

Three Approaches to Offshore Communications

- by Tim Hasson

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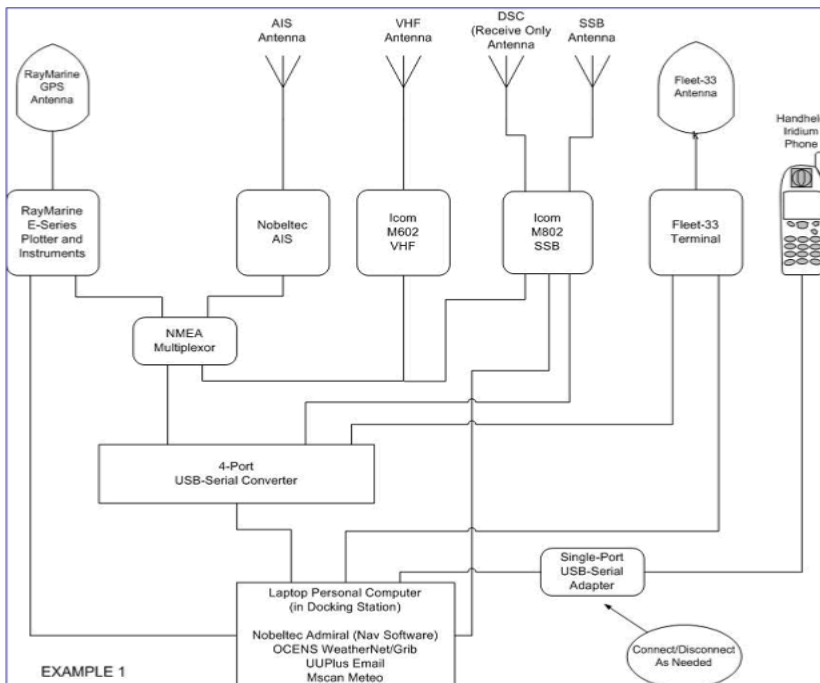
Boats are different. People are different. And so it follows that, in an era when there are numerous options available, the decisions about what kind of communications resources to fit on board can also be different.

Below are three projects we've worked on recently, each representing a somewhat different approach to the same common goal - remaining in touch while cruising for extended periods offshore. In each case, the ultimate solution was arrived at by working carefully with the owner to determine their individual needs, in terms of things like their planned cruising grounds, the vessel in question, and yes, their budget.

Consider Example #1, a 60' Catamaran presently under construction in Australia. This tech-savvy owner, who used to own a software development company, has serious business interests that demand he remain in-touch and available, even while off cruising on a planned circumnavigation.

The crux of this owner's communications strategy is an Inmarsat Fleet-33 satellite terminal manufactured by Thrane and Thrane. The Fleet terminal permits voice calls as well as an "always on" data feature that's ideal for light email or even instant messaging. As a backup, and because there are some gaps in Fleet coverage in the South Pacific, a handheld Iridium sat-phone with a data kit is also onboard.

Marine VHF and a Marine SSB, both with Digital Selective Calling (DSC) are fitted for routine vessel communications and safety purposes. Another safety feature is a dedicated Automatic Identification System (AIS) receiver which plots the identity and location of nearby commercial vessels on the boat's electronic navigation system. The round-numbers equipment cost (excluding SSB and VHF, which were in the "builder package" for this new vessel: \$12,500.



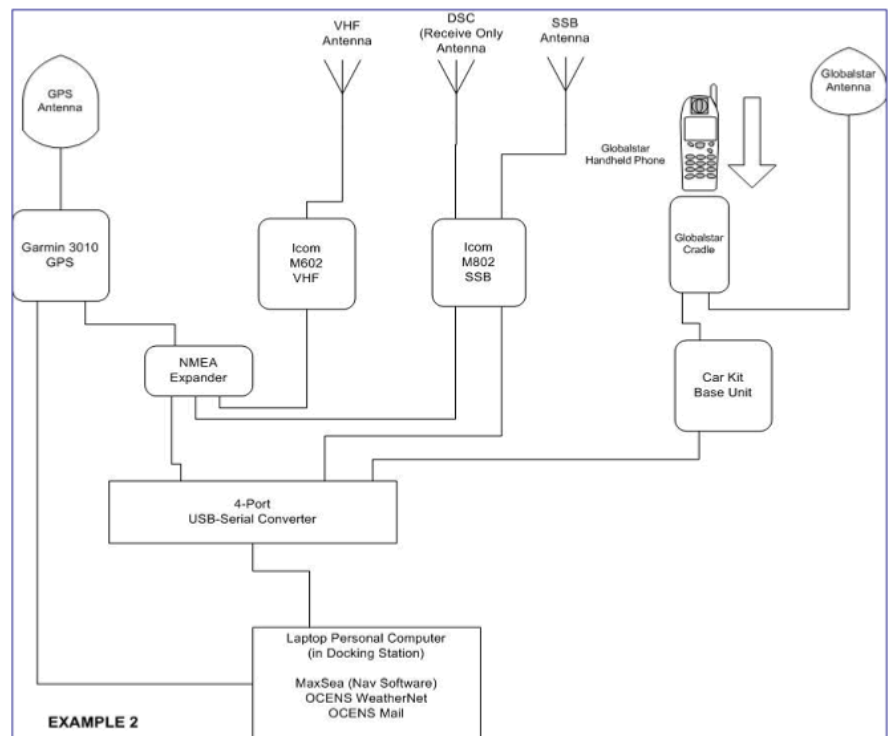
AIS is relatively new technology which is now required aboard larger commercial vessels. We notice it's starting to find its way aboard larger yachts as well. The ships carry a device called a transponder, which continuously transmits a digital signal on two VHF channels (87B and 88B) containing, among other things, the vessel's name, MMSI number, position, course and speed.

Using a dedicated "black box" receiver and separate external antenna, it's possible to capture this digital signal and display the information on an electronic chart. Navigation programs from MaxSea, Nobeltec, Rose Point and others all support AIS, as do many newer chartplotters. The price of the dedicated receiver needed for AIS continues to drop, with at least one manufacturer (Si-Tex) offering a simplified model in the \$350 range.

Gazing into the crystal ball, one wonders when this AIS technology will simply be "part and parcel" of the basic VHF radios we all carry onboard as standard equipment, removing the need for a separate receiver/antenna. So far that hasn't happened, but it's fun to imagine...

Example #2 is a 47' sloop whose owners cruise regularly between Long Island Sound and the Caribbean. While not as sophisticated as Example #1, these folks are still well-equipped for placing the occasional call back home, plus they can exchange email and download timely weather information when they want it.

For voice calls, email and weather download this owner relies on a Globalstar handheld satellite phone berthed in a docking station down below, with an external antenna mounted on deck. Globalstar coverage is fine for those on the East Coast-Caribbean circuit, and has actually improved over



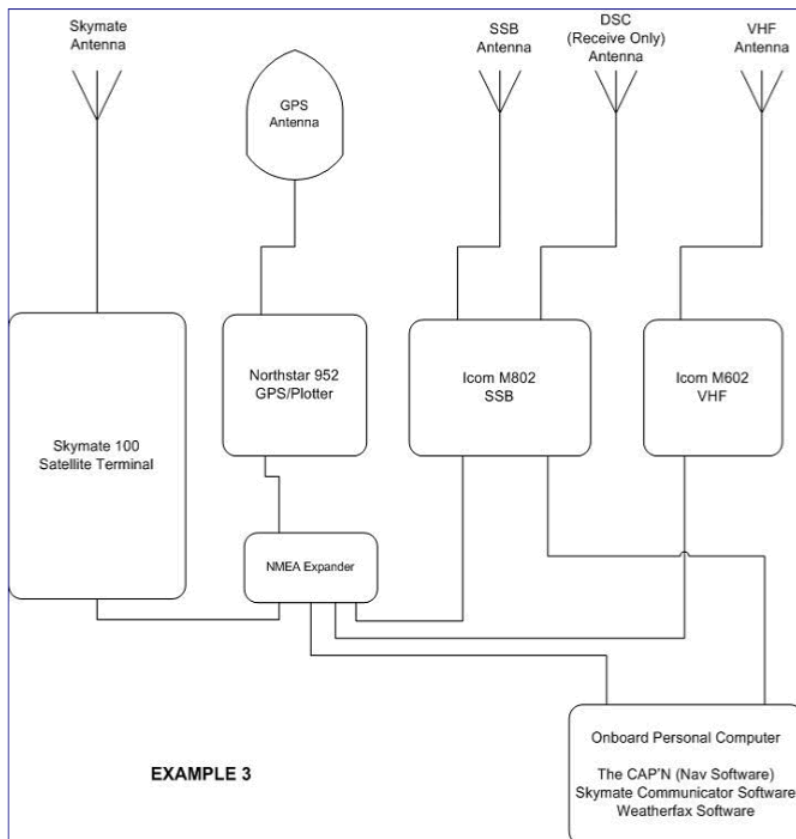
the last year with the addition of a new ground station near Sebring, Florida. The external antenna and docking station combo provide an improved level of performance over just carrying the phone up on deck when one wishes to place a call. Marine VHF and SSB, again both with DSC-capability, round out the remainder of onboard communications tools. Approximate equipment cost for the Globalstar phone, docking station with external antenna and some software:

\$1,800.00.

Email services optimized for the modest throughput of a satellite connection make a lot of sense. Examples that work pretty much across the board with any type of connection, be it Iridium, Globalstar or Inmarsat, include companies like Mail-A-Sail, Oceans/XGate Mail, and UUPlus - in the example above, the owner chose to go with Oceans Mail. Similar products specific to the offerings from larger satellite service providers are also available - France Telecom's SkyFile, Stratos Networks' StratosNet and KVH's Velocity Acceleration are examples of such.

These services generally use special email software that has been programmed to operate directly with satellite terminal equipment, and employ sophisticated compression techniques to send and receive email messages as quickly as possible, minimizing satellite connect-time charges. In addition to an email account dedicated to the boat, most also offer server-side protection against spam or other unwanted messages and some way of managing messages with large attachments that would not be cost-effective to download over a slower satellite connection.

Our third example is a 43' ketch whose owners plan to get to the Caribbean this fall and then stay there for a year or two, with the long-term cruising plan beyond that still undecided. This couple "chucked it all" mid-career to go cruising, and consequently are somewhat budget-conscious - but they'd still like to send the occasional email back home to let family know where they are and how they're doing, as well as have access to good weather information.



For this couple, the solution lies with SkyMate, which allows them to exchange plain-text email (but no voice-calling, and no attachments). SkyMate also offers reasonable access to weather information for their planned cruising grounds in the form of selected weatherfax charts, text forecasts, and GRIB forecast products. Another feature this owner found attractive is SkyMate's position-reporting tool, which automatically posts their current position as an email report to recipients back on shore, who can view the boat's location on a web-based chart.

Note the connection in the sample drawing between the Northstar GPS and the Skymate unit. Approximate equipment cost for this solution: \$1,000.

It's worth pointing out that, for about the same up-front equipment cost and around the same operating cost per year, this owner could have just as easily opted for a Pactor modem to integrate with the onboard SSB using email service from SailMail or one of the other commercial providers. For this particular client on this particular boat, however, the SkyMate option was selected for its ease of use, relatively low power consumption, and the availability of some graphical weather data.

But this owner is also not totally reliant upon SkyMate for weather. Note the two connections in the sample drawing between the SSB and the onboard personal computer. One of these performs software control of the radio from the PC, while the other hookup delivers audio from the SSB to the computer's sound card. These connections work in conjunction with software on the laptop that can decode weatherfax charts and text forecasts broadcast over SSB at scheduled times. Weatherfax programs like this include JVComm, Mscan Meteo, OCENS WeatherStation and Bonito's RadioCom.

One other note concerning all three examples - the DSC-capable VHF and SSB radios are shown properly connected to a GPS receiver so they constantly receive position information. This is critical in case a DSC distress call needs to be initiated. Presently, the Icom M802 is the only SSB transceiver available to the recreational market with DSC capability. The M802 actually has a second, internal receiver which scans the international DSC paging frequencies whenever the radio is turned on. This ancillary receiver requires it's own, dedicated receive-only antenna to ensure that a distress alert (or the acknowledgement to your own distress alert) will be received.

As the above examples illustrate, when it comes to communications a lot really boils down to how much you feel you need and what you feel you can afford to spend. At the risk of sounding like a broken record, we'll repeat our usual caveats: no matter what solution you choose, get it installed well before your planned departure and give yourself plenty of time to work with the system to learn its capabilities and intricacies.

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