

The BEACON



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Reducing the Pain of an OS Upgrade

By: Mark Siegesmund



A lot of our customers are upgrading their operating systems frequently due to hardware failures. Others are holding on to a OS they know, out of fear of the unknown. This article covers some of the basic concepts of upgrading. Hints and links to utilities are provided to help make the new operating system effective.

A quick history lesson showing the most important releases:

1985	Windows 1	No one really noticed, everyone is using MS-DOS
1992	Windows 3.1	The first release of Windows that caught on
1995	Windows 95	Big clean up of 3.1, now 32 bit, more consumer friendly
1996	Windows NT 4.0	A lot of hype, New kernel, High Security, Big flop
1998	Windows 98 & ME	95 with out of the box networking and better graphics
2000	Windows 2000	A cleaned up version of NT marketed to corporations
2001	Windows XP	Modernized version of 98, well received, also a 64 bit version
2007	Windows Vista	Took NT/2000 and put in the popular XP features, flop
2009	Windows 7	Vista minus what people didn't like most
2012	Windows 8 & 8.1	7 plus a smart phone like human interface, flop
2015	Windows 10	Took 8 and made the user experience more like XP
	...	Microsoft says there will be no more names. They have had several major versions since the initial release, all called Windows 10. Each release seems to be more internet/cloud dependent.

Compatibility

The primary concern for application programs is if they are 16, 32 or 64 bit programs. Windows only allows running one step down. A 64 bit Windows 10 will not run old 16 bit programs. It can, however, run a 32 bit Windows 10 on a 64 bit machine. A 32 bit OS can only access 4 gig of memory, so be aware. Sometimes the programs themselves will check the OS version and they will not run if it is higher than what they are designed for. Windows has a way around this where users can set it up to lie to the application about what the version is.

Drivers are much harder to use between versions of Windows. Check to see if the drivers needed, like for a printer or other connected device, are available for the new OS version. Using the older drivers on a newer version of Windows frequently will not work.

Upgrading from Win7 or Win8 to Win10 the Windows will keep the programs installed. To upgrade from older systems, upgrader programs like Laplink can help. Either way, Windows keeps a copy of all old documents in a file called c:\windows.old. After installing, the first step is to rename that file. Windows will delete it when it thinks it is unneeded.

Virtual Machines

Virtual machine software allows users to customize an environment that can emulate a specific hardware platform. This allows loading another operating system running under the primary operating system. For example, on a new Windows 10 system, virtual machine software can be installed and then load a full XP operating system on the same machine. In the case of Windows, a license key is still required to install it. When discarding an old XP or other machine, keep the key so it can be used



for a virtual machine. Older programs and drivers should be able to run under the virtual machine. XP runs extremely fast on a modern PC. A virtual machine is a great way to start playing with Linux. Most Linux operating systems are free. 16 bit programs from the Win98 days can still be used on a virtual machine. See the references at the end for help getting started.



XP running under Win10

About Windows 10

Out of the box Windows 10 is strongly tied to the internet. Some users will appreciate the convenience of keeping things up to date behind the scenes and giving hints based on internet queries. Other would prefer their OS would only access the internet when specifically requested. When first installing Win10, disconnect from the internet to bypass creating a Microsoft cloud/email account. After installing, there is a utility that can be used to control privacy settings. See the references for a link. For total control, use an outgoing firewall. This can be used to block any program not specifically authorized from accessing the internet. There is a bit of a learning curve setting this up properly, but it can be very effective. It may bother people that the XBOX software they never use or installed is doing who knows what on the internet, then this will help. XBOX seems to be one of the software programs Microsoft installs and does not let users uninstall.

Win7 to Win10

It may still be possible to upgrade from Win7 to Win10 for free. You can try using your Win7 license key to activate Win10. There is more information on a link in the references. Win10 can be download from Microsoft, burn it to a flash drive using Rufus and use the existing key to get a fresh install of Win 10.



Hard Drives

Windows 10 can only be installed on a disk with the newest file system type (NTFS). There will be no problem starting with a clean drive. Otherwise the older FAT32 file system needs to be converted to NTFS before installing Win10. Note that there are two popular disk formats, MBR and the newer GPT. Windows 10 will work on both but if starting clean it would be best to format the drive for GPT and a NTFS file system. The last time I tried to install Win10 on a FAT32 partition I got a cryptic error with a giant number. The error messages may have improved since then.

Removing Extras

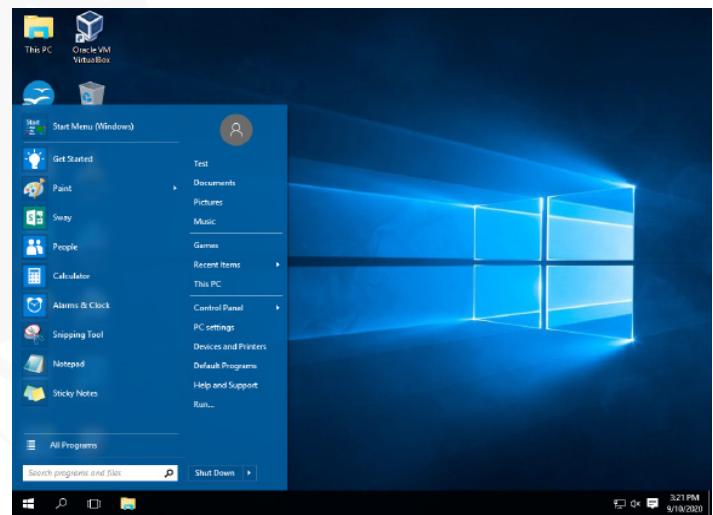
There is another utility that can be used to uninstall programs users do not plan to use. This is an easy way to get rid of a lot at one time. Be aware there are two type of programs under Windows 10. The traditional type of programs run when double clicked on or set them up to run on startup. The newer style programs are called apps and those are usually running in the background. Menu squares (a.k.a live tiles) on the Win10 start can be seen with programs showing the current weather and news when users click on start. These are the mobile phone style apps that are running.

Start Menu

Many find this new style of start menu hard to use, especially for traditional programs. I have a recommendation for yet another utility that will restore the start menu to something more traditional (and usable). This is the first thing I install on Windows 10 systems.



New Win8/10 style start menu



A more traditional start menu



Web Browser

Microsoft Edge is the newest web browser. Microsoft works very hard to get people to make that the users default browser. Even if users resist and install another browser like Firefox, Edge keeps coming back. Edge runs as an app and some Apps like that do not run when users operate as an administrator, so I never gave it much of a chance. I never was a fan of the Microsoft browser, since the older IE seemed to be a virus magnet and tended to corrupt downloads. The newest version of Edge has a Chrome engine behind it so it works very similar to Chrome. I do not have an opinion as to how good it is. I have not had trouble with Firefox so that is what I use. Many others seem to prefer Chrome.

File Security

File security will take some getting used to if users are coming from XP. There is a way to turn off all file security but Windows will punish users if they do it. The security is set up as if they had a lot of people using the same PC and want to keep some data private from other users. The problem is the vast majority of people have one user per PC and file security just gets in the way. It is further complicated by special rules and exceptions to try to keep popular older programs running. For example, in the XP days, a lot of programs kept user settings in the program files directory. Win10 does not allow writing to that directory, so when a program attempts to do that, they put it somewhere else instead. When a program tries to read the data from program files it goes to the secret directory to get the file. It works alright, until a user tries to delete files or move data on their own. My recommendation to reduce grief is to just put all the files created somewhere under the documents folder. By default Windows makes those files broadly accessible. If users have programs written before 2006, they probably want to install the programs directly under Documents instead of under program files or directly under c:\.

Administrators

If there is only one user, then they are probably set up as the PC administrator. In Windows 10, that does not mean what it used to. For programs that require administrator privileges, users will be prompted to confirm they want to run it. For programs that need administrator privileges, but do not know it, or were written before Win7 they need to right click on the icon and select RUN AS ADMINISTRATOR. There are some exceptions to make things less objectionable. For example, if they run a program with setup in the name it will run as an administrator. There is also a hidden administrator account that will give users more privileges if they log into it. Google “hidden administrator” for more details. Some buttons in Windows will have a shield on them, meaning if users click on it, it will do what they want in administrator mode. This replaces the nag that would pop up in older versions.

Updates

Unlike previous versions of Windows, Windows 10 makes it very hard to prevent automatic updates. We bring a bunch of laptops to shows to use in demos and we frequently have a laptop or two down for a couple of hours doing an update. Newer versions of Windows allow users to defer updates for some (small) number of days. Frequently the updates begin when users first power on the PC and I have not found a way to stop it. PC's could be in transit for more than a week before being powered up so the deferral feature is less useful. If users get internet over WiFi they can mark the WiFi



connection as being metered and then tell the update utility not to update over metered connections. This is the easiest way to stop updates. A reference is provided for more advanced situations. Be aware when it is updated, these tricks likely will change.

Searching

Starting with Win7, searching became a bit difficult in Windows. They now have a search box in the upper right of the file explorer window for searching. When they start typing in there, other search options appear at the top of the window. This only searches the computer drives for the files users are looking for. I frequently have trouble getting this to find all the files and I have not figured out why. It may only look for certain types of files. I use a command line version of grep for local searches but would prefer a good GUI version. In Win10 users can also press the Windows key and S to bring up a search window. That version of search sometimes also looks on the internet. The search Microsoft is pushing in Win10 is called Cortana. It will transfer audio from the Mic or typed in questions to Bing for answers. The easy way to just turn it off is to right click on the taskbar and select SEARCH > HIDDEN. See the references to prevent the audio from being sent to Microsoft.

Backup

We all know backing up is important, or at least we do when a drive crashes. To avoid crashes, users may want to just replace their hard drive after 30,000 hours of use. The cost is low compared to dealing with a crash. The most annoying thing I have found in backup utilities is many companies stop supporting their own backup formats in newer versions of the software. For example, within Windows I can not read my Win98 backups under Win10. For people that do not have a lot of data, just coping everything to a DVD periodically is one solution. I found the Win7 backup program works well. By installing a second backup drive users can set it up to automatically keep an archive of their data on the second drive. Win10 includes the Win7 utility, but it needs to be turned on. I am currently using the EaseUS backup utility and have found it effective, but it does have a learning curve. The Win10 out of the box backup might work for some people, but it does seem to think it is smarter than the user and it does some scary stuff. One more hint, make a copy of the C:\boot directory if a full backup is not done. I have had that directory get corrupted twice during a power fail. When corrupted, the PC will not boot.

Conclusion

It takes some effort to configure Windows 10 to be most effective for users, however, it is quite usable. As for bugs, it is probably about the same as XP. The difference is we have had time to get used to the XP issues. Windows 10 blue screens maybe once a month, about the same as XP and much better than 98. More and more software is only available for Windows 10 and many companies will not provide support for older OS hosts. It can be valuable to upgrade during free time.

References: List has URL links and a search term to use if the link does not work.

Better Start Menu

Search: open shell download

[https://github.com/Open-Shell/Open-Shell-Menu/releases/download/v4.4.152/
OpenShellSetup_4_4_152.exe](https://github.com/Open-Shell/Open-Shell-Menu/releases/download/v4.4.152/OpenShellSetup_4_4_152.exe)



Privacy Settings Utility

Search: OOSU10

<https://www.oo-software.com/en/shutup10>

Fast Uninstaller Tool

Search: Bulk Crap Uninstaller

[https://www\(bcuninstaller.com/](https://www(bcuninstaller.com/)

Virtual Machine

Search: VirtualBox

<https://www.virtualbox.org/wiki/Downloads>

Free Linux

Search: Linux Lite or Ubuntu

<https://www.linuxliteos.com/download.php>

Maybe get a free upgrade from 7 to 10

<https://www.cnet.com/how-to/how-to-download-windows-10-for-free-now-that-windows-7-is-dead/>

Convert drive to GPT or manage drive partitions

Search: Mini-Tool partition manager

<https://www.partitionwizard.com/free-partition-manager.html>

Stop auto update

Search: stopping windows 10 update

<https://www.windowscentral.com/how-stop-updates-installing-automatically-windows-10>

Really stop voice activated searching

Search: getting rid of cortana

<https://gadgets.ndtv.com/laptops/features/how-to-disable-cortana-on-windows-10-1683223>

Find out how many hours the hard drive has run

Search: crystal disk info

<https://crystaldiskinfo.info/en/software/crystaldiskinfo/>

Outgoing Firewall:

Search: WFC firewall

<https://www.binisoft.org/wfc.php>

The older style calculator

Search: Microsoft Calculator Plus

http://download.cnet.com/Microsoft-Calculator-Plus/3000-2053_4-10628441.html

Coronavirus: How amateur radio is connecting people during lockdown

By: Vanessa Pierce BBC News



Amateur radio use in the UK has seen a "significant" rise during the coronavirus lockdown as people seek new ways of staying connected. The national body that represents users - the Radio Society of Great Britain (RSGB) - has said many people who formerly enjoyed the hobby are also returning to it.

Mark Rider's social life before the coronavirus lockdown consisted of the occasional trip to the pub, rehearsing with musician friends and visiting his wife in her care home.



"But when I knew that wasn't going to happen any time soon I decided to dust off my amateur radio equipment to seek out some other social interaction," he says.

Mr Rider, a retired engineer from North Warwickshire, said "ragchewing" - or chatting to people on the airwaves has become one of the highlights of my day".

"Because I live on my own, and because of lockdown, I knew I couldn't do what I used to do, which wasn't going to be very good for me or my mental health."



The 67-year-old says keeping in touch with others has been more important since his wife was taken into care after a stroke.

"Just speaking to somebody else in the same situation is very rewarding," he says.

The RSGB defines amateur radio as a "technical hobby for people who want to learn about, use and experiment with wireless communications", like Mr Rider, who uses his radio kit to speak to others using designated radio frequencies.



Steve Thomas, RSGB general manager, says the organisation has experienced a threefold increase in the number of people asking to sit licensing exams since social distancing rules came into place. There are currently about 75,000 licensed users in the UK.

“Across the country, clubs and individual radio amateurs are supporting one another by setting up ‘nets’, or online meetings,” Mr Thomas says.



Anne-Marie Rowland has been running twice-weekly meetings to help keep people in contact.

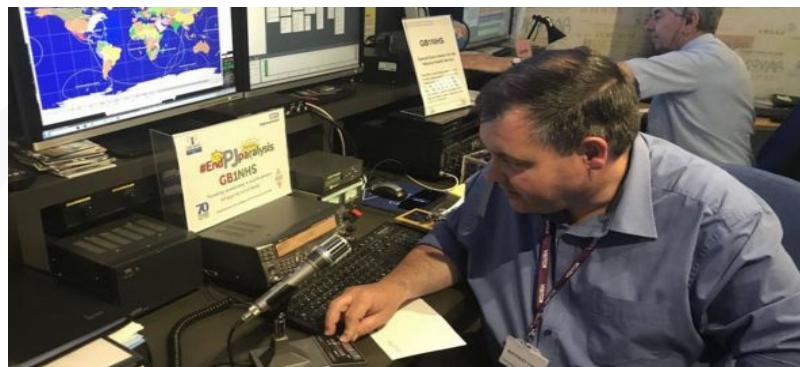
The 11-year-old from Leedstown near Hayle in Cornwall, who has held a licence for about a year, set up the transmissions with the Cornish Amateur Radio Club to help keep people in contact during lockdown.

“We have some regulars but also some new people join in,” she says.

Dad Bill, who also runs a weekly meeting, says “we’re always available with the radio on, there are a lot of older people out there self-isolating, so this helps them feel connected”.

Amateur radio users have also been showing their support for the NHS by adding “/NHS” as an extension to their call signs and taking part in a “get on the air to care” campaign (#GOTA2C), aimed at supporting the emotional health and wellbeing of the radio communications community.

An amateur radio call sign, issued by the Government Office for Communication (Ofcom), is a series of letters and numbers unique to each radio operator and allows enthusiasts to identify each other and establish which country they are in.



Paul Devlin, from the NHS Emergency Care Improvement Support Team, launched the campaign in an “unprecedented” partnership with the RSGB, whose National Radio Centre is based at Bletchley Park in Milton Keynes.

He was responsible for creating the health service’s amateur radio station GB1NHS.

“The NHS is the only government level organisation to routinely use amateur radio to help improve the lives of communities globally,” he explains.

“We want radio operators to simply get on the air, reach out to fellow enthusiasts and check how they’re doing,” says the 55-year-old from Lichfield, Staffordshire

“Being such a well-recognised brand, whenever GB1NHS is on the air we have queues of radio operators wanting to engage with our messages.”



The National Health Service and the Radio Society of Great Britain
Working in partnership to improve the health and wellbeing of our communities

www.rsgb.org/gota2c

I first got hooked by the magic of radio as a schoolboy in Nuneaton. I passed the necessary technical exam and Morse test and got my call sign (G4AEH) dangerously close to my A-Level exams.

Listening to the pirate stations in the 60s made me want to work in radio. When most of them were closed down, tuning around the shortwave bands on a radio that my mum bought for me at a church jumble sale led me to amateur radio.

That was over 50 years ago and even though I spend a lot of time reading the news and introducing



programmes for the BBC, communicating around the world with an antenna I've made from a few bits of wire is still part of radio's magic.

Amateur radio is ideal for social distancing and it's no surprise that more and more people are turning to it during this crisis. Social media and video calls are OK, but depend on there being sufficient internet bandwidth for efficient communication.

You can't FaceTime the International Space Station, but there have been occasions when radio amateurs have been able to speak to the astronauts via their radio sets in a shed or back bedroom.

The digital world and amateur radio can exist side by side. There's no way the new kid on the block will replace the magic of talking to someone on the other side of the world with less power than it takes to run a light-bulb. It's science in action.



The RSGB introduced remote invigilation in the middle of April to allow people to take their foundation exam - the entry step to obtaining an amateur radio licence.

Pete Sipple, 50, from Leigh-on-Sea, who runs the Essex Ham amateur radio club with his wife Sarah, has been offering online training courses for the exam for some time but says since the coronavirus lockdown he's seen a "massive" surge in demand.

"We've had 1,135 people apply for a course so far this year, and due to the Covid demand, are running two courses a month instead of one," he says.

Mrs Sipple, 46, says she's noticed a rise in transmissions from people who haven't been on air very recently.



"Pete has been getting messages saying, 'I haven't used the radio for six or seven years, can you just help me get back into it?'"



Callum McCormick, a 61-year-old antenna manufacturer, hosts a daily amateur radio welfare "net" for the over-65s from his home in Lapworth, Warwickshire. It has reached hundreds of users, with thousands more watching via his YouTube channel.

"The oldest user who has been in touch is 101-year-old George from Dorchester who just wanted to call and tell us he and his wife Ivy were being looked after by their daughter and were OK."

Mr McCormick says he was able to help one disabled and housebound user "who was down to his last half cup of milk".

"He'd been calling in and over the days I'd clocked he needed help, so I managed to mobilise a response to get some shopping to him and he's now being looked after by the council," Mr McCormick says.

"I wanted to do something for the old boys who were feeling a little bit lost and isolated."

Pearce, Vanessa. (2020, May 04). "Coronavirus: How amateur radio is connecting people during lockdown." BBC News. <https://www.bbc.co.uk/news/amp/uk-england-52442553>.

Solar Power

By: West Mountain Radio Staff



Given that many amateur radio stations are away from AC at least some of the time, battery power is important. There has been considerable interest in recharging those batteries with solar power. The article covers some of the basics for getting started with solar power.

Selecting a Panel

Panels are rated in Watts, and assumes ideal light conditions. There are different technologies of panels that are about the same, except for the flexible panels, which are much less efficient. With a flexible panel, it is difficult to find enough light to get the stated Watts out. They do not always produce what they claim, even with the normal rigid panels . Be suspicious if the panel size seems to be smaller than the size of other panels that have the same Wattage. It seems most panels are 15W-17W per square foot.

Some panels will have frames with stands or carrying cases. Some are just the plain panel. The prices do change rapidly. Searching Amazon may be the best way to find a deal. Currently, Amazon had panels from \$0.88 to \$1.89 per Watt. Most of the more expensive ones had more options for mounting and travel.

The 150W panel is a good size for amateur radio use and the 100W panel seems to be the most popular size, and either will perform well. The charge current will depend on the charge controller capability, the max charge rate of the battery and the stage of charging. If you go larger than 100W then there will be more success in charging at 100W with less light.

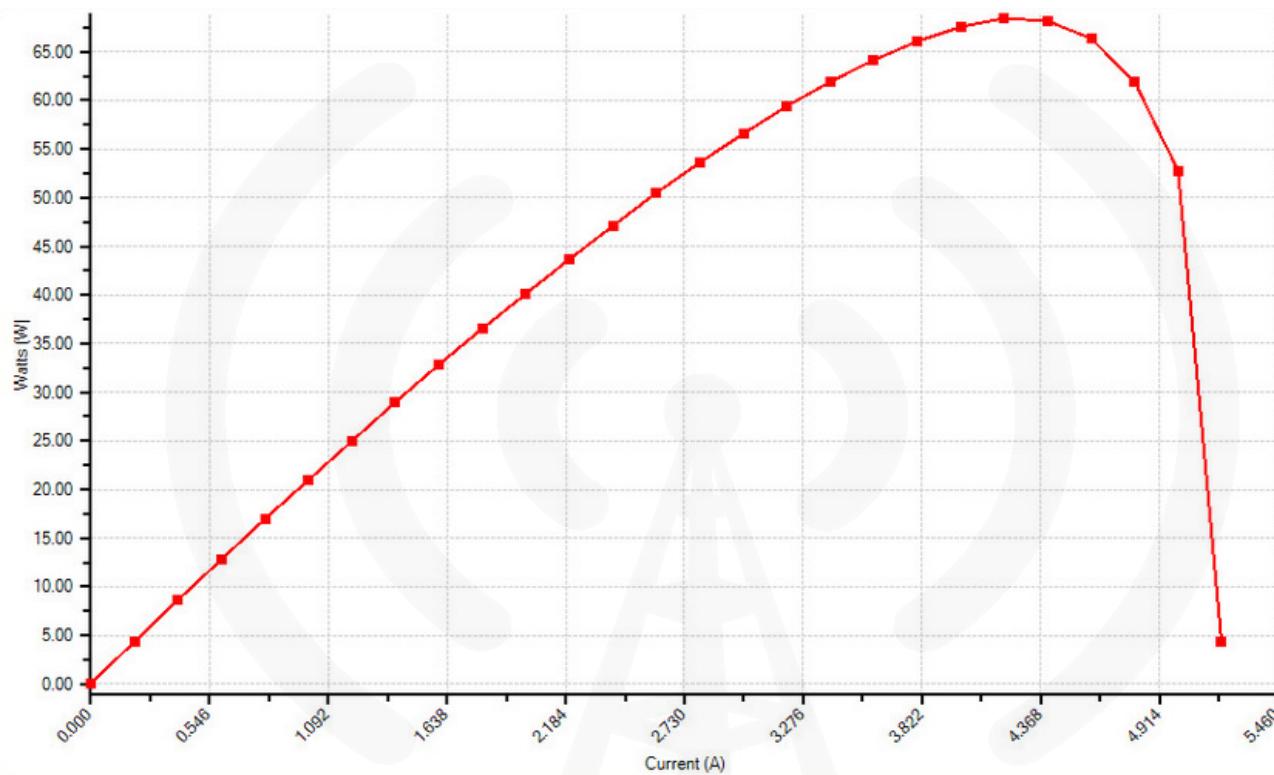
A 75AH group 24 size battery (like used in many cars) is half full and a user wants to charge it up, the following can be expected for size and time assuming the panel is directly pointed at the sun the whole time:

Panel Output	Typical Size	Maximum Current	50%=>100% Time
50W	12.5" x 17.5"	3.6A	11 hours
100W	26.5" x 36"	7.25A	6 hours
150W	26" x 51"	10.9A	4 hours
300W	2 x 26" x 51"	21.7A	2 hours

If the user has the West Mountain Radio Epic PWRgate, then be sure to buy a solar panel without a charge controller. Some panels can be configured in a serial or parallel configuration. It is best to have a panel that can be configured to output at most 30V. This is the VOC (Voltage Open Circuit) rating of the panel.

Unique Panel Power Characteristics

The technology is a bit different from a battery or power supply in that users can get a different amount of energy out of the panel depending on the current draw. The following chart was made with the West Mountain Radio CBA in a mode where it sweeps the unit under test with different currents and measures Watts out.

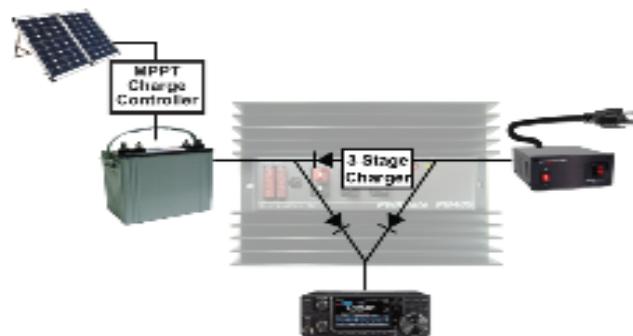


Notice there is a sweet point around 4.2 Amps where more Watts can be taken out of panel. A good charge controller will stay in that range for current draw and then convert the voltage as needed for charging. This type of charger is called a MPPT (Maximum Power Point Tracking) charger.

Charging the Battery

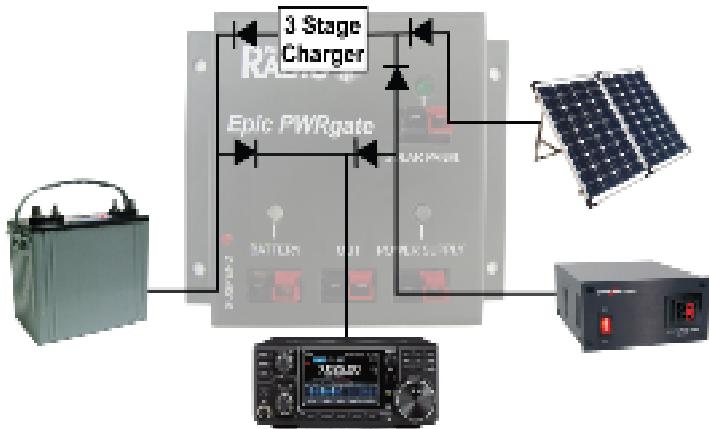
A small panel (like 30W) and Lead Acid battery can charge the battery with a simple diode between the panel and battery. The battery holds the voltage to where it is needed and the panel cannot output enough current to overcharge.

If the panel came with a integrated charge controller it can be connected directly to the battery. This can also be done if there is another charger in circuit. Most chargers can work in parallel. The following shows a PG40S PWRgate and solar charger.





The West Mountain Radio Epic PWRgate has an internal charge controller. Simply connect the panel (with Voc<=30V) to the solar input. Having both solar power (light) and a power supply active, the power supply is used for the radio and the Solar energy is used for charging the battery. A maximum charge rate of 10A can be set up with the Epic. For Lead acid that would be ideal for a 100AH battery. If the battery is larger just set it to 10A.

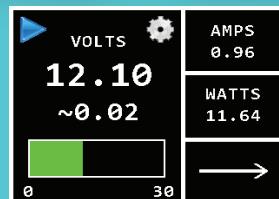


The Epic PWRgate has multiple functions built in to make it a good pick for armature radio use. Battery charging can be accomplished from a power supply, solar power or a vehicle alternator. The radio can be powered from the power supply or battery. Switching is automatic with no interruption in service. The internal regulator for charging is designed to be RF silent. Call or e-mail West Mountain Radio for more information.

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Bulletin Board



Due to COVID-19, production has been delayed. West Mountain Radio encourages all the hams to keep communication going through these hard times over radio! Stay healthy!



Visit our booth at Dayton Hamvention May 21-23



**Looking for CBA beta testers for software that will be available in January.
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