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INTEGRATED NUCLEAR AND CONVENTIONAL  
THEATER WARFARE SIMULATION (INWARS)  
DOCUMENTATION  
PART IV  
USER'S MANUAL COMPONENT  
VOLUME IV  
INWARS OUTPUTS

DISTRIBUTION STATEMENT A  
Approved for public release  
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February 8, 1980

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FOREWORD

This is Volume IV of the User's Manual Component of the Integrated Nuclear and Conventional Theater Warfare Simulation (INWARS) documentation. It presents the form and content of a simulation run.

PART I - INWARS SYNOPSIS

PART II - MODELING DESCRIPTION

- VOL. I INTRODUCTION
- VOL. II GROUND COMBAT OPERATIONS
- VOL. III AIR OPERATIONS
- VOL. IV COMBAT SUPPORT OPERATIONS
- VOL. V ECHELON ABOVE DIVISION COMMAND, CONTROL, AND INTELLIGENCE (EAD C<sup>2</sup>I) ACTIVITIES

PART III - SOFTWARE DESCRIPTION

- VOL. I SOFTWARE FRAMEWORK
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- VOL. I INTRODUCTION
- VOL. II COMBAT INTERACTIONS INPUTS
- VOL. III EAD C<sup>2</sup>I INPUTS
- VOL. IV INWARS OUTPUTS



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*(Integrated Nuclear and Conventional  
Theater Warfare Simulation)*

CHAPTER I  
INTRODUCTION TO INWARS OUTPUTS

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This final volume in the User's Manual component of the INWARS documentation describes the outputs produced by the simulation. As has been noted earlier, outputs produced in a run of the simulation may be regarded as "state snapshots" presenting the status of some or all of the simulated force elements at a particular point in time. "Physical status" snapshots represent the true state of all force elements at a given point in time. As described in Chapter II, these snapshots are taken periodically and may be used to follow the actual course of the simulated conflict. "Mental status" snapshots represent the situation as perceived by some or all EAD C<sup>2</sup>I element at a given point in the conflict. As described in Chapter III, these snapshots give the user access to the UOS of each EAD C<sup>2</sup>I element. They are taken periodically for all EAD C<sup>2</sup>I elements, but may also be taken at key decision points for individual C<sup>2</sup>I elements.

↖

CHAPTER II  
PHYSICAL STATUS SNAPSHOT OUTPUTS

This chapter describes the INWARS unit status output data. This information is printed periodically over the course of a simulation run. It is a listing of all entities in the model, and important elements of their state information. The basic format is one unit and its status information on a line. Additional lines may be used if necessary. At the top of the listing, a header serves to identify the various information elements. These elements are given below, with the identifying header label. Figure II-1 provides an example for reference.

- 1) UNITID (UNIT)      Unit identification, in the form SACDBB, where:
  - S = Side (1 = NATO, 2 = Pact)
  - A = Army group/Front number
  - C = Corps/Army number
  - D = Division number
  - BB = Brigade number
  
- 2) HEX LOCATION (HEX)      Hex in which the unit is located, usually 7 octal digits. For information on the hex coordinate system, see the Modeling Description, Volume I, Chapter III.
  
- 3) FACING (F)      Hex direction in which unit is oriented. This should be the direction toward the enemy.
  - The hex directions are:
    - 1 = West      258°
    - 2 = Northeast      48°
    - 3 = Northwest      348°
    - 4 = Southeast      148°
    - 5 = Southwest      228°
    - 6 = East      108°

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UNIT STATUS

UNIT	CON	SIT	MIS	OBJ	AXIS	SEC	DIS	TRP	LCN	LOR	OBJ	NC	SIT	EFF	SUP	STR	TYPE	NBR	TYPE	NBR	TYPE	NBR	TYPE	NBR	TYPE	NBR		
210400	7777134	6	6	0	1	1	80	1	7777134	0	000000	100	0	51		MERC	4	0										
210420	7777137	6	6	0	1	1	80	1	7777137	0	000000	100	0	51		MARC	4	0										
210421	7777254	6	6	0	2	2	80	1	7777254	0	000000	100	0	203		H60	27	0	YOM	9	0	DRAGON	12	0	155MM	4	0	
210422	7777721	6	6	0	2	2	80	1	7777721	0	000000	100	0	212		H60	27	0	YOM	9	0	DRAGON	12	0	155MM	4	0	
210423	7777773	6	6	0	2	2	80	1	7777773	0	000000	100	0	212		H60	27	0	YOM	9	0	DRAGON	12	0	155MM	4	0	
210440	7777714	6	6	0	1	1	80	1	7777714	0	000000	100	0	106		0	IN	4	0	HAWK	4	0						
210441	7777774	1	1	0	2	2	70	1	7777774	0	000000	100	0	216		H60	13	0	YOM	24	0	DRAGON	27	0	155MM	4	0	
210442	7777756	1	1	0	2	2	80	1	7777756	0	000000	100	0	226		H60	13	0	YOM	24	0	DRAGON	27	0	155MM	4	0	
210443	7777523	1	1	0	2	2	80	1	7777523	0	000000	100	0	226		H60	4	0	YOM	24	0	DRAGON	27	0	155MM	4	0	
410400	7777657	1	1	0	1	1	260	1	7777617	0	000000	100	0	56		8AM	2	0	0	0	0	0	0	0	0	0	0	0
410420	7777617	1	1	0	1	1	260	1	7777617	0	000000	100	0	112		152MM	4	0	8AM	2	0	0	0	0	0	0	0	
410421	7777723	1	1	0	6	6	260	1	7777254	0	000000	100	0	228		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410422	7777721	1	1	0	6	6	260	1	7777721	0	000000	100	0	228		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410423	7777721	1	1	0	6	6	260	1	7777721	0	000000	100	0	232		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410424	7777722	1	1	0	6	6	260	1	7777722	0	000000	100	0	290		172	10	0	BMP	23	0	BRDM	2	0	122MM	9	0	
410440	7777762	1	1	0	1	1	260	1	7777762	0	000000	100	0	118		152MM	4	0	8AM	2	0	0	0	0	0	0	0	
410441	7777725	1	1	0	6	6	260	1	7777731	0	000000	100	0	236		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410442	7777773	1	1	0	6	6	260	1	7777773	0	000000	100	0	240		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410443	7777772	1	1	0	6	6	260	1	7777773	0	000000	100	0	240		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	
410444	7777777	1	1	0	6	6	260	1	7777771	0	000000	100	0	305		172	10	0	BMP	23	0	BRDM	2	0	122MM	9	0	
410460	7777742	1	1	0	1	1	260	1	7777742	0	000000	100	0	122		152MM	4	0	8AM	2	0	0	0	0	0	0	0	
410461	7777774	1	1	0	6	6	260	1	7777742	0	000000	100	0	310		172	10	0	BMP	23	0	BRDM	2	0	122MM	9	0	
410462	7777743	5	5	0	6	6	260	1	7777748	0	000000	100	0	245		172	10	0	BMP	23	0	BRDM	2	0	122MM	9	0	
410463	7777746	1	1	0	6	6	11	250	1	7777747	0	000000	100	0	252		172	10	0	BMP	23	0	BRDM	2	0	122MM	9	0
	3	0	11	7777745	250	1	0	0	1	0	004100																	
	1	17	6	7777751	250	1	0	0	1	1	004103																	
410464	7777745	1	1	0	6	6	260	1	7777775	0	000000	100	0	252		172	23	0	BMP	7	0	BRDM	1	0	122MM	9	0	

Figure II-1. Outputs

4) DIRECTION (D)

This hex digit indicates the direction of movement. The directions listed above apply, and 7 indicates no movement.

5) SPEED (SPD)

Unit speed, in km/hr

6) OPERATION (OP)

This operation code indicates the present physical status of the unit. The presently defined operation codes for ground units are:

- 1 Prepared Defense
- 2 Hasty Defense
- 3 Active Defense
- 4 Delay
- 5 Withdrawal
- 6 Hasty Attack
- 7 Coordinated Attack
- 8 Infiltration/Granular Attack
- 9 Breakthrough
- 10 Reconnaissance
- 11 Road Movement

7) MISSION (M)

The mission code defines the type of operation the unit has been assigned, and which it is attempting to carry out. The mission codes are currently the same as the operation codes above.

8) AXIS (AX)

The axis of operation orients the operation with respect to the enemy. Facing is derived from this number, given in azimuth angle (0 - 360°).

9) SECTOR WIDTH (SW)

The sector width of a unit's operation is an index number which determines the manner in which a unit searches and is spread over more than one hex. It is normally the same as the sector width in hexes (of 9.5 km diameter).

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10) **OBJECTIVE (OBJ)** Unit operation order objective: Specifies the geographical location toward which a unit is attempting to move or stay. This number, like the hex location, is in the hex coordinate system.

11) **Nuclear/Chemical Readiness (NC)** The value of this number indicates the nuclear and chemical readiness states. It is the sum of a number for each as follows:

<u>State</u>	<u>Nuclear</u>	<u>Chemical</u>
0	0	0
1	8	1
2	16	2

Thus, a value of 17 would indicate Nuclear state 2, Chemical state 1.

12) **SITUATION (SIT)** This octal number allows display of the current status of some situation flags for the unit. Each octal digit represents three flags. The flags are as follows, from the leftmost digit to the rightmost.

<u>Digit</u>	<u>Bit</u>	<u>Digit Value</u>	<u>Flag</u>	<u>Meaning</u>
5	17	4	FLGCRS	Chemical readiness
5	16	2	FLGNV	Nuclear victim
5	15	1	FLGCV	Chemical Victim
4	14	4	--	Unused
4	13	2	NXEFF2	Effectiveness: 0 = undegraded
4	12	1	NXEFF1	1 = ineffective
3	11	4	FLGSUP	Supply degradation
3	11	4	FLGSUI	Supplies requested
3	9	1	FLGOBJ	At objective
2	8	4	FLGMTG	Meeting engagement

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<u>Digit</u>	<u>Bit</u>	<u>Digit Value</u>	<u>Flag</u>	<u>Meaning</u>
2	7	2	FLGFLK	Flank danger
2	6	1	FLGHEX	Enemy in same hex
1	5	4	FLGADJ	Enemy unit adjacent
1	4	2	FLGFLL	Left flank threat
1	3	1	FLGFRL	Right flank threat
0	2	4	FLGPEN	Penetration
0	1	2	FLGFR	"Normal" force ratio
0	0	1	FLGFR1	"Dangerous" force ratio

For each digit, the value is divided successively by 4, 2, and 1 to determine if the respective flag is on, as indicated by a quotient of one. Thus, if digit 1 (second from the right) is a 5, then flags FLGADJ and FLGFRL are on, indicating an enemy unit is adjacent, and the unit is threatened on its right flank.

## 13) EFFECTIVENESS (EFF)

This value is the effectiveness level of the unit, expressed as a percentage of base strength. Units initially are at 100%, and effectiveness decreases with attrition until restored during reconstitution.

## 14) UNIT SUPPRESSION (SUP)

This value is the percent suppression of the unit as a whole; various individual assets of the unit may have more or less suppression. Note that for BLUE (if BLUE units are put in first), the value is before recovery, while for RED it is after;

Thus the numbers are not compatible by side. This is due to processing of BLUE

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- first each cycle when BLUE units are input first.
- 15) UNIT STRENGTH (STR) This value is a comparative strength of the unit, which is the weighted sum of all assets divided by eight. It is used in determining unit effectiveness.
- 16) ASSET NAME (TYPE) This field is the description of a given asset possessed by the unit.
- 17) ASSET NUMBER (NBR) This is the number of assets of the given type a unit has.
- 18) ASSET SUPPRESSION (S) This digit gives the suppression state of the particular asset of a unit. It ranges from zero for none or low suppression to 8 for maximum suppression. As with unit suppression, the BLUE units, if listed first, are shown before recovery, while RED units are shown after recovery.

Note that the asset fields; 16, 17, and 18, are repeated for each asset the unit has. They are extended to successive lines if necessary.

CHAPTER III  
UNDERSTANDING OF THE SITUATION (UOS) SNAPSHOTS

A. INTRODUCTION

This chapter describes the UOS snapshot outputs which provide the user access to the objectives, plans, and perceptions of individual EAD C<sup>2</sup>I elements. These snapshots are taken by presenting selected components of a given EAD C<sup>2</sup>I element's UOS at a particular point in time. Section B describes the UOS components which may be included and the form in which they are presented. Section C then defines the points at which full or partial UOS snapshots may be taken and indicates the particular UOS components included.

B. FORM OF UOS SNAPSHOTS

As was indicated in the Software Description, Volume II, Chapter II, Section A, each UOS contains fourteen components falling into four major categories: Fundamental Knowledge, Situation Data, Operations Data and Situation Representation Information. These are all accessible from the UOS Header Block as indicated in Figure III-1. UOS snapshots include some or all Situation Data/Situation Representation Information and Operation Information components. In this section, the form of these outputs will be discussed. Section 1, below, describes some general aspects of the output format employed. Sections 2-9 then describe the form of output for particular UOS components. Finally, the Weapons Employment Plan output is discussed in Section 10.

1. General Format of UOS Snapshot outputs

UOS snapshot output are organized on a C<sup>2</sup>I-element-by-C<sup>2</sup>I element basis: all information to be provided from a single C<sup>2</sup>I element's UOS is output before moving on to the next C<sup>2</sup>I element's UOS. When more than one C<sup>2</sup>I element's UOS is to be output, the order of presentation follows the user-specified chain of command: Blue theater, first Blue Army Group,

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<b>UNDERSTANDING OF THE SITUATION (UOS)</b>			
<b>INFORMATION BLOCK ADMINISTRATION</b>			
<b>FUNDAMENTAL KNOWLEDGE</b>			
	UNIT IDENTITY STANDARD OPERATING PROCEDURES UPDATING THRESHOLDS & FLAGS DIRECTORY CONCEPT OF OPERATION DIRECTORY EMPLOYMENT CONCEPT DIRECTORY WEAPONS PARAMETERS DIRECTORY FORCE ELEMENT DIRECTORY	@ UNITID PTRSOP* PTRUTF* PTRCON* PTREMP* PTRWPP* PTRFED*	18 (SOPBLK) (UTFDIR) (CONDIR) (EMPDIR) (WPPDIR) (FORDIR)
<b>SITUATION INFORMATION</b>			
	OWN STATUS INFORMATION ENEMY ORDER OF BATTLE/TARGET INFORMATION SITUATION FEATURES INFORMATION	PTROS* PTEOBT* PTRSF*	(UNIBLK) (UNIBLK) (FEATUR)
<b>OPERATIONS INFORMATION</b>			
	OPERATIVE OPERATION DIRECTIVE OPERATING CONCEPT OF OPERATION PROGRESS MANAGEMENT BLOCK WEAPONS MANAGEMENT BLOCK READINESS MANAGEMENT BLOCK	PTRDIR* PTROPN* PTRPRG* PTRWMG* PTRRMG*	(DIRHDR) (CONCAR) (PRGBLK) (WMGBLK) (RMGBLK)

**Figure III-1. UOS Header References to Principal Components**

first Corps under first Blue Army Group, ..., last Corps under first Blue Army Group, second Blue Army Group, ..., last Blue Army Group, Red Theater, ... and so forth. In other words, the outputs are generated by a depth-first traversal of the user-specified command-control tree in the simulation.

Within each individual UOS snapshot, information is organized by UOS component: all Own Status Situation/Representation information to be provided is output, then all Enemy Order of Battle/Target information to be provided is output, ..., and finally, all Readiness Management information to be provided is output. Each of the components included in the snapshot starts on a new page with a header indicating the identity of the EAD C<sup>2</sup>I element whose UOS is being output, the simulated time at which the output snapshot was taken, and an identifier for the particular UOS component being presented.

Within each UOS component, information is organized in accordance with the structure of the specific Information Blocks which make up that component. Each such block output is headed by the name of the block and includes the values of the specific information elements which make up the block. Each value is labeled by its identifier (variable name) within the block. Thus, the individual blocks are output in much the same form as they were described in the Software Description, Volume II--this also corresponds closely to the form in which they are input as was discussed in the User's Manual, Volume III. The order in which Information Blocks are output within each component depends on the "structure" of that component as was described in the Software Description, Volume II. The location of selected blocks is also presented to facilitate tracing relationships among blocks via pointer references.

2. Own Status Information Outputs

The Own Status component of an EAD C<sup>2</sup>I element's UOS reflects its knowledge of the status of the force element it controls. As was discussed in the Software Description, Volume II, Chapter II, Section H, the status information contained in this component is organized in two tiers. The top-tier consists of a single Own Status Unit Block (UNIBLK) and associated

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Ground Situation Representation Block (GNDREP) representing the aggregate status of the overall force controlled. This aggregate status information is produced by aggregating over the second-tier of Own Status information. The second-tier consists of a UNIBLK-GNDREP block pair for each subordinate force element; this includes not only the principal maneuver subordinates but also the combat service support complex, any nuclear or chemical delivery agencies controlled, and the EAD C<sup>2</sup>I element itself (considered as a Headquarters/Command Post element). Information in this tier is maintained by the EAD C<sup>2</sup>I element on the basis of reports received from its subordinates. (See the Software Description, Volume II, Figure II-36 for an overview of this component).

The output format for the Own Status component is presented in Figure III-2. The output is headed with the Unit Identity (UNITID) of the C<sup>2</sup>I element, the time at which the snapshot was taken, and the identified "OWN STATUS". First, the aggregate level Own Status UNIBLK-GNDREP block pair is output. This is followed by the Own Status UNIBLK-GNDREP block pairs for each subordinate.

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**UNITID = XXXXXX**

**TIME = n.nn**

**OWN STATUS**

**AGGREGATE OWN STATUS UNIT BLOCK (UNIBLK)**

**AGGREGATE GROUND SITUATION REPRESENTATION BLOCK (GNDREP)**

**FIRST SUBORDINATE OWN STATUS UNITBLOCK (UNIBLK)**

**FIRST SUBORDINATE GROUND SITUATION REPRESENTATION BLOCK (GNDREP)**

•

•

•

**LAST SUBORDINATE OWN STATUS UNIT BLOCK (UNIBLK)**

**LAST SUBORDINATE GROUND SITUATION REPRESENTATION BLOCK (GNDREP)**

**Figure III-2. Own Status Component Output Format**

3. Enemy Order of Battle/Target Information Outputs

The Enemy Order of Battle/Target component of an EAD C<sup>2</sup>I element's UOS reflects its knowledge of the enemy force elements which might be relevant to it. As was discussed in the Software Description, Volume II, Chapter II, Section I, the information in this component is organized in two tiers. The top-tier consists of EOB/Target Unit Blocks (UNIBLK) representing enemy force elements at the same level of command as the EAD C<sup>2</sup>I element; this information is produced by aggregating over information in the second-tier of the Enemy Order of Battle/Target component. This second-tier consists of EOB/Target Unit Blocks (UNIBLKS) for the known subordinates of each aggregate EOB/Target Unit Block contained in the top-tier. Information in this tier is maintained by the EAD C<sup>2</sup>I element based on reports received from its subordinates. (See the Software Description, Volume II, Figure II-39, for an overview of this component).

The output format for the Enemy Order of Battle/Target component is presented in Figure III-3. The output is headed with the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "EOB/TARGET STATUS". The first aggregate EOB/Target Unit Block is then output followed by the EOB/Target Unit Blocks which are subordinate to it. The second aggregate EOB/Target Unit Block is then output followed by the EOB/Target Unit Blocks for all of its subordinates. This format continues until all aggregate EOB/Target Unit Blocks (together with their subordinate EOB/Target Unit Blocks) in the EAD C<sup>2</sup>I element's UOS have been presented.

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**UNITID = XXXXXX**  
**TIME = n.nn**  
**EOB/TARGET STATUS**

**FIRST AGGREGATE EOB/TARGET UNIT BLOCK (UNIBLK)**  
**FIRST SUBORDINATE TO FIRST AGGREGATE EOB/TARGET UNIT BLOCK**  
**(UNIBLK)**  
•  
•  
•  
**LAST SUBORDINATE TO FIRST AGGREGATE EOB/TARGET UNIT BLOCK**  
**(UNIBLK)**  
•  
•  
•  
**LAST AGGREGATE EOB/TARGET UNIT BLOCK (UNIBLK)**  
**FIRST SUBORDINATE TO LAST AGGREGATE EOB/TARGET UNIT BLOCK**  
**(UNIBLK)**  
•  
•  
•  
**LAST SUBORDINATE TO LAST AGGREGATE EOB/TARGET UNIT BLOCK (UNIBLK)**

**Figure III-3. Enemy Order of Battle/Target Component Output Format**

4. Situation Features Information Outputs

The Situation Features component of an EAD C<sup>2</sup>I element's UOS reflects its knowledge of particular features of the situation including, at present, nuclear and chemical attack indicators. As was discussed in the Software Description, Volume II, Chapter II, Section J, situation features information is organized as a simple list of Situation Feature Blocks (FEATUR). Figure II-41 of the above referenced volume provides an overview of this structure.

The output format for the Situation Features Component is presented in Figure III-4. The output is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "SITUATION FEATURES." The particular Situation Features Blocks included in the UOS are then presented in simple sequential order.

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**UNITID = XXXXXX**

**TIME n.nn**

**SITUATION FEATURES**

**FIRST SITUATION FEATURE BLOCK (FEATUR)**

•

•

•

**LAST SITUATION FEATURE BLOCK (FEATUR)**

**Figure III-4. Situation Features Component Output Format**

5. Operative Operation Directive Outputs

The Operative Operation Directive component of an EAD C<sup>2</sup>I element's UOS contains the operation directive which it has received most recently from its parent C<sup>2</sup>I element and which thus reflects the objectives, control measures, and constraints guiding its current operations. As was discussed in the Software Description, Volume II, Chapter II, Section K, this component consists of a single Directive Header Block (DIRHDR) together with an associated Operation Order Block (OPORD) and Resource Allocation Block (ALLBLK). Figure II-43 of the above referenced volume provides an overview of this component.

The output format for the Operative Operation Directive component as presented in Figure III-5. The output is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "OPERATIVE OPERATION DIRECTIVE". The constituent Directive Header, Operation Order Block, and Resource Allocation Block are then presented in the indicated order.

**OPERATION**

**UNITID = XXXXX**

**TIME = 11.111**

**OPERATIVE OPERATION DIRECTIVE**

**DIRECTIVE HEADER BLOCK (DIRHDR)**

**ASSOCIATED OPERATION ORDER BLOCK (OPORD)**

**ASSOCIATED RESOURCE ALLOCATION BLOCK (ALLBLK)**

**Figure III-5. Operative Operation Directive Component Output Format**

6. Operative Concept of Operation Information Outputs

The Operative Concept of Operation component of an EAD C<sup>2</sup>I element's UOS reflects its internal plan for conducting operations to achieve the objectives specified by the Operative Operation Directive. As was discussed in the Software Description, Volume II, Chapter II, Section L, this component consists of a refined and specified copy of one of the "generic" concepts of operation discussed in Chapter II, Section D2, of that volume (see Figure II-14 of that volume for an overview). It should be noted that ATAF/TAA C<sup>2</sup>I elements do not maintain an Operative Concept of Operation; hence, this component will be null for these (or other air) C<sup>2</sup>I elements.

The output format for the Operative Concept of Operations is presented in Figure III-6. It includes only those Information Blocks which have been specified in the local copy of the generic concept; it also omits blocks which serve only linking functions such as Concept Carrier Blocks (CONCARs). The output is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "OPERATIVE CONCEPT OF OPERATION:." The locally specified Concept Header Block (CONHDR) is the first structure presented. The Concept Header Block is followed by a presentation of the Phase Blocks (PHSBLK) which remain to be executed as of the current stage in the operation; the currently active Phase Block is the first presented.

Following the phase outputs, the particular roles filled in the locally specified concept are presented. The presentation of each role is headed by the filled Role Block (ROLBLK). Under each Role Block, the locally specified operative Resource Allocation Block (ALLBLK) for that role is presented followed by its currently active Operation Block (OPNBLK); for key roles (i.e., under Role Blocks for which KEYROL = 1), the Operation Blocks for subsequent phases in the operation are also presented. This ROLBLK-ALLBLK-OPNBLK(s) structure is repeated for each specific role filled in the locally specified concept of operation.

Following the presentation of all such roles, the Overlay Block (OVERLA) which "fits" the standard planning grid to the EAD C<sup>2</sup>I element's assigned area of operations is presented. Finally, the currently operative Resource Management Block (MGTBLK) is presented.

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UNITID = XXXXXX

TIME = n.nn

OPERATIVE CONCEPT OF OPERATION

OPERATIVE CONCEPT HEADER (CONHDR)

CURRENTLY ACTIVE PHASE BLOCK IN OPERATION (PHSBLK)

•  
•  
•

LAST PHASE BLOCK IN OPERATION (PHSBLK)

FIRST ROLE BLOCK ASSIGNED IN OPERATION (ROLBLK)

FIRST ROLE'S OPERATIVE RESOURCE ALLOCATION BLOCK (ALLBLK)

FIRST ROLE'S OPERATION BLOCK IN CURRENTLY ACTIVE PHASE  
(OPNBLK)

FIRST ROLE'S OPERATION BLOCK IN LAST PHASE (OPNBLK)

•  
•  
•

LAST ROLE BLOCK ASSIGNED IN OPERATION (ROLBLK)

LAST ROLE'S OPERATIVE RESOURCE ALLOCATION BLOCK (ALLBLK)

LAST ROLE'S OPERATION BLOCK IN CURRENTLY ACTIVE PHASE  
(OPNBLK)

LAST ROLE'S OPERATION BLOCK IN LAST PHASE (OPNBLK)

OVERLAY BLOCK FOR OPERATION (OVERLA)

OPERATIVE RESOURCE MANAGEMENT BLOCK (MGTBLK)

Figure III-6. Operative Concept of Operation Output Format

7. Progress Management Information Outputs

The Progress Management component of an EAD C<sup>2</sup>I element's UOS reflects its most recent assessment of the progress of its ongoing operation. As was discussed in the Software Description, Volume II, Chapter II, Section M, this component consists solely of a Progress Management Block (PRGBLK). As indicated in Figure III-7, the output format for this component simply presents this Progress Management Block under a heading including the EAD C<sup>2</sup>I element's Unit Identity (UNITID), the time at which the snapshot was taken, and the identifier "PROGRESS MANAGEMENT".

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**UNITID = XXXXXX**  
**TIME = n.nn**  
**PROGRESS MANAGEMENT**

**PROGRESS MANAGEMENT BLOCK (PRGBLK)**

**Figure III-7. Progress Management Component Output Format**

8. Weapons Management Information Outputs

The Weapons Management component of an EAD C<sup>2</sup>I element's UOS contains information used in managing weapons employment activities. As was discussed in the Software Description, Volume II, Section N, this component includes a reference to the operative weapons employment concept for conventional weapons, times of the last requests for nuclear or chemical weapons, and lists of authorized nuclear and chemical weapons employment packages ordered by package expiration time.

The output format for the Weapons Management component is presented in Figure III-8. It is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "WEAPONS MANAGEMENT". The operative Weapons Employment Concept Block (EMPBLK) for conventional weapons employment is first presented. The time of the last request for nuclear weapons is then presented followed by the specific nuclear weapons Package Blocks (PKGBLK) which have been authorized. These are presented in order of expiration time with the soonest expiring package appearing first. A similar structure is then presented for chemical weapons (last request time and authorized PKGBLKs). Note that there may be no authorized weapons packages.

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**UNITID = XXXXXX**

**TIME - n.nn**

**WEAPONS MANAGEMENT**

**OPERATIVE CONVENTIONAL WEAPONS EMPLOYMENT CONCEPT BLOCK (EMPBLK)**

**TIME OF LAST NUCLEAR WEAPONS REQUEST = i.ii**

**OLDEST AUTHORIZED NUCLEAR WEAPONS PACKAGE (PKGBLK)**

•

•

•

**NEWEST AUTHORIZED NUCLEAR WEAPONS PACKAGE (PKGBLK)**

**TIME OF LAST CHEMICAL WEAPONS REQUEST = j.jj**

**OLDEST AUTHORIZED CHEMICAL WEAPONS PACKAGE (PKGBLK)**

•

•

•

**NEWEST AUTHORIZED CHEMICAL WEAPONS PACKAGE (PKGBLK)**

**Figure III-8. Weapons Management Component Output Format**

9. Readiness Management Information Outputs

The Readiness Management component of an EAD C<sup>2</sup>I element's UOS contains information used in managing readiness for nuclear or chemical attack. As discussed in the Software Description, Volume II, Chapter II, Section 0, this component includes the nuclear and chemical readiness states which have been directed by the parent C<sup>2</sup>I element and the operative nuclear and chemical Readiness Blocks (RDYBLK) within the user-input readiness doctrines (recall the Software Description, Volume II, Chapter II, Section B).

The output format for the Readiness Management component is presented in Figure III-9. The output is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element, the time at which the snapshot was taken, and the identifier "READINESS MANAGEMENT". The directed nuclear readiness state is then presented followed by the operative nuclear Readiness Block (RDYBLK). The same information is then presented for chemical readiness.

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**UNITID = XXXXXX**

**TIME = n.nn**

**READINESS MANAGEMENT**

**DIRECTED NUCLEAR READINESS STATE = i**

**OPERATIVE NUCLEAR READINESS BLOCK (RDYBLK)**

**DIRECTED CHEMICAL READINESS STATE = j**

**OPERATIVE CHEMICAL READINESS BLOCK (RDYBLK)**

**Figure III-9. Readiness Management Output Format**

10. Weapons Employment Plan Information Outputs

Weapons Employment Plans are not retained as actual components of an EAD C<sup>2</sup>I element's UOS. They exist only during weapons employment development activities and are attached to a Weapons Employment Context as discussed in the Software Description, Volume II, Chapter IV, Section E. As overviewed in Figure IV-6 in that volume, a Weapons Employment Plan is headed by a Weapons Employment Plan Header (PLNHDR) and consists primarily of: (1) a list of Target Blocks (TGTBLK) specifying particular assignments of weapons against targets, and, (2) a list of Subordinate Apportionment Blocks (APPBLK) specifying quantities of weapons for the discretionary use of principal subordinates. In addition, the Plan Header contains reference to the Weapons Employment Concept under which it has been developed as well as to the appropriate set of Weapons Parameters.

The output format for a Weapons Employment Plan is presented in Figure III-10. It is headed by the Unit Identity (UNITID) of the EAD C<sup>2</sup>I element doing the planning, the time at which the snapshot was taken, and the identifier "WEAPONS EMPLOYMENT PLAN". The Plan Header Block (PLNHDR) is then presented followed by the type of weapons to be employed and the guiding Weapons Employment Concept Block (EMPBLK). The substantive elements of the plan are then presented, including: (1) the list of specific Target Blocks (TGTBLK) which define the discretionary fire plan portion of the overall plan, and (2) the list of specific Subordinate Apportionment Blocks (APPBLK) which define the weapons to be made available to subordinates under the plan.

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**UNITID = XXXXXX**

**TIME = n.nn**

**WEAPONS EMPLOYMENT PLAN**

**WEAPONS EMPLOYMENT PLAN HEADER (PLNHDR)**

**WEAPONS TYPE = w**

**GUIDING WEAPONS EMPLOYMENT CONCEPT (EMPBLK)**

**FIRST TARGET BLOCK IN PLAN (TGTBLK)**

•

•

•

**LAST TARGET BLOCK IN PLAN (TGTBLK)**

**WEAPONS APPORTIONMENT FOR FIRST SUBORDINATE (APPBLK)**

•

•

•

**WEAPONS APPORTIONMENT FOR LAST SUBORDINATE (APPBLK)**

**Figure III-10. Weapons Employment Plan Output Format**

C. UOS SNAPSHOT OUTPUT STRUCTURE

In this section, the occasions upon which full or partial UOS snapshots are taken will be discussed. These include both periodic snapshots of the UOS's of all EAD C<sup>2</sup>I elements and also partial snapshots of individual C<sup>2</sup>I elements UOSs as they conduct key C<sup>2</sup>I activities. Figure III-11 presents the types of UOS snapshots taken and indicates the particular UOS components they present. These types of snapshots are discussed in Sections 1-5, below.

1. Periodic UOS Snapshots

Periodic UOS snapshots include all UOS components (except the Weapons Employment Plan which is a temporary structure existing only during weapons employment activities). The snapshots are made as a part of processing an internal simulation management event (EVENT TYPE = 55) which then reschedules itself for periodic occurrence; in this way, a continuing snapshot process is established. Note that since partial UOS snapshots may be taken at key decision points, the interval between periodic UOS snapshots can be made relatively long with little danger of "missing" substantive decisions.

2. Ground Operations Development UOS Snapshots

Partial UOS snapshots triggered by ground operations development activities include the Operative Operation Directive component and the Operative Concept of Operation component. The snapshot is taken at the conclusion of processing a Ground Operations Development Context. Depending on the nature of the specific activities conducted, the operative operations directive and concept of operation may be new.

UOS COMPONENTS INCLUDED IN SNAPSHOT	OWN STATUS INFORMATION	ENEMY ORDER OF BATTLE/TARGET INFORMATION	SITUATION FEATURES INFORMATION	OPERATIVE OPERATION DIRECTIVE INFORMATION	OPERATIVE CONCEPT OF OPERATION INFORMATION	PROGRESS INFORMATION	WEAPONS MANAGEMENT INFORMATION	READINESS MANAGEMENT INFORMATION	WEAPONS EMPLOYMENT PLAN INFORMATION
UOS SNAPSHOT FOR ALL EAD C2I ELEMENTS (TAKEN PERIODICALLY)	●	●	●	●	●	●	●	●	
UOS SNAPSHOT FOR INDIVIDUAL EAD C2I ELEMENTS (TAKEN UPON COMPLETION OF ACTIVITY)									
CONDUCTING GROUND OPERATIONS DEVELOPMENT ACTIVITIES				●					
CONDUCTING WEAPONS EMPLOYMENT DEVELOPMENT ACTIVITIES				●					●
ATTENDING TO NUCLEAR OR CHEMICAL THREAT LEVEL								●	
ATTENDING TO GROUND OPERATIONAL PROGRESS						●			

Figure III-11. Types of UOS Snapshots and the UOS Components They Include

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## 3. Weapons Employment UOS Snapshots

Partial UOS snapshots triggered by weapons employment activities include the Weapons Employment Plan produced by those activities. The snapshot is taken at the conclusion of substantive processing of a Weapons Employment Context. This snapshot is produced only if the developed weapons plan is to be acted-on (i.e., to be either implemented or requested).

## 4. Threat Level UOS Snapshots

Partial UOS snapshots triggered by attending to the nuclear or chemical threat level present the resulting Readiness Management component. The snapshot is taken at the conclusion of substantive consideration of the given type of threat level. The snapshot is taken only in cases where there is a change in readiness state and/or readiness actions.

## 5. Operational Progress UOS Snapshots

Partial UOS snapshots triggered by attending to operational progress present the updated Progress Management component. The snapshot is taken after operational progress has been appraised and responded to.