

# Subordinate Unit Response Cell Officer-In-Charge



## MAGTF Staff Training Program (MSTP)

U.S. Marine Corps

15 April 2023

**DISTRIBUTION STATEMENT A:** Approved for public release;  
distribution is unlimited.

This page intentionally blank

UNITED STATES MARINE CORPS  
MSTP (C 467)  
2301 Little Road  
Quantico, Virginia 22134-5001

15 April 2023

## **FOREWORD**

1. **PURPOSE.** MSTP Pamphlet 7-0.3, *Subordinate Unit Response Cell Officer-In-Charge*, is intended to familiarize individuals who will serve as a subordinate unit response cell (SURC) officers-in-charge (OIC) with their prospective tasks and responsibilities.

2. **SCOPE.** This pamphlet specifically addresses the purpose, constructs, manning, training, and operations of the SURC. In order to address these topics, it is necessary to discuss other response cells, for example, Higher & Adjacent Headquarters or Adversarial Forces. The term response cell comes from Joint training lexicon; however, MSTP further categorizes response cells by type, the largest category of which is the SURC. The SURC is not a formal part of MSTP, as it is made up of a combination of Training Audience and MSTP personnel, and is subordinate to the training audience during the final exercise (FINEX). The employment of the SURC, and other response cells, will be discussed primarily from the perspective of MSTP's exercise lifecycle. Although, regardless of methodology, response cells are an integral part of the exercise construct and require the same high level of attention as other exercise facets.

3. **SUPERSESION.** N/A.

4. **CHANGES.** Recommendations for improvements to this pamphlet are encouraged from commands as well as from

individuals. The attached User Suggestion Form can be reproduced and forwarded to:

Director, MAGTF Staff Training Program Division  
2301 Little Road  
Quantico, Virginia 22134-5001

Recommendations may also be submitted electronically to:  
[mstp\\_ops@usmc.mil](mailto:mstp_ops@usmc.mil)

5. CERTIFICATION. Reviewed and approved this date.



**D. J. BENNETT**

**Colonel, U.S. Marine Corps**

**Deputy Director**

**MAGTF Staff Training Program Division**

**Training and Education Command**

This page intentionally blank

## USER SUGGESTION FORM

From:

To: Director, MSTP Division 2301 Little Road, Quantico,  
Virginia 22134-5001

1. In accordance with the Foreword, individuals are encouraged to submit suggestions concerning this pamphlet directly to the above addressee.

Page \_\_\_\_\_

Article/Paragraph No. \_\_\_\_\_

Line No. \_\_\_\_\_

Figure/Table No. \_\_\_\_\_

Nature of Change:

Add

Delete

Change

Correct

2. Proposed Text: (Verbatim, double-spaced; continue on additional pages as necessary.)

3. Justification/Source: (Need not be double-spaced.)

NOTE:

1. Only one recommendation per page.

2. Locally reproduced forms may be used for e-mail submissions to:  
[MSTP\\_OPS@usmc.mil](mailto:MSTP_OPS@usmc.mil)

This page intentionally blank





This page left intentionally blank

---

# Table of Contents

---

## Part I

### Introduction

1001	Introduction.....	1
1002	MSTP Exercise Organization .....	2
1003	Response Cells and Subordinate Unit Response Cells	4
1004	Elements of the Subordinate Unit Response Cell .....	6
1004a	Subordinate Unit Response Cell .....	6
1004b	Subordinate Unit Response Cell Officer-in-Charge ....	8
1004c	Instructor/Controller .....	9
1004d	Response Cell Controller .....	9
1004e	Terminal Operator.....	10
1004f	Summary of Key Points .....	11

## Part II

### Ground Combat Element Subordinate Unit Response Cell

2001	Overview.....	12
2002	Subordinate Unit Response Cell and Warfighting Functions.....	14
2002a	Command and Control.....	14
2002b	Maneuver .....	14
2002c	Fires (Indirect Fires / Close Air Support) .....	14
2002d	Logistics.....	15
2002e	Force Protection .....	16
2002f	Intelligence.....	16
2002g	Information .....	16
2003	Simulation Interfaces .....	17
2003a	Command and Control Systems/Simulations .....	17
2003b	Simulation Reports.....	17
2004	Special Element Subordinate Unit Response Cell ....	19
2005	Summary .....	20
2005a	Summary of Key Points .....	20

**Part III**

**Aviation Combat Element Subordinate Unit Response Cell**

3001 Overview..... 22  
3002 Command and Control Systems/Simulations ..... 24  
3003 Six Functions of Aviation and the SURC ..... 25  
3003a Offensive Air Support..... 25  
3003b Anti-Air Warfare..... 28  
3003c Assault Support..... 29  
3003d Air Reconnaissance..... 30  
3003e Electronic Warfare ..... 31  
3003f Control of Aircraft and Missiles ..... 31  
3004 Exercise Preparation ..... 33  
3005 Summary of Key Points ..... 38

**Part IV**

**Logistics Combat Element Subordinate Unit Response Cell**

4001 Overview..... 39  
4002 SURC Structure ..... 39  
4002a Supply ..... 42  
4002b Maintenance..... 42  
4002c Transportation ..... 43  
4002d General Engineering ..... 43  
4002e Health Services ..... 44  
4002f Services ..... 46  
4003 Joint Deployment Logistics Model..... 47  
4004 Summary of Key Points ..... 47

**Appendix A – Glossary**

Section I Acronyms..... A-1  
Section II Definitions..... A-5

This page left intentionally blank

---

# Part I

## Introduction

---

### 1001. Introduction

Response cells (RC) provide the information and interaction required for the training audience (TA) to meaningfully interact with the simulated environment. Additionally, they provide an economy to training by simulating forces that are not part of the TA; for example, higher headquarters, adjacent, and subordinate units. There are several ways to configure and populate an RC, but all serve the purpose of representing a real, live environment that will facilitate training. This pamphlet is specifically written to help a prospective subordinate unit RC (SURC) officer-in-charge (OIC) establish and lead a SURC during a training event or exercise.

The SURC is a small team of military and civilian professionals who represent the units subordinate to the TA during an exercise; in short, the SURC role-plays the simulated regiments, groups, battalions, squadrons, and companies in both function and information management. A SURC is a task-organized entity that is designed around the scenario, TA task-organization, and TA information requirements. For exercises that are small in terms of scope and activity, the SURC may consist almost entirely of MSTP instructor controllers (IC) with the TA contributing a small contingent to serve as the SURC OIC and SURC controllers. On the contrary, for large exercises that require robust SURC operations and reporting, the TA provides the preponderance of the SURC staff with MSTP ICs supporting the SURC OIC. SURC professionalization refers to the concept of a standing pool of warfighting subject matter experts (SME) and ICs who can conduct SURC operations without any support from the TA.

The SURC is part of the live, virtual, and constructive (LVC) simulation. It provides the human-in-the-loop function for the constructive portion of the LVC concept. Personnel carrying out the

orders of the TA interact with the simulation and provide reporting back to the TA. LVC is a broadly used taxonomy describing a mixture of live simulations, virtual simulations, and constructive simulations. For clarity, this document will use the following definition of LVC from the Department of Defense Modeling and Simulation Coordination Office:

- **Live simulation:** A simulation involving real people operating real systems.
- **Virtual simulation:** A simulation involving real people operating simulated systems.
- **Constructive simulation:** A simulation involving simulated people operating simulated systems. Real people can be allowed to stimulate (make inputs) to such simulations.

The figure below generally categorizes different training events into the LVC construct.

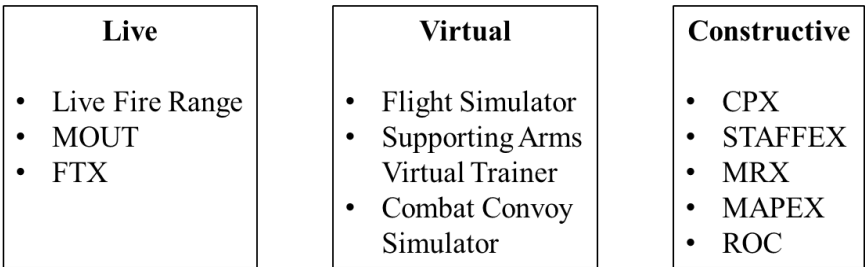


Figure 1-1: Live, Virtual, and Constructive Construct

Typically, SURCs are more prevalent in constructive exercises like command post exercises (CPX) and MSTP’s final exercise (FINEX) portion of a MEF exercise (MEFEX).

### **1002. MSTP Exercise Organization**

MSTP exercise organization is designed to provide a realistic representation of the operating environment for a MEF or Marine Expeditionary Brigade (MEB) staff. Representing this environment

involves different control organizations; for example Exercise Control (EXCON), as well as role-playing RCs (Higher & Adjacent Headquarters (H&AHQ)), and governing bodies (Exercise Director and Highly Qualified Experts (HQE)). The diagram below provides the overall structure of the MSTP exercise organization.

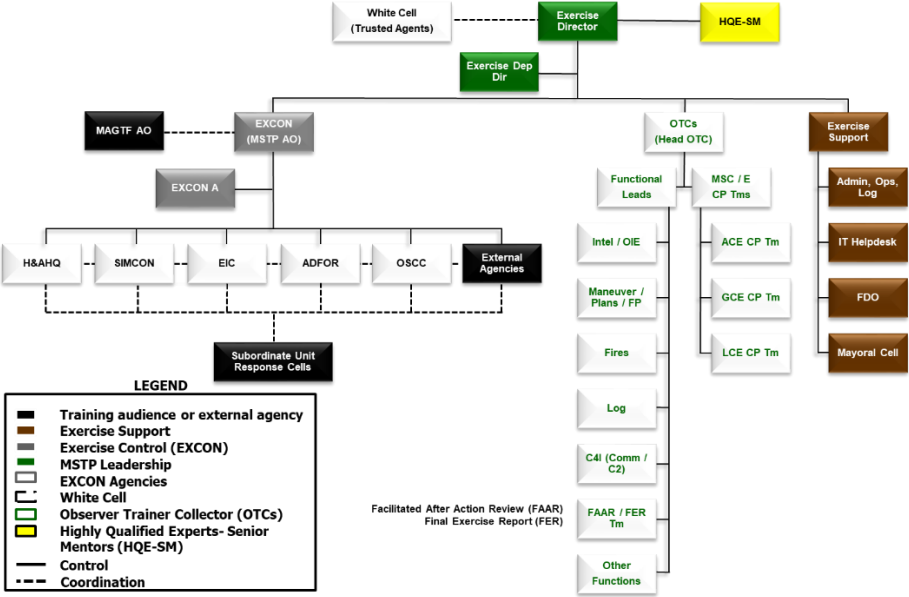


Figure 1-2: MSTP Exercise Organization

Within the overall organizational structure, EXCON manages H&AHQ, Exercise Intelligence Cell (EIC), Simulation Control (SIMCON) Adversary Forces (ADFOR), Operational Systems Control Center (OSCC), and the External Agencies; for example, Civil Military Operations, Communication Strategy and Operations (COMMSTRAT). The SURCs exist within SIMCON. The below diagram depicts the organizational structure of EXCON, sub-organizations, and SURCs.

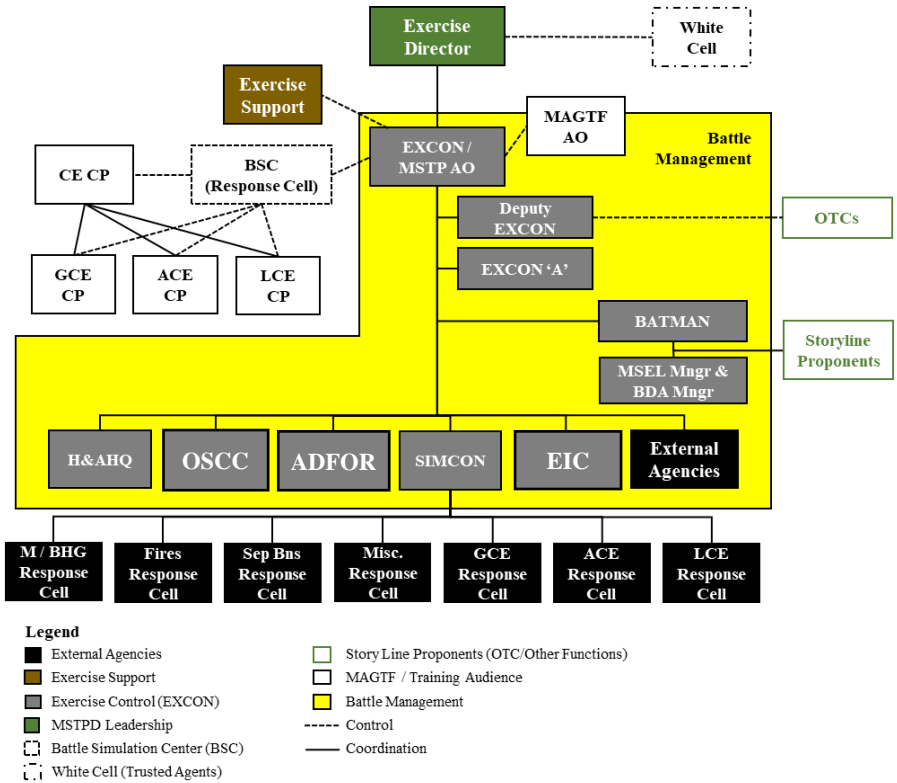


Figure 1-3: EXCON Organization

As previously discussed, the size and scope of the exercise will determine how the majority of the SURC staffing is sourced. The remainder of this pamphlet will focus on SURCs within the context of large exercises in which the SURC is primarily staffed by uniform members of the TA. Additionally, this pamphlet addresses the SURC responsibilities and balance between MEF/MEB and major subordinate commands (MSC), and the MSTP exercise structure.

### 1003. Response Cells and Subordinate Unit Response Cells

MSTP divides the role-payers into RCs and SURCs. The SURCs represent units that are subordinate to the MEF or MEB. Other RCs represent other entities that are necessary for the exercise and are not



part of the TA. RCs represent units and organizations with which the TA will need to interact. In MEF-level exercises, the units can consist of higher headquarters, adjacent units, other government agencies (OGA), non-government organizations, civilian entities, and enemy forces. The different RCs are generally categorized as blue forces (friendly combatants), red forces (enemy combatants), and green forces (government agencies, civilian organizations, and civilians). All these forces help create the operational environment of the scenario. Generally, all RCs consist of an IC, OIC, RC controllers (RCCs), and terminal operators (TOs).

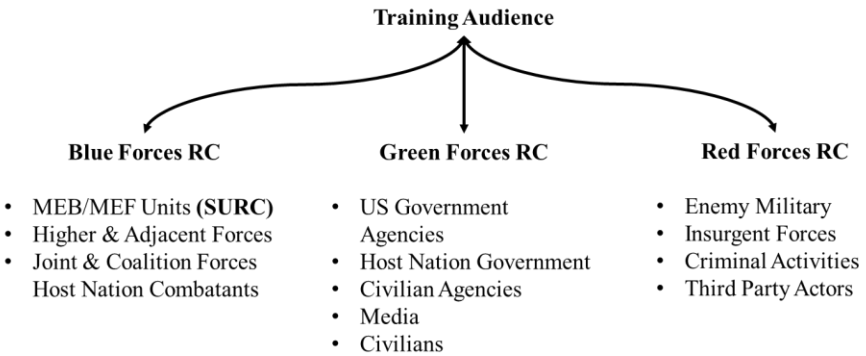


Figure 1-4: Response Cell Composition

The blue force RC is usually made up of the subordinate units from the TA, but may also be drawn from external sources, such as the Marine Corps Reserve Component. Additionally, adjacent, joint, and coalition forces may be categorized as SURCs, depending on the construct of the exercise. During an MSTP exercise, the SURC interacts directly with the simulation(s), EXCON, other RCs, and the TA. This interaction may follow the fidelity of a process or can be informal. For example, the formal process for providing battle damage assessment (BDA) can be abbreviated and openly discussed between the SURCs and other RCs with the result of providing the formal BDA report to the TA. This formal and informal communication applies to other information requirements derived

from the SURC: enemy contact, supply status, personnel status, etc. SURCs act in the same way as an actual subordinate unit; the SURC would carry out the order of the TA, fight the battles within the simulation, provide the required reporting back to the TA, and take part in all required staff actions. This is a bi-directional process; orders are received from the TA and applied to the simulation. The simulation provides the combat results and the SURC processes the results and provides the correct reporting to the TA, following the correct information path and format.

Red force RCs role-play the enemy’s actions into the exercise; this can be via a simulation or injected into the exercise by other means. Typically, red forces are under the direction of EXCON, but can be completely autonomous if the exercise is designed to be a force-on-force training event.

Green force RCs provide information to the exercise to aid the TA in working with civilian agencies, international organizations, or other cultural groups. Green forces can include OGA players; e.g., United States Agency for International Development and civilian agencies like the Red Cross. Green force RCs share the common role as blue and red force cells; their level of interaction with the simulation depends on the construct of the exercise and simulation utilized.

The figure below illustrates the generic information flow between the TA and the RCs.

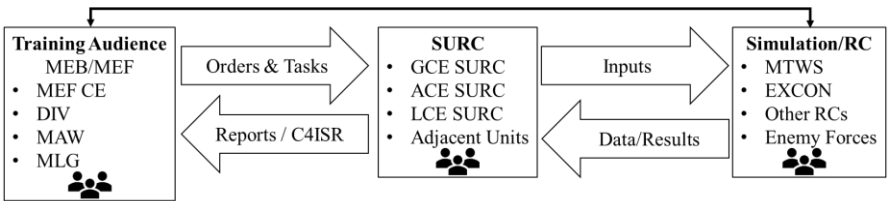


Figure 1-5: Generic Information Flow

## 1004. Elements of the Subordinate Unit Response Cell

### a. Subordinate Unit Response Cell

The SURC can be configured and manned in a variety of ways. In the standard MSTP exercise, the SURC is broken into the Ground Combat Element (GCE), Aviation Combat Element (ACE), Logistics Combat Element (LCE), Fires, and Special Elements (SE). Each of the individual SURCs are scalable based on the TA training objectives, echelon of the TA, type of exercise, manning availability, and preference of the exercise planners. These cells represent the subordinate echelons of the TA. For example, in a MEF-level exercise, the TA is comprised of the MEF Command Element, Division Staff/Combat Operations Center (COC), Marine Aircraft Wing (MAW) Staff/Tactical Air Command Center (TACC), and Marine Logistics Group (MLG) Staff/COC. Consequently, the SURCs will comprise the Regimental Combat Teams (RCTs), Marine Aircraft Groups (MAGs), and Combat Logistics Regiments (CLRs). The SURC echelons will be further broken into battalions, squadrons, and smaller units, based on the needs of the exercise.

The main elements of the SURC are the OIC, IC(s), RCC(s), and TOs. It is important that the members of the SURC have the knowledge and experience to fulfill the role they are playing. Additionally, the members of the SURC must remember that they are facilitating training for the TA to work through staff processes, and not purely seeking to defeat the adversary force or demonstrate tactical prowess. The SURCs are not a complete replication of the subordinate command's COC, instead they are small, economized versions of multiple COCs with the basic C2 channels and military occupational specialty (MOS) expertise to control its units within the simulation. SURCs are responsible for taking orders and tasks from the TA, processing the information into the simulation, and then providing results back to the TA, other RCs, and EXCON agencies. Figure 1-6 below details how information flows into, within, and out of the SURC.

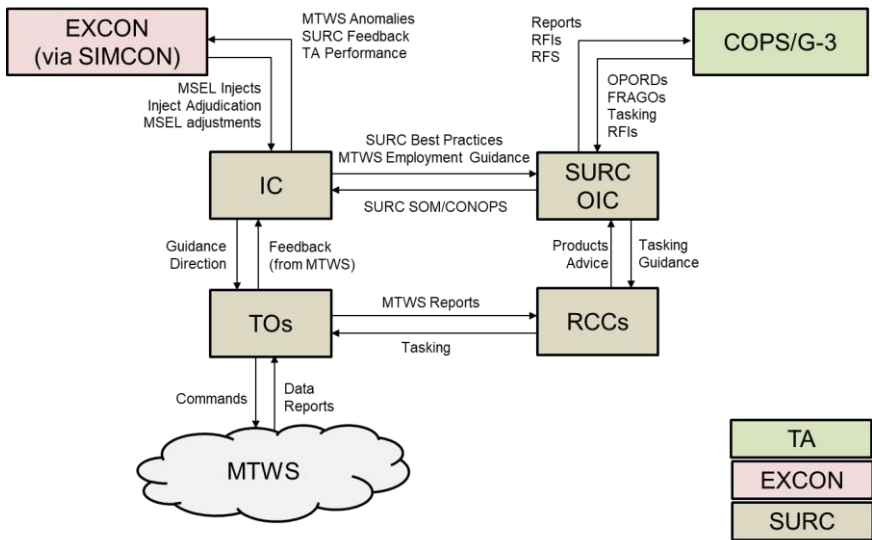


Figure 1-6: SURC Information Flow

## b. Subordinate Unit Response Cell Officer-in-Charge

The SURC OIC is responsible for supervising the warfighting activities of the SURC and making decisions regarding simulation activities to support exercise unit battle plans and orders. SURC OICs closely coordinate with the IC to prepare the SURC for successful participation in the exercise. The SURC OIC and IC have a unique relationship, as the SURC OIC is a uniformed member from the TA and the ICs are normally civilian contractors. Moreover, the SURC OIC reports to the TA, whereas the ICs report to SIMCON and EXCON. Nevertheless, an effective working relationship between the SURC OIC and IC is critical to SURC performance.

SURC OIC responsibilities begin during the planning phases of the exercise, so all SURC OICs should be identified by the TA as early as possible in the Exercise Life Cycle (ELC), preferably at the Initial Planning Conference (IPC). Part of the ELC is developing the exercise starting data, also referred to as start exercise (STARTEX) Data. This information consists of the units' equipment density list

(EDL), location, and composition. The OIC is responsible for validating this data prior to the start of FINEX. If the OICs are engaged early enough, they can help shape the STARTEX data and manage the databases that are not facilitated by simulation.

The SURC OIC must be familiar with the exercise objectives, goals, and construct and needs to be knowledgeable of the combatant command order and the MEB/MEF order. The SURC OICs are also responsible for ensuring the cell is properly staffed according to the exercise support manning document (ESMD) and that the SURC personnel are present and participating in the IC-led TO and SURC training prior to the exercise. In addition to the performance of the cell, the OIC is responsible for the administrative functions of the cell; for example, morning reports, meal plans, and transportation. Outside of personnel matters, the SURC OIC is required to validate the cell is equipped with the proper C2, communication, and support equipment to provide the requisite information to the TA.

**c. Instructor/Controller.** The IC is normally a member of the MSTP or battle simulation center (BSC) staff who uses their experience, understanding of warfighting dynamics, and systems knowledge to transform systems data into useful information for simulation supported exercises. The IC trains and supervises the TOs and coordinates TOs activities with the respective SURC personnel and maintains a log of significant events. The IC ensures the TOs are aware of the status of simulation system(s). The IC ensures the TOs translate orders they receive from the RCCs into simulation inputs that will enable the computer interface to be transparent to the COC. The IC works closely with the SURC OIC and RCCs but reports directly to SIMCON.

**d. Response Cell Controller.** The RCC(s) is usually a Marine or other service member on active duty. They work under the supervision of the SURC OIC and supervise TO actions in the simulation. The OIC and RCC manage the information output to the TA, providing realism and the desired degree of simulation transparency. Typical RCCs in a SURC are: Operations Officer, Fires Officer, Intel Officer, Logistic Officer and Personnel Officer.

The SURC OIC and RCCs are the staff primaries for the SURC. In addition to using simulations/simulators, the SURC represents the information that would be generated by the unit. To adequately generate the required level of detail, a SURC needs a staff that is comprised of SMEs who can fill in the information that is not generated by the simulation. Form and format are also important to the SURC to facilitate realism. Reports need to be formatted correctly, orders should be as authentic as possible, and command and control (C2) systems should be employed as they would during an operation. The SURC staff needs to have the correct mix of SMEs to effectively represent the unit, but also needs to be efficient. The goal of a SURC is to represent, not replicate, the unit(s).

#### **e. Terminal Operator**

The TO is normally an active duty Marine sourced from the MEF/MEB or one of its MSCs. TOs input computer commands into the simulation as directed by the RCC. TOs should be knowledgeable and experienced in the warfighting area the SURC simulates. They may not possess the tactical experience or military knowledge the RCCs and ICs possess, so they must be given direction/commands that an inexperienced person can easily understand. Prior to the start of the exercise, TOs are trained on the simulation by the IC. TOs must understand how to input function-specific commands and must be able to interpret the information presented in reports generated by the simulation.

The figure 1-7 illustrates the relationship between the members of the SURC.

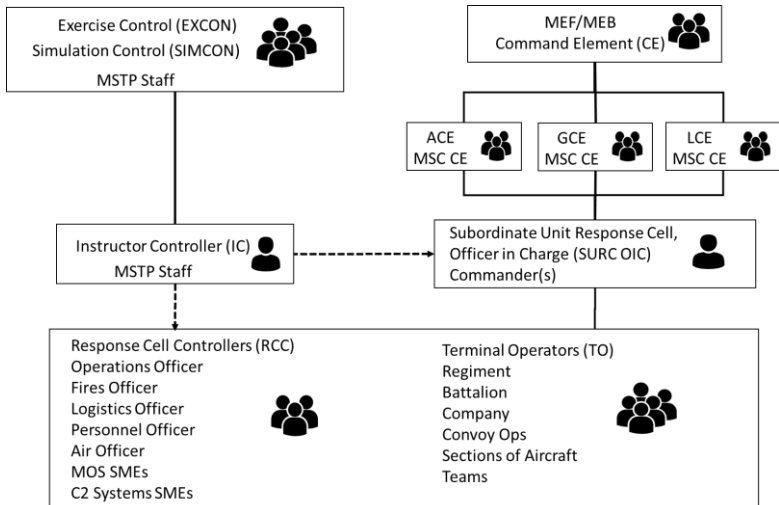


Figure 1-7: Response Cell Composition

## f. Summary of Key Points

- The SURC is a task-organized entity that simulates the functions of units subordinate to the TA.
- SURCs interact with the TA, the simulation(s), adjacent RCs, and MSTP EXCON in order stimulate the TA and drive the scenario.
- An IC is an MSTP or BSC staff member (usually a contractor) who is both a warfighting function SME and highly experienced in simulation(s).
- The SURC OIC works with his assigned IC to train the SURC, supervise operations during exercise execution, and facilitate information flow to and from the TA.
- An RCC is a warfighting SME who serves as a staff primary to the SURC OIC and directs the actions of the TOs.
- TOs are the simulation operators. They should have a basic understanding of their warfighting specialty.

---

## **Part II**

# **Ground Combat Element Subordinate Unit Response Cell**

---

### **2001. Overview**

As described above, SURCs can be configured in several different ways, based on the design of the exercise. A typical GCE SURC, composed of a single regiment, may consist of the following billets:

- GCE Maneuver (Regimental) OIC
- Intelligence Officer / Chief
- Operations Officer / Chief
  - Command & Control Personal Computer (C2PC) Operator / Clerk
- Fires Support Coordinator / Chief
  - Advanced Field Artillery Tactical Data System (AFATDS) Operator
- Air Officer / Non-Commissioned Officer (NCO)
- Battalion Commander (x 3)
  - Marine Air Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Operator x 4
- Combat Engineer Officer / SNCO
- Chemical, biological, radiological, nuclear, and explosives (CBRNE) Officer/SNCO
- Logistics Officer / Chief
  - CLC2S/Transportation Capacity Planning Tool (TCPT) Clerk
- Maintenance Management Controller



- MTWS Logistics Operator
- Personnel/Casualty Control Officer / NCO
- Medical Officer / Hospital Corpsman
- Civil Military Ops SME

This list is not inclusive and billets may need to be added or removed based on the task organization of the TA. Figure 2-1 below displays how these billets may be arrayed within the physical spaces of the SURC.

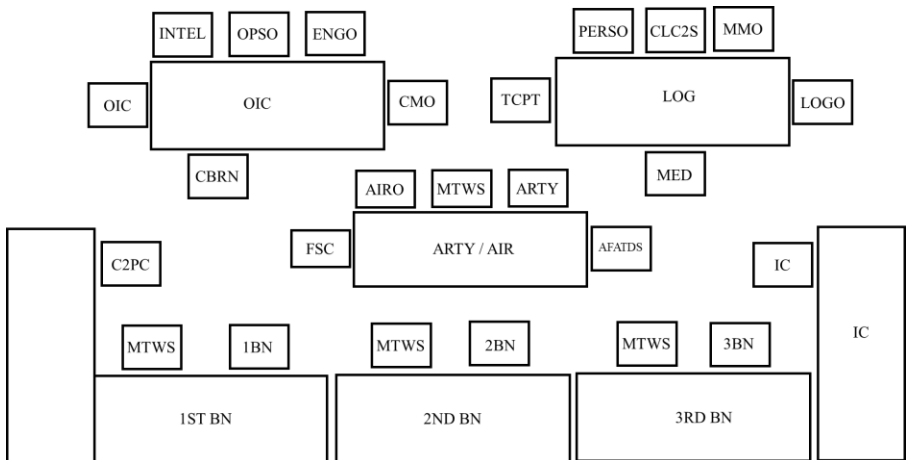


Figure 2-1: Ground Combat Element (Regiment) Subordinate Unit Response Cell

Within the SURC, the IC and the OIC have a special relationship, as they will need to work in tandem for the success of the SURC. The IC is likely more experienced with the simulation and overall management of the SURC, but the OIC is responsible for the overall performance of the subordinate units (Regiments, Battalions, and attachments). The OIC is also likely more experienced with the latest SOPs and Tactics, Techniques, and Procedures (TTPs) utilized by the MEB/MEF.

## **2002. Subordinate Unit Response Cell and Warfighting Functions**

Another way to view SURC functions is through the lens of the warfighting functions.

### **a. Command and Control**

The GCE SURCs provide the command and control of their assigned units and attachments within the simulation based upon the Annex A or task organization. The GCE SURCs execute the plans and orders received from the GCE MSC headquarters (HQ). As such, the GCE SURCs provide input to the GCE MSC HQ and its adjacent units, LCE MSC HQ and ACE MSC HQ, in the form of combat reporting in accordance with established combat SOPs. This is accomplished using the various C2 systems that the MEF has established to support the flow of communication.

### **b. Maneuver**

The GCE SURCs conduct fires and maneuver based on orders and guidance received from higher headquarters, which is manifested in the simulation. TOs manipulate the forces and take actions based on detections in the simulations. Detections are provided based on the sensory capability of the units which are affected by line-of-sight and aural sensory equipment (optics, radars, etc.). The TOs then take action or react to detections. It is important for the SURC OIC and RCCs to maintain control of the TOs and continuously remind the cell that they are supporting the training of the MAGTF CE and its ACE, GCE, and LCE MSCs. Additionally, TOs need to conduct their actions as if they are actual units in order to create a realistic picture of the battlefield. TOs and SURC personnel need to be familiar with the forms of maneuver (frontal attack, flanking attack, envelopment, turning movement, infiltration, penetration), as well as coordination of supporting fires, Close Air Support (CAS), logistical activities, and how these actions are conducted in the simulation.

### **c. Fires (Indirect Fires / Close Air Support)**

The GCE SURCs integrate combined arms by employing their organic indirect fires assets within the individual battalions and

requesting indirect fire from direct support artillery through the RC's Fires personnel (Fire Support Coordinator and Fires NCO) within their cells. Additionally, the GCE SURCs request assault support or CAS which is coordinated by additional cell's Fires personnel (Air Officer and Air NCO). Organic fires can be employed while integrated into the GCE SURC or a consolidated Fires Cell can be employed. Either way, the Fires cell detects, accepts, and conducts fire missions for cannon, rocket, and other indirect fire platforms. Depending on what simulation is being employed, the mission command system; e.g., AFATDS, is used to control fires. If the simulation directly stimulates this system, the response time greater reflects the reality of digital fires. Figure 2-2 depicts a consolidated Fires Cell.

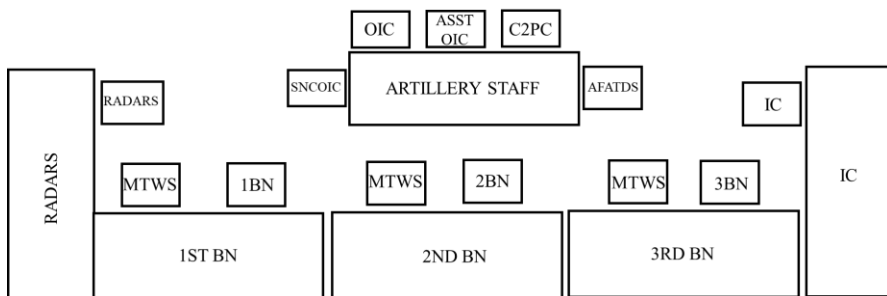


Figure 2-2: Indirect Fire Subordinate Unit Response Cell

#### d. Logistics

The GCE SURCs conduct the same logistics functions as any maneuver unit. The level of resolution is determined by the training goals of the exercise. Most simulations are attrition-based combat simulations and easily conduct accounting for classes of supply, to include ammunition. Additionally, combat effects are represented in the simulation; for example, casualties (R-Routine, P-Priority, U-Urgent, and expired) and equipment casualties (F-Kill: Fire-power Kill, M-Kill: Mobility Kill, and K-Kill: Catastrophic Kill). The GCE SURC must process these events as well as the combat actions in the simulation. Accounting of personnel, ammunition, and equipment is only one side of the cell's responsibility. The mirror responsibility is

requesting, accepting, and reporting the replacement/resupply of personnel and supplies/equipment. Use of the Common Logistics Command & Control System (CLC2S) for logistics ordering and tracking and the Transportation Capacity Planning Tool (TCPT) are an integral part of this function within the SURC.

#### **e. Force Protection**

Much of the force protection functions take place in the simulation. This is based on posture (unprepared, maneuvering, hasty, immediate, deliberate, fortified, and in buildings) and the unit's position. The GCE SURCs posture can change if the unit is in a hardened structure or if a unit's Mission Oriented Protective Posture level is increased or decreased. Although these actions are semi-automatic in the simulation, it is imperative that the SURC personnel remain aware of force protection. Ensuring the tactical dispersion of simulated units is critical, as a consolidation of forces presents a target rich environment in the simulation as it would in reality.

#### **f. Intelligence**

Within the GCE SURC, terrain analysis is conducted and analyzed prior to maneuver. Feedback from organic Unmanned Aerial Vehicles (UAV) is analyzed during the conduct of operations. The information gained from Spot Reports/Detections (Visual/Aural) must be reported to higher commands for further evaluation. The SURC intelligence personnel need to replicate the staff outputs and processes to apply intelligence received from higher headquarters, remembering that all SURCs represent the actions and reporting of a battalion or regiment.

#### **g. Information**

The information warfighting function is the intellectual organization of three abilities required for the application of informational power. They include understanding how information impacts behavior, leveraging information to affect behavior and facilitating shared understanding to support human and automated decision making. The plan for implementing an Information Operations Plan will

originate in the MEF Information Group. Indicators of the success or failure of this plan will be in the form of scripted feedback from the SURCs. The Effects Working Group, an EXCON entity, is responsible for adjudicating information related effects and generating any respective scripted feedback.

## **2003. Simulation Interfaces**

### **a. Command and Control Systems/Simulations**

Most of the maneuver simulations (MTWS, Warfighter Simulation (WARSIM), and Joint Conflict and Tactical Simulation (JCATS)) stimulate command and control systems, such as C2PC or Global Command and Control System (GCCS). C2 systems are partially stimulated by the simulation and partially stimulated by human data entry. The OIC, needs to ensure a comprehensive review of the simulation database is accomplished to ensure that the simulation data aligns with the human data and overall understanding of the exercise parameters. This review ensures the organizations assets within the simulation are in line with the unit's task organization and EDL.

MTWS, as well as other simulations, normally only stimulate the locations of units (track management), representing how a unit would appear on the Common Operational Picture (COP) via the transponders. Simulations will not provide the interaction data (combat damage, levels of supply etc.) which must be entered into the C2 system via a human-in-the-loop, in the same way this is managed in real life. There are C2 systems utilized by the GCE for logistics ordering and tracking, which is an integral part of the SURC, but is not connected to the simulation. Consequently, the databases for both systems need to be coordinated before the start of the exercise.

### **b. Simulation Reports**

MTWS provides a variety of reports that indicate what is happening during the exercise. Presently, MTWS provides the TO with a series of reports and graphical indicators for the represented units in the GCE SURC; below is a sampling of the graphical indicators and reports:

- Map/Display Data
  - Graphic Direction Indicator
  - Speed Indicator
  - Direct Engagement Indicator
  - Combat Effectiveness
  - Boundaries
  - Minefields
  - Operational Graphics
  - Airspace Control Order Graphics
- Reports – Spot Reports (Reports on a unit’s current activity) and Solicited Reports (Information on unit; e.g., Unit Assets, Engagement Status, Unit Location, etc.)
  - Unit Asset
  - Spot (SPOTREP)
  - Engagement Status
  - Unit Location, Details, Movement
  - NBC Status
  - Unit Posture, Frontage, Formation
  - Unit Situation and Type
  - Combat Service Support (CSS) Requests
  - Casualty Evacuations (CASEVAC)
  - Personnel

The TO has access to various other solicited reports and will consistently monitor the unit's Spot Report (SPOTREP) which is a running report that is a concise narrative report of essential information covering events or conditions that may have an immediate and significant effect on current planning and operations.

#### **2004. Special Elements Subordinate Unit Response Cell**

The Special Elements (SE) SURC is unique because it does not represent a warfighting function or a single leg of the MAGTF. Instead, the SE SURC is for units that do not easily fit into the GCE, ACE, or LCE. Examples of SE SURCs are Division Reconnaissance or Naval Forces in a MEB/MEF exercise. Another common example is foreign forces that are attached to the MAGTF, or need to be part of the exercise, but are not part of the TA. It is possible to put some of these forces in other SURCs, although experience leans toward a consolidated SURC that will allow for economies of manpower. The construct of the SE SURC will change based on the scenario and training goals. Below is an example list of the personnel for a MEF level-exercise:

- Special Elements
  - Reconnaissance
    - Reconnaissance Officer
    - Reconnaissance SNCO
    - Division/Reconnaissance MTWS Operator
    - Force/Reconnaissance MTWS Operator
  - Combined/MEF HQ OIC
    - AFATDS Operator/MTWS
    - MTWS Operator
  - Multi-Domain Effects Team
    - Cyberwarfare SME
    - Communications Strategy SME

- Civil-Military Operations SME
- Information Maneuver SME
- Naval Mobile Construction Battalion (NMCB) REP
- Maneuver/Fires
  - Maneuver/Fires MTWS Operator
- Air Naval Gunfire Liaison Company (ANGLICO)
  - ANGLICO AFATDS Operator

## **2005. Summary**

The GCE SURC receives orders and direction from its higher headquarters and subsequently conducts its respective operations. The GCE SURC must be interoperable with the other SURCs (ACE, LCE, and SE) to provide the TA with feedback through combat reporting. This process paints the tactical picture for the TA which drives the decision-making process and ultimately leads to the achievement of the training objectives.

### **a. Summary of Key Points**

- The GCE can be configured in several different ways, based on the echelon of the TA, type of exercise, manning availability, and preference of the exercise planners.
- The SURC OIC must be familiar with the exercise objectives, goals, construct, and orders.
- The SURCs are not a replication of the subordinate commands COC, instead they are small, economized versions of multiple COCs.
- The GCE SURCs provide the command and control of their assigned units and attachments within the simulation based upon the Annex A or task organization. The GCE SURCs execute the plans and orders received from the GCE MSC HQ.



- The GCE SURCs integrate combined arms by employing their organic fires, requesting indirect fire from artillery and assault support or CAS from aviation.
- The GCE SURCs conduct the same logistics functions as any unit. The level of resolution is determined by the training goals of the exercise.
- The OIC, needs to ensure a comprehensive review of the simulation database is accomplished to ensure that the simulation data aligns with the C2 systems.

---

# Part III

## Aviation Combat Element

### Subordinate Unit Response Cell

---

#### 3001. Overview

The ACE SURC is responsible for conducting all of the actions below the echelon of the MAW/ MAG and their control elements: Direct Air Support Center (DASC), and the Tactical Air Operations Center (TAOC). A typical ACE SURC includes the following components: Fixed Wing (FW) Squadrons, Rotary Wing (RW) Squadrons, MAG/Squadron Operations Sections, Marine UAV Squadrons, Flight Line Intelligence Centers (FLICs), Marine Aviation Logistics Squadrons (MALS), Marine Wing Support Squadrons (MWSS), and the Low Altitude Air Defense (LAAD) units. These individual elements of the SURC will vary in size, depending on the level of detail necessary to achieve the MEF/MEB's training goals. The ACE SURC conducts aviation operations based on the Air Control Order (ACO) and ATO for its aviation units, and directives issued from the TACC for its other non-flying units. Figure 3-1 below illustrates the structure of the ACE SURC.

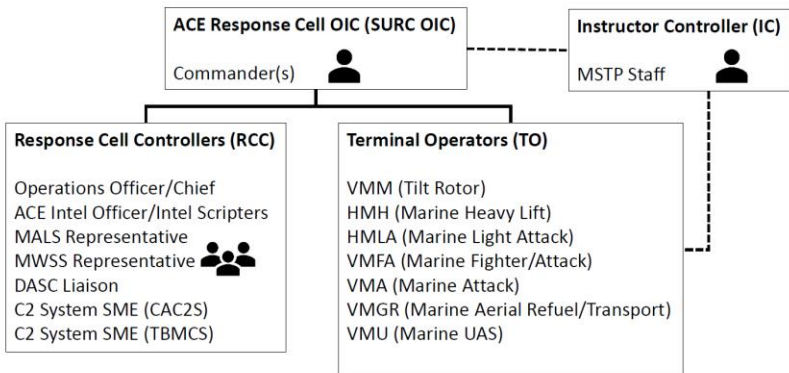


Figure 3-1: Aviation Combat Element Subordinate Unit Response Cell

A typical ACE SURC (single Wing) is comprised of the following billets:

- ACE OIC
- ACE Staff
- Intelligence Officer / Chief
- Operations Officer
- DASC Rep
- MALS Rep and CLC2S
- Theater Battle Management Core System (TBMCS) Clerk
- RW Flying Squadron
- MAG OIC
- Marine Medium Tilt-rotor Squadron (VMM) Pilot X 2
- VMM Mission Report (MISREP) Scriptor
- HMH Pilot X 2
- HMH MISREP Scriptor
- Marine light attack helicopter squadron (HMLA) Pilot x 3
- HMLA BDA/MISREP Scriptor X 2
- CLC2S Rep
- FW Flying Squadron
- FW MAG OIC
- MAG Intelligence Officer
- Marine Fighter/Attack Squadron (VMFA) pilot X 4
- VMFA BDA/MISREP Scriptor X 2
- Marine Aerial Refueling Transport Squadron (VMGR) Pilot
- Marine Attack Squadron (VMA) Pilot X 2

- VMA BDA/MISREP Scriptor
- UAV Pilot X 2
- UAV BDA/MISREP Scriptor X 2
- AGSD
- CLC2S Clerk/MTWS
- CLC2S Clerk/MTWS
- CLC2S Clerk
- TCPT Clerk/ MTWS
- TCPT Clerk
- Medical Planner
- Air Defense Unit
- LAAD (Controlled by TAOC, may be attached to GCE or LCE)
- LAAD Lead
- LAAD Terminal Operator

This list is not inclusive and other billets may be added or removed based on the TA task organization.

**3002. Command and Control Systems/Simulations.** Simulations (MTWS, WARSIM, and Flexible, Analysis, Modeling, and Exercise System (FLAMES)) stimulate and feed information into C2 systems, such as C2PC, GCCS, and Common Aviation Command and Control System (CAC2S). Simulations mainly stimulate these C2 systems for track and unit locations, as other capabilities and interactions are input by humans. For example, the ACE SURC is often tasked with updating the Execution Status tool (ESTAT) on TBMCS, a function MTWS will not automatically provide. Other systems utilized by the ACE, such as CLC2S for logistics ordering and tracking, are integral parts of the SURC, but are not presently capable of interfacing with simulations. Consequently, the databases

for both systems need to be coordinated before the start of the exercise.

### **3003. Six Functions of Aviation and the SURC**

The ACE SURC supports its functions differently from the other SURCs, as the functions are represented by different members of the SURC rather than the SURC representing different units. This is unique because of the way the ACE employs its assets (sections and divisions of aircraft), and because multiple individual missions are being flown in the scenario by the same SURC personnel. The OIC is responsible for representing the six functions of aviation as it relates to the play of the exercise.

#### **a. Offensive Air Support**

Offensive Air Support (OAS) plays a large role in the MSTP FINEX. The MAGTF's combat power is enhanced by the concept of combined arms. Combined arms is the full integration of arms in such a way that in order to counteract one, the enemy must make himself vulnerable to another. To accomplish this, a task organized MAGTF will integrate its aviation assets to effectively support the MAGTF scheme of maneuver. OAS operations apply fire power against the adversary force's war making and sustainment capabilities. During the exercise, the ACE SURC OIC needs to understand and represent the different categories.

- CAS
  - Preplanned
  - Immediate
- Deep Air Support (DAS)
  - Air Interdiction
  - Armed Reconnaissance
  - Strike Coordination and Reconnaissance

The members of the SURC (OIC, RCCs, TOs, ICs) play a role in providing OAS to the exercise through use of the simulation, gathering data, and providing information products to the TA to support the training objectives and goals.

The OIC's main responsibility is to develop the training environment, portray the operational scenario, and support the training objectives of the MAGTF.

RCC billets are Operations Officer, MALS/MWSS Officer, Intelligence Officer, Fires Officer and AFATDS Operator, Marine Air Command and Control System (MACCS) SME, Personnel Officer, and CBRNE SME. The staff members take the data presented by the TOs and synthesize this data into corresponding reports that flow into the TA. This flow also works in reverse when the MEF sends information through the MSCs and into the SURC.

The Operations Officer/Chief is responsible for the execution of the ATO and ensuring the timeliness of executed air missions. They keep the cell's OIC informed of the status of the air missions and coordinate with the TACC in executing changes to the ATO. They monitor the TO's air mission status regarding launch, on station, and return to base.

It is important to fill TO billets with pilots, who should operate the same aircraft in the simulation that they fly in real life. Prior to the start of the exercise, TOs are trained on the simulation they will manage. TOs must understand how to input function specific commands and be able to interpret the format and information presented in reports they receive. TOs physically interact with the simulation, and then report the results of the actions into the rest of the SURC. The simulation provides a variety of reports that indicate what is happening during the exercise. Presently, MTWS provides the TO with a series of reports and graphical indicators for the represented units in the ACE SURC. Below is a sampling of the reports:

- Graphic Direction Indicator
- Speed Indicator

- Engagement Indicator
- Combat Effectiveness
- Boundaries
- Fire Support Control Measures
- Operational Graphics
- Airspace Control Order Graphics

Additionally, MTWS provides a series of Solicited Reports, which provide data for OAS as well as the other functions of aviation. Below is a sample of Solicited Reports:

- Unit Asset Report
- Engagement Status
- Squadron Location
- Airfield
- Air Mission
- Air Mission History
- Holding Patterns
- Ordnance Load
- Search Area
- Recon
- CSS Requests
- Surface/Subsurface Tracks
- Sonar Contact
- Patrol Areas

The final category of reporting that supports OAS, as well as the other functions of Marine aviation, is the Spot Report (SPOTREP). These are expressed by a scrolling list of actions that occur in the

simulation. The SPOTREPs are displayed in a separate window and allow operators to maintain awareness of what actions are occurring during the exercise. Below is a sample of the different SPOTREPs that pertain to the ACE SURC:

- Air Mission Launch
- Air Mission reached orbit point
- Air Mission reached Recon Start Point
- Air Mission Detection (sensor type, location, speed, direction/posture, assets)
- Weapons Launch Point
- BDA
- Air Mission Refuel
- Cargo Pick up/delivery
- CASEVAC pickup/delivery
- Air MISREP

The TO has access to hundreds of solicited reports from the SPOTREP screen. A SPOTREP is a concise narrative of essential information covering events or conditions that may have an immediate and significant effect on current planning and operations. TOs carry out the orders of the MAW and MAG in the simulation and report the results back to the SURC staff.

## **b. Anti-Air Warfare**

Anti-Air Warfare (AAW) is an integral part of Marine aviation. Historically, this function has been required with varying degrees of intensity, depending upon the extent and nature of the enemy air threat. AAW is the action required to destroy, or reduce to an acceptable level, the enemy air and missile threat. There are two general types of AAW: Offensive AAW (OAAW) and air defense.

OAAW constitutes operations conducted against enemy air or air defense systems before they can launch or assume an offensive role.



OAAW operations in or near the objective area consist mainly of air attacks to destroy or neutralize hostile aircraft, airfields, radars, air defense systems, and supporting areas. OAAW sub-categories consist of:

- Preemptive Measures
- Suppression of Enemy Air Defenses (SEAD)
- Local Air Superiority Measures

Air defense consists of defensive measures designed to destroy attacking enemy aircraft or missiles or to nullify or reduce the effectiveness of such an attack (Joint Pub 1-02). Air defense can be further broken down into two categories:

- Active Air Defense
- Passive Air Defense

The ACE SURC can facilitate AAW functions by conducting missions in the simulation and applying that information to products and interactions with the TA. The OIC and RCCs need to be aware of this mission set and be able to extrapolate the required information from the TOs via the simulation. The ACE SURC will need to interact with the other SURCs and the H&AHQ response cell to coordinate AAW within the Joint and/or coalition scenario.

### **c. Assault Support**

Assault support provides the MAGTF commander the ability to concentrate their strength against selected enemy weaknesses using speed and surprise. It provides operational and tactical mobility as well as logistic support to the MAGTF. This function comprises those actions required for the airlift of personnel, supplies, and equipment into or within the battle area by rotary wing, tilt-rotor, or fixed wing aircraft. These are the general categories of assault support:

- Combat Assault Transport
- Air Delivery

- Aerial Refueling
- Air Evacuation
- Tactical Recovery of Aircraft and Personnel (TRAP)
- Air Logistical Support
- Battlefield Illumination

Similar to OAS, all members of the ACE SURC are involved in executing assault support in the simulation, allowing the simulation to generate outcomes of missions, gathering the data, and then providing the information and products to the TA.

#### **d. Air Reconnaissance**

Simply stated, when a commander commits their troops to battle, he does so with certain risks. The ultimate purpose of any type of reconnaissance is to reduce the commander's unknown risks. There are two categories of Air Reconnaissance:

- Strategic Reconnaissance
- Tactical Reconnaissance

Within Air Reconnaissance there are three sub categories:

- Visual
- Multi-Sensor Imagery
- Electronic

Additionally, Air Reconnaissance can be performed by different platforms such as Unmanned Aircraft Systems (UAS), F-18s, F-35Bs and rotary wing assets. The information gathered by these missions affect the overall game path and provide the necessary data for processing by the ACE SURC, EIC, other SURCs, and the TA.

The ACE Intel Officer, through the FLIC and the MAW's air combat intelligence (ACI), maintains awareness over the entire MAGTF area of operations (AO) for all six functions of aviation, which includes pertinent information for BDA, dynamic targeting

(re-attack), collection (targets of opportunity) and the increasingly important non-traditional ISR (NTISR) in meeting the ever present demand for indications and warnings pertaining to specific and general enemy intent. They collect pilot reports, UAV imagery, and FMV as well as MISREPs for processing in a timely manner. FLICs have proven to provide products worth more than the sum of their parts due to direct interaction and collaboration of intelligence data gathered from multiple platforms in both a Joint and combined environment.

#### **e. Electronic Warfare**

Electronic Warfare (EW) consists of Electronic Attack (EA), Electronic Warfare Support (ES), and Electronic Protection. This function of aviation is currently a shortfall of the simulation. This means that the ACE SURC OIC, RCCs, and TOs need to fly the appropriate missions in the simulation and then coordinate with EXCON and the EIC to deliver the desired effects of EW.

#### **f. Control of Aircraft and Missiles**

Control of aircraft and missiles encompasses the coordinated employment of facilities, equipment, communications, procedures, and personnel in order to enable the ACE commander to plan, direct, and control the efforts of the ACE to support the MAGTF. The agencies of the MACCS are essential to the conduct of the control of aircraft and missiles. Although the Tactical Air Control Party (TACP) and other airborne controllers are not part of the administrative chain of the Marine Air Control Group, they are considered to be integral elements of the MACCS.

MACCS elements are organized into several independent squadrons, which, when deployed, provide the agencies of the MACCS. The independent squadrons are:

- Marine Tactical Air Command Squadron (MTACS). Corresponding Agency: TACC, which functions as the senior MAGTF Aviation command and control agency and serves as the operational command post of the ACE commander or their designated representative. The TACC is

responsible for receiving requests for assault support and offensive air support and producing the ATO.

- Marine Wing Communication Squadron (MWCS) is the primary communication organization within the MAW.
- Marine Air Support Squadron (MASS). Corresponding Agency: DASC, which is responsible for direction of assault support and OAS through procedural control. It is ideally located with senior Fire Support Coordination Center (FSCC).
- Fixed Wing Marine Unmanned Squadron (VMU) provides Air Reconnaissance and OAS in the form of the MQ-9 Reaper.
- LAAD Battalion, whose mission is to provide close-in, low altitude surface-to-air weapons fires in defense of the MAGTF. LAAD Battalions defend forward combat areas, maneuver forces, vital areas, installations, and/or units engaged in special or independent operations utilizing the legacy Stinger missile system or Marine Air Defense Integrated System.
- Marine Air Control Squadron (MACS). Corresponding Agency: TAOC, which can be part of either the TA or the ACE SURC.

Depending on the exercise construct, some of the independent squadrons may be part of either the ACE SURC or the TA. The OIC needs to have knowledge of the functions of the squadrons and be able to partially employ these functions as part of the exercise. For example the LAAD Battalion may not actually be part of the TA, but the surface to air capability needs to be represented in the exercise. The LAAD representative sets the air defense condition directed by the TAOC and is responsible for the tactical disposition of their units. LAAD tactical reporting is directed to the TAOC. LAAD support may be through the wing or the ground unit to which the LAAD is attached. Another example is the DASC liaison who coordinates with the TA

DASC cell. They monitor and assign all joint tactical air strike requests (JTAR), assault support requests (ASR), and casualty evacuations (CASEVAC) to the SURC's TOs. The liaison informs the DASC of receipt and execution of requests.

### **3004. Exercise Preparation**

The key to a successful exercise is adequate preparation. To ensure the SURC exercise data is correct, the OIC is responsible for the validation of the STARTEX data that will be used in the ACE SURC. All STARTEX data is important to the overall success of the exercise, but there are four elements of data that are critical and deserve specific discussion.

Friendly Order of Battle (FROB): The FROB lists all of the elements of the ACE Squadrons, to include joint assets, airfield/airfield location, types of aircraft, availability of aircraft, sortie sustainment, turn-around times, and the squadron's higher headquarters. Figure 3-2 is an example of the table used to organize the FROB information.

LN #	TBMC Unit ID	Ctry	Svc	Unit Type	Base	ICAO	LAT	LONG	Type A/C	Call Sign	Aircraft Assigned	Aircraft Available	Sortie Sustain Rate	Sortie Surge Rate	Normal Turn Time	FARP Turn Time	HHQ
2	3d MAW HQ MWH5-3	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	1 MEF
3	MACG-38	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3d MAW
4	MTACS-38	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACG-38
5	MACS-1	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACS-1
6	TAOC	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACS-1
7	ATC-DET	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACS-1
8	EWCD	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACS-1
9	MASS-3	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACG-38
10	MWCS-38	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACG-38
11	MWCS-38 DETA	US	M	D					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MWCS-38
12	MWCS-38 DETB	US	M	D					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MWCS-38
13	3d LAAD-A	US	M	D					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MACG-38
14	3d LAAD-A.1	US	M	D					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3d LAAD-A
15	3d LAAD-A.2	US	M	D					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3d LAAD-A
16	MWSG-37	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3d MAW
17	MWSS-371	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MWSG-37
18	MWSS-372	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MWSG-37
	MWSS-373	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MWSG-37
19	MAG-11	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3D MAW
20	MALS-11	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MAG-11
22	VMFA-232	US	M	A					FA18C		12	12	2.5	4		N/A	MAG-11
23	VMFA_AW-225	US	M	A					FA18D		12	12	2.5	4		N/A	MAG-11
24	VMFA-323	US	M	A					AV8B		12	12	2.5	4		N/A	MAG-11
25	VMGR-352	US	M	A					KC130J		8	8	1.2	2		N/A	MAG-11
26	MAG-13	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3D MAW
27	MALS-13	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MAG-13
29	VMFA-211	US	M	A					FA18C		9	9	2.5	4			MAG-13
30	VMA-214	US	M	A					AV8B		16	16	2.5	4			MAG-13
	VMA-311	US	M	A					AV8B		16	16	2.5	4			MAG-13
31	VMU-1	US	M	A													MAG-13
32	MAG-16	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3D MAW
33	MALS-16	US	M	A					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MAG-16
35	VMM-163	US	M	A					MV22B		12	12	2.5	4			MAG-16
	VMM-165	US	M	A					MV22B		12	12	2.5	4			MAG-16
36	HMH-361	US	M	A					CH53E		8	8	2	3			MAG-16
	HMH-462	US	M	A					CH53E		12	12	2	3			MAG-16
	HMH-465	US	M	A					CH53E		12	12	2	3			MAG-16
37	MAG-39	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	3D MAW
38	MALS-39	US	M	HQ					N/A		N/A	N/A	N/A	N/A	N/A	N/A	MAG-39
40	HMLA-169	US	M	A					AH-1Z/UH-1Y		15/12	15/12	2.5	4			MAG-39
	HMLA-267	US	M	A					AH-1Z/UH-1Y		15/12	15/12	2.5	4			MAG-39
	HMLA-369	US	M	A					AH-1Z/UH-1Y		4/3	4/3	2.5	4			MAG-39
41	HMLA-469	US	M	A					AH-1Z/UH-1Y		11/9	11/9	2.5	4			MAG-39
	VMM-164	US	M	A					MV22B		12	12	2.5	4			MAG-39
42	VMM-364	US	M	A					MV22B		12	12	2.5	4			MAG-39

Figure 3-2: Aviation Combat Element Friendly Order of Battle

Standard Conventional Load (SCL): The SCLs were originally designed to provide war planners with specific acceptable ordinance loads for various aircraft. SCL codes are designed to allow users to readily identify the intended composition of the ordinance without the aid of reference or source documentation. Below are examples of naming conventions for SCLs, which are necessary for inclusion on the ATO. It is recommended that an ACE SME thoroughly review the inclusion of SCLs by each type of aircraft.

<b>8A158X4G54X1G38</b>	<b>8A160BX8A160X18M129</b>	<b>2A88X2G54V1X1A1W</b>	<b>16C103X27M82H</b>
8 x AGM-158 X Item Separator 4 x GBU-54 X Item Separator 1 x GBU-38	8 x ADM-160B 8 x ADM-160 X Item Separator 18 x M129	2 x AGM-88 X Item Separator 2 x GBU-54v1 X Item Separator 1 x AIM-120 1 x AIM-9	16 x CBU-130 X Item Separator 27 x Mk-82 High Drag
<b>1G12X1G54X2W1</b>	<b>2G12X2G38V2X1W1</b>	<b>1A65E2G54X1W1</b>	<b>2BRIM2PWIV</b>
1 x GBU-12 X Item Separator 1 x GBU-54v1 X Item Separator 2 x AIM-9 1 x External Fuel Tank	2 x GBU-12 X Item Separator 2 x GBU-38v2 X Item Separator 1 x AIM-9 1 x External Fuel Tank	1 x AGM-65E 2 x GBU-54 X Item Separator 1 x AIM-9 1 x External Fuel Tank	2 x Brimstone 2 x Paveway IV

Figure 3-3: Air to Ground Standard Conventional Load Examples

Ordnance and Fuel Supplies: MTWS and most simulations require that ordnance and fuel quantities be specifically defined for each airfield. Although logistic supply (Class 3 and Class 5) is the function of the G/S-4, it is important that the SURC OIC validates these classes of supply.

Airfield ICAO:	Fuel Amount:	Airfield ICAO:	Fuel Amount:
Ordnance Name	Ord Amount#	Ordnance Name	Ord Amount#
7.62MM	1000	7.62MM	1000
9-MM	2000	9-MM	2000
5.56MM	40000	5.56MM	5.56MM
.50CAL	10000	.50CAL	10000
2.75-19-FFAR	800	25MM-HE	10000
2.75-7-FFAR	800	20MM-HE	10000
20MM-HE	1500	AGM-65E-LGAV	800
AGM-114-HELL	900	AIM-9-SIDEWINDER	900
AIM-9-SIDEWINDER	900	AIM-120-AMRAAM	900
ZUNI-RKT-4	900	GBU-10-2000LB	800
		GBU-12-500LB	800
		GBU-16-1000LB	800
Airfield ICAO:		GBU-31-JDAM	500
STINGER LAUNCHERS	150	GBU-32-JDAM	500
LAAD Stinger MSLs	150	GBU-38	500
		MK-82-500LB	600
		MK-83-1000LB	500
		MK-84-2000LB	500
		CBU-100-ROCKEYE2	500
		CBU-78-GATOR	500
		AGM-88-HARM	400
		ZUNI-RKT-4	900

Figure 3-4: Ordnance Supply Example

The MALS representative provides administrative and supply support for a MAW Headquarters. The MALS provides direct support of intermediate aircraft maintenance, aviation supply, and aviation ordnance to the flying squadrons of a MAG.

The MASS representative provides aviation ground support to enable a MAG or a composite MAG to conduct expeditionary operations by monitoring the fuel consumption and resupply.

Unit Build Data: The unit build data is the spreadsheet version of the data that is contained in the simulation. This is the final data set that is programmed into “batch files” which are executed as the final step in database development. Below is an example of the unit build data, which lists personnel, equipment, and table of authorized materiel control number (TAMCN), weapons, ordnance, and supplies.



Unit Type/Name: 3d MAW HQ / MWHS-3		Tab ACE 1
<b>Personnel</b>		
Total Marine/Navy Personnel (officer & enlisted)		500
<b>Equipment</b>		
TAMCN	<b>Equipment Name</b>	<b>Number</b>
<b>Individual Weapons</b>		
	<b>Weapon Name</b>	<b>Number</b>
E1442	M-16A4	110
E0100	M27-IAR	10
E1245	9MM	380
<b>Ordnance</b>		
	<b>Ordnance Name</b>	<b>Number</b>
A059	CTG,5.56 MM BALL	30,000
A063	CTG, 5.56MM TRACER	5,000
A363	CTG, 9MM BALL	5,000

Figure 3-5: Unit Build Data Example

Other preparatory steps are required, which will help with overall situational awareness and better prepare the SURC members for the exercise. These include the following:

- Review the Exercise Support Manning Document (ESMD) to ensure the cell is manned properly in expertise
- Ensure the cell contains adequate simulation, C2, and support equipment
- Ensure proper individuals attend meetings such as the rehearsal of concept drill, nightly update brief, etc.
- Create a recall list for SURC Personnel
- Review the simulation center brief

- Attend TO training (observe the MTWS Computer Based Training (CBT))
- Ensure the staff have completed simulation SURC training

### **3005. Summary of Key Points**

- The ACE SURC can be configured in several different ways, based on the echelon of the TA, type of exercise, manning availability, and preference of the exercise planners.
- The ACE SURC conducts aviation operations based on the ATO and ACO for its aviation units.
- The OIC works closely with the IC to train and prepare the SURC for successful participation in the exercise.
- The functions of aviation are supported in the ACE SURC differently from the other SURCs. The functions are represented by different members of the SURC rather than the SURC representing different units. MACCS elements are organized into several independent squadrons, which when deployed provide the agencies of the MACCS. Depending on exercise, some of the independent squadrons may be part of the ACE SURC or the squadron may be part of the TA.
- The key to a successful exercise is adequate preparation. To ensure the SURC exercise data is correct, the SURC OIC is responsible for the validation of the STARTEX data that will be used in the simulation.

---

## **Part IV**

# **Logistics Combat Element**

## **Subordinate Unit Response Cell**

---

### **4001. Overview**

The LCE SURC encompasses multiple elements, much like the ACE SURC, and incorporates the functions of logistics into the exercise. Logistic functions beyond simple accounting are poorly represented in computer simulations; consequently, the LCE SURC is comprised of SMEs from the following functional areas of logistics:

- Supply
- Maintenance
- Transportation
- General Engineering
- Health Services
- Services

### **4002. SURC Structure**

The LCE SURC is required to work through logistics problems for the exercise and provide the correct feedback without completely replicating the process. Additionally, the LCE SURC needs to be cognizant of the warfighting functions. A typical LCE SURC is comprised of the following billets:

- LCE SURC OIC
  - Operations Officer / Chief
  - Headquarters
    - Mortuary Affairs Chief
    - Personnel Officer

- Personnel/Casualty NCO (Not required, if it is not a G-1 driven PCR reporting event)
  - Admin Clerk / C2PC
- Intel Officer
- Air Officer
  - Air Support / Embark Chief
- Civil Military Ops SME
- CBRNE SME
- Rear Area Operation Center (RAOC) Officer
  - RAOC MTWS Operator
- Mobility Officer
  - HQ MTWS Operator x 2
  - Unit Movement Control Center (UMCC) Chief
  - UMCC Clerk / TCPT Operator x 3
- Engineer Support Battalion (ESB) Officer
  - ESB Officer/Chief
  - NMCB REP
  - ESB MTWS Operator
- General Support (GS) CLR Officer
  - GS Clerk - CLC2s / TCPT
  - GS MTWS Operator
  - Transportation Battalion (TB) Officer
  - TB Operations Clerk- CLC2s / TCPT
  - TB MTWS Operator x 2
  - Ammo Tech/Chief
  - Maintenance Officer

- Maintenance NCO
- Direct Support (DS) CLR Officer / Chief
  - DS Clerk - CLC2s / TCPT Operator
  - DS MTWS Operator x 2
- Medical Battalion Officer
  - MED Battalion / S1 Operations Officer
  - MED Battalion Clerk / MTWS Operator
  - Medical Planner
  - Hospital Corpsman
  - Medical Logistics Rep

This list is not inclusive and billets may need to be added or removed based on the TA task organization. A sample LCE SURC layout is depicted below in Figure 4-1.

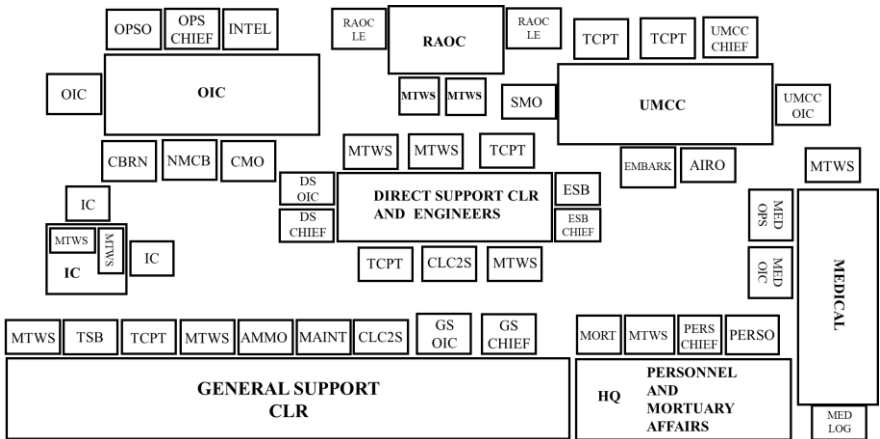


Figure 4-1: Notional LCE SURC

The OIC is responsible for the same information management as the other SURCs, but with an emphasis on logistics. Much like the

ACE, the LCE SURC should be broken into a combination of units and functions, with SURC staff principles filling the functional and command roles.

Most of the combat simulations (MTWS, WARSIM, and JCATS) stimulate C2 systems, such as C2PC and GCCS. In most of these systems, the simulation only facilitates track management. In addition to the mission command systems used by the other SURCs, the LCE SURC relies on CLC2S for logistics ordering and tracking. CLC2S is an integral part of the SURC, but is not connected to the simulation. The logistics community also uses TCPT, which maximizes the logistics assets of the MEF or MEB.

### **a. Supply**

The SURC is responsible for maintaining the supply/resupply cycle for all of the subordinate units in their chain. At the beginning of the exercise, all the MAGTF Logistics Support Systems (MLS2) and simulations (MTWS and/or Joint Deployment Logistics Model (JDLM)) are synchronized with the same data. As the exercise progresses, supplies are consumed and the SURC needs to resupply subordinate units and request resupply from higher units. For example, DS CLR resupplies the RCT in accordance with the MEF's plan and the CLR needs to request resupply from the MLG to maintain a level of readiness for the operation. Although this sounds simple in concept, it is important that the SURC accurately maintains the requisitions in CLC2S, convoy operations in TCPT, and ASR in the appropriate tracking system. Furthermore, this also needs to be reported in the correct format and relayed to the MLG or MEF G-4 (depending on the knowledge management plan). Through these actions, the TA can maintain situational awareness and forecast future supply requirements.

### **b. Maintenance**

An agreement between EXCON and the TA needs to be established to determine the level of resolution for a given exercise. Maintenance is a complex activity to replicate in simulation, so it may not be necessary to have a high-level of resolution or fidelity to

meet the higher-level training objectives. A traditional MEF/MEB FINEX only lasts between five and seven days, which is shorter than most maintenance cycles. Additionally, if the SURC role-plays the entire maintenance cycle, to include picking up and redeploying equipment, this would cause the tempo of the exercise to slow and risk attaining training objectives. JDLM is a simulation that closely represents the maintenance process. If desired, this simulation can be employed during the exercise, in conjunction with MTWS, without having to connect (federate) the simulations. MTWS can create equipment casualties and then the process of repair can be simulated using JDLM. Once the repair is completed, the redistribution of the equipment can be simulated in MTWS. This same process can be replicated for supply, health services, and general engineering. It is important for the SURC OIC and RCCs to conduct the applicable reporting and maintain the logistics C2 systems, as this is the artery that supplies the TA with information.

### **c. Transportation**

Transportation is one of the simplest functions for the SURC to represent. MTWS is more than capable of representing the organization and execution of convoy operations. The difficult portion for the SURC is to remember that all of the information a battalion would receive from the companies and convoys needs to be generated by the SURC and is only aided by the simulations. For example, in a simple convoy operation, the simulation will account for number and types of vehicles, firepower capability, cargo, fuel consumption, and number of personnel assigned to the convoy. The rest of the details concerning personnel (manifests), vehicle ID, cargo loaded on individual trucks, drivers and licenses, etc., is generated by the SURC, along with the required input to the MLS2 systems and required reporting.

### **d. General Engineering**

This function of logistics is managed by the SURC for reporting and detail, although the simulation (MTWS) does support engineering activities. The engineering command section lists commands related to constructing, breaching, repairing, and removing engineering

products. The ability of units to conduct engineer tasks is based on the quantities and capabilities of their engineering equipment, the type of engineering task assigned, and the size of the engineering task or project. The ability of a complex asset to conduct engineering tasks is specified during database development. If the TA does not provide the necessary detailed information, this capability may not be possible during the exercise. As an example, the simulation will allow the construction of several types of bridges: concrete, medium girder, pontoon, ribbon, steel, etc. The SURC requires the SME experience to determine what type of bridge and the equipment and supplies that need to be available to the unit. The SURC needs to determine the start and end points of the bridge, width of the bridge, and if the bridge will support armor. MTWS will then require input to the Work Time field. The Work Time field specifies a parameter (seconds per square meter per point) that is used to determine the total time the construction requires. MTWS provides a default value, but this value can be changed, such that entering a smaller number results in a shorter time requirement. Consequently, it is better that the SURC have engineering SMEs available to create a realistic environment for reporting progress, time, and space. There are other engineering projects that can be performed in the simulation, but it is important to remember that the SMEs in the SURC are the ones who provide the level of credibility and overall picture to the TA.

#### **e. Health Services**

Health Services is particularly complex because the function transcends multiple systems, elements of the MAGTF, and services. An example of this is the processing of casualties. MTWS will generate casualties (urgent, priority, and routine) which can occur anywhere in the MAGTF, and initial reporting can come from any of the SURCs (GCE, ACE, LCE, or SE). The responsibility for casualty tracking is shared by multiple entities: the originating SURC, LCE SURC, Naval patient evacuation team (PET), medical regulators, mortuary affairs, and the TA. Additionally, different entities will be responsible for populating the tracking systems. Simulations only provide the information that was in the design



and/or loaded into the database. Moreover, this process is not automated in the simulation and there are multiple human-in-the-loop steps required. Below is an example of the casualty process:

1. Blue Force/Red Force Engagement
2. Simulation generates casualties (2 Routine, 5 Priority, 6 Urgent, and 4 KIA)
3. Routine – Not evacuated, returned to duty, and provides reporting at the end of the day
4. Priority Ground: Originating unit (GCE SURC) ground transports to Regimental/Battalion Aid station or Surgical Company and provides reporting.
5. Priority/Urgent from Point of Injury (POI) or Regimental Aid Station to Role II capability:
  - a. Originating unit (SURC) generates CASEVAC 9-line and submits to regiment.
  - b. Regiment submits ASR to TA DASC
  - c. TA DASC submits to LCE SURC PET
  - d. PET and TA DASC determine CASEVAC ID, delivery location, and assign mission to ACE SURC
  - e. ACE SURC flies mission and delivers casualties to assigned Medical Facility (which is in the LCE SURC)
  - f. LCE SURC Medical Facility reports information to TA per SOP; e.g., Marine Special Operations Company (MSOC)
  - g. MSOC provides reporting to MLG and MEF
6. Priority/Urgent from Role II to Role III Facility
  - a. LCE SURC Role II sends patient transfer request to TA MLG/MEF

- b. TA MLG/MEF sends request to Higher & Adjacent Headquarters (H&AHQ) RC
- c. H&AHQ RC sends mission to Joint Aviation Response Cell (JARC)

#### 7. JARC flies mission in MTWS

The above process demonstrates the complexity in managing casualties in accordance with a specific SOP. The TA is responsible for providing the casualty evacuation/patient tracking plan to the SURC OIC, and the process then needs to be refined prior to the exercise. This process becomes more complicated as resolution is added to the exercise; for example, combining zap numbers, unit rosters, and defense civilian intelligence personnel system (DCIPS) for generating Personnel Casualty Reports adds complexity to the process. Detailed information can provide training opportunities, but there is a cost with respect to manpower and information. The addition of adding personnel to the SURCs is a tax on the TA, as well as the BSCs and MSTP. Additionally, adding simulations like JDLM can provide detailed information for Health Services and Maintenance, but this level of detail comes with same manpower and information management cost. Creating a greater level of detail can shift focus from supporting the exercise objectives to individual and subordinate unit training.

#### **f. Services**

The Services function of logistics is almost completely supported by the SURC personnel. The simulation does not simulate these logistics functions; e.g., disbursing, postal, legal, contracting, and personnel. The simulation can assist in providing some information in the asset reports, such as number of personnel or casualties, but it is the responsibility of the SURC to emulate this if necessary. In most MEF/MEB level exercises, services are not typically part of

Current Operations (COPS), instead the services functions are the items for Future Operations and/or Plans in the exercise format.

### **4003. Joint Deployment Logistics Model**

JDLM also known as Logistics Federation (LOGFED) is used to augment combat simulations. As previously discussed, MTWS is a combat model that is primarily focused on combat outcomes. MTWS will consume classes of supply and generate personnel casualties (R-Routine, P-Priority, U-Urgent, and expired) and equipment casualties (F-Kill: Fire-power Kill, M-Kill: Mobility Kill, and K-Kill: Catastrophic Kill), but MTWS does not complete the process for health services, maintenance, general engineering, and services. These functions can be manually scripted or generated by JDLM. For example, when a casualty is produced in MTWS, the cell can conduct CASEVAC procedures and then use a predetermined amount of time for the casualty to be reported and moved to a higher level of care or be returned to duty. This method can be effective for an exercise, but may not provide the required detail. JDLM simulates the type of injury, number of physicians, types of specialists, number of support personnel (nursing staff), physician fatigue, medical supplies, and other variables, and provides a high level of resolution for the exercise. JDLM can also supply detailed data for maintenance, engineering, and services. Some of the drawbacks of using JDLM is the level of programming and coordination between the logistics and combat simulations. Additionally, once a simulation federation is established, it is extremely difficult to make any dynamic changes. The SURC OIC, working with the IC, exercise developers, and EXCON, need to determine what mix of simulation and scripting best suit the exercise.

### **4004. Summary of Key Points**

- The LCE SURC encompasses multiple elements of both MAGTF and Naval logistics.

- The SURC is responsible for maintaining the supply/resupply cycle for all of the subordinate units in their chain.
- An agreement between EXCON and the TA needs to be defined to determine the level of logistics resolution for a given exercise.
- Transportation is one of the simplest functions for the SURC to represent. MTWS is more than capable of representing the construction and execution of convoy operations.
- The ability of units to conduct engineering tasks is based on the quantities and capabilities of their engineering equipment, the type of engineering task assigned, and the size of the engineering task or project.
- Health Services is particularly complex because the function transcends multiple systems, elements of the MAGTF, and services.
- SURC personnel almost completely support the services function of logistics. MTWS does not simulate these logistics functions; e.g., disbursing, postal, legal, contracting, and personnel.
- The SURC OIC needs to know the exercise objectives, goals, construct, and orders. The SURC OIC is knowledgeable of the combatant command order, the MEF or MEB order, and its MSC's order(s).

---

# Appendix A

## Glossary

---

### Section I Acronyms

<b>AAW</b>	.....	anti air warfare
<b>ACE</b>	.....	aviation combat element
<b>ACI</b>	.....	air combat intelligence
<b>ACO</b>	.....	air control order
<b>ADFOR</b>	.....	adversary forces
<b>AFATDS</b>	.....	advanced field artillery tactical data system
<b>AGSD</b>	.....	aviation ground support department
<b>ANGLICO</b>	.....	air naval gunfire liaison company
<b>ASR</b>	.....	assault support requests
<b>ATO</b>	.....	air tasking order
<b>BDA</b>	.....	battle damage assessment
<b>BSC</b>	.....	battle simulation center
<b>C2</b>	.....	command and control
<b>C2PC</b>	.....	command and control personal computer
<b>CAC2S</b>	.....	common aviation command and control system
<b>CLC2S</b>	.....	common logistics command and control system
<b>CAS</b>	.....	close air support
<b>CASEVAC</b>	.....	casualty evacuations
<b>CBRNE</b>	.....	chemical, biological, radiological nuclear, and explosive defense
<b>CBT</b>	.....	computer based training
<b>CE</b>	.....	command element
<b>CLR</b>	.....	combat logistics regiment
<b>COC</b>	.....	combat operations center
<b>COMMSTRAT</b>	.....	Communications Strategy and Operations
<b>COP</b>	.....	common operational picture
<b>COPS</b>	.....	current operations
<b>CPX</b>	.....	command post exercise
<b>CSS</b>	.....	combat service support
<b>DAS</b>	.....	deep air support

**DASC**..... direct air support center  
**DCIPS**..... defense civilian intelligence personnel system  
**DS**.....direct support  
**EDL**..... equipment density list  
**EIC**..... exercise intelligence cell  
**ELC**.....exercise life cycle  
**ESB**.....engineer support battalion  
**ESMD**.....exercise support manning document  
**ESTAT**.....Execution Status  
**EXCON**..... exercise control  
**FINEX**..... final exercise  
**FLAMES**..... flexible, analysis, modeling, and exercise system  
**FLIC**..... flight line intelligence centers  
**FPC**.....final planning conference  
**FROB**..... friendly order of battle  
**FW**..... fixed wing  
**GCE**.....ground combat element  
**GCSS**..... Global Command and Control System  
**GS**..... general support  
**H&AHQ**.....higher & adjacent headquarters  
**HMLA**..... Marine light attack helicopter squadron  
**HQ**..... headquarters  
**HQE**..... Highly Qualified Experts  
**IC**.....instructor controller  
**IPC**.....initial planning conference  
**JCATS**.....joint conflict and tactical simulation  
**JDLM**..... joint deployment logistics model  
**JARC**.....joint aviation response cell  
**JTAR**.....joint tactical air strike requests  
**LAAD**..... low altitude air defense  
**LCE**..... logistics combat element  
**LOGFED**..... logistics federation  
**LVC**..... live, virtual, and constructive  
**MACCS**..... Marine Air Command and Control Systems  
**MAG**.....Marine air group  
**MAGTF**.....Marine Air Ground Task Force  
**MALS**.....Marine aviation logistics squadrons

<b>MAW</b>	.....	Marine air wing
<b>MEB</b>	.....	Marine expeditionary brigade
<b>MEF</b>	.....	Marine expeditionary force
<b>MEFEX</b>	.....	MEF exercise
<b>MISREP</b>	.....	mission reports
<b>MLG</b>	.....	Marine logistics group
<b>MLS2</b>	.....	MAGTF logistics support systems
<b>MOS</b>	.....	military occupational specialty
<b>MSC</b>	.....	major subordinate command
<b>MSE</b>	.....	major subordinate element
<b>MSOC</b>	.....	Marine special operations company
<b>MSTP</b>	.....	MAGTF staff training program
<b>MTACS</b>	.....	Marine Tactical Air Command Squadron
<b>MTWS</b>	.....	MAGTF tactical warfare simulation
<b>MWCS</b>	.....	Marine Wing Communication Squadron
<b>MWSS</b>	.....	Marine wing support squadrons
<b>NCO</b>	.....	non-commissioned officer
<b>NMCB</b>	.....	naval mobile construction battalion
<b>OAAW</b>	.....	offensive anti air warfare
<b>OAS</b>	.....	offensive air support
<b>OGA</b>	.....	other government agencies
<b>OIC</b>	.....	officer-in-charge
<b>OPORD</b>	.....	operations order
<b>OSCC</b>	.....	operational systems control center
<b>PET</b>	.....	patient evacuation team
<b>RAOC</b>	.....	rear area operation center
<b>RC</b>	.....	response cell
<b>RCC</b>	.....	response cell controller
<b>RCT</b>	.....	regimental combat team
<b>RW</b>	.....	rotary wing
<b>SCL</b>	.....	standard conventional load
<b>SCO</b>	.....	simulation control officer
<b>SE</b>	.....	special elements
<b>SEAD</b>	.....	suppression of enemy air defense
<b>SIMCON</b>	.....	simulation control
<b>SME</b>	.....	subject matter expert
<b>SOP</b>	.....	standard operating procedure

**SPOTREP** ..... spot report  
**STARTEX** ..... start exercise  
**SURC** ..... subordinate unit response cell  
**TA** ..... training audience  
**TACC** ..... tactical air command center  
**TACP** ..... tactical air control party  
**TAMCN** ..... table of authorized materiel control number  
**TAOC** ..... tactical air operational center  
**TBMCS** ..... theater battle management core system  
**TCPT** ..... transportation capacity planning tool  
**TO** ..... terminal operators  
**TRAP** ..... tactical recovery of aircraft and personnel  
**TB** ..... transportation battalion  
**TTP** ..... tactics techniques and procedures  
**UAS** ..... unmanned aircraft systems  
**UAV** ..... unmanned aerial vehicle  
**UMCC** ..... unit movement control center  
**VMA** ..... Marine attack squadron  
**VMM** ..... Marine medium tilt-rotor squadron  
**VMFA** ..... Marine fighter/attack squadron  
**VMGR** ..... Marine aerial refueler transport squadron  
**VMU** ..... Marine unmanned aerial vehicle squadron  
**WARSIM** ..... warfighter simulation



## Section II Definitions

### A

**aggregate (unit)** - A group of entities or a group of other aggregates considered as a single unit. The substitution of the word "unit" is used to avoid phrases like "aggregate aggregate." (IEEE Std 1278.1-2012)

### B

**behavior** - For a given object, how attribute value changes affect or are affected by the attribute value changes of itself, other objects, or the simulation environment.

### C

**command post exercise (CPX)** - An exercise in which the forces are simulated, involving the commander, the staff, and communications within and between headquarters. (JP 1-02)

**computer simulation** - A simulation that is executed on a computer, with some combination of executing code, control/display interface hardware, and, in some cases, interfaces to real-world equipment.

**computer-generated forces (CGF)** - A generic term used to refer to computer representations of forces in models and simulations that attempts to model human behavior sufficiently so that the forces will take some actions automatically (without requiring man-in-the-loop interaction). Types of CGF include automated forces - computer-generated forces that require little or no human interaction. Semi-automated forces - computer-generated forces in which the individual platform simulation is operated by computer simulation of the platform crew and command hierarchy.

**constructive simulation** - Simulations involving simulated people operating simulated systems. Real people can be allowed to stimulate (make inputs) to such simulations.

## L

**live simulation** - A simulation involving real people operating real systems. (DoD M&S Human Capital Strategy)

**live, virtual, and constructive (LVC) simulation** - A broadly used taxonomy describing a mixture of live simulation, virtual simulation, and constructive simulation. (LVCAR Final Report)

## M

**Master Scenario Events List (MSEL)** - A chronological list that supplements the exercise scenario with event synopses; expected participant responses; capabilities, tasks, and objectives to be addressed; and responsible personnel. It includes specific scenario events (or injects) that prompt players to implement the plans, policies, and procedures that require testing during the exercise, as identified in the capabilities-based planning process. It also records the methods that will be used to provide the injects (i.e., phone call, facsimile, radio call, e-mail).

**modeling and simulation (M&S)** - 1. The discipline that comprises the development and/or use of models and simulations. (DoDD 5000.59, DoDI 5000.61) 2. The use of models, including emulators, prototypes, simulators, and stimulators, either statically or over time, to develop data as a basis for making managerial or technical decisions.

## R

**resolution** - The degree of detail used to represent aspects of the real world or a specified standard or referent by a model or simulation.

**response cell** - A group of personnel, separate from the training audience, that simulate higher, adjacent, or subordinate units or agencies and their actions. Response cells interact with the training audience to support the exercise scenario and may provide tactical input into the simulation.

## S

**scenario** - An identification of the major systems/players that must be represented by the simulation, a conceptual description of the capabilities, behavior, and relationships (interactions) between these major system/player over time, and a specification of relevant environmental conditions (e.g., terrain, atmospheric). Initial and termination conditions are also provided.

**simulation** - A method for implementing a model over time. (DoDD 5000.59, DoDI 5000.61, DoDI 5000.70)

**simulation environment** - The operational hardware, software including databases, communications, and infrastructure in which a simulation operates.

**simulation exercise** - An exercise that consists of one or more interacting simulation applications. (IEEE Std 1278.1-2012)

**simulator** - A device, computer program, or system that performs simulation. (IEEE 610.3-1989)

**stimulator** - A hardware or software device that provides input into an operational system or subsystem.

## V

**virtual** - An entity or data that is derived from a modeled or simulated representation of the actual or anticipated system.

**virtual simulation** - A simulation involving real people operating simulated systems.