

# Personal Home Security

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## It can happen to you

Your home is considered a sanctuary where you should feel safe. It's the only environment where you have control over who can get close to you or your family, but I've got news for you: safety and protection does not come without your contribution.



According to the FBI, a burglary occurs somewhere in the United States every 15.4 seconds. That's a pretty disturbing fact, but even so, some people just refuse to understand that they can be victims of such crime.

I cannot stress enough over the fact that: **It can happen to you!** Crime doesn't always happen to the other guy. Everyday cops across the country take reports from people who never thought it could happen to them. That's not a very logical assumption, to assume that you won't be a victim because you've never been a victim before.

Even if you live in one of the most crime free cities or states in the country, you've still got crime. And the odds are good that sometime in your life you're going to be a victim. The problem with not caring about being a victim is that after you are a victim, then you're running around getting security systems and installing decent locks.

But by then, like locking the barn door after the horse got out, it's too late. Now you not only have to improve your security, but to replace your property that was stolen, or recover from injuries you received in the process of the burglary.

### **Who, when and how do they operate?**

The majority of home and apartment burglaries occur during the daytime when most people are away at work or school. The summer months of July and August have the most burglaries with February having the fewest crimes.

Burglaries are committed most often by young males under 25 years of age looking for items that are small, expensive, and can easily be converted to cash. Favorite items are



cash, jewelry, guns, watches, laptop computers, VCRs, video players, CDs and other small electronic devices are high on the list. Quick cash is needed for living expenses and drugs.

Statistics tell us that 70% of the burglars use some amount force to enter a dwelling, but their preference is to gain easy access through an open door or window. Ordinary household tools like screwdrivers, channel-lock pliers, small pry bars, and small

hammers are most often used by burglars. Burglars continue to flourish because police can only clear about 13% of all reported burglaries and rarely catch the thief in the act.

Although home burglaries may seem random in occurrence, they actually involve a selection process. The burglar's selection process is simple. Choose an unoccupied home with the easiest access, the greatest amount of cover, and with the best escape routes.

While most burglars use brute force tactics to snatch your belongings, a few are skilled enough to pick locks and skillfully evade security measures. In order to better analyze various threats, home security experts divide burglars into five different categories:

### *The Opportunist*

This type of Thief will search for theft opportunities that are easy, quick, and petty. If you leave your door unlocked or your window open, they will take advantage of your trust or forgetfulness. In law, this would be considered a second degree crime, or not premeditated. An opportunity burglar will not do very much to decide who they will burglarize. They look for an easy opportunity. They don't tend to steal very much of value because they don't know what they'll find until they are in the act.

### *The Smasher*

A Smasher or "smash and grab" burglar is more desperate than an Opportunity Burglar. They are often into drug-use, and are only looking for cash or items that can easily be exchanged for cash.

These A - smash burglary will sometimes be comical, because they will steal something that is not very valuable, and they will leave behind something that holds much more value. A Smasher will usually enter a home or business by breaking through a door or window.

### *The Prowler*

A Prowler is more professional than a Smasher or Opportunity Thief. They will have connections to channel their stolen goods through, and they will put more scrutiny and planning into a burglary. A Prowler probably started as an Opportunity Thief, and chose to become more organized in order to gain more from their robbery. Their tactics include targeting and studying their victims' habits and schedules, and they are very thorough during a burglary.

### *The Targeter*

These people are specialized burglars. After a few years of Prowling, a Burglar will decide to Target specific high-value items. They know what they want. They do rigorous research and know how long it will take the Police to respond to an Alarm. Targeted Burglars are often part of a Ring.

These rings are nationwide, so items stolen in one state are shipped to others to be sold. Targeted Thief's will sometimes have an Insider, a connection to someone at an insurance company. This means they know the value of their targeted item, and most of the details about the security around that item.

### *The professional*

A Professional Burglar is similar to a Prowler in their theft methods, but they have the professionalism of a Targeted Burglar. When a house is completely bare after a robbery, a Complete Burglar was involved. Like Targeted Burglars, a Professional Burglar will have Insiders and a Ring. An Insider will tell them that you are going on vacation, and a moving truck will arrive to take every item in your house.

The best way to prevent theft, whether from any type of Burglar, is to have a Security System and to use it. A Security System will notify the police in the event that a Professional Burglar has entered your home or business. If you left a door unlocked, and your security system is armed, the intruder may have an easy way into your house, but the Alarm will sound once he enters. If your Security System is well designed to prevent theft you won't have to worry nearly as much about burglary.

## **Security Action Plan**

### **Strengthen your Doors**

The strength of a door is measured in two ways. The first is the material of which the door is made. A cheap, hollow core interior door won't withstand much more than a simple kick before it splinters. A solid wood exterior door will hold up to more



abuse, but if half the door is glass-paneled, it won't keep the burglars away. A steel-encased door would be ideal, but I case aesthetics or expense is a problem, your best choice is a solid wood door with no windows of any kind.

The second way in which the strength of a door is measured is how many points of attachment it has. The more places the door is attached to the frame, the stronger it will be. At a minimum, the door should have three hinges, a locking doorknob, and a dead bolt. This gives you five points of attachment. An additional dead bolt toward the top of the door and another at the bottom will provide additional support against brute force entry.

**Hinges.** Most hinges are sold with very small screws meant to be used to attach the door to the frame. Get rid of those and purchase screws long enough to go through the doorframe and into the stud. This provides quite a bit of added strength. With most hinges, it is a very simple matter to take out the hinge pins, allowing the door to be removed. For this reason, whenever possible you should install hinges on the interior side of the door.

**Stop molding.** The stop molding is the strip of wood that runs the height of the door and prevents it from swinging too far. When you slam a door shut, this is the piece of wood the door hits, causing that satisfying "wham." If the stop molding is accessible from the outside of the door, it could be pried up, allowing access to the bolts and locks. Given that these moldings are typically just tacked in place with small nails, that is not too difficult to accomplish.

The way doors are usually installed, either the hinges or the stop molding will be accessible to someone outside. For better security, remove the stop moldings, take out the nails, and reinstall the molding using wood glue and longer nails. If the nails you are using are considerably thicker than the ones previously used, you may want to drill pilot holes in order to avoid cracking or splintering the molding.

**Dead bolts.** Whether you go with one or several dead bolts, they are rather simple to install. The hardest part can be determining exactly where the strike boxes should be installed. (The strike box is the metal box that is installed into the doorframe; this is what the bolt slides into when the dead bolt is locked.)



A simple way to do this is to take a tube of old lipstick and color the end of the bolt. Then, when the door is closed, snap the dead bolt so the bolt comes out and pushes against the frame. Open the door and you'll see exactly where the strike box should be located. Again, all screws should be long enough to go through the frame and into the stud. I definitely recommend installing a dead bolt instead of doorknobs.

**Sawproofing.** Aside from just kicking in the door, another way intruders may try to gain access is to saw through the door around the dead bolts. This can be accomplished quickly if an electric "Sawzall" is available, marginally slower if done manually. You can prevent this by installing metal rods into the solid wood door. This

requires the use of an electric drill, a 12-inch thin bit, a hammer, a nail set, and ¼-inch unthreaded steel rods 7 or 8 inches long.

Drill holes in the edge of the lock side of the door. Space them such that you have a couple of them above and below every dead bolt and the doorknob. The holes should be deep enough to contain the steel rods with about ½-inch of additional space.

Once the holes are drilled, drive the steel rods into the door and use the nail set to drive them past the edge of the door. Fill the remaining bit with wood putty. You can further strengthen the door by installing one or more removable bars across the inside.

You've probably seen this concept in any number of movies set in the Old West. Affix metal brackets on either side of the doorframe, using long screws or lag bolts to go into the studs. Then, lay a 2x4 or other thick piece of wood into the brackets. Of course, this only works on doors that open to the interior.

This method is an excellent option for those who live in apartments or other rental properties where the landlord would probably frown on someone installing additional dead bolts and such. Just purchase the materials, including a cordless drill, drill bits, and screws, and have it all sitting in a closet for when it may be needed.

The brackets can be screwed to the walls in a matter of minutes. Be sure though to keep the cordless drill charging at all times so you don't find the battery dead when you need it.

**Patio doors.** These sliding doors can be something of a nightmare in terms of security. Most homeowners know the trick of laying a wooden dowel in the track at the bottom of the door, preventing the door from sliding open.

This does work reasonably well, provided the intruder has a reason to not just smash through the glass. Replacing the glass with shatter-resistant plastic will help eliminate that option. With a little effort you can find special bar locks and dead bolts that are made specifically for sliding doors. These generally work very well and are a great option to explore.

**Garage doors.** They typically come with a bar lock preinstalled. These work very well in preventing the door from opening. If for some reason the lock itself doesn't work, the doors generally have a sliding latch as well. A flat piece of metal, it slides through a hole in the track, stopping the door from moving up. Often this latch will come with a hole on the end where you can place a padlock. This prevents the latch from being slid open.

### Strike two: Windows

Windows generally prove to be not much of a deterrent to an intruder. Any parent of a child who loves playing baseball is well aware of how easy it can be to break a window. This can be mitigated by replacing the glass with shatter-resistant plastic. Sold under brand



names like Lexan, it is strong enough to withstand blows with a hammer. You can buy it in sheets and cut it to size using a circular saw with a plywood finishing blade or a jigsaw with a metal cutting blade. Go slow to avoid chipping. Absent being able to smash through the glass, an intruder will have to somehow force the window open.

For double-hung windows, this can be prevented simply by drilling a hole through the window sashes and sliding a nail slightly smaller in diameter into the hole. The hole should go at least ½-inch into the bottom rail of the top sash.

You want the hole a bit larger than the nail so you can easily remove the nail to open the window as needed. Angle the hole downward so the nail won't just fall out on its own. Do this twice for each window, about 2 inches from either side. Horizontal sliding windows can be secured like sliding doors as mentioned earlier.

Casement windows are tricky but generally they are very difficult to open from the outside to begin with (and in my house, almost impossible to open from the inside as well!). However, for added security, you can add special latches that require the use of a key to open.

One key thing to remember when it comes to securing windows is that by installing any of these various measures, you are not only preventing access from the outside, but also possibly trapping yourself and your family inside in the event of a fire. If you are considering installing permanent security measures such as the

window grilles we're about to discuss, weigh this carefully against the potential need for rapid escape.

**Window grilles.** While not the prettiest things in the world, bars installed over windows will certainly deny access to most intruders. However, these can be difficult for the average person to install correctly. The grilles should be anchored to the most solid part of the wall available. Use strong lag bolts for this rather than wood screws, if at all possible.

Once the grille is installed, go back to the lag bolts and use a handheld grinder to round off the heads, making them all but impossible to remove. If you're forced to use wood screws, use the grinder to deface the heads enough so a screwdriver won't be able to engage the screw head.

**Strengthen walls.** While doors and windows may provide convenient openings through which an intruder can enter the home, the walls in most stick-built homes are not all that difficult to breach. If the home has simple vinyl siding over pressboard, a few minutes with a chainsaw or even a sledgehammer would be all it would take to create a new door. With that said, though, it would take a rather determined intruder to go that route. Most people are conditioned to focus on doors and windows to gain entry.

If your budget is sufficiently high, brick exterior walls provide a considerable increase in wall strength. However, even these can be defeated by a sufficiently motivated intruder armed with a sledgehammer and a bit of time. Interior walls in most homes provide just about zero protection against firearms. They provide

great concealment but no cover, though the cover element can be improved with sandbags and other mass-heavy items.

### Home Security Systems Considerations

When it comes to home security systems, you face a bewildering array of available choices. They range from do-it-yourself wireless door or window mounted sirens costing around \$ 10.00 and sold at local discount or hardware stores, and range all the way up to complete home security systems that monitor doors and



windows, utilize infrared detection-based motion sensors for unauthorized movement, offer smoke and fire detectors, provide remote access options that let you control your system and monitor it live over the internet, and include video surveillance.

In between these two extremes are the common wireless monitored alarm system installed by many major alarm companies today. The system consists of a control panel with a keypad, a siren (usually built into the same housing as the control panel) and a set of sensors that can be placed at entry doors or windows.

Typically, such systems also include at least one motion sensor; these are sensors that can detect unauthorized movement in a common area of your home during those times when no occupants

should be in the home. Motion sensors are typically placed in common areas, such as common hallways or stairs.

### Wireless or hardwired systems?

When it comes to home security alarm systems, the trend in recent years has definitely been towards wireless systems. But there is an older technology, one that has been around for decades, and that is the hardwired alarm system. Hardwired systems do exist in homes, although they are typically used more often in businesses than in homes these days.

Wireless alarm systems use sensors that contain long life batteries and that send signals to a control panel using wireless radio signals. Therefore, no wiring needs to be run between the sensors, typically mounted at doors and windows, and the control panel. Wired alarm systems on the other hand involve the use of sensors along with wires that must be run to a control panel.

Wired systems are much more complex to install than are wireless systems. Wireless systems generally rank much higher when it comes to ease of installation, while hardwired systems rank higher when it comes to ease of maintenance.

### Installation

With hardwired systems, the sensors that protect your doors and windows must be physically wired back to the control panel. This is

going to involve the drilling of holes in walls and the running of wiring cable around your house.

For this reason, hardwired systems are sometimes used in new construction, as a quality hardwired system tends to add to the value of the house. It's far less common for hardwired systems to be added to existing homes due to the difficulties involved in running wiring throughout existing homes.



## Maintenance

Where hardwired systems do win out over wireless is in terms of maintenance: since the door and window sensors with a wired system are connected directly to the control panel, there are no batteries to be replaced inside the system sensors.

The only batteries that are typically present in a hardwired system can be found in the control panel, acting as a battery backup in case of electrical power failure or other electrical supply sabotage by burglars.

By comparison, a wireless system contains a battery within each sensor unit. And while these batteries typically use a special lithium-oxide design for very long life (often lasting between three and five years), eventually they will need to be replaced. (That same high-tech lithium-oxide construction makes this type of battery relatively

expensive, when compared to ordinary batteries. Most alarm sensor batteries will run you in excess of ten dollars per battery when it's time for replacement.)

## Monitoring

Hardwired systems nearly always have monitoring capability, meaning that the control panel can communicate with an alarm monitoring service, either by means of a telephone line or by means of a cellular connection or an Internet connection.

Wireless systems may or may not be monitored systems. The minimum-cost (under \$ 100) wireless systems that can be found on the shelves of big box hardware retailers or in discount department stores typically do not allow for monitoring, although some of these models can be programmed to dial multiple telephone numbers and play a recorded message.

**TIP:** You should NOT be tempted to try to obtain the benefits of a monitored alarm system without paying the costs of monitoring by purchasing a low-budget wireless alarm with auto-dial capabilities, and then programming the system to dial 911 or your local police department's emergency phone line.

In an overwhelming majority of jurisdictions throughout the U.S, it is illegal to have an automated system dial a police or fire emergency phone line. The laws are this way because automated systems are notorious for a high rate of false alarms, and the local police have far better uses of their time than to respond to an auto-dialer triggered when someone's ten-year old came home from

school, headed straight for the refrigerator, and neglected to disarm the alarm.

You're likely to receive a bill in the mail in the form of a fine, or worse yet: a summons to appear in civil court for breaking some local municipality ordinance if you attempt this trick and your auto-dialer dials your local emergency line.

### **Expandability**

Another advantage of hardwired systems over wireless systems is that hardwired systems tend to be far more expandable than their wireless siblings. Hardwired systems typically support multiple zones, with multiple sensors placed inside of each zone. You can also wire more than one control panel to many hardwired systems.

Therefore, hardwired systems may be the way to go if you are protecting some types of larger housing, such as a duplex or multi-unit residence where you live in one part of the building, and tenants occupy other parts. (In such a scenario, your residence could be set up as a zone with its own control panel, and each tenant's residence area could be set up as a different zone, with a separate control panel within that tenant's residence area controlling that particular zone.)

The ability to use dozens of sensors and multiple zones are also the reason why hardwired systems are typically used in businesses, schools, and government offices.

### **Portability**

Wireless systems offer a major advantage over hardwired systems when it comes to portability. If you are planning to install an alarm in a moderate-sized house, a smaller house, or an apartment, and you expect to move any time in the near future, your best bet will be a wireless system.

Wireless systems can be easily taken down and reinstalled in the new location. With hardwired systems, moving requires a reinstallation of wiring once the control panel and the sensors have been moved to the new location.

### Security Alarm System Protection

When you combine the features of a typical monitored home security system with the protections typically offered by an alarm monitoring service, the result is a layered defense that surrounds your residence in the following manner.

*Entry sensors* are triggered if an intruder opens a door or window.



*Motion sensors* sense movement inside the residence when there should be no movement. This secondary level of defense provides an alarm if an intruder is able to gain access without activating an entry sensor. This could happen if the intruder were to break into a

window that does not have an entry sensor, as is the case with most second story windows of a two-story house.

*Panic buttons* are typically provided on keychain remotes, and these can be used to have your monitoring company immediately dispatch police. If, for example, you were asleep in bed and you awoke to the sound of shattering glass downstairs, you could reach into your nightstand drawer, find your keychain remote, and punch the panic button.

This action will send an immediate help request to the alarm monitoring company, and with most models of alarms it will also trigger the siren. The piercing noise that results is often enough of a deterrent to scare off a would-be intruder.

*A duress code* is a special sequence of buttons that you can press on the alarm control panel if you are under direct threat by an intruder. For example, if an intruder were to force you to disarm your alarm at gunpoint, you could press the duress code buttons on your keypad, sending a signal to the monitoring company requesting immediate police response and informing them that the resident is under duress by an attacker.

### Wireless alarms – Good or Bad?

The overwhelming majority of the wireless alarm systems, and in fact, a majority of alarm systems installed in residential homes today, are of the ‘AIO’ or all in one design. The term ‘all in one’ refers to the fact that the electronics that receives signals from the

wireless sensors, the control panel keypad, the digital readout, the siren, and the circuitry that connects the system to your alarm monitoring service are all housed inside the one piece unit, as shown in the following figure.

The AIO design definitely has its advantages and its disadvantages. The chief advantage of any system using this design is the ease of installation factor. All that is basically involved on the physical side is to mount the panel to a wall, connect its power adapter to a nearby AC outlet, and connect the panel to a phone line (or to a special cellular phone dialer or to an Internet adapter, if your alarm is using either of these alternative approaches to communicate with your monitoring service).

The major disadvantage of the AIO type system lies in its vulnerability to professional thieves. More than eight in ten burglaries occur by means of entry doors, and the alarm control panel is nearly always programmed to allow for an entry door delay. The delay is to give you time to get in the door and disarm the system.

Unfortunately, that same delay usually gives a professional thief sufficient time to locate the AIO panel, rip it off the wall, and disable it with brute force (probably using the same hammer that the burglar used to break through your door in the first place). With the control panel in pieces, it obviously will be unable to contact your alarm monitoring service.

One way to prevent burglar-induced damage of this type is to mount the alarm in a place that's relatively easy for you to reach upon

entering the house, but is difficult for a professional burglar to locate. Inside of the hallway closet is one possibility, and the inside wall of a kitchen cabinet (assuming your kitchen is very close to your home's entry door) is another.

A professional thief could still locate the panel by following the sound of the disarm alarm tones, but by the time the thief found the panel, it would likely have gone into an alarm mode, causing the alarm monitoring service to dispatch the police.

The more secure and technically more complex alternative to the AIO design is the two-piece alarm system, used by some homes and most small businesses. With this design, the control panel contains the keypad and display circuitry, and nothing else. All the rest of the electronics are contained inside of a locked alarm panel box that typically is mounted inside a closet, some distance from the control panel.

Because the wireless sensors communicate with the electronics inside of the alarm panel box, an intruders' destruction of the control panel would not silence an alarm condition. In fact, most two-piece systems are designed so that if there is a sudden wiring break between the control panel and the alarm panel box, an instant alarm will be triggered at the alarm panel box, with a tamper code reported to the monitoring service.

With the advantage of the two-piece design comes the disadvantage of a slight increase in complexity in terms of installation. The control panel and the alarm panel box must be mounted in separate

locations, and an additional cable must connect the control panel to the alarm panel box.

If you feel you have the skills to take on the slightly more complex alarm installation, you will need to choose a suitable location to accommodate both the alarm panel box and the control panel. (A coat closet near your home's entry door is often an excellent choice for this purpose, as it's generally a simple DIY task to drill a small hole in the wall near the coat closet doorway and run the control panel cable through that hole to the alarm panel box mounted inside the coat closet.)

Now that you have a better idea of the typical overall design of home security systems, proceed to the next chapter for a look at monitoring, and how this process works. (There are significant advantages to having monitored home security (as opposed to unmonitored home security). And as later chapters detail, it is possible to have monitored home security without spending hundreds of dollars each year.

### **How monitored home security works**

According to recent reports, homes that lack a professionally monitored security system are three times more likely to suffer a break-in than are homes that have monitored security. Monitoring, as the word implies, is the act of getting someone (or something) to listen out for your alarm system.



There are two overall types of monitoring: self-monitoring and professional monitoring. With self-monitoring, an alarm system with door or window sensors and possibly a motion detector is also equipped with an auto-dialer feature, and the unit is connected to a conventional landline phone line.

If the alarm system detects an intrusion, the system dials one or more telephone numbers that have been programmed into the system, and when the recipient of the call answers, the alarm system plays a prerecorded message.

With self-monitoring, you decide who the system should call in the event of an alarm; the numbers that you program into the system could include your cell phone number, that of a spouse, children or parents, close friends, or trusted neighbors.

You should not program the emergency number of police or local authorities, because it is illegal to do this in nearly every jurisdiction throughout the U.S. Professionally monitored security is security that monitors your home day in and day out, whether you're at home or not.

When you opt for professional monitoring, the technology inside your home is virtually the same as described with self-monitoring; the only significant difference involves who the alarm system contacts in the event of an alarm signal.

With professionally monitored security, a system typically made up of a control panel and sensors monitors your home on a 24/7 basis, whenever that system is armed. Entry sensors are placed at entry

doors and easily accessible windows, and motion sensors are mounted in areas that an intruder might possibly have to walk through to gain access to rooms of your home. Each sensor typically consists of a small battery powered sending unit and a magnet.

You place the entry sensors on entry doors or windows so that if a door or window is opened while the system is armed, the sudden gap between the sending unit and its corresponding magnet causes a signal to be sent from the wireless sensor to the control panel. Additionally, you typically place one or more motion sensors in a common area that an intruder would have to step into to gain access to the remaining areas of your home.

The control panel, in turn, listens for radio signals sent by any of the sensors. If the control panel detects an intrusion attempt at one of the sensors, it triggers an alarm condition. At that point, the control panel sends a signal to an alarm monitoring company indicating that an intrusion attempt has occurred.

It typically sends a signal using a land line telephone line, although there are other ways that the signal may be sent, such as by way of a special cellular phone connection, or by means of an Internet connection. When the signal is received by the alarm monitoring company, a representative of the company normally tries to contact a member of your household by phone, to see whether you set the alarm off accidentally yourself.

If an answering machine or voice mail picks up the phone, the monitoring service immediately contacts local police or other

emergency responders. If you or another real person answers the phone, the monitoring company representative will ask if everything is all right, and they will ask you for the previously agreed upon safe words. (When you originally set up the service with your monitoring company, you provided the company with an agreed upon secret safe word or phrase.)

If you (or whoever answers the phone) are unable to supply the code word or phrase, or if no one answers the phone, the monitoring company then calls the local police or public safety emergency line, and reports an alarm. Your local police or other emergency responders are then dispatched to investigate the cause of alarm.

This is the general scenario behind the whole concept of monitored home security. The advantage over unmonitored home security is that a professional monitoring service is watching over your home and its contents, even when you aren't around to do so yourself.

And the good news is that with the techniques described in this book, you can have monitored security at a very reasonable cost. A number of suppliers will sell you a wireless alarm system that you can install on your own.

The three common conditions that a monitored alarm system can report on are intrusion or panic (prompting a police response), fire, prompting a fire department response, or medical emergency, prompting a paramedic's response. Your control panel must be designed with the buttons that allow for each of these types of responses, and it must be programmed to send the appropriate

signals back to the alarm monitoring company so that they can respond by contacting the proper authorities.

Depending on the model of alarm system you choose, you may be able to obtain one or more wireless keychain remotes for the alarm, and these are highly recommended. A wireless keychain remote lets you arm or disarm the system by pressing a single button on a keychain remote that's in your pocket or purse.

These typically operate from distances of up to 50 feet away from your control panel, so you can use them to arm or disarm the system from your night stand while in bed, or from the front seat of your car after you've pulled into the garage of your home.

Other possible options include smoke detectors and water or flooding sensors, and these can be added to many monitored alarm systems. As an example, this would allow the emergency dispatch of your local fire department if a smoke detector sends a signal while you are away.

### Installing a wireless home security system

When you've decided to install your own wireless home security system—and as noted throughout this book, it's not rocket science—you'll need a reputable



vendor for the alarm kit itself, and you'll need a monitoring service if you want to enable professional monitoring.

The use of a professional monitoring service is highly recommended, considering that you do NOT need to pay hundreds of dollars each year in monitoring fees if you purchase and install your own system, nor must you lock yourself into some multi-year contract that you cannot easily cancel.

The hardware—the actual alarm control panel, sensors, and other accessories can be purchased online from Amazon, Walmart, Home Depot, Safemart.com, The Home Technology Store.com, or HomeSecurityStore.com, just to name a few. And for reliable yet low-cost monitoring, a large number of do-it-yourself enthusiasts have chosen one of three providers: NextAlarm ([www.nextalarm.com](http://www.nextalarm.com)). Alarm Relay ([www.alarmrelay.com](http://www.alarmrelay.com)), and Safemart ([www.safemart.com](http://www.safemart.com)).

Alarm Relay charges 8.95 per month for basic landline-based monitoring. The fee is billed annually, up front for a one-year period. There is also a \$35 account setup fee for establishing the account, making the total cost of the service \$142.40 the first year, and \$107.40 per year afterwards, notwithstanding price increases.

The company also offers e-link access (the ability to arm, disarm, and monitor your system from a web browser), as well as support for cellular phone-network based monitoring and internet (“VoIP”)-based monitoring, although the costs for these optional services were not apparent on the company's web site.

## The Hardware

Here you have a variety of choices. Three popular wireless alarms used as a part of DIY wireless alarm kits are the Skylink SC 1000 available from a number of retailers including Amazon and Walmart Online; the Abbra II from NextAlarm, and the Simon XT from General Electric.

And a strong up-and-coming choice is offered by SimpliSafe; this easy-to-install package includes the alarm hardware and the professional monitoring service from a single vendor.

As far as the actual installation of the hardware at your home, there are at least three and possibly five overall steps you will face.

Numbers 1 and 3 below apply to any wireless home security system, whether you've chosen one that utilizes a monitoring service or not:

1. Installation of the control panel
2. Installing the siren
3. Programming the system (per the manufacturer's directions)
4. Installation of the wireless sensors

In addition to these steps, if you opt for a monitored home security system, you may also be looking at the following steps:

5. Setup of service with a monitoring company (do-it-yourself kits from some vendors, such as SimpliSafe and The Home Technology Store are designed for self-installation and can be

automatically configured by the company to work out of the box and to contact a chosen monitoring service automatically)

6. In many areas, getting a permit from your local jurisdiction (the supplier of your alarm hardware can often help you with this)

### **Installing the control panel**

You'll want to think about the most convenient location for the control panel prior to its installation. The control panel should be installed near an entry door that you use most often, and at the same time, it should be out of direct sight of the entry door or windows. The reason is two-fold; you want the control panel to be placed where you can quickly get to it upon entering your home.

At the same time, you don't want it directly visible to a burglar by way of the door. The reason for this is, professional thieves who break in through a door and hear an alarm panel beeping, awaiting the entry of a disarming code, may forcibly rip the control panel off the wall. If this happens (and assuming the alarm is a one piece control panel), the panel won't be able to send a signal to the alarm monitoring service.

You also need to place the panel reasonably close to an electrical outlet that the panel's power cord can be plugged into. (While all modem panels have a built-in battery backup to maintain protection of your house in the event of a power failure, the panel is normally connected to an electrical outlet for its primary means of power.)

Once you've chosen the desired location for the control panel, you'll use the directions supplied with your particular control panel to drill two small holes in your wall. You'll then typically mount two small grommets in those holes, insert two screws partially into the holes, and mount the control panel on those screws. (Each model of control panel varies, so you will need to consult the directions that are supplied with your particular control panel to determine precisely how far apart you will need to place the screws, and how far into the wall you should drive the screws.)

As you choose the location for your control panel, you should keep in mind that in terms of height, it should be mounted where everyone in the household can easily access the keypad. While your wireless alarm system is called a wireless alarm system, the term 'wireless' is a bit of a misnomer; there will be at least one wire connecting the control panel to a small transformer that plugs into an AC power outlet.

There will likely also be a phone cable that connects the control panel to a telephone line, or to a special cellular phone or an Internet connection, if your alarm uses this type of technology to report to the monitoring service.

The most secure type of installation involves running these wires through a wall, and for this reason you may want to consider mounting the control panel as close as possible to a closet. When you do so, is relatively easy to punch a hole through the wall into the closet and to run the wires directly into the closet and onto the AC outlet or the telephone line connection point.

## Siren installation

With many A.I.O. (all-in-one) design wireless alarm systems, the siren is an integral part of the control panel. However, in some cases, the siren is a separate unit that connects to the control panel by means of a thin cable. In such cases, you will want to mount your siren in a location where it can clearly be heard, and at the same time in a location that is difficult for an intruder to quickly get to in hopes of disabling the alarm.

## Programming the control panel

You'll use the keypad of your alarm system control panel in order to program the alarm system, and in order to record the telephone number of the monitoring service that the alarm panel automatically dials in the event of an emergency. The exact steps for doing this vary greatly from system to system, so you will need to refer to the installation manual that came with your alarm kit in order to perform this step.

## Sensor installation

When installing sensors at entry doors, place the sensor on the edge of the doorjamb (the stationary part of the door), and place the sensors' corresponding magnet on the door itself. Both should be mounted near the top of the door frame. Follow the directions provided with your alarm kit, but generally you'll want to make sure that there is no more than a 1/4-in. gap between the sensor and the magnet when the door is fully closed.

When installing sensors on windows, place the sensor on the window frame, and place its corresponding magnet on the part of the window that opens and closes. As with entry door sensors, you want to make sure that with the window fully closed, there's no more than a 1/4-in. gap between the sensor and its corresponding magnet. You also want to make sure that the placement of the sensor and the magnet do not get in the way of your being able to open the window.

When installing PIR (passive infrared) motion detectors, you will definitely want to carefully refer to the instructions provided with your alarm kit. PIR motion detectors are typically installed at a height of 7 1/2 ft. above floor level, but depending on the characteristics of your particular model, yours may differ.

Also, examine the appearance of the motion sensor carefully, and make sure you do not accidentally mount it upside down. Motion sensors are highly directional in the manner in which they detect movement, and a motion sensor that is incorrectly mounted is not likely to pick up motion properly, if at all.

**TIP:** if you have small pets, do not mount motion sensors at the top or the bottom of a stairwell. Even if the motion sensors have been adjusted to accommodate small pets, a dog or cat bounding up or down the stairs can easily be misinterpreted by the motion sensor as a human being, causing a false alarm. Also, be sure not to mount motion sensors directly above sources of heat. The radiation present in the rising hot air can trigger a motion sensor, causing a false alarm.

Once you've finished installing all of the sensors, you can program your control panel so that it recognizes the sensors you've installed. Again, you must refer to the instructions that came with your alarm kit to determine exactly how this should be done, since the process does vary greatly between models of control panels.

### **Testing the system**

Once you've installed your wireless alarm system, all that remains is to fully test the system. Using the instructions that came with your alarm kit, you'll need to test each of the door, window, and motion sensors individually, and make sure that the proper responses are received by the control panel for each entry sensor and all motion sensors that are part of your alarm system.

### **Home Security Systems Suggestions**

Thanks to today's wireless alarm technologies, anyone with a minimal amount of do-it-yourself skills and the ability to follow a relatively simple set of directions can install a fully-featured security system in their own home, and save money in the process. We examine some specific products that lend themselves to easy installation out of the box.

These products also support different methods of monitoring: self-monitoring, professional monitoring using conventional landline-based phone lines, professional monitoring using cellular phone technologies, and professional monitoring using "V.o.I.P." high-speed internet-service.

One of the four solutions described in this chapter has particular appeal for apartment dwellers. Most apartment leases do not allow for the kinds of wiring modifications that a wired security system would require. So clearly, wireless will be the way to go for apartment dwellers.

Also, since apartment residents are more likely to change locations by moving from time to time than are homeowners, apartment dwellers will want a security system that can be taken down and moved as easily as it was initially installed.

The SimpliSafe alarm kit described in this chapter is a great choice for apartment dwellers. (The product can be used in single family homes as well.)

The Skylink SC1000 wireless alarm system supports the self-monitoring approach; you program the system to dial up to nine different

phone numbers of your choosing, and it plays a prerecorded message of up to 40 seconds in length.



The SimpliSafe and SimpliSafe2 wireless alarm systems use built-in cellular technology to contact the company's own monitoring center, and professional monitoring fees begin at just under \$15.00 monthly.

The Abbra 2 from NextAlarm is designed for people who may not have a conventional landline phone line, but who do have a high-speed internet connection.

The Simon XT from General Electric is a popular full-featured wireless alarm system, available from a number of vendors. An advantage of purchasing the product from SafeMart.com is that you can have the alarm automatically configured to operate with SafeMart's own professional monitoring service.

Skylink SCI 000 wireless alarm system. For those who are happy with the self-monitored approach to alarm system monitoring, the Skylink SC 1000 wireless alarm system makes for an excellent choice. You get a complete, out-of-the box system with alarm siren unit, wireless control keypad, two entry sensors, one motion detector, and one wireless keychain remote.

After you install the system, you can program the emergency dialer to call up to nine different phone numbers, including your cell phone, a spouse's cell phone, your doctor, relatives, friends, neighbors, etc., if any of the sensors triggers an alarm condition.

You'll also record an emergency message of your choosing, of up to 40-seconds in duration. If an alarm is triggered, the system's dialer will automatically dial each of the numbers you entered. Once the recipient picks up the phone, the emergency dialer plays the prerecorded message, informing the other party that an alarm condition has been reported by your system and that help should be sent.

The SkyLink SC-1000 sports a lighted keypad that is easy to read in the dark and it provides Chime, Instant, and Delay modes. It runs on AC power with nine-volt alkaline battery backup (battery included), and there is a low-battery indicator to warn you when the backup battery needs replacement. In addition to purchasing through Amazon, the SkyLink SC-1000 can be found through a number of retailers, including WalMart Online, Sears, and the Home Security Store.

## SimpliSafe

SimpliSafe is an affordable, full-featured wireless alarm system that provides monitored security, being linked to an emergency dispatch center via cellular technology. This system has the most innovative design that this author has ever seen when it comes to ease of installation; the product arrives pre-programmed, and setup takes roughly 15 minutes.

At the time of this writing, a basic alarm system costs \$199.95. and includes two wireless entry sensors for your doors and windows, a PIR motion detector as a secondary line of defense, a control panel keypad that mounts on a wall near your entry door, and a wireless cellular base station that uses a cell phone network to communicate with the SimpliSafe monitoring center.

The best feature offered by the entire system may well be its affordability; unlike most alarm monitoring service vendors, there is no minimum contract, and monitoring costs just \$14.99 per month at the time of this writing. You can take the entire system with you whenever you move, and the company will provide a Moving

Reinstallation kit at no cost to customers who have signed up with SimpliSafe's alarm monitoring service.

The SimpliSafe system is highly customizable; at the company's web site, you assemble a system that suits your needs by choosing desired components. Every system will need at least one base station, one wireless keypad, and one wireless sensor of some type. The base station contains the brains of the system, along with an 85-decibel alarm siren and a cellular communicator that links the system to SimpliSafe's monitoring center.

The wireless keypad can be used to arm and disarm the system, wireless entry sensors can be added to doors or windows, and wireless motion sensors can be mounted on walls. At the time of this writing, the SimpliSafe web site listed the following prices:

- Base station: \$99.95
- Wireless keypad: 69.99
- Wireless entry sensors: 14.99 each
- Wireless motion sensors: 29.99 each
- Wireless keychain remotes: 24.99 each
- Wireless additional 105-decibel siren: 59.99
- 24/7 alarm monitoring service: 14.99 per month, no contract needed (Add \$5.00 monthly for SMS text notifications)

The author also found it admirable that the company clearly states, on their web site, that monitoring is recommended, but not required. If a customer just wants an alarm system that protects one's home and makes a lot of noise to scare off a potential intruder,

the SimpliSafe wireless alarm system without the monitoring option will accomplish that task.

SafeMart, Live Watch, and the GE Simon XT DIY wireless alarm kit

SafeMart is an internet-based supplier of security systems and alarm monitoring, and the company is a division of LiveWatch LLC, a provider of alarm monitoring services. The integration between two arms of the same parent company makes this a simple, one-stop shopping solution for anyone pursuing the do-it-yourself route who also desires professional monitoring.

You can order the GE Simon XT Do-It-Yourself wireless alarm kit for as little as \$99.95 as of the time of this writing, and you can arrange for alarm monitoring through the same SafeMart website, at costs of \$9.95 monthly for basic landline phone-based monitoring. \$19.95

per month for basic cellular-based monitoring, or \$29.95 per month for interactive cellular-based monitoring (this includes the ability to arm/disarm and monitor the control panel from a web browser, iPad, or an Android-based smartphone, and the ability to get e-mails or text alerts of alarm conditions).



Alternately, you can order the complete GE Simon XT system with interactive, cellular-based monitoring service through SafeMart's LiveWatch division by simply ordering a bundle that SafeMart sells through Amazon, where it was priced at \$399 for the total package at the time of this writing.

When you arrange for the purchase of the alarm and the monitoring service through SafeMart, the company provides clear directions for quickly getting the system working with the LiveWatch monitoring service if you also order a "quick configuration option" costing roughly \$20, and you can also call SafeMart's own tech support line to get any help needed configuring the system.

As with any home security system, it is possible to add a pile of options and quickly run up the price tag. Using a "build your own custom configuration" page at the SafeMart web site, I added three entry sensors, one motion sensor, a keychain remote, a cellular communicator (required if you don't have a conventional landline-based phone line and want to use the cellular phone network for alarm monitoring), and a "quick configuration option" that included three months of monitoring service at no cost and would automatically match the alarm control panel to a new LifeWatch monitoring service account, making for a "plug-and-play" installation experience. By the time I'd added these options, my \$99 alarm system had a total price of just over \$520.00.

Still, the do-it-yourself approach can be a major money-saver over any length of time. Ordered from the SafeMart web site, this alarm system with basic cellular monitoring over a three-year period would cost roughly \$1,238.00. A wireless security system with a

virtually identical set of options from a very large name in professional home security systems would run \$1,620.00 over the same three-year period. And (assuming you chose to go with that big name in professionally-installed systems) if you were to cancel their service at the end of the contract period, the alarm system itself would not belong to you—it remains the property of the big-name alarm company.

The do-it-yourself savings can be even greater if you do have a conventional landline phone line, and have no plans for dropping phone service. The GE Simon XT system ordered from SafeMart.com but with just the standard connection option for a basic landline phone line in place of the cellular communicator would cost you \$301 for the alarm, the 3 entry sensors, the motion sensor, and the keypad, and you would own the alarm the day that it arrived at your home.

Throw in three years' basic monitoring at \$9.95 per month, and you get a total cost of just over \$659.00. By comparison, the similarly-equipped system from that big name in home security systems would run nearly \$1300, a cost that is nearly double that of the do-it-yourself approach.

### NextAlarm and the ABBRA II

NextAlarm is a security services company that provides alarm monitoring services and that specializes in using broadband (“VoIP”) Internet technologies to provide a connection to the company's own alarm monitoring center. If you do not have conventional landline-based phone service but you do have a

reliable, high-speed internet service through a cable TV or other provider, an ABBRA II wireless alarm system from NextAlarm may be your best option.

The Abbra package includes NextAlarm's own ABN Network adaptor allowing you to connect your alarm system directly to your high-speed internet connection. (Numerous alarm systems still require a land phone service and are not compatible with internet provider style phone service.)

Next Alarm's Abbra package gets around this issue, and does so at a low cost. With the NextAlarm monitoring service, the use of the Abbra panel allows a real-time connection called "FAST" which lets you to track alarm panel activity, sensors and events from a remote location using a web browser, even when the panel is disarmed. The system supports up to 28 wireless sensors, integrates with NextView cameras if you want optional video surveillance, is a breeze to install, and includes free tech support. Included with the box are the following:



Abbra Control Panel with integrated keypad and digital display, built-in 100 decibel siren, and built-in battery backup

ABN Broadband Adaptor to allow connection of the alarm panel to your internet router  
2 Pre-Programmed Entry Sensors  
1 Pre-

Programmed Motion Detector 1 Wall Mount and 1 Table-Top Mount  
1 Wireless keychain remote

At the time of this writing, the Abbra kit was priced at \$279.00, with NextAlarm monitoring priced at \$13.95 per month with no long-term contracts. Additional entry sensors were priced at \$35.95 each, extra motion sensors at \$74.50 each, and extra keychain remotes were \$41.50 each.

The system also supports a number of other options such as smoke detectors, water/flood detectors, wired and wireless additional sirens, and video cameras (see the web site for details). You can find links for the purchase of the Abbra at the Home Technology Store (<http://home-technology-store.com>) or at NextAlarm ([www.nextalarm.com](http://www.nextalarm.com)) or you can call The Home Technology Store at 866 523-2146, or NextAlarm at 1-877-NEXT911.

### Preventing false alarms

Once your new home security system is up and running, you'll want to take steps to reduce the possibility of false alarms. A false alarm is any signal from your alarm system that results in response by police, fire, or other first responders when there's no need for any type of emergency response. If your monitoring



service dispatches emergency personnel, and the personnel responding to the alarm find no signs of burglary or fire, and no need for paramedics, they will log the alarm as a false alarm.

You'll want to avoid false alarms as much as possible. Besides being a waste of valuable time for the emergency personnel and a major annoyance to the neighbors, false alarms may cost you in terms of real dollars and cents. Many municipalities require a permit for a monitored alarm system.

These permits are typically issued by city or county agencies, or by your local police department. Generally, your municipal government will allow you a certain number of false alarms within a given time period, and these false alarms are recorded against your particular alarm permit number;

Once you go beyond this given number, you will be fined by the local government authorities for any additional false alarms within that same time period.

The most common causes of false alarms are the following:

Human error (for example, someone entering the house is unable to remember the alarm code in time to disarm the alarm)

Pets (while motion detectors can be adjusted to allow for small pets, pets are nevertheless notorious for triggering false alarms, generally by accidentally activating one of the motion detectors).

Loose doors or faulty sensor installation (the magnets that must be paired with wireless sensors and the wireless sensors themselves

are often adhered to door frames or window frames using a type of peel-and-stick. press on adhesive backing). After time, the backing may give way, and either the sensor or its corresponding magnet comes loose from the doorjamb or window, triggering a false alarm. A loose door can trigger a false alarm for much the same reason.

You can reduce the number one cause of false alarms, human error, by making sure that everyone within your household is thoroughly familiar with the use of your alarm system. Anyone that has the key to your home should also be familiar with the exact process needed to disarm your alarm system.

Where possible, you should keep your pets away from the immediate areas where your motion sensors are mounted. You should also never place a space heater in an immediate area directly underneath a motion sensor. The reason for this is, motion sensors operate by detecting infrared radiation, and infrared radiation is partially heat-based. Space heaters have been known to set off motion sensors, triggering false alarms as a result.

You should also make sure that you and every resident of your household have the phone number of your alarm monitoring service programmed into your cell phones on speed dial. If you accidentally trigger an alarm, immediately use your phone to call the monitoring service, give them your name and address along with your safe word or safe phrase, and cancel the alarm.

At least twice a year, you should make a visual inspection of all entry sensors associated with your alarm system. Make sure that none of the sensors are beginning to work loose from their mounted

position on door jambs or window frames. Get in the habit of performing this maintenance at the same time that you check your smoke detector batteries. Some persons try to do this at the same time the clocks are changed for daylight savings time; this useful habit insures that the alarm maintenance takes place twice a year.

While on the subject of maintenance, keep in mind the fact that the mere act of changing the batteries inside the wireless sensors will be interpreted as a tamper attempt by many alarm systems. Before you change the batteries in any of the alarms sensors, you will want to refer to your alarm kit directions, call the monitoring service, and put the alarm into a "test mode." While the alarm is in a test mode, alarm signals received by the monitoring service will be recorded, but emergency services will not be notified.

## **Video surveillance Considerations**

If you are seeking to protect your home on a number of fronts, consider adding video surveillance to the mix. Once a plaything of the wealthy, video surveillance equipment has dropped drastically in price



over recent years thanks to the continuing advances in technology that have lowered the cost of high tech on a number of fronts.

And with the advances in tech, companies have made major strides in the ease-of-use department. You no longer need to be a TV studio engineer in order to set up video surveillance to help protect your

home. Out-of-the-box solutions can be found on the shelves of retailers like Amazon.com, Wal-Mart, Best Buy, Radio Shack, and Home Depot.

## **Video Surveillance on a budget**

You can implement video surveillance at a very low cost—if not literally for pennies, you can do so for less than you would spend feeding a family of four at the local McDonald's. The secret to this is to make use of inexpensive webcams that can be connected to the USB connection of a computer that you already own.

The basic idea here is that using do-it-yourself techniques, you mount the webcam inside some type of weatherproof container, so that the webcam isn't directly exposed to rain, snow, or high winds. You mount the container at the base of a second-story window or against a roof ledge in a place that has a clear view of the area that you want to monitor and at the same time is close to a window that's readily accessible inside your home.

Finally, using a USB extension cable—think of this as a sort of “extension cord for USB devices”—you run the webcam line back into your house, and you use the monitoring software that came with the webcam to perform video surveillance. The paragraphs that follow describe these steps in greater detail.

### **Supplies Needed**

For this technique to work well, you will want the type of webcam that sits atop a plastic base and can be swiveled and pointed in

various directions. The Microsoft VX-3000 LifeCam is one example of this type, and you can order these from Amazon for roughly \$20 each.

You'll need the webcam, and you will also need a USB male-to-female extender cable. You can also find these at Amazon or you can find webcams such as this one and similar ones at your local Walmart and at outlets such as Best Buy and Radio Shack.

However, I recommend Amazon for the purchase of USB extender cables, because Amazon routinely has these in stock, priced at around five dollars per cable. Most USB extender cables from the other retailers just named will run in the \$20 to \$30 range, so even with shipping, the extender cable from Amazon will be a better deal, cost-wise.

You will also need an empty plastic tub of the type that soft margarine normally comes in (wash all traces of margarine from the container and save the lid.) For appearance purposes, you'll need an old paintbrush, and a bit of paint that's a close match of the area where you plan on mounting the webcam. Finally, you will need a tube of weatherproof epoxy cement that can be used to adhere plastic; you'll find this at your local hardware store.

## Installation and Operation

To set up video surveillance on the cheap, take the empty margarine container, and cut a small slit near the center of the base to feed the webcam cable through. And while you are in the act of cutting, punch two holes about an inch apart near the edge of the container;

you will need these for the mounting screws that will hold the container to the roof edge or the base of the window frame of your second-story window. Next, feed the webcam's USB cable through the slit that you cut for that purpose. Pull the slack from the cord so that the webcam, and perhaps 3 or 4 inches of cable, remains on the inside of the margarine container.

Next, place a liberal coating of glue on the base of the webcam, attach it to the interior of the plastic container, and allow the entire assembly 24 hours to fully dry. Also use the epoxy to fully seal the slit that you previously ran the webcam cable through, so that rainwater will not leak into the plastic tub. (Reinforcing this area with a little weatherproof tape is not a bad idea if you have some weatherproof tape around the house.)

When the container with the webcam is ready (meaning, the glue has dried completely and the webcam shows no signs of pulling apart from the container), use two small wood screws to mount the container against the base of the window frame, or on the wall or the first-story roof ledge of your home. (Check to be sure that the mounting area is NOT directly underneath your rainwater gutters.)

Once you've mounted the housing, adjust the webcam as needed so that the lens is pointed in the general direction of the area that you want to monitor (typically, this will be the entryway to your door). To finish up the project, locate the lid of the margarine tub (you did save the lid, remember?) and cut a two-inch square hole in the lid, in the general vicinity of the webcam lens. Put the lid back on the margarine tub. (This will serve as added weather protection, keeping the webcam shielded from the elements.)

For appearance reasons, take the paintbrush and the paint outlined earlier under “Supplies,” and paint the outside of the tub and the underside of the lid to match the exterior of your home. (You can skip this step if you don’t mind having a plastic container mounted on your wall that reads “Parkay” in large, upside-down letters, but your neighbors are likely to consider this a bit bizarre.)

Now punch a small hole in the window screen close to the corner of the window, and feed the USB cable back into your home. Connect one end of the USB extension cable to the USB cable that runs to the webcam, plug the other end into your laptop, and your on-the-cheap video surveillance system is ready for use.

Nearly all webcams ship with free software that allows you to capture motion-sensitive events. You will want to find your webcam’s software on your computer and look for an option called “Monitor” or “Motion Capture.”

My favorite software for this use is Arcsoft’s WebCam Companion, which is included with a number of inexpensive webcams. In that program a “Monitor” option displays another window that lets you turn on tracking of any movement that is detected by the webcam.

If you make use of this “Video surveillance on the cheap” approach to monitor your home, keep in mind the fact that video files tend to take up large amounts of disk space, so you’ll need to archive or erase unneeded video files from your hard drive on a regular basis.

## Video Surveillance Products - Recommendations

As mentioned earlier, there are a variety of easy to install and relatively low cost products that can be used for video surveillance around your home. Just a quick glance at the security shelves at your local Home Depot or a stop by your local Best Buy or Radio Shack will give you a good idea of what's available. The following products are just a few examples:



### Lorex LW2110 Digital Wireless Security Camera

If you're looking for a good out-of-the-box solution that can be had for under a hundred dollars (US), one option that gets good customer reviews is the Lorex LW2110 Wireless Digital Security Camera, available from Radio Shack as well as from Amazon. (At the time of this writing, Amazon's listed cost was \$96.34 plus tax and shipping: [click this link for details.](#))

The Lorex LW2110 Digital Wireless Security Camera is a weatherproof digital security camera that quickly installs to help keep your property highly secured from intruders. The camera comes with a receiver, which can be attached directly to a security DVR. You can also connect the camera directly to a wall mounted TV, using the 3' cable that is included. The camera's weatherproof construction lets it withstand harsh weather conditions. The camera has a monitoring range of 450 feet outdoors, and 150 feet indoors. At the time of publication, the Lorex LW2110 Digital Wireless

Security Camera was available from Walmart (through its online store) for \$105.00.

### The Swann Home Outdoor Security Kit

Swann Home Outdoor Security Mt (photo courtesy Radio Shack; If you want to set up the outdoor video surveillance quickly and at a minimal cost, a number of users who have reviewed this product say you can't go wrong. The Swann Home Outdoor Security Kit costs just \$49.95 at Radio Shack, and for that low cost you get a wired, weatherproof security camera, and you also get a nonworking "dummy" camera.

The working camera provides 380 lines of resolution and has infrared night vision of up to 30 feet. It includes a 60-foot cable for fast connection to a TV, VCR, or DVR. Available from Radio Shack (through its online store) for \$49.97.

### Swann SWDVK-825504 8-Channel Digital Video Recorder with Smartphone Viewing and 4 x PRQ-550 Cameras

#### Swann DVR4-2550 i- 4 PRO-550 CCD Cameras Security Monitoring System

The Swann DVR4-2550 & 4 PRO-550 CCD Cameras Security Monitoring System is a complete package-style video surveillance system, at an affordable price.

The system includes an eight-channel digital video recorder for simultaneous viewing and recording of 8 video streams locally, over the Internet or on your smartphone. The four Day / Night Cameras provide sharp, clear video through their high resolution Sony CCD

image sensors with night vision of up to 50 feet and the ability to operate indoors and outdoors.

The digital video recorder (DVR) contains a 500GB hard drive that stores more than 120 days of continuous recording from all four cameras. You can also choose to record for longer times and save hard disk space by enabling the DVR's advanced motion activated recording.

The time and date are integrated into your video files, allowing you to find incident footage and transfer events to a USB flash drive for easy storage and retrieval when necessary. Assuming a connection to an internet feed, you can configure the DVR to send email alerts when motion is detected by any one of the interconnected cameras.

Internet-based remote viewing can be set up by means of Swann's Universal Plug-and-Play technology that automatically configures the DVR to your internet router (if your router has Universal Plug-and-Play capability). A VGA connection allows for viewing on a computer or LCD monitor (with VGA input), or you can view the video on your existing TV using the video cable provided. Available from Amazon for slightly under \$420.00 at the time of this writing. Here are a few tips that apply to home video surveillance:

1. Mount cameras at entry doors, so you can record everyone who enters your home. In the event of a break in, a recording of the criminal can prove invaluable to law enforcement, and may mean the difference between possible recovery of the stolen items and your never seeing them again.

2. If you have valuable items clearly displayed in open areas, such as antiques, crystal, fine china, or jewelry, consider placing a camera that faces the area where the expensive items are on display.

3. Power surges and blackouts can not only cause interruptions in your video surveillance recordings, they may damage your equipment. Consider adding surge protection and battery backup to your video surveillance gear.