

Merging Data and Wire Marines

Subject Area C4

EWS 2006

Merging Data and Wire Marines
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to
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7 February 2006

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 2006		2. REPORT TYPE		3. DATES COVERED 00-00-2006 to 00-00-2006	
4. TITLE AND SUBTITLE Merging Data and Wire Marines				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) United States Marine Corps, Command Staff College Marine Corps University, 2076 South Street, Marine Corps Combat Development Command, Quantico, VA, 22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 16	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

The integration of voice and data communications technology and recent operational employment of communicators demands creation of a new military occupational specialty (MOS). The career path for field wiremen (0612) and data network specialists (0651) needs to be improved so the Marine Corps can operate new communications equipment similar to the transition switch module (TSM). Ongoing training initiatives within other military services and commercial industries must be benchmarked for determining a better way of training communicators. Because of redundancy in existing training and fielding of new equipment, changes to the MOS manual must be made to combine the 0612 and 0651 specialties into a new cable and subscriber equipment (CASE) MOS.

Background

Many shared perceptions exist that the communications Marine is over tasked, under-trained, and undermanned.¹ Most of these perceptions have been validated during employment of communicators in current operations and continuing exercises. Because of a need to optimize employment of communicators, cross-assignment of various tasks among the wire, radio, and data disciplines has become a critical reality. Communications officers rely on the ability to assign communicators various tasks outside of individual MOSs. Examples of this include cable runs, help desk operations, and installation of the

communications infrastructure. According to the C4 Transformational Study, communicators not directly assigned to program voice switchboards or data network equipment are assigned to install subscriber phones and computers during initial operations.² In the data occupational field, the 0651 and the tactical network specialist (0656) share the responsibility of installing, operating, and maintaining data services. Within the wire occupational field, the 0612 and the unit level circuit switch (ULCS) operator (0614) share these same tasks for voice switching services.

Recent Refinements in Training

Field Wireman (0612) and ULCS Operator (0614)

In 2005, the Marine Corps Communication-Electronics School (MCCES) made improvements to training entry-level wire and data communicators based on a requirement to obtain a more defined skill set for these MOSs. As a result, the 0612 course was expanded to seventeen training days. While the primary focus of this course is on construction and operation of wire networks, limited instruction is also given on circuit switching systems within the Marine Corps inventory. Because of changes made to the 0612 course, the 0614 course increased to forty training days. The 0614 course now goes into more depth on the operation of voice switching systems within the Marine Corps. The end state of these two courses is the 0614, primarily trained on the

programming of voice circuits and digital trunk groups, and the 0612, primarily trained on cabling and wire installation.

Considering the current design of the 0612 and 0614 courses, no real benefit is gained from having a separate 0612 MOS, other than having designated manpower to perform secondary tasks that fall within the realm of the 0614 MOS. The individual training standards (ITSS) for the 0612 and 0614 are so general in nature, that a relevant comparison of the 0612 and 0614 MOSs is better conducted through review of course summaries. Figure 1, provides a comparison of the 0612 and 0614 courses:

0612 Field Wireman Course Summary of Instruction	
Hours	Title
10.50	INTRODUCTION TO MARINE CORPS COMMUNICATIONS
25.50	INTRODUCTION TO WIRE
21.50	ANALOG SWITCHING
27.50	DIGITAL SWITCHING
0614 ULCS Course Summary of Instruction	
Hours	Title
17.00	INTRO TO MARINE CORPS COMMUNICATIONS
6.00	INTRODUCTION TO SWITCHING
49.00	INSTALLATION AND OPERATION OF THE SB-3865
178.00	INSTALLATION AND OPERATION OF THE AN/TTC-42

Figure 1: Summary of Course annexes for 0612³ and 0614⁴

As identified in Figure 1, many similarities and overlaps exist between the two courses of instruction. As later illustrated, this offers an opportunity to identify specific skill sets that can be extracted from the 0612 and combined with other skill sets to form a new CASE MOS.

Data Network Specialist (0651) and Tactical Data Network Specialist (0656)

Entry-level data courses were also revised in an attempt to delineate responsibilities for both the 0651 and 0656 specialties.⁵ The resulting changes adjusted the length of the 0651 course to forty training days and the length of the 0656 course to forty-one training days. As identified in Figure 2, the scope of the 0656 course provides comprehensive instruction within the entire spectrum of the data networking discipline:

<i>0651 Data Network Specialist Course Summary of Instruction</i>	
Hours	Title
3.50	OPERATING SYSTEMS CONCEPTS
6.50	SECURITY
7.00	MICROCOMPUTER HARDWARE
21.00	NETWORK FUNDAMENTALS
21.00	TRANSMISSION CONTROL PROTOCOL / INTERNET PROTOCOL
14.00	SWITCHES
42.00	CLIENT OPERATING SYSTEMS
45.00	NETWORK OPERATING SYSTEM
45.00	MESSAGING
<i>0656 Tactical Data Network Specialist Course Summary of Instruction</i>	
Hours	Title
38.50	NETWORK FUNDAMENTALS
12.50	NUMBERING SYSTEM
9.00	INFORMATION ASSURANCE
14.00	INTRODUCTION TO TACTICAL NETWORK SUITE
14.00	CUTSHEET/INSTALLATION
24.00	INTRODUCTION TO TACTICAL COMMUNICATIONS
16.50	SIGNAL CONVERSION DEVICES
59.00	WIDE AREA NETWORKS
14.00	NETWORK MANAGEMENT

Figure 2: Summary of Course annexes for 0651⁶ and 0656⁷

The 0651 course focuses on configuring server and client operating systems. Because it is necessary to teach configuration of the data distribution server (DDS) within the 0656 course, there is significant overlap with the 0651 course

in the type of operating systems that are taught. The 0656 course also focuses on configuration of network routers and encryption devices. However, when reviewing basic data architecture, there is not a clear point of demarcation, whereas the duties of the 0651 and 0656 can remain separate. Interdependence of network devices and client/server configurations make this impractical. Unavoidably, 0651 and 0656 Marines perform similar duties in either network routing, or client/server configuration. This supports combining installation and operation tasks of data networking within one MOS. The 0656 can assume this responsibility. Specific skill sets from the current 0651 can be extracted and combined with specific 0612 skill sets to create a new *CASE* MOS.

The CASE MOS

Creation of Efficiency

The *CASE* MOS would restructure skill sets taught within the entry-level data and wire courses and would assume tasks associated with the actual extension of services to the user. Whether running voice or data circuits to the operations center or configuring computers and phones, the *CASE* MOS would offer the greatest flexibility in manpower employment and focus of effort during communications installation. Also, with the creation of the *CASE* MOS, the 0614 ULCS operator would continue to install and operate voice circuit switches. The 0656 TDNS

Marine would assume cognizance of operating all network devices, to include server configurations and messaging. Ultimately, the communications section as a whole would be better postured to support the operation of integrated voice and data services.

Ongoing Initiatives

Such systems as the transition switch module (TSM) and the joint enhanced core communications system (JECCS) will continue to manifest the integration of voice and data circuits within the Marine Corps. As a result, skill sets required for configuring subscriber equipment will become contextually more similar in nature. This has led other military services such as the Army and commercial companies like *Verizon*[™] to begin training personnel with tasks similar to the proposed CASE MOS.

The Army's conceptual, multi-functional signaleer combines skill sets from the wire, data, and radio disciplines to produce a communicator well-versed in all three specialties.⁸ As part of their fiber-optic service, *Verizon*[™] already employs multi-functional technicians capable of installing and configuring cable, phone, and client computing services.⁹ These examples strengthen the requirement for the CASE Marine. In the Marine Corps, similar skill sets required could be combined within the CASE MOS to contain a framework understanding of subscriber equipment configurations and associated cabling requirements.

Proposed Changes

Combining the 0612 and 0651 MOSs into the CASE MOS requires changes in training and in C4 structure. Possible implications, apart from a change in C4 structure are the effects the CASE MOS would have on the overall training input plan (TIP) and on the designation of career paths for Marines assigned this MOS. However, a carefully designed and focused curriculum can prevent negative impact to the overall TIP. Moreover, creation of the CASE MOS could actually improve upon the number of training days Marines within the wire and data disciplines need to progress through the training pipeline. Development of ITSS and a course content review board (CCRB) would be necessary to validate the CASE MOS course of instruction. Figure 3 outlines one possibility for the content of this course by combining specific annexes from the current 0612 and 0651 courses:

06XX Cabling and Subscriber Equipment (CASE) Communicator	
Hours	Title
10.50	INTRODUCTION TO MARINE CORPS COMMUNICATIONS
25.50	INTRODUCTION TO WIRE
3.50	OPERATING SYSTEMS CONCEPTS
6.50	SECURITY
7.00	MICROCOMPUTER HARDWARE
21.00	NETWORK FUNDAMENTALS
14.00	SWITCHES
42.00	CLIENT OPERATING SYSTEMS

Figure 3: Summary of Course annexes for 06XX CASE Marine

Figure 3 offers a simplistic approach to course design; however, as identified in Figure 4, the CASE MOS can capture and reallocate up to 2,220 training hours for Marines within the wire and data occupational specialties.

MOS	TIP	Training Hours	Total Training Hours
0612	459	85	39,015
0651	305	205	62,525
		Combined Training Hours	101,540
	Combined TIP	Proposed Hours	
CASE	764	130	99,320
		Training Hours for Reallocation	2,220

Figure 4: Comparison of Proposed Training Hours

Also, in considering re-enlistment rates for entry-level Marines, “up front investment of [unnecessary] training” is avoided.¹⁰ Instead, relevant training packages that better correspond to a Marine’s rank and actual assignment of tasks will occur at appropriate stages of the career path. Intrinsic to the career path of the *CASE* MOS could possibly be the designation of either 0614 or 0656 at first term re-enlistment. Additional training in one of these specialties could then be offered through managed on the job training (MOJT) or instruction in the 0614 or 0656 noncommissioned officer (NCO) courses. The 0614 and 0656 MOSs would still be offered to entry-level accession, but second term *CASE* Marines who demonstrate exceptional performance would be qualified to move laterally into either of these specialties. Dedicated boatspaces in the 0614 and 0656 MOSs could possibly be apportioned for lateral move of these types of *CASE* Marines at first-term reenlistment. This would ensure that operational perspectives experienced and offered by *CASE* Marines would

cross-pollinate within the 0614 and 0656 MOSs and become embedded at the staff noncommissioned officer (SNCO) level.

Conclusion

Creation of the CASE MOS would improve efficiency at all operational levels and better prepare the Marine Corps for development of integrated voice and data communications technology. Data and Wire Marines would be better trained at a faster rate. From the perspective of a communications officer, the impact would be significant. The 0614 and 0656 Marines would still perform tasks within their specialties. The main improvement would be more flexibility assigning and employing CASE Marines to augment these specialties where and when they are needed most.

The commander fights the battle on the hood of a vehicle while a click up the hill, antennas are setup and cable is run to the COC. CASE communications Marines, created from the combining of former 0612s and 0651s, run various types of cabling to the COC. Other CASE Marines immediately configure both the unit's computers and voice over IP (VoIP) phones. Now trained with flexible skill sets, these CASE communicators offer the greatest flexibility in task assignment. Near the COC, the 0614 switchboard operators and 0656 data specialists configure the TSM and DDS. After a week of continuous mobile operations, the unit is ready for sustained command and control requirements and the commander transitions to the COC seamlessly.

Word Count: 1,849

Notes

1. In 2005, the Marine Corps Communication-Electronics School (MCCES) conducted a survey of multiple operational units and solicited responses to issues within the communications Military Occupational Specialties. Data returned and maintained by MCCES, revealed an overwhelming result that initial setup of field communications systems increases demands in labor and the requirement to cross-assign various tasks to Marines of different specialties.

2. Northrop Grumman Mission Systems, Transformation of C4 Manpower, Equipment, and Structure to Support the 21st Century Marine Corps Study (Reston, VA: 2005), 3-9.

3. Marine Corps Communication-Electronics School, Field Wireman Course Program of Instruction (29 Palms, CA: n.d.), II-1.

4. Marine Corps Communication-Electronics School, Unit Level Circuit Switch Operator Maintainer Course Program of Instruction (29 Palms, CA: n.d.), II-1.

5. Headquarters Marine Corps (HQMC), Command, Control, Communications, and Computers (C4), Occupational Field 25-40 Merger, n.d.,
<<http://hqinet001.hqmc.usmc.mil/c4/cr/crp/Merger.htm>> (25 September 2005), *Entry Level Information Systems MOSs*.

6. Marine Corps Communication-Electronics School, Tactical Data Systems Operator Course Program of Instruction (29 Palms, CA: n.d.), II-1.

7. Marine Corps Communication-Electronics School, Tactical Data Network Operator Course Program of Instruction (29 Palms, CA: n.d.), II-1.

8. Maryann Lawlor, "Training Transforms," Signal 59, 1 (2004): 30, Proquest (5 October 2005).

9. Verizon™, FIOS for Home Professional Installation, n.d., <http://www22.verizon.com/FiOSforhome/channels/FiOS/root/about_installation.asp> (22 October 2005).

10. Commandant of the Marine Corps, "FY05 First Term Alignment Plan Mission," Marine Admin 386/04, 8 September 2004, <<http://www.usmc.mil/maradmins/maradmin2000.nsf/d50a617f5ac75ae085256856004f3afc/4778a78252696ac785256f0900701e4f?OpenDocument&Highlight=2,386%2F04>> (22 October 2005).

Bibliography

Commandant of the Marine Corps, "FY05 First Term Alignment Plan Mission," Marine Admin 386/04, 8 September 2004, <<http://www.usmc.mil/maradmins/maradmin2000.nsf/d50a617f5ac75ae085256856004f3afc/4778a78252696ac785256f0900701e4f?OpenDocument&Highlight=2,386%2F04>> (22 October 2005).

Headquarters Marine Corps (HQMC), Command, Control, Communications, and Computers (C4), Occupational Field 25-40 Merger (n.d.), <<http://hqinet001.hqmc.usmc.mil/c4/cr/crp/Merger.htm>> (25 September 2005), *Entry Level Information Systems MOSs*.

Lawlor, Maryann. "Training Transforms," Signal 59, 1 (2004): 30, Proquest (5 October 2005).

Marine Corps Communication-Electronics School, Field Wireman Course Program of Instruction (29 Palms, CA: n.d.), II-1.

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Marine Corps Communication-Electronics School, Tactical Data Network Operator Course Program of Instruction (29 Palms, CA: n.d.), II-1.

Northrop Grumman Mission Systems, Transformation of C4 Manpower, Equipment, and Structure to Support the 21st Century Marine Corps Study (Reston, VA: 2005), 3-9.

United States Marine Corps, C4 Training Vision and Strategy, 22 December 2003, <https://hqddod.hqmc.usmc.mil/OccField/Training/USMC_C4_Training_Final_v1.0_031222.doc> (22 September 2005).

Verizon™, FIOS for Home Professional Installation, n.d., <http://www22.verizon.com/FiOSforhome/channels/FiOS/root/about_installation.asp> (22 October 2005).

Walkowiak, William, "EDO Wins Re-competition for Marine Corps Transition Switch Module \$240 Million Contract Now

Secured," EDO Corporation, 22 June 2005,
<<http://www.edocorp.com/pr2005/05r0622.htm>> (25 September
2005).

Linked End Notes

1. In 2005, the Marine Corps Communication-Electronics School (MCCES) conducted a survey of operational units and solicited responses to issues within the communications Military Occupational Specialties. Data returned revealed an overwhelming result that initial setup of field communications systems increases demands in labor and the requirement to cross-assign various tasks to Marines of different specialties.

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5. Headquarters Marine Corps (HQMC), Command, Control, Communications, and Computers (C4), Occupational Field 25-40 Merger (Arlington, VA: n.d.), sect: *Entry Level Information Systems MOSSs*.

6. Marine Corps Communication-Electronics School, Tactical Data Systems Operator Course Program of Instruction (29 Palms, CA: n.d.), II-1.

7. Marine Corps Communication-Electronics School, Tactical Data Network Operator Course Program of Instruction (29 Palms, CA: n.d.), II-1.

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9. Verizon™, FIOS for Home Professional Installation, n.d., http://www22.verizon.com/FiOSforhome/channels/FiOS/root/about_installation.asp (22 October 2005).

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