



PRESIDENT'S REPORT TO THE MEMBERSHIP

2015

OCEAN-MONMOUTH AMATEUR RADIO CLUB, INC.

This has been another very eventful and successful year for OMARC. What has been accomplished occurred with the support of an engaged membership and guidance of our executive board. For this support I want to express my sincere thanks to the membership and my executive colleagues alike.

Again this year there is an extensive set of activities and events to report on which I will do only in relatively schematic form.

MAJOR PROJECTS COMPLETED IN 2015

There were many activities undertaken by OMARC, but there several major projects that merit special mention because they represent an important advance for our organization, and our host site, InfoAge.

OSCAR AND ISS Antenna System.



As proof of concept, the team assembled a pair of antennas on an Azimuth – Elevation drive system, similar in concept to the TLM-18. The system will be used to track and communicate via OSCAR satellites (Orbiting Satellite Carrying Amateur Radio) and the ISS, should a scheduled contact be arranged.

When completed, the system will be capable of tracking the spacecraft under computer control and potentially, remote operation.

KNOX Access Control System

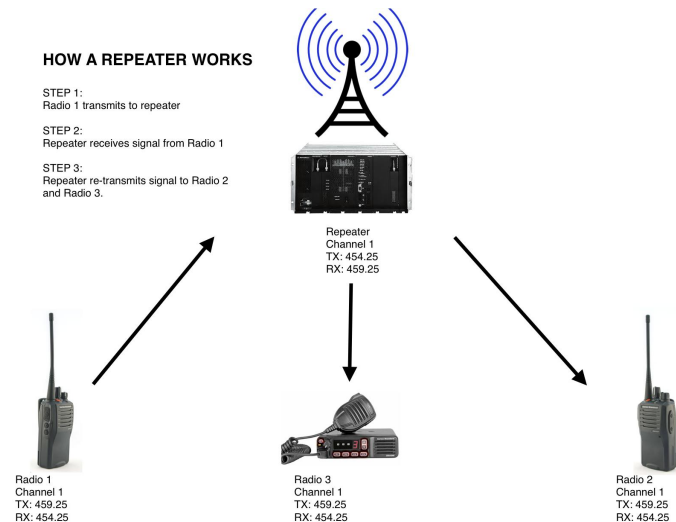
OMARC deployed KNOX key boxes and access padlocks on the TIROS site and Gate 1 on the Main Post. Knox hardware provides secure access to first responders without their damaging doors, gates, and locks in an emergency.

As this is required by local ordinance § 59-9, it presented a savings to InfoAge of more than \$900.

Radio Repeater Systems (Amateur)

We deployed a major upgrade to our Amateur radio repeater system. As background, the repeater acts as a "signal booster" when using portable or mobile radios.

The new repeater system is composed of Motorola Quantars, Sinclair duplexers and IMD suppressors, and an SCOM S8700 controller. This equipment is functionally identical and interoperable with the systems utilized by fire and police departments across the country.



The system is capable of cross-band operation, P25 digital mode, and is designed for integration into the county communications system should our public safety partners require it.

As a vote of confidence in our technical ability, our agency sponsor has facilitated our equipment being co-located with his agencies systems.

Radio Repeater Systems (Commercial)

OMARC also deployed a commercial repeater system and caches of portable radios.

The radios can be issued for public events without requiring that the operator obtain an amateur radio license.

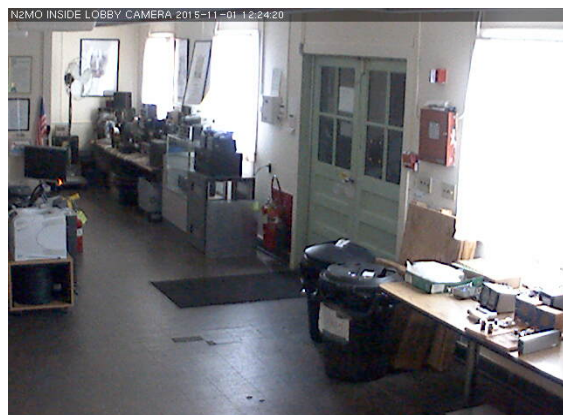


UHF Quantar Commercial Repeater and auxiliary receiver prior to installation



Radio Cache #1 / Building 9116

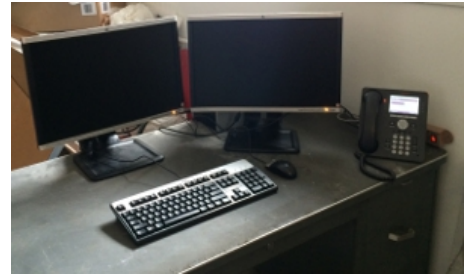
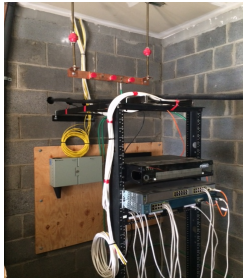
TIROS Site Camera System



Multiple IP video cameras were deployed on the TIROS site. They are used for site security and to allow remote operation of the TLM-18. The security camera images are recorded and are remotely accessible

The initial cameras and server were provided to OMARC, with two additional camera furnished as part of a CDW grant to InfoAge.

Building 9162 Network Infrastructure



As part of the TLM-18 Reactivation Project, OMARC project managed the networking infrastructure deployment in Building 9162 on the TIROS site.

The topology was designed in AutoCAD and submitted with the permit for approval by the Wall Township Building Department. The underlying AutoCAD drawing is available for use as a foundation for other construction projects.

Over 5000 feet of plenum rated networking cables were deployed, along with a GPS based high precision timing source to support the SDR (Software Defined Radios) used by OMARC and Princeton University.

Multiple data switches were provided to provide physical segregation between the Internet segment and the internal LAN segment.

20 locations were cabled, each with the ability to support a computer, printer, and a phone.

Savings presented to InfoAge as cost avoidance:

- \$1200 Annual cost savings in service charges for bandwidth and IP addresses.
- \$5500 in material and labor for the network infrastructure.
- \$8000 in material and labor for the IP video cameras and clocks.

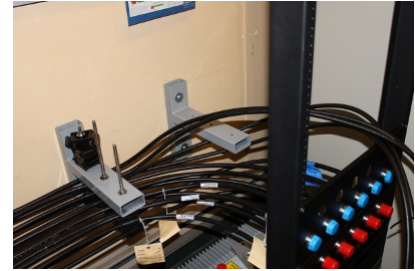
Building 9116 RF Infrastructure



Cable Hangers for Heliax in the 9116 attic.



Front of Patch Bay. The lower panel provides connections to the operating desks, and the upper to the antenna systems.



Cable Hangers for Heliax in the rear of the Patch Bay.



Lower half of patch bay showing the "dummy load" which absorbs transmitter power during testing.



Cable Hangers for Heliax under the operating desks.

The antenna and feed line project in building 9116 was completed. This project involved replacing the antenna cables from each desk (or operating position) to the patch bay with a military-grade cable called Heliax. *

Additional Heliax was deployed between the patch bay and lightning protection system located in the attic of building 9116.

All of the antenna cabling terminates on a patch bay where any operating position can be cross connected to any antenna, allowing maximum flexibility.

The work meets NEC, MIL-STD-188-124B, and the Motorola R56 standard used by public safety agencies worldwide.

* Heliax is a high performance coaxial cable. Instead of the lightweight foil or braid typically used in television and other consumer cables, Heliax uses a corrugated solid copper ribbon with interlocked edges. This, along with a solid center conductor, provides a rugged, low loss assembly that allows 99% of the radio energy to flow between the antenna and radio.

Building 9116 Technology Deployment



While simple in concept, it was deployed with attention to detail:

- Each desk (or operating position) in Building 9116 is equipped with two CAT6 data cables, along with a CAT5 voice cable. This configuration supports operation of the dedicated workstation, remote control of the radio equipment, and managing voice calls at the same time. The new infrastructure meets the TIA/EIA 568 Commercial Building Telecommunication Cabling standard and the National Electrical Code (NEC), NFPA 70.
- During the initial IP camera deployment, we realized that the existing core data switch (the device all of the networking connects to) did not have adequate capacity for our needs. In August of 2015, the core switch was upgraded to a CISCO 6503, which provides network ports at 10GB to connect to both the "edge" switches in building 9162 and 9162, and the various servers at 10GB speeds.
- Edge switches – Much like the core, we discovered that the existing edge switches were inadequate to support the program. All of the edge switches were replaced with Cisco WS-C3750E series.
- BITS - OMARC was the recipient of a high accuracy time and frequency standard. In the information technology and telephone company world, this system is known as BITS. (Building Integrated Timing System)

With the upgrades performed this year, BITS is accurate to less than 2 microseconds per day with GPS support, 6.5 microseconds/month long term, relative to UTC / TAI.

- Workstations – Each operating position is equipped with a dual-monitor HP dc5800 PC, running Windows 7.
- Servers – OMARC runs Server 2012 R2 on all of the windows servers. This supports the domain controllers, storage servers, CRM system, and QuickBooks.

Generator Shed Demolition



Sometimes a building is simply too far gone to use, or is in the wrong place. In the case of the generator shed on the TIROS site, it was both.

At low elevation, the edge of the TLM-18 dish would hit the shed. Moving the shed intact was considered, however, upon inspection of the shed, the lower frame rail and deck was found to be rotted, leaving no option but to demolish it.

After clearing the project with the IA management team, and their clearing it with Wall township, OMARC removed the shed, dismantled it into transportable pieces, and put the debris in the construction dumpster on the Main Post.

TLM-18 and Control Platform Construction



The OMARC team assembled the control platform for the TLM-18 console. OMARC loaned the program an interim console, installing it on the control platform, providing a structure for the Princeton Team to deploy the TLM-18 controls.

OMARC provided a large portion of the console infrastructure, including Rack mount monitors, computers, the UPS subsystem, a portion of the signal, RF, and power cabling between the console and the TLM-18 itself.

The console on loan to InfoAge itself is an artifact, recovered from the former LORAL (AT&T) COMSAT facility in Hawley, PA.

Important, but not very visual, projects and accomplishments

1. OMARC migrated from a paper bookkeeping process to using QuickBooks™ for Nonprofits. Repeating payments such as rent, heating, internet, and telephone are scheduled to occur automatically.
2. The TIROS site was equipped with an Avaya IP Office telephone system. The new system provides service to Buildings 9116, 9162, and the TLM-18 telescope mount.
3. While having been a New Jersey non-profit since 1977, OMARC was recognized as a 503 (c)2 organization in August of 2014.
4. OMARC has provided several hundred hours of direct support at events and site maintenance, including landscaping, painting, utility work, and general cleaning.
5. Fire Prevention – OMARC serviced the Fire Extinguishers on the TIROS site and facilitated the annual inspection by the Wall Township Fire Department, presenting a savings to InfoAge of more than \$135.
6. Non-Profit Mail Permit – OMARC obtained a non-profit mailing permit from the USPS.
7. OMARC has deployed a DRM system - DRM (Donor relationship management) software is a category of enterprise applications designed to help non-profits manage donor data and donor interaction, access donor information, automate developments tasks, and reduce marketing costs. DRM also can manage employee, vendor and partner relationships.
8. OMARC provided the LED lighting system for the TLM-18, with internet-based remote control. This presented an additional cost savings of \$2200 to InfoAge.

EVENTS

The OMARC year is filled with a variety of events, some club sponsored, and many others that are a part of our public service and outreach.

1. The 2015 OMARC holiday party was held after the December business meeting.
2. JOTA - Scouts and their leaders received a briefing about amateur radio, were provided a demonstration of various modes of operating and were permitted to make HF radio contacts.
3. Deep Freeze at the Dish - Two groups of Boy Scouts visited the N2MO station. The 17 Scouts and their leaders also were given a briefing, mode demonstrations and access to operating time on HF similar to the Cub Scouts.
4. Field Day – Field Day is an annual activity where amateur radio operators set up operations under simulated emergency conditions.
5. VCF - During the three days of the Vintage Computer Festival at InfoAge, OMARC holds an informal open house for guests who wish to tour the TIROS site.
6. OMARC hosted both a spring and fall hamfest on the Diana Site to fund raise. The club disposed of unneeded items at bargain prices, in addition to providing spaces to amateur radio vendors.
7. International Marconi Day - International Marconi Day is a 24 hour Amateur Radio event held annually to celebrate the birth of Guglielmo Marconi on April 25, 1874. IMD is held each year on a Saturday close to Marconi's birthday, with Amateur Radio stations on the air from around the world.
8. International lighthouse / Lightship weekend (ILLW) is an annual radio event held on the third full weekend of August each year. The event is concurrent with Lighthouse Heritage Weekend whereby lighthouse managers and keepers all around the world are encouraged to open their doors to the public for a viewing of their lighthouse and its history.
9. Toms River Makerfest – OMARC and the Vintage Computer Federation (formerly known as MARCH) represented InfoAge at the Jersey Shore Makerfest.
10. Marconi Road Clean Up – Working with the Wall Township Environmental Advisory committee, OMARC and Wall Township Volunteers removed two truckloads of debris from Marconi Road.
11. CEBOT. - Camp Evans Base of Terror. OMARC provides support to our partner organization by providing staffing and technical support to InfoAge during CEBOT.
12. Thursday Nights at N2MO is a public outreach to bring in new members and show area residents what we do and how we do it. It is intended to give Non Hams and those with limited ability a chance to "get their feet wet", and see how a wire antenna and simple radio can reach around the world in times of disaster and for sport.

Our ability to provide a communications coordination service at community events and constitutes a major component of our commitment to public service.

Information and Outreach. There are many facets of our club's communication with members and interested outside parties that strengthens the club's performance and presence, including:

- ***The Bullsheet*** which is the OMARC newsletter and is downloaded from our website and widely read by non-Club members far and wide. This is expertly edited by Joe Kruszewski
- ***Our Yahoo group*** which provides an on-line repository for club documents that the membership needs on a regular basis. Sal Ciapetta manages the site on behalf of the membership.
- ***Our Website*** presents OMARC to the world via the web. It is managed by Rick Kennard and Martin Flynn. It provides information about OMARC and OMARC activities thru press releases and targeted reports and submissions. This helps to build linkages between OMARC, government and other parts of our society
- ***Social Media*** – OMARC has been expanding into social media including YouTube, Reddit, and actively posting on eHAM and QRZ.

Educational Programming and Member Recruitment

- We are working with Homdel High School to help them develop a school radio club, as part of our effort to introduce amateur radio to more schools as part of our STEM outreach.
- We work regularly with the Scouting organizations in our region.

Social Activities. A basic component of our hobby is also enjoying friendships and socializing, including:

- Conducting regular social events, such as our annual Holiday Party

This is a long report of our activities, but I am sure that there is still much more that could be said. I have not tried to mention everyone who has been involved in our activities, projects and on-going functions, since it includes the major portion of our 60 or so members. Without this support we would not be able to achieve what we do, so once again my sincere thanks to all who have so ably and enthusiastically engage in the work of the Ocean-Monmouth Amateur Radio Club.

Jeff Harshman, N2LXM
President 2014-2015
Ocean-Monmouth Amateur Radio Club, Inc.