

Comments submitted by Larry Steinbecker and Eclipse Software Systems of Greeley, CO for MCSAC meeting October 24-27, 2011. Contact information available at www.rapidlog.com.

Comments for Wi-Fi

During previous meetings there was some confusion that Wi-Fi would only work in areas with cell-phone coverage. This is actually not accurate.

When used for peer-to-peer EOBR reviews, the EOBR device using Wi-Fi creates a local network (referred to as “ad-hoc mode”); the network’s physical size is measured in yards, not miles. To law enforcement devices it looks very much like a normal “hotspot” like you might find at your local coffee shop. The only difference is that the network, or access point, does NOT have the full internet behind it; only local devices (like the EOBR) can be reached across this network using IP addresses (such as <http://10.0.0.1>) or in some cases special URLs such as <http://eobr.local>.

We have a functioning prototype that delivers RODS files over 802.11 using HTTP and SSL (the same mechanism that banks use for encryption of on-line banking interactions). We have connected Windows PCs and notebooks, Apple iPads and iPods, and several flavors of Android phones; all are able to retrieve the RODS file locally with NO long-distance internet connectivity. Every single device we attempted to attach to the EOBR/network was successful.

All of the benefits we espoused in earlier comments for Wi-Fi still apply in this locally-based network, including high security via SSL encryption, high-confidence authentication (with digital signatures), near-universal support on existing devices, low cost, being based on prior rulemakings, etc.

Suggestion for Universally-Compatible EOBR Printing

Another point raised at previous meetings was that it would be far less expensive to outfit several thousand patrol vehicles with EOBR printers compared to equipping the much larger number of trucks with printers.

Concerns were expressed that such an option would introduce widespread incompatibilities between the various platforms and the printers. We think these problems can be overcome fairly easily. A similar problem has already been solved in the photography market, where cameras based on widely varying platforms are still able to send the pictures they’ve captured to most any printer and also to interactive viewers such as handsets, tablets and notebooks.

This was accomplished by specifying standard methods of communication (USB Mass Storage) and by specifying the format of the data (JPEG files in a specific directory structure). Cameras either write to a USB Mass Storage device (like a memory card or thumb drive) or appear as a USB Mass Storage device populated with JPEG files; printers or interactive viewers read the JPEG files from the USB Mass storage and print those files/pictures. Both cameras and printers can be based on any platform, chip, operating system, etc., without introducing any dependencies.

The same general principles that make this solution work for cameras, printers and interactive viewers could be extended to making EOBRs compatible with a range of RODS-file printers and interactive viewers (on laptops, netbooks, tablets, handsets, etc.) Basically RODS files would simply be substituted for JPEG files.

A RODS file contains all of the information needed to do a thorough audit. Just as the RODS file can be decoded by a law-enforcement officer's laptop for review (including mapping, automatic auditing, etc.), the file could be decoded by a printer but would instead generate a printout of the logs involved, complete with graph grids.

The printer would take advantage of its internal capabilities. For example a thermal printer would print a black-and-white log, whereas a color printer could generate a full color log, perhaps with a red-ink background and blue ink overprint for the data. Smarter printers could even generate maps shows vehicle location trails and highlight hours-of-service violations on the grids. None of these functions require anything other than a RODS file.

Even interactive viewers for RODS files (handsets, tablets, netbooks, etc.) would be based on the same mechanism, allowing an interactive review and hard-copy print to come from the same connection method. We envision most EOBR reviews eventually being done on an interactive viewer like an Android handset, and having paper copies generated via the same RODS retrieval mechanism only when hard-copy records are required for evidentiary purposes.

Authentication

If support for digital signatures is added to the RODS file format (covered in our previous comments), this would also give an extremely high level of authentication to *printed* EOBR logs, which is a new capability and advantage to this method.

Security by Isolation

A few States are worried about opening their systems to USB due to security concerns. By using the universal printing option described above, law enforcement could use a separate low-cost and stand-alone device for EOBR reviews (like an Android handset costing maybe \$200-\$300). Primary laptop and wireless architecture could then remain completely isolated from the EOBR review process.