



The Society of Broadcast Engineers

**Fox Valley Wisconsin SBE Chapter 80 PO Box 1519
Appleton, WI 54912-1519**

April 2017

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Our next SBE Chapter 80 meeting will be at the Out O Town Club at noon March 21th. Our speaker will be Bob Orban of Orban.com

Fellow Chapter 80 members,

Our upcoming meeting on Tuesday the 18th will feature a live Webinar with Bob Orban, founder of Orban in 1970, and still developing new products for the company today. Most every radio and television engineer today has worked with or is familiar with an Orban product in one capacity or another. The presentation will take place at the Out o' Town Club in Kaukauna, so please plan to attend at noon for lunch followed by the Webinar!



Here are a few things to pass on from SBE national headquarters –

- Thank you to all who have renewed their membership by April 1; if you haven't done so yet, please renew during the grace period to avoid being dropped from the membership rolls.
- The annual SBE Compensation Survey is underway. Please be sure to respond to the survey because greater participation ensures higher accuracy. Results of the full survey report will be available to SBE members in June. To access the survey, go to www.SBE.org and click on the SBE Compensation Survey icon on the front page.
- If you are attending the NAB Show later this month, please be sure to include the SBE Spring Membership Meeting and Reception on your schedule. Both events are on Tuesday, April 25th at the LVCC, with the meeting at 17:15 in N256 and reception at 18:15 in N243. There will be lots pf prizes at both and the reception will feature free finger food and beverages.

Please do plan to attend our April meeting next week!

Best Regards,

Mark Hoenecke

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Module 3 of RF 101: Towers, Antennas and Transmission Systems is April 13

The [third module](#) is SBE RF101: Towers, Antennas and Transmission Systems. It covers transmission systems block diagram, common RF system components, antennas and terms, isotropic radiator, dipole and polarization, wavelength versus antenna size, variations on the dipole and antenna gain introduction. The live webinar is Thursday, April 13, from 2:00 - 3:15 p.m. EDT.

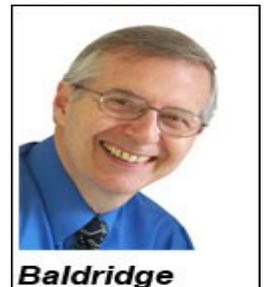
The SBE RF101: Broadcast Terrestrial Transmission series is an eight-part course taught by Dennis Baldrige, CPBE, 8-VSB, AMD, DRB, CBNT. It is an introductory survey of the RF fundamentals needed to successfully monitor a broadcast facility. The course is targeted to those with minimal or no background in RF and/or are relatively new to the field. It will serve as a refresher for more seasoned engineers.

RF101: Broadcast Terrestrial Transmission Systems Course Modules

- * Introduction to Radio Frequency (RF) , Now Available On Demand
- * Transmission Lines, Now Available On Demand
- * **Towers, Antennas, and Transmission Systems, to be presented April 13, 2017**
- * Antenna Gain - Feed-line Loss, to be presented May 18, 2017
- * Modulation Fundamentals, to be presented June 15, 2017
- * AM, FM, TV RF Propagation, to be presented July 20, 2017
- * RF Transmitter Measurements, to be presented August 24, 2017
- * FCC Regulations, to be presented September 21, 2017

Upon completion of the entire course, attendees will be able to 1) Understand the basic characteristics of RF and electromagnetic radiation; 2) Describe different types of transmission lines, antennas and their characteristics; 3) Understand the fundamentals of RF propagation; 4) Understand modulation and different modern modulation methods; 5) Describe various components used in RF communications systems; 6) Explain the basic characteristics of RF transceiver systems; 7) Define common terms used to characterize RF systems; 8) Understand how to perform a range of basic RF measurements; 9) FCC regulations pertinent to maintaining a broadcast facility.

Dennis Baldrige is a 30-year veteran of the broadcast engineering field and a Senior member of the SBE. He holds an FCC Lifetime General License (formerly a First Class FCC License) and Amateur Radio Extra Class License (K0DB). As owner of Baldrige Communications, LLC, he works as a contract engineer and serves as an inspector for the FCC Alternate Inspection Program of the Wisconsin Broadcasters



Association.

The registration fee for SBE members is \$57; the fee for non-members is \$87. [Register at the SBE website.](#) Participants register for each module separately.

[More >](#)

Look ahead at upcoming opportunities to take a [certification exam](#) in your area with the local chapter.

If you would like to take an exam but are not able to make it during these sessions, please contact Megan Clappe to ask about special proctoring.

Certification Exams The deadline to apply to take the SBE certification exam at your local chapter in June is April 21. Register today at sbe.org/certification.

Below is the upcoming certification exam schedule

Exam Dates Location Application Deadline

April 25, 2017	NAB Show Las Vegas	March 17, 2017
June 2-12, 2017	Local Chapters	April 21, 2017
August 4-14, 2017	Local Chapters	June 5, 2017
November 3-13, 2017	Local Chapters	September 25, 2017

Plan Your Exhibit Stops Using the SBE Sustaining Member Resource Guide

The SBE has created a handy list to help you navigate the 1,700 exhibitors at this year's NAB Show. The [SBE Sustaining Member Resource Guide](#) provides a list of more than 100 SBE Sustaining Member companies and indicates the booth location for those exhibiting at this year's show. The list also includes live links to all of the companies' websites and a brief summary of the products and services each company provides.

Help support the companies that support your professional society by considering them first, when making purchase decisions. [Access the SBE Sustaining Member Resource Guide.](#)

[More >](#)

If you have any questions regarding SBE certifications, please contact the Certification Director, [Megan Clappe](#).

EAS Security Notes

Prepared by the SBE EAS Advisory Group

Intrusions into computerized equipment have been around since internet became a reality years ago. It is no surprise to broadcast engineers that these invasions have made their way into radio and television stations.



Most recently, EAS devices have been a major target. To comply with FCC rules, these devices must have internet access to receive information from FEMA via IPAWS.

Security for EAS and other station devices should be a high priority for station engineers. As a result, the SBE EAS Advisory group has put together a basic security guidelines summary to aid stations in assuring that all equipment is protected from these outside intrusions.

Summary

Every week, broadcasters like you are having their station equipment and computers hacked or tampered with by outsiders or malware infections that affect station computers and networks. If it hasn't happened to you yet, the odds are unfortunately high that it eventually will happen.

These types of intrusions are more than an inconvenience. It can cost you to repair the systems that were compromised. It can cost you revenue for lost airtime. It can cost you credibility in your audience and community. Moreover, it eventually will cost all of us if the government feels it necessary to step in with additional regulations and requirements on broadcasters.

At the same time, it's challenging for many broadcasters to keep up with the wide range of potential cyberattacks. Many broadcasters don't know they have become vulnerable to attackers until it's too late.

To help broadcasters address this growing concern, we have compiled some tips and best practices on how to keep your operation from falling prey to cybercrime. The bottom line:

- **Know your Systems.** Know what is connected to the network and the internet: at the office, studio, transmitter site, and remotes. If it's connected, it is at risk.
- **Defend your Network.** Anything that is connected to your network or the internet must be behind a firewall.
- **Protect your Equipment.** Change default passwords. Change default usernames. Regularly check for and install any software upgrades or patches for equipment.
- **Use Common Sense with Email and the Internet.** Be cautious about opening email attachments or downloading from websites you don't completely trust. Harmful malware can enter your station, and do significant damage to your business.

What is the problem?

Recent events had plainly shown that broadcasters are a low-hanging fruit for internet mischief-makers and cybercriminals. All too frequently, this involves key station equipment and computers left vulnerable to the internet, not changing default passwords, or even not having passwords at all.

The results have included the entire programming stream disrupted by IP streamers redirected to offensive, political and/or obscene content, the issuance of false or simulated EAS messages, the creation of fake messages and alerts via RDS encoders, the wholesale disruption of station operations when computers are locked via malware and viruses, and more. These are issues that have already happened, repeatedly.



In many cases, the threats boil down to simple vulnerabilities that could have been easily addressed beforehand.

- Stations with unconfigured firewalls - or even no firewalls.

- Station equipment left exposed and unprotected to the open internet.
- Station equipment left with default or easily guessable passwords – or even no passwords.
- Email attachments open, which introduced malware across the station network.

Presenting the potential for reaching a wide audience with inappropriate or political content, broadcasters present an irresistible opportunity for internet bad guys. Some broadcasters have opined that cybersecurity is too expensive or difficult. However, as we outline below, broadcasters can take preventative steps that are often a minimal expense – or no expense at all.

The technical solutions:

- **Know Your Systems.** Know what systems are connected to your network and to the internet, and know which systems should not be. If it is connected to the network, it's going to need to be protected. This applies to looking at your systems throughout your operation. This includes the business office, studios, transmitter sites, remote control points, and other remote sites.

- **Firewalls to Defend Your Network.** The one security item every company needs is a firewall, a security appliance that attaches to your network and acts as the protective shield between the outside world and your wired and/or wireless network. A firewall continuously inspects traffic and matches it against a set of predesigned rules. If the traffic qualifies as safe, it's allowed onto your network. If the traffic is questionable, the firewall blocks it and stops an attack before it enters your network.



Just about anything in your broadcast facility should be behind a firewall if it is on your network, or going to be connected to the internet. Properly configure your firewall, make sure any software or firmware is up to date, and don't leave ports open.

- **Equipment Passwords and Account Management.** Equipment in your station may come with a default password. You are urged to change default passwords on any equipment in your operation. If there are accounts or usernames on equipment that are default, or unused, you should also change or delete these. And remember, just because a system has a password, does not mean that it may be fully protected from access by other means. Equipment needs to be behind a firewall.

- **Updates and Patches.** The manufacturers of equipment in your station may contact you periodically regarding software patches and updates. Make it a practice of applying those software updates in a timely manner. Also, make it a practice of checking with your various manufacturers from time to time to see if they have released software updates of which you may not have been. These updates and patches may include not only feature improvements and bug fixes; they may also contain critical security patches.

- **Secure Networks.** Other measures to consider is a virtual private network (VPN). A VPN securely and inexpensively uses the public internet, instead of privately owned or leased lines, to provide remote sites and individuals with secure access to your organization's network. Consider, for example, a VPN link as part of the STL, if that relies on an IP stream from the studio to transmitter.

- **Safe Web Browsing and E-Mail Habits.** Very bad things can enter the station via email or suspect web sites. If your station's employees send e-mails and browse the internet (and of course, virtually all do!), you may also want to consider a software security solutions that include e-mail security, Web gateway security, and URL filtering.



The social solutions

- Security fundamentally involves a social aspect. Internally, you may need to reorient your employees

and colleagues around safe email and web browsing habits. You may want to orient these employees to be wary of scam and phishing emails, and to beware of potentially dangerous attachments to emails from unknown or suspicious senders. You may need to reinforce safe web browsing habits, such as being careful not to download content from unknown or suspect websites.

- Broadcasters are a community. Externally, you may find opportunities to share information about what you are doing to improve security, what threats you see, and how you are addressing them.

When to call in an IT security consultant

There are going to be things you might not be able to do alone as a broadcaster. For FCC issues, you get outside legal advice. For annual and quarterly financials, you have an accountant. The same goes for security expertise. When you need to conduct a risk assessment, or get assistance in setting up network and IT security solutions, it may be money well spent if you don't have the expertise to do it yourself.

Don't be part of the problem. Be part of the solution. (see article at *sbe.org*)

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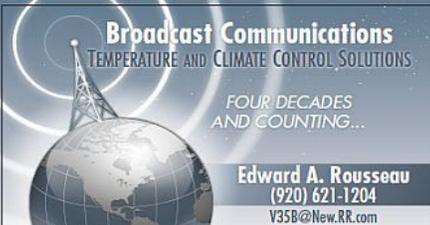
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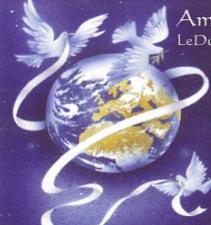


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