Satellite TV Basics
Satellite TV is a subscription service for which you pay a monthly fee. You must also purchase a satellite antenna (dish or dome) to capture the signal, and buy or lease the receiver that processes it for your TV. Antenna cost for a satellite system can be as little as $100.00 for a simple tripod-mounted dish to as much as $1800.00 for an in-motion dome system or automatic dish. The receiver for the satellite signals is extra and may be leased from the satellite provider or purchased outright. Some new RVs come equipped with a satellite dome or may be pre-wired for satellite service. Equipment may also be present in a used RV, but you still have to subscribe to a satellite TV service to utilize it. Getting set up for RV satellite service can be frustrating—the local satellite dealers rarely know much about mobile satellite service for RVs and many will not work on them at all. An RV dealer or a store like Camping World is a better source for help in getting started with satellite TV in an RV, but they tend to sell canned packages that may or may not be exactly what you want.

All forms of satellite TV need a clear view of the southern sky (the satellites are all located over the Equator, pretty much due south of Texas). For those of you who love to camp under trees or nestled in a mountain valley, you may find that the satellite is not visible from your location and, therefore, no TV is available. This requirement affects your choice of equipment as well as your choice of campsite. And as you move further north, the satellite dish has to be pointed ever lower in elevation (upward angle), placing more things in the path of the signal.

In addition to being blocked by trees or adjacent mountains, all satellite service suffers from “rain fade.” This is caused by water droplets in the air degrading the signal to the point where it becomes unusable. Dome type satellite antennas are more susceptible to rain and dew than are the open face dish types because the water droplets accumulate on the dome itself.

Satellite service is not the same across North America and this creates difficulties for RVers who travel widely. The local channels for most regions are broadcast only to that region, and specialty channels such as HDTV programming or HBO may be handled by different satellites than the mainstream channels. You have to be able to find the right satellite(s) for your current location and programming package, and you may have to receive signals from multiple satellites to get everything you want. Automatic equipment is available to handle most of these chores, but at a price. On the other hand, if you stay mostly in one local area and want only local network channels and a few popular national ones, you may be able to meet your needs with fairly basic – and inexpensive – equipment.

Figuring out what will suit your TV-watching needs can be a challenge. You will need to determine answers to these questions:

1. Choice of satellite service provider & programming
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2. Buy or lease equipment?
3. SDTV or HDTV?
4. Will you stay in one area or travel widely?
5. Local stations or national networks only?
6. Portable antenna or fixed mount?
7. Automatic or manual set-up?

I’ll try to explain these enough so that you can choose from among the many available options.

Satellite TV Services
There is little material difference between the major satellite TV services so individual choice is normally based on the programming packages available. One service may excel at sports, or another may carry a favorite show, so look over the channel offerings closely. Programming packages are offered at several different prices and you can select what you like and the amount your budget will handle. Monthly service fees range from around $30 for a basic package to over $90 for 250+ channels with High-definition service.

Dish has traditionally been a bit more friendly to RVers. Another factor is that Dish currently is the only one with a Pay-As-You-Go plan that allows you to turn your service on for just a month at a time. This can be a real cost-saver if you only need TV in your RV during the summer months. However, you have to buy your own equipment up front (no lease). Direct TV allows you to suspend your service for up to 6 months in any 12 month period, but that may still leave you paying for some months of service you don’t need.

Should I Buy or Lease?
Generally you have to buy the dish or dome (satellite antenna) yourself, but basic open face dishes are often free. You probably know somebody who has an unused open dish left on their house or yard and that you can have just for the effort of removing it. You can also buy cheaply online, e.g. Ebay. In most cases, you will need to get an antenna compatible with your chosen service, either Dish or DirecTV.

The satellite receiver, the box that processes the satellite signal and sends it to the TV, is unique to the satellite service and also for SD (Standard Definition) or HD (High Def). It also contains the DVR, if you want one. Be careful when buying one of these in a retail store – the fee you pay may not give you actual ownership. Often the price is just a retailer handling fee and you still pay $6-$10 per month to the satellite service for the equipment lease. Ask about this before you buy. The receiver connects to your TV via cables and you may have to route new cables for the hook-up. An HDTV receiver requires HDMI or Component Video cables to carry the HD signal to the TV – plain old coax won’t do the job.
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**Standard or High Def?**
Chances are your RV TV is smaller than what you enjoy at home. On small screens HD isn't a whole lot better than SD, but starting around 26” it begins to make a very noticeable difference. As the TV gets larger, the lines that paint the picture on the screen get further apart and picture quality worsens. Thus a larger digital TV makes higher definition (HDTV) more desirable. The satellite services charge a substantial premium to receive their special HD channels, so cost is a factor in this decision. So is the type of antenna required to receive HD (more on this later).

Still, an SDTV signal on a small-to-medium size LCD or LED tv will look pretty darn good. Don’t feel that you absolutely must have HD unless your tv is fairly large. And if your TV is analog rather than digital, don’t worry about HD at all.

If HDTV is a requirement for you, be aware that DirecTV broadcasts their HDTV channels via a satellite type known as Ka band service. There is no way to receive a Ka band signal using a dome type satellite dish, so your choice of satellite antenna will be limited to an open-face dish (more on this later).

**Homebody or Traveler?**
As mentioned previously, local TV channels for a metropolitan tv market area are broadcast only to that area. This is called a “spot beam” and the area covered is typically an oval and maybe only 100 x 200 miles. In some northern areas it may be much larger. Think of a spot beam as a flashlight in a dark room. If you shine it at an angle to the wall, the lighted area distorts from a circle to an oval. It also gets dimmer near the edges, until it is finally dark. If you stay close enough to home you can get all the same channels, but if you move out from under your spot beam, you no longer can see the signal for your area. The “locals” will be different stations than at home and you may even need a different dish to receive them (more LNBs or an automatic aiming dish). Network shows may also appear at different times. The upside of that is that the weather is for your current location, not your “home” which may be hundreds of miles away. See [www.satelliteone.com/support-files/Spot_Beam_Short.pdf](http://www.satelliteone.com/support-files/Spot_Beam_Short.pdf) to learn more about Satellite TV Spot Beaming.

In some areas you can pick up all local and major national channels with a single LNB dish (see [http://www.ehow.com/about_4702505_what-lnb-satellite-dish.html](http://www.ehow.com/about_4702505_what-lnb-satellite-dish.html) ) but in others two or more may be needed for full service. In a few areas DirecTV uses as many as 5 LNBs per dish to get their full channel line-up in HDTV. If you travel widely, you may want a more sophisticated dish that can automatically find the satellites needed in that area.

**DNS vs Locals and Mobile accounts**
As you move around to different spot beam areas, you have to call the satellite service and have them re-authorize your receiver to process the signals in that area (this is done by zip code). By the way, that also removes local TV service back home. This is not a problem if everybody is with you in the RV, but if your satellite account also services
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your house, anyone left back home won’t have TV. You would need a separate account with the satellite service to avoid that.

There is no charge for a change of service address. However, recent reports indicate that both Dish and Direct are beginning to place restrictions on how often you can make an address change, perhaps allowing only 2-3 per year. That’s OK for snowbirds, but won’t work for a frequent traveler.

DNS – Distant Network Service – is an alternative to receiving locals. DNS is intended to provide major network programming to satellite users who are truly mobile and not permanently associated with any one locale. DNS provides TV programs direct from the major network’s home studios - typically New York City and Los Angeles - but no local programming. With DNS, you will receive ABC, NBC, CBS, and Fox from either the East Coast or West Coast network feeds and you receive the same service nationwide. However, the broadcast times are Eastern or Pacific Time Zone, which can be a nuisance if you are somewhere in between. There is an extra charge for DNS, about $20-$30 per month. Those who have had DNS for a long time may have access to both East & West Coast networks feeds, but a change in FCC regulations a year or two ago took that option away. Too bad, it was very convenient to have a choice of two different times to watch each show.

DNS requires a Mobile Account and FCC regulations require that you file an affidavit and a copy of the RV’s vehicle registration with the satellite service to obtain it. If you want DNS in your RV and also have a fixed home satellite account, you must establish a separate mobile account for the RV. You cannot have DNS on an account that also receives local programming.

If you don’t need a mobile account and DNS, and you already have satellite service at home, you can bring a receiver from home and hook it to the dome or dish in the RV and to the TVs. Or, for a small fee, get an additional receiver and install it in your RV, like it was another bedroom. This is a great choice for people who only use their RV occasionally and have satellite service at home. If you do this, you avoid the extra cost for a separate RV account and the RV then receives the same TV line-up that you have at home (subject to the spot beam limitations described previously).

Portable vs Fixed Mount
Another basic choice is a Portable vs Fixed Mount antenna system. In a portable antenna system, you physically carry it to whatever part of your campsite has the clearest view of the southern sky and set it up there. A fixed mount, on the other hand, is attached to the RV itself, usually on the roof. That means you have to move the entire RV if there are trees, mountains or buildings blocking the signal, but you don’t have to tote anything around or string coax cables over the ground after you arrive at your
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campsite. You also don’t have to worry about the portable antenna growing legs and walking away!

Portable and Fixed Mount antenna systems are available as either **Open Face** or **Dome** types. An open-face dish is just a saucer-shaped reflector with one or more LNBs positioned in front to catch the signals as they bounce off the reflector. The advantage of an open-face dish is that it sheds water (and even snow!) reasonably well, so your TV-viewing is less affected by weather. However, the dish has to be taken down (or folded away if it’s a fixed mount) before you can travel.

The classic open-face dish sits on a tripod on the ground and is aimed upwards toward the southern sky. However, an open-face dish can also be fixed mounted on top of the RV and can be either manually aimed or automatic.

An enclosed dome has the working parts under a sleek cover. The advantage is that the cover protects it while driving, so the antenna inside doesn’t have to be folded away before travel. In fact, a dome can even continue to operate while you are in motion. A modern fixed mount dome is also an automatic aiming antenna, adding further to the convenience (older domes may require you to push a switch to change satellites). The downside for a dome is that it is very susceptible to signal loss due to rain and dew.

A premium type of dome is the in-motion system, which can actively track the satellite and adjust its aim on the fly, making it possible to receive satellite TV as you drive down the road. Even if a family member isn’t watching the TV as you travel, some people love to have an in-motion dish so their DVR can record shows or they can listen to music channels from the satellite as they travel. Daytime soap opera fans and sports
enthusiasts are among those who do that sort of thing. Another advantage of the latest in-motion domes is that they have a GPS inside that enables it to nearly instantly find the satellite when you park, so the family can be watching TV as you set up your site.

A fairly recent innovation is the **Portable Packaged Satellite System.** e.g. the Winegard CarryOut and Tailgater models. These are essentially a dome type dish in a lightweight, portable package. You carry it outside where there is a view of the southern sky and use a remote control to set the aim. Or get the automatic model that finds the satellite by itself. Simple and easy. Figure about $200 for the base model and $400-$500 for the automatic aiming model.

The final antenna choice is **Automatic vs Manual Set-up.** Every time you move the RV to a new spot, you will be setting up (aiming) the satellite antenna. If you move often, that makes the method of set-up a major factor. Most Fixed Mount and some portable dome antenna systems offer automatic set-up, where the dish itself adjusts the direction (azimuth) and elevation (up-tilt) to find the proper satellite and fine tunes the signal strength. Basically the dish searches the sky for the right satellite and then “locks on” when it finds it and you are ready to go. It typically takes 1-5 minutes for the dish to search and lock. Automatic dishes are single LNB but they can move between satellites as needed to watch different channels. Depending on the dish make and model, the move can be automatic or manually triggered via a selector switch inside the RV. It’s a great convenience, but of course it comes at a price. With manual set-up, you either physically move the dish tripod or turn an adjustment crank to change the direction (azimuth) and tilt (elevation).

By now you are probably saying “Phew! This stuff is complex!” I’ve tried to cover all the major decision factors, but this is till just an overview of what you need to consider. If you have already determined that you want a fixed mount system for HDTV, or you already have a tripod mounted dish to use, the decisions come fairly easy, but if you are starting from scratch there is a lot to think about before heading on down to the RV shop to get your system. I hope this helps guide you along the way.

Caveat: This is a moving target. The major satellite services change policies on a whim and seldom consider the effects on mobile customers when doing so. New equipment comes on the market and make things easier or harder. New customers may not have access to plans or features that other customers have “grandfathered in”. It’s a crazy world!