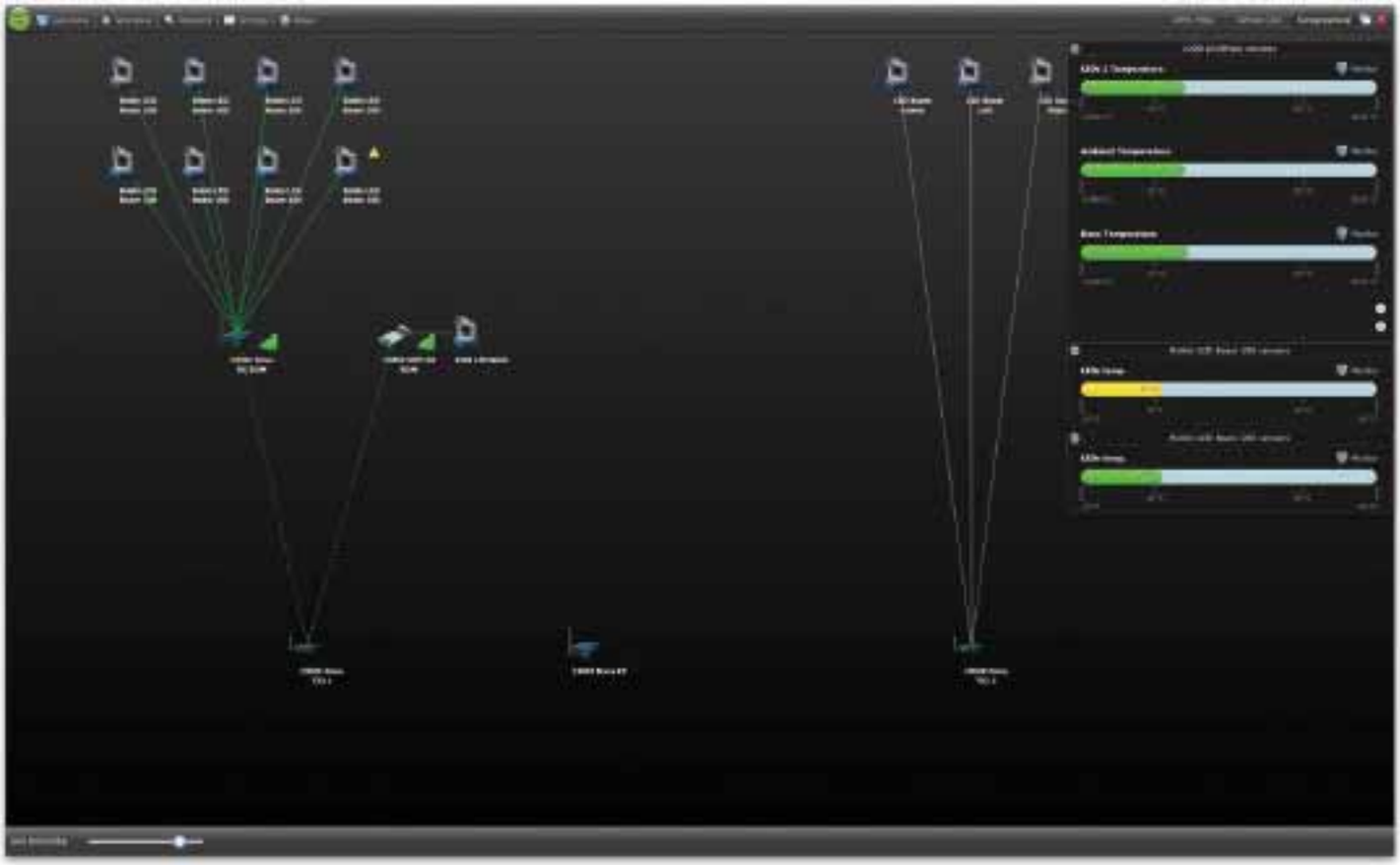


LumenRadio SuperNova 3 geographical view of network.

A practical guide to RDM

BY **RICHARD CADENA**

REMOTE DEVICE MANAGEMENT, RDM, was ratified in December 2006, and almost eight years later, it's finally coming to a theatre near you. It took a while for manufacturers to assimilate the protocol and implement it in their products, but it seems like RDM is finally rounding the corner. Most new products being designed and built today have RDM functions, including luminaries and accessories such as wireless DMX transmitters and receivers. The wild card is still consoles. Some of the popular consoles, such as the MA Lighting grandMA2 and the Wholehog 4, still don't have it. I used to think that the lack of RDM in lighting consoles was an insurmountable obstacle to its full acceptance, and that as long as consoles didn't have RDM capabilities it would never reach its full potential. Now I'm rethinking that.

The truth is, with or without RDM on a console, we have what we need today to take full advantage of RDM. The bulk of remote device management, including set up and monitoring, probably should be done from somewhere other than from a console. Putting it only on a console limits access to it by the people who could benefit most from using it—the lighting techs and electricians. Lighting programmers have enough on their plates to deal with during a show. In a perfect world, they shouldn't have to deal with those issues that can be handled by a technician or electrician. At the very least, the benefits of RDM should not be limited by access to the console.

RDM command central

Think about the last show you were on, and think about where lighting techs and electricians spent most of their time. Unless they double as a programmer, it's probably not behind a console. They are typically somewhere other than front-of-house, whether it's on the deck, in the catwalks, under the stage near dimmer beach, or generally located where the gear can be found. That's probably where RDM command central should be—closer to the gear, electricians, and technicians.

It's okay to have RDM on a console, but maybe it's more important for it to be accessible remotely (Hey, it is *Remote* Device Management for a reason.) from a laptop, tablet, smartphone, or all of the above. If only there was an RDM application that could run on some of these devices. Wait… what? There is?

It turns out, there are several ways to get RDM on a laptop and a couple of ways to get it on a tablet. As long as you have the right hardware and you can tap into

the lighting network, then you can use a program like LumenRadio SuperNova 3, Artistic Licence eSense, Luminex LumiNet Monitor, or ELC dmXLAN software. There are probably others that I'm not aware of, but that's a good start. All of these apps can run on a PC, or in the case of LumenRadio SuperNova 3, Luminex LumiNet Monitor, and ELC dmXLAN, a Mac or PC, provided you have the right hardware, which is either an Ethernet switch, a DMX node, or a gateway. They all give you the ability to set up and monitor equipment remotely on a desktop or a laptop that's connected to the network through the right hardware.

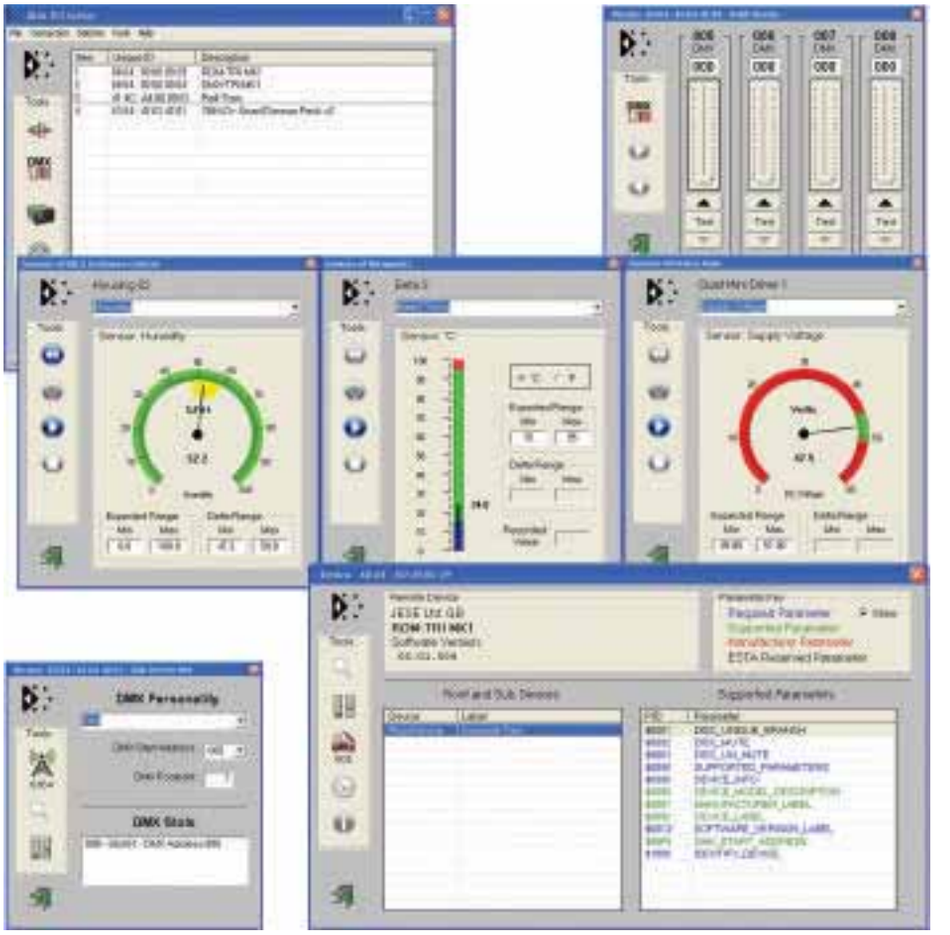
. . . we have what we need today to take full advantage of RDM.

You may want more portability than a laptop can provide. In that case, a tablet might be a better solution, provided it is protected against damage from being dropped, stepped on, or clobbered with a giant C-wrench. There are very good cases that offer pretty good protection, such as the Otterbox iPad Defender case. Add the Utility Latch and you have a pretty good package that will likely not be easily broken. As good as the package may be, it doesn't protect against loss or theft, which might be the single biggest hazard on the job.

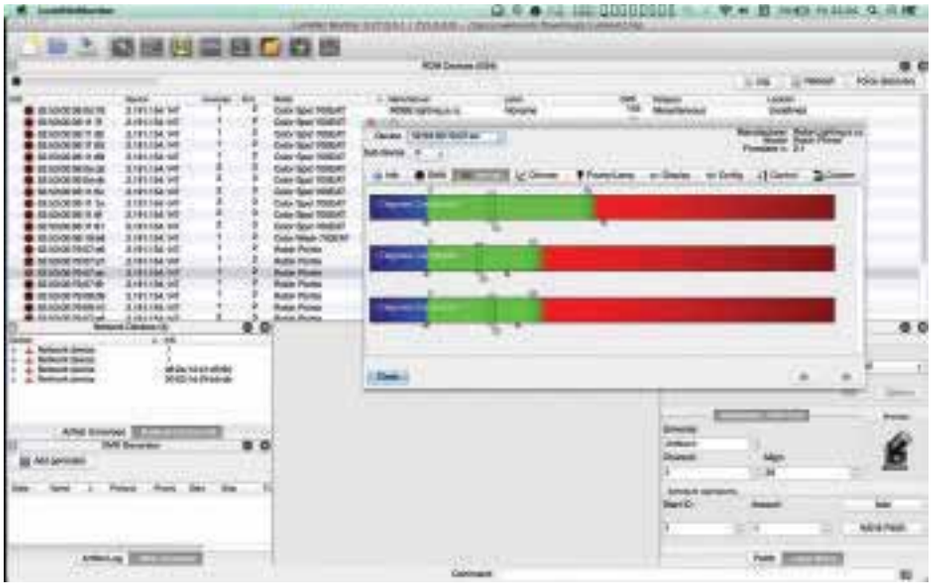
A smartphone app might also work, provided the phone is large enough to display enough information but still small enough to fit in your pocket. As far as I know, only eSense offers a wireless connection to a tablet or smartphone, according to their specifications.

RDMnet

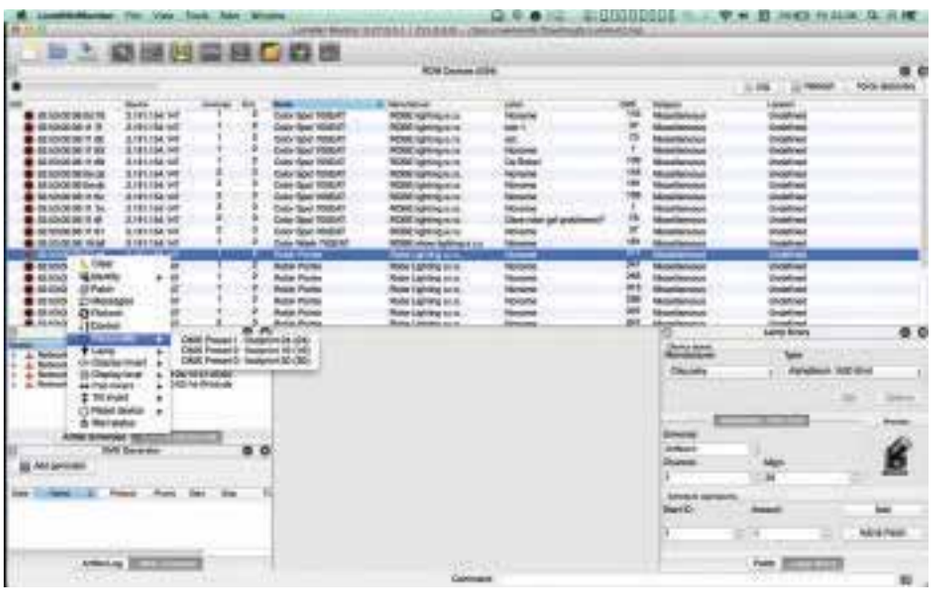
One relatively big problem remains with the current implementation of RDM, and that problem is, by design, it only allows one RDM controller on the network at a time. What that means to you as a tech is, that you can use any of these RDM tools we've been discussing as long as there is no other RDM controller on the same network. Even if the other controller is not sending any RDM



JESE RDM Controller screen captures showing some of its RDM capabilities.



Luminex LumiNetMonitor screen capture showing a list of RDM devices on the network, some of the sensor information, network devices, and more.



This screen capture from the LumiNetMonitor shows some of the RDM capabilities of the device.

commands, the DMX information is being refreshed up to 44 times per second. If your RDM device sends a command, then it will cause a data collision and who knows what will happen—but, it won't be good.

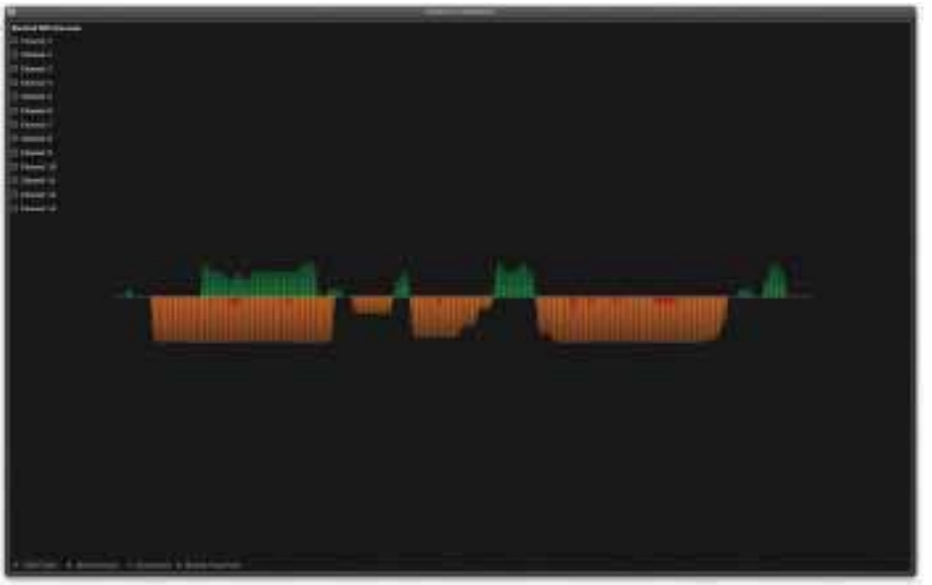
That will change when RDMnet is ratified, which, with any luck, will be soon. RDMnet is new protocol under development that transports RDM over an Ethernet network. It has already been through two public reviews and it will probably see its third public review by the end of 2014. RDMnet will transport RDM packets across an Ethernet network similar to the way sACN and ArtNet transport DMX packets across an Ethernet network. It will also allow multiple RDM controllers on the same network and it will synchronize them. When an RDM command is issued that changes a setting on a device, all of the controllers will be updated to reflect that change. That will allow you to have one or more consoles plus laptops, tablets, and smartphones all on the same network monitoring and configuring devices at the same time.

RDMnet . . . will also allow multiple RDM controllers on the same network and it will synchronize them.

Handful of RDM

If you don't want to use a laptop, tablet, or smartphone, there are also a handful of handheld or portable RDM tools. These devices require you to tap into the DMX network in order to communicate with the devices. Doug Fleenor Design, for example, offers the RAD (Remote Address Device), a deliberately simple device that does what the name says. It allows you to remotely discover and change the DMX address of RDM-enabled devices, making it unnecessary to climb a ladder or trek back to the dimmer racks when an address is set wrong. Goddard Design's DMXter4 RDM offers a backlit 40-character LCD display and can discover devices, configure them, test them, and send queries. You can connect it to a PC via USB to have a larger and more detailed display. Robe offers an RDM Communicator, which is a small device that allows you to configure Robe fixtures that support RDM. Artistic Licence offers the Jump-Start DMX512 and RDM tester, which is a handheld, battery-operated device for viewing and editing the DMX address, personality, sensors (e.g., temperature and voltage), lamp hours, and more. There's also the Swisson XMT-350 RDM Controller and DMX Tester, a device with a relatively large backlit LCD display, and it can be connected to a PC through the USB port to display more information.

Techs who want to get in with the minimum outlay of cash but have a full-featured RDM tool can start with (listed in order of published price) the Artistic



This Wi-Fi tool shows CRMX wireless traffic in green and all other wireless traffic in orange, demonstrating its cognitive coexistence.

Licence Jump-Start DMX512 and RDM Tester, the JESE RDM Controller Package, the Swisson XMT-350, the Enttec RDM USB Pro, and the Goddard Design DMXter4 RDM. The JESE and Enttec devices require the use of a PC to view the RDM information, while the Jump-Start, XMT-350, and the DMXter4 RDM can operate as a stand-alone controller or with a PC.

There are lots of other options, and most of them involve using a managed switch, which can run in the thousands of dollars. Most production companies need to have network switches in inventory, and if they don't today, they will more than likely need to tomorrow. They might as well have RDM capabilities because that will give their techs access to time-saving tools. And the more these tools are used, the more indispensable they will become.

Security

If the RDM tool of choice uses a direct DMX input, then it is inherently secure because no one can hack into the network through the RDM device and take control of the network. But a wireless connection is a different story. Wireless can be vulnerable to attack unless you know how to lock it down securely. One of the most secure ways is to use wireless access control, which is a way of only allowing access to a wireless network if the MAC address of a device is listed in a lookup table. That feature can usually be found on the router's set up page. If there are only a few machines that should be on the network, then it will only take a couple of minutes to find their MAC addresses and add them to the white list. Any time wireless is being used on a show, it should be secured and locked down properly.

We are in an exciting time in the industry where technology is making incredible strides, and we're just at the beginning of the story. Once the software catches up to the power and potential of the hardware, look out! It's just a matter of time before there are RDM apps that work with tablets, smartphones, and wearables such as Google Glass, Apple Watch, or Pebble watch. But first the price of Glass and other wearables will have to come down from its current price of $1,500 before it starts showing up on the faces of most techs (with the notable exception of tech extraordinaire Sean Sill, who was an early adopter of Google Glass), and it will.

Until then, keep watching RDM.openlighting.org or RDMprotocol.org to see the latest in RDM developments.■

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