



Contingency Communications for SHTF

Contingency Communication Devices - Radio - Satellite - Physical Delivery - Signalling

This guide provides alternatives to communication when primary options are unavailable due to cell tower overload, grid down scenarios, or offgrid applications. A focus is placed on Radio, Satellite, and Rudimentary comms. Learn about devices' operation, when they should be implemented, features, and follow details on their utilization for disseminating messages/alerts and receiving information/news.

Primary Communications Mediums should be monitored continuously. These are landline/cellular phones, internet services, text messages, email, and postal mail.

Alternative Communication Mediums should be monitored periodically prior to SHTF but following a Life Altering (LAE) these options may be your only means of comms. These are satellite phones, Amature Radio (Ham), Walkie Talkies (FRS), Citizens Band (CB), smoke signals, message drops, etc.

This guide's intent is to provide information on contingency communication mediums so that you can plan in advance allowing you to be prepared for the worst. Built your Emergency Response Plan using the [ICERS Template](#).

Bottom Line Up Front (BLUF):

1. An event may occur that would disable your cell phone or internet.
2. Offgrid locations do not have cell coverage and there are many "dead" spots along our daily routes where no coverage is available.
3. When an emergency or SHTT event occurs communication is key to develop plans of action
4. This guide outlines various devices and techniques that can be used as contingency communications.
5. Details, Specs, and Features are provided for radio, satellite, mesh networks, and other tech devices.
6. Implementation of rudimentary forms of comms are explained such as smoke signals, message drops, and rock cairns.

TABLE OF CONTENTS (TOC)

PAGE 1	SUMMARY - BOTTOM LINE UP FRONT - TOC.
PAGE 2-4	TERMINOLOGY - DEFINES ACRONYMS AND TERMS
PAGE 5-15	RADIO - AM/FM, NOAA, HAM, CB, WALKIE TALKIE, GMRS, MURS
PAGE 16-17	SATELLITE - PHONE, HOTSPOT, PLB
PAGE 18-19	PHYSICAL DELIVER - MESSAGE DROPS
PAGE 20-21	INTERNET - ALTERNATIVE
PAGE 22-23	MESH NETWORK
PAGE 24	MISC TIPS
PAGE 25	RESOURCES - PRODUCT RECOMMENDATIONS



CONTINGENCY COMMS FOR SHTF: TERMINOLOGY

FM - Frequency Modulation. FM broadcasting is a method of radio broadcasting using frequency modulation technology. Wide-band FM is used worldwide to provide high-fidelity sound over broadcast radio. FM broadcasting is capable of better sound quality than AM broadcasting, the chief competing radio broadcasting technology, so it is used for most music broadcasts. In the United States, frequency-modulated broadcasting stations operate in a frequency band extending from 87.8 MHz to 108.0 MHz, for a total of 20.2 MHz and 101 channels.

AM - Amplified Modulation. The Amplitude Modulated (AM radio) carrier frequencies are in the frequency range 535-1605 kHz. Carrier frequencies of 540 to 1600 kHz are assigned at 10 kHz intervals.

UFH - Ultra high frequency (UHF) is the ITU designation for radio frequencies in the range between 300 megahertz (MHz) and 3 gigahertz (GHz), also known as the decimetre band as the wavelengths range from one meter to one tenth of a meter (one decimeter)

VHF - VHF's frequency range is from 30 MHz to 300 MHz which is delivered in longer wavelengths allowing for greater rang that UHF but does not perform as efficiently in densely wooded areas.

HF - High frequency (HF) is the ITU designation for the range of radio frequency electromagnetic waves (radio waves) between 3 and 30 MHz. It is also known as the decameter band or decameter wave as its wavelengths range from one to ten decameters. HF communication is capable of communicating of distances over 3000Kms and more and is used for first-line and backup communications over long distances, HF is mainly used in remote regions of the developed world and in developing countries

CB - Citizens Band: Greater transmitting range than FRS.

Ham (not HAM as it is not an acronym but rather a slang for the users)- Amature Radio: Greater transmitting range than any other personally owned device. Amateur radio, also known as ham radio, describes the use of radio frequency spectrum for purposes of non-commercial exchange of messages, wireless experimentation, self-training, private recreation, radiosport, contesting, and emergency communication. The term "amateur" is used to specify "a duly authorised person interested in radioelectric practice with a purely personal aim and without pecuniary interest;"

LEO Satellites - Low Earth Orbit satellites, like their name implies, orbit much closer to earth. LEOs tend to be smaller in size compared to GEO satellites, but require more LEO satellites to orbit together at one time to be effective. Rather than competing with GEOs, LEOs should be used as more of an accomplice, at least for now (with current technology). It is much cheaper and faster to test new technologies and concepts in LEO devices compared to GEOs.



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GEO Satellites - Geostationary satellites are earth-orbiting about 22,300 miles (35,800 Kilometers) directly above the equator. They travel in the same direction as the rotation of the Earth. This gives the satellites the ability to stay in one stationary position relative to the Earth. One advantage of GEO satellites is that it is easier to implement new technologies as they arise and additional capacity one satellite at a time, unlike LEO satellites.

FRS - Family Radio Service: This is your standard Walkie Talkie or Portable Two Way Radio. Most cost effective and easily obtainable transmitting device. Using FM in UHF ranging between 100ft and 36 miles, they offer a localized option for communication with nearby persons. These devices cannot be amplified. Limited on available bandwidth could be impossible to find an open channel in a densely populated area following a LAE.

GMRS - General Mobile Radio Service: Operate on predefined frequencies between 462 and 467 MHz with the option of additional channels that can be amplified to improve strength. Uses FM that provides a louder and clearer sound than FRS. Regulated by National Laws and international agreements. Require a license to operate. The most common use of GMRS channels is for short-distance, two-way voice communications using hand-held radios, mobile radios and repeater systems. Also allows short data messaging applications including text messaging and GPS location information.

SW - Short Wave. Radio transmission using shortwave radio frequencies. There is no official definition of the band, but the range always includes all of the high frequency band, and generally extends from 1.7–30 MHz; from the high end of the medium frequency band just above the medium wave AM broadcast band, to the end of the HF band. These waves skip (skywave) off the atmosphere and back down to the receiver.

MURS - Multi-Use Radio Service. Uses channels in the 151 – 154 MHz spectrum range. The most common use of MURS channels is for short-distance, two-way communications using small, portable hand-held radios that function similar to walkie-talkies.

SINCGARS - Single Channel Ground and Airborne Radio System. Used by majority of military branches. These radios are Very High Frequency, LOS (line of sight) radio systems and are man portable, vehicle, and airborne. They operate on a single frequency, or frequency hopping, changing frequencies 111 times per second, and this feature requires the radio to be 'time synchronized'.

PLB - Personal Locator Beacons (PLBs) transmit personalized distress signals in the 406 MHz spectrum range and aid in search and rescue missions. For example, if you are in a remote area and out of the range of cell phone service, you can use a PLB to send a personalized emergency distress signal.

MSLD - Maritime Survivor Locating Devices (MSLDs) transmit are intended for use by persons at risk of falling into the water such as mariners and workers on marine installations or docks, or by divers



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returning to the surface out of sight of their dive boats. Signal is sent directly to the US Coast Guard. The device is licensed but the users need not be.

BETRS - The Basic Exchange Telephone Radio Service is in the 152 – 159 MHz and 454 – 460 MHz spectrum bands. BETRS spectrum is used to provide basic, digital, telephone service to subscribers in locations deemed so remote that traditional wireline service or service by other means is not feasible.

SSB - Single-sideband modulation or single-sideband suppressed-carrier modulation is a type of modulation, used to transmit information, such as an audio signal, by radio waves.

NFC - Near Field Communication is a data exchange protocol limited to a 4cm range.

Bluetooth - The unique capability of this feature is its ability to be incorporated in many devices, serve in a mesh network, and offer secure data delivery. It actually used shortwave UHF radio and rated from 33ft to 328ft but is greatly limited by obstructions.

IR - Some of the earliest forms of smart devices used IR to send and receive data. IR has a very limited LOS range but can still be used for near range comms.

RADIO DEPENDANT TECH- We've separated this form of radio technology as it relates to device that simply utilize radio signals as a component of their communication abilities.

RFID - Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify and track tags attached to objects. The tags contain electronically stored information. Passive tags collect energy from a nearby RFID reader's interrogating radio waves. Active tags have a local power source such as a battery and may operate at hundreds of meters from the RFID reader.



CONTINGENCY COMMS FOR SHTF: RADIO

WHAT MAKES A RADIO DEVICE A PREFERRED BACKUP COMMS?

Radios are affordable and easily obtainable. They can be maintained with minimal expertise. They have multiple means of powering such as solar, cranks, replaceable batteries, USB/Outlet charging. Aside from Ham radios, most types of radio devices are simple to use and do not require training. Literally anyone can press the button on the side of a walkie talkie or turn on the FM radio in a car.

Devices are small and can be carried in a bag or on your person. They can be stored in a Faraday cage to withstand damage during events such as an EMP.

They offer instantaneous relay of information. Listen only devices such as FM/AM can allow for millions to receive live information as news unfolds. They can be used to share instructions, navigation, tactical movements, and more. Most newer devices feature the ability to transmit text based data such as the Radio Station name or if you are listening to music, even the song name and artist. This uses RDS technology and offers endless capabilities for survival information relay.

WHERE AND HOW CAN A RADIO DEVICE BE USED?

🌐 Radio communication is the transmission of radio signals. These signals are electromagnetic frequencies. The frequencies are modulated for communication and they are less than the frequency of visible light.

⚡ These electromagnetic radiations travel through air and vacuum. In order to carry the information, some of the properties are modulated, or changed. The properties of radio waves are amplitude, phase and frequency.

📻 Radio signals reception depends on weather, terrain, and frequency type/strength.

CONTINGENCY COMMS FOR SHTF: RADIO DEVICES



NOAA RADIO: Range/Reception, Great (25mi-300mi with theoretical 3000+ mi) | Cost, Low(\$10+) | Ease of Use, Easy | License, Not Required | Primary Purpose, Receive/Listen to Weather/Alerts.

NOAA Weather Radio (NWR; also known as NOAA Weather Radio All Hazards) is an automated 24-hour network of about 133 radio stations in the United States that broadcast weather information directly from a nearby National Weather Service office. A complete broadcast cycle lasts about 3 to 8 minutes long, featuring weather forecasts and local observations, but is interrupted when severe weather advisories/warnings/watches are issued. It occasionally broadcasts other non-weather related events such as national security statements, natural disaster information, environmental and public safety statements (such as an AMBER Alert) sourced from the Federal Communications Commission's (FCC) Emergency Alert System.

There are many weather only radios and standard radios that offer NOAA channels and have other features that manufacturers add as they see fit, but not all-weather radios are created equal. To get the features you want a [NOAA Public Alert™ certified radio](#).

- NOAA Public Alert™ Certified All Hazards Weather Radios - A weather radio must meet listed requirements to earn the NOAA Public Alert™ certification. These radios run from \$30 to \$200 and probably already own one if you live in tornado country. Many preppers who live in other parts of the country don't understand their capabilities or why every prepper should own at least one.
 - Tone Alarm – The National Weather Service sends a tone alarm before most warning and watch messages are broadcast. This tone will turn on radios equipped with tone alarm even if they're turned off to ensure that you get important alerts. Without this feature, users tend to sleep through important warnings.
 - SAME Technology – Same Area Message Encoder enabled radios are programmable. SAME enables the user to program the radio to only alert them about severe weather hazards that occur in the county programmed.
 - Selectable Alerting of Events – Whereas SAME technology only allows you to select a county, Selectable Alerting of Events allows the user to turn off alarms for events that they don't need to hear about. For example, if they live 30 miles inland and don't care about coastal flooding.
 - Battery Backup – Power failures are common in emergencies.
 - External Antenna Jack – Can greatly improve reception.
 - External Device Jack – This jack can drive strobes or pillow shakers so it's useful for users with special needs.



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FM/AM RADIO: Range/Reception, Great (25mi-300mi with theoretical 3000+ mi) | Cost, Low(\$1+) | Ease of Use, Easy | License, Not Required | Primary Purpose, Receive/Listen to News/Music/Weather/Alerts.

SHTF Synopsis: This is a must have device. While it only receives info, sometimes knowledge is what we need most in order to react. Get at least two radio receivers and a NOAA certified receiver. Keep one radio in a Faraday Cage with batteries removed and make sure it has alternative charging means such as solar or hand crank.

Most widely accessible method of receiving information. Get local and worldwide emergency alerts via automated broadcast after SHTF and listen to newscast leading up to (and during SHTF if capabilities exists). This is your basic radio in your vehicle, available through online streaming, and of course portable radios like a hand crank emergency receiver.

- NOAA, Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office.
- Alerts, The Emergency Alert System (EAS) is a national public warning system that requires broadcasters, satellite digital audio service and direct broadcast satellite providers, cable television systems, and wireless cable systems to provide the President with a communications capability to address the American people within 10 minutes during a national emergency.
- RDS, Radio Data System is a communications protocol standard for embedding small amounts of digital information in conventional FM radio broadcasts. RDS standardizes several types of information transmitted, including time, station identification and programme information.
- FM Smartphone Chip receivers are already present in most smartphones, but not all smartphone makers activate them. If your phone has one you can use an app as a tuner to utilize the built in radio. You'll need an antenna but luckily your headphones double as one
 - This uses less data and battery power than connecting to radio apps, though of course, there's less control over what you listen to. Aside from the nostalgia factor, FM radio broadcasts can be life-saving, especially in emergency situations when information is transmitted via radio waves. If the mobile internet is down, having access to local radio stations through an FM chip would be an invaluable asset.
 - HTC, Samsung, LG, Motorola, and many other phones typically have an activated chip but Apple has refused the FCC's request to activate the iPhone's hidden FM radio to aid public safety.
 - NextRadio: This is the app you'll need. It offers two ways to listen to live, local FM Radio. If your device has the FM receiver chip activated, you will be able to listen to local, terrestrial FM radio which uses less data and saves your battery life compared to streaming. The activated FM chip allows you to listen to NextRadio during times of emergency, working even when cell towers are down. The cord from your headphone or stereo cable act as an antenna to receive local FM radio signals.



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- How to get started?
 - 1. Download NextRadio.
 - 2. Plug in headphones, speaker cord, or earbuds.
 - 3. Open app, share location or enter zipcode.
 - 4. Want to go total offgrid? Click settings in the app, then interface, then switch to tuner mode only.

HAM RADIO: **Range/Reception, Good (2.5mi-500+mi) | Cost, High (\$30-\$2000) | Ease of Use, Difficult (training needed) | License, Required (must be issued by FCC) | Primary Purpose, Send/Receive non-commercial messages.**

SHTF Synopsis: This is the ideal device for most end of the world scenarios and is popular in the prepping community. There are low priced portable devices but the real use comes with a high watt and costly setup with a series of repeaters that most likely are not present. It's something to consider but not for beginners. If you have limited time and money to commit to contingency comms we suggest GMRS radio.

This is the top choice for emergency communication devices because it is the most powerful and versatile. With a million frequencies that you can use you will have a higher range of reaching out to send and receive information. Using HAM radio repeaters will drastically maximize your radio's band which is very useful during emergency situations as you will have the ability to reach out further and find someone you can communicate and exchange vital information with.

- Repeater act as a receiver that then retransmits a signal so that transmissions can travel great distances. In theory if you had a repeater every 3.5 to 100 miles covering the earth you could transmit across the globe.
- Antennas increase range of the transmission. A portable, fixed, or mounted (whip) antenna are all options depending on your need. On a portable antenna that's carried with you, a whip antenna is a great accessory to add up to 30% more range.
- Licenses, The FCC issues six license classes, each authorizing varying levels of privileges. The class for which each licensee is qualified is determined by the degree of skill and knowledge in operating a station that the licensee demonstrates during an examination to volunteer examiners (VEs) in his or her community. Operator class license classes are: Current: Technician, General, and Amateur Extra. There are 3 Grandfathered Operator Classes: Novice, Technician Plus, and Advanced.
- Features
 - Morse code and Radioteletype (RTTY).
 - Automatic Position Reporting System (APRS).
 - Pictures can be sent to a Television set.
 - Assigned 26 bands.



CB RADIO: Range/Reception, Good (1mi-30mi) | Cost, Medium(\$30-\$700) | Ease of Use, Easy | License, Need not apply (license is given automatically to the user) | Primary Purpose, Send/Receive any type of message.

SHTF Synopsis: The range of these devices is good but CB use has dropped dramatically in the past decade. For most scenarios there are better options. They are typically large, don't use portable batteries, and a bit more costly than a GMRS radio.

You have to keep in mind that when choosing a CB radio that all CB's has a limit of 4 watts of transmission power only which will affect your effective range but CB signals bend over hills and around obstacles giving them a leg up on LOS options. CB radios can be peaked and tuned to increase its performance. CB radios are only different on their features so if you're planning to store a CB radio on your emergency kit it is best to understand its best features.

Unlike the Ham, a CB radio can be used for both personal/business purposes. It is shared by multiple users, Only one station is permitted to transmit at a given time, as stations must wait for available channel space.

- License, While technically a license is required to operate a CB radio, it is issued as "License by Rule", meaning if you are using a CB radio you are deemed to have a license by owning/possessing the device and you do not technically have to apply for a license. You must still adhere to regulations issued by the FCC. So is plain speech, you do not need a license.
- Emergency Use, Channel 9 is the US reserved channel for transmitting emergency information rather it be to inform others of a vehicle accident or request medical assistance. Do not transmit on this channel unless there is an urgent need.
- Channels, Typically available in a a selection of 40 channels within the 27 MHz (11 m) band.
- Features
 - Squelch Control The function of this feature is to basically set the break-point at which a CB radio outputs a signal. It means that the radio will only activate the speaker when a clear transmission is received keeping the operator from listening to static.
 - RF Gain This can be used to filter the type of transmission your CB radio receives basing on the strength of signal. This way you can eliminate background noise produced by weak signals due to faint transmission to get a better communication capability.
 - PA Capability This allows CB radios to be used for public address system with the use of the radio itself and its microphone as a transmitter. By using a PA horn that you can be mounted on top of a vehicle this can be very useful in times of search and rescue during disasters or emergency.
 - Automatic Noise Limited (ANL) This improves the reception or sound quality by filtering out static, engine noise, and other causes of interference giving you a higher chance of establishing a strong reception for communication.
 - Weather Capabilities Not all CB radios have this capability but the ones that have will have the ability to access local NOAA radio stations which could give you full updates



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and real-time weather information. This is very useful and important asset during emergency and disaster situations.

- Instant Channel 9 & 19 This CB feature will enable you to quickly switch to the two of the most popular channel or frequency, that's channel 9 (emergency) and channel 19 (highway/truckers) which is very helpful during emergency and disaster situation.
- Nightwatch / Backlit Displays This is a great feature that will enable you to operate the radio at night or during dark conditions which is very convenient during disasters.

WALKIE TALKIE (FRS): **Range/Reception, Poor(.25mi-8mi) | Cost, Low (\$10-\$200) | Ease of Use, Easy | License, Not Required | Primary Purpose, Send/Receive any type of message.**

SHTF Synopsis: Great starting point for close comms and extremely cheap and easy to use but if possible upgrade to GMRS and get your license for its use.

FRS radios or family radio service is a powerful but short-ranged service that you can use to communicate with your family within your house or camp site. This is a good option to add on your emergency survival kit because it is inexpensive and very easy to use which means that everyone in your group or family can use it. FRS radios can also communicate with GMRS (General mobile radio service) as they share some frequencies. However FRS two-way radios have their limitations as well specially with its range. Although tests showed that FRS radios can reach a range of 22 to 36 miles this is only attainable during optimal conditions which is very difficult during disasters and emergency situations. So FRS radios are best used indoors or within your camp, it is still best to use more powerful radios like HAM to get more range and higher chance of outside communication.

- Improvised Options, baby monitors work the same way as a walkie talkie. You can use them to communicate between local households or even as an early alert system as they are equipped with voice activated VOX.
- Antennas and repeaters are not permitted.

GMRS PORTABLE RADIO: **Range/Reception, Good (0.5mi-14mi w/ repeater 15+mi) | Cost, Low (\$30-\$200) | Ease of Use, Easy | License, Required | Primary Purpose, Send/Receive any type of message.**

SHTF Synopsis: This is the most realistic contingency comms device for most scenarios. The range, ease of use, and price make it our choice for SHTF. You'll need a license but it's worth it.

GMRS Radios may use 5 watts on 7 channels, 0.5 watts on 7 more channels, and 50 watts on repeater channels. GMRS handheld radios have typically two to five watts transmitter power. GMRS vehicular units transmit typically with ten to 50 watts. There is no limit on the ERP of GMRS stations operating



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on the *primary* channels. GMRS stations may transmit with no more the 5 Watts ERP on the seven “interstitial” frequencies (those shared with the FRS).

- GMRS operation requires an FCC license.
- Many GMRS radios can communicate through repeater stations for extended range (typically up to twenty miles or more, sometimes *much* more).
- Repeaters are allowed and make GMRS an advantage over MURS.
- Antennas are allowed.

MURS RADIO: Range/Reception, Poor(1mi-20mi) | Cost, Low (\$40-\$200) | Ease of Use, Easy | License, Not Required | Primary Purpose, Send/Receive any type of message.

SHTF Synopsis: This type of radio is typically used in concert with other devices such as phones, motion alarms, or messaging devices. If you want to go a step further than basic push to talk radio comms, look for other SHTF devices that incorporate MURS as it is reliable and the range is suffience for most tasks.

Formerly available only for business communications, the FCC has kept five MURS frequencies license-free and open for public use since 2000. Handheld radios broadcasting on MURS frequencies can experience a range of two miles to eight miles depending on terrain and obstructions, while MURS Base Stations can reach up to 20 miles.

The stipulations for MURS use provided by the FCC restrict any transmitter in excess of two watts, but any type of antenna is allowed as long as the tower height (with antenna) is no greater than 60 feet high. All communications must also yield to any emergency communication on the same channel.

- Frequencies - The five MURS frequencies are listed below, The 154 MHz channels can be operated on the standard 25 kHz wide band or narrow band mode. The 151 MHz channels can only be operated in narrow band mode. Each of the five frequencies can not only transmit voice, but also data. MURS is commonly used in early alert devices like a home driveway alarm that sends a warning to a base unit when the IR sensor is triggered.
 - 151.820 MHz
 - 151.880 MHz
 - 151.940 MHz
 - 154.570 MHz
 - 154.600 MHz
- Another benefit of MURS frequencies are the PL codes (Private Line codes) or CTCSS (Continuous Tone Coded Squelch System) which are sub-audible tones that allow users to operate on the same channel without hearing chatter directed to other users.



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- There are 38 PL codes available to each of the five MURS frequencies, which makes for a combination of 190 different MURS channels. While this is not encryption, anyone not operating with the same PL code won't hear your conversation.
- Repeaters are prohibited.
- Antennas are allowed and make MURS a great step-up from FRS.

SCANNER RADIO: Range/Reception, Varies (1mi to 1000+mi) | Cost, Low (\$10-\$400) | Ease of Use, Easy | License, Not Required | Primary Purpose, Find and tune into transmitting signals to receive messages.

A radio scanner is receiver that can automatically tune, or scan, two or more discrete frequencies, stopping when it finds a signal on one of them and then continuing to scan other frequencies when the initial transmission ceases. They are available both as portable and base devices that directly receive radio signals and as internet based repeaters such as a smartphone app or online website that is linked to a digital system that collected a radio signal, streams/uploads, then redistributes the signal via the internet.

A scanner radio is one of the must have radios in your emergency survival kit as it gives you the ability to listen to other radio transmissions in your area from different agencies like fire departments, police, ambulance services, government agencies, and air. Having a scanner radio during a disaster is one of the best ways to get in touch with the outside world so you may know how to appropriately respond to the situation and save your family. Getting the best quality radio is important to ensure that your communication capabilities will be efficient during a disaster or emergency situation. These are our top picks for the best and affordable communication radios, we also included links to amazon in case you want to add these radios to your kit.

IMPROVISED RADIOS: Range/Reception, Varies | Cost, Low (\$10-\$200) | Ease of Use, Medium (however the building process may be complex and require advance experience)| License, Varies dependant upon radio being built | Primary Purpose, Send/Receive messages of various types.

There are many ways to make a radio at home out of salvaged parts. Though it is unlikely that in our lifetime we will be unable to locate or buy a radio, it may be helpful to build your own. If you want a redundancy plan I suggest researching, "foxhole radio", "crystal radio", "homemade AM transistor radio", or "sparkgap transmitter".



RADIO VIA CELL: Range/Reception, NA | Cost, Varies dependant upon phone type and app | Ease of Use, Advanced (You'll need to know what you're doing)| License, Varies dependant upon radio type | Primary Purpose, extend capabilities of radio.

Most people may not know that there are things you can do with your phone over a HAM radio (if your radio does not already have it built in). Such as Automatic Packet Reporting System (APRS) or similar packet radio modes such as PSK packets with phone programs. These apps are simple to install from your app store and some are free. APRS allows one to send a message in a beacon type format. This is used typically for search and rescue thus people will monitor certain frequencies looking for a beacon in a disaster. Also as mentioned below, a cellphone has many radio scanner applications. There are apps that let you live stream radio broadcasts as well. Some cell phone even have a FM radio built in that doesn't require data to use.

FREQUENCIES REFERENCES:

- General Frequencies

- 34.90: Used nationwide by the National Guard during emergencies.
- 39.46: Used for inter-department emergency communications by local and state police forces.
- 47.42: Used across the United States by the Red Cross for relief operations.
- 52.525: Calling frequency used by ham radio operators in FM on their six-meter band.
- 121.50: International aeronautical emergency frequency.
- 138.225: Disaster relief operations channel used by the Federal Emergency Management Agency; it is active during earthquakes, hurricanes, floods, and other catastrophic events.
- 146.52: Used by ham radio operators for non-repeater communications on the two-meter band; it is very busy in many parts of the country.
- 151.625: Used by "itinerant" businesses, or those that travel about the country. Circuses, exhibitions, trade shows, and sports teams are some of the users you can hear. Other widely used itinerant channels are 154.57 and 154.60.
- 154.28: Used for inter-department emergency communications by local fire departments; 154.265 and 154.295 also used.
- 155.160: Used for inter-department emergency communications by local and state agencies during search and rescue operations.
- 155.475: Used for inter-department emergency communications by local and state police forces.
- 156.75: Used internationally for broadcasts of maritime weather alerts.
- 156.80: International maritime distress, calling, and safety channel. All ships must monitor this frequency while at sea. It is also heavily used on rivers, lakes, etc.
- 162.40: NOAA weather broadcasts and bulletins.
- 162.425: NOAA weather broadcasts and bulletins.



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162.45: NOAA weather broadcasts and bulletins.
162.475: NOAA weather broadcasts and bulletins.
162.50: NOAA weather broadcasts and bulletins.
162.525: NOAA weather broadcasts and bulletins.
162.55: NOAA weather broadcasts and bulletins.
163.275: NOAA weather broadcasts and bulletins.
163.4875: Used nationwide by the National Guard during emergencies.
163.5125: The national disaster preparedness frequency used jointly by the armed forces.
164.50: National communications channel for the Department of Housing and Urban Development.
168.55: National channel used by civilian agencies of the federal government for communications during emergencies and disasters.
243.00: Used during military aviation emergencies.
259.70: Used by the Space Shuttle during re-entry and landing.
296.80: Used by the Space Shuttle during re-entry and landing.
311.00: Flight channel used by the U.S. Air Force.
317.70: Used by U.S. Coast Guard aviation.
317.80: Used by U.S. Coast Guard aviation.
319.40: Used by the U.S. Air Force.
340.20: Used by U.S. Navy aviators.
409.20: National communications channel for the Interstate Commerce Commission.
409.625: National communications channel for the Department of State.
462.675: Used for emergency communications and traveler assistance in the General Mobile Radio Service.

- SHTF Frequencies

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=== BAND === | CHAN. | FREQUENCY MHZ | DESCRIPTION
===== | ===== | ===== | =====
FRS UHF ==== | FRS 3 | 462.6125 FM =| PREPPER
GMRS UHF === | GMRS17 | 462.6000 FM =| SURVIVALIST
PMR UHF ==== | PMR 3 | 446.03125FM =| SURVIVALIST PREPR
MURS VHF === | MURS 3 | 151.9400 FM =| SURVIVALIST PREPR
CB AM ===== | CB 3AM | 026.9850 AM =| PREPPER
CB AM ===== | CB 9AM | 027.0650 AM =| HIGHWAY SAFETY
CB SSB ===== | CB 37U | 027.3750 USB | SURVIVALIST PREPR
CB FREEBAND= | FB425U | 027.4250 USB | SURVIVALIST PREPR
LOWBAND VHF= | LOW334 | 033.4000 FM =| SURVIVALIST
HAM UHF ==== | HAM U3 | 446.0300 FM =| PREPPER
HAM VHF ==== | HAM 42 | 146.4200 FM =| PREPPER
HAM VHF ==== | HAM 52 | 146.5200 FM =| HAM CALLING
HAM VHF ==== | HAM 55 | 146.5500 FM =| SURVIVALIST
HAM HF ===== | HAM10M | 028.3050 USB | SURVIVALIST PREPR
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HAM HF ===== |HAM20M | 014.2420 USB | PREPPER
HAM HF ===== |HAM40M | 007.2420 LSB | PREPPER
HAM HF ===== |HAM60M | 005.3570 USB | SURVIVALIST NVIS
HAM HF ===== |HAM80M | 003.8180 LSB | PREPPER
LAND SAR VHF |SAREMT | 155.1600 FM =| SEARCH AND RESCUE
MARINE VHF = |MAR 16 | 156.8000 FM =| SAFETY CALLING
MARINE VHF - |MAR 72 | 156.6250 FM =| BOAT PREPPER



CONTINGENCY COMMS FOR SHTF: SATELLITE

WHAT MAKES A SATELLITE DEVICE A PREFERRED BACKUP COMMS?

➡️ They act as an audio telephone allowing talking and listening but they may have a delay, static, or muted periods during use. Devices are also available that can create a WiFi Hotspot allowing additional devices (usually with a dedicated application) to be able to surf the internet, send/receive emails/texts, view maps, etc.

⚠️ If there is an emergency, a sat phone SOS/Alert button will send help to your coordinates.

📶 If internet, wifi, and cellular is out in local area, sat phone can still call or text others outside the affected area; or call and text other sat phones even if in the affected area.

📶 The primary civilian obtainable satellite devices are phones, hotspots, and GPS.

WHERE AND HOW CAN A SATELLITE DEVICE BE USED?

🌍 For the most part if you have a view of the sky, a sat device will work. Get outside away from overgrowth and trees. Keep antenna pointed up.

📶 Devices work when nothing else does. If the power is out, phone lines are down, internet down, cellular down, radio antennas down, etc; a satellite device will still work.

☐ Communication satellites work by sending signals and transmissions down to Earth stronger than the signals received by the satellites. These Earth-orbiting devices convert transmissions from one frequency to another, so signals are not confused between transmission and reception.

📞 Satellite phones send radio signals to a satellite which then transmits back down to earth where a station will then route the call to the Public Switched Telephone Network (PSTN).

WHAT SURVIVAL OPTIONS CAN A SATELLITE DEVICE OFFER?

🚨 SOS Alerts, you can set the device to send messages, emails, and calls to a preloaded contact list. In the event of an emergency you can activate the SOS, and have help on the way with the press of a button.

🔒 Some devices have a physical hard press SOS button protected by a cover/lid to prevent accidental activations.

📍 GPS, the devices have the ability to display and send your exact grid coordinates and/or address. This includes maps, navigation, and Personal Locator Beacon (PLB).



CONTINGENCY COMMS FOR SHTF: SATELLITE DEVICES

SATELLITE HOTSPOT: Range/Reception, Varies but requires clear view of sky and hotspot reception is limited between 10ft-1000ft | Cost, High (\$500-\$3000) | Ease of Use, Medium (in most cases it's as simple as downloading an app to a device)| License, not required | Primary Purpose, access the internet with extreme data limitations making only emails, messaging, GPS, and service provided apps usable.

Creates a wifi #hotspot so that you can use your laptop or smartphone to view websites & collect intel/news to find out what is happening. In fact you can send emails or watch videos with it too but the speed is turtle slow.

SATELLITE PHONE: Range/Reception, Varies but requires clear view of sky| Cost, High (\$500-\$3000) | Ease of Use, Medium (you'll need to familiarize yourself with each device)| License, not required | Primary Purpose, send/receive phone calls from and to any type of phone, texting.

GPS: Range/Reception, Varies but requires clear view of sky| Cost, Low(\$20-\$1000) | Ease of Use, Medium (there are endless options but simply viewing and sharing your location are simple)| License, not required | Primary Purpose, view/share GPS location, navigation.

PLB: Range/Reception, Varies but requires clear view of sky and hotspot reception is limited between 10ft-1000ft | Cost, High (\$200-\$700) | Ease of Use, Easy (after initial setup pressing one or two buttons is all you need to do)| License, not required | Primary Purpose, share your location history and send distress signal/messages.



CONTINGENCY COMMS FOR SHTF: MESSAGE DROPS/PHYSICAL DELIVERY

WHAT ARE MESSAGE DROPS? - A message drop is essentially delivering news or information in a physical manner by either dropping of letters, leaving marking or symbols, or any the form of medium that can store data.

WHY USE THIS METHOD? Using message drops are essentially the basics of communication. Since the beginning of time people have been dropping of info or leaving symbols to communicate with other tribes or groups. Today we rely heavily on electronic types of communication as stated in throughout this guide. However what if we get hit with an EMP or CME? It could potentially wipe out all circuitry and the main forms of comms. If that happens, have a plan to leave to deliver info to your group/family/neighbors. This means using pre-established locations for drops and symbols that are only recognizable by your group. This is a very overlooked method of communication and should be practiced so when SHTF, you can jump into action.

TYPES OF PHYSICAL COMMUNICATION

- **Message Drop-** The message drop is straightforward and involves dropping off a letter, leaving behind a written message, or other data in a location intended to be found by others to your group or another group.
 - Purpose - Update others on your situation/status, your location/destination, rally points, relay important information such local hazards or supply points, instructions, etc. Message drops can be complex such as leaving printed maps or a jump drive storage device loaded with resources.
 - Methods - A message drop can be a letter left in the front door or a residence, a hidden cache box at a pre-designated location, or even via a sealed bottled at sew or leaf pamphlet drop from aircraft.
 - Implementation - In many cases a message drop is best accomplished using pre-determine rally points, drop locations, and codes known only to members of your group.
- **Markings and Symbols-** This is one of the best and most effective means of physical communication. Establishing unique markings or symbols allows you to leave messages in the open that everyone in your group/area can recognize. Having multiple types of symbols can warn your group about threats, update them on statuses, or simply pass on a secret message without a word spoken. The downside is that everyone in the group will have to memorize the markings or symbols (or refer to a reference guide such as ICERS) and you will have to trust that these secret symbols will not be given away to potential threats. Again, change them frequently to deter potential threats. The next question is how to make these symbols. Well, get creative, use paint, carvings, drawings, etc. Anything works honestly just make sure the group is filled in on any abstract symbols that might not be noticed unless seen first.
 - Billboards - Writing can be left on billboard to ensure more people can view your message or increase the chance that your intended target sees the message. Symbols



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or coding can be used so only your group understands the messages, the best option is to share a location so that the group can find more in depth information from an actual message drop. This method is best used when you have an established work schedule in a larger group

- Graffiti/Symbols- Same as billboards but easier to disseminate as this message can be left anywhere along your route without the need to climb up signage. Use markings unique to your group and change them frequently.
- Urban Search and Rescue Markings - These are the structural markings on homes following a disaster. INSARG and FEMA are the two most widely used forms. The symbols used can relay important information about the area you are in and the building/house itself. Data typically relayed is lives/deaths, time/date, hazards, and identifier of rescue personnel.
- **Door Knocks-** Door knocks are a physical and audible form of communication that can be done on the fly. Best used to relay quick information. It can also be knock, possibly followed by a password. It's recommended that it be a knock that is uncommon yet still can be delivered quickly. The best scenario is in a densely populated urban environment ideally an apartment complex. It can be used to gain entry to a residence of group member so that you can avoid danger/detection. This allows you an egress from the public area of a breezeway at hotels, condos, etc. Also, this method can be used to warn the receiver of inbound danger. A "threat knock" or "threat phrase" will alert the person that danger is imminent.
- **Animal Delivery-** While not the easiest method of physical communication, it is worth mentioning still. Animals such as dogs and birds have been used for 1000s of years. This method is extremely effective for communicating with tribes/groups that are far away. For this way of information exchange to be effective you must train for it BEFORE SHTF. Animal mail delivery is a lost skill like many old school skills and must be practiced and ready before things get bad. Do not expect to pick this skill up overnight post SHTF.
- **Postal Mail -** After SHTF, it's possible mail delivery may still be available, although delayed. If you've seen the movie, The Postman, you can also imagine that even after an apocalyptic event, mail services could be reestablished if even by citizens. Delivery messengers/couriers may be one of the first jobs post-apocalypse. With a less tin-foil-hat approach, following a grid down scenario, it's highly possible mail deliver may be the only means of communications across the nation.



CONTINGENCY COMMS FOR SHTF: ALTERNATIVE

IF SATELLITE, RADIO, AND PHYSICAL DELIVERY COMMS ARE NOT AN OPTION WHAT ARE THE ALTERNATIVES?

Natural Signals

- Rock Cairn
- Stick Arrows/Messages
- Charcoal Drawings
- Signal Fire/Smoke

Tool Signals

- Mirror
- Flashlight
- Flare
- IR

Primitive Audio Communication via noise making.

- Yell
- Whistle
- Percussion

Traditional Audio Communication

- Landline Phone
- Cordless Phone
- Baby Monitor



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CONTINGENCY COMMS FOR SHTF: INTERNET

HOW CAN INTERNET COMMUNICATIONS BE OF USE DURING SHTF?

If infrastructure still exists emails and chat apps could be useful in sending messages especially when cellular is out of service or texting and calling are severely delayed due to overload. This is a great option for contacting others regardless of location. There may be situations where internet is not available temporarily but when you regain access either by relocating or infrastructure being repaired; any missed messages or emails can then be accessed.

Internet websites and services offer an array of information for collecting news, weather, maps, and emergency alerts.



CONTINGENCY COMMS FOR SHTF: MESH & OTHER TECH

WHAT OTHER OPTIONS ARE AVAILABLE FOR ELECTRONIC BASED COMMS?

There are many devices and apps that blend various comms types like *radio, GPS, WiFi, and bluetooth* to create *alternative mediums to communicate*. Many pair with your cell phone can use to send encrypted text messages, data, location sharing, and voice. They do this without the need for cell towers or internet to be functioning. The survival applications here are obvious.

MESH:

This is the sharing of data between multiple users that serve as receivers and repeaters with the ability to also transmit. It requires more than one users to function.

- **GoTenna** - also has a more powerful mesh network product out now that creates a robust, off-grid, peer-to-peer mesh network.
 - Encrypted 1-to-1 & Group Chat
 - Text, GPS, Topo Maps
 - Delivery Confirmation
 - Point to Point Range
 - Meshing
 - Automated Channel & Interference Management
 - Range starts at 0.5mi in urban environments can reach 4+ miles in open LOS areas.
 - Data can be repeated by nearby users increasing range with a limit of 3 users for a range 12+mi.
- **Beartooth** - is a handheld device that works with your smartphone to keep you connected when there is no cell service by using a bluetooth and radio signals in a mesh network. It's a standalone device about the size of a pack of playing cards. The main feature here is its ability to work as a walkie talkie.
 - Voice - Push-to-talk means quick communication between you and your crew up to 5 miles away.
 - Text - One-on-one or group texts to any Beartooth users up to 10 miles away.
 - Maps - The topographic Beartooth maps are made for the explorer.
 - 2.43in x 3.98in x 0.49in (4.5oz)
 - Works with iOS and Android Phones
 - Line-of-sight range: 5 miles for voice (10 miles for text)
 - No line-of-sight: 2 miles for voice (4 miles for text)
 - 900 MHz Digital Transceiver (902MHz – 928MHz) with 1W Transmit Power (30dBm)
 - AES 256-Bit Encryption



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- Bluetooth 2.0 Connection to Smartphone
- 4 Day Battery Life (5/5/90 Duty Cycle)
- USB Type-C Port With Fast Bi-Directional Charging (2.1A)
- *Data can be repeated by nearby users increasing range, there is no verified limitation so data could be potential multiplied by up to 10 miles per user in range.*
- **Gotoky** - Requires a smartphone. Uses a mesh network with other users.
 - Voice/Text Messages (including to a group)
 - Emergency Location Beacon, real time tracking, route recording, GPS sharing.
 - Navigation, detailed maps, compass.
 - Range is from 0.5mi in congested area, 2.5mi in mountains/open fields, and up to 10mi in flat area such as ocean/desert.
- **Fogo** -
 - Built-in flashlight.
 - Backup USB Battery Bank.
 - Motion activated light up feature to find device in darkness.
 - Fitness tracker.
 - Waypoint navigation, geocaching feature.
 - Crash detection that sends alert if you fall/crash or body is abruptly jarred.
 - Voice and Text Messaging.
 - Range from 1mi to 16mi (7mi for voice).
- VoIP via Mesh, Send text messages, pictures, small applications or just have a Voice Over IP (VOIP) phone call. Once the system is set up its just as simple as joining a WiFi network on a series of routers. Dig up some from your storage, have your community set up theirs and you can communicate through the entire neighborhood. This is done without the need of actual internet, the WiFi routers send the signal offline from one to another. Apps are also available for this.



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MISC TIPS

Keep your devices in a faraday cage when not in use.

Keep a solar charger for offgrid powering in a grid down scenario.

When using radio, transmit and receive on separate channels if the feature exists. This will keep paying ears from hearing both sides of the conversation.

Have a comms plan prior to SHTF. Share channels/frequencies with your group and create a timeline on when to attempt contact.

Create a comms code unit to your group. It can be a variety of an easy to remember code or even a complex message where the group must reference a code/legend.

Practice with your devices and comms methods in advance and as part of a group.

Be realistic. While we have offered many options some are expensive and some favor a far fetch SHTF scenario. Plan for the worst but at the same time plan for what you are capable of baring in mind both finance, time, and local threats.



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RESOURCES

BUGGING OUT

Determining when to bugout is specific to each scenario. The rule of thumb is to egress from one location to another when resources are near depletion and/or danger is increasing to a point to be no longer avoidable.

Superesse has developed an Emergency Response System to help assess your situation and react in concert with your support group. The ICERS plan (In-Case-of-Emergency Response Plan) is a downloadable and editable template in PDF and Word format.

Download at www.superessestraps.com/products/icers

ELG: EMERGENCY LOADOUT GUIDES

There are 6 guides available for packing your bugout bag, using your K9's loadout during SHTF, prepping your vehicle for emergencies, and more. Download the series at www.superessestraps.com/collections/resources

PREPPING AND SURVIVAL GUIDES

Checkout our digital library of topical guides for converting your phone into a survival tool, caching supplies, fishing during the apocalypse, hardening your home during SHTF, siphoning fuel, and more. View them all at www.superessestraps.com/collections/resources

GEAR

SUPERESSE GEAR

You have access to our customer discount of 25% off all our survival straps, patch kits, carryall bags, hanks, and more. Use promo code "GETANOTHER" at checkout. Choose from a collection of wearable gear and micro tin kits that can be used to outfit your Emergency Loadouts.

COMMS PRODUCT RECOMMENDATIONS

SATMODO

We've tested their Iridium devices out during our adventures and have always had peace of mind. Their options, prices, and customer service is why we chose them. See more at, www.satmodo.com

GOTENNA

We've tested and can back this offgrid multi-user comms device. Check them out at, www.gotenna.com

MIDLAND USA

The entire line of radios have set Midland apart as the premier manufacture of reliable comms devices. If you choose to add a radio to your loadout then checkout, www.midlandusa.com

SUMMARY

This is a working document. Content such as gear suggestions, tips, packing ideas, and other info will be updated as we deem fit. You'll receive email notifications along with a download link.