



High-Speed Internet on the Road

Wi-Fi, Cellular, and Satellite: As RVers, we may want to 'get away', but we also want to 'stay connected.' We want our phones, email and web-based resources. With today's technology, we have it. The only problem is that there are too many choices! All of them can work great if you know what you're doing.

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1. What do we mean by 'High-Speed'?

- Not Dial-up! 'Broadband', defined as download speeds 200kbps (kilobits per second) and up.
- Compare with what you may have at home: DSL downloads 256kbps – 1.5Mbps or Cable downloads 512kbps – 5Mbps
- Forget about the numbers, it's your experience that counts. Do photos appear quickly? Can you click on a link and have it appear quickly? You can do things on a high-speed connection that you simply cannot with dial-up. Video, applications like Google Earth, Real-time radar weather images, etc. etc.

2. 3 Ways: Satellite, Cellular and Wi-Fi (see video: Internet on the Road: 3 Choices)

- When you're in a 'stick-and-brick' house, you can get your High-Speed Internet connection from a wire ... DSL (phone company) or Cable. On the road, you need to be wireless. There are 3 wireless Internet technologies.
 - Satellite – connecting to a satellite 23,000 miles away, and using a Satellite Internet Service provider like Motosat, or Hughes.
 - Cellular – connecting to a cell tower up to 20 miles away, and using a Cellular Internet Service Provider like Verizon or AT&T. This is quickly becoming the most popular way for RVers to connect.
 - Wi-Fi – connecting to an 'Access Point' provided by the RV park or other hotspot host – up to 100 yards away, and sharing whatever Internet Service provider the host uses.
- If you're an average Internet user, cellular will probably meet your needs – be prepared to sign a 2 year contract. Everyone will use Wi-Fi sometimes, it can often be the fastest option – and it's easy. If you have daily business-critical needs for the Internet as you travel, you'll probably want the Satellite dish so you're never without! But, you'll want cellular and Wi-Fi as well! Bottom line is, if you *need* the Internet, you need multiple ways to connect on the road.

Satellite

3. Datastorm Satellite Internet (see Video: Satellite Internet)

- For our first 5 years of fulltime RVing we use a Datastorm™ automatic, roof-mount satellite dish. It's the only thing that guarantees we will have Internet *anywhere* even where we have no cell phone service. After we park, we push a button and we're online in within 15 minutes.
- The cost to purchase and install an automatic, roof-mount satellite dish is about \$5 – 6,000. Monthly service is usually \$80.
- You do need a clear view of the southern sky. It won't work in the bottom of a narrow canyon, or when the sky is obscured with heavy tree cover.



4. Is there a less-expensive Satellite option?

- Yes, you can buy a satellite dish on a tripod for approximately \$1,500, and the service is about \$60/mo
- You must have the space to store it while traveling and you must be willing to spend the time and effort to set it up yourself.



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5. Can Satellite get me Internet in Mexico, Canada, or Alaska?

- Yes, but you may have to get recommissioned to connect thru a different satellite. Satellites have names like 'SatMex 5', or 'Horizons 1.' They each have their own coverage area or 'footprint.'

6. Are trees a problem with Satellite Internet?

- Yes – all you need is a small hole thru the trees, but it must be in the exact right spot! This is one reason why people get the tripod type.

7. Can I get the Internet while I'm driving?

- No. The satellite dish will be in a stowed position while you're driving. To lock on to the satellite signal, you simply press a button. It takes just a few minutes, normally, to acquire the signal and get online. Cellular aircards are the only way to be online while you're moving.

8. Is there a usage limit? (see Video: Bandwidth Limitations – FAP)

- Yes, it depends on your contract, but standard is 350 Megabytes/day. If you go over, your connection will be throttled back for 24 hours. It will be no better than dial up during that period, but it will return to normal the next day and there are no extra charges. The hours between 3 and 6am Eastern are limit-free.

Cellular (see Video: Intro to Cellular Internet)

9. What do I need to get high-speed Internet access thru my cellular provider?

- Verizon, AT&T, TMobile etc, offer high-speed data connections using 'Data Cards'. The high speed technology is called EVDO or HSDPA and it can be very good. Find more info on EVDOInfo.com
- Data cards are basically cell phones for computers. They don't transmit voice, they transmit data.
- Data 'cards' also come in USB style. These are recommended.
- Verizon or Sprint now offers the 'MiFi' which is a data card and router all in one small, battery operated, package.



10. How fast is it? (see Video: Connecting with Cellular)

- Speed is usually quite good, but it depends on the capabilities of your nearest cell tower. Expect excellent speed in metropolitan areas. In non-digital areas, you may only get dial-up speeds.

11. What is the range?

- Usually, you need to be within 15-20 miles of a cell tower.
- There are external antennas, and amplifiers that you can buy to extend the range of your aircards

12. Can more than one computer use one card?

- You can remove the card from one computer then insert it into another.
- You can also buy a 'router.' Then, you insert the card into the router. The router then creates a little Wi-Fi hotspot that several computers can connect to. We recommend the Cradlepoint router.
- Verizon or Sprint now offers the 'MiFi' which is a card and router all in one small device.

13. Is there a usage limit?

- It depends on your contract. Cellular Internet plans usually limit you to 5 Gigabytes of data transfer per month. You are charged for overages on our bill. 5 Gigabytes is plenty for one person's web browsing needs. Do not download full length movies! Multiple people using one card could easily go over the limit.

14. Can I use my cell phone to get online with my computer? (see Video: Broadband with Tethered Cellphone)

- Yes! If you have a qualifying phone, *and* a qualifying voice plan, you can now get broadband access while 'tethered' to the cell phone. See article on www.wifisavvy.com "Tethered Cell Phones for Internet." This is broadband/high speed, not dial up. This does not use your minutes, and it does not require a separate contract. It is an extra charge on your phone bill about \$50/mo. It can be turned on and off and prorated to under \$2/day.

- b. If you have a Windows Mobile Smartphone, you can buy downloadable software that converts your phone into an Internet source and router. Just run the software on your phone and up to 5 computers can connect to it as a hotspot. See www.walkinghotspot.com (Verizon not supported)
- c. If you have an, Android, Palm, or Blackberry phone you can use PDANet at www.junefabrics.com PDANet also has a version for iPhone but it is not yet supported by Apple.
- d. If you're running Windows 7, you may even turn your tethered cellphone/computer combination into a temporary Wi-Fi hotspot with www.connectify.me

Wi-Fi

15. What is Wi-Fi?

- a. Wi-Fi is a marketing term to distinguish it from other Wireless Internet access technologies such as Cellular or Satellite. It is shorthand for 802.11 technology.
- b. Wi-Fi is "Hotspot" technology. A location contracts for one Internet connection and shares this single Broadband Internet Connection throughout a wireless network. A public wireless network is known as a 'hotspot'. It usually covers a very small area like an office, a coffee shop – or your RV. With high-gain antennas, high-powered amplifiers, and several 'Access Points', it can cover an outdoor area like an RV park. The speed of the Wi-Fi depends on the speed of the source connection.
- c. Wi-Fi is a Wireless Network: a local area network (LAN) using radio frequencies (2.4 gigahertz) instead of cabling to connect the network's resources. You may also see WLAN – Wireless Local Area Network.

16. Where can I use Wi-Fi?

- a. Anywhere that you are in range of a Hotspot's Access Point. 'In range' will be from 50 to 300 feet or more depending on the equipment at the Access Point AND your equipment AND the current environment.
- b. Truck stops, coffee shops, hotels, airports, public libraries, some highway rest areas, lots of RV parks. For example, see www.TengolInternet.com for their listings.
- c. At www.Woodalls.com you can search for RV parks and specify to only show those with Internet Access. Or you can simply google for wi-fi hotspots. They change all the time!

17. Do I need to have an Internet Service Provider to use Wi-Fi?

- a. No. You are sharing the Hotspot's service provider.

18. How fast is Wi-Fi?

- a. It depends! Wi-Fi can be the fastest of the 3 wireless technologies, but it all depends on the source of the Internet connection. At an airport in a major metropolitan area, they may be using a dedicated T1 line. This will be blazing fast. In an RV park in the mountains, they may be using a standard satellite dish – sharing that on the Wi-Fi will be pretty slow.
- b. It also depends on how many people are using it and what they're doing. Even one person with a bad virus on their computer that is sending out thousands of spam emails can hog all the bandwidth in a Wi-Fi hotspot and ruin the experience for the others.

19. My Laptop has built-in Wi-Fi capability. Will that work?

- a. Maybe. First of all, make sure the internal Wi-Fi is turned on. On most laptops you need to press a button, a switch, or some keys to turn it on. Learn where your Wi-Fi switch is!
- b. If you are close enough to an Access Point (antennas that send the Internet signal), it should work fine.
- c. If you are a distance from the Access Point, have obstructions in the way, or are at a bad 'angle' it may not work. Internal Wi-Fi adapters (and cards) are intended for small indoor installations. For good connections in an RV park you need more power for the distance and you need to be able to point your antenna toward the Access Point antenna. It's a 2-way radio, the signal needs to get to you AND you need to be able to get your signal BACK. Line of sight is very important. Moving your adapter/computer even just to the other side of your coach will make a big difference. Outside may be even better.

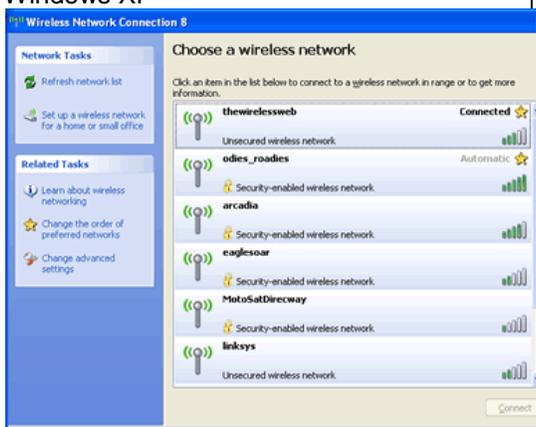
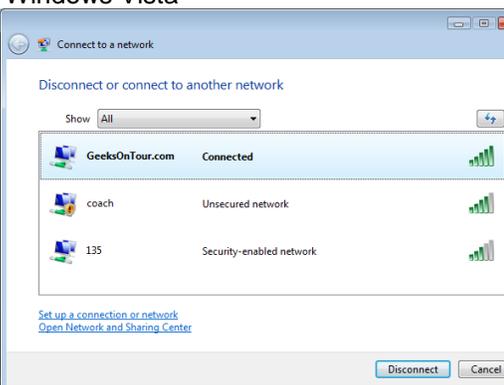
20. Can I buy a better antenna to achieve a stronger connection?

- a. YES! We recommend the USB type adapters as the best for the RV park environment, mainly because they are on a wire and can be positioned for the best connection (remember the old 'rabbit ears'?). Costs are from \$30 to \$200. Look for 802.11 (b, g or n). Radio power and range are more important than advertised speeds. Speeds will be limited by the Internet service, so high speed devices are unimportant. See articles and links on www.WiFiSavvy.com for more information.
- b. **Random Sampling** of available USB adapters:

				
Linksys WUSB600N Dual-Band Wireless N Adapter	Hawking Hi Gain Wireless-150N USB Dish Adapter	Trendnet TEW-645UB Wireless N USB Adapter	Belkin F5D8055 USB 2.0 Wireless N Adapter	Zonet ZEW2546 802.11N 300Mbps Wireless USB Adapter
Order Today, Ships Today	Order Today, Ships Today	Order Today, Ships Today	Ships within 24 Hours	Order Today, Ships Today
Only \$ 69.99	Only \$ 69.99	Only \$ 39.99	Only \$ 79.99	Only \$ 24.97

21. How do I connect to a Wi-Fi hotspot (see tutorial Videos: Connecting to Wi-Fi, XP and Vista)

- a. Once you have the Wi-Fi adapter installed and turned on, you should see some kind of indication that a wireless signal is available. This will appear in your systray (lower right corner of your computer screen). You should be able to click on it and look at Available Wireless Networks. It is important to know the name of the network you are supposed to use. You will not be able to connect to a network that shows as 'Security-enabled'. These are private networks and you need to know the key in order to connect. Public networks will be unsecured so you can connect. Simply click on the network you want, and click the connect button in the lower right.
- b. Note: if you are using the software that came with your wireless adapter, your screen may look different than below – but there should be a way to view (or 'scan') all available networks, select one, and connect.

Windows XP	Windows Vista	Windows 7
		

- c. Once you are connected to a network – you can now open your Internet Explorer, or whatever browser you use.
- d. If you are connected to free hotspot, you should now be able to browse. If you are connecting to a 'for fee' hotspot it will take you directly to a login screen.

22. I see a neighboring RV with an Internet Satellite dish and an unsecured Wireless network. Can I connect to that?

Using a neighbor's Internet connection is like borrowing anything else that belongs to them. You need to ask. You'll find that most RVers are happy to share. But they certainly don't have to! They paid a lot of money to get High-Speed Internet access – they may want (or need) all the bandwidth for themselves.

23. Are Public Wi-Fi Hotspots safe?

- a. You may have noticed that public hotspots show up as 'unsecure'. That does *not* mean unsafe. A 'secure' (i.e. encrypted) hotspot is a private one where you need a password to connect – like a corporation's wireless network. Public hotspots need to be unsecure to let people connect.
- b. Wi-Fi is no less safe than any other method of connecting to the Internet. In one way, Wi-Fi is safer than dial-up or DSL: The hotspot is a private network, invisible to the outside Internet. So, the only possible risk, in regards to other users, is people on the same network. I doubt that many of the Internet's 'Bad Guys' hang out in your RV park! (See Video: Avoiding email scams)
- c. Your bank's (and others) website is secure no matter how you're connected to the Internet. They provide security (encryption) which is enabled from your computer, thru the wireless network, thru the public Internet to the bank's website – and back. You will see a lock in the lower right corner  (or top, in some browsers) as well as the https in the address bar.
- d. On a Wi-Fi hotspot, you should turn off File and Print sharing: XP: Start / Control Panel / Network connections. Right-click on your wireless connection, choose properties and uncheck File and Printer Sharing. Vista and Windows 7 handles this for you with a **public** hotspot.

24. My email program seems to have problems sending my email when I'm connected to public Wi-Fi hotspots.

- a. Sending email is handled with a setting called the SMTP server. This is probably set to your ISP at home and may not work when you are not connecting thru that ISP.
- b. We recommend using Web-based email systems while you're on the road rather than Outlook or other PC based email clients. Read more articles at www.blog.geeksontour.com
- c. Call your home ISP, whoever provides your email, or look on their website for SMTP settings while traveling. Most will tell you to check 'My server requires Authentication'.

25. Why do I get a better connection in the middle of the night?

- a. Wi-Fi is a shared system. The more people that are on, the more problems there are. If even one other user has a bad virus that is hogging bandwidth, it can bring the whole network down. If lots of people are using the Wi-Fi for Voice Over IP (Internet Telephone) or peer-file-sharing systems – it can ruin it for everyone else.
- b. Radio Frequency interference is also a problem. Wi-Fi is 2.4 Gigahertz – the same as microwaves. When everyone is cooking dinner, it can be harder to maintain a Wi-Fi connection. 2.4Ghz cordless phones can also interfere.
- c. It's a lot like AM radio that will get a station 3 states away when the radio waves are quiet in the middle of the night.

26. Other people in the park are using the Wi-Fi just fine, but I can't even get on, sometimes I can get online but it is unbearably slow.

- a. Your computer may be infected with viruses or spyware. You can clean viruses by running up-to-date virus software, we recommend the free AVG available at www.free.avg.com. Also.
- b. You also need to check for Adware and Spyware. We recommend: MalwareBytes available at www.download.com; also Spybot S&D, Adaware, SuperAntiSpyware, and more. If badly infected, the computer may need to be reformatted. Take it to a computer repair facility.
- c. Your operating system or hardware drivers may be out-of-date. Run Windows Update and check your hardware manufacturer's website for updates.
- d. You might have a firewall with settings that are preventing you from using the hotspot's network.

27. Can I still use AOL when I am connecting with Wi-Fi.

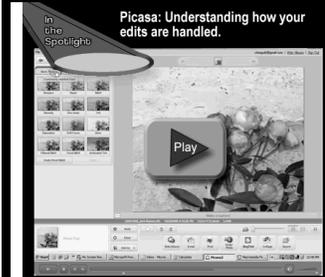
- a. Yes, but you need to connect to the Internet first. In a fee-based hotspot you will need to open your Internet Explorer first and log in. You also must set up AOL to use a Broadband "Location".
- b. If your computer insists on dialing ... open a browser window and choose Tools / Internet Options / Connections then check the option for "Never Dial a Connection".

28. I've used the wireless network for a while, now it isn't working ... what do I do?

- a. Repair the network connection – right click on the wireless network icon and choose diagnose and repair. This is just like hanging up the telephone and calling back to get a better connection, it almost always improves your connection. Now try your browser again.
- b. Reboot – some software processes can prevent your browser from working, restarting your computer will clear them.
- c. Interference: Maybe a 2.4ghz cordless phone is interfering with the signal, or your microwave or another RV is in the way. You need to get an antenna up high so it can see over the neighbors. Unobstructed line-of-sight is critical with Wi-Fi.

29. How can I get more information?

- a. Sign up for Geeks on Tour Newsletter at www.geeksontour.com
- b. Become a Geeks on Tour member (\$39/year), watch all the tutorial videos online and use our Q&A forum to ask questions.
- c. Buy the Geeks on Tour BootCamp DVD (\$20) – all Internet videos are on that disk.
- d. Articles by Jim and Chris Guld on www.blog.geeksontour.com; aka www.WiFiSavvy.com is the Geeks on Tour Articles blog.
- e. Google it!



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High-Speed Internet While Traveling: Comparison Chart

Prepared by GeeksOnTour.com, much of this information is our experience, check details before making a purchase

	WiFi	Cellular Data Card/Stick	Cellular: Tethered Cellphone	Satellite (Auto or Manual)
Cost of Equipment	\$0 if WiFi is built in to your computer \$30 - \$250 for adapters. Wide variety of adapters.	\$20 – 150, new cards coming out all the time Sometimes \$0 with 2 yr contract	Your phone: \$?? Cable and software < \$50 May need 3d party software to tether smartphones like Droid	Auto:\$5,000 - \$6,000 installed Manual: \$700 - \$1500 depending on the type of tripod
Cost of Service	\$ - lots of hotspots are free \$2-7/day;\$7-25/week; \$10-50/month	\$60/month for 5GB Some offer \$20-30/mo for 250 MG (don't do it – that's way too small, you'll go over)	Regular phone: \$50/month for data option – prorated Smart Phone has it's own data plan \$0-\$30 extra to tether.	Auto: \$80/mo Manual: \$60/mo
Coverage (where it works)	Very localized to the hotspot. Coffee shops, bookstores, libraries. Many RV parks. Number of hotspots growing daily.	Good in and around major metropolitan areas and major highway corridors. Spotty or non-existent in rural areas.	Same as card.	Anywhere you have a view of the southern sky
Ease of Use	Usually just turn it on and start browsing. Configuration and other computer issues can become complicated.	Usually just turn it on and start browsing.	Plug it in, run software – usually pretty easy	Auto: Usually just push a button and wait 3 – 15 minutes Manual set up required each time you move.5 - 1 hour.
Dependability	Low. When it works it's great, but you can't count on it as you travel.	Good as long as you're within range of a cell tower	Same as card. Incoming phone call will suspend data connection	Very Good. Occasional satellite or weather issues or trees.
Usage Limits	Usually none.	Depends on contract. Usually 5 Gigabytes/month. Overage charges will apply.	Usually 5GB / mo If 'piggybacking on Smart Phone's data plan = unlimited	Depends on contract. Usually 2-350 Megabytes/day. 3-6am = unlimited usage. Overage will start a 24 hr extreme slowdown.
Speed of Browsing	Usually excellent. Depends on the source of Internet to the hotspot. Can be anything from slow satellite to ultra high-speed T1.	Very Good as long as you're in a digital cellular location. May drop down to dial-up speeds in other locations.	Same as card, except many phone can't use the Highest speed towers (Rev A)	Very good. Downloads (browsing) is very fast. Uploads not so fast. Latency (delay due to distance) can be a problem.
Works 'In Motion'	No	Yes	Yes	No
Support	Basically non-existent. Some nationwide hotspots (like TengolInternet or Boingo) will have 800 numbers that are good.	Support from your cellular provider.	Support from Cellular provider – unless using 3d party software	Very good. From dealer and from provider: Motosat. Manual not supported by Hughes
Contract/Commitment	None	Usually 2 year contract	None – turn feature on/off at will	Usually one year
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