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Guide to the Operation of SIMCAT

ARI Field Unit at Fort Knox, Kentucky
Training Research Laboratory

September 1986

U. S. Army Research Institute for the Behavioral and Social Sciences

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This report contains instructions for the operation of SIMCAT, a prototype computer-based battle simulation designed for training command, control, and communications skills required during platoon-level armor operations. These instructions supplement those contained in SIMCAT's supporting documentation.

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Guide to the Operation of SIMCAT

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Education and Training

FOREWORD

The Fort Knox Field Unit of the Army Research Institute for the Behavioral and Social Sciences (ARI) has been investigating the possibility of using simulation techniques to conduct research on training command, control, and communications (C^3_u) skills in small unit combat operations. As part of this effort, ARI has developed SIMCAT (Simulation in Combined Arms Training), a prototype computer-based battle simulation for training the C^3_u skills required for successful platoon-level armor operations. When completed, training conducted on SIMCAT will facilitate the transition from classroom to field training.

Because SIMCAT is a prototype, numerous modifications have been made in both its software and mode of operation. As a result, the original instructions for its operation also had to be modified. This report contains these modified instructions and is intended to supplement the instructions in the SIMCAT documentation. Keywords: training devices; training simulators.

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GUIDE TO THE OPERATION OF SIMCAT

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GUIDE TO THE OPERATION OF SIMCAT

INTRODUCTION

This Research Product contains revised instructions for operating SIMCAT (Simulation in Combined Arms Training), a prototype computer-based battle simulation designed to train command, control, and communications (C^3) skills required during tank platoon operations. SIMCAT was developed for the U.S. Army Research Institute (ARI) by the Human Resources Research Organization and its subcontractor, Perceptronics, under contract MDA903-83-C-0504.

The original set of instructions for operating SIMCAT are contained in the supporting documentation delivered with the system. However, since ARI has modified some of the procedures involved in operating SIMCAT, the original instructions are partially outmoded. Moreover, experience with the original set of instructions has shown that the instructions were incomplete and that they were sometimes difficult to understand by persons who were unskilled in the use of computers. The supplemental instructions were prepared to incorporate the changes made by ARI in the operation of the system and to provide additional information on SIMCAT's operation. Moreover, the new instructions were designed to be used by persons who were basically familiar with the system components, but who were otherwise inexperienced in the use of computers. That is, it was assumed that the user would know the name and location of each major component and would be able to turn on each component, but would be unfamiliar with SIMCAT's disk operating system (MS-DOS) or with the configuration of its software.

DESCRIPTION OF SIMCAT

SIMCAT consists of four tank commander stations, an OPFOR Station, a Controller's Station, and a File Server Station linked together in a computer network.

Tank Commander Stations

Each tank commander station contains a personal computer, a color monitor, a videodisc player, a keyport, and a communications system. Portions of a 1:24,000 tactical map are stored on a videodisc located in the videodisc player and are displayed on the color monitor. A simulated M1 tank is superimposed upon the map on the color monitor. Also superimposed upon the map are other friendly and OPFOR vehicles having line of sight with the vehicle controlled at that station. The vehicle at each tank commander station is controlled by voice commands and, optionally, by the keyport. The player at a tank commander station can move the M1 tank and fire two of its weapons either by issuing voice commands to a simulated tank crew or by pressing appropriately label keys on the keyport. When a tank is moved or one of its weapons is fired, the movement or appropriate firing graphics will appear on the color monitor at the tank commander station and at all other stations where line of sight exists.

The four tank commanders can communicate with each other on a platoon net and with the company commander (played by the Controller) on a company net. The tank commanders can also use the company net to call for and adjust indirect fire.

OPFOR Station

The components at the OPFOR Station are similar to those at a tank commander station except that the OPFOR Station also contains a monochrome monitor and has a communications system that allows the OPFOR player to communicate only with the Controller. The OPFOR player can control up to ten vehicles. These vehicles can be any combination of T72 tanks and BMPs. The OPFOR player can move the vehicles and fire their main guns by pressing appropriately labeled keys on a keyport. The OPFOR player can also fire SAGGER missiles from his BMPs and can control his own indirect fire. Although the OPFOR player can control up to ten vehicles, he can only control one vehicle at a time. Moreover, he can only observe the display corresponding to the vehicle he has elected to control.

Controller's Station

The Controller's Station contains a personal computer, videodisc player, color monitor, monochrome monitor, and communications system. The Controller is responsible for operating the system, playing the company commander during the simulation, providing indirect fire when requested, observing the performance of the players at the tank commander stations, and providing feedback both during and after an exercise. The Controller can observe, on the color monitor, the display seen by the player at any one of the four tank commander stations or the display associated with any one of the OPFOR vehicles. In addition, he can select a display which will show all vehicles regardless of line of sight, although neither turret orientation nor firing graphics will be shown. The Controller can communicate to any of the four tank commanders on either a platoon or company net, and can communicate with the OPFOR on a separate Controller's net. He can also jam the platoon and company nets by introducing white noise into the networks.

File Server Station

The File Server Station consists of a personal computer, a monochrome monitor, and a hard disk drive. The hard disk contains files that are shared by the other stations, and the file server relays data (e.g., vehicle movement, firing) from one station to another as part of a computer network.

CONTENTS OF THE ORIGINAL INSTRUCTIONS FOR OPERATING SIMCAT

The original set of instructions for operating SIMCAT are stored in the DOCUMENT subdirectory located on the hard disk at the Fileserver Station. There are 21 text files in this subdirectory. A printed copy of each text file is included as part of the system documentation for SIMCAT. The following is a brief description of the information that is contained in each text file:

1. To Perform Activities at a TC Station Other Than Running the Actual Simulation. This text file (DOC1.TXT) describes the steps that must be performed at each player station before the computer at that station can be used for purposes other than running the simulation. These steps, for example, must be performed before the computer can be used for voice enrollment. The text file also describes how the player station can be restored so that the simulation can once again be run.

2. General Start Up Procedures. This text file (DOC2.TXT) describes how to turn on the SIMCAT system and lists the steps that must be performed prior to turning on the system.

3. Controller Simulation Start Up Instruction. This test file (DOC3.TXT) describes the steps that must be followed at the Controller Station to begin a simulation once the system has been turned on. Included in the file are instructions for testing the system and for selecting a tank table or scenario to be run.

4. To Make a New Enrollment Diskette. This text file (DOC4.TXT) describes how to prepare a diskette so that it can be used for voice enrollment.

5. Program Specifications. This text file (DOC5.TXT) describes briefly the types of software developed for SIMCAT, the language that was used to develop this software, and the location of the software programs that are essential to the operation of the system.

6. Controller Menu Description and Instructions Guide. This text file (DOC6.TXT) contains the instructions for operating the Controller's Station. It describes the various menus that will appear on the monochrome monitor at the Controller's Station when beginning or conducting a simulation. The file also contains a description of the messages that will appear on the monitor.

7. Deliverables List. This text file (DOC7.TXT) contains a list of the equipment at each SIMCAT station. It also lists all of the hardware, software, and documentation that comprise the SIMCAT system.

8. OPFOR Instructions Guide. This text file (DOC8.TXT) contains the instructions for operating the OPFOR Station.

9. Tank Commander Instructions Guide. This text file (DOC9.TXT) contains the instructions for operating the tank commander stations.

10. To Enroll a New Trainee. This text file (DOC10.TXT) describes the procedure for enrolling a trainee's voice, verifying the enrollment, and saving the voice enrollment on a floppy diskette.

11. Definition Module Listings. This text file (DOC11.TXT) contains a list of the names of the different software modules that were developed for SIMCAT.

12. Diskette Contents. This text file (DOC12.TXT) contains a list of the files that are stored on the floppy diskettes in the disk drive(s) at each SIMCAT station. It also contains the contents of the AUTOEXEC.BAT and CONFIG.SYS files.

13. Loading a Player's Voice for the Running of the Simulation. This text file (DOC13.TXT) contains instructions on how to load a player's voice at a tank commander station when the player's voice enrollment files are stored on a floppy diskette.

14. The SIMCAT World. This text file (DOC14.TXT) provides the dimensions of each map displayed on the color monitor at a SIMCAT station, the angle of the displayed map, and a very brief description of the SIMCAT grid system.

15. Simulation Shut Down Procedures. This text file (DOC15.TXT) is a list of the steps that should be followed when turning off the system.

16. Communications System. This text file (DOC16.TXT) describes the SIMCAT communications system and provides instructions on how to operate the system at each station.

17. Initial Units File. This text file (DOC17.TXT) contains, in outline form, instructions on how to set up the initial conditions for a SIMCAT exercise. It also contains a sample of the starting conditions for a scenario.

18. CONFIGUR.DAT File Listings. This text file (DOC18.TXT) contains a copy of the CONFIGUR.DAT file which specifies the location of the data files essential to the operation of SIMCAT.

19. FTKNOX.SDB File Listing. This text file (DOC19.TXT) is a copy of the FTKNOX.SDB data file which contains SIMCAT's hit/kill probabilities.

20. Data File Modification Instructions. This text file (DOC20.TXT) contains instructions on how to change three SIMCAT data files: INITCOND.DAT (initial conditions for SIMCAT scenarios), CONFIGUR.DAT (location of essential data files), and FTKNOX.SDB (hit/kill probabilities).

21. SIMCAT Utilities Instructions. This text file (DOC21.TXT) contains instructions on how to enter a program that will convert SIMCAT grids to UTM coordinates and UTM coordinates to SIMCAT grids.

CONTENTS OF THE SUPPLEMENTAL INSTRUCTIONS FOR OPERATING SIMCAT

The following is a brief description of the revised instructions that were developed to supplement the original set of SIMCAT instructions. The revised instructions are included as an appendix to this report.

1. Directions for Loading a Player's Voice Onto the Hard Disk. Before SIMCAT can respond to voice commands issued by the players at the four tank commander stations, each player must enroll his voice. It was originally intended that the enrollment files for each player be stored on a floppy diskette. Instructions for enrolling players and saving their voice enrollments on floppy diskettes are contained in DOC10.TXT, To Enroll a New Trainee. Because of the difficulty involved in loading these files from a diskette at each tank commander station, ARI developed a procedure for saving the voice enrollment files on the hard disk at the Fileserver Station. These instructions describe how to implement the procedure. Additional instructions on how to transfer these files from the hard disk to the tank commander stations are contained in Step 11 of the Directions for Operating SIMCAT.

2. Directions for Operating SIMCAT. The initial SIMCAT system delivered to ARI included two different floppy diskettes for the A: drive at the Controller's Station. One diskette contained utilities that were intended to be used when manipulating files, while the other contained files that were essential to the conduct of a simulation. ARI has since combined these two diskettes at each station, eliminating the need to switch from one diskette to another. ARI also eliminated the need to switch between two diskettes at the Fileserver Station. In addition, ARI has made several changes in the startup procedures for operating SIMCAT. These instructions were prepared to reflect the changes made by ARI.

3. Directions for Changing SIMCAT's Hit/Kill Probabilities. The initial set of instructions for changing SIMCAT's hit/kill probabilities required knowledge of both the disk operating system and the structure of SIMCAT's software. New instructions were prepared to enable a user to change the hit/kill probabilities without either type of knowledge.

4. Directions for Preparing a Scenario Outline. The original instructions for creating the initial conditions for a new scenario are contained in DOC17.TXT. These instructions, which are presented in outline form, are too brief to be easily implemented. Consequently, new instructions were prepared describing in detail the information that is required for a new scenario and the form that this information must take.

5. Directions for Creating a New SIMCAT Scenario. These instructions describe the procedure for creating a SIMCAT file containing the initial conditions specified in a scenario outline.

6. Directions for Formatting a High Density Diskette. The B: drives in the computers at the four player stations, the Controller's Station, and the Fileserver Station require a high density floppy diskette. Since the original set of instructions do not describe how to format a high density diskette, the present instructions were prepared.

APPENDIX

SUPPLEMENTAL INSTRUCTIONS FOR THE OPERATION OF SIMCAT

DIRECTIONS FOR LOADING A PLAYER'S VOICE ONTO THE HARD DISK

DIRECTIONS FOR LOADING A PLAYER'S VOICE ONTO THE HARD DISK

1. A subdirectory has been created on the hard disk to store the voices of players who have enrolled on SIMCAT. This subdirectory, VOICE, is located on the D: drive. Once a player's voice is stored in the VOICE subdirectory, it can be loaded directly from the Controller's Station to any player station. This is highly advantageous since it eliminates the need to disconnect the "sync" cable from the computer at a player's station when loading a player's voice at that station (see DOC1.TXT, To Perform Activities at a TC Station Other Than Running the Actual Simulation).

2. To load a player's voice onto the hard disk, first turn on the surge protector and the backup power supply (in that order). They are located on the floor under the fileserver. Then press the reset button on the backup power supply.

3. Confirm that the floppy disk labeled "C Sys U" (or Campbell's System Utilities) is in the A: drive at the Controller's Station. Insert the disk into the A: drive if it is not already there.

4. Turn on the computer at the Controller's Station.

5. Turn on the computer and the hard disk drive (in that order) at the Fileserver Station.

6. Watch the monochrome monitor at the Controller's Station. Enter the time and date when they are requested (see Directions for Operating SIMCAT, steps 8 and 9).

7. A set of instructions will appear on the monochrome monitor in about 40 seconds. When these instructions appear, remove the "C Sys U" (or Campbell's System Utilities) diskette from the A: drive and insert the player's enrollment diskette. (NOTE: To create an enrollment diskette for a player, see DOC4.TXT, To Make a New Enrollment Diskette, and DOC10.TXT, To Enroll a New Trainee.)

8. Type

copy simcat.* d:\voice\<name>.*<enter>

where <name> is the name of the player whose enrollment diskette is in the A: drive and <enter> means to press the ◄┘ key. For example, if SGT Smith's enrollment diskette is in the A: drive, type

copy simcat.* d:\voice\smith.*<enter>

9. The following message will appear on the monochrome monitor when the player's voice has been copied onto the hard disk:

```
SIMCAT.VKD
SIMCAT.VKT
        2 File(s) copied
```

10. To confirm that the name of the player is stored along with the player's voice in the VOICE subdirectory, type

dir d:\voice\<name><enter>

where <name> is the name of the player whose voice was just copied onto the hard disk. For example, if SGT Smith's name was just copied onto the hard disk, type

dir d:\voice\smith<enter>

11. If the player's name and voice were successfully copied onto the hard disk, the following message will appear:

```
Volume in drive D has no label
Directory of D:\voice

NAME.VKD        4016        1-01-80        12:13a
NAME.VKT       21298        1-01-80        12:14a
```

where NAME is the name of the player whose voice was just copied onto the hard disk. For example, if SGT Smith's name was copied onto the hard disk, the following message would appear:

```
SMITH.VKD       4016        1-01-80        12:13a
SMITH.VKT      21298        1-01-80        12:14a
```

The time presented in the message should be ignored. (NOTE: If the player's name contains more than eight letters, only the first eight letters of the name will appear in the message.)

If the two files do not appear in the message, repeat the procedure beginning at step 8.

12. Remove the player's enrollment diskette from the A: drive and insert the "C Sys U" (or Campbell's System Utilities) diskette.

13. Type

bye<enter>

14. When a message appears stating that the hard disk drive can be turned off, turn off the hard disk drive and the computer (in that order) at the Fileserver Station.

15. Turn off the computer at the Controller's Station.

16. Turn off the backup power supply and the surge protector (in that order).

NOTE: Before you load a player's voice onto the hard disk, you should be aware that two or more files cannot have the exact same name in the same subdirectory. This means that you cannot store two different voices under the same filename. If you try to store a voice using the name of another

player whose voice has already been stored in the VOICE subdirectory, the original voice files stored under that filename will be lost. To avoid losing any voice files when a name has already been used to store a file, you should make a slight modification of the name when it is used again. A simple way to do this is to add a number after the last letter in the name. For example, if there already is a voice file for Smith in the Voice subdirectory, other players named Smith can be referred to as Smith2, Smith3, and so on. To determine if a name has already been used to store a voice (including a name modified by adding a number to it), after completing step 7 type

dir d:\voice\<name>*<enter>

where <name> is the name being checked. If any voices have been stored under that name, the filename will appear on the monochrome monitor. Thus, if you type

dir d:\voice\smith*<enter>

and if the following filenames appear on the screen:

SMITH.VKD
SMITH.VKT
SMITH2.VKD
SMITH2.VKT

you would know that you could use the name Smith3 to store the voice of the next player whose name is Smith. However, if you use this method to store voices for different players having the same name, you should be aware that the computer reads only the first eight characters of a filename. This means that the number must be no more than the eighth character of the name. Thus, if the voice of a player named Robinson is already stored on the hard disk, and if you want to add a number to the name of the next player named Robinson, you would have to modify the name to Robinso2 in order to use this procedure for storing voice files.

DIRECTIONS FOR OPERATING SIMCAT

DIRECTIONS FOR OPERATING SIMCAT

1. If you will be working with new players who have not yet enrolled their voices, begin by enrolling them at the station where they will be assigned. That is, enroll the platoon leader at the Platoon Leader's Station, his wingman at the TC1 Station, etc. Follow the directions provided in DOC1.TXT (How to Perform Activities at a TC Station Other Than Running the Actual Simulation) and DOC10.TXT (To Enroll a New Trainee). When all players have been enrolled, turn off the computer at each of the four player stations and go on to step 2.

If the players enrolled earlier and if their voices are stored on enrollment diskettes, load their voices at the stations where they will be assigned. Follow the instructions provided in DOC1.TXT (How to Perform Activities at a TC Station Other Than Running the Actual Simulation) and DOC13.TXT (Loading a Player's Voice for the Running of the Simulation). When the voices are loaded, turn off the computer at each of the four player stations and go on to step 2.

If the players enrolled earlier and their voices are stored on the hard disk, go on to step 2.

2. Turn on the surge protector and the backup power supply located on the floor under the fileserver. Then press the reset button on the backup power supply.

3. If it is not already on, turn on the Communication Power Supply. This is located on the floor under the Controller's Station.

4. Confirm that the disk labeled "C Sys U" (or "Campbell's System Utilities") is in the A: drive at the Controller's Station. Insert the disk into the drive if it is not already there.

5. Turn on the computer, videodisc player, and color monitor (in any order) at the Controller's Station.

6. Turn on the computer and the hard disk drive at the File Server Station (in that order).

7. Turn on the computer, videodisc player, and color monitor (in any order) at each of the following stations: TC1, TC2, PL, PS, and OPFOR (in any order). (NOTE: The computer at the Platoon Leader's Station occasionally fails to boot properly. To determine whether or not the computer has booted properly, look for two white dashes near the upper left corner of the color monitor at the Platoon Leader's Station. If the dashes are there, the computer has booted properly, and you should go on to step 8. If the dashes are not there, turn off the computer at the Platoon Leader's Station, wait about 10 seconds, and turn the computer on again. The white dashes should appear within a few seconds. If they do appear, go on to step 8. If they do not appear, turn off the computer again, wait about 10 seconds, and turn the computer back on. Repeat this procedure until the white dashes appear.)

8. Watch the monochrome monitor at the Controller's Station. When the message "Enter new time:" appears, type the time using a 24-hour system. For example, if the time is 8:05 a.m., type

8:05<enter>

where <enter> means to press the ◄┘ key. If the time is 1:37 p.m., type

13:37<enter>

9. When the message "Enter new date:" appears, type the month, day of the month, and year (in that order). For example, if the date is December 24, 1985, type

12-24-85<enter>

or

12/24/85<enter>

If the date is January 2, 1986, type

1-02-86<enter>

or

1/02/86<enter>

10. A set of instructions will appear on the monochrome monitor in about 40 seconds. The instructions tell you (a) how to load voices at each player station when the voices are stored on the hard disk, (b) what to do if you changed the keyport overlay at any of the player stations, (c) how to begin the simulation, and (d) how to access the system utilities.

11. If the players' voices are stored on the hard disk, you can load each voice from the Controller's Station by typing

voice <name> <station><enter>

where <name> is the name of the player and <station> is the name of the player station. For example, if LT Jones is the Platoon Leader and his voice is stored on the hard disk, to load his voice at the Platoon Leader's Station, type

voice jones pl<enter>

If SGT Smith is his wingman, to load his voice at TC1 station, type

voice smith tank1<enter>

Be sure to type TANK1 rather than TC1. If you load voices to more than one player station, make sure that you wait until one voice is completely loaded before starting to load another.

12. It is unlikely that you will have changed a keyport overlay at any of the player stations. If you have, however, you must now enter another command. Type

keyport <overlay> <station>

where <overlay> is the name of the overlay and <station> is the name of the station. There are two types of overlays--those that include voice commands (e.g., "Driver Move Out") and those that do not include voice commands. If you changed all of the overlays from those that include voice commands to those that do not include voice commands, type

keyport tc all<enter>

If you just changed the overlay at the Platoon Leader's Station, type

keyport tc pl<enter>

If you changed all of the overlays from those that do not contain voice commands to those that do, type

keyport tcwvoice all<enter>

If you just changed the overlays at the two wingmen positions, type

keyport tcwvoice tank1<enter>

and

keyport tcwvoice tank2<enter>

If you changed more than one overlay, make sure that you wait until one command is completed before beginning another.

13. Whether or not you loaded any voices from the hard disk and/or made any changes in keyport overlays, type

simcat<enter>

14. A message will appear on the monochrome monitor stating that the stations should be rebooted if the voice files or keyboard overlay files have been modified. If you loaded any voices that were stored on the hard disk, simultaneously press the

<Ctrl> <Alt> <Del>

keys on the keyboard at each player station where the voice file was loaded. Similarly, if you changed any keyport overlays, simultaneously press the

<Ctrl> <Alt> <Del>

keys on the keyboard at each player station where the keyport overlay was changed.

A second message will tell you to strike a key when ready. If you did not load any voices that were stored on the hard disk and did not change any keyport overlays, simply press any key on the keyboard. If you did load voices that were stored on the hard disk or if you did change any keyport overlays, press any key, but only after you have simultaneously pressed the <Ctrl> <Del> <Alt> at each station where a change was made.

15. A message will soon appear on the monochrome monitor telling you to type "m2s fileserv" on the keyboard at the Fileserver Station. When this message appears, type

m2s fileserv<enter>

at the Fileserver Station.

A second message will tell you to strike a key when ready. After you typed "m2s fileserv" and pressed the ←┘ key at the Fileserver Station, press any key at the Controller's Station.

16. In about 1-1/2 minutes, the word SIMCAT will flash on and off on the color monitor at the Controller's Station. When this happens, press any key at the Controller's Station. (NOTE: The computer at the Controller's Station occasionally malfunctions at this point in the program. If at the end of two minutes the word SIMCAT does not flash on and off on the color monitor, and if the red light on the B: drive is still on, turn off the computer at the Controller's Station. Wait about ten seconds and then turn it back on. Repeat steps 8, 9, 10, and 13. When the message appears stating that the stations should be rebooted if the voice files or keyport overlay files have been modified, press any key on the keyboard. When the message appears telling you to type "m2s fileserv" at the Fileserver Station, again press any key on the keyboard. Finally, repeat step 16.)

17. In about 1-1/2 minutes, the message "Controller Initialization Complete: Press Any Key to Continue" will appear on the monochrome monitor. When this message appears, press any key.

18. The Controller Master Menu will now appear on the monochrome monitor. Eventually you will use this menu to select the scenario or tank table that you wish to simulate. But first you must test the SIMCAT system. Before beginning the test, make sure that the word SIMCAT is flashing on and off on the color monitor at the TC1, TC2, PL, PS, and OPFOR Stations. If the word SIMCAT is not flashing at one or more of these stations, wait until it does before going on. To test the system, first press

u

on the keyboard.

19. After you have pressed U, a new menu, the System Utilities Menu, will appear. Press

t

to begin the test of the system. (NOTE: If you wish to remove one or more player stations from the simulation, you should do so before beginning the test. Instructions for removing player stations can be found in DOC6.TXT, Controller Menu Description and Instructions Guide.)

20. In about 1-3/4 minutes, a message will appear on the monochrome monitor stating "Station Configuration Test Complete: Press Any Key to Continue." When this message appears, press any key.

21. In about 1 minute, the Controller Master Menu will reappear. When it does, press

s

if you wish to run a SIMCAT scenario, or press

t

if you wish to run a SIMCAT tank table.

22. Assuming that you wish to run a SIMCAT scenario and therefore have pressed S, the SIMCAT Scenario Menu will appear. Press

1

to choose the initial conditions for the scenario.

23. After you have pressed 1, the Choose Initial Conditions Menu will appear on the monochrome monitor. In order to select the appropriate set of initial conditions, you must know where the initial conditions for the scenario are stored. All initial conditions are stored in one of three SIMCAT subdirectories: INITCONA, INITCONB, or INITCONC. If the initial conditions are stored in INITCONA, press

a

If they are stored in INITCONB, press

b

If they are stored in INITCONC, press

c

24. Once you have pressed A, B, or C, a new menu will appear on the monochrome monitor. This menu lists the files where the initial conditions are stored. If the initial conditions for the scenario are stored in the file INITCON1.DAT, press

1

If they are stored in the file INITCON2.DAT, press

2

If they are stored in one of the other three files appearing on the menu, press the appropriate number key. In about 45 seconds, SIMCAT will be ready for the simulation play to begin.

25. Directions for operating the Controller's Station are contained in DOC6.TXT (Controller Menu Description and Instructions Guide). Directions for operating the OPFOR Station are contained in DOC8.TXT (OPFOR Instructions Guide). Directions for operating the Platoon Leader, Platoon Sergeant, TC1, and TC2 Stations are contained in DOC9.TXT (Tank Commander Instructions Guide).

26. When you have finished using SIMCAT, look at the monochrome monitor at the Controller's Station. If you were monitoring one of the player vehicles or one of the OPFOR vehicles, or if you were watching the world view, there will be a message telling you to press ESCAPE to switch to a different view. If so, press the

<Esc>

key. If you were not monitoring one of these views, the Initial Conditions Menu will be displayed on the monochrome monitor and you should go to step 28.

27. If you were monitoring one of the player vehicles or one of the OPFOR vehicles when you pressed the <Esc> key, the Monitor Friendly Units Menu or the Monitory OPFOR Units Menu will appear on the monitor. When this menu appears, press

r

to return to the Initial Conditions Menu. If you were monitoring the world view when you pressed the <Esc> key, the Initial Conditions Menu will appear on the monitor without first pressing R.

28. When the Initial Conditions Menu appears on the monochrome monitor, press

r

29. When a message appears telling you to press CTRL+ENTER to stop current initial conditions, simultaneously press the

<Ctrl> <enter>

keys.

30. The SIMCAT Scenarios Menu will appear on the monochrome monitor. When it appears, press

r

to return to the Controller Master Menu.

31. When the Controller Master Menu appears on the monochrome monitor, press

q

to quit SIMCAT.

32. Turn off the computer, videodisc player, and color monitor (in any order) at the following stations: TC1, TC2, PL, PS, and OPFOR (in any order).

33. Turn off the hard disk drive and the computer (in that order) at the Fileserver Station.

34. Turn off the computer, videodisc player, and color monitor (in any order) at the Controller's Station.

35. Turn off the backup power supply and the surge protector (in that order).

DIRECTIONS FOR BACKING UP THE SIMCAT HARD DISK

DIRECTIONS FOR BACKING UP THE SIMCAT HARD DISK

1. The files comprising the SIMCAT software are located on the hard disk at the Fileserver Station. Since the files on a hard disk occasionally get lost, and since SIMCAT will not operate without these files, a backup copy of the files must be made and saved in a secure location. In the event that one or more SIMCAT files are lost, the files can then be restored to the hard disk.

2. The backup copies of the files on the hard disk should be stored on soft-sectored, double sided, double density, 5-1/4 inch floppy diskettes. Before the files can be backed up on these diskettes, the diskettes must be formatted. Since it may take up to 50 diskettes to backup the hard disk, it will be necessary to have this number of formatted diskettes ready when the files are going to be backed up.

3. To format the floppy diskette, first follow steps 2-4 in the Directions for Operating SIMCAT.

4. Turn on the computer at the Controller's Station.

5. Watch the monochrome monitor. When the time and date messages appear, enter them as described in steps 8 and 9 of the Directions for Operating SIMCAT.

6. After you have entered the date, a set of instructions will appear on the monochrome monitor. When the instructions appear, type

system<enter>

where <enter> means to press the ↵ key.

7. In about 20 seconds, a message will appear stating that SIMCAT is now available for system utilities. When this message appears, type

format a:<enter>

8. A message will appear telling you to insert a new diskette into the A: drive and to strike any key when ready. When this message appears, remove the "C Sys U" diskette from drive A: and insert a blank diskette. Then press any key on the keyboard.

9. When the diskette has been formatted, a message will appear informing you of this fact. The message will also tell you how many bytes of total disk space are available on the diskette and how many bytes, if any, are in bad sectors. If the message indicates that there are bad sectors on the diskette, do not use the diskette for backing up the hard disk.

10. The following message will also appear on the screen:

Format another (Y/N)?n

To format another diskette, remove the formatted diskette from the A: drive and insert another blank diskette. Type

y

You will get another message telling you to insert a new diskette into the A: drive and to strike any key when ready. Press any key when this message appears.

11. Repeat steps 9 and 10 until all of the diskettes have been formatted. When you see the "Format another (Y/N)?n" message, type

n

12. Put a formatted blank diskette in the A: drive at the Controller's Station.

13. Turn on the computer and the hard disk drive at the File Server Station (in that order).

14. The hard disk on SIMCAT has been partitioned into two parts--the D: drive and the E: drive. The files necessary for SIMCAT'S operation are stored on the E: drive. The D: drive contains inoperative history files intended for feedback purposes and miscellaneous files that have been stored there by the user. The files in both drives should be backed up.

15. Since it may take about two or three hours to backup the files on each drive of the hard disk, do not begin until you have this much time available. To backup all of the files in the E: drive, type

backup e:\ a: /s<enter>

16. The following message will appear on the monochrome monitor at the Controller's Station:

Insert backup diskette 01 in drive A:
Warning! Diskette files will be erased
Strike any key when ready

Press any key.

17. In a few minutes, a message will appear telling you to insert backup diskette 02. When this message appears, remove the diskette from the A: drive and label it "Backup Diskette 01 - E: Drive." In addition, write the date on the label. Prepare the label before putting it on the diskette. If the label is already on the diskette, use a pen with a soft tip when writing on it.

18. Insert another formatted blank diskette into the A: drive and press any key to continue.

19. When the message appears telling you to insert backup diskette 03, remove backup diskette 02, label it, insert another formatted blank diskette into the A: drive, and press any key.

20. Repeat this procedure until you are no longer told to insert a backup diskette into the A: drive.

21. To back up the D: drive, insert a blank formatted diskette into the A: drive and type

backup d:\ a: /s<enter>

22. Repeat steps 16-20, except label the diskette as a backup of the D: drive.

23. When all of the files from D: drive have been backed up, insert the "C Sys U" diskette into the A: drive. Then type

bye<enter>

24. When a message appears stating that the hard disk can be turned off, turn off the hard disk at the File Server Station.

25. Turn off the computer at the File Server Station.

26. Turn off the computer at the Controller's Station.

27. Turn off the backup power supply and the surge protector (in that order).

DIRECTIONS FOR CHANGING SIMCAT'S HIT/KILL PROBABILITIES

DIRECTIONS FOR CHANGING SIMCAT'S HIT/KILL PROBABILITIES

1. The hit/kill probabilities for SIMCAT gunnery engagements are contained in the Conflict Resolution Data Base. The Conflict Resolution Data Base is one of three different data bases contained in the FTKNOX.SDB file stored on the B: drive at the Controller's Station, the OPFOR Station, and the four tank commander stations. Whether or not a target is hit, and if hit, whether or not it is killed, is determined by the hit and kill probability values contained in the Conflict Resolution Data Base at the station from which the engagement is initiated.

2. There are separate hit/kill probabilities for each type of vehicle in the simulation. Thus, there are three sets of hit/kill probabilities in the Conflict Resolution Data Base--a set for the M1 tank, the T72 tank, and the BMP. Within each set, there are separate hit/kill probabilities for three types of ammunition including ammunition that may not be fired from that vehicle. Thus, there are separate hit/kill probabilities for HEAT, SABOT, and COAX rounds on the M1 tank; HEAT, SABOT, and DUMMY rounds on the T72; and for HEAT and SABOT rounds and SAGGER missiles on the BMP. The hit/kill probabilities for HEAT and DUMMY rounds on the T72 and for SABOT rounds on the BMP can be ignored since their values will have no effect on either the operation of SIMCAT or the outcome of a gunnery engagement.

3. To change the hit/kill probabilities in the Conflict Resolution Data Base, you must use a text editor. VEDIT is the text editor that is available on SIMCAT.

4. Begin by turning on the system. Follow steps 2-9 in the Directions for Operating SIMCAT.

5. After you have completed step 9 in the Directions for Operating SIMCAT, a set of instructions will appear on the monochrome monitor at the Controller's Station. When the instructions appear, type

system<enter>

where <enter> means to press the ◄┘ key.

6. In about 20 seconds, a message will appear stating that SIMCAT is now available for system utilities. Since the FTKNOX.SDB file is on the B: drive, you must log onto that drive before you can call up the file. To log onto the B: drive, type

b:<enter>

7. Before you make any changes in the FTKNOX.SDB file, you should be aware of the fact that SIMCAT may not operate if critical numbers or words in the file are either erased or moved. Since it is easy to cause changes in the file without being aware of doing so, it would be wise to store a duplicate copy of the file on the diskette in the B: drive before attempting to change the hit/kill probabilities in the Conflict Resolution Data Base. Since you cannot have two files with the same name on the same diskette, and since you must reserve the filename FTKNOX.SDB for the file

that will actually be used during the simulation, you must assign a new name to the duplicate file that will be stored on the diskette in the B: drive. Therefore, the first thing you should do is to choose a new name for the duplicate file. For example, you can rename the file FTKNOX.001. (NOTE: You can store several different sets of hit/kill probabilities on the diskette in the B: drive by using different filenames such as FTKNOX.002 and FTKNOX.003.) Once you have chosen a new name for the file, you can make a copy of the FTKNOX.SDB file and rename the copy by typing

copy ftknox.sdb <new filename><enter>

For example, if you choose the name FTKNOX.001 for the copy of the FTKNOX.SDB file, type

copy ftknox.sdb ftknox.001<enter>

To confirm that the file is now stored under both names on the B: drive, type

dir<enter>

A list of all of the files contained on the diskette in the B: drive will appear on the screen. Both FTKNOX.SDB and the new filename should be on the list.

8. After you have made a duplicate copy of the FTKNOX.SDB file and stored it on the diskette in the B: drive, type

vedit ftknox.sdb<enter>

9. In a few seconds, a message will appear welcoming you to VEDIT. In a few more seconds, the World Map Data Base will appear on the screen. Do not make any changes in this data base. You should only change the hit/kill probabilities contained in the Conflict Resolution Data Base which is located elsewhere in the file.

10. Press the <PgDn> key (also labeled 3) on the numeric keypad. The file will scroll and the Map Data Base will appear on the screen. Do not make any changes in this data base either.

11. Press the <PgDn> key three more times. The file will scroll each time you press the key. After you have pressed the <PgDn> key three times, the Conflict Resolution Data Base will appear about one third of the way down the screen.

12. From this point on, you should move the cursor around the Conflict Resolution Data Base by using the four arrow keys on the numeric keypad. Begin by pressing the <down arrow> key (also labeled 2) until the number 3000 appears in the column labeled RANGE.

13. Notice that there are six numbers in the column labeled RANGE. These numbers (500, 1000, 1500, 2000, 2500, and 3000) represent different distance intervals from the firing vehicle to the target vehicle. The number 500 designates all distances between 0 and 500 meters, the number 1000 designates all distances between 501 and 1000 meters, and so forth.

When you change the hit/kill probabilities in the Conflict Resolution Data Base, you must enter hit/kill probabilities for each of the six distance intervals.

14. Notice that there are hit/kill probabilities for Hard Material Targets (i.e., tanks) and Medium Material Targets (i.e., infantry fighting vehicles). Move the cursor to the right by pressing the <right arrow> key. Keep pressing this key until you see the hit/kill probabilities for Soft Material Targets (i.e., personnel). Since SIMCAT has no Soft Material Targets, this part of the Conflict Resolution Data Base should be ignored.

15.Press the <F3> key on the function keypad. This will cause the cursor to return to the left edge of the data base. Notice that there are hit/kill probabilities for targets in both Hull Defilade and Open Exposure. Since vehicles cannot be in Hull Defilade on SIMCAT, the Hull Defilade portion of the data base should be ignored.

16. Now look at the three columns in the Open Exposure portion of the Conflict Resolution Data Base. The first column is labeled "P h." The numbers in this column represent the probability that a round will hit the target at different distance intervals. These probabilities can range from .00 (meaning that the round will never hit the target) to .99 (meaning that the round will almost always hit the target). Notice that each probability value is expressed as a two-digit number with no decimal point.

17. The second and third columns in the Open Exposure portion of the Conflict Resolution Data Base are labeled "P k/h." Each value in these columns represents the conditional probability that a round will kill the target if the target is hit. These conditional probabilities can range from .00 (meaning that the target will never be killed when it is hit) to .99 (meaning that the target will almost always be killed when it is hit). Again, each conditional probability value is expressed as a two-digit number with no decimal point. It should be clear to you that if the hit probability for a target at a certain range is .50 and if the conditional kill probability for the target at that range is .90, then the probability of killing the target at that range with one round is .50 x .90 or .45.

18. Repeating, there are two columns of hit/kill probabilities under the label "P k/h." The column on the right is labeled "K" and contains the conditional probabilities that a target will be totally destroyed (i.e., that it will lose both its movement and firepower capabilities) if it is hit. The column on the left is labeled "M or F." The conditional probabilities in this column are somewhat more complex. They refer to the probability that a target will be partially destroyed (i.e., that it will lose either its movement or firepower capability, but not both) if the target is hit by a round and if that round failed to totally destroy the target. For example, if a target has an "M or F" probability of .60, this means that the target will have a 60% chance of suffering either a movement or firepower kill if it is hit by a round but is not totally destroyed by that round. A target that suffers a partial kill will have an equal chance of losing its movement or firepower capability.

19. To change a probability value in the Conflict Resolution Data Base, use the arrow keys on the numeric keypad to move the cursor to the first digit of the probability value. Then press the <Ins> key (also labeled 0 and located on the numeric keypad). This will enable you to type in a new probability value without having to delete the old value. Finally, type the new probability value.

20. After you have replaced the old probability value with its new value, use the arrow keys to move the cursor to other probability values that need changing. Typing each new probability value when the cursor is properly positioned on the first digit, but do not press the <Ins> key again.

21. Hit/kill probabilities for the M1 tank should be entered at each distance interval for HEAT, SABOT, and COAX rounds. Do not enter any probability values for Soft Targets or for vehicles in Hull Defilade since these values will have no effect on the simulation.

22. When you have finished changing the hit/kill probabilities for the M1 tank, locate the hit/kill probabilities for the T72 tank by moving the cursor down the screen and causing the display to scroll. Position the cursor on the left digit of each probability value that needs to be changed and enter the new probability value just as you did for the M1 tank. Since the T72 can fire only SABOT rounds in the simulation, do not enter any probability values for HEAT or DUMMY rounds. Since OPFOR vehicles can only fire at Hard Targets (i.e., M1 tanks), do not enter any values for either Medium or Soft Targets, and do not enter any values for targets in Hull Defilade.

23. When you have finished entering the hit/kill probabilities for the T72 tank, locate the hit/kill probabilities for the BMP by moving the cursor down the screen and causing the display to scroll. Since a BMP can fire only HEAT rounds and SAGGER missiles during the simulation, do not enter any hit/kill values for SABOT rounds. Also, do not enter any values for Soft and Medium Targets or for targets in Hull Defilade.

24. When you enter new probability values in the Conflict Resolution Data Base, be careful not to change the position of any numbers or letters in the file. SIMCAT may not operate if any numbers or letters are moved. If you cause any of the numbers or letters to become misaligned, you must align them before saving the file. If the numbers in a row become misaligned (a common phenomenon when changing values in a data base), and if you cannot easily align them, press the <Ins> key again. The word INSERT should appear in the bottom right-hand corner of the screen. You can now move the letter under the cursor, and all of the letters to the right of the cursor, to the right by pressing the space bar. You can move the letters to the left by pressing the <backspace> key, but be careful not erase any probability values. If you cannot restore the numbers or letters to their original positions, or if you are not sure whether they are in their original positions, you must exit the program without saving the changes. While this will cause you to lose whatever changes you have already made, it will minimize the risk that SIMCAT will not operate at all. To exit the program without saving the changes, first press the <Esc> key. Then type

eqy<enter>

Once you have safely exited the program, you can begin to change the probability values again by starting at Step 8.

25. When you have finished changing the hit/kill probabilities, and if you are certain that the numbers and letters are properly positioned, you must save the revised file. To save the file, first press the <Esc> key. Then type

ex<enter>

26. The new hit/kill probabilities now will be in the Conflict Resolution Data Base in the FTKNOX.SDB file on the diskette in the B: drive at the Controller's Station, but not at any of the other stations. The Conflict Resolution Data Base at all stations should normally have the same hit/kill probabilities. The CONFLICT.BAT program has been created to transfer the FTKNOX.SDB file at the Controller's Station to the B: drives at the other SIMCAT stations. Since the CONFLICT.BAT program is stored on the diskette in the A: drive at the Controller's Station, you must first log onto the A: drive by typing

a:<enter>

When you are logged onto the A: drive, type

conflict<enter>

27. A message will appear on the screen informing you that the FTKNOX.SDB file at the Controller's Station must be modified. Then another message will appear telling you to strike any key when you are ready. Since you have already modified the Conflict Resolution Data Base in the FTKNOX.SDB file, press any key and the program will start. The program will require about 80 seconds to transfer the revised file to all of the other B: drives.

28. Although the new hit/kill probabilities will now be stored on all of the B: drives, SIMCAT will continue to use the old hit/kill probabilities until the simulation is restarted at the OPFOR Station and at each of the four tank commander stations (i.e., until you warm boot the computers at these five stations). To restart the simulation, simultaneously press the <Ctrl>, <Alt>, and <Del> keys at the OPFOR Station and at each of the four tank commander stations. After you have simultaneously pressed the three keys at these five stations, follow the instructions in the Directions for Operating SIMCAT beginning with step 8.

DIRECTIONS FOR PREPARING A SCENARIO OUTLINE FOR SIMCAT

DIRECTIONS FOR PREPARING A SCENARIO OUTLINE FOR SIMCAT

A. The starting conditions for different scenarios can be stored in three different subdirectories on the E: drive. These subdirectories are INITCONA, INITCONB, and INITCONC. Although more than five scenarios can be stored in each subdirectory, only five scenarios can be directly accessed from each subdirectory when starting a SIMCAT simulation. (See Directions for Operating SIMCAT for instructions on how to implement a scenario that is stored in one of these three subdirectories.)

B. Before a scenario can be directly accessed on SIMCAT, it must be stored as a file in one of the three subdirectories. The procedures for creating and storing these files are described in Directions for Creating a New SIMCAT Scenario. Before these files can be created and stored, however, a scenario outline should be prepared to facilitate data entry into the file. The scenario outline contains coded data describing the number of vehicles that will be in the scenario, the starting location of each vehicle, the amount of ammunition that each vehicle can fire, and other relevant information.

C. The information contained in a scenario outline must be coded according to a rigid set of rules. Some of these rules are presented in DOC17.TXT (Initial Units File). The rules contained in DOC17.TXT are incomplete, however, and some are somewhat vague. The present directions were prepared, therefore, to serve as a supplement to DOC17.TXT. It is recommended that both the present document and DOC17.TXT be studied by anyone planning to write a scenario outline. In addition, it is particularly recommended that anyone reading the present document follow the sample scenario outline contained in DOC17.TXT to see how the rules have been implemented.

D. A scenario outline contains five unique sections. The first section contains the name of the scenario. The second section, which is the longest, contains data on each of the vehicles that can be in the scenario--four friendly vehicles and ten OPFOR vehicles. Data must be entered for all fourteen vehicles even if some of the vehicles will not be included in the scenario. The third section pertains to indirect fire allocations. Although the data contained in this section will not actually affect the amount of indirect fire that is available during a simulation, data must be entered correctly for the simulation to work properly. The fourth section pertains to control lines that can appear on the World View display at the Controller's Station. The fifth section contains data designating the location of minefields.

E. The instructions below describe the information that must be contained on each line of the scenario outline and how this information must be coded. If the word, phrase, or number adjacent to a line number is printed without brackets, the data must be copied onto the scenario outline exactly as shown. Words, phrases, or numbers that must be selected by the developer of the scenario outline (according to a rigid set of rules) are presented in brackets <like this>. If a line number is followed by a blank space, the line must be left blank. Below each line number is a more detailed description of the information that must be contained on the line and an explanation of how the information is to be coded.

Line 1. ScenarioName

Enter the word ScenarioName exactly as it is shown. Capitalize the first letter of the word and the letter N in Name, but do not capitalize any of the other letters. Do not leave any spaces between the letters in ScenarioName.

Line 2. <The name you give the scenario>

Enter a name that you have given the scenario. The name should be descriptive enough of the scenario so that a user will be able to identify the nature of the exercise. For example, it is better to name a scenario "Hasty Attack" or "STX 1: Hasty Attack" than to name it "Scenario 1." However, any name is acceptable as long as it doesn't exceed 39 characters.

Line 3.

Line 3 must be left blank.

Line 4. ScenarioData

Enter the word ScenarioData exactly as it is shown. Capitalize the first letter in the word and the letter D, but do not capitalize any of the other letters. Do not leave any spaces between the letters in ScenarioData.

Line 5. 1

A maximum of 14 vehicles can appear in a simulation. Each vehicle has been assigned a number from 1 to 14. The vehicle numbers are as follows:

1	-	TC1
2	-	TC2
3	-	PS
4	-	PL
5	-	OPFOR1
6	-	OPFOR2
7	-	OPFOR3
8	-	OPFOR4
9	-	OPFOR5
10	-	OPFOR6
11	-	OPFOR7
12	-	OPFOR8
13	-	OPFOR9
14	-	OPFOR10

Line 5 must contain the vehicle number for the first vehicle in the simulation. Since TC1 will be the first vehicle, and since the vehicle number for TC1 is 1, this number must be entered on line 5.

Line 6. TC1

Each vehicle has been assigned a name. These names are listed above in the explanation for line 5. Line 6 must contain the name of the first vehicle in the simulation. Since the first vehicle is named TC1, this name must be entered on line 6.

Line 7. 1

There are three types of vehicles that can be in the simulations--M1 tanks, T72 tanks, and BMPs. Each type of vehicle has been assigned a number:

1 - M1 tank
2 - T72 tank
3 - BMP

Line 7 must contain the number assigned to the type of vehicle represented by TC1. Since TC1 is an M1 tank, and since the number 1 has been assigned to this vehicle, the number 1 must be entered on line 7.

Line 8. <A number from 0 to 659>

The map that appears on the color monitor at each SIMCAT station (except the Fileserver Station) is stored on a videodisc at that station. The map shows a portion of Meade County, Kentucky as well as the area of Southern Indiana just opposite Meade County. While the vehicles in the simulation can move over the terrain shown on the map, they can only move within the geographic area bounded by the following UTM coordinates:

Northwest corner:	6918, 0677
Southwest corner:	6660, 0040
Northeast corner:	8751, 9936
Southeast corner:	8493, 9299

The location of each vehicle at the start of the scenario must be stored in the scenario file. However, these locations cannot be stored using UTM coordinates since SIMCAT has its own grid system. The SIMCAT world (the portion of the map on which the vehicles can move) has been divided into 151,800 grids. Each grid is 30 x 30 meters. There are 660 grids across each row in the horizontal axis and 230 grids down each column in the vertical axis. The area over which the SIMCAT vehicles can move is bounded by the following set of SIMCAT grid coordinates:

Northwest corner:	0, 0
Southwest corner:	0, 229
Northeast corner:	659, 0
Southeast corner:	659, 229

Each 30 x 30 meter grid can be represented by two grid coordinates--a horizontal coordinate and a vertical coordinate. Thus, the coordinates defining the Northwest corner of the SIMCAT world (0,0) actually represent the 30 x 30 meter grid at that portion of the map. Similarly, the coordinates defining the Southeast corner of the SIMCAT world (659,229) actually represent the 30 x 30 meter grid at that portion of the map.

Each scenario file must contain the location of every SIMCAT vehicle (including hypothetical locations of vehicles that are not in the simulation). Each location must be entered using SIMCAT grid coordinates. Thus, a horizontal coordinate and a vertical coordinate must be entered for each vehicle. Line 8 must contain the horizontal coordinate for the starting location of TC1. This coordinate can be represented by a single digit (e.g., 0, 3), two digits (e.g., 43, 79), or three digits (e.g., 138, 571). However, a number ranging from 0 to 659 must be entered on line 8.

Since the initial location of each vehicle will probably be selected on a map containing UTM coordinates rather than SIMCAT grid coordinates, it will be necessary to convert from UTM coordinates to SIMCAT grid coordinates. SIMCAT contains a utility program for converting coordinates from one system to the other. The instructions for using this utility program are contained in the Directions for Creating a New SIMCAT Scenario, steps 3-9.

Line 9. <A number from 0 to 229>

Line 9 must contain the vertical coordinate for the starting location of TC1. This coordinate can be represented by a single digit (e.g., 4, 9), two digits (e.g., 14, 82), or three digits (e.g., 143, 210). However, a number ranging from 0 to 229 must be entered on line 9.

Line 10. <A number from 0 to 29>

Since the grid coordinates define a SIMCAT grid rather than a geographic location, it is necessary to specify where each vehicle must be located within the grid. To facilitate this, each SIMCAT grid has been further divided into nine hundred 1 x 1 meter grids. There are thirty 1 x 1 meter grids across each row in the horizontal axis and thirty 1 x 1 meter grids down each column in the vertical axis. Each 1 x 1 meter grid can be represented by a horizontal grid offset (ranging from 0 to 29) and a vertical grid offset (ranging from 0 to 29). Since the grid offsets are numbered from the upper left hand corner of each SIMCAT grid, the four corners of a SIMCAT grid would be represented by the following set of grid offsets:

Northwest corner:	0, 0
Southwest corner:	0, 29
Northeast corner:	29, 0
Southeast corner:	29, 29

Line 10 must contain the horizontal offset for the starting position of TC1 within the SIMCAT grid in which it will be located. This offset can be represented by a single digit (e.g., 0, 5) or by two digits (e.g., 14, 27). However, a number ranging from 0 to 29 must be entered on line 10. The utility program for converting UTM coordinates to SIMCAT grid coordinates does not provide horizontal or vertical offsets. If precise placement of vehicles is not important, the horizontal and vertical offsets can be estimated. If precise placement is important, it will be necessary to begin a SIMCAT simulation and to move an OPFOR vehicle to the exact starting location desired in the scenario. When the OPFOR vehicle reaches this location, press "SHOW UNIT STATUS" on the keyport at the OPFOR station. The horizontal and vertical SIMCAT grid coordinates and the horizontal and vertical offsets will appear on the flashing line on the monochrome monitor at the OPFOR station.

Line 11. <A number from 0 to 29>

Line 11 must contain the vertical offset for the starting position of TC1 within the SIMCAT grid in which it will be located. This offset can be represented by a single digit or by two digits. However, a number ranging from 0 to 29 must be entered on line 11.

Line 12. <A number from 0 to 359>

Line 12 contains a number representing the direction TC1 will face when the simulation is started. The direction is represented by an azimuth ranging from 0 to 359. A value of 0 will cause the front of the tank to face the right side of the screen. Since the azimuth directions are numbered counterclockwise, a value of 90 will cause the front of the tank to face the top of the screen. Similarly, a value of 180 will cause the tank to face the left side of the screen, while a value of 270 will cause the front of the tank to face the bottom of the screen.

The azimuth can be a single digit number (e.g., 0, 9), a two-digit number (e.g., 14, 63), or a three-digit number (e.g., 116, 345). However, a number ranging from 0 to 359 must be entered on line 12.

Line 13. <A number from 0 to 359>

Line 13 contains a number representing the direction that the gun tube should be pointed at the start of the simulation. This direction is represented by an azimuth ranging from 0 to 359 as described in the explanation for line 12. Tests have shown that the gun tube does not usually point in the direction designated by the azimuth. If the direction of the gun tube at the start of the simulation is important, the gun tube may have to be oriented using the keyport at each player station (but not the OPFOR station). Nevertheless, a number from 0 to 359 must be entered on line 13.

Line 14. <A number from 0 to 70>

This line contains the speed of the vehicle at the start of the simulation. Since maximum speed is determined by the terrain, the speed of the vehicle at the start of the simulation can range from 0 kilometers per hour (meaning that the vehicle will be stationary) to the maximum speed on the terrain. The speed of the vehicle can be either a single digit number (e.g., 0, 3) or a two-digit number (e.g., 15, 35). If you want the vehicle to be stationary at the start of the scenario, enter the number 0 on line 14. If you want the tank to be moving at the start of the scenario, enter a speed no greater than the maximum speed for that vehicle on the terrain on which it will be moving. Maximum speeds are 70 kph on primary roads, 55 kph on secondary roads, 35 kph cross country, 25 kph on trails, 15 kph in woods, and 3 kph through water. If a larger than the maximum speed is entered on this line, the vehicle will automatically slow down to its maximum speed.

Line 15. <UpMap or DownMap>

In order to ensure that proper navigation and map reading techniques are used on SIMCAT, it was initially intended that the maps on the color monitor at two of the four player stations be inverted. If you want the map on the color monitor at the TC1 Station to be inverted, enter the word DownMap on line 15. Otherwise, enter the word UpMap. However, either the word DownMap or the word UpMap must be entered on line 15. Capitalize the first letter of the word and the letter M, but do not capitalize any of the other letters. Do not leave any spaces between the letters in UpMap or DownMap.

Line 16. TRUE

If the TC1 vehicle is going to be in the simulation, enter the word TRUE in capital letters on line 16. If the vehicle is not going to be in the simulation, enter the word FALSE in capital letters on line 16. The capability to exclude a vehicle from the simulation can be used to vary the number of both friendly and OPFOR vehicles in a scenario. For example, a section scenario can be written for just two tanks or a 3-tank scenario can be written to simulate a platoon operating with only three vehicles. Regardless of the number of vehicles in the simulation, however, either the word TRUE or FALSE must be entered on line 16.

Line 17. TRUE

Each vehicle in a SIMCAT simulation is either friendly or unfriendly. If a vehicle is friendly, the word TRUE must be entered. If a vehicle is unfriendly, the word FALSE must be entered. Since the M1 tank at the TC1 Station is friendly, enter the word TRUE, in capital letters, on line 17.

Line 18. 3

The different types of SIMCAT vehicles have different weapon systems and fire different types of ammunition. The M1 tank has two weapon systems--the main gun and the coax machinegun. The main gun can fire two different types of ammunition--SABOT and HEAT, while the coax machinegun can fire one type of ammunition--coax. Thus, there are three weapon/ammunition combinations on an M1 tank:

Main Gun - HEAT
Main Gun - SABOT
Coax - Coax

Since the T72 can only fire the main gun and can use only SABOT ammunition, only one weapon/ammunition combination is possible:

Main Gun - SABOT

The BMP can fire either the main gun (73mm) or the SAGGER. Only HEAT ammunition can be fired from the main gun, and only a missile can be fired from the SAGGER. Thus, two weapon/ammunition combinations are possible:

Main Gun - HEAT
SAGGER - Missile

When the SIMCAT software was originally written, it was assumed that the T72 would be able to fire both SABOT and HEAT rounds in the simulation, and that the BMP would be able to fire both SABOT and HEAT from the main gun. If implemented, two weapon/ammunition combinations would have been possible for the T72 and three weapon/ammunition combinations would have been possible for the BMP. Although the capability to fire HEAT rounds from a T72 and SABOT rounds from a BMP were never implemented, the software was prepared as if these capabilities were going to exist.

The number entered in line 18 refers to the number of weapon/ammunition combinations that were anticipated when the software for SIMCAT was being prepared. Since three weapon/ammunition combinations were anticipated for the M1 tank, the number 3 must be entered in line 18.

Line 19. MainGun

Line 19 must contain the name of the weapon in the first weapon/ammunition combination (Main Gun - HEAT) that will be available on the M1 tank at the TC1 Station. Since this weapon is the main gun, the word MainGun must be entered on line 19. Capitalize the first letter of the word and the letter G, but do not capitalize any of the other letters. Do no leave any spaces between the letters in MainGun.

Line 20. Heat

Line 20 must contain the name of the ammunition in the first weapon/ ammunition combination that will be available on the M1 tank at the TC1 Station. Since this ammunition is Heat, enter the word Heat on line 20. Capitalize only the first letter of the word Heat.

Line 21. <A number from 0 to 55>

Line 21 must contain the number of HEAT rounds that will be provided TC1 during the scenario. Enter any 1- or 2-digit number as long as the total number of HEAT and SABOT rounds does not exceed 55. (See the note at the end of this section of the document.)

Line 22. <A number from 0 to 54>

During the preparation of the SIMCAT software, it was intended that each player would be alerted when the remaining number of HEAT rounds reached a certain level. This number was to be entered on line 22. Although this feature was never implemented, a number must nevertheless be entered on Line 22. This can be any 1- or 2-digit number that is less than the number of HEAT rounds provided TC 1.

Line 23. MainGun

Line 23 must contain the name of the weapon in the second weapon/ ammunition combination (Main Gun - SABOT) that will be available on the M1 tank at the TC1 Station. Since this weapon is the main gun, the word MainGun must be entered on line 23. Capitalize the first letter of the word and the letter G, but do not capitalize any of the other letters. Do not leave any spaces between the letters in MainGun.

Line 24. Sabot

Line 24 must contain the name of the ammunition in the second weapon/ ammunition combination (Main Gun - SABOT) that will be available on the M1 tank at the TC1 Station. Since this ammunition is SABOT, enter the word Sabot on line 24. Capitalize only the first letter of the word Sabot.

Line 25. <A number from 0 to 55>

Line 25 must contain the number of SABOT rounds that will be provided TC1 during the scenario. Enter any 1- or 2-digit number as long as the total number of HEAT and SABOT rounds does not exceed 55. (See the note at the end of this section of the document.)

Line 26. <A number from 0 to 54>

Line 26 was to contain the number of SABOT rounds remaining when TC1 would be alerted to the number of remaining rounds. Since this feature was not implemented, enter any 1- or 2-digit number that is less than the total number of SABOT rounds provided TC1.

Line 27. CoAx

Line 27 must contain the name of the weapon in the third weapon/ammunition combination (Coax - Coax) that will be available on the M1 tank at the TC1 Station. Since this weapon is the coax machinegun, enter the word CoAx on line 27. Capitalize the first letter and the letter A in CoAx, but do not capitalize any of the other letters. Do not leave any spaces between the letters in CoAx.

Line 28. CoAx

Line 28 must contain the name of the ammunition in the third weapon/ammunition combination (Coax - Coax) that will be available on the M1 tank at the TC1 Station. Since this ammunition is coax, enter the word CoAx on line 28. Capitalize the first letter of the word and the letter A in CoAx, but do not capitalize any of the other letters. Do not leave any spaces between the letters in CoAx.

Line 29. <A number from 0 to 10000>

Line 29 should contain the number of machinegun rounds provided TC1 during the scenario. Enter any 1-, 2-, 3-, 4-, or 5-digit number as long as the number is not larger than 10,000. If you enter a 4- or 5-digit number on line 29, do not use a comma to separate the digits. (See the note at the end of this section of the document.)

Line 30. <A number from 0 to 9999>

Line 30 was to contain the number of coax rounds remaining when TC1 would be alerted to the number of remaining coax rounds. Since this feature was not implemented, enter any 1-, 2-, 3-, or 4-digit number on line 26 as long as it is less than the total number of coax rounds provided TC1. If you enter a 4-digit number on line 30, do not use a comma to separate the digits.

Line 31.

This line must be left blank.

Line 32. 2

Line 32 must contain the number assigned to the second vehicle in the simulation. See the explanation for line 5 for more information.

Line 33. TC2

This line must contain the name assigned to the second vehicle in the simulation. See the explanation for line 6 for more information.

Line 34. 1

This line must contain the number assigned to the type of vehicle at the TC2 Station. See the explanation for line 7 for more information.

Lines 35 - 57. <See instructions below>

Follow the directions for lines 8-30.

Line 58.

This line must be left blank.

Line 59. 3

This line must contain the number assigned to the third vehicle in the simulation. See the explanation for line 5 for more information.

Line 60. PS

This line must contain the name assigned to the third vehicle in the simulation. See the explanation for line 6 for more information.

Line 61. 1

This line must contain the number assigned to the type of vehicle at the PS Station. See the explanation for line 7 for more information.

Lines 62-84. <See instructions below>

Follow the directions for lines 8-30.

Line 85.

This line must be left blank.

Line 86. 4

This line must contain the number assigned to the fourth vehicle in the simulation. See the explanation for line 5 for more information.

Line 87. PL

This line must contain the name assigned to the fourth vehicle in the simulation. See the explanation for line 6 for more information.

Line 88. 1

This line must contain the number assigned to the type of vehicle at the PL Station. ee the information for line 7 for more information.

Lines 89-111. <See instructions below>

Follow the directions for lines 8-30.

Lines 112.

This line must be left blank.

Line 113. 5

This line must contain the number assigned to the fifth vehicle in the simulation. See the explanation for line 5 for more information.

Line 114. OPFOR1

This line must contain the name assigned to the fifth vehicle in the simulation. See the explanation for line 6 for more information. Capitalize all of the letters in OPFOR1 and do not leave any spaces between the letters or numbers.

Line 115. <2 or 3>

This line must contain the number assigned to the type of vehicle represented by OPFOR1. Enter the number 2 if the OPFOR1 vehicle is a T72 tank. Enter the number 3 if the OPFOR1 vehicle is a BMP. See the explanation for line 7 for more information.

Lines 116-123. <See instructions below>

Follow the directions for lines 8-15.

Line 124. <TRUE or FALSE>

Enter the word TRUE in capital letters if the OPFOR1 vehicle will be included in the scenario. Enter the word FALSE in capital letters if the OPFOR1 vehicle will not be included in the scenario. See the explanation for line 16 for more information.

Line 125. FALSE

Enter the word FALSE in capital letters on line 125 since OPFOR1 is unfriendly. See the explanation for line 17 for more information.

Line 126. <2 or 3>

This line must contain the number of weapon/ammunition combinations that were anticipated for the type of vehicle represented by OPFOR1. Enter the number 2 on line 126 if the OPFOR1 vehicle is a T72 tank. Enter the number 3 on line 126 if the OPFOR1 vehicle is a BMP. See the explanation for line 18 for more information.

Line 127. MainGun

Line 127 must contain the name of the weapon in the first weapon/ ammunition combination (Main Gun - HEAT) anticipated for the OPFOR1 vehicle. Since this weapon is the main gun, enter the word MainGun on line 127. See the explanation for line 19 for more information. Capitalize the first letter in the word and the letter G, but do not capitalize any of the other letters. Do not leave any spaces between the letters in MainGun.

Line 128. Heat

Line 128 must contain the ammunition in the first weapon/ammunition combination (Main Gun - Heat) anticipated for the OPFOR1 vehicle. Since this ammunition is HEAT, enter the word Heat on line 128. If OPFOR1 is a T72 tank, it will not actually be able to fire any HEAT rounds, but the word must be entered anyway. If OPFOR1 is a BMP, it will, of course, be able to fire HEAT rounds. See the explanation for line 18 for more information. Capitalize the first letter in the word Heat, but do not capitalize any of the other letters.

Line 129. <A number from 0 to 40>

Line 129 must contain the number of HEAT rounds that will be provided OPFOR1 during the scenario. If OPFOR1 is a T72 tank, enter the number 0 in line 129 since the T72 cannot fire HEAT in the simulation. If OPFOR is a BMP, enter any 1- or 2-digit number that is no larger than 40. (See the note at the end of this section of the document.)

Line 130. <A number from 0 to 30>

Line 130 was to contain the remaining number of HEAT rounds when OPFOR1 would be alerted to the number of remaining HEAT rounds. If OPFOR1 is a T72 tank, enter the number 0 on line 130. If OPFOR is a BMP, enter any number that is less than the total number of HEAT rounds provided OPFOR1.

Line 131. MainGun

Line 131 must contain the weapon in the second weapon/ammunition combination (Main Gun - SABOT) anticipated for the OPFOR1 vehicle. Since this weapon is the main gun, enter the word MainGun on line 131. See the explanation for line 23 for more information. Capitalize the first letter and the letter G, but do not capitalize any of the other letters. Do not leave any spaces between the letters in MainGun.

Line 132. Sabot

Line 132 must contain the ammunition in the second weapon/ammunition combination (Main Gun - SABOT) anticipated for the OPFOR vehicle. Since this ammunition is Sabot, enter the word SABOT on line 132. If OPFOR1 is a BMP, it will not actually be able to fire any SABOT rounds, but the word Sabot must be entered anyway. If OPFOR1 is a T72 tank, it will, of course, be able to fire SABOT rounds. See the explanation for line 18 for more information. Capitalize only the first letter in the word Sabot.

Line 133. <A number from 0 to 40>

Line 133 must contain the number of SABOT rounds that will be provided OPFOR1 during the scenario. If OPFOR1 is a BMP, enter the number 0 in line 130 since the BMP cannot fire SABOT rounds. If OPFOR1 is a T72, enter any 1- or 2-digit number up to 40. (See the note at the end of this section of the document.)

Line 134. <A number from 0 to 39>

Line 134 was to contain the number of SABOT rounds remaining when OPFOR1 would be alerted to the number of remaining SABOT rounds. If OPFOR1 is a BMP, enter the number 0 on line 134. If OPFOR1 is a T72, enter any 1- or 2-digit number that is less than the total number of SABOT rounds provided OPFOR1. See the explanation for line 22 for more information.

****

IMPORTANT: From this point on, the information that is entered on each line depends on whether the OPFOR1 vehicle is a T72 or a BMP. Therefore, the lines will no longer be numbered.

****

Next Line If OPFOR1 Is a BMP. Sagger

This line must contain the name of the weapon in the third weapon/ammunition combination (SAGGER - Missile) anticipated for the OPFOR1 vehicle when OPFOR1 is a BMP. If OPFOR1 is a BMP, enter the word Sagger on this line. Capitalize the first letter of the word, but do not capitalize any of the other letters. If OPFOR1 is a T72, skip this line completely. See the explanation for line 18 for more information.

Next Line If OPFOR1 Is a BMP. Missle

This line must contain the ammunition in the third weapon/ammunition combination (SAGGER - Missile) anticipated for OPFOR1 when OPFOR1 is a BMP. Since only missiles can be fired by the SAGGER, enter the word Missle on this line. Capitalize the first letter of the word, but do not capitalize any of the other letters. Notice that the word is misspelled and contains only one "i." If the word missile is spelled correctly, the program will not run. If OPFOR1 is a T72, skip this line completely. See the explanation for line 18 for more information.

Next Line If OPFOR1 Is a BMP. <A number from 0 to 4>

This line must contain the number of missiles that will be provided OPFOR1 during the scenario when OPFOR 1 is a BMP. If OPFOR1 is a BMP, enter an 1-digit number up to 4. If OPFOR1 is a T72, skip this line completely. (See the note at the end of this section of the document.)

Next Line If OPFOR Is a BMP. <A number from 0 to 3>

This line was to contain the number of missiles remaining when a low ammunition alert would be given. If OPFOR1 is a BMP, enter any 1-digit number that is less than the number of missiles provided OPFOR1. If OPFOR1 is a T72, skip this line completely. See the explanation for line 22 for more information.

Next Line

This line must be blank.

Next Line. 6

This line must contain the number assigned to the sixth vehicle in the simulation. See the explanation for line 5 for more information.

Next Line. OPFOR2

This line must contain the name assigned to the sixth vehicle in the simulation. See the explanation for line 6 for more information.

Next Line. <2 or 3>

This line must contain the number assigned to the type of vehicle represented by OPFOR2. Enter the number 2 if the OPFOR2 vehicle is a T72 tank. Enter the number 3 if the OPFOR vehicle is a BMP. See the explanation for line 7 for more information.

Next 8 Lines. <See instructions below>

Follow the directions for lines 8-15.

Next 10 Lines. <See instructions below>

Follow the directions for lines 124-133.

Next 4 Lines If OPFOR2 Is a BMP. <See instructions below>

Follow the additional directions that were presented earlier in the event that OPFOR1 would be a BMP.

Next Line

This line should be left blank.

****

IMPORTANT: Follow the directions for OPFOR1 and OPFOR2 for the remaining eight OPFOR vehicles (OPFOR3 - OPFOR10). Be sure to include the four additional lines for each BMP. Leave a blank line after each vehicle including the last vehicle, OPFOR10. See the explanation for line 5 for the vehicle numbers. See the explanation for line 6 for the name assigned to each vehicle. See the explanation for line 7 for the number assigned to each type of vehicle.

****

Next Line. IndirectFireAllocation

Enter the word IndirectFireAllocation exactly as it is shown. Capitalize the first letter in the word, the letter F in Fire, and the first A in Allocation, but do not capitalize any of the other letters. Do not leave any spaces between the letters in IndirectFireAllocation.

Next Line.

This line must be left blank.

Next Line. <xxx xxx xxx xxx> where "x" is any digit

It was initially intended that this line would contain allocations for different types of artillery. Although this feature was never implemented, this line must contain twelve digits with a space after every third digit (e.g., 143 652 017 848). Therefore, enter any 12 digits on this line with a space separating each group of three digits. The specific numbers will not affect the availability of artillery rounds since there is no limit to the amount of artillery that can be fired on SIMCAT.

Next Line.

This line must be left blank.

Next Line. ControlLines

Enter the word ControlLines exactly as it is shown. Capitalize the first letter in the word and the L in Lines, but do not capitalize any of the other letters. Do not leave any spaces between the letters in ControlLines.

Next Line.

This line must be left blank.

Next 8 Lines. <xxxx xxxx xxxx xxxx> where "x" is any digit

SIMCAT contains the capability to superimpose eight control lines on the World View map that can be displayed on the color monitor at the Controller's Station. These lines can be used to represent platoon sectors, lines of departure, mission objectives, or any other features that can be represented by straight lines. Each of the next eight lines in the scenario outline can be used to designate a single control line on the World View map.

A line can be created on the World View map by entering four 4-digit UTM coordinates on one of the next 8 lines. The first coordinate is the horizontal coordinate at one end of the line. The second is the vertical coordinate at that end of the line. The third is the horizontal coordinate for the other end of the line. The fourth is the vertical coordinate at the other end of the line. A blank space must separate each of the four 4-digit coordinates. The following is an example of how a control line could be designated:

7569 9625 7769 9825

Whether or not any control lines are desired on the World View map, all eight lines must contain 16 digits with a blank space after every fourth digit. For each control line that is desired (up to eight control lines), enter the four 4-digit coordinates that define the two ends of the line. The remaining lines on the scenario outline must contain coordinates that are beyond the scope of the SIMCAT world. One procedure is to copy the following on each of the eight lines that are not going to be used to designate actual control lines:

0000 0000 0000 0000

Next Line.

This line must be left blank.

Next Line. Minefields

Enter the word Minefields exactly as it is shown. Capitalize only the first letter in the word Minefields and do not leave any spaces between the letters.

Next Line.

This line must be left blank.

Next Ten Lines. <xxx xxx xxx xxx> where "x" is any digit

Up to twenty SIMCAT grids can be mined. If a vehicle enters a grid that is mined, the mine will explode and damage will be assessed according to probabilities that are incorporated into the SIMCAT software. Each of the next ten lines can be used to designate two grids that are to be mined in a scenario. Each grid that is to be mined must be designated by a 3-digit horizontal coordinate and a 3-digit vertical coordinate. These coordinates must be SIMCAT grid coordinates rather than UTM coordinates. See the explanation for line 8 for more information on SIMCAT grid coordinates.

To specify a SIMCAT grid that is to be mined, first enter three digits to designate its horizontal coordinate. If the horizontal coordinate contains fewer than three digits, zeros must be entered so that there are no blank spaces. For example, enter 004 rather than 4 or 065 rather than 65. Leave a space after the third digit and then enter the three digits designating the vertical coordinate. Again, if the vertical coordinate contains fewer than three digits, enter the required number of zeros to avoid blank spaces. However, leave a blank space after the third digit of the vertical coordinate. To specify another SIMCAT grid that is to be mined, enter the horizontal coordinate for that grid on the same line (again using three digits). Leave a blank space after the third digit of the horizontal coordinate and then enter the vertical coordinate (also using three digits). Remember, up to two SIMCAT grids can be specified on each line.

If fewer than twenty grids are to be mined in a scenario, 12 digits must be entered on each line for the simulation to work properly. It is also necessary to leave a blank space after each third digit. To avoid mining any SIMCAT grids inadvertently, enter 999 as both the horizontal and vertical coordinate for each of the twenty grids that are not to be mined. For example, if no SIMCAT grids are to be mined at all, the following should be entered on all ten lines:

999 999 999 999

NOTE: SIMCAT will accept more than 55 rounds of HEAT and SABOT ammunition for M1 tanks, and more than 40 rounds of HEAT and SABOT ammunition for T72 tanks, and BMPs. It will also accept more than 4 missiles for the SAGGER on a BMP. While SIMCAT will accept more ammunition than the maximum specified in this document, the specifications were based on the capacity of the actual vehicle rather than the limitations of SIMCAT. If there are any reasons for exceeding the loads specified in this document, substantially larger ammunition loads can be entered. However, the user should be aware that loads that are larger than those specified will no longer correspond to the actual capacity of the vehicles. In addition, the user should be aware that HEAT rounds can be entered for T72 tanks and SABOT rounds can be entered for BMPs. If this is done, SIMCAT will simply combine the number of HEAT and SABOT rounds and allow the combined total to be fired.

DIRECTIONS FOR CREATING A NEW SIMCAT SCENARIO

DIRECTIONS FOR CREATING A NEW SIMCAT SCENARIO

1. SIMCAT scenarios are stored in files contained in three different directories on the E: drive. These directories are INITCONA, INITCONB, and INITCONC. Each directory can hold up to five scenario files. These files are named INITCON1.DAT, INITCON2.DAT, INITCON3.DAT, INITCON4.DAT, and INITCON5.DAT. Each file contains the starting conditions for a scenario, but not the events that occur during the execution of the scenario. The starting conditions for a scenario must be created in advance and stored in one of the fifteen scenario files for later use. Once you have created a scenario, you must decide in which directory it will be contained and, within that directory, in which file it will be stored. (NOTE: More than five scenarios may actually be stored in any of the three directories. This can be done by assigning each additional scenario any filename except INITCON1.DAT, INITCON2.DAT, INITCON3.DAT, INITCON4.DAT, and INITCON5.DAT. For example, a sixth scenario within a directory can be named INITCON6.DAT, but its filename will have to be changed to one of the five filenames listed above before it can be run on SIMCAT.)

2. The set of initial conditions for a new scenario must be prepared according to the instructions in DOC17.TXT (Initial Units File) and in Directions for Preparing a Scenario Outline for SIMCAT. It is important that these instructions be followed exactly. Prepare an outline of the new scenario showing the values for each variable described in the two sets of instructions.

3. Assuming that the map coordinates for the new scenario are UTM coordinates, they must be converted to SIMCAT grid coordinates before creating the new file. A program is available on SIMCAT that will convert UTM coordinates to SIMCAT grid coordinates. To run this program, first perform steps 2-9 (omit step 7) in Directions for Operating SIMCAT. When step 9 is executed, a set of instructions will appear on the monochrome monitor at the Controller's Station. When these instructions appear, type

system<enter>

4. Since the coordinate conversion program is on the E: drive, type

e:<enter>

where <enter> means to press the ◄┘ key. This will log you onto the E: drive on the hard disk.

5. The conversion program is located in the subdirectory UTILITIE located in the FINAL directory. To access this subdirectory, type

cd \final\utilitie<enter>

6. To start the conversion program, type

m2 utilitie<enter>

7. When the menu appears, type

u

to select the "UTM to GRID" option.

8. To convert from UTM coordinates to SIMCAT grid coordinates, first type the four digits of the x coordinate and then press the <enter> key. Next type the four digits of the y coordinate and press the <enter> key again. The corresponding SIMCAT grid coordinates for "x" and "y" will now appear on the screen. Copy these values onto your scenario outline. When you have finished copying the values, reset the program by pressing any key.

9. Repeat step 8 until you have finished converting all of the UTM coordinates to SIMCAT grid coordinates. Press the <Esc> key to exit the program. Then type

q

to exit the file.

10. Next you must enter the directory in which your scenario will be stored. If the scenario will stored be in INITCONA, then type

cd \initcona<enter>

If the scenario will be in INITCONB, then type

cd \initconb<enter>

If the scenario will be in INITCONC, then type

cd \initconc<enter>

(Note: Read any book or manual on PC DOS or MS DOS to learn what happens when you type the CD or CHDIR command.)

11. A text editor must be used to create the file for a new scenario. VEDIT is the text editor that is available on SIMCAT. To use this editor for creating a new scenario, type

vedit <filename><enter>

where <filename> is the name of the file. For example, if the scenario will be stored in the file INITCON1.DAT, type

vedit initcon1.dat<enter>

12. In a few seconds, an existing scenario file will appear on the screen. This will be the file having the same filename (e.g., initcon1.dat) as the one you will be creating. If you want to save the existing file for later use, you must copy the existing file and assign it a new filename. To do this, type

copy <filename><newfilename><enter>

For example, if you want to store the scenario contained in the initcon1.dat file, and if you want to rename this file initcon6.dat, type

copy initcon1.dat initcon6.dat<enter>

13. The easiest way to create a new file is to modify the existing file. Since the existing file is too big to appear on the screen at one time, it will be necessary to use the arrow keys on the numeric keypad to move through the file. Press the <up-arrow>, <down-arrow>, <left-arrow>, or <right-arrow> keys to place the cursor on the terms or values that must be changed.

14. To replace the values from the old scenario with values from the new scenario, you have two options. One option is to delete each old term or value using either the <backspace> or <delete> key and then typing the new term or value. The other option is to press the <Ins> key so that you can write over each old term or value without having to delete it. Once you press the <Ins> key, you will be able to write over any character until you press the key again. If you choose the second option, be careful not to accidentally write over terms or values that should not be changed. When you are finished changing the term or value of one variable, use the arrow keys to move to the next variable whose term or value should be changed. (NOTE: If you are not careful, you may accidentally press the <Esc> key when you intend to type 1. If this happens, you should store the values that you have already inserted by typing

ex<enter>

Then reenter the program by typing

vedit <filename><enter>

as you did in step 11 and continue changing the terms or values in the file.)

15. When you are through changing the terms or values of all variables that need changing, you must store the new file. To store the file, first press the <Esc> key. Then type

ex<enter>

In a while the program will be stored, and you will have exited VEDIT. (NOTE: If for any reason you wish to exit VEDIT without storing the new file, first press the <Esc> key. Then type

eqy<enter>

16. If you now wish to create a file for another scenario, and if the file will be stored in the same directory, follow the instructions beginning with step 11. If the new file will be stored in a different directory, follow the instructions beginning with step 10.

17. If you do not wish to create another scenario, exit the directory by typing

cd \<enter>

Then return to the A: drive by typing

a:<enter>

18. The new scenario should now be tested to see if it works as intended. Follow the instructions contained in the document "Directions for Operating SIMCAT." Begin by performing step 7. Then type

simcat<enter>

Finally, follow the remaining steps beginning with step 11. If the starting conditions are correct and if the scenario works, you can assume that the values were entered correctly. If the scenario does not work as intended, use VEDIT to locate any errors in the file and to make whatever corrections are required. Begin at step 3.

DIRECTIONS FOR FORMATTING A HIGH DENSITY DISKETTE

DIRECTIONS FOR FORMATTING A HIGH DENSITY DISKETTE

1. A high density diskette is used in the B: drive at the Controller's Station, the OPFOR Station, and the four tank commander's stations.

2. Before a new diskette can be used in the B: drive, it must be properly formatted. The program for formatting a high density diskette for use in the B: drive is MULFMT.COM. It is stored on the "C Sys U" (Campbell's System Utilities) diskette located in the A: drive at the Controller's Station. (It is also stored in the System subdirectory on the E: drive.)

3. To format a high density diskette, insert a blank diskette into the B: drive at the Controller's Station. If the diskette is not blank, make sure that it contains no important files since the files will be erased when the diskette is formatted. When you insert the diskette into the B: drive, push the diskette firmly into the drive until it locks in place. Do not close the drive door until the diskette is locked in place.

4. Follow steps 2-4 in the Directions for Operating SIMCAT.

5. Turn on the computer at the Controller's Station.

6. Watch the monochrome monitor at the Controller's Station. When the time and date messages appear, enter them as described in steps 8 and 9 of the Directions for Operating SIMCAT.

7. After you have entered the date, a set of instructions will appear on the monochrome monitor at the Controller's Station. When the instructions appear, type

system<enter>

8. In about 20 seconds, a message will appear stating that SIMCAT is now available for system utilities. When this message appears, type

mulfmt b:

9. The following message will appear on the screen:

Format drive B. OK (Y/N)?

When this message appears, type

y

The following message will appear on the screen while the diskette is being formatted:

Doing Format now

10. When the diskette in the B: drive has been formatted, the message "Format complete" will appear on the screen. The following message will also appear:

Format another (Y/N)?

If you want to format another diskette, remove the formatted diskette from the B: drive and insert an unformatted blank diskette. Then type

y

The following message will appear on the screen:

Format drive B. OK(Y/N)?

When this message appears, type

y

11. If you do not want to format another diskette, type

n

when the "Format another (Y/N)?" message appears and remove the formatted diskette.

12. After you have indicated that you do not want to format another diskette, and after you have removed the last formatted diskette from the B: drive, insert the Controller B: diskette into the drive. Do not close the drive door until the diskette has been locked in place.

13. Type

dir b:<enter>

14. If the directory for the diskette in the B: drive appears on the monochrome monitor, this means that the diskette has been inserted properly. If the directory does not appear on the monochrome monitor, open the drive door, remove the diskette, and insert it again. Close the drive door and repeat step 13.

15. Turn off the computer at the Controller's Station, the backup power supply, and the surge protector (in that order).