without loosing any ear quality. What do I mean by "ear quality?" The difference in quality between the WAV and the MP3 file cannot be heard with the human ear. I have about 60 of my music CDs recorded on my hard drive in MP3 format. They take about 3GB all together. I use my MP3s to burn my own "various artists" CDs, and it allows me to listen to music while I'm using the CD-ROM for something else.

Microsoft has it's own audio compression format called Windows Media Audio (WMA.) It does offer better compression than MP3, so the files are smaller than MP3s of the same quality. If you rip your audio using Windows Media Player, it will be saved in WMA format.

MP3 Players

MP3 players are replacing other portable music devices like walkmans and portable CD players. Apple's iPod has dominated this market with their iPod mini and iPod Nano. Be warned though as many thieves look for the signature white earbuds of the iPods when they decide to mug someone for their expensive music player.

Maestro... the MIDI, Please

It's a composers dream come true. You play the music, your computer writes out the sheet music. Using a standard **MIDI** interface, you can plug in your MIDI instument (keyboard/piano/guitar/bass/drums/etc.) and as you play along, the music sheets are being filled out before your eyes. It's an awesome way to compose.

To start your Beethoven inspiration you'll need to install a MIDI controller card, MIDI software and have a MIDI compatible instrument.

DVD

The acronym "DVD" stands for "Digital Versatile Device". It is also known as "Digital Video Disc", but it is not limited to video data -- it's more "versatile" than that.

DVDs look like CDs but cannot be read by a regular CD-ROM. The laser that reads a CD is too wide to read a DVD disk, therefore, you need a DVD drive or DVD player to read it.

DVDs are unique in that they can store several audio and video tracks for the same title on one disc. The **Jesus** DVD can be listened to in 8 different languages with all those languages available in subtitles as well. Many DVDs have a director's commentary that you can listen to throughout the film. A few DVDs can be scaled down ratings wise. An R rated move can be set to PG, although it may shorten the film to 15 minutes total

running time. Some DVDs offer different camera angles and special features like letterbox or wide screen viewing, original theatrical trailers, and even karaoke!

Recordable DVDs are becoming more popular allowing users to record on DVDs like CD recorders. DVDs can hold up to 8.5GB on a double-layer disc, where as a CD can only hold 700MB on one recordable side.

There are many competing formats for recording things onto DVD. It can get confusing. The capacity of double, or dual-layer DVDs make them the best choice for backing up data while DVD-R burners are best for making DVD video discs for playback on consumer DVD players.

Digital Video

Video editing is importing video from either a digital camcorder, webcam, or analog video (RCA jacks from a VHS tape or Television), editing it (cut, splice, fade, effects) and then re-sampling it to an output (like DVD or VHS.) To do all this you're going to need a monster machine for speed and space or a lot of patience to wait for the clips to render.

Video manipulation is basically multiple graphics manipulation. Video is just a series of pictures. If you want to do serious digital video editing you'll want a computer with dual-processors, lots of RAM, and a way to get those pictures into your computer.

The choice for transfer speed is a dedicated Firewire/Video editing card that will slide into a slot in your computer. Entry-level cards will cost around $150 so you'll have to be serious about video editing before taking the plunge. You'll also need a BIG FAST hard drive for two. An hour of uncompressed video uses about 13GB of space and video editors will start dropping frames if your hard drive is too slow. Dropped frames will make your video look like an old Godzilla movie... Ahh!!! Run for your lives!

Digital Camcorders

There are five kinds of digital camcorders on the market these days. They all have their pros and cons,
- **MicroMV** – These tiny little digital camcorders save to a compressed MPEG-2 format. This lets Sony, the only MicroMV manufacturer, use smaller tapes allowing smaller camcorders. Price range from $1,500 to $2,000.
- **Digital 8** – Uses Hi-8 tapes which are less durable than DV tapes. This makes them larger than most camcorders but also very cheap. Quality is the worst off all available formats. Price range $400 - $500.
- **Single-CCD DV** – This is the most popular digital camcorder format on the market today. Good quality is stored on MiniDV tapes in DV format. The DV format can be edited by all video editing software. Price range $500 - $1,500.

- **DVD-CAM** – These nifty camcorders write MPEG-2 video directly to DVD rewriteable discs. The MPEG-2 quality is less than DV though. Price range $700 - $900.
- **Three-CCD DV** – With three times the CCD chips of the Single-CCD camcorders the image quality is outstanding. Stored on DV or MiniDV tapes and recorded in the DV format, this is for the semi-pro crowd. Price range $1,500 - $4000.

Scanning and Graphic Manipulation

OK, you've got your photos and you want to show Grandma Bubba back in the States how big little bubba's getting so you scan them on, attach them to an email and send them off. Only it takes 2 ½ hours to send the email and after Grandma spends 3 hours downloading it, she can't open it! What's going on?

Scanners and digital cameras are great tools for getting those pictures of your church construction back in the hands of the donors for concrete evidence (no pun intended) that you're really doing something over there! The problems arise when the graphic files are too large and nobody can read the file format you sent. To eliminate such problems use standard graphics formats that use compression like **JPG**.

Most scanners use a TWAIN interface. TWAIN is a communications standard between software, like Word or Photoshop, and hardware, like your scanner or digital camera. Basically it's an interpreter so that your scanner can understand your graphic manipulation program.
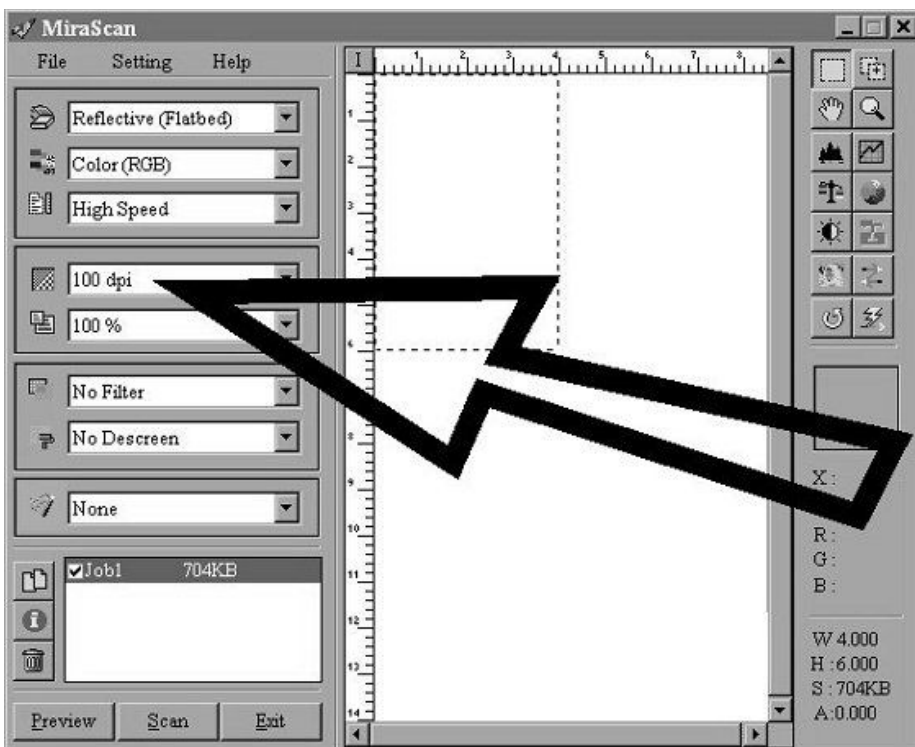
In any TWAIN supported program, you can select Acquire and up comes your scanner's interface. All scanners have different interfaces but they all have some key similarities.

The most important setting is the **dpi** setting. Dpi stands for **Dots Per Inch**. This is the quality of scan. The higher the dpi the better quality scans and, consequentially, the larger the graphics files will be.

A 3 ½ X 5 inch photo will scan on at 1,200 dpi weighing over 75MB at scan
- 29.4MB saved in TIFF format,
- 15.5MB saved as a GIF and
- 2.3MB saved as a JPG.

The same photo scanned at 75dpi weighs in at 296kB at scan,
- 318kB saved as a TIFF,
- 98kB as a GIF, and
- 31kB as a JPG.

The difference is about 6 hours upload/download time on a modem. However, the quality of the 75dpi photo on screen and printed at 3 ½ X 5 is nearly that of the 1,200dpi. I hardly ever find reason to scan above 75dpi for anything I'm going to send via email. You should always save photos in **JPG** format because it creates smaller files and can be read by any photo editor and browser.

Digital Cameras

More digital cameras were sold than film cameras last year. Digital cameras are great time savers for missionaries. As a rule, overseas photo developing takes longer and costs more than good 'ol Wal-Mart. Digital cameras will give you instant access to your photos, and if you like, photo quality prints. Cameras are rated by **Mega Pixel** resolution and zoom features. Anything over 3 Mega Pixels should suffice for any email or publication you need. Always prefer industry standard SD cards or CompactFlash technology to proprietary designs like Sony's Memory Stick or un-removable/un-expandable memory.

Also look for battery life and the type of battery when purchasing a camera. Some cameras use standard AA batteries while others use a proprietary rechargeable battery. Always purchase extra batteries, you'll be glad you did.

If you plan on sending your photos via email, be sure and resize and re-sample them to decrease the file size for reasons mentioned above in the scanner section.

Use the photo editing suite that came with the camera to resize and re-sample the photos before attaching them to an email.

OCR?

OCR stands for Optical Character Recognition. It is scanning on text that you can manipulate and edit. This means scanning on a typed document and opening it in a program like Microsoft Word to change the text, layout, etc.

Most OCR jobs should be done at **300 dpi** for best results. For documents with type smaller than eight points, scanning at 400 dpi may provide improved recognition. There are many OCR programs available but **Omnipage Pro 15** is the industry standard that is shipped with most flatbed scanners these days. It provides a TWAIN interface that communicates with your scanner or other input device that can supply a binary (black and white) image in a supported resolution (72 to 900 dots per inch).

Simply click on **AutoProcess**, click **From scanner** and **OK**. Scan the document at the recommended 300dpi and watch as Omnipage reads the text and then asks you what format you'd like to save it in. If you use MS Word you'll want to save it in RTF, Rich Text Format. That's it! Omnipage is incredibly accurate and will transfer the photos and tables correctly for the most part. In conjunction with a good translator program you can scan on a document in one language and print it out looking the same in another language.

Translators

Our work as missionaries puts us into interesting situations when we correspond in more than one language. This is where computers can really shine and are worth their weight in Snicker's bars. A good translation program will take the bite out of everything from sending emails to writing sermons. Type in English, click the button and out comes French or Spanish or Swahili! Granted it's not 100% accurate and needs some revising, but the majority of work can be accomplished without scouring though your dictionary. The highest rated translator on the market today is **Universal Translator 2000**. It runs about $130 for 40 different languages and is worth every penny. Granted, it's no substitution for proper language learning. But it will help you get by till you get your sea legs.
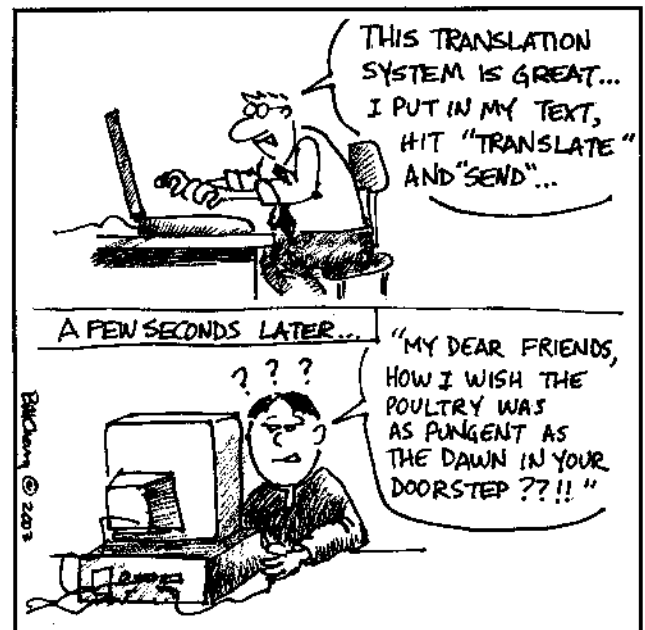
Input Devices

The most valuable tool you have to make your computer time more productive is knowing how to type. You can have the fastest machine on the market but it won't help you get that monthly report done any faster if you plunk along at seven words per minute.

Learn to type. It's not that hard and if you learn correctly, every time you type, you're practicing and getting faster. There are many great typing tutors out there. **Mavis**

Beacon Teaches Typing is a classic and one of the best for all ages. It is now on version 17.

For those who refuse to learn or just don't want to take the chances of getting carpal tunnel syndrome, there's voice recognition. Voice recognition software will listen to you talk and do the typing for you. In past versions you'd have to talk very slow and do your best to pronounce every word correctly and only hope for a 65% accuracy rate. But as computers get faster and programs get better you can speak naturally, up to 160 words per minute, and easily get 97% accuracy. It takes up to 3 hours to "teach" the software how you speak and then you're ready to go.

Speech recognition isn't for the faint of wallet though. You'll need a fast machine and the best software can run upwards $500. But if you're well funded and like the idea of sitting back and letting your computer put the text into your letters and emails then **Dragon Naturally Speaking Preferred** is the way to go at $199.

What if... Answers

Scenario 1.

      c. If your photo attachments are too large, you need to re-sample them using photo editing software suite or XP Power Toys Resize tool.

Chapter 7 – Email

"I REALLY DON'T MIND THE MAIL... IT'S THE ATTACHMENTS THAT DRIVE ME NUTS ..."

More than just "Hi, Mom."

Email is truly a Godsend for missionaries all over the world. So many conventional snailmail postal services overseas can be slow and unreliable as well as insecure. Email has given us almost instant communication with our supporters, mission administrators, family, and other missionaries worldwide.

Email is so commonplace that you don't even need to own a computer to use it. Many people have a free, web-based email address (like gmail, yahoo or hotmail) and use Internet cafés or a friend's computer to access it. Some cellular phone companies have email relaying services that allow text only messages to be sent and received from their cellular phones.

What if...
Scenario 1.
> You receive yet another SPAM message promising you prescription drugs at great prices. At the bottom of the sales pitch, you see a link to opt-out of future messages
Do you…
> a. Click on the link and type in your email address to opt-out.
> b. Reply to the SPAM message and ask them to remove you from their list.
> c. Ignore the opt-out and just delete the message.

Scenario 2.
> You need to send out an urgent prayer request to everyone on your address book.
Do you…
> a. Place them all in an address group and then send it to the group
> b. Place each address into the **To:** line of the message.
> c. Place your own address into the **To:** line and all the other addresses into the **BCC:** line.
> d. Place one address in the **To:** line and all the others into the **CC:** line.

Web Based Email

It's not unusual for a missionary to have three or more email addresses. One from the mission, (bubba@mymission.org) one from their in-country Internet service provider, (bubba@isp.com.py) and a web based email for convenience (bubba@hotmail.com.)

A web based email address has its pluses and minuses.

Pluses:
- Check it from any computer connected to the Internet worldwide.
- Your email address won't change if you're traveling stateside.
- Can be used as a disposible account for web forms to collect all the spam and junk email.
- **Free**!

Minuses
- You have to be online to write and read your email.
- Usually not secure. Anyone using that same computer after you at the Internet café could read the messages you just checked..
- Annoying "Free email provided by MSN…" on the bottom of every message.
- Usually gets lots of spam and junk email.
- Some accounts start free then they begin to charge for service.

I encourage every missionary to get a free, web-based email account for those odd times when your regular account is not working. The best services are Yahoo.com and GMail.com. GMail is the free web-based email from web search company Google. The service is exceptional but is offered by invitation only. If you'd like a GMail account, please email me at info@missionarytechsupport.com and I'll be happy to send you an invitation from one of my accounts.

Thunderbird

Thunderbird is Mozilla's free email client program used to read, write, send, and receive email. Many missionaries use Outlook Express or it's big brother Outlook. I discourage using Microsoft-based email clients as they are very vulnerable to viruses. Thunderbird is just as easy to use as Outlook Express and offers more features like Junk Mail filtering for free. You can download Thunderbird from:
        www.getthunderbird.com

The first time you install Thunderbird, it will offer to import your mail and setting from Outlook or Outlook Express. After the import takes place you should discontinue using Outlook Express.

Add an Email Account

If you have several POP or IMAP mail accounts, you can use them all from Thunderbird's simple interface.

To add a mail account you need your account username and password and the names of the mail servers. Go to **Tools-Account Settings**. In the **Internet Accounts** window click on the **Add** button. This will start a wizard that will walk you though an account setup.

ALWAYS THE SKEPTIC, GRANDMA TRIES TO SEE HOW THE MAIL GETS FROM THE COMPUTER'S MAIL SLOT TO THE POST OFFICE...
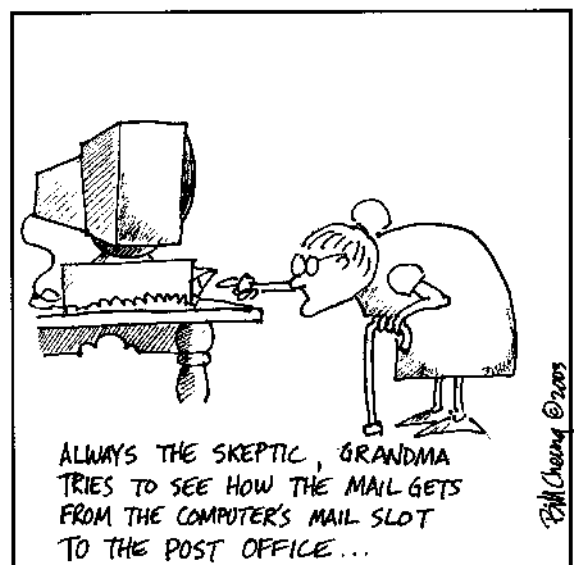
Read Your Messages

After Thunderbird downloads your messages, you can read messages either in a separate window or in the built-in preview pane.

Click the **Inbox**. To view a message in the preview pane, click the message in the message list. To view the message in a separate window, double-click the message.

Attach!

Attachments are downloaded automatically with the message. To save or open an attachment from the preview pane, click on the name of the attachment on the bottom of the preview pane. In the alternate menu, click on **Open**, **Save As...**, or **Save All**.

"But I Can't Open the Attachment!"

Every program saves its documents in its own format. For our computer to know which program can open that document it reads the file extension, the three letters after the period (.***) in the document name. If you don't have any programs that are registered in Windows to open that file extension, Windows brings up the **Windows can't open this file…** window. Usually this means that you don't have the same program that the author of the document used to make the document. Don't panic, there are file viewers available for almost every file type there is. And **Quick View Plus** has them all! If you have QVP installed, right click on the saved attachment and choose **Quick View Plus**. If there's a file viewer available for that file, QVP will be able to read it. If QVP doesn't have a viewer for it, it opens it as a text document where you can usually get something out of it to help you understand what program it was originally written with.

	Note: There's a copy of a **Quick View Plus** demo for your use on **The Disc**.

Move that Mail

To move or copy a message to another folder, right click on the message you want to move or copy and mouse-over **Move to** or **Copy to**. Then select the destination folder in the **Local Folders** menu. You can also move a message by dragging it to a folder.

Send Me a Letter

To send an email message, on the toolbar, click the **Write** button. In the **From** line, choose which mail account you want to send the message from. In the **To** box, type the e-mail name of the recipient. For multiple recipients, use the next line and either choose **Cc:** or **Bcc:**, separating names with a semicolon.

To add recipients from the **Address Book**, click the **Contacts** icon. The Contacts side window will open. Either drag and drop the address book entries into the desired fields or double click on them.

The **Bcc:** line is new to many people. A Blind Carbon Copy will be sent to whomever you put in this field but none of the other recipients will know you sent a copy to the Bcc people. This is a good idea if you're sending out a email newsletter to lots of folks and don't want to get back nasty emails saying you told everybody else their email addresses. Put yourself in the **To:** box and put everyone else in the **Bcc:** box.

In the **Subject** box, type a message title. Type the body of the message in the big white space on the bottom, and then click the **Send** button.

To save a draft of your message to work on later, click the **Save** icon. You can also click **Save as-File** to save a mail message in your hard drive in text (.txt) format for archive purposes.

Attach a File

To attach a file to a message, you can click on the **Attach** icon on the toolbar then navigate to the file you want to attach. Select the file, and then click **Open**. The file is listed in the Attachments box in the message header.

If the document is large you may want to compress it before you attach and send it so it won't take as long to upload or download. Windows XP has compressed folder support built-in. Open **Windows Explorer** and navigate to the file you wish to compress. Highlight the file or files and right click on them. Then mouse over **Send To:** and choose **Compressed (zipped) Folder** from the alternate menu. Windows XP will create a compressed file in the same directory using the same name of the file or folder. You should now attach the zipped file to your email as instructed above.

Note: Zipping up JPG photos won't do any good as the JPG format is already compressed.

Address Book

You may add people to your address book manually by clicking on **Address Book** in the toolbar and choosing **New Card**.

Alternately, when you receive e-mail, you can add the sender's name and e-mail address to your address book from within Thunderbird. In the preview pane, right click on an

email address and choose **Add to Address Book...**. Fill in any missing information and click **OK**.

Mailing Lists

You can send a message to a group of people by creating a mailing list containing their email addresses. Then, you just type the list name in the **To:** or **Bcc:** box when you send messages. You can create multiple lists, and contacts can belong to more than one list. It's great to use when you need to send the same email to all the pastors you know or to all your level-one intercessors. Just make a list and add their names.

Open the **Address Book** by clicking on its icon in the toolbard and click the **New List** icon on the toolbar. Give the group a name, a nickname, and description.

Here is the only thing I really don't like about Thunderbird: you have to type in each email address for each group. Thunderbird won't let you choose from existing addresses in your address book. You have to type them all in by hand. Hopefully they'll fix that soon.

Kan Yuoo Spel Guud?

Unlike Outlook Express, Thunderbird has a spell checker built-in. Outlook Express uses the spell check provided with the Microsoft Office programs: Microsoft Word, Microsoft Excel, and Microsoft PowerPoint. If you do not have one of these programs installed, the spell checking is not available in Outlook Express.

To check your spelling in the **Compose:** window, click the **Spell** button on the toolbar. To automatically check every outgoing message, on the **Tools** menu, click **Options**, and then put a check in the box next to **Check spelling before sending** in the **Composition** section.

Add a personal signature to your messages

You can insert essential information into outgoing messages as part of your personal signature.

To add a signature to all outgoing messages of a particualar account, first create the signature. I always encourage missionaries to send their emails in plain text format to minimize file size and keep things simple for their email recipients so we'll create a simple text signature.

Open your **My Documents** folder and right click in any empty white space. Mouse over **New** from the alternate menu and choose **Text Document**. A new text document is created and its name is highlighted, waiting for you to give it a name. Type in **Email**

Signature.txt or something descriptive like that and press the **Enter** key on your keyboard.

Double click on our newly created text document to open it. Type in your signature information... may I suggest something like:

Joe Missionary
joe@myemail.com
www.mywebsite.com
www.mymissionswebsite.com
(555) 555-1234
<>< - Glory to God

Or something like that.

Now close your signature text document being sure to save your changes.

Back in Thunderbird, click on **Tools-Account Settings**, and click on the bold letters of the account you wish to add the signature to. Put a check in the box next to **Attach this signature:** and then click on the **Choose...** button. Navigate to your **My Documents** folder by clicking on **My Documents** on the left shortcut bar. Highlight the signature text file you just created and click on **Open**. Now click **OK** and you've got yourself a way cool signature.

Grace-filled Email

Your life is a witness to Christ living in and through you... Your email should be the same. Grace-filled email is more than just courteous content and prompt responses, it's an attitude, a way of thinking about every email you send and receive.

They say that eighty percent of our personal communication is non-verbal. Tone of voice, body language, and just volume can all add meaning to communications. Unfortunately none of these come across in email very well. We need to be very careful how we communicate and interpret email communications. We may think we're hearing a negative tone that really doesn't exist. A few simple grace principles can keep email an effective communication tool.

Romans 12:10 says "... take delight in honoring each other."

Phillipians 2:3 reads "... Be humble, thinking of others as better than yourself."

If we think the best about others and their communications with us, we can avoid many of the misunderstandings that a quick and simple communication tool like email can create.

Cut Them Some Slack

Not everyone can express themselves well in writing. If you receive something that may offend or anger you... stop and consciously decide not to get offended. Maybe they just couldn't get the words to come together right. Cut them some slack. Humbly and politely ask for some clarification. Or better yet, go visit them or give them a call. You'll short circuit many a misunderstanding this way.

If you've sent off a really important email and now, two days later, are still waiting for a response... Cut them some slack. There may be a very good reason they do not (or can not) respond. Give them the benefit of the doubt.

Remember that everyone has the right (especially in public forums) to have differing opinions or doctrinal positions without being berated or attacked personally. Cut them some slack. After all, you may need some slack yourself someday.

It's Real Fast

Email is fast... sometimes too fast. We've all done it – sent out that emotion-filled email and the next day we sit wishing we could take it back. Rule of thumb: Save and hold a message a day or two if you were upset or felt emotional when you wrote it. Let some water pass under that bridge and then re-read and edit your message appropriately. If you need to, get your spouse or someone else you trust to read the message and ask what they feel the tone is. You don't want to come across wrong.

Email Etiquette

Some important tips to keep your messages out of the **Deleted Items** box. You don't want to offend any of your email recipients.

Start With Just a Name

No **Dear Bob,** or **Beloved of the Lord,** if you can help it. A standard start is just their name. If you're writing to more than one person, just crank up the email without a salutation. It's email… not a business letter.

Use A Relevant Subject Line

Put the subject in the subject line. We can see who it's from so a subject line "From Bubba" is redundant. There must be a reason for writing this email – put it in the subject.

Keep It Simple

Avoid neato backgrounds, text formatting or goofy signature pictures. These things take time to upload and download when sending and receiving your email. Keep it **Plain Text Only** to keep the focus on your message… not your envelope. People deserve consideration for their time and expense so keep messages as short and compact as possible.

DO NOT WRITE IN ALL CAPITALS

It's distracting and is feels like YOU'RE SHOUTING AT ME!

do not write in all lowercase

again, it's very distracting. it's also says bad, bad things about your lazy writing style.

Drop the Abbreviations and Emoticons

Teens are notorious for this. It's common IM (Instant Messaging) chat slang to use abbreviations for things like BTW (by the way) and LOL (laugh out loud.) It's very poor communication if u email w/emoticons 2. :-) Stick to English.

To disarm or adjust the tone of a message use tag lines like <grin>. This one does wonders as it usually gives the recipient a mental image of you smiling – that's a good thing. <grin>

Do Not Forward Virus Hoaxes or Chain Letters

Do this enough times and your emails may be automatically deleted. If you receive an email that says you have a virus, check with us (help@MissionaryTechSupport.com) before deleting any of your needed files or forwarding the message along. Oh, yeah… Bill Gates never sends anyone money for testing his new email tracking system.

Do Not Request Delivery and Read Receipts

This will almost always annoy your recipient before they have even read your message. Besides, it may not work anyway if the recipient has blocked that function, or their email software might not support it. If you want to know whether an email was received and read, it's better to just ask.

IS IT JUST ME, OR HAVE YOU RECEIVED A LOT OF SPAM LATELY?

Don't Reply to Spam

For the sake of the rest of the world… never respond or reply to spam messages. The reason they keep sending it is because someone somewhere responds and buys the garbage they're selling. If everyone ignored it, it would go away! <grin>

The best way to deal with incoming SPAM is to have it filtered at the mail server and use Thunderbird to filter and delete it as it arrives in your inbox.

Learn to use BCC

The carbon copy (CC) field is for copying a message to more than one person. If you plan on copying your message to a large number of people, use the blind carbon copy (BCC) field instead. Nobody wants all your other recipients to have their email address.

Address Change

Let everyone know if you change your address. Bouncing emails will never bounce your way. Give them time to get things changed if you can. Keep your old email open for a month or two or have it forwarded to your new account for a while if you can.

Organizing Your Email

You can use Thunderbird to find messages using **Edit-Find-Search Messages** or the button combination **Control-Shift-F**.

You can automatically sort incoming messages into different folders using message filters. On the **Tools** menu, point to **Message Filters**.

Note: Message rules cannot be created for **IMAP** or **HTTP** mail accounts, however, many HTTP mail accounts, like Yahoo, can be configured to block certain senders. Check for settings on their website.

On the **Mail Filters** window, click **New**. Select the conditions for your filter by selecting the desired radio buttons and check boxes. You can specify multiple conditions for a single filter by clicking the **More** button. Filters can require that all conditions be met or the default of any of the conditions be met.

Leave It Alone

You can leave messages on a mail server. This is useful if you need to read mail from more than one computer. When you log on to your account from a different computer, Thunderbird downloads messages according to the options you have set. You can leave the messages on the server so you're able to receive all messages on both computers.

In the **Tools** menu, click **Accounts Settings**.   Click the **Server Settings** section under the account you'd like to change. Put a check in the box next to **Leave messages on server**. You can set a time limit on how long the message remains on the server before it is deleted. Some mail service providers set limits on how much you can leave on the server. To avoid filling up your mailbox and being unable to receive new messages, be

sure to remove mail eventually from the server. Ten days is usually sufficient. This doesn't delete the copy you've already downloaded into Thunderbird.

Encrypted Email

For those of you who will be in sensitive areas, your communications may be monitored, so a system of encryption may be needed to keep you out of the big house, the hoos-cow, the slammer… you get the picture.

	Geek Speak: Encryption is a method of scrambling a file so it may only be read by its intended receiver. Modern encryption methods are said to be so secure that it would take 100 super-computers over 100 years to break the code for just one sentence of encrypted data.

PGP

If you'd like to send and receive encrypted emails or files I suggest using **PGP.**

With PGP, you can protect the privacy of your email messages and files. You can also digitally sign messages and files, which ensures their authenticity. A signed message verifies that the information within it has not been tampered with in any way.   You can purchase PGP Desktop Home for Windows perpetual license from PGP creator, Phil Zimmermann at:

        https://www.philzimmermann.com/pzim-bin/hazel.cgi

PGP is based on a widely accepted encryption technology known as public key cryptography in which two complementary keys—a key pair—are used to maintain secure communications. To send someone a private email message, you use a copy of that person's public key to encrypt the information, which only they can decipher using their private key. Conversely, when someone wants to send you encrypted mail, they use a copy of your public key to encrypt the data, which only you can decipher by using a copy of your private key.

You also use your private key to sign the email you send to others. The recipients can then use their copy of your public key to determine if you really sent the email and whether it has been altered in transit.

Public key encryption is the most secure email encryption available today. The downside is, if intercepted or monitored, anyone can see that you are sending an encrypted message but will not be able to read them. For some, the fact that you're sending an encrypted message is evidence enough that you're doing something you shouldn't and may lead to further surveillance or seizure of your computer for the key to the encrypted messages. So a more stealthy approach may be necessary.

Steganography

There are simple ways to "hide" the meanings to messages. "I talked to my father about you today. He says he's proud of you and loves you." This message can be understood without being too evident what it means.

Another way is to hide a text message inside a picture. The program **S-Tools** will hide any text message inside a GIF, BMP graphic, or a WAV sound file, which can be extracted by the recipient using S-Tools and the passphrase.

What if... Answers
Scenario 1.
      c. Never respond to SPAM. Even if they remove you from their list, they will sell your email to another list and you'll just get more and more SPAM.

Scenario 2.
      c. By placing everyone into the **BCC:** line, you're not exposing everyone's email address to everyone else. They will only see your address on the message.

Chapter 8 – Internet

ALLAN FINDS HIS DIAL-UP CONNECTION
A LITTLE SLOWER THAN EXPECTED

The World at Your Fingertips

The Internet, like telephones and printed literature, is a tool to help us communicate, educate ourselves and our children, and inform ourselves and others of what's going on in the world. The Internet is a network of computers. It's hundreds of thousands of computers linked together by satellite and fiber optic cable 24 hours a day, 7 days a week. When you "get on the Internet" you're connecting to one of these computers that is part of the Internet and using it to ask for information from the other computers.

What if...

Scenario 1.

You're surfing along… minding your own business when an urgent pop-up informs you that your computer's clock may be out of sync.
Do you…
- a. Check your wristwatch. They may be right.
- b. Click on the pop-up and install the handy clock re-setting software… it's free.
- c. Right-click on the pop-up's box in the taskbar and choose **Close**.

Scenario 2.

You need to make and receive frequent calls to the U.S. from your mission field but can't afford the $5/minute rates of the nationally owned telephone company.
Do you…
- a. Buy pre-paid calling cards from non-profit, Christian companies for your use on the field and for those who need to call you.
- b. Use a PC-to-PC software service and try to get all your contacts in the U.S. to use it too.
- c. Purchase a VoIP box and service for your broadband Internet connection and send and receive calls on a regular phone.

Connecting to the Internet

There are three main ways of connecting to the Internet:
1. Rent a connection from a local provider – this can be dial-up or some type of broadband including DSL, Cable, or ISDN.
2. Rent a connection at a local Internet Cafe. You'll probably be using their computer as well.
3. Rent or hijack someone's connection using your own PC – usually a laptop. This is commonly a free wireless connection like you would find in coffee shops and airports.

Each of these ways of connecting has its positives and negatives.

Finding Your Local ISP

To connect to the Internet you'll need an **ISP**, Internet Service Provider. Before you arrive in your target country ask the missionaries who are there what ISP they use and if they are happy with it. Ask whom they recommend and how they pay for it. When you arrive, have one of them help you call or visit the ISP and set up an account.

To set up an ISP account you'll need only a few pieces of information from the ISP. I would never allow an ISP technician to touch my computer, especially if I lived in more sensitive locations. Assure the ISP that you know what you need to do then ask for and write down the following information.

- You need to determine what your **username** will be. This will become your email address. Make it simple and short for others to remember. First initial and last name is an industry norm.
- You need to determine your **password**. Tell whomever you're setting up with something very easy like abc123. Then find out how to change the password yourself over the Internet. They should be able to send you to a web page where you can change your password after your account is set up. After your account is active, change your password. Please don't choose anything obvious like your birth date or SSI number. Stay away from anything that may be in the dictionary or a series of numbers. Mix letters and numbers. Keep it under ten characters but not less than six. Make it something memorable and simple.

Warning: Passwords are case sensitive; meaning C and c are two different letters.

- **POP3** – you will need to know the name of their POP3 server. It should be something like mail.conexion.net
- **SMTP** – you need to know the name of the SMTP server. It should be the same or something similar to the POP3 server name
- **DNS** – you need to ask if you need the IP addresses to their DNS servers. Most ISPs have automatic DNS server addressing. If you need them they will look similar to 209.168.60.1 (four sets of numbers separated by periods.)
- **Access Number** – you need to know the dial-up number. It may be a good idea to ask if there is more than one access number or, if you travel within their service region, the access numbers for other cities/regions/providences/etc.

You will need to type this information into the following places.

Setup your connection by clicking on **Start-Control Panel-Network and Internet Connections-Setup** or **change your Internet connection**. Click **Next**, choose **Connect to the Internet** and then **Next** again. Now choose **Setup my connection manually** and **Next**. Follow the wizard through typing the information as it prompts you.

Type the name of your ISP or whatever descriptive name like. Then type in the access number the ISP gave you. You can walk through the wizard for each access number.

When the wizard is finished, go to **Start-Control Panel-Network and Internet Connections-View connections** and double click on the icon of the connection you just created and try to connect.

If the ISP gave you DNS server addresses, right click on the connection icon and choose **Properties**. Now click on the **Networking** tab and double click on **Internet Protocol (TCP/IP)**. Click on the radio button that says **Use the following DNS server addresses**. Type the numbers in below making sure the periods are in the right place. If you are unable to access any website by name, you probably didn't type in the DNS addresses right.

Now open **Thunderbird** by either clicking on its icon in the quick launch bar or by going to **Start-All Programs-Thunderbird**.

If the new mail account wizard doesn't start, click on **Tools** on the menu and then **Account Settings**. Then click on **Add** to start it…

Your connection is now set up and ready for use… Good job, all by yourself!

Using Internet Cafés

Internet cafés or cyber-cafés can be found in every major city in nearly every country in the world. I have mixed feelings about Internet cafés. On one hand they are a wonderful resource if you don't have an Internet connection. You can sit down at any of their computers and check webmail, surf the web, and communicate. On the other hand Internet cafés are a huge security risk as you are using an untrusted computer on an untrusted network.

If they wanted to (or were made to by a government or other organization), Internet cafés can keep track of everywhere you "go" on their computers. They can record every key you type including usernames and passwords to your webmail, online banking site, and credit card numbers.

These security risks can be minimized if you follow a few simple rules.

1. Never log onto sensitive sites using a computer you don't trust.
     This includes banks, sensitive webmail, and mission intranet sites.
2. Never type anything sensitive on a computer you don't trust.
3. Never mount removable storage on a computer you don't trust.
     This means floppies and USB drives should never be used in Internet
cafés. You'll probably get a virus or some other nasty program installed as soon as you plug it in.

Hijacking the Internet

All modern laptops come equipped with wireless network cards and wireless access points are becoming so prevalent that in many areas it's easier to hijack an Internet connection rather than going to an insecure Internet cafe.

Many businesses will try to entice customers into their shops by providing free wireless Internet connections. You'll also find that many businesses and homes that have wireless access points leave them wide open instead of configuring it for encrypted and secure access only. This means you can usually fire up your laptop and find an open and free access point in many places you'll go.

There are two issues to keep in mind when we talk about open access points. One is a security issue and the other is a moral issue.

Security

Whenever you hijack an Internet connection, you're using an untrusted network. Be sure that any sensitive information is communicated via secure channels.

"How do I know if my information is secure?"

I'm glad you asked. Web communications are secure when you're on an https site. This means your browser is using SSL encryption to view that website.

Most online banking is done over SSL so only you can read and make the changes to your account. **To check and see if you're viewing a secured page look for the little padlock icon on the bottom left of the Firefox window**. When you see this icon, you can have confidence that any information you send will be seen only by that particular site. This includes any non-banking sites you may do business with. Sites like Amazon.com and Buy.com, where just about anything can be purchased, all have secure servers that encrypt your information. If you use web-based email of some kind, be sure you connect, authenticate, and view your sensitive mail using the https secure connection.

Moral

There are two schools of thought about the moral issue of hijacking an Internet connection.

One says that if the owner of the access point didn't want other people to use it, it's their responsibility to close and encrypt the access point. If they leave it open then it's fair game.

The other says that connecting to an open access point is wrong unless the owner invites you to use it. Coffee shops and bookstores may have signs encouraging people to use their wireless access points. Unless specifically invited... stay out.

I'll leave you to whatever camp your conscience allows.

Browsers

Microsoft's Internet Explorer browser that comes pre-installed on every Windows computer has some problems. It's so full of security holes that even the most Microsoft friendly security firms are recommending you use a different browser. I recommend Mozilla Firefox, which can be downloaded at:
        (www.getfirefox.com)

It looks very similar to Internet Explorer but has no ActiveX support, which causes most of the security problems for Microsoft. You may find a few sites that won't work or don't look like they did before, but the vast majority will display just fine. It's worth the peace of mind.

Most web browsers have these buttons in common.
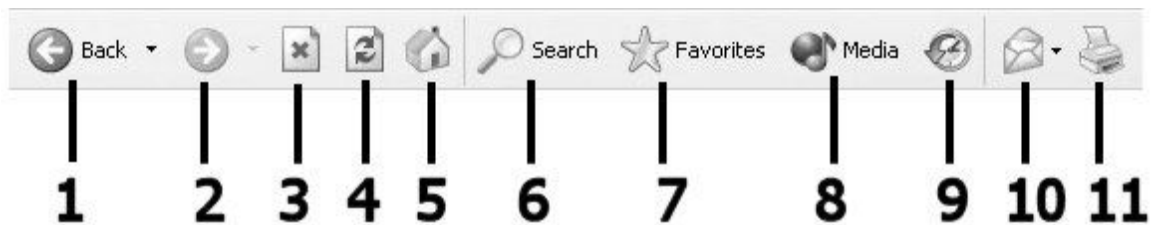
1- Back
 Click **Back** to go back to a website or a page you visited during the current Internet session. Click the down arrow next to **Back** for a list of previously accessed websites and pages.

2- Forward
 After you select **Back**, click **Forward** to move through the websites and pages you visited during the current Internet session. Click the down arrow next to **Forward** for a list of previously accessed websites and pages.

3- Stop
 Click **Stop** if you want to immediately stop loading a site or page.

4- Refresh
 Click **Refresh** to reload the current page.

5- Home
 Click **Home** to return to the website that always displays when you start Internet Explorer. To change your home page, click the **Tools** menu, and then click **Internet Options**.

6- Search
 Do yourself a favor and don't use the **Search** button. Just type **www.google.com** into the address bar and actually find what you're looking for on the Internet.

7- Favorites or Bookmarks
 Click **Favorites** to display a list of the websites you have added as your favorites.

8- Media
 Click **Media** to show the media sidebar on the left with the media explorer for Internet radio station guides and searches.

9- History
 Click **History** to display a list of the websites you have recently visited.

10- Mail
 Click **Mail** to open Outlook Express and send and receive e-mail messages.

11- Print
 Click **Print** to print the current web page. By default the background is never printed.

Home, Home on the Web

If I had a nickel for every time a missionary asked me "How do I get my own website?" I'd have a million dollars… or at least $3.75.

The answer had always been complex and expensive so I decided to do something about that.

ServantSite (www.servantsite.com) is a fully-customizable, PHP/SQL, CMS optimized for missionaries. All that tech gibberish means it helps you get your own website quickly and is easy to update.

ServantSite.com has links to free hosting and a score of nice themes to make your site pretty… oh, so pretty.

You can upload pictures and take donations via PayPal, even have four different intercessory levels to your prayer requests.

E-MAIL, LORD, FOR YOUR SERVANT IS ONLINE...

FRANK

IF SAMUEL LIVED TODAY...

Will I Ever Get Recognized?

Your page, no matter where you host it or how it looks, will eventually be ranked in the Internet search engines so people searching for keywords like "bubba" will find your page as one of the 1,473,856,328 pages that contain the word "bubba." You might even get someone to look at it.

I don't want to burst anyones bubble, but if you think that hundreds of people are going to view your site daily and donate thousands of dollars a month, you're dreamin'. If you keep your site fresh with new content and tell those about it who care (your newsletter

list maybe), you will see some traffic and you will receive prayer and financial support through it. Just don't hang all your hopes on your website. It should be just a part of your communications and fund-raising efforts... a small part.

Searching the World

To look for things in the Internet of over 12 billion pages and growing by over a million pages a day, most people use one of the many search engines and directories. Conservative estimates put the number of search engines at over 8,000, including pure search engines, general- and special-interest directories, and metasearchers (which query multiple search sites at once). Search engines use automated software bots that crawl through the Web to collect and index the full text of pages that they find. This creates a huge database of the content on the Internet.

IF NOAH HAD THE INTERNET...
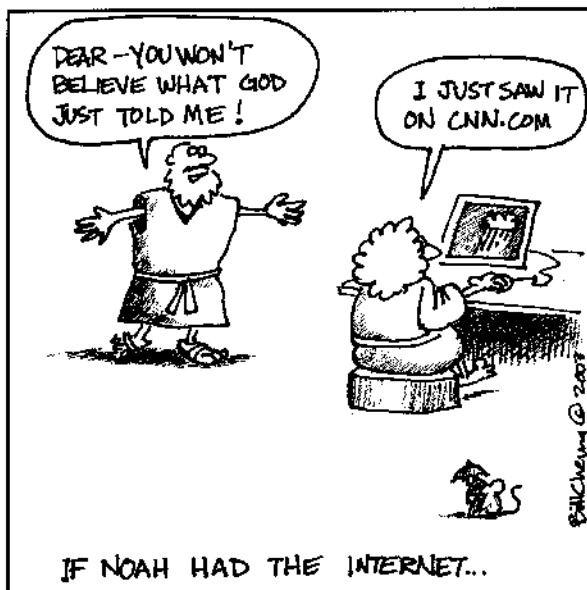
Most engines don't come close to indexing the whole Net, but **Google** claims to have indexed 8.3 billion pages either partially or completely. When you type in "Spinach" at Google's search engine, you'll get thousands of links of pages that have been known to have the word "Spinach" in them. And all this searching is done free of charge to you. When in doubt, Google it. When you're not sure, Google it. When you get an error, Google it! If you can't find it with Google, it don't need findin'.

Directories, by contrast, rely on human editors to sift through pages, winnowing out inappropriate ones and categorizing sites by subject. Nothing goes into the directory unless an editor approves it, so you're unlikely to find Christmas recipes in a Yahoo category about ham radios. But since directories are crafted by hand, they are far less comprehensive than search engines. The largest directory is called the **Open Directory Project** with a current index of only about 2 million sites.

Bookmarks

OK, so you found the **MissionaryTechSupport.com** website and want to check it out every now and again. You don't want to have to type in www.missionarytechsupport.com every time, so you bookmark it, or add it to your favorites. This a good way to get back to the websites you use most often. You can organize your bookmarks or favorites into folders to save listing space and categorize them. While viewing a page, click on **Favorites** or **Bookmarks** in the menu and click **Add to Favorites**, or **Bookmark this site**… In the dialog box you can change the name and/or the folder you'd like to store that shortcut in. Now every time you want to go back to see our site, you click on its entry in your bookmarks.

History

So you forgot to bookmark that page on underwater basket weaving you looked at last week but you want to check it out again. You can look for it in your **History** folder. It logs all the sites you've visited in the last 30 days (default) so you can go see where you've been. Click on **Go** then **History** in the toolbar and out pops your History folders. They're sorted by date and alphabetically.
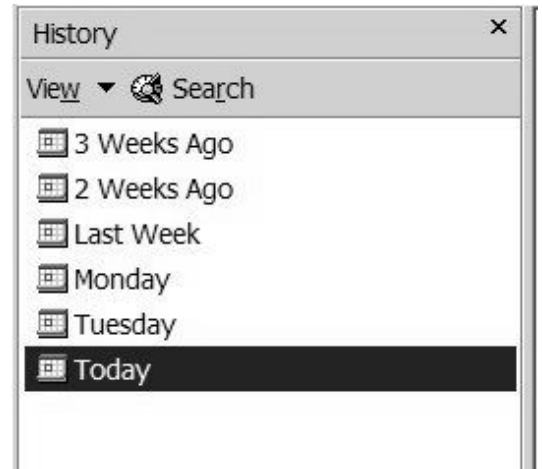
Pop-ups, Adware and Spyware... oh my

Nearly every free website relies on advertising dollars to keep the site going. Since most people ignore the simple banner ads at the top and sides of the webpage, Internet advertising firms have gotten much pushier with their ads.

Pop-ups:
Pop-ups and pop-unders are the advertising windows that appear when you enter and leave a website. Since every air-breathing human in history finds these pop-ups annoying, most people want to block pop-ups from ever happening. The Firefox browser has a built-in pop-up blocking mechanism that's enabled by default so you'll never see a pop-up or pop-under or pop-sideways or any other pop. I advise never to use pop-up blocking software. Most of it is spyware.

Spyware:
Spyware is usually some free little useful program that, along with being functional, tracks everywhere you go on the Internet and sends that information, along with information about what you purchase, for how much, and even possibly your email address to the marketing companies who sponsor the spyware. This information is used to direct SPAM and more advertising to you. Some examples of spyware are the Weatherbug, Precision Time, Event Manager, and Comet Cursors. Cute little programs with an annoying payload. Avoid them like the plague that they are.

Adware:
Adware is similar to Spyware only instead of sending you email offers of things you may have looked at on the web, it pops-up an advertisement right-away. If you're on Amazon.com looking at books about cooking and have some adware installed on your computer, you'll see between 2 and 20 pop-up and pop-unders offering you the same books from different online retailers. Very annoying.

Both spyware and adware are installed via your web browser when you visit certain websites that subscribe to such advertising tactics. Most of them are loaded into your system as **Browser Helper Objects** (BHOs for short.) The biggest problem with BHOs is they don't play well with one another. If you have more than 6 BHOs installed on your system, chances are your browser won't even function. So instead of "enhancing" your

surfing experience, it kills it altogether. But there is good news! You can get rid of this stuff!

The best way to avoid BHOs altogether is to use the Firefox browser. Firefox has no Microsoft ActiveX controls and a BHO can't be installed without ActiveX.

If you must use Microsoft's Internet Explorer browser, you'll need to install **Spybot – Search and Destroy** as talked about on page 45 as part of our monthly maintenance.

Content Filtering

Content filtering is making sure none of the terrible things available on the web make their way into your home or in front of your children's eyes. You can filter pornography, objectionable words, and even whole domains.

CyberSitter ($40 at www.cybersitter.com) is considered the best content filter available today. No subscription fees makes the pocket book happy and knowing that your children won't be seeing any of that junk will make mom and dad happy.

LinkSys WRT54GS ($80 at www.newegg.com) is the all-time best choice for protecting your entire home network. If you have a broadband connection (DSL, Cable or Satellite) you can use the LinkSys router to connect all the computers in your home to the one Internet connection. But the best part is this router's parental controls. You can assign up to 8 different groups or users to the $40/year service and not only filter the nasties out of everyone's websurfing, but you can also control what times of the day certain users can get on the Internet, what services they can use (email, IM, etc.) and what level of filtering to apply. It's very powerful and easy to configure. I highly recommend this solution.

3XWatch (Free at www.xxxchurch.org) This is probably the best solution for pastors and missionaries without kids I've ever seen. This program does absolutely no filtering at all. It simply sits in the background and watches where you surf and how long you surf. Then, once a month, it sends a report to two or more of your accountability partners. This report will highlight any objectionable or questionable sites that you visited and they have the honor of calling you on the carpet. It's accountability. It's just like surfing with your accountability partners standing over your shoulder. Also highly recommended.

Connecting

More and more mission fields are getting broadband connections like DSL and Cable. These connections are "always on" meaning you no longer have to dial up.

Beware: broadband Internet should never be used without a router or firewall.

If you aren't so blessed as to have broadband DSL out in the sticks of Jumbalialand, you'll need to know how to configure that dial-up modem business.

The **Connections** tab in your **Internet Properties,** in the Control Panel, is where your browser will use **Dial-up Networking** (DUN) to call up your ISP and automatically connect when an Internet connection is required. You've got three options:

- **Never dial a connection**, where you'll have to manually connect to the Internet through your DUN icon.
- **Dial whenever a network connection is not present (recommended)**, where if you're not connected it will dial up your default connection.
- **Always dial my default connection** will bug you about not being connected even if you are and ask you to terminate your current connection if you're not using your default connection.

Biodegradable Shrink-Wrap

Downloading is pulling copies of content or files from the Internet onto your hard disk. There are millions of programs, graphics, music, anything you can imagine all for download on the Internet. So how do you get a program on the Internet onto your hard drive? It's as easy as a click!

While surfing you may come across a link to a program that's available for download. It happens quite frequently if you're surfing www.tucows.com, a popular Windows download site. Click on the link and Firefox will ask you what you want to do: **Open with…** or **Save to disk**. If you click on the **Save to disk** radio button and **OK**, Firefox will download the file onto your desktop.

The larger the program, the longer it will take to download. Current modem speeds are 56K. That's 56 Kilobits per second. Theoretically you could download a 3MB program in 5 and a half minutes, but because of slow connections you'll be lucky if you can download at 20 kilobits per second, making a 3MB program a 25 minute job.

Download Resuming

How many times have I been 90% through a 2-hour download and got knocked off line? It's frustrating to say the least because I have to start all over. Not anymore I don't.

Most servers now have a resume feature that allows you to pick up where you left off. Firefox is supposed to support this handy little feature but my experience has found that is not so. Very few times have I been able to resume downloading using either Internet Explorer or Firefox. So I don't use a browser for my downloads. I use **GetRight**. GetRight is a download helper that will "catch" the clicks for programs in your browser and handle all your downloading. You can stop and start downloading whenever you want, you can resume downloading if the server supports it, and you can download in chunks.

You can also configure GetRight to get online at say 3am, download a file, log off line, and even shut your computer down when it's done so as not to tie up a phone line during the day. For downloading, GetRight is invaluable.

Share with Me

Shareware is software that's free to download and free to use for usually the first 30 days. Then, if you like the software, you're urged to register a copy for yourself for a small fee. Usually a shareware title will cost around $25-45 bucks. Some programs will not function after the 30 day period, some will continue to function but constantly bombard you with nag screens begging you to register while others will just trust your honor that you'll register if you like it. This is how little known programmers get their programs distributed. Most of the programs on **The Disc** are demos and shareware. Use them and if you like them, you can pay for them. Many Shareware companies have secure online ordering or you can mail in a check or money order.

BOB AND MAVIS FIND THE "LOST TRIBE"

I DON'T BELIEVE THIS...
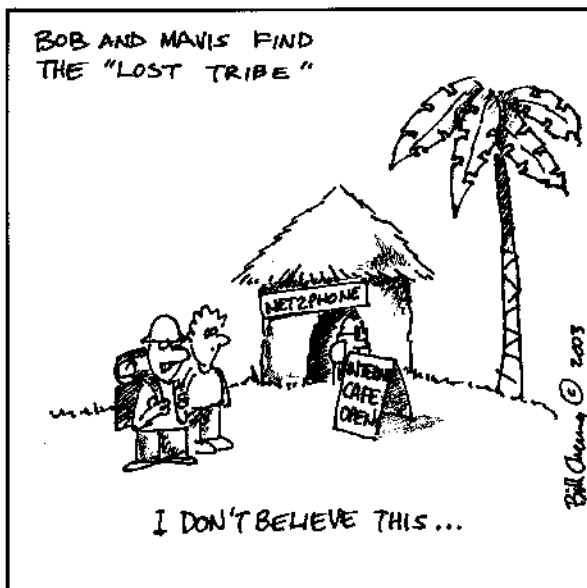
Internet Calls

Calling Grandma Bubba in Podunkville everyday from Tibet could get expensive… unless you call her using VoIP. VoIP stands for Voice Over Internet Protocol. It is voice phone service across the Internet.

The technology works like this. You get on the Internet anywhere in the world and your call travels to the United States over the Internet until it reaches a server close to the phone you want to call. The ISP then uses one of its modems to call the phone number of Grandma Bubba. Grandma Bubba hears the phone ring and picks it up only to hear your sweet Tibetan voice. Audio quality will vary depending on how fast your connection is.

VoIP comes in two main flavors: hardware and software.

Hardware VoIP comes from companies like Vonage (www.vonage.com) and allows you to connect a little box (which you buy from them) to your broadband Internet connection and then connect a regular old phone to that little box. You register a number in the location of your choice and it's tied to your little box. If you're from Colorado, like me, you can register a local Colorado Springs phone number and now whenever Grandma wants to call me in Tibet, she picks up her phone and calls my local Colorado Springs number. The call travels across the Internet to my little box and rings my regular old phone. I pick it up and Grandma can tell me all about those crazy young lads that almost ran her over with their skateboards. It's that easy. When I want to make a call, I just pick up the regular old phone connected to my little box and dial out as if I were standing in Colorado Springs. Did I mention long distance is free – incoming and outgoing? Way

cool, huh? All that for $25 a month.   Note: It does require broadband. You can't dial-up the Internet and use Vonage service.

Software VoIP is a bit different. You'll also need a headset with earphones and a microphone to plug into your computer to use software VoIP services like Skype (www.skype.com). If you try to use your built-in microphone and speakers, you'll get feedback through the speakers. Look for a headset with noise canceling technology. An excellent headset is the **Plantronics Audio 50 PC Headset**.

Most software VoIP services are outgoing only, so you won't be receiving any incoming calls, but outgoing calls are a cheapo 2 cents a minute and the quality is quite good, even on dial-up. Skype and other software VoIP providers usually allow PC-to-PC calls for free so get grandma to sign up for Skype too.

Online Banking

You'll find that the Internet will soon become your main, if not only, means of communication when you get on the field. This includes your banking.

Having your account with a bank that offers online banking will allow you to do nearly everything you can do stateside. Things like:
- Check account balances (very important!)
- View account activity such as deposits and withdrawals
- Transfer moneys between accounts
- Pay bills electronically
- Download information about your accounts into finance software like Quicken or Microsoft Money
- Send checks from the bank to anyone to pay bills - including yourself!

Most online banking is done over a secure connection of encryption so only you can read and make the changes to your account. **To check and see if you're viewing a secured page look for the little padlock icon on the bottom left of the Firefox window**. When you see this icon, you can have confidence that any information you send will be seen only by that particular site. This includes any non-banking sites you may do business with. Sites like Amazon.com and Buy.com, where just about anything can be purchased, all have secure servers that encrypt your information. You can purchase things on the Internet with confidence if you see the padlock.

Online Schooling

Schooling for our children is always one of our greatest concerns as missionaries. We don't want the mission field experience to leave them at a disadvantage when it comes to their education. Many times the only schooling option is homeschooling, but so many missionaries feel inadequate as school teachers. That's where your computer can be a big help.

There are many excellent online learning centers that can act as your son/daughter's school. Fully accredited curriculum with live teacher support and student social interaction all through the lines of the Internet. It's not cheap, but your child's education is worth it.

Check out **K12.com** and **cmacademy.org** as well as **northstar-academy.org**. You'll find dozens of links to homeschool curriculum and resources on **The Disc**.

What if... Answers

Scenario 1.

　　　c. Pop-ups are getting very sneaky so you need to be careful how you read and respond to them. Newer pop-ups may even look like a legitimate message from your computer system. Even those that are obviously pop-ups can be deceiving as to how you close them. The x on the top-right may be a link to installing something terrible on your PC. The best solution is to close them on the bottom taskbar with a right click.

Scenario 2.

　　　a., b., or c. Depending on your situation, all these answers may be right. If you don't have a phone of your own or don't have a broadband Internet service like DSL you may need to use pre-paid phone cards or PC-to-PC software over a dial-up connection. If you do have a broadband connection like DSL or cable Internet, the best solution by far is a VoIP box and service like Vonage. For around $25/month you get a local phone number in any of 500 area codes and can send and receive calls on a normal phone as if it were installed by those guys in the white vans themselves.

Chapter 9 - Peripherals

...AND HERE WE HAVE OUR BASIC PRINTER AT $49.95...
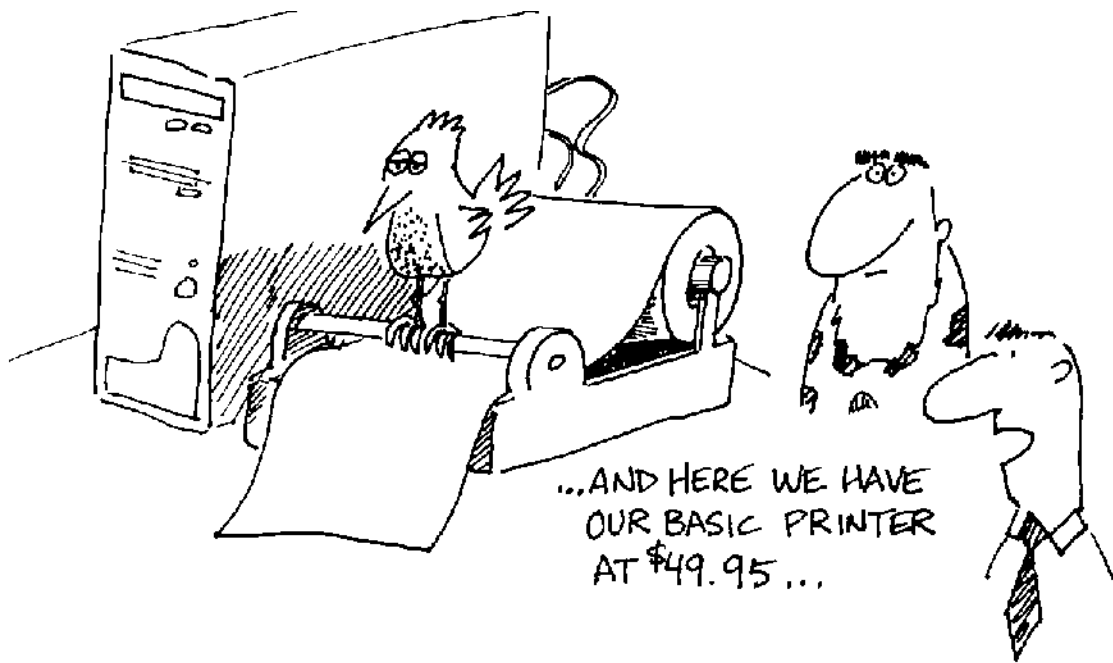
One of the things that make computers so useful is their ability to interface, connect, and control so many other devices. Neat things like GPS receivers, laser cutters, and PDAs as well as things like printers, scanners, and monitors.

This chapter is where we talk about all those things that connect to our computers, in a word, our peripherals.

What if...

Scenario 1.

You've decided you need a printer, a scanner, and a fax machine and see a great deal on a Lexmark all-in-one jobber that would both save space and be easy on the budget.

Do you…

a. Snatch it up and buy a few extra ink tanks to take with you.
b. Wait for a better sale… there's always a better sale, right?
c. Break the mold and purchase a separate printer, scanner, and let your computer do the faxing.

Scenario 2.

You're witnessing to a national while on a train. You see he's just not quite getting the message through your bad accent so you…

a. Resort to using hand gestures and grunting noises.
b. Tell him to call the church later.
c. Pull out your PDA and show a full multi-media presentation of the gospel in his heart language right then and there.

Drop Me a Line

If you're looking to purchase a peripheral for your computer, drop us a line at help@missionarytechsupport.com. The market for these devices changes so rapidly, by the time you got your PC Magazine, read it and got ready to order… your choice may already be discontinued. We'll be happy to offer our expertise and purchasing advice.

Monitor Everything

One of the most important peripherals of your PC is the monitor. It can make using your PC torture if it strains your eyes or if it's too small. Two types of monitors are prevalent on the market today; **CRT** and **LCD**.

CRT monitors are the classic monitors. They're big and heavy and in many ways look like a television. That's because they use the same basic technology television has been using for years. Cathode Ray Tube monitors have superior color and resolution quality but are so stinkin' huge. To find one that will be easy on the eyes, look for one with a dot pitch of less than 0.25. Anything above that will be difficult to look at for an extended

period of time. If you plan on purchasing a CRT monitor for your system, purchase it in the country you'll be living in. It's ridiculous to transport that huge, heavy beast when you can probably find one for just as cheap, or cheaper on the mission field.

LCD monitors are also called flat panel monitors. These thin screens are lightweight and only take up a few inches of desk space. Unfortunately those are about the only benefits of the LCD monitor. The image quality and resolution are inferior to their big brothers, CRTs, but they do produce less heat. Unless you're editing photos, the image quality should be quite usable.

Stop the Presses

One basic everybody's-gotta-have-one peripheral is the printer. Printers come in all sizes, speeds, and formats.

- **Inkjet Portable Printer** – Super small footprint (how much desk space it takes up), can be battery powered and may have a wireless, infrared connection. Made specifically for laptop users who need to print while on the road. Neat but expensive. Canon makes the best portable printers. Stay away from the HP models. They don't pick up paper very well.
- **Inkjet Desktop Printer** – Relatively small footprint and very commonplace. This is what most people think of when you say printer. The ink is water-soluble, so don't get the pages wet or it will smear. HP makes some great inkjet printers. Steer clear of Lexmark no matter how cheap. They're really bad (and noisy) printers. Dell printers are re-branded Lexmarks so run away from those, too.
- **Laser Desktop Printer** – Larger footprint than the inkjet and only prints in black and gray. This type of printer is used by many small/medium businesses and is great for text or super-sharp gray-scale images. Again HP is a leader in this area.
- **Inkjet All-In-One Printer/Copy/Scanner/Fax** – Larger footprint since it incorporates three devices in one. Sad thing is, they don't seem to do any of their functions really well. And if one component breaks, you're out all three. I never recommend these things. Get separate devices. It will cost a bit more, but you'll get better quality and reliability.
- **Laser Workgroup Printer** – Usually too big to have on your desk, a workgroup printer may be color laser (excellent image quality) with a network interface. This means any computer connected to the network may print to this one printer. Suited for larger volume and multiple users.

HE WANTS TO KNOW IF WE HAVE A SPARE PRINTER CABLE!

Purchasing a Printer

When purchasing a printer, take into account the price and availability of the toner or ink cartridges. A cheap $75 printer may cost you $60 to replace the ink every two weeks while a $300 quality laser printer may run you $75 a year in toner refills. Do the math. It doesn't take long to see which is the better deal.

 Note: Most printers don't come with the necessary cable to connect it to a computer. Be sure you have one or buy one separately.

Inkjet Refills

Don't try to refill your inkjet cartridges. The replacement ink is never the same consistency as factory ink. It is either too thin and will run all over the paper when printing or is too thick and will clog the print heads. It's not worth the hassle or mess. Buy only factory ink cartridges.

Scanners

Modern scanners connect to your computer using a USB port. Look for a scanner that supports USB 2.0, also known as High Speed USB. Scanning won't take as long at higher resolutions.

I personally like the **Cano-Scan** line of scanners from Canon. My first scanner on the field was a nice Microtek. First thing I did was plug its transformer into a 220 volt outlet. Poof… I never even got to use it... not even once. Cano-Scan scanners are powered from the USB port on your computer. No external power supply means no worries about plugging that 110 power supply brick into 220.

Even the cheapest scanner on the market today will create more than sufficient quality images. Do some digging before you buy if you expect to scan special formats like slides or negatives. They usually require a special lighted lid and such.

X Marks the Spot

GPS stands for Global Positioning System. The government and private industry have a huge network of low-orbit positioning satellites that can triangulate a receiver down to a few feet. This means you can track all those unmarked trails you travel on your ministry trips and map them on your computer for others to use. You can also use it to get directions to and from places.

Pilots often use GPS receivers to plan, track and log their flight plans as well as give them extremely accurate positioning and altitude data while in flight. No way you're getting lost with one of these buggies.

GPS receivers can be stand-alone units that can connect to a PC or units that only work when connected to a PDA. Beware: Many GPS systems will only connect to a PC using the COM 1 Serial port and most laptops no longer have serial ports built-in. Look for USB-based GPS receivers.

PDAs

Personal Digital Assistant (**PDA**) is no more than a small computer you can carry around with you. Much smaller than a laptop with much more battery power, some PDAs can do nearly everything a laptop can do.

Palm was the first successful PDA company. Compaq quickly became the second. Palm, Handspring, and Sony devices use the Palm operating system while Compaq, HP, Toshiba and many others use Windows Pocket PC, also called Windows Mobile Edition.

Expansion slots like SD card, Compact Flash, and Springboard add functionality to these little calendars on steroids. You can purchase GPS receivers, wireless network adapters, digital cameras, or even a standard analog modem for your PDA. You can snap on a keyboard for easy data entry or even use it to take digital voice memos.

My PDA is indispensable… My wife calls it my brain. Without it, I'm pretty much lost on what's going on and where I'm supposed to be. I use it to take notes, look up addresses and phone numbers, surf the Internet, check email, diagnose faulty network connections and the list goes on and on.

Prices range from $70 to nearly $800. Depending on the speed and features you're looking for.

I personally recommend the Palm powered PDAs over the PocketPC or Windows Mobile Edition. Palm's OS is much quicker and feels more responsive. You'll be doing a lot of waiting on your PocketPC.

Serious Fun

If you're practicing piloting your canyon barrel rolls on **Flight Simulator** with just your keyboard you're probably not get much of a "real" experience. To really get that simulator feel you need a yoke and rudder pedals. **CH Products Flight Sim Yoke** will run you $150 and **CH Products Pro Pedals** $130. With these boys hooked up to your PC it will be so real, you're ears may pop. You may even find downloadable topographical maps of your mission's area so you can practice flying and landing on the very strips you're using.

The top flight cadet in the Navy's program last year was asked how he out-performed all the others even though he only had 1/3 of the flight time. He said he had logged thousands of hours on a PC flight simulator program in his dorm room. The navy is now encouraging cadets to use PC based simulators as training supplements. Interesting, no?

Flash Memory Readers

The floppy is being phased out and its replacement is ready to take over. Flash memory cards like USB, SD cards, and Compact Flash are so easy to use and can hold up to 2GB of data. To use these cards you need a card reader. Most computers are being shipped with built-in card readers now and external card readers connect via a USB port and can read and write to multiple formats.

If you're going to purchase a card reader, find one that can read and write to all of today's formats.
- Secure Digital Card (SD Card)
- MultiMedia Card (MMC)
- Compact Flash Card (CF Card)
- Sony Memory Stick
- SmartMedia Cards
- XD Photo cards

External card readers run about $25. Internal card readers can be mounted in an empty bay on the front of your PC and cost about $50.

What if... Answers

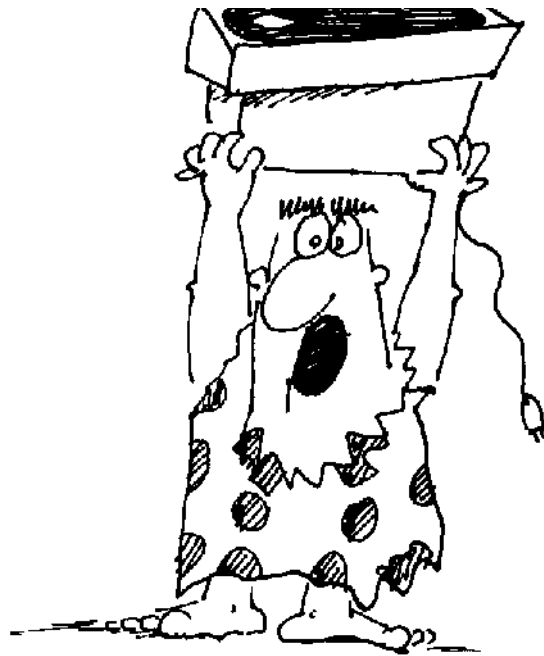### Scenario 1.
c. All-in-one machines are all-in-the-trashcan after about 6 months. Purchase separate devices and you'll get better quality out of each and eliminate that single point of failure if something goes wrong.

Scenario 2.
c. There are times when technology is not appropriate, but most times it's a wonderful aide in your witnessing.

Chapter 10 – Upgrades

OG NEED MORE SPEED!!

A computer is the fastest depreciating piece of equipment you can buy. Upgrading your old workhorse can save you a bundle. But how much is too much and why, when and how should you upgrade? There are many factors involved here so we'll talk about some of the most important ones.

What if...

Scenario 1.
Your nephew got a great deal on some fast CPUs and offers to give you one.
Do you…
   a. Email help@missionarytechsupport.com and see if it's compatible with your system.
   b. Accept the gift and see if you can sell it in-country for $1,000.
   c. Reject the gift explaining how poverty and a slow computer keep you humble.

Should I?

The very first and most important question in upgrading is "Do I need an upgrade?" Many people upgrade just because something newer or faster has hit the market. Dell has an advertisement out saying "How fast does your computer need to be?" with the answer "Just faster than Bob's in accounting!"

The question we have to ask is "Do I really need faster and newer?" It's answered more by how you use your computer and how you want to use it than how fast Bob's in accounting is.

If basically all you do is send and receive emails, write a newsletter, and surf the web, the newest and fastest machine won't add much to your computer experience.

If you want to edit your videos from your digital camcorder and record them onto DVDs to send to your churches in the States, you NEED a fast machine with lots and lots of disk space.

If you want to increase realism in 3D games and flight simulators you NEED a good 3D video card.

If you have written so many long-winded sermons that you've run out of hard drive space you NEED a bigger hard drive.

If you're frustrated with the poor quality of your dot-matrix printer you may NEED a new laser one.

If your mini-tower HP has burnt out in the Paraguayan heat and won't start, you'd be better off buying a new system than fixing the old one.

If you've determined you need your computer to be faster, bigger, or include some features that it doesn't have now, how do you know if you can pop in a few upgrades or if you need to purchase a whole new PC?

The simple answer is 'Ask MissionaryTechSupport.com.' We can help you determine if your current computer can be upgraded to what you need or if you'd be better off investing in a new one.

On The Disc you'll find a little diagnostic program called Aida32. With the help of this program we can know exactly what components are installed on your computer and its upgrade potential.

After installing Aida32 from The Disc you can start Aida32 by double clicking on its icon on your desktop. Now click on Report in the menu bar and mouse-over Quick Report – All pages and click on HTML. After the report is generated, click on Save to file. In the Save Report window click on Desktop in the left navigation bar and then click Save.

Close Aida32 and return to the desktop. You should see a file named Report.htm. Right click on this file and mouse-over Send To and click on Mail Recipient. This will open a new email message from your default mail program like Outlook or Outlook Express. Type in help@missionarytechsupport.com in the To: field and add a little note about what kind of upgrading you want to do.

Note: Aida32 will not send us any sensitive information like passwords. Only information pertaining to your hardware and software.

With the Aida32 report in hand we can quickly know the limits to your current computer and give you upgrade or replacement advice.

RAMing Speed

One of the easiest and best upgrades to just about any system is adding system memory or RAM. Your computer operates entirely in RAM so you can never have too much of it. If you're running Windows XP and you have less than 512MB of RAM, you definitely will see a difference with a quick RAM upgrade.

The hard part is knowing which kind of RAM to purchase. RAM form factors are as numerous as computer manufacturers. 30-pin SIMMs, 72-pin

BACK AT OG'S WORKSHOP...

OG TRIES TO MAKE SENSE OF SOME REALLY OLD DOCUMENTATION...
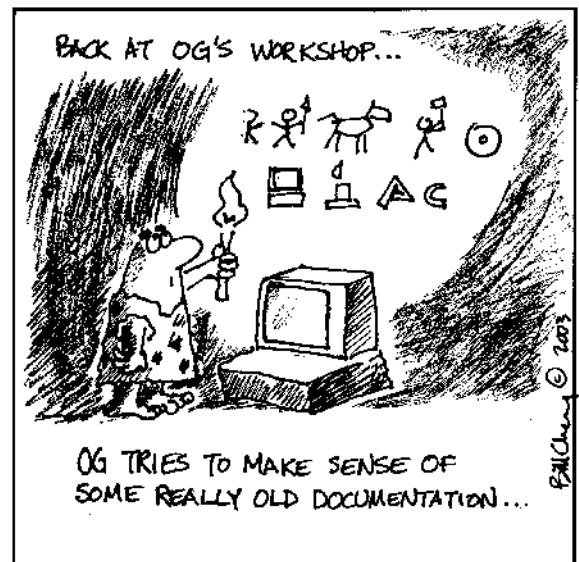
FP SIMMS, EDO SIMMS, PC66 SDRAM, PC100 SDRAM, PC133 SDRAM, RIMM RAM, DDR RAM, DDR-2 RAM, and so on.

You can scour through any documentation that came with your computer for a list of compatible RAM upgrades or you can send us an Aida32 report and we can quickly tell you which kind to buy, where to get it and how much it will cost.

CPU Upgrades

The CPU, or Central Processing Unit, is the component that usually gets all the publicity. The clock speeds are measured in Gigahertz, billions of clock cycles per second. A Pentium 75 does 75 million cycles per second and a Pentium III 750 does 750 million cycles per second and a AMD 2400 does 1.7 billion cycles per second. If you've got plenty of RAM and your machine is still moving slow then you probably need a faster CPU.

Not all CPUs will fit into all computers. Not only are the physical connections different (slots vs. sockets) but voltage and clock multipliers on the motherboard have to be compatible as well. Your computer documentation may give you a list of supported CPUs or, again, you can send us an Aida32 report and we can give you a better list.

I Love My Motherboard

If you want a faster processor than your motherboard can handle you'll have to upgrade your motherboard. CPU Equals Brain; Motherboard Equals Soul. The motherboard is by far the most important piece of hardware in your computer. It's the center of your computer that everything else plugs into. Sometimes it is called the system board or main board.

By itself, the motherboard is just an empty plate. The stuff that sits on it does the work. On it, we have the CPU, RAM sockets, BIOS, and slots.

Substandard motherboards are responsible for the majority of hardware-related hangs, crashes, glitches, and problems. When you handpick the components for your computer, make sure you pick a quality motherboard. The listed boards below have proven to be superior and reliable examples of motherboards.
- Asus boards for AMD and Intel CPUs
- Intel boards for Intel CPUs

If you need to save some money, look elsewhere. Motherboard prices on the Internet fluctuate very little among base models.

Just in Case

Upgrading motherboards may mean upgrading your case if you have a Pentium 75 to 266 or a mini-tower. The older AT motherboards use different power connectors than new ATX motherboards and full-size motherboards won't physically fit into a mini-tower. Also, older power supplies don't have the juice or the connectors to sustain the new Pentium 4 processors so you'll most likely have to change the power supply.

Tower cases come in three main sizes. The full-tower is the big one, standing two or three feet high. It can hold multiple drives and usually comes with a larger power supply to run them all. It is very expandable and roomy, which allows for excellent cooling. The mid-tower is just like the full-tower, only a bit shorter. The mini-tower is just that. It stands about a foot high but only accepts Micro-ATX or Flex-ATX motherboards designed for mini-towers. Try to stick with Mid-Towers to keep your future upgradeability at a maximum.

Many old cases have a turbo button. This button's job is outdated and the button is really pointless on modern machines. Many think that pressing this button puts the computer in some super-duper fast mode. In reality, the opposite is true. The button was designed to slow the system down so that it could run very old programs without being too fast. This feature is now outdated, because most software has speed detection built in.

3D Video Cards

If Microsoft Flight Simulator 2002 is like watching a slide show of aerial views instead of the realistic smooth simulator it is, then you may need a new video card. Newer programs and games that rely heavily on 3D calculations need 3D graphic accelerator cards. These cards have extra chips that take a lot of the load for the graphics rendering from the CPU allowing it to run the program faster. The difference in a machine with a 3D video card and one without is incredible when it comes to 3D environments.

New 3D cards can run as high as $900. For the true game enthusiast, it may well be worth it. If you never play 3D games or simulators then 16MB of video memory is usually enough. If you have or plan on purchasing a DVD drive to watch videos on your computer, you'll need at least a 32MB card. If you're going to run a cable to your TV so you don't have to watch it on your monitor be sure to get a video card with the output jacks you'll use. S-video, the new standard for digital video connections, and Composite RCA jacks are found on many video cards now.

Note: By the way, you can't hook up a VCR to your computer's DVD and record the movie. It's encrypted and will look like scrambled cable channels, all black with swirls. But you'd never try recording a copy righted movie, right?

The best economy 3-D cards today are based on the ATI 9600 chipsets, solid performance at an excellent price that you should be able to snag for around $60.

If you plan on editing digital movies from your digital camcorder, get a separate firewire DV card like the **Pinnacle DV500 PLUS** or the **Matrox RT2500**. You're gonna need it.

You Drive a Hard Bargain

You're also gonna need a big stinkin' hard drive or two for digital video editing. Running out of hard drive space is becoming less of a problem now that hard drive capacity has grown faster than any other component in a computer and is relatively inexpensive at about $80 for 120GB. If you get serious about digital video editing you'll want not only a fast hard drive but also one that will have consistent transfer rates so your video's not jerky.

For digital video you'll want a **SATA** drive. The Serial ATA interface is perfect for digital video. It provides the throughput you'll need for the steady video stream. Just be sure your motherboard has a built-in SATA interface or you'll have to spring for a SATA controller card as well.

CD-ROMs

CD-ROM drives have made little headway for a couple of years now. A 52X CD ROM is about standard on new PCs, although people who pull a lot of data off CDs (gamers and people who plan on ripping a lot of music) will appreciate the 120X drives from Kenwood. Most people use CDs only to install programs, so any CD-ROM will do.

CD-RWs

CD-Rewriteable drives were shipped in the majority of new retail PC systems last year. More people are "burning" CDs than ever before for backups, to store graphics and video files, to make music CDs that play in regular CD Players, and pirate software. If you need or want to do any of those things a $30 CD-RW is a good investment. Like CD ROMs, CD-RWs are rated in X speed. The fastest CD-RWs on the market today are 52X. I recommend **LiteOn** drives. Not only are they fast, recording an entire CD-R in less than two minutes, but are also bundled with **Nero Burning ROM** software instead of Roxio's CD Creator and Direct CD. Nero's better… way better.

Modems

If you have to use dial-up to connect to the Internet, you'll want a V.92 modem. For those with bad line connections the **US Robotics V.92 Performance Pro modem** ($80) is the only way to go. It's one of the few hardware-controlled modems left on the market.

Hardware-controlled modems last longer (less susceptible to lightning damage), and get better connection speeds than cheap software based modems. Laptop owners will probably need a PCMCIA card modem, which runs about $60.

Power Supply

They may not be as glamorous as ultra fast CPUs, humongous hard drives, or the latest 3D graphics cards, but your power supply unit (PSU) is the oft-forgotten workhorse your PC relies on. If you plan to add new components, make sure your power supply can handle the added load.

Most PC makers scrimp by installing cheap power supplies that can't handle varying wall voltage or voltage spikes, or can't provide the clean DC power needed for long PC life. Worse, many use inexpensive "sleeve-bearing" fans that wear out in a year or so. Long-life, ball bearing fans are essential.

Power supply failures aren't unusual. They can be hard to diagnose, but if the fan on the back of the power supply isn't spinning, that's usually a good indication the supply has expired. You can also use a voltmeter to see if voltage is reaching the power supply connectors. **PC Power and Cooling** (www.pcpowerandcooling.com) sells an inexpensive, easy-to-use power supply tester for $12.

Even if your PC's power supply seems okay, a new one provides clean power and high-capacity cooling and is usually quieter than the original equipment.

Where to Buy

If you think you need an upgrade or two, please do your homework. Because of export restrictions the components available in your host country will most likely be overpriced and outdated. I buy nearly all my components online and have them shipped. It's the cheapest way to get great components even with all the shipping charges related to having them reliably shipped. The only part I would buy overseas is the floppy drive, which is comparatively priced and hasn't changed for years. If you're going to buy online you'll find a good price and selection from NewEgg.com. I buy nearly all my parts there.

Upgrade Everything = New System

If you're thinking you need a new CPU that takes a new motherboard, more RAM, a newer video card, larger hard drive, and a new modem, you might as well think about a new system altogether. It is increasingly popular to build your own computer. It saves money and it guarantees you get what you want. It also assures you avoid proprietary designs many companies use to keep you coming to them for replacement parts. Best of

all, having built the system yourself, you become very familiar with that system and with computers in general.

Most overseas retail computers are grossly overpriced for the older machines that are available. Try to get your computer and components from the States. As far as retail goes, remember, you get what you pay for. See chapter 1 for tips about purchasing a new computer.

Hardware Installation

To install most hardware components you'll have to crack open the case and this can be dangerous. We talked about ESD damage in chapter 3. If you're going to be inside the case, wear a grounding strap. New components should come with installation guides that you should follow closely. If you're not sure what to do, you'd be better off with a little help from a certified geek. Toss us an email at help@missionarytechsupport.com we'll be happy to help you out.

Software Upgrades

Software upgrades are hard to gauge. Sometimes you'll just be paying a lot for a few new features that you'll never use. Sometimes it's a major improvement that you need. So how do you tell? Do your research! You can find reviews for software all over the web. **PCWorld.com** is one of my favorites for finding out about new software and if it's worth laying out the clams for.

Program Installation

Installing programs has become a cinch. Most programs come on CDs now and the vast majority of installation CDs have an Autorun feature. Autorun means you put the CD in the drive and up pops the installation dialog box. If you've downloaded the program or the CD doesn't support Autorun, open Windows Explorer and navigate to the directory where the **Setup.exe** or **Install.exe** is located and double click on it. Read everything, but for the most part you'll just have to click **Next** and **OK** a bunch of times. The default Windows installation directory for programs is **C:\Program Files** and this is where most programs will install themselves.

Windows Upgrade

If you've upgraded to XP from another version of Windows you've probably found that not quite everything works as it's supposed to. Upgrades are always ugly and will never quite work just right. I've never seen an OS upgrade without problems.

The best solution is to backup your data, reformat the hard drive, and do a clean installation of Windows XP. You can do a full install from Windows XP Upgrade CD if you have the CD from your Windows 98/ME/2000. Be sure you have all your Internet connection settings recorded so you can re-activate your copy of Windows after the re-install. If you're out in the boonies and need to re-install, be sure to get your computer to an Internet connection for activation within 30 days of reinstalling or you'll find your computer won't let you log on any longer. This is a huge inconvenience for missionaries in remote regions.

How 'bout a Date... an Update

Programs, like hardware, are always getting faster and adding features. Many program updates are free to download on the Internet. Quicken, Microsoft Office, Norton Antivirus, and Windows XP to name a few, all have free Internet updates to fix bugs, add features, or increase stability to their retail programs. To find these updates you'll need to find their website. Usually you can click **Help** on the file menu and find a link to the company's website for updates.

Windows is very proud of **Windows Update**. They call it the web extension of the operating system. Open IE and click on **Tools-Windows Update** and you'll be taken to Microsoft's website where you can choose to download fixes and enhancements to Windows. I highly suggest downloading everything under the **Critical updates** section, as these are fixes for security holes and dangerous problems with the operating system.
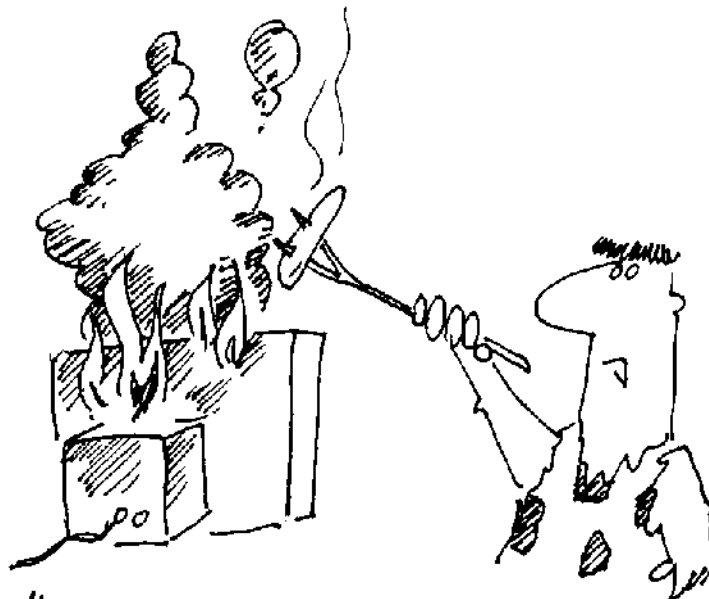
What if... Answers
Scenario 1.
a. It's nearly impossible to keep up with all the different CPUs and socket types out there. You shouldn't have to… that's our job! Send us an email: help@missionarytechsupport.com.

Chapter 11 - Troubleshooting

"OG DON'T KNOW WHAT HAPPENED, BUT IT'S EASIER THAN RUBBING STICKS TOGETHER..."

I've spent years learning to troubleshoot and repair all kinds of computer problems. There's no way I can put all that into this one chapter, so I'll point out some of the most common problems, their fixes and where to look if that doesn't work. Of course, you can always shoot us an email at help@missionarytechsupport.com. Tech support for missionaries is always free and we're glad to help.

BEFORE OG INVENTED RE-BOOTING...
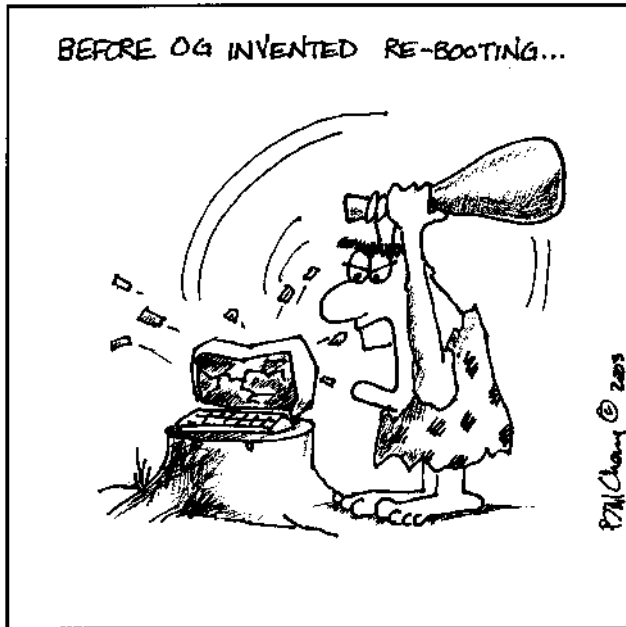
Reboot

The first thing to do when an error of any kind happens is to reboot. Rebooting clears up 80% of problems right away. A missionary called me in a panic once saying she had a terrible error happen and she couldn't get her printer to work and her email wouldn't work, and everything was falling apart. I told her to reboot her computer and all her problems disappeared!

Troubleshooting the DEAD COMPUTER

If your computer won't start, check to **see if it's plugged in**! You'd be surprised to find how many "serious" computer problems have a simple fix like that.

If it's plugged in and the light on the front is on, then it's running.

Are the minimum things needed to boot present? A barebones working system includes a motherboard, processor, RAM memory, and a video card. If these things are not there, it will not work.

Are these things all properly connected?
Try removing everything else one by one and try to narrow down the problem.

Are the jumper settings correct? In some systems you must set jumpers correctly for processor type, speed, voltage, bus speed, etc. Consult the manual.

Is there enough power? If you are adding more or newer components to an old system, your power supply might not be powerful enough. Common power supplies are 150 watts, but a system with multiple drives and many cards may need a 350 watt PSU.

Check around the net and see if there is a known "bug" on your particular system. Check the manufacturer's web site to see if there are any updates for it.

Keyboard Problems?

If you are getting an error message about the keyboard, always troubleshoot the keyboard itself first.

- Is something sitting on the keyboard?
- Is it properly plugged in?
- Is it plugged in the keyboard socket not the mouse socket?

Keyboard sockets are purple color-coded. Mouse sockets are green.

Does it make beeping noises? Let's see what those beep codes are telling us.

Beep Codes

There is no official standard for these codes. With so many brands of BIOS out there, we will cover the two main ones, Phoenix (also known as Award) and American Megatrends Inc (AMI.) If you don't know who made your BIOS, consult the manual of your motherboard. If you don't have a manual, simply take off the case and look. The BIOS chip has a shinny sticker on it. Once you find it, chances are it says "AMI" or "Award." Once you have determined your BIOS make, consult the following to see what may be wrong with your computer.

AMI BIOS Beep Codes

Normally, a computer with AMI BIOS doesn't bother with beeps. It will flash an error message right across your screen. It's when the video card isn't working, or something rather serious goes wrong, that your computer will start beeping.

# of beeps	What's Wrong
none	You're supposed to hear at least one beep. If you truly don't hear anything, your computer's power supply, motherboard, or PC speaker is no good.
1	One beep is good! Everything is A-OK, that is if you see things on the screen. If you don't see anything, check your monitor and video card first. Is everything connected? If they seem fine, your motherboard has some bad chips on it. First reset the memory and reboot. If it does the same thing, one of the memory chips on the motherboard is bad, and you most likely need to get another motherboard since these chips are soldered on.
2	Your computer has memory problems. First, check video. If video is working, you'll see an error message. If not, you have a parity error in your first 64K of memory. Check your memory modules. Re-seat them and reboot. If this doesn't do it, the memory chips may be bad. You can try switching the first and second banks memory chips. First banks are the memory banks in which your CPU finds its first 64K of base memory. You'll need to consult your manual to see which bank is first. If all of your memory tests good, you probably need to buy another motherboard.
3	Same as 2 beeps; follow diagnosis above.
4	Same as 2 beeps; follow diagnosis above. Your problem could also be a bad timer.
5	Your motherboard is complaining. Try re-seating the memory and rebooting. If that doesn't help, you should consider another motherboard. You could probably get away with just replacing the CPU, but that's not too cost-effective.

6	The chip on your motherboard that controls your keyboard isn't working. First, try another keyboard. If that doesn't help, reseat the chip that controls the keyboard, if it isn't soldered in. If it still beeps, replace the chip, if possible. Replace the motherboard if the chip is soldered in.
7	Your CPU could be broken and no good. Either replace the CPU or buy another motherboard.
8	Your video card isn't working. Make sure it is seated well in the bus. If it still beeps, either the whole card is bad or the memory on it is. Your best bet is to install another video card.
9	Your BIOS is bad; replace the chip.
10	Your problem lies deep inside the CMOS. All chips associated with the CMOS will likely have to be replaced. Your best bet is to get a new motherboard.
11	Your cache memory is bad and your computer disabled it for you. You could reactivate it by pressing -Ctrl- -Alt- -Shift- -+- , but you probably shouldn't. Instead, replace your cache memory.

Phoenix or Award Beep Codes

Phoenix beep codes are more detailed than the AMI codes. It emits three sets of beeps. For example, 1 -pause- 3 -pause- 3. This is a 1-3-3 combination and each set of beeps is separated by a brief pause. You need to listen and count when your computer starts doing this. Reboot and recount if you have to.

Beep sequence	What's Wrong
1-1-3	Your computer can't read the configuration information stored in the CMOS. Reset the BIOS using the jumpers. If that doesn't work, replace the motherboard.
1-1-4	Your BIOS needs to be replaced.
1-2-1	You have a bad timer chip on the motherboard; you need a new motherboard.
1-2-2	The motherboard is bad.
1-2-3	The motherboard is bad
1-3-1	The motherboard is bad.
1-3-3	Same as AMI BIOS 2 beeps. Replace the motherboard.
1-3-4	The motherboard is bad.
1-4-1	The motherboard is bad.
1-4-2	Some of your RAM memory is bad.
2-*-*	Any combination of beeps after two means that some of your memory is bad, and unless you want to get real technical, you should probably have the guys in the lab coats test the memory for you. Take your computer to the shop.
3-1-*	One of the chips on your motherboard is bad. You'll likely need to get another board.
3-2-4	Same as AMI BIOS 6 beeps: keyboard controller failure
3-3-4	Your computer can't find the video card. Is it there? If so, try swapping it with another one and see if it works.
3-4-*	Your video card isn't working. You'll need to replace it.
4-2-1	There's a bad chip on the motherboard. You need to buy another board.
4-2-2	First, check the keyboard for problems. If there are none, you have a bad motherboard.
4-2-3	See 4-2-2

4-2-4	One of the cards is bad. Try taking out the cards one by one to isolate the culprit. Replace the bad one. The last possibility is to buy another motherboard.
4-3-1	Replace the motherboard.
4-3-2	Replace the motherboard.
4-3-3	Replace the motherboard.
4-3-4	Time of day clock failure. Try running the setup program that comes with the computer, and check the date and time. If that doesn't work, replace the battery. If that doesn't work, replace the power supply. You may have to replace the motherboard, but that is rare.
4-4-1	Your serial ports are acting up. Reseat or replace the I/O card. If the I/O is on the motherboard itself, disable it with a jumper (consult your manual to know which one) and then add an I/O card.
4-4-2	See 4-4-1
4-4-3	Your math coprocessor is malfunctioning. Run a test program to double-check it. If it is indeed bad, disable or replace it. Disabling is fine, because you probably don't need it anyway.

If the beep codes don't help, you should start by checking to see if the memory is securely in place.

It's 1980 again?

If your computer forgets important information about itself you need a new CMOS battery. Time and date information as well as some hard drive parameters and cache settings are recorded in the **CMOS** chip.

Replacing the CMOS battery is usually a simple repair, but some manufacturers actually soldered the batteries in, making this a much tougher job. If your battery is soldered in, you may want to take the whole thing to the shop. If you are experienced with soldering, then be brave and tackle it yourself.

Before you do anything, you should record what your computer is supposed to know. If your battery is already dead, there's nothing you can do. If your configuration is still there, record it. Go into CMOS and write down the information. After you remove the old battery, your computer will forget everything.

How to Install a CMOS Battery

Turn off the computer, unplug it, and remove the case. Remove the old battery. Record which end faced what direction. Each end has a + or - on it. With skill and dexterity, the battery should snap out. Just study it, and you'll figure out how to get it out. Don't force it, though. It may be soldered in.

Get a replacement battery. Take the old one to the store and match them up.

Put the new battery in. Make sure the + and - face the same way as before. It should snap in.

Put the case back on and plug your computer in. When you turn it on, expect some type of error message like incorrect CMOS. Don't cry; this is supposed to happen. You just need to go into CMOS and plug in all the information that you recorded before you started. If you didn't do that, you'll need to break out the manuals and find the information the hard way.

Safe Mode

If your machine won't boot into Windows, you may be able to start it in Safe Mode. Safe Mode is a diagnostic mode that disables everything but the essentials. In safe mode you can uninstall a driver that's giving you problems or read the troubleshooters to help you find an answer. To start in Safe Mode hold down the **F8** key as Windows XP is starting. You will only have a 0.5 to 2 second window of time to press the F8 key… If you see the Windows XP logo then you missed your opportunity. Restart the computer and try again. Once you catch it, it will bring up the **Startup options** screen. Choose **Safe Mode**.

Once in **Safe Mode,** look for a troublesome device in the **Device Manager**. To open the **Device Manager,** click on **Start** and then right click on **My Computer** and choose **Manage**. This will open the **Computer Management console**. Half way down on the left is the **Device Manager**. Click on it and you should be able to see a list of the types of components you have installed on your computer. Are any of them flagged with a yellow question mark or exclamation point? If so, select the offending device and remove it by pressing the delete key on your keyboard. After removing all offending devices, restart your computer and see if it will start normally now.

Troubleshooting Memory

My new RAM doesn't seem to be working at all!
Since there is a lot of cheap hardware being sold these days, it is a decent possibility that your RAM is simply defective. But, there are a few things to check before making the decision.

First, is it the right type of memory for your motherboard? Different boards require different memory types. You'll have to look in the manual for it's supported memory types.

Is the memory the right size? Some older systems won't boot if there's too much RAM installed. There are a few motherboards still out there that can't handle sticks of 128MB or more.

Is it installed correctly and all the way in the slot? Are any jumpers that need flipping flipped? You could try cleaning the metal contacts with an eraser head if the memory is old. Make sure that the actual memory speeds jive with the timing settings in the BIOS.

Troubleshooting Video

I have no video at all.
First check the monitor. Is it plugged in, turned on, and hooked up right? Are the brightness and contrast knobs turned on full? Try your monitor on another system.

If the monitor is good, make sure the video card is seated correctly in the slot. AGP cards are infamous for creeping out of the slot. Finally, install the video card in another system and see if it works at all. Or install another video card and see if your monitor cranks up.

The screen goes blank after a period of inactivity.
First, check to see if this option is turned on in Windows XP under screen savers. Screen blank is an option. If this isn't the case, check your Power Settings in the control panel to see if your computer is going into stand-by or hiberation.

I added a video card with more memory, but it doesn't run any faster.
This is normal. Adding more video memory beyond say, 32 MB, does not improve performance at all. It only allows more frame buffer, thus higher resolution images. But, performance, or speed, will not improve unless the video chip on the new card is faster.

Troubleshooting CD-ROM

Windows can't find my CD-ROM!
Some old drives require that there be a CD in the drive when Windows loads. Either that, or check the cables and hookups to be sure they are secure. If everything looks good then your CD-ROM drive may just be busted.

I can't play an Audio CD through Windows.
You need to install the analog audio cable from your CD ROM drive to your sound card.

**In Windows, Audio CDs sound faint while games sound fine.**
First check the volume on your sound card and turn it up. Then click on the volume button in the taskbar (the little speaker) and raise the CD Audio volume.

Windows Help

One of the best things I can teach you is how to find the help you need. One of the best helps for Windows is inside Windows itself. **Start**-**Help and Support**, here you will see the Windows Help page

Topics

The left hand side is littered with help topics. You can click on one of these to start a troubleshooter on that particular topic.
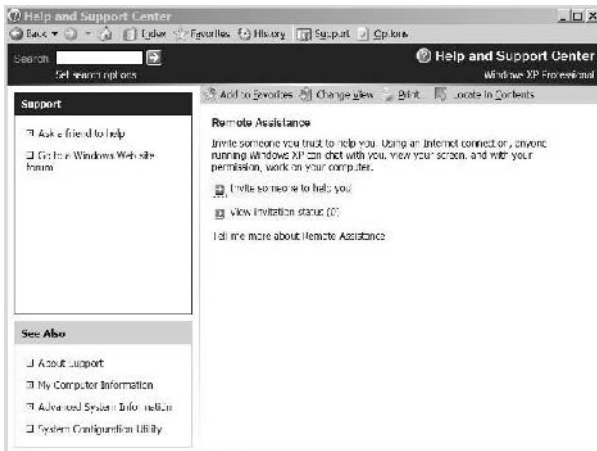
Remote Assistance

The first paragraph on the right is where you can ask for assistance. This feature is called Remote Assistance. It allows another person running Windows XP to connect to your computer via the Internet and remotely control your computer, fixing what's wrong as if sitting right in front of it.

To ask for assistance, click on **Invite a friend to connect to your computer with Remote Assistance**. Now click on **Invite someone to help you**.

Next to the Outlook Express icon on the bottom half type in the email address of the person who you'd like to help you, for instance; our email address: help@missionarytechsupport.com and then click **Invite this person**.

In the next window you may specify who you are and any message you want to pass on to this person then click **Continue**.

The next screen asks if you'd like to set a time limit on this invitation and/or if you'd like to password protect the invitation. Only use a password if both you and the person you're asking help from already know the password. Simply uncheck the box next to **Require the recipient to use a password**. Then click **Send Invitation**.

You should then receive a warning from Outlook Express saying A program is attempting to send an email on your behalf: and asking if you'd like to go ahead and send it. Click **Send** and the email with the Remote Assistance attachment will be put in your outbox. **Important!!! You must then open Outlook Express and click Send/Receive to send the invitation.**

Note: **YOU MUST STAY ONLINE WAITING FOR YOUR FRIEND TO CONNECT.**

The connection depends upon your IP address. You IP address changes every time you dial up to the Internet so if you send an invitation and then disconnect. The invitation is worthless because your IP address has changed and you'll need to send another invitation when you reconnect to the Internet.

Blue Screen of Death

You're working along, minding your own email and all of the sudden, BOOM, the entire screen goes blue for a second and a half then, BANG, your computer restarts itself! You've just been a victim of the **Blue Screen of Death**.

Blue Screens happen when Windows encounters an error so erroneous that it dumps the entire operating system and, by default, restarts the computer.

9 times out of 10 Blue Screens of Death are caused by poorly written device drivers from manufactures or software not supported by Windows XP. Have you installed some software or hardware lately? A printer, graphics program or zip drive maybe? When Windows reboots, uninstall the offending device or program and see if that helps. If the Blue Screens go away, check the manufacture's website for an updated driver or patch. If you can't get XP to boot, go into safe mode and delete the device from the device manager that way and try rebooting into Windows normally.

The only other thing I've ever seen cause a Blue Screen of Death is a bad RAM module. Replace the module with a new or known to be working one and see if it helps.
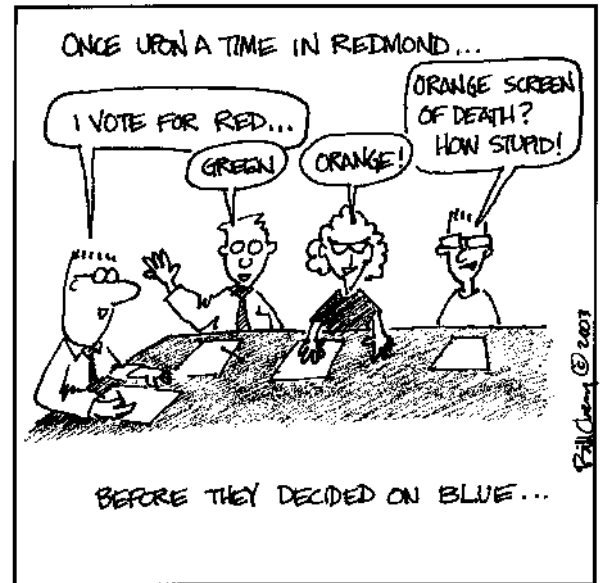
Troubleshooting Printers

First check the obvious. Is the Printer plugged into the computer via the parallel or USB port?

Does the Printer have power?

Reboot the computer…

Does the Printer print random characters (Greek)?
Reinstall the printer driver from the CD that came with your printer. Does it work now? If not, try a different cable that is known to be working.

Device Conflicts

If you install a new device in your computer and it, or another of your devices, stop working, you may be experiencing a resource conflict. System resources are made up mostly by the IRQs (Interrupt Requests) and DMAs (Direct Memory Access.) These are the inroads

Interrupt	What component gets it (usually)
IRQ0	System Timer
IRQ1	Keyboard
IRQ2	Some video cards
IRQ3	COM2, COM4
IRQ4	COM1, COM3
IRQ5	Sound Card
IRQ6	Floppy drive controller
IRQ7	LPT1 (printer port)
IRQ8	CMOS Clock
IRQ9	Redirected to IRQ2
IRQ10	Free
IRQ11	Free
IRQ12	Free
IRQ13	Math Coprocessor
IRQ14	Hard Drive Controller
IRQ15	Free

and out roads to the computer's brain, the CPU. Most devices want a permanent IRQ and many require a DMA. Page 129 has the typical layout of IRQs in a computer.

Floppy problems

If you're having problems with floppy disks, chances are it's one of the following four.
- The disk is full and no more information can be written to it
- The disk is write protected, in which case you slide the little tab down on the back of the disk
- The floppy drive is bad.
- **The disk has bad sectors on it.**

The latter will be the most likely cause and the only solution is to junk the disk and use another one.

Other Hardware

If your computer suddenly shuts down after being on for 10 minutes or starts making strange noises, it's probably a fan going or gone bad. There are normally at least two fans in a computer case, one located in the power supply and one attached to the CPU heatsink. If the CPU overheats because its fan is no longer cooling, your computer will suddenly shut down.

If a fan is starting to go bad it will make noise. Fans should last at least two years, so if it's dying prematurely you may have an electrical problem or poor quality fans. You can replace a fan quite easily and fairly inexpensively. Be careful while replacing the fan in the power supply. There are large capacitors inside the power supply that could give you quite a shock if you touch them. It's usually easier and safer to replace the entire power supply.

When All Else Fails...Go Online

Got an error message, Google it. Need an answer, Google it. Need some spelling help, Google it. There are a bunch more tech related links on **The Disc**.

When That Fails... Call in a Geek

You'll always find tech support at:
www.MissionaryTechSupport.com

Post a question on our forum at:
www.MissionaryTechSupport.com/forum

You can email for help at:
help@missionarytechsupport.com

If you're able to connect to the Internet, we can also use the "Remote Geek" remote control software to help troubleshoot and repair your computer as if we were sitting in front of it.

So please feel free to ask for help if you've tried everything else and can't get it to work. It's our ministry, so it will never cost you a dime.

Appendix A - Reinstalling Microsoft Windows

Reinstalling Windows XP or 2000

These step-by-step instructions will walk you through reinstalling (or just installing) Microsoft Windows 2000, XP Professional or Home Edition.

	Warning: Reinstalling Windows will require you to reinstall all your programs and applications. If you no longer have the CDs, installation codes, or setup files for your programs, you will not be able to reinstall them.

Step 1: Backup What You've Got.

You never know what may go wrong when you're reinstalling the operating system, so be sure to back up all your original data.

What is original data?
It's the data you've created. The operating system can be reinstalled, your programs can be reinstalled, your Internet settings can be reconfigured… you can't retype all those emails, you can't find all those addresses again, you can't rewrite those sermon notes the same – ever. Original data is stuff that you made: files, data, emails, addresses, and favorite links that are unique to you.

To backup all this data, we need to know where it's stored. If you're using Window's default folder to store your documents (My Documents folder) you will be safe to backup the folder **C:\Documents and Settings**. This folder contains all the original data for all the users on your system.

	Note: If you're reinstalling Windows because the operating system doesn't work, you may not be able to backup these files. If all goes smoothly, you won't need your backup so you may proceed at your own risk.

You can backup this folder onto a CD or external drive like Zip or Compact Flash card. Be sure to do a disk cleanup (chapter 4) before you back it up or you'll also be backing up hundreds of megabytes of unneeded temporary files.

Step 2: Boot from your Windows CD.

Place your Windows CD into your CD-ROM drive and restart your computer. Watch the screen closely as the words **Press any key to boot from CD…** appear for only a short while. When you see this, press the **spacebar** (also known as the 'anykey'.)

If the words **Press any key to boot from CD…** don't appear, you'll need to restart the computer and enter your BIOS setup by pressing the appropriate key.

- Usually the Delete key.
- On Intel motherboards you'll press the F1 key.
- For Compaq computers you'll press the F10 key.
- Watch your screen when the computer boots up and press the indicated key to enter Setup.

In your BIOS setup screen you'll need to navigate to the **Boot** or **Boot Sequence** menu. Be sure your CD-ROM drive is listed before your hard drive. Many times you may use the '+' or '-' keys to change the boot order. Read your documentation for details.

At the **Welcome to Setup** screen press the **Enter** key to continue installation.

The next screen is the **Windows Licensing Agreement**. Press **F8** to continue.
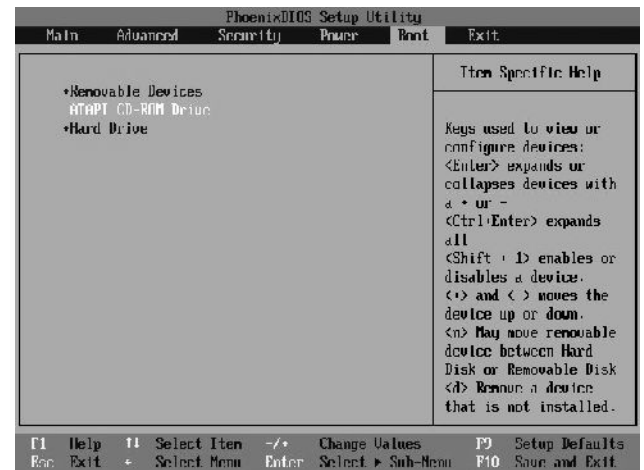
Now setup will search for and find your old Windows installation. To continue press the **Escape** key on your keyboard.

You'll now see a list of the partitions on your hard drive. Your default partition should be highlighted to just press **Enter**.

Next you'll get a warning saying that another operating system already exists on this partition. You do want to continue so press **C** on your keyboard.

This next screen is the most important… please be sure that you highlight **Leave the current file system intact (no changes)** and press the **Enter** key. We don't want to reformat the hard drive.

Press the **L** key on the next screen to have **Setup** delete the old Windows folder and recreate it for our new installation.

Now we'll sit back and watch Windows copy the files needed for setup.

When it's finished copying those files, it will reboot automatically. Be sure to leave the CD in the drive but you don't want to boot from it this time.

The next screen that requires your interaction will be the **Region and Language** setup. If you don't need to install any other language setting other than English, just click **Next**.

Tag Windows as your very own by typing in your name and organization in the next screen.
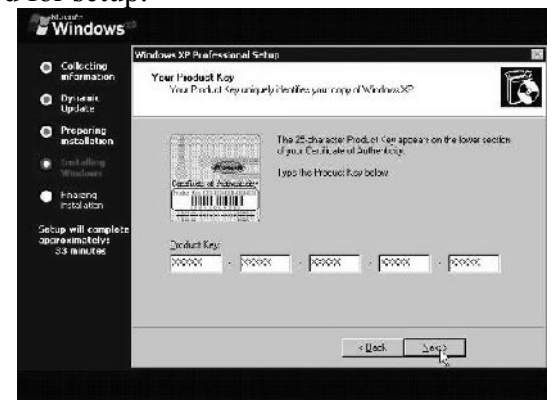
The following screen is where you type in your product key. You do have your product key, don't you? You'll find it on a sticker somewhere on your computer. If you don't have a product key sticker then technically you don't legally own a license for Windows. That product key is very important. And don't think you can just borrow one from your neighbor. Each product key must be activated with Microsoft and you can only use it on the computer it was purchased for.

In the next window you should give your computer a name… nothing special, just anything unique. Here is also where you set the administrator password. Please don't leave this blank. Type in a password that you will remember because if you ever have trouble, you'll need to log on as the administrator to fix it. When you've got that all filled out, click **Next**.

Next is time, date and time zone. Where are you and what time is it there…

If Windows found a network card installed on your computer you'll see the **Network Settings** window next. Unless you have special network settings you should just click **Next** here. Now put in your workgroup name. If you aren't on a network you should make up a workgroup name and type it in here. Leaving it on the default **WORKGROUP** is a security risk when you're on the Internet.

Setup will work and work and even reboot again, then take you to the **Windows Welcome** screen. Log on as **Administrator** with the password you created.

Step 3: Install Device Drivers

Now is when you want to install all the various drivers for your motherboard, video card, modem, etc. These drivers are very specific to your computer. You should have received CDs with the correct drivers on them when you purchased the computer. If you didn't, you can email us at help@missionarytechsupport.com and we'll help you find and install your needed drivers. It can be a long and complicated process.

Step 4 – Restore Your Data

When you've got all your drivers installed, we want to create a new user for you. Please don't use the Administrator account for normal, everyday use. It is treated differently by Windows and can create not only a security risk but also make it hard to work since Windows doesn't remember any passwords or save many settings for the Administrator account.

Click on **Start – Control Panel**. Here we will select **User Accounts**. Now click on **Create a new account**. Type in your name or the name you'd like for your account and click **Next**. Leave the account type set to **Computer administrator**. If you're setting up an account for your children, you may want to select **Limited** to keep them from destroying your computer settings or documents.

We now need to logon as our new account to allow Windows to create our needed folders. Click on **Start – Log Off** to log off as administrator. You should be taken back to the **Welcome** screen where you'll see your new username. Click on the icon next to it to log in.

As soon as you're logged in as your new username log off again using the same **Start – Log Off** procedure as before. Again, you're back at the **Welcome** screen. This time, you need to give windows the ol' **Three-Finger-Salute**! Press **Ctrl – Alt – Del** holding each down until you've pressed all three. Now do it again… Yes, you have to do the Three-Finger-Salute twice to get the ol' fashioned login window. In the username box, type in **administrator** and then type in the administrator's password and click **OK**.

Note: Windows 2000 doesn't have the same **Welcome** screen as Windows XP.

As soon as you're logged in as the administrator start **Windows Explorer** by clicking on **Start** and then right-clicking on **My Computer** and choosing **Explore**. Navigate to **C:\Documents and Settings** by clicking on the + sign next to **C:\(Local Disk)** in the left window pane and clicking on **Documents and Settings**.

Now we need to change our default view to allow us to see hidden files and folders. Click on **Tools** on the top menu and choose **Folder Options**. In the **View** tab, change the radio button to **Show hidden files and folders**. Click **OK**.

You should see a series of folders inside **C:\Documents and Settings** including **Administrator**, your new username and your old username. We want to move everything inside your old username folder into your new username folder. To do this, we double click on the icon next to your old username folder in the right window of **Windows Explorer**. Now select all the folders that appear by pressing **Ctrl – A**. Now right click on one of the selected folder icons and choose **Cut**.

Now in the left window, right click on the icon next to your new username folder and choose **Paste**. This will move all your documents, emails, address book, and desktop settings to your new username.

Restart your computer and you should be logged on automatically as your new username with all your old

documents and settings in place. You still need to reinstall all your programs like Microsoft Office and Norton AntiVirus but the hard part is done!

You can repeat the above process for any other users you had installed on your system before you reinstalled Windows. Just be sure to move (**Cut-Paste**) the files. If you copy them, you'll be wasting hard drive space.

Reinstalling Windows 95/98/ME

These step-by-step instructions will walk you through reinstalling (or just installing) Microsoft Windows 95/98/98SE/ME.

Warning: Reinstalling Windows will require you to reinstall all your programs and applications. If you no longer have the CDs, installation codes or setup files for your programs, you will not be able to reinstall them.

Step 1: Backup What You've Got

You never know what may go wrong when you're reinstalling the operating system so be sure to backup all your original data.

What is original data?
It's the data you've created. The operating system can be reinstalled, your programs can be reinstalled, your Internet settings can be reconfigured… you can't retype all those emails, you can't find all those addresses again, you can't rewrite those sermon notes the same – ever. Original data is stuff that you made: files, data, emails, addresses, and favorite links that are unique to you.

To backup all this data we need to know where it's stored. If you're using Windows' default folder to store your documents (My Documents folder) you will need to backup the folder **C:\My Documents**. This folder contains nearly all your original data on your system. The other data is spread throughout your system.
- **C:\My Documents** – nearly all your original documents
- **C:\Windows\Application Data\Microsoft\Address Book** - contains your address book if you are using Outlook Express.
- **C:\Windows\Application Data\Identities** - contains your emails if you are using Outlook Express
- **C:\Windows\Application Data\Microsoft\Outlook** - contains your Microsoft Outlook user data.
- **C:\Windows\Local Settings\Microsoft\Outlook** - contains your Microsoft Outlook data like emails, contacts, calendar, etc.
- **C:\Windows\Desktop** - contains everything on your desktop. Remember to back this up if you save files to your desktop.

- **C:\Windows\Favorites** - contains your bookmark favorites from Internet Explorer
- **C:\Windows\Application Data\Microsoft\Outlook Express** Outlook Express version 4 emails are stored here. If you have Windows 95 or the original Windows 98, you'll need to get this folder as well.
- **C:\Windows\Profiles** If you use different user profiles, you'll also need to backup this folder to get everyone's documents and settings.
- **C:\Program Files\MSWorks\Docs** is where older versions of Microsoft Works store your documents.

> ***Warning:*** If you're reinstalling Windows because the operating system doesn't work you may not be able to back up these files. You will loose your data if you do not back it up at this point.

You can backup this data onto a CD or external drive like Zip or Compact Flash card. You may be able to get some of it onto floppies as well if that's all that's available.

To reinstall Windows we need:
- Windows 95/98/ME CD
- Windows 95/98/ME product key for installation
- Startup disk

Step 2: Make a Startup Disk

To reinstall, we will need a startup disk. A Windows 98 startup disk is preferred but a Windows ME startup disk will also work. You can make a startup disk from any working Windows 98/ME system by clicking on **Start – Settings – Control Panel**. Double click on the **Add/Remove Programs** applet and choose the **Startup Disk** tab. You'll need a blank floppy that is verified to have no bad sectors on it. Click on **Create Disk** and Windows will make a startup disk for you.

HE SAYS YOU CALLED HIM....
SOMETHING ABOUT INSTALLING WINDOWS..

Note: To check for errors and bad sectors on floppies start **Scandisk**, found in **Start-Programs-Accessories-System Tools**, and choose the **A: floppy drive** in the list. It's always a good idea to do a thorough scan on floppies you've not formatted personally before copying any critical data to them just to be sure there are no bad sectors. If either a Format summary or a Scandisk summary come up with any bad sectors it's time to round file that floppy in the trash can.

With our startup disk in hand we're ready to start the destructive stage of our reinstallation. Time to destroy some partitions and format our hard drive!

Step 3: Boot From Your Startup Disk

Put the startup disk in the floppy drive and restart your computer. Your computer should boot from the floppy disk we created. If it doesn't you may need to check the boot order in your BIOS setup.

FDisk

Our startup disk will bring us to a boot screen. Press **Enter** or wait 30 seconds and we will continue to boot from the startup disk. At the prompt (**A:>**) type the command **fdisk** and press **Enter**.

You may receive the above warning asking if you want to enable large disk support. If you're installing Windows 98 or ME press **Y** and then **Enter**. Early versions of Windows 95 could not see partitions larger than 2.1GB. If you know you have Windows 95 original or Windows 95a you'll want to type **N** here. If you have Windows 95b or 95c you can safely say **Y**. There's no way to tell which version of Windows 95 you have by looking at the CD.
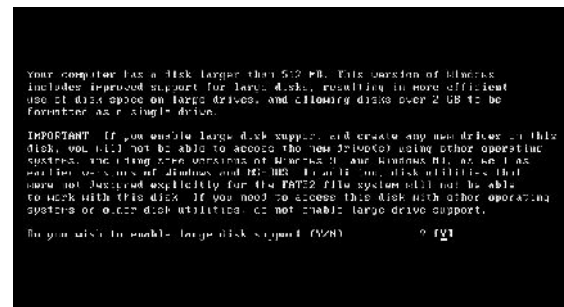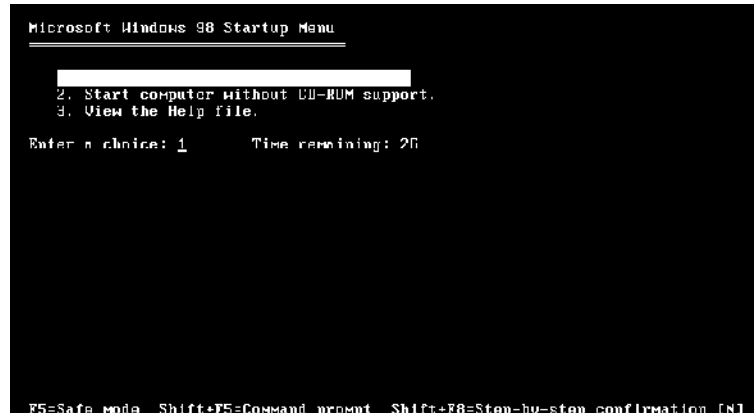
Note: Try enabling large disk support. You will receive an error message from Windows 95 setup if it cannot read the large partition and you can then restart the reinstallation process without large disk support.

In **FDisk** we'll first delete the existing partitions and then recreate them. Delete your existing partitions by choosing number 3. Delete your primary partition by pressing 1 on your keyboard.

We are now at the **Delete the primary partition** screen. Press **1**, **Enter**, and then type in the drive label exactly as it's written at the top of the screen and **Enter** again. Now reassure FDisk that you know what you're doing by pressing **Y** and then **Enter** one more time.

Now your disk should have no partitions defined. Press **Esc** button to continue.
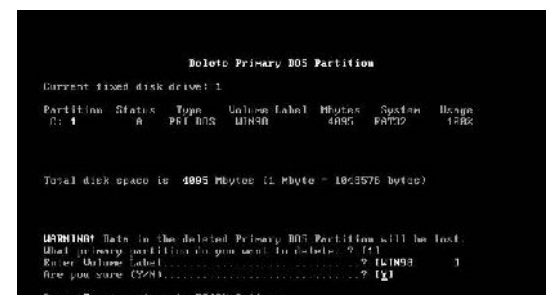
Now we'll recreate that primary partition by pressing **Enter** not once, but twice. After a quick verification press **Enter** once more and after another verification press the **Esc** key to finish. We must now restart our computer by giving it the Three-Finger-Salute (**Ctrl-Alt-Del**) and allowing our machine to boot from our startup disk again.

This time be sure to enable CD-ROM support when you boot up by choosing the appropriate selection at the boot menu.

Step 4: Format Your Hard Drive

At the prompt (**A:>**) type the command **format c:** and press **Enter**. Confirm the disk format by pressing **Y** and then **Enter**. When the format is complete it will ask you to type in a label for drive C:. Type your version on Windows (example: **Win98SE**) and press **Enter**.

Create a Cab File Folder

We could run the setup directly from our CD but by copying the cab (setup) files over to the hard drive and running setup from there, we forgo a slew of potential problems plus we have the benefit of already having the cab files on our hard drive. Any time Windows needs the setup files, it will automatically look for and find them on the hard drive; rather than bugging us for the CD each time.

```
A:\>c:

C:\>mkdir Win98

C:\>copy E:\win98\*.* C:\Win98_
```

Create a cab file folder by first changing our working directory to the C: drive. Type **C:** at the prompt and press **Enter**. Now type the following command for your version and press **Enter**.

- Windows 95 – **mkdir Win95**
- Windows 98 – **mkdir Win98**
- Windows ME – **mkdir WinME**

Copy the Cab Files onto the Hard Drive

Place your Windows installation CD into your CD-ROM drive and type the appropriate command for your version and press **Enter**.

- Windows 95 – **copy E:\win95*.* C:\Win95**
- Windows 98 – **copy E:\win98*.* C:\Win98**
- Windows ME – **copy E:\win9x*.* C:\WinME**

Caution: There is a space between **copy** and **E:\win~** and between the ~***.*** and the **C:\Win~** in that command.

137
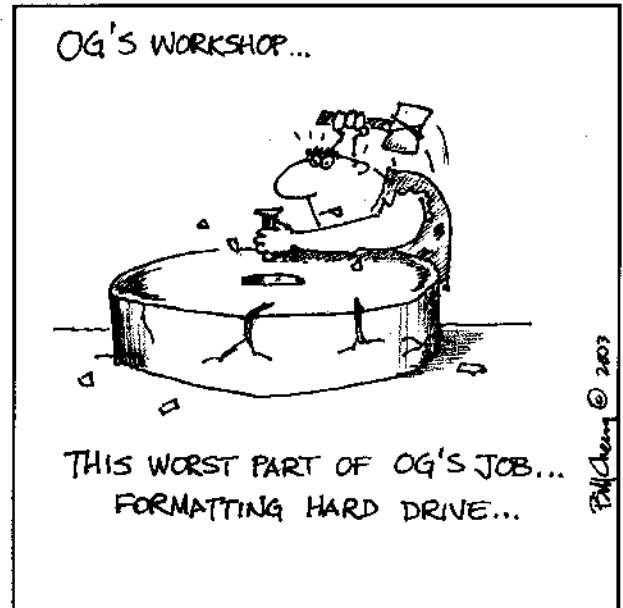
This will copy all the cab files for your version of Windows into that folder on your hard drive.

Step 5: Start Setup

At the **C:>** type in the command **cd Win98** to change into the Win98 folder. Now type **setup** to start Windows installation.

Setup Scandisk

The first thing setup wants to do is check to see if your hard drive is in good shape for the install. So click on **Enter** to allow **Setup** to run a quick standard Scandisk.

When Scandisk is finished you'll need to highlight **Exit** by pressing the right arrow key on your keyboard and then **Enter**.

Continue, Next, Next, Finished

Follow **Setup** along, clicking **Next** where needed. Be sure to type carefully when entering your product key. If you're installing from an upgrade CD you will need to put in your older Windows CD at some point and allow Windows setup to verify that you do indeed qualify for the upgrade.

If you're prompted to make a startup disk click **Next**. Once it's 20% complete, it will prompt you for a disk. You may then safely click on the **Cancel** button because you obviously already have a startup disk! On the other hand… it wouldn't hurt to have another one around.

Windows will restart a time or two during the installation process and may prompt you to click **Next** a time or two more as well. Be patient with it and eventually you'll be brought to your desktop.

Step 6: Installing Device Drivers

When you're finally brought to your desktop, it's time to install device drivers for your system. We need to install all the various drivers for your motherboard, video card, modem, etc. These drivers are very specific to your computer. You should have received CDs or diskettes with the correct drivers on them when you purchased the computer. If you didn't, you can email us at help@missionarytechsupport.com and we'll help you find and install your needed drivers. It can be a long and complicated process.

Step 7: Restoring Your Files

Once all your drivers are installed, we need to restore the files you backed up before the reinstallation began. For the most part, you may simply copy the folders back where you found them with the exception of Microsoft Outlook, Outlook Express and your address book.

Restoring Microsoft Outlook

To restore your Microsoft Outlook data, install your Microsoft Office with Outlook. After the required restart you should start Outlook once, but don't set up any accounts or input any data. Close Outlook and fire up your Windows Explorer. You can restore the Outlook settings and data back into their correct folders (the same folders you backed them up from.) Now open Outlook again and you're ready to go.

Restoring Outlook Express Emails and Address Book

To restore your Outlook Express emails:
1. Copy your backup of the Outlook Express store folder into a temporary folder on your hard drive. On the desktop will work great.
2. Open **Outlook Express** and click on **File-Import-Messages**.
3. Highlight **Microsoft Outlook Express 5** and click **Next**.
4. Click on the radio button **Import mail from an OE5 store directory** and click **OK**.
5. Browse to your saved **Identities** folder on the desktop... you'll find a unique numbered/lettered folder inside it that starts and ends with { }. Inside this folder, you'll need to click on the plus signs (+) to \Microsoft\Outlook Express\. This is where your emails are stored.
6. Click on the **Outlook Express** folder. The **OK** button with appear; up to this point it has been shadowed.
7. Click on **OK**. The wizard will ask which folders you want to import.
8. Choose the **ALL** radio button or choose each folder individually and click **Next**.

Tada! You've got your old emails.

To restore your address book:
1. Copy your backup of the address book into a temporary folder on your hard drive. On the desktop again will make it easy. If you're copying from a CD, you need to change the file properties so the .wab file isn't marked **Read Only**. Do that by right clicking on the .wab file and choosing **Properties**. Remove the check next to the box reading **Read Only**.
2. Open **Outlook Express** and click **File-Import-Address Book**.
3. Browse to the **Address Book** folder you saved in step 1 and click on the .**wab** file inside that folder.
4. Click **Open** and you've got your address book back!

Feels good to have a clean installation of Windows but it was a lot of work. Near-line imaging (Appendix B) can give you that fresh reinstallation feeling without all the work next time.

Appendix B - Near-line Imaging

Near-line imaging is making an exact copy of your file system on CD. Think of it as making your own restore CDs. If something ever happens to your installation, like your hard drive goes south, you get ravaged by a virus, or your little angel deletes all your configuration files, you can have your system back up and running in just a few minutes. Just the way it was with all your files and settings exactly the way they were when you made the image.

Norton Ghost

You'll need special software to create and restore a near-line image. The software of choice is Norton Ghost 2003. Easy to use and super fast, Ghost will allow us to use our internal CD-RW drive to create our own custom restore CDs.

If you've just reinstalled your Windows operating system, you should run Windows Updates, install all your software and get everything just the way you like it, then make your near-line image before you put all your data back on your computer. That way you never have to go through that reinstallation headache again. Just keep current backups of your original data around and you could be back up and running when something bad happens again.

We'll be performing all our near-line imaging from Ghost's floppy disk so you'll need to install Ghost on a working Windows computer to make a Ghost floppy.
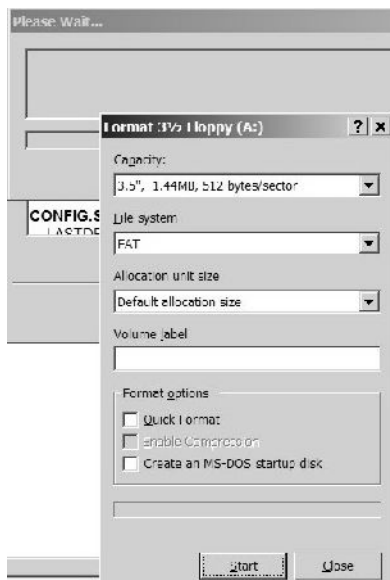
Ghost Floppy

With Ghost installed open it by clicking on it in the **Start** menu. Click on **Ghost Utilities** on the left hand side and then **Norton Ghost Boot Wizard** on the right. **Standard Boot Disk** should be highlighted by default so just click **Next**. If you'll be Ghosting to an external USB drive check the **USB 1.1 Support** box before clicking **Next**.

Simply click **Next** on the **DOS Version** window and the same for **Ghost Executable Location** window.

In the **Destination Drive** window be sure to uncheck the box next to **Quick Format** so you can be sure your floppy diskette is good before the Ghost files are copied to it. Click **Next**.

Click **Next** on the **Review** window and your Windows format utility will open ready to format your floppy diskette.

After you've successfully formatted a diskette with no bad sectors, click **Close** to close the formatting window and Ghost will commence to writing to the disk. When all the files have been copied to the floppy you simply click **Finished** and you're ready to go.

Note: If you receive a write error when Ghost is writing the files onto the floppy, you have a bad floppy diskette and should try a different diskette.

Ghosting Your Hard Drive to CD-R

Place your Ghost floppy in the diskette drive and turn the computer on. Your computer should boot from the Ghost floppy and the following screen should appear. **

Click **OK** or press **Enter** twice if your mouse is not recognized. Now use your keyboard's right arrow key to choose **Local-Disk-To Image** and press **Enter**. Your default hard drive should be highlighted. Press **Enter**.

In the **File name to copy image to:** you'll need to point Ghost to your CD-RW drive by pressing **Tab** eight times then use the down arrow to highlight your @CD-R1 drive. Press **Enter** to select it and press **Tab** three times to highlight **Save** and press **Enter**.

At the **Compress Image** window use the right arrow key to highlight **High** and press **Enter**. Press **Enter** again to select **Yes** in the **Make CD/DVD Disc Bootable** window. When questioned if the floppy is ready in the diskette drive use the arrow keys to select **Yes** and press **Enter**. Ghost will then read information from the floppy and give you an approximation of the total number of CD-R discs it will take to create your near-line image. With **High** compression you can figure 1 CD-R disc for each 1.5GB of data on your hard drive. Ghost usually guesses too high but be sure you have plenty of CD-R discs on hand before starting.

Select **Yes** and then press **Enter** to start the imaging process. Ghost will prompt you for empty discs when needed.
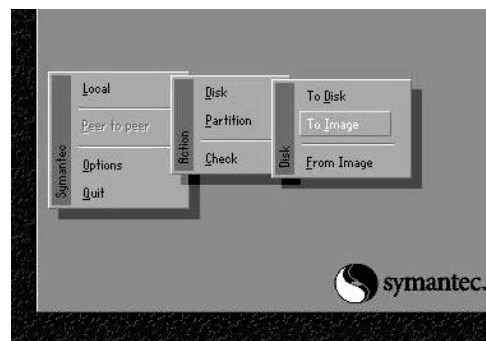
Using Your Custom Restore CDs

Put the first of your series of restore CDs into your CD-ROM drive and start your computer. If your computer doesn't boot from the restore CD you may need to change the boot order in your BIOS.

At boot you will see an error message.
1. Press **A** to bypass the error message
2. Press **Enter** at the **About Norton Ghost** screen
3. Use the arrow keys to navigate to **Local-Disk-From Image**
4. Press **Enter** when highlighting **From Image**

5. Pressing **Tab** eight times will highlight the **Look in:** box at the top
6. Press the down arrow key once to highlight the **@CD-R1**....
7. Press **Enter** to select it.
8. Press **Enter** again to continue the restore process
9. Press **Enter** to select drive 1 as the destination
10. Press **Tab** to highlight **OK** and then press **Enter**
11. Use the arrow keys to highlight **Yes** and then **Enter** to start the restore process

When prompted, replace the first CD with the second and so-on. Wait 30 seconds after putting a new disc in for the disc to spin up and then press **Enter**.

When the restore is complete, remove the CD and restart the computer. And Walla! You're right back to where you were when you make the near-line image.

Don't forget to restore your most current backup of your original data when you're finished using your custom restore CDs.

Appendix C: - Networking

Computers are great tools for missionaries standing all by themselves but when you connect them together in a network, watch out! You're about to get some work done.

There are many reasons to network your home or mission office computers. But the best reason is the one you learned in kindergarten: sharing.
- Sharing a single Internet connection
- Sharing files
- Sharing printers
- Share a friendly capture-the-flag game

Sharing a Single Internet Connection

Probably the most popular reason to network your home computers is to share an Internet connection. It's cheaper than putting in a second line for your kids to do their schooling online.

If you have a high-speed connection like DSL or Cable then you're not a real missionary. Just kidding! You're making the rest of us jealous. You can easily share all that bandwidth with the other PCs in your home or office. Even if you only have a lowly modem connection you can share it out to another computer or two and you can all crawl along together.

Note: Many Internet Service Providers require you to pay an extra charge each month if you use more than one computer on their connection. Be sure to ask.

Sharing Files

While usually not needed in a home environment, file sharing is a great way to get everyone in your mission office on the same page, no pun intended. While most files can only be edited by one person at a time the fact that you can get rid of the sneaker net (copy to a floppy and running to the other computer) is an attractive proposition.

If your office has quite a few people in it, you may want to install a computer to keep all the files in one place (a file server), automate backups, and allow everyone to share appointment calendars and contact lists.

Sharing Printers

It makes no since purchasing every computer a big expensive printer. Hook 'em all up and you can print from any computer to any of the printers connected to your network. I

know many missions that have one nice laser for most of the text printing and one nice inkjet for all the color stuff. It cuts down on having 10 different kinds of ink cartridges too.

Share a Friendly Capture-the-Flag Game

If you've got a boy in the house ages 10 to 32 then you probably have some computer games on the PC as well. If he hasn't already told you, networking the computers will allow you to play with, or more specifically against, each other. It can be great fun as long as your wife doesn't get too mad when you never let her win.

Network Hardware

There are many ways to create a network. Depending on your physical location and the depth of your pocketbook some will work betters than others. We'll list them here from cheapest to most expensive. For more advice on what kind of network to look into please email us at help@missionarytechsupport.com.

- **Direct Cable Connection**
- **CAT-5 cabled**
- **PowerLine adapters**
- **Wireless access points and adapters**

Direct Cable Connection

Hardware Needed
- 25-pin Direct Connection Parallel cable up to 25 feet - $15 or…
- Direct Connect USB cable up to 14 feet - $30

This is a two-computer network only. It will allow you to share files, printers and an Internet connection. Because of cable length restrictions, it's best suited for two computers in the same room or on opposite sides of a wall. The speed is only 0.5Mbs for a parallel cable, 12Mbs for USB 1.1 or 40Mbs for USB 2.0.

Depending on your version of Windows, direct cable connections will either be very difficult or only somewhat difficult. I would advise you to avoid this type of networking at any cost. It's not worth the hassle.

CAT-5 Cabled Network

**Hardware Needed**
- CAT-5 or CAT-5e cable - < $0.07 a foot

- Ethernet Network Cards, also known as a NIC, in each PC - $20
- RJ-45 connectors and a crimping tool. If you're using bulk cable you'll have to install the terminators yourself. - $1 per RJ-45, $35 for the crimper.
- A hub or switch for 3 or more connected computers - $45 for a 5 port switch
- A crossover pigtail for 2 connected computers. Unless you want to make one of the cable ends a crossover. - $6

This is the most common type of network partly because it's so easy to install and partly because it's so cheap. The hardest part is stringing the cable from a central location out to every PC. Every computer needs it's own cable to the hub or switch so you may be stringing a lot of cable. Good thing the cable is pretty cheap.

Find a central location for your hub or switch and run the cable to each PC. The cable is very sensitive so be careful not to kink it or strip off the shielding. Also avoid running parallel to power cables or within 12 inches of florescent lights.

If you purchase cables with ends already on them (called patch cables) then you only need to plug the cables into the NICs and your hardware setup is finished. If you need to crimp the ends on the cables then I pity you. It's no fun. Below is the color code for crimping. Remember to try to preserve the twist of the pairs as close to the connector as possible.

Front view of the RJ45 MALE pin.

Pin 1 → 8
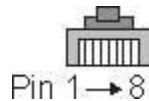
Following are the pin-out for straight cable.

Pin	Wire Color
1	White/Orange
2	Orange
3	White/Green
4	Blue
5	White/Blue
6	Green
7	White/Brown
8	Brown

For a crossover end:

Pin	Wire Color
1	White/Green
2	Green
3	White/Orange
4	White/Brown
5	Brown
6	Orange
7	Blue
8	White/Blue

If you're connecting only two computers then you don't have to have a hub or switch. A crossover cable will do the trick just fine.

NIC (Network Interface Card)

Most new computers have NIC (or LAN) connectors built into the motherboards so all you need to do is find it and plug it in. If you don't have a NIC you can purchase a PCI NIC and install it yourself. It's not brain surgery.

Depending on your hub, switch, and NICs, your network will run at 10Mbs, 100Mbs or 1000Mbs. All new NIC cards are at least 10/100Mbs and most hubs and switches are either 10/100Mbs or just 100Mbs. For Internet sharing, you'll see no difference between a 10Mbs network and a 100Mbs network since most of your high-speed connections are only 0.25Mbs (256Kbs.)

PowerLine Adapters

Hardware needed:
- PowerLine Adapters for each PC - $80
- USB or Ethernet ports depending on what adapters you purchase

A PowerLine network uses the existing electrical lines in a building to transmit the network signal up to 11Mbs. It works very well and is truly easy to set up. The only drawback for missionaries is that it's only available for those with 110 volt, 60 cycle power. That cuts out nearly 2/3 of the countries missionaries work in. If, however, you're blessed to work in a 110/60 country this may be a great way of getting out of stringing cable. The range of the adaptors is limited to a single phase and will not cross a transformer; meaning basically in one building although I have seen it used to bridge two buildings wired together in the same compound.

The adapters come in USB and Ethernet connection types. I recommend the Ethernet connection, as the USB can get cranking with power saving features making you loose your connection in the most inopportune times.

Install the software that came with the adapter; hook up the adapter and pick a password. The password has to be the same in all the adapters and you'll need one adapter for every PC you want to connect as well as one for your hub or switch. You can use one of your computers to set the password on that adapter.

Once they're all set with the same password and you plug them in… you're all set. 11Mbs is not very fast for file sharing or transfers but it works well for print and Internet sharing and an occasional file transfer.

Wireless Access Points and Adapters

Hardware needed:
- Wireless access point - $60 to $250 depending on type a, b, or g
- Wireless Adapter for each PC - $35 to $150 depending on connection type (USB, PCI or PCMCIA) and network type a, b, or g

Wireless networking has made a huge splash in the last year or so and can be a great way to network a building or small mission station without having to string cable or dig ditches. Signal strength varies depending on your building's construction. Drywall and wood floor buildings work best while cinderblock and concrete will cut your signal strength significantly.

Wireless networks currently come in three flavors: 802.11a, 802.11b, and 802.11g. The most popular by far is 802.11b but 802.11g is quickly taking its place for reasons we'll discuss. Each has its strong points and its not-so-great points.
- 802.11a – Greater speed (up to 54Mbs) but smaller broadcast area (about 100 feet)
- 802.11b – Slowest speed (up to 11Mbs) but largest broadcast area (about 300 feet)
- 802.11g – Step up from b. Good speed (54Mbs) and broadcast area almost as large as b (>200 feet)

The biggest thing is compatibility. 802.11a is not compatible with 802.11b. 802.11g is compatible with 802.11b but not 802.11a.

So it boils down to this… purchase 802.11g products if you can afford them. They are more expensive. Otherwise get 802.11b because they will work with the new 802.11g products coming out.

Security

Wireless security is a big issue and there are volumes on this topic. We won't cover much here other than a few pointers.
- Change your SSID – Don't use the default SSID for your access point.
- Enable WPA or WEP encryption – Otherwise anyone can connect to your access point easily.
- Disable SSID broadcasting – Only those who know your SSID and WEP code can connect.
- Enable MAC filtering – Only the MAC addresses of listed adapters can connect.

Adapters

There are three basic ways to hook up a wireless adapter to a computer.

- USB – These adapters will work for desktop machines as well as laptops and are the cheapest way to connect.
- PCI – Only works for desktop machines as laptops don't have any PCI slots. Adapter gets installed inside the computer.
- PCMCIA – Basically for laptops only. They're the credit card type adapters and can be very expensive.

Network Basics

Nearly all modern networks are based on the TCP/IP networking protocol. This gives each computer and device a unique number such at 192.168.1.10. This number can be manually assigned (Static IP Addressing) or automatically assigned (Dynamic IP Addressing) by a DHCP server like a router.

For your computers to "see" one another on the network they must be in the same subnet. A subnet is a range of IP address numbers that can talk to each other. The IP addresses 192.168.1.1 to 192.168.1.254 are commonly all in the same subnet of 255.255.255.0.

Next, you'll need to be sure all your Windows computers are all in the same **Workgroup** and that each computer has a unique computer name. A Workgroup is a name for your little network of computers (example. MISSIONTS) The default Workgroup name for Windows 95/98/2000 and XP is WORKGROUP. Not very original is it. So the first thing we need to do is create a workgroup name and change all our computers to be on that workgroup. Next, we need to be sure that each computer has a different unique computer name.

Windows 95/98/ME – Right click on **Network Neighborhood** on the desktop (**My Network Places** for Windows ME) and choose **Properties**. Change to the **Identification** tab and type in the workgroup name (the same for all computers) and computer name (different for each computer) in the appropriate boxes and click on **OK**.

Windows 2000 – Right click on **My Computer** on the desktop and choose **Properties**. Change to the **Network Identification** tab and click on the **Properties** button. Type in the workgroup name (the same for all computers) and computer name (different for each computer) in the appropriate boxes and click on **OK**.

Windows XP – Click on **Start** then right click on **My Computer** and choose **Properties**. Change to the **Computer Name** tab and click on the **Change** button. Type in the workgroup name (the same for all computers) and computer name (different for each computer) in the appropriate boxes and click on **OK**.

Now any shared drives, folder, or printers will be seen by the other computers.

Appendix D - Instructions for Windows 95/98/ME

AD-1 - Hard Drive Maintenance for Windows 95/98/ME:

To check when the last time you had scanned your disk, double-click on **My Computer** and right click on the icon next to the hard disk **C:**. Choose **Properties** on the bottom of the alternate menu and click on the **Tools** tab. Here you can see the last time you scanned the drive, the last time you backed up the data on the drive, and the last time you defragmented the file system. If any of these say Windows was unable to determine the last time you … then you've never done it.

Scandisk - settings and frequency

Scandisk, which can be found at **Start**-**Programs**-**Accessories**-**System Tools**, has two basic settings: **standard** and **thorough**. A standard scan will check for FAT problems to make sure you don't write over the top of another file by accident. A thorough scan will check the FAT and scan the surface of the disk for bad sectors. A standard scan should be preformed once a week and a thorough scan at least once a month.

In the Scandisk window, click the **Advanced** button. Here we see all the fine tunable options to Scandisk. It's always a good idea to **Display a summary** to see whether we have bad sectors forming on our disk. If we do have bad sectors, we may need to start thinking about buying another hard disk. Usually that bad sector number will grow as more disk failures occur and we'll continue to loose data.

The Scandisk log is pretty much useless, so any option will work for this one. Cross-linked files are files that are listed twice in the FAT. Some program has added the other listing and may not function correctly without it. Therefore, it's a good idea to have Scandisk make copies of these in this dialog box.

Lost file fragments usually occur when we loose power or we have to restart Windows with **The Three-Finger Salute**. These lost file fragments are data that are written to the hard disk but have no listing in the FAT. 97% of the time this data is unreadable and unrecoverable. Choose the **Free** option to have Scandisk make this space into free space so it doesn't take up more of our disk space.

Tech Talk: The Three-Finger Salute is pressing the **Control**, **Alternate** and **Delete** keys together.

In Windows98, this will bring up the **Close Program** dialog box where you can close programs that are not responding or restart Windows. The three-finger salute will also restart your computer if we're in DOS mode or in Windows mode if you do it twice.

I recommend checking all the remaining checkboxes except the box to **report MS-Dos filename problems** and **duplicate names** so Scandisk does a complete job of scanning. A healthy disk is a happy disk and a happy disk will last longer.

Important: Our screensaver must be disabled for Scandisk and Disk Defragmenter to run properly. We can turn the screensaver off by right-clicking anywhere on an empty part of the desktop and choosing **Properties**. Click on the **Screensaver** tab in the **Display Properties** window and choose **(None)** in the drop-down menu.

Screensavers where developed to prevent pixel burning in older monitors. Pixel burning happened when a picture on the screen remained unchanged for an extended period of time. The pixel would become permanently "shadowed" with that color. Newer monitors use more stable Pixel elements and no longer experience this problem. In fact, screensavers may actually shorten the life of your monitor as the CRT ray gun wears out running your screensaver instead of allowing your monitor to go into "sleep" mode. The only legitimate use of a screensaver is to password protect your computer while you're away from your desk. .

You may also need to close all the programs running in the background. These programs, although they don't show up on the taskbar are called **TSRs**, Terminate and Stay Resident, and some may write to the disk on a periodic basis. That makes Scandisk restart, which may mean a 6-hour scan instead of a 20-minute scan. To close background programs, give Windows a **Three-finger-Salute**, highlight a running task and click on **End Task**. Repeat this procedure for each running task other than Explorer. This is the only program needed to run Windows. Some programs may take a few seconds to close, so be patient.

A standard scan with Scandisk usually only takes a minute or two whereas a thorough scan on the same 80 gigabyte hard disk could take up to an hour.

An easier way to do it is use the RunonceEx registry keys for Scandisk and Disk Defragmenter that are on **The Disc**. They can also be downloaded from our website. If you import these to your registry, Scandisk or Disk Defragmenter will run the next time you restart your computer before all those programs get a chance to start. It's a great way around the Thee-finger Salute (doesn't work on Windows 95.)
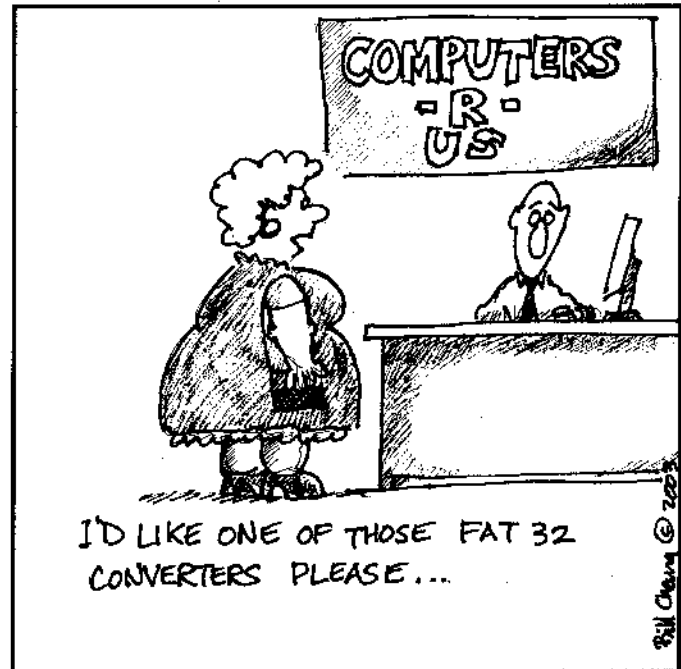
If you've upgraded from Windows95 to 98 and haven't converted your hard disk to FAT32 you may be wasting up to 35% of your disk in slack. Open the Fat32 Converter at **Start-Programs-Accessories-System Tools** and find out.

AD-2 - Disk cleanup Windows 98/ME

Windows 98 and ME also come with Disk Cleanup. We can find it by clicking on the **Start** button-**Programs-Accessories-System tools-Disk Cleanup**. This brings up the **Select Drive** dialog box with the **C drive** selected as default. Click **OK** and we'll see the **Disk Cleanup for C:/** dialog box. In the white work area we'll see a few options,

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usually: **Temporary Internet Files**, **Downloaded Program Files**, **Recycle Bin**, and **Temporary Files**. We may also see **Windows98 Uninstall** files if we've upgraded to Windows 98 from 95.

Beside these options, we'll see the amount of space each is taking up on our hard drive in MB. Click on the name of each option to see a quick description.

On the **More Options** tab we'll see where we can uninstall windows components, uninstall programs we've installed earlier and convert our disk to FAT32 if it's not already.

Drive compression

Drivespace3 is the disk compression utility that comes with Windows98 and ME. I never recommend compressing a hard drive.

Disk Cleanup for Windows95:

You don't have the leisure of the Disk Cleanup Utility, but you can get the same job done with a few extra steps. To delete the Temporary Internet files, you will need to open Internet Explorer, if you are using version 3.X, and select View from the menu bar. Then click on Options. In the Advanced tab click on Settings and then Empty Folder. To delete the Downloaded programs files, you'll need to open Windows Explorer, found in Start-Programs-Windows Explorer, and navigate to the folder you downloaded the files to and delete them manually. To delete the files in the Recycling bin, return to the Desktop and right-click on the recycling bin. Choose Empty recycling bin on the alternate menu that appears. To delete the Temporary files, open Windows Explorer and navigate to C:\windows\temp folder. You may safely delete everything in this folder including any subfolders.

AD-3 - Windows Update

Windows Update is still available for Windows 98SE and Windows ME. Windows 95 users are plum out of luck.

AD-4 - Defragmenter - settings and frequency for Windows 95/98/ME

Windows writes to the hard drive every time you close a program or save a document. To make the closing or saving as fast as possible, it writes the data on the hard disk wherever it finds space the fastest. This usually isn't all together. This means parts of a file are on one cylinder and parts on another, a little piece over here and a little piece over there. So the next time you open that document or program, Windows has to go looking for where it threw all that data and that can take a long time. To put everything back in linear order

Windows has **Disk Defragmenter**, which can be found in **Start-Program-Accessories-System Tools**.

In the **Select Drive** dialog window, click **Settings**. Here we have three options. If you check **Rearrange my drive so programs start faster,** a little program called **TaskMonitor** will begin every time you start your computer and log every file and program you open. Disk Defragmenter then uses this log to place the 10% of files you access most frequently on the beginning of your hard disk, the outside edge where it spins faster and will read faster and, theoretically, open the programs faster. I find the TaskMonitor program running in the background to slow a system down far beyond its benefit. It's a good idea but TaskMonitor has too big of a memory footprint to justify it running constantly.

If you check **Check the drive for errors,** then Disk Defragmenter will run a standard Scandisk scan before it defragments the disk. Because you should run the Disk Defragmenter about once a month, (same as Scandisk with thorough option) I suggest running a thorough Scandisk just before Disk Defragmenter, therefore this option is not needed. If you haven't scanned the drive before running Disk Defragmenter then please check this option.

MELVIN THE SOUND GUY'S SWIMSUIT SCREENSAVER POPS UP UNEXPECTEDLY DURING THE LAST HYMN...
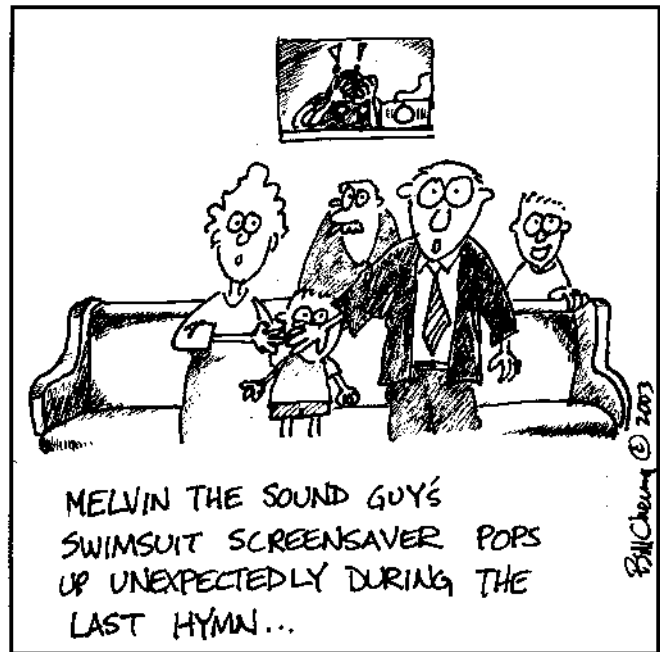
Once Disk Defragmenter has started it may take more than 4 hours to complete if you're using TaskMonitor. Disk Defragmenter works fastest with TaskMonitor turned off, Details Hidden and the window minimized, but you can watch those little blocks get lined up and turn green if you're really bored. Remember to turn off your screensaver, if you use one, and close all programs running in the background as with Scandisk.

AD-5 - System Configuration Utility

You can also access the **System Configuration Utility** by typing **msconfig** in the **Start-Run** dialog box. For those using Windows 95 a handy tool similar to the system configuration utility called **Startup** will give you control of the same settings. **Startup** is on **The Disc**.