

THE PERFECT GENERAL

Technical Supplement for IBM PC and Compatible Computers

GENERAL:

This card contains start-up and other machine specific instructions for the IBM and Compatible computers. Disk #1 has an ASCII file named READ.ME. This contains the latest notes on the game and how to solve problems with various 'compatibles'. You can read the file by typing the command "README" and pressing ENTER.

PACKAGE CONTENTS:

The Perfect General should contain a manual, this technical supplement, two 5 1/4" or one 3 1/2" disk, a registration card and 6 full color maps (two sided).

REQUIRED EQUIPMENT

COMPUTER: The game requires an IBM PC, XT, AT, PS/2 or 100% compatible computer. The machine should have at least 640K of RAM.

CONTROLS: The game can be run entirely from the keyboard, with a joystick or a mouse. When two players are playing, each may use a separate control (i.e. the mouse and the joystick).

DISPLAY: The game requires a color monitor with an EGA or VGA graphics system.

DOS: The game must have DOS version 3.0 or higher. The game is compatible with DOS 5.0. The game is also compatible with DesqView and Microsoft Windows.

SOUND: The game optionally uses the internal PC speaker as well as supporting the AdLib and Sound Blaster (and compatible) sound cards.

INSTALLATION

The Perfect General is not copy protected. It is playable from floppies or from the hard disk (which we recommend). However, the original disk carries the game in a compressed format. As a result, one cannot play the game directly from the distribution disk. You must install the game before play. You can install the game to either separate floppy disks or a hard disk. The game requires the following blank formatted disk:

5 - 360K 5 1/4" disks
2 - 720K 3 1/2" disks
2 - 1.2M 5 1/4" disks
1 - 1.44M 3 1/2" disk

QQP

Quantum Quality Productions

Presents

The Perfect General

Victory, Conquest and
Instruction Manual

RUNNING THE PERFECT GENERAL

FROM FLOPPIES: Insert Game Disk #1 in your computers disk drive. Change to that drive (by either typing "A:" or "B:"), and then execute the command "GENERAL". The game will then start up. The game will prompt you when you need to change floppies.

FROM THE HARD DRIVE: Change to the directory in which you installed The Perfect General. Then type the command "GENERAL". The game will then start up.

CONFIGURING FOR YOUR MACHINE

When you install the game, you will be asked several questions about your machine and how to configure it. This information is saved off for later use. Except for the graphics card support, all of this information is changeable in the game later. To change the hardware configuration, select the 'Change Hardware Configuration' from the primary menu.

If you wish to change between the EGA and VGA graphics, it will be necessary to reinstall the game. Just repeat the installation procedure.

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The Perfect General

INTRODUCTION

The origins of The Perfect General was a series of tournaments played weekly over a period of 12 years. Bruce Williams Zaccagnino created the original design with a goal of simple game play with great depth of strategy. Emerging from this twelve years of competition is a highly refined game system that is a lot of fun.

The task of transforming the game system to the computer was given to White Wolf Productions and the design team of Bob Rakosky and Mark Baldwin. The result of this effort is the game known as The Perfect General. Bob and Mark have managed to capture the feel and play of the original tournament, down to the last detail.

The game uses very simple combat pieces with well defined attributes and capabilities. Included are a wide variety of challenging scenarios, from the very simple to the highly complex. Each scenario has infinite strategic and tactical options available. This allows one to discover virtually thousands of different games within each scenario. There is no single CORRECT strategy!

So, go ahead and enjoy the fun and excitement that those tournament players experienced! Do you have what it takes to become The Perfect General'?

WHAT THIS GAME IS ALL ABOUT.

The basic game is a two-player conflict, although the computer is willing to assume the role of one or both commanders. Each player selects the game pieces at the beginning of the game. Note that each type of unit has a specific cost and a fixed set of capabilities. There is a direct relationship between the cost of a unit and its capabilities. A player can purchase additional reinforcements during game play in some scenarios.

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The battle arena is a rectangular region with an underlying hexagonal grid structure. The game system uses this grid for the calculation of distances determining firing ranges and movement capabilities for each piece. There are also different types and levels of terrain that affect combat, visibility and movement.

A game consists of a set number of turns with each turn incorporating a sequence of phases. Each phase alternates between the attacker and defender. However, a commander must be attentive even when his opponent is in control. One army's forces may respond to the actions of the opposition even during the opponents turn.

During each turn, each piece may fire once and move. The distance a specific unit may move within a single turn varies. This depends on the type of piece, the terrain, and weather conditions. The firing range and degree of damage inflicted depend on the weapon fired, the target type, and the terrain.

The included scenarios vary from small infantry vs. infantry to large island invasion situations. Also found are such diverse scenarios as desert conflict to heavily forested engagements.

The challenges to become The Perfect General' are multi-faceted. First you must master the selection and strategic placement of your combat units. Combined is the optimal maneuvering (tactics) in response to the actions of your opponent. The second challenge is the mastering and manipulation of each scenario to find the best decisions for each role (attacker and defender). You must make specific critical decisions. Which beach is the best for invasion? What's the most efficient way to cross a certain river, or to take and hold an important town? How can you manage the destruction of your opponent's spotters on top of a hill?

The selection of your units is extremely important. These combat units will have different firing ranges and strengths. For example, armored cars will have a range of six when firing at enemy armored cars. However, the effective range is reduced to one when firing at an enemy medium tank. A heavy tank, however, has a maximum ranges of eight to thirteen depending on its target. Direct fire can only be taken at what can be seen directly. Blocking terrain such as hills, woods and towns may prevent you from firing on an enemy unit.

There are situations where an unseen enemy unit may fire at one of your units. You may ambush your opponent the same way.

THE OBJECT

As in most conflict situations, your goal is to take geography, which in this game is usually measured by the taking and holding of as many towns as you can. Normally, each town has a specific point value in a scenario. When a player controls this town at the end of a turn, he will receive these points. The cumulative victory points at the end of the game produce the players final evaluation.

You may play any of the scenarios as either the attacker or defender. However, a scenario may not be balanced. The true test of play is the Match Game. A Match game is a series of two games played with the same scenario. First, you fight the battle as the attacker, then repeat the game as the defender. This allows for an evenly balanced evaluation of your playing skills.

In addition to playing either attacker, defender or a full match, you may determine which rules to use. You may select whether combat fire will damage a unit or destroy it when hit ('Full Kill' and 'Partial Kill' rules). You also may choose whether a shot fired at an enemy unit always hits the target if in range or has the chance of randomly missing ('Always Hit' and 'Random Hit' rules).

Any single scenario will provide opportunities for virtually thousands of strategies. Depending on what types of combat forces you choose and where you place them, the same scenario will provide a totally different game.

As simple as this game is, you can re-create most strategic and tactical situations that might happen in real combat.

INSTALLING "THE PERFECT GENERAL"

The Perfect General comes on disk in a compressed format. As a result, one cannot play the game directly from the distribution disk. You must install the game before play. You can install the game to either separate floppy disks or a hard disk. Please refer to the machine-specific insert for complete installation instructions.

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GENERAL INTERFACE COMMENTS

The design of The Perfect General allows use of the mouse, keyboard or joystick. If you have a joystick and no mouse you can use the joystick to simulate the actions of the mouse. Used in this manner, references in this manual made to the mouse also applies to the joystick. With both a mouse and a joystick present, the latter provides a good solution for a two-player game. This allows the Passive Commander using the joystick to easily signal Return Fire or Passing Fire. Thus preventing a physical battle over the key locations on the keyboard.

There are four major means of communication with the game:

Screen Buttons

You will use screen buttons to select specific items. They appear as raised rectangles when not selected and indented when selected. A button is selected by moving the mouse pointer over the button and then pressing the left selector (left mouse button or fire joystick button). Each button also will have a letter on the label highlighted. Pressing the indicated key on the keyboard also will select the button.

Requesters

Requesters are small windows that pop-up to inform you of some useful information. They also may request information from you. (Requesters are also called dialogues.) Normally, there will be one or more buttons on the requester from which you can answer the question or acknowledge the message. To respond to the requester, simply select the proper button. Note there is frequently a 'default' answer shown by a thicker button. This button is selectable by pressing the <ENTER> key on the keyboard, as well as the standard selection procedure.

Menus

Menus are a series of buttons in a list showing you the various commands you have available. During game play, the primary menu will be available, although not seen. To bring up the menu, use the "Primary Menu" key (<F1>)

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from the keyboard. Using a mouse (or joystick), a single-click of the RIGHT mouse button (or second joystick button) will display the menu.

IMPORTANT: If you position the mouse within the large Battle Window, the right mouse button has a different use. It will not cause the primary menu to appear. Move the mouse pointer outside the boundary of the Battle Window before clicking to bring up the menu.

Many of the menu commands have an associated "hot key" that allows access to the menu command without first showing the menu. The hot key for each menu item (if available) is shown on the right edge of the menu item enclosed in square brackets.

Note that you can move the menu on the screen. Using the mouse, select the title of the menu and, holding the left button down, drag it to the desired location. Alternately, the <Shift><Arrow> keys on the keyboard also will move the menu.

To exit the menu without selecting an item, move the mouse pointer outside the menu display and click the RIGHT mouse button. Alternately, use the <ESCAPE> key on the keyboard.

Sliders

Sliders are used to change values within a range. There are three portions to the slider. The slider bar, the track and the direction buttons. To use the mouse to change the value, press and hold down the left button over the slider bar, and drag the slider to the desired position. Select the direction buttons to change the value by 1 in that direction. Select the track to change the value by a larger jump (the exact amount varies from slider to slider).

The slider also is controllable from the keyboard. Each slider has two keys associated with it. Pressing these keys will act the same as selecting the direction arrows. Pressing the key with the shift key has the effect of selecting the track (i.e. a big jump).

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Battle Map Location Selection.

During the game, many times it is desirable to select a location on the map, or the unit in a location. For example, at times you will have to choose where to fire a shot or move a unit. To select a location with the mouse, move the mouse pointer to the desired location, and press the left selector. The target cursor (the white cursor) will then move to that location and select the unit (for fire) or location (for movement) there. Alternately, this can be done using the keyboard. Use the arrow keys (or numeric keypad) to move the cursor and the <ENTER> key to select the location.

You select a new active unit or examine a map location by moving the target cursor to that location. To move the target cursor move the mouse pointer to the location and press the RIGHT selector. If there is a selectable unit at that location, the unit will become active. Otherwise, the target cursor will move to the location, and display information about the location. With the keyboard, move the target cursor to the target location using the arrow keys, or the numeric keypad. To select a unit, use the <S> key with the cursor positioned on the unit.

Your 'Perfect General' Security System:

To protect your 'Perfect General' game against unauthorized use, a security system has been installed. This appears after selecting an option on the initial game options screen and requires you to enter a certain word obtained from this manual, per the instructions given on your screen.

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GETTING INTO THE GAME

There are three ways of learning the ins-and-outs of The Perfect General:

1. The "academic" approach - reading thoroughly through this manual and trying a game as you read.
2. The "quick and dirty" approach - Start the game and poke around. A lot of thought went into designing the interface and game mechanics to be very intuitive and simple. This includes the use of pop up menus, easy mouse and keyboard commands, and an on-line help facility. (NOTE: We still recommend that you take the time at some point to read this manual. It is easy to miss some of the game's fine points in the initial excitement of battle.)
3. The "I'll make you a deal" approach - Work with the "quick run through" that follows. If you go through this several times it should get you through most of what this game is all about.



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A QUICK RUN THROUGH (TUTORIAL).

If you haven't already done so, set your hardware configuration to conform to your equipment and start up the game.

At the game start menu, select the NEW GAME - ONE COMPUTER option. (Point and click with your left mouse button or hit the <O> key.)

At this point, you must pass a security check (there are spies everywhere!). Enter the requested word from the manual, and then let us continue. This will bring you to the scenario selection screen.

Displayed are the various scenarios available to us. So we now need to choose the game to play. Select the scenario entitled "A Simple Little War". (Use the mouse arrow and left mouse button to select this scenario. With the keyboard, use the <Down Arrow> and <Up Arrow> keys to move the highlight to this item.)

Select the button that says LONG DESCRIPTION (Mouse in screen button or <L> from the keyboard). This will show you a brief overview of the scenario you are about to play. Read the description and then select "Exit" to return to the scenario selection screen.

Next select the SHOW MAP button, and this scenario's Reconnaissance Map (showing the entire battlefield) will appear. Strike any key or mouse button to exit this map.

Select the SCENARIO RULES button, and the rules options will appear. This manual will explain these options later, but for now, select the PLAYER 1 ATTACKER button and the PARTIAL KILL BUTTON. Leave all the other settings as they are. Next, at the bottom of the screen, select the USE button. This will take you back to the selection screen.

Now select the PLAY THIS SCENARIO button (<P> key). This will trigger the 'Type of Game' menu. Select 'Person vs Computer'.

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The game now asks for your name. Type the name of your choice and press <ENTER>.

Next, the game asks you to select the level of your computer opponent. For this quick run-through, select LEVEL 1. The name of your worthy opponent will be displayed. Select OK to continue.

The unit selection screen appears next. This screen contains a series of buttons, with the names of the available unit types. The cost and the number of each type that you have purchased are also shown. Using the keyboard, you can use the <Up Arrow> and <Down Arrow> keys to choose a unit type. An indented button will show the selected type. The <Left> and <Right> arrow keys decrement or increment the number of units purchased. Using the mouse, you can point to the desired Unit Name button to select it. Use the left mouse button to increase the number chosen or right mouse button to decrease the number. With this as your guide, select the following:

- 1 Armored Car,
- 1 Medium Tank,
- 1 Heavy Tank,
- 1 Mobile Artillery,
- 1 Infantry,
- 1 Bazooka,
- 1 Engineer,
- 1 Light Artillery,
- 1 Heavy Artillery, and
- 1 Mine.



After you have picked these units (one of everything except Light Tanks), you will have 70 buy points remaining. Remember that this is only a quick run through. You may not last the entire 7 turns. So don't worry about the measly 70 little points.

Now select the DONE button. At this point, a small requester will remind you that you did not use all of your buy points. This is a "fail-safe" measure to insure that you exited the unit selection on purpose. In this case since we

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have chosen to take this action, select the 'Yes I'm done' button. You will now proceed to actually placing the units that you have just purchased onto the battlefield.

To place a unit, select any location within your start-up region. This is done, with the mouse, by clicking the left mouse button on a location. With the keyboard, move the cursor with the arrow keys and press <ENTER>). This will place a unit (the unit type highlighted in the lower right corner) onto the playing field. Your start-up region is anywhere south of the red line on the playing field.

You may select a different unit type for placement. In the lower right hand corner of the screen is the units placement pool box. Click on the proper unit with the left mouse button to select that type. With the keyboard, select the "Next Unit Type" from the primary menu. Remember that <F1> will show you the menu when needed. Note also that the "Next Unit Type" has a corresponding Hot-Key - the <N> key.

If you desire to pick up a unit already placed, just select the unit again. The unit will return to the placement pool, clearing that battle field location.

For demonstration purposes place your units according to the following instructions.

Place 1 Heavy Tank on the road at the extreme west (left) of the battlefield just below the bridge. This road leads to Konigsberg. (The names of the towns are on the maps in the back of this manual. The recon map also will display them upon request.)

Place 1 Medium Tank directly below (south of) the Heavy Tank on the same road.

Place 1 Armored Car directly south of the Medium Tank on the same road.

Place 1 Infantry in the town of Pinsk. This unit will (as would any other unit) earn you the victory points for that town. You will earn these points at the end of each turn.

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Place 1 Mobile Artillery on the next road in from the left leading to Konigsberg. This should be next to the bridge.

Place 1 Engineer north of the Mobile Artillery along the river.

Place 1 Bazooka to the east (right) of the Engineer also along the river.

Place 1 Light Artillery and 1 Heavy Artillery south of the Bazooka and Engineer near the road.

Place 1 Mine on the road just north of Moscow.

With this little setup we have left the whole right side of the playing field wide open except one lonely mine field. This may not be the best of strategies. However, you are only going to play a couple of turns to get your feet wet.

After placing that last piece (the Mine) a requester will appear stating 'All of your units have been placed'. Select YES to continue. There will be a small delay while your computer opponent places his units.

Now it's time to begin the battle!

The first game phase is Mobile Artillery Plot. After both commanders have plotted their mobiles, the next phase will actually fire these plotted shots.

Select the target of your choice. With the mouse, point and click with the left button. Alternately, move the target cursor with the keypad and use the <ENTER> key. This target could be another enemy unit, a town or woods with a suspected ambush, or possibly a bridge you may want to destroy to hinder your enemy's movement. During this phase, the map will display some locations as shaded. The shading shows those locations that you cannot target.

The rules for indirect fire are simple. A map location must be within the range of the firing unit. It also must be within the line-of-sight of at least one of that side's units. The rules do not require that the firing artillery unit can directly see the target.

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In this case go for the town of Konigsberg. Mobile artillery is much less accurate than regular artillery and your shot may drift and land elsewhere.

Once both sides have plotted their Mobile Artillery shots, the artillery fire phase will then execute. This is when we get to see the effectiveness of our targeting.

The next phase is regular artillery plotting phase. There are several differences here from the mobile artillery plot phase. First, the artillery will not actually fire until the next turn (during artillery fire phase). Second, you have the option of firing barrage or non-barrage. With barrage the shot will remain on the field for one full turn interfering with movement. Non-barrage will hit, take damage and disappear.

Plot your light and heavy artillery in the front edge of the woods northeast of Konigsberg. This is an attempt to soften any ambush your opponent may have awaiting you.

Once both commanders have plotted their artillery, the game will proceed to the first (of two) direct fire phases. You can now give Direct Fire orders to any of your units for which there is a sighted opposing unit within range. The game will cycle through the eligible units one at a time, prompting for the desired target. The unit (yellow) cursor will highlight the unit for which a fire order is possible. The target (white) cursor will automatically highlight the target with the highest chance of success. NOTE: If none of your units have a valid target available, the game will quickly cycle through this phase without prompting you for any orders. There are no orders to be given!

Before we actually give your units their orders, let's take a quick look around to see what is available.

Here you will have several options available to aid your decision-making process. First, you can cycle through all valid targets by pressing the SPACE bar on the keyboard. This causes the target cursor to move to the next available target. Notice that the probability of the shot being successful will be shown in the Target Information Box - the white window at the lower-right of the screen. If you press the space bar and the target cursor does NOT move, this shows there is only one valid target available.

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You can directly inquire about the chance of hitting a specific enemy unit by moving the target cursor to that unit. Either use the keypad and arrow keys or point the mouse arrow at the desired target and click the RIGHT button.

A fire order may be given by directly selecting an opposing unit (with the left mouse button or the arrow keys and <ENTER>).

Although the game system will cycle through all eligible units, you can give the fire commands in any order you wish. You may select another of your units for firing. Move the target cursor over the desired unit and issue the SELECT command (Hot-Key 'S'). Alternately, point the mouse at your unit and click with the RIGHT button.

Since you are not required to fire a unit during this phase, you can select the "Ignore Unit this Phase" command (Hot-Key <I>). This will cause the unit to save the one Direct Fire allowed per turn for later.

You can temporarily hold the fire for a unit as well with the "Next Unit" command (Hot-Key <N>). This will cause the game to cycle to the next eligible unit, but still leave the old unit eligible.

As always, there are other command options available, but don't worry about remembering them all. By bring up the primary menu, you will have access to all of the currently available commands. Display the menu with either the <F1> key or by clicking the right mouse button with the pointer outside the main Battle Window. You will see an array of choices from which to choose. Try any of these by just selecting the menu item. Choosing Display Control or Game Control will bring up another menu of options. Experiment with these choices as they can interesting as well as useful during the game play.

During direct fire, one must always be aware of the chance of RETURN FIRE. When a unit receives direct fire, it may have the option of taking a direct fire shot in return. This may be its last gasp before its possible demise. It must not have fired during this turn. It also must have a valid, in-range target at which to fire. If both conditions are true, the owner can order RETURN FIRE. When one of your units is receiving fire, you should be ready to request RETURN FIRE when possible. On the right side of the battle display is a small box with the letter "F" in it. This box will light (green) when return fire is possible. You should give the order while this indicator is on. The return fire order is given by pressing either mouse button, or with the keyboard Hot-Key <F>.

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Continuing with our walk-through, fire all of your units that have a shot available. As you fire little yellow indicators will appear on the unit that has just fired. These markers show that a unit has fired this turn. Remember that each unit can fire only once during a turn. We use this indicator as a reminder as to which units for both sides have fired. Be aware that a unit at which you are firing may choose to take RETURN FIRE. He may target any of your units within his range. You may have the option to take RETURN FIRE for that unit.

When you have finished firing your units your opponent will then fire some or all of his units, including those in ambush. You should pay attention, ready to give the RETURN FIRE order if available and desired.

If you are thinking that this is complicated, it isn't. One or two of these practice games and it will become very clear.

After both sides have completed their first direct fire phase, you will proceed to the movement phase. The basic controls here are the same as during direct fire. Remember that the MENU is available to show you the various available options. The target cursor will specify the destination of the move. Simply select the location to which you want to move. Point and click with the LEFT button, using the mouse. From the keyboard, move the cursor and press <ENTER> to select. The game automatically uses 'smart moves'. The unit will take the fastest path to your destination.

Be careful when moving near an unfired enemy unit within range. There is a chance that he may take PASSING FIRE at you. Note that you do not have the option of ordering RETURN FIRE during movement. When your opponent's units are moving, you will have the same opportunity. The "F" indicator (on the right of the screen) lights when you have the option of taking PASSING FIRE. Give this order by clicking either mouse button or using the Hot-Key <F>. You then can select the unit to fire at the moving unit.

Continuing, let's move on Konigsberg. If your Mobile Artillery shot scored a direct hit on the town, you can walk right in. The two bridges between your units and the city provide your direct path. If your opponent's Mobile Artillery did damage the bridge, you will have to find an alternate path. If that did occur, then move your Engineer right into the river. Next turn you can order the engineer to build a bridge in that location.

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On your way to the town of Konigsberg, there may be enemy units in the way. You will have the option to engage in close assault. Unfired Armored Cars or Tanks can execute a close assault order. Mobile Artillery and other unit types cannot perform close assault, however. This order is given by ordering your unit to move onto a location occupied by an enemy unit. When a close assault engagement occurs, only one side will survive. This is risky, but sometimes necessary to secure that town or to get control of that key position.

During the movement phase you may move all of your units, so go ahead and move everything forward. Your opponent may take PASSING FIRE at you as you are moving.

After you have moved or 'Ignored' all of your forces the computer opponent will start to move his forces. While his units are moving, you should keep an eye on the "Passing Fire Available" indicator. Make sure you prepare to give the PASSING FIRE order. (Either mouse button or the <F> key requests PASSING FIRE.) Sometimes it is a good strategy to take the 'passing fire' because he may be running for cover.

Following the completion of the movement phase, you will proceed with the second direct fire phase. Any units that have not fired yet during this turn are eligible to fire. If they fired during the first direct fire phase or took RETURN fire, they have used their one shot. Also, firing at an enemy unit when moving, or engaging in close assault disallows their participation in this phase. All eligible units who have a legitimate target can fire. This will be the last opportunity to fire during this turn. It is usually advisable to fire all remaining units.

When you have exhausted your firing wishes, your opponent will do his firing. Again, when your opponent is firing be ready to order RETURN FIRE, if available.

The last phase is the score keeping. All cities now occupied by unit(s) from only one side will have their associated victory points awarded to that commander. The game will then proceed to the next turn, cycling through the same sequence of phases. Reinforcement purchase and placement (where applicable), Mobile Artillery Plot, Artillery Fire, Artillery Plot, First Direct Fire, Movement, Second Direct Fire, and Scoring are the backbone of "The Perfect General".

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The first time you read this run through, it may confuse you. Read it a couple of times and follow the instructions and the game play will quickly become very clear.

The interface is simple and is quick to master. The learning of the strategy and tactics should take a lifetime (of fun).



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GAME RULES

GAME SIDES

Each scenario shall have an attacker and defender. The defender is the player with the fewer buy points. You may choose either side to play. The game will use colors to differentiate between the two sides, with RED signifying the attacker and BLUE used for the defender.

BUY POINTS

A player will have available buy points at the start of the game. Each scenario fixes the quantity available. You can reduce this amount by giving one of the two players a handicap. You will use these points to select your initial combat forces. Please refer to the unit attribute table in Appendix B of this booklet.

After, selecting his initial forces for the coming battle, a player places them onto the field of battle. Depending on the scenario, certain areas of the play map are available for setup. Players may place units in any of these initial positions.

VICTORY POINTS

Each scenario will have several defined victory point locations (towns). Control of these victory point locations define game victory. A side has control of a town when a unit occupies at least one location within the town. IMPORTANT, you MUST have a unit in the city at the end of the turn to control it. Control does not exist if an enemy unit also occupies a location within the town or no one is in the town. The scoring will tally Victory Points at the end of a turn. Destruction of enemy units has no direct effect on victory determination.

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REINFORCEMENT POINTS

Some scenarios will provide reinforcement points at the beginning of certain turns in the game. These points may be given to only one or both sides. Other scenarios will award reinforcement points, based on control of certain key Towns at the end of some turns. This is similar to the awarding of Victory Points. A player uses these reinforcement points like he used the initial buy points. He can purchase additional combat units and place them onto the field of battle. (You will find the scenario descriptions located in Appendix A. They will contain information about the Reinforcements available for a scenario.)

NEUTRAL COUNTRIES

Some scenarios will have regions set as neutral countries. These regions have associated with them a certain number of buy points. Should either player decide to enter a 'neutral country', the game will pause upon this encroachment. The player NOT invading the neutral region will help defend this country. He will receive these associated buy points to place additional forces within the neutral country for its defense. The decision to invade a neutral country is complex. You must weigh the strength of the defensive forces that your opponent will mount against you. Balancing this is the lure of the frequently generous victory points available for the towns within the country.

TURN SEQUENCE

A game lasts a fixed number of turns, which varies by scenario. Each turn consists of a sequence of phases. There are two parts to each phase. The first is for the Attacker forces and the second for the Defender forces.

The phase sequence is as follows.

Unit purchase and placement: At the beginning of the game, a commander will build a combat force. In some scenarios, additional Buy Points may be available in later turns to purchase reinforcements.

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- **Mobile Artillery Plot:** Orders for indirect fire for mobile artillery will be given now. The units will execute these orders during the next phase.
- **Indirect Fire:** All pending orders for indirect fire will now be executed. Stationary and mobile artillery will now fire. The commander will have given the orders for stationary artillery in the previous turn.
- **Artillery Plot:** The commander will order the plotting of indirect fire for stationary artillery units (Light Artillery and Heavy Artillery). These orders will execute during the Indirect Fire phase of the NEXT turn.
- **Direct Fire:** Orders for direct fire may be given. Shots will fire when the order is given. The targeted unit may have the option to shoot back (return fire).
- **Movement:** Units may move to new locations. It is possible for an opposing unit to fire at the moving unit (Passing Fire).

Direct Fire: Units not having fired this turn may receive direct fire orders. As in the first Direct Fire phase, shots are fired when the orders are given. The targeted unit also may return fire.
- **Scoring:** Victory Points are accumulated. A commander also may earn Reinforcement Buy Points.

UNIT TYPES

Armored Car

Having a movement range of 9 per turn (over clear terrain), the Armored Car is the fastest moving piece. It is also the easiest of the armored unit types to kill, and the least strong offensively. This unit is great on breakthroughs to get behind enemy lines to artillery or his reinforcement points. Due to its fast movement, it is a valuable unit for transporting infantry pieces.

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Light Tank

The Light Tank is a fast armored unit, with a movement range of 6. It is relatively weak on defense and offense, but if close enough can damage any opposing unit. It is a useful, inexpensive all-purpose unit. It is also quite good for monuments in front of public buildings when the war is over.

Medium Tank

This unit has a movement range of 5 and has more offensive and defensive power than the Light Tank. It is the best all-purpose unit you have available. Don't be afraid to use it. Many players have won games when they used a considerable quantity of medium tanks.

Heavy Tank

Moving 4 hexes per turn, this is the slowest but most powerful of armored units. It is also expensive! You must be careful how you use this piece in the full kill mode of combat. If a light tank can get within a range of two to this unit, it can destroy the heavy tank. If used properly, these heavies can win many games for you. Also remember, an indirect artillery shot does not discern between an infantry and a heavy tank.

Mobile Artillery

Like the heavy tanks, this unit has a movement range of 4 and is very expensive. The Mobile Artillery can fire like regular artillery, but is less accurate and has a limited indirect firing range. When this unit plots indirect fire, it will fire the very next phase. If you choose not to take indirect fire, it may take Direct Fire in later phases like any other armored piece. In this mode of firing (direct) it can fire with the effectiveness of a heavy tank. Defensively, it is as vulnerable as a light tank. This is an expensive but valuable unit. It has turned the tide of many battles.

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Infantry

Having a movement range of 1, this unit is not very mobile by itself. An armored piece can transport an infantry unit. This unit can damage armored units only at a range of one. It is inexpensive to buy and easy to kill. It can be useful for scouting, revealing ambush, and occupying towns to earn victory points.

Engineer

This unit type has the attributes of the Infantry units, except cost. It also has the important ability to build or remove mines. It also can build a bridge over a river or destroy an existing bridge. The Engineer can be a very valuable piece if used effectively.

Bazookas

The same as the Infantry units in movement and defensive capabilities, the Bazooka has the offensive fire-power of a Light Tank. It is great for inexpensive defense against armor.

Light Artillery

Artillery units cannot move by themselves. An armored piece must transport the artillery unit to move it. Defensively, it is more vulnerable than even an Infantry unit. Offensively, the Light Artillery can be a powerful weapon. This unit can execute indirect fire or direct fire within a turn.

When firing indirect, the player plots the shot one turn, but must wait until the next turn for the shot to fire. You also specify whether the plotted shot will be with BARRAGE or not. Barrage shots will affect the location hit by artillery shots for the entire turn, blocking movement. Shots fired without barrage will hit and do their damage. They will not have any lingering effects, other than the damage that they cause to the terrain. Artillery shots may drift up to a two locations from their target and will destroy anything they hit directly. They also may damage or kill anything adjoining the strike location.

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Heavy Artillery

This unit has the same attributes as the Light Artillery, but is significantly more powerful (and more expensive). Its range is more than twice the range of the Light Artillery. When fired with BARRAGE, the shot affects the strike location and the surrounding six adjacent locations. This effect exists for the remainder of the turn. This can cause your opponent considerable consternation!

Mines

A player can initially purchase mines and place them at the beginning of a game. Engineers also can build them during game play. Mines may not be placed or built on bridges or in towns. Engineers or a direct hit from an artillery shot will destroy a mine. The mine will destroy any unit that moves onto the location containing it. A mine has an effective charge lasting two detonations. So another way to destroy a mine is to move any two units onto the mine. The mine will destroy the units, but also will burn itself out in the process. This may not be the most efficient approach, but it does work. Mines are always visible.

TERRAIN

The features of the landscape are important considerations for the aspiring Perfect General. They have significant effect on movement, sighting, and combat results. The following terrain categories are utilized in the various scenarios:

Clear, Field

This is the typical "open space" land-type, providing no significant combat advantage or disadvantage. Movement from one clear location to an adjacent clear location costs 1 unit of movement. This "unit of movement" is the standard used for describing the movement abilities of all units. Note that even clear terrain may have more limited movement capabilities, caused by environmental factors such as mud and storms.

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Road, Junction

Roads provide a means of quick movement. Unless damaged by artillery fire, roads allow a unit to move at half the cost of movement through clear terrain. This benefit applies regardless of what other terrain also occupies the location. Note that this advantage is only available when moving along a road. It does not apply to the movement to or from the road.

Track, Railroad

Track acts similar to road except that the movement rate is that of clear terrain.

Forest

Units deplete half their movement rate when entering a wooded location. (Note that the "movement rate" refers to the total movement amount allowed during 1 turn.) This terrain provides a defensive combat advantage, and blocks vision. An opposing unit will not see a unit located in this terrain type. However, this hidden unit will become visible if it either moves or fires while within line of sight of the enemy. The damage of artillery fire will change wooded locations to forest rubble.

Forest rubble continues to block line of sight, but no longer gives a defensive advantage. Movement is also slightly faster in that it is now the same as rough terrain.

Hill, Ridge

Movement will cost twice as much when going uphill. Hills may block vision depending on the altitudes of source and target locations. Units higher than an enemy unit have a combat advantage. This advantage applies for both receiving fire and firing. Also, firing units have their range increased by one if higher than their target.

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Town

Movement costs are the same as roads, costing half of normal. They act as forest for defensive protection and line of sight. If an artillery shot strikes a city location, the destroyed buildings will slow movement. It will take 2 movement points to enter through the rubble.

Fortification

Fortifications are man-made defensive positions. They block line of sight and give a defensive advantage.

Rough, Desert, Destroyed Road, Cratered

This terrain type slows movement, costing twice as much as clear terrain. It doesn't provide any offensive or defensive combat advantage.

Sea, Lake, Coast

No unit can enter this terrain. It is effectively out of bounds.

Beach

A place to find scantily clad beautiful (and not so beautiful) people where such lack of clothing is socially acceptable. Invasions may occur there. (Is there some connection between the two facts?) Otherwise, the beach acts as rough or desert.

Bridge

These act as roads, providing access across a river for armored vehicles. Engineers can destroy bridges.

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Rivers, Blown Bridge

The river blocks the movement of armored vehicles. Infantry, bazookas and engineers can enter these locations, with the same movement cost as clear terrain. An engineer can build a bridge over the river, allowing access for armored units.

Escarpment

An escarpment is a very steep slope, bordering on being a cliff. As such, movement onto an escarpment depletes half the units movement rate.

Depression

A soft desert that slows down all forms of movement. Moving into the depression depletes half the units movement rate.

MOVEMENT

All of your units may move (or be transported) during the same turn. Units move from location to location sequentially. The types of terrain containing the unit and its destination for a single move determine the cost of the move. The distance a unit can move within a turn depends on that unit's movement rate. A unit may continue to move until it has used up all of its movement points.

A unit can enter the location occupied by a friendly unit. It must, however, move from that location in the same turn. Two units cannot occupy the same location, unless one of them is moving. There is one exception to this rule. One armored unit can be transporting another unit. The rules consider this to be a single unit occupying the location.

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A moving unit cannot move through a location occupied by an enemy unit. The alternatives here are to either move around that location or to engage in close assault (discussed later on), if possible.

Some terrain types block all movement for specific units. Unless this occurs, a unit can always move a minimum of one location within a turn.

Turns occurring at night impose special rules on movement. A unit may not move next to a spotted unit at night.

TRANSPORT

Some unit types are not very mobile. Moving these units to locations far from your starting positions can take a long time. To aid you with this problem, the game allows tactical hitch-hiking. The technical term for this is transport.

Armored units can carry non-vehicular units, such as infantry types and artillery. One accomplishes this by moving the armored unit onto the location occupied by the unit to be carried. The commander then gives the Load Transport order, which will cost 1 movement point. The armored unit can then proceed with the remainder of its movement. The carried unit will accompany its host on the journey.

Once the units reach their destination, the commander can issue the Unload Transport command. This causes the carried unit to deploy in that location. The process of unloading will cost the armored unit 1 movement point. Note that this unit also must have enough movement remaining to move from that location in the current turn.

The following rules apply to the loading of a transported unit.

- Armored Cars, Light Tanks, Medium Tanks, and Heavy Tanks are the only units permitted to transport another unit. (Note: Mobile artillery cannot transport anything.)
- Infantry, Engineers, Bazookas, Light Artillery, and Heavy Artillery are the only units can be transported.

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- c. The carried unit must not have moved or fired during the current turn. With artillery units, they also must not have plotted indirect fire that turn.
- d. When a unit moves into a location to pick up another unit, it must have at least 1 movement point remaining.

The following rules apply when a unit is carrying another.

- a. Both commanders will know that the unit has cargo.
- b. Carried units cannot fire. Artillery units also cannot plot indirect fire.
- c. If the carrying unit dies, its cargo is also killed.

The unloading process has these rules.

- a. The unloading unit must have enough fuel remaining to drop its cargo. This will cost 1 movement point.
- b. The unloading unit also must move from the drop-off location in the same turn. The unit, therefore, must have enough movement remaining for both the unloading and the movement.
- c. The unloaded unit cannot move or fire until the next turn.

COMBAT

There are three types of ways of inflicting damage (in combat) on your opponent. (Note: The management discourages the throwing of chairs at your opponent!)

Direct Fire: This is a single shot fired directly at an enemy unit. To engage in direct fire, the unit must see enemy directly (LOS) to fire.

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Indirect Fire: Artillery units can fire indirectly as well as directly. Indirect fire can be at an enemy that is out of sight, behind woods or hills, or in towns. The target location must be within the line-of-sight of a friendly unit. Targets also may be locations containing no enemy unit. A player may desire to target towns or woods, for example. He may frequently discover hidden units in this manner.

Close Assault: An unfired armored unit (except mobile artillery) can move directly onto ANY enemy unit. The resulting engagement will cause the death of one of the units. It also may result in damage for the victor, if playing under Partial Kill rules.

The following is a detailed explanation of the above:

Direct Fire

Units can choose to engage in direct fire at least twice and as many as four times during a turn. A unit may only actually fire once during the turn, however.

All units may fire direct fire. Artillery units can only fire direct if they have not plotted indirect fire during this turn.

For a unit to fire direct fire, the following conditions must be true.

- a. The target must be within the effective range of the firing unit.
- b. The firing unit cannot have fired yet in that turn.
- c. The target unit must be in line of sight of the firing unit.
- d. A unit must have spotted the target unit. A unit's seeing an opponent's location (within line of sight) does not mean that it has spotted the opponent. The target may actually be hiding in that location. The act of firing or moving while within the line of sight of an enemy causes the unit to be sighted. Once sighted, a unit remains so until it ends a phase outside the line of sight of any enemy unit.

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- e. Artillery units (including mobile artillery) cannot perform direct fire in the same turn in which they have plotted indirect fire.
- f. Units may not direct fire in the same turn that they are transported.
- g. Units may not fire at night, but they may party.

The target of direct fire has the option to return fire, if it has not already fired that turn. In returning fire, the unit may fire at any eligible enemy unit in range. The targeted unit fires the return shot before the resolution of the original shot. This allows the unit to fire one last shot before its possible destruction.

Indirect (Artillery) Fire

Artillery and mobile artillery may engage in indirect fire. A commander must plan artillery shots before they execute. This plotting occurs in one of two phases. Mobile artillery will plot their shots in the phase immediately before indirect fire resolution. Light and heavy artillery will plot their shots FOR THE NEXT TURN immediately after the artillery resolution phase. This means that a commander must plan his artillery shots VERY carefully.

A player is never required to engage a unit in indirect fire. Units that can use indirect fire also have significant direct fire power. A player must decide this tactical action for the unit during its plot phase. Once plotted for indirect fire, the artillery will be unable to take direct fire for the current turn.

Plotting an indirect shot consists of two decisions. First, the commander must choose the target location. The target specified must be within the line of sight of ANY friendly unit. It also must be within the firing unit's effective range.

In addition to selecting the location, the commander must decide whether to fire a barrage or not. Note that mobile artillery cannot fire a barrage. Barrage fire makes it quite dangerous for units from both sides to enter the strike hex until the next turn.

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All plotted indirect fire will occur during the artillery resolution phase. When the firing unit dies before the indirect resolution, the shot will still strike in the area plotted. In this case, however, barrage effects are cancelled. This shot resolves as a non-barrage shot.

Artillery fire does not always strike the selected target. The shot may drift. The drift may be from 0 to 3 hexes, which varies with the type of unit firing. Drift can occur in any direction from the original target.

Indirect fire destroys a unit in the strike location. The shot also will affect units adjacent to the strike location. Under the Random Kill rules, a light or heavy artillery unit has a 50% chance of hitting an affected unit. The mobile artillery is a little less effective, having a 33% chance to hit the affected unit. If hit, these units will either receive damage (Partial Kill rules) or be destroyed (Full Kill rules). With any of these rules options, surviving units next to the strike location will lose their movement ability for that turn.

Barrage fire will block the line of sight. The barrage also will destroy units entering a location under that barrage. Barrage shots fired by a heavy artillery will continue to affect locations next to the strike location. Units moving into such location will either lose their movement or their existence, as if they were originally adjacent to the strike.

Close Assault

While moving, an unfired armored unit may try to take a location held by an enemy unit. Note that the Mobile Artillery unit cannot engage in this activity. The resulting fight is a Close Assault. It is a battle to the death, as one of the fighting combat units will not survive. If the moving unit is victorious, it will move into the contested location. It also will have used its one direct fire for the turn, and will lose any remaining movement. If the moving unit loses the fight, the enemy unit will remain in the contested location. If this enemy unit has not fired yet during this turn, the fight will use his direct fire shot. His chances of winning, however, are greater if this shot is available.

When playing under "Partial Kill" rules, the victorious unit in a Close Assault may also incur some damage. This damage will never be fatal, but it could be costly.

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The following table shows the chances of the attacker being victorious during close assault when using random rules.

Close Assault
Results Table

Attacker: Defender	AC	LT	MT	HT
AC	40%	50%	60%	70%
LT	30%	40%	50%	60%
MT	20%	30%	40%	50%
HT	10%	20%	30%	40%
BZ	60%	70%	80%	90%
Infantry Engineer Artillery	80%	85%	90%	95%

The following factors can modify this table.

- If defender is in defensive location (city, forest, higher altitude), reduce odds by 10%.
- If defender has fired this turn, increase odds by 20%.

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- If the attacker is more than 50% damaged, decrease odds by 20%. (This applies only to "Partial Kill" rules.)
Odds will not be less than 5% nor more than 95%.
- When using non-random rules, the attacker will be the victor if the calculated odds are more than 50%.

SIGHTING AND SPOTTING

In this era of "low tech" warfare, vision is your most important weapon. Line of sight refers to the calculation of what is visible from a given location. Several factors affect this determination. Various terrain can block your view of areas behind it. In addition, environmental factors may reduce visibility. This limits the maximum distance that one can see.

On a clear day, the maximum visible distance is 25. Fog will reduce the maximum to 10. Night maneuvers operate under a maximum visibility distance of 5.

Units may be in a spotted or unspotted condition. Under "limited view" rules, the battle map will not display unspotted units for the opponent to see.

An unspotted units cannot be the target of direct fire.

All units start in an unspotted condition. A unit changes from unspotted to spotted under specific conditions.

- The unit occupies non-blocking terrain, and an enemy unit has a direct line of sight to the unit.
- The unit moves into or fires from a location in LOS of an enemy unit.
- The unit is next to an enemy unit.

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- If artillery fire destroys the unit, the unit will become spotted. At this point, however, the unit will be a pile of ashes and rubble. It is spotted, however!

A unit reverts to unspotted condition should it end a phase not in the line of sight of any enemy unit.

Note that, except under rule 'a' (above), the unit will become spotted at the end of the phase, not when it causes the spotting to occur.

AMBUSH

The above discussion about spotting leads to the concept of ambush. Unless you are using "Full View" rules, unspotted units are not seen by your opponent. The element of surprise is your ally! While playing "Full View" games, these rules still provide an advantage. Although your opponent will see these unspotted units, he cannot attack them with direct fire. His options are much more limited!

Note that you must play with the "Full View" rules when playing a two-human-player game on a single computer system.

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PLAYING THE GAME

Please review the GENERAL INTERFACE COMMENTS section at the beginning of this manual. Understanding how to manipulate the Buttons, Menus, Requesters, etc. is extremely important.

The following section will detail the major components of the game system.

STARTING A GAME

The start of the program will present you with a menu of start-up options, as follows.

Game start...

Help
About The Perfect General
New game - One computer
Play by modem
Reload saved game
Study battle record
Change hardware configuration
Quit

Each item does the following:

Help

Displays an explanation of available options. You will return to this menu after viewing the help document.

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About The Perfect General

Displays the Game credits and miscellaneous wolf trivia. You will return to this menu after reading about us.

New game - One computer

Requests the start of a new game. This game will use a single computer. Your opponent can be either another person or the computer can play this role. This option does NOT support play-by-modem games. When selected, you will proceed to the Scenario Selection screen.

New game - Modem play

Requests the start of a play-by-modem session. You will proceed to the Terminal-Mode Chat Window. This option will either start a new game or restart a saved play-by-modem game.

Reload saved game

Reloads a game saved during prior play. You will be shown the File Requester from which you select the saved game that you desire. The game will then proceed from the point at which you saved it. NOTE that you cannot restart a play-by-modem game with this selection.

Study battle record

Displays information about completed games. The battle record maintains history for both commanders and scenarios. You will return to this menu after viewing the battle records.

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Change hardware configuration

Allows you to change and save information about your computer system. From the Hardware Configuration screen, you can change the type of Sound System the game uses. You also can change information about your mouse, joystick or modem. You will return to this menu after the Hardware Configuration.

Quit

Ends the game and returns you to the operating system. The use of this option displays a high degree of self-control (or a nagging spouse).

SCENARIO SELECTION SCREEN

From this screen, you can explore the available scenarios and select one to play. The main part of the screen contains a list of available scenarios. To select one, use the <UP>/<DOWN> arrow keys to move the highlight. Using the mouse, you can point at the desired name and single-click with the left button to highlight it.

To the right of the scenario list are the available command buttons. These commands apply to the highlighted scenario. The following commands are available.

Long Description

This button displays a window containing a description of the scenario. Information provided includes the length of the game and the number of buy points available. Details concerning replacements and possible weather conditions are also listed. Tactical hints also may be provided. Selecting EXIT will return you to the Scenario Selection screen.

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Show Map

This command will display the reconnaissance map of the scenario's battle area. Pressing any key or mouse button will return you to the Scenario Selection screen.

Scenario Rules

With this command, you can select the game combat rules that you desire. Note that any changes you make here are 'sticky'. They will remain in effect until you QUIT the program or change them again. Unlike the other available commands, this command does not apply only to the highlighted item.

Selecting SCENARIO RULES will display the Rules Screen. This contains many choices, as detailed below.

Balanced | Player 1 attacker | Player 1 defender

You must select one of these three options. Note that the selected button is INDENTED. A Balanced game is a full match, actually two games with the same scenario. First, Player 1 will play the game, assuming the role of the Attacker. The second game follows, with Player 1 commanding the Defender forces. The results of the match will be a comparison of how a commander performs in each role.

The other options will select a single-sided game. Player 1 can command either side.

Note that in a Human vs. Computer game, Player 1 is the Human player.

Full Kill | Partial Kill

Under Full Kill rules, a unit will always die if hit by Direct Fire. Indirect fire striking the unit or hitting the unit while striking an adjacent location will also kill it.

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Under Partial Kill, units will accumulate damage points. The type of unit firing will determine the degree of damage inflicted. When the damage points exceed the damage limit for the unit, the unit will die. Note that direct artillery strikes will always kill the unit.

Always Hit | Random Hit

This rule will turn on or off the element of luck in the game play. Under the Always Hit rule, every shot fired in range will hit its target. This will provide for a more chess-like game. Units adjacent to indirect fire will also always be hit.

Under the Random Hit rules, each shot fired will have a probability value calculated. The unit types for source and target determine this value. Firing range and terrain effects will change the odds.

Full View | Limit to LOS

With Full View rules selected, all units will always be displayed. Rules concerning sighting and spotting still determine when a unit is a suitable target. This rule negates the surprise factor, however.

Limit to LOS rules will cause unsighted enemy units not to appear on the display. The game will display sighted units that are not yet spotted. These will, however, be displayed with shading to show this.

Note that when playing a Two Human Player game (on a single computer), Full View rules always apply.

Std. Game | Long Game

Each scenario specifies the number of turns that a game will last. Most scenarios actually specify two values, one for the Standard game, and a second for an extended play (long) version. The Long Game will also usually provide more initial buy points for both sides.

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Delays

Selecting this button will open the Game Delay Adjustment requester. With this requester, you can alter the speed of elements of the game presentation. Response Delay affects the time in which you must request Passing Fire or Return Fire, when available. Message Delay affects the speed of animation effects and the length of time that the game will display messages. Setting these values closer to 0 will cause the game to proceed faster.

Note that you also can adjust the Delay values during game play. The Game Control menu will contain an "Adjust Delays" command, which also will open this requester.

Handicap

You may wish to change the balance of a scenario by giving a handicap value to one of the commanders. Selecting this button will open the Handicap requester, which will allow you to change the handicap level. The game applies the handicap by decreasing the number of buy points available to one of the players. This value is set by using the slider in the requester to the desired level. The RESET button in the Handicap requester will reset the value to the center position, which gives neither player a handicap.

Reset

This button will reset all the Rules options to the values last saved. Note that this includes both the Delay and Handicap values as set in their respective requesters.

Use

This accepts the rules as displayed, and returns you to the Scenario Selection screen.

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Save

Selecting this command will write the displayed rules options to your game disk. The game will now use these values by default whenever you run the program.

Play This Scenario

This will begin the game, using the highlighted scenario and the current Rules options. After selecting this command, you will notice a slight pause as the game loads the scenario. After loading, you will specify the type of game you will play from the "Type of Game" menu. These options are:

Person vs. Computer

You will be Player 1, and the computer will command the forces for Player 2. The game will ask for your name. You can then select the level at which the computer will compete. The battle will now begin.

Computer vs. Computer

This is our version of TV Sports Wargame. Sit back, grab a bowl of popcorn, and relax. The computer will play the role of both players and make all command decisions for both sides.

Two Player

Both Players 1 and 2 will be Human commanders. The game will ask for both of your names, and proceed into the playing of the scenario.

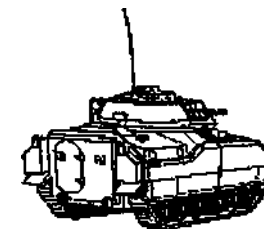
Cancel selection

This command will leave the Scenario Selection screen, returning to the Game Start menu.

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New Scenario Disk

This will allow you to look elsewhere for The Perfect General scenarios. For example, if you have installed the game onto floppy disks, you may have multiple scenario disks. Also, QQP will be releasing new scenario disks for The Perfect General.



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CONFIGURING YOUR HARDWARE

One of the design goals of The Perfect General was to meet your needs and desires for game play. Therefore, there are several options on how you can have the game configured for yourself and your computer. The 'Change Hardware Configuration' option in the main menu controls many of these.

There are actually three requesters available with this option. They are the Hardware Configuration Requester, the Modem/Serial Definition Requester and the Two Player Device Assignment Requester.

The Hardware Configuration requester appears when you select 'Change Hardware Configuration' from the main screen. There are several options here. The first is that you may change the sound driver for your system. This is in the sound options box.

The Serial Ports/Modem box controls how the game will communicate with another computer. This supports playing the game over a modem (or with a null-modem cable). The 'Configure' button brings up a second requester for additional control. See the modem section in this document for more information.

Finally, there is the Input Device box. From here you can say if you wish to use a mouse or joystick (or neither). However, there is one more important feature. The Two Player Device Assignment requester available through the 'Assign' Button in this box.

Two Player Device Assignment

When playing The Perfect General (or any other computer game) on one computer with two people, it can be awkward. Two people trying to give orders with one keyboard can become a battle in itself. We provide a solution when two people are playing on one machine. The Perfect General recognizes three different devices from which each player may give commands. These are the mouse, joystick and keyboard.

You need to decide which player controls these devices at various points in the battle. At any point in the game, a player is either an Active Player or a Passive Player. The Active Player is the player whose "turn" is active. During

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the Direct Fire phase, for example, he is selecting which of his units to fire and choosing their targets. At this point, his opponent is the Passive Player. The Passive Player, however, may need to give Return Fire orders to his units.

This requester allows you to decide which device(s) both players will use during the game. A player may use one device combination while active, and a different combination while passive. Configure it to what feels comfortable for you and your opponent. Note however, that the game does not allow you and your opponent to share the mouse or joystick at any one time. In all but the friendliest of relationships, this could become embarrassing.

TWO HUMANS ON ONE COMPUTER

Designing The Perfect General for use by two humans on one computer lead to some interesting problems. During play of the game, the person whose turn it is (i.e. the Active Player) and the person who is watching his forces destroyed (i.e. the Passive Player) may both wish to communicate with the computer simultaneously. How can this be done in a friendly manner?

We've dealt with the problem in several ways. First, both players can use the keyboard at one time. This is done by placing access to the primary menu key and the passive player's "reactive order" key on both the left and right hand sides of the keyboard. Normally for the primary menu this is the <F1> key and the <BACKSPACE> key. The passive player can use the <> key or the <=> key for Return Fire and Passing Fire orders (when available).

Second, the game is playable with any of the three possible input devices. These devices are the mouse, the joystick and the keyboard. By going into the Hardware Configuration option from the main menu, you may define who controls which device(s). This lets you choose what is most comfortable for both players.

One last design consideration was needed for two player games. There is a single display screen to share by both players. Consequently, hidden units are an impossibility. For two players on one machine, the game always forces the "Full View" game rule.

UNIT SELECTION SCREEN

The top of this screen contains a box that shows the number of buy points you have available to spend. You are also shown the number already spent. Your goal is to use the remaining buy points to purchase units to build or add to your forces.

In the upper right corner of the screen is the Reference Map. This is a small picture of the entire battle area. Red or Blue rectangles on this map show the placement locations available to you. If you are the Attacker this round, then the highlighting is done with RED markers. Highlighting for the Defender uses the color BLUE.

The main portion of the screen contains buttons for each of the available unit types. Note that a scenario may not allow all types to be available. For each unit type available, the display also shows the cost of the unit and the number that you have purchased. This latter number is the total that you have purchased this session. This may not represent the number of that type in your full battle force.

Using the keyboard, you change the selected unit type with the <UP> and <DOWN> arrow keys. The unit type button is INDENTED when selected. To increment the number of units of that type purchased, use the <RIGHT> arrow key. The <LEFT> arrow key decrements the counter. Holding down the proper key will cause the count to increment or decrement repeatedly. The longer you hold the key down, the quicker the value will change.

Using the mouse, point to the desired unit type button and click either LEFT or RIGHT button. The LEFT button will cause the count of selected units to increase. The count decrements when you use the RIGHT button. As above, holding down the button will cause the value to change repeatedly in the requested direction. The rate of change accelerates over time.

You may cause the remaining buy point total to decrement past 0, if you select more units than you can afford. The game will give you "credit" during the purchasing. You may not, however, continue beyond this screen until you correct this. The game will inform you of this if you try to select the DONE command button while you have overspent.

In most situations, you will lose any buy points that you do not spend now. There are a few exceptions. The scenario descriptions found in Appendix A of this manual will detail these exceptions. If you try to leave the Unit Selection with buy points remaining, the game will warn you if you will lose the unspent points.

The lower right corner of the screen contains 3 command buttons. The following explains these commands.

Help

The Perfect General contains "context-sensitive" help throughout the game. This command will provide help on using the Unit Selection screen.

Recon Map

This is an abbreviation for "Reconnaissance Map". Issuing this command will cause the game to display a full-screen view of the battle area. While the map is displayed, you will have available a hidden menu of available commands. You can make the menu visible in the standard ways. The <F1> key or right mouse button will display the menu. The "Help" command, available on the menu, will explain the available commands.

Done

You use this command button to declare that you have purchased all the units you desire, and wish to continue the game. If you have spent more buy points than allotted, you cannot use this command. If you have spent fewer buy points than allotted, the game may show a requester asking you if you are really done. Select the suitable response in the requester. (Note: if you will not lose the buy points, the game will not ask you this question.)

UNIT PLACEMENT SCREEN

After completing the unit selection, you must place your units onto the battle area. The Unit Placement screen appears at this point in the game. It is very similar to the standard Battle Screen (described below).

The only difference from the Battle Screen is the box in the lower right corner of the screen. This box contains icons for the various unit types. The numbers show the number of that unit type remaining for placement. The type you are now placing will have an outline box.

Using a mouse, you can easily select a different unit type to place. Move the mouse pointer over the icon for the type you want to place and single-click with the LEFT selector. Note that the type you select must have at least 1 unit remaining for placement.

Using the keyboard, you cannot directly select a unit type to place. You can, however, use the "Next Unit Type" command (available on the pop-up menu) to cycle through the available types. This command is also available directly by using the Hot-Key <N>.

To place a unit, you select the desired location. This location must be within your placement start area. The Battle Map shows the placement start areas with RED and BLUE outlines. The display uses Red for the Attacker area(s) and Blue for the defender.

Selecting a location is simple. With a mouse, point to the location and single-click with the LEFT selector. From the keyboard, you move the Target Cursor (white hexagonal outline) using the direction keys on the keypad. You select the location shown by the Target Cursor by pressing the <ENTER> key.

To remove a unit already placed, select the location containing that unit. The location will clear and the unit will return to your supply of units for placing. Note that you can only pick up units that you have placed this turn. Any unit that existed in previous turns cannot be moved elsewhere.

When all units have been placed, a requester will ask if you are done with placement. Select the YES button to continue the game. If you desire to re-evaluate your choices, select NO. You can then remove units that you placed and place them elsewhere. In this case, use the "Phase Complete" command, available on the menu.

. Please refer to the section titled "BATTLE SCREEN" for information concerning other controls available on this screen. Particularly important is the section involving scrolling the Battle Map Window.

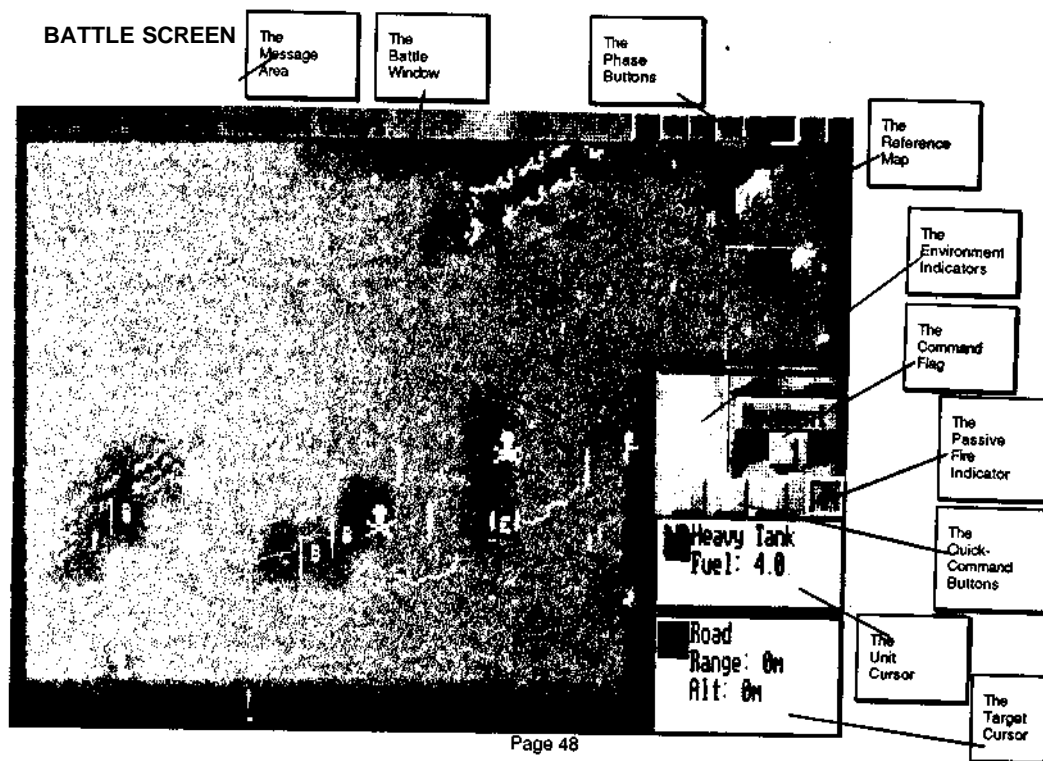
THE BATTLE SCREEN

Most of the game will played with the Battle Screen displayed.

It is from here that the game will ask you to give Indirect Fire, Direct Fire and Movement orders. You also will see the execution of orders given by your opponent. During this time, you may desire to react to the actions of the enemy forces. For example, you may wish to fire at a moving unit. When your opponent fires at one of your units, you may wish to return fire.

Being vital to the play of the game, you must understand the parts of this display screen. This section of the manual will describe the features of the Battle Screen.

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The following describes the elements labeled above.

1. The Message Area communicates with you. A message will inform you of events, such as the result of a fired shot. Another will tell you when you need to give an order.
2. The Phase Buttons will provide you with a quick reference of the progress within a turn. Each button corresponds to one of the turn phases (Placement, Mobile Artillery Plot, etc.). The current phase's button will be RED during the attacker half of the phase and BLUE during the defender half.
3. The Battle Window displays a close-up view of a section of the full battle arena. It is in this area that you will be specifying the targets or destinations of the orders given.
4. The Reference Map, located in the upper right corner of the screen, provides an overview of the entire battle arena. The smaller rectangle within this map corresponds to the section of the arena now displayed in the Battle Window. RED dots represent the Attacker units that are showing. Showing Defender units display as BLUE dots.
5. The Environment Indicators, when shown, will provide a visual reminder of the current conditions (such as night, fog, or rain) in effect. If this area shows nothing, the current turn is occurring during daylight and the weather is superb.
6. The Command Flag shows which commander is giving orders for the phase. It will be RED during the Attacker's turn and BLUE for the Defender. The larger box displays the name of the current phase. The current turn number appears in the smaller text box.
7. The Quick-Command Buttons represent some frequently used orders. They provide a convenient means for issuing the command with a mouse. They're also an easy reminder for the Hot-Key equivalents for keyboard users. The commands available here are "<I>gnore this unit", "<N>ext unit", and "<R>econnaissance Map".

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8. The Passive Fire Indicator is a box containing the letter F. At times, you can order Return Fire when your opponent fires at one of your units. Other times, you can order Passing Fire at a moving enemy unit. This indicator will be GREEN when these orders are possible. It will be GREY at all other times.
9. The Unit Cursor Box displays information about the selected unit, as shown by the YELLOW cursor in the Battle Window.
10. The Target Cursor Box displays information about the unit or location over which the WHITE cursor in the Battle Window is positioned.

Scrolling the Battle Window

The Battle Window is the focus of the battle action. It is only able to contain a section of the full battle area. Note that the Reference Map contains a rectangular outline showing the area currently displayed in the window.

You will want to change the area shown in this window at times. Several methods are available to change the section of the battle map displayed.

Using the keyboard:

The numeric keypad provides the means to specify one of 8 directions. The effect of these directional commands varies, depending on which window on the Battle Screen is active. Both the Battle Window and the Reference Map are windows that can be made active.

The active window will have a YELLOW outline. When a window is inactive, its outline will be DARK GREY. When a mouse is present, the window containing the mouse pointer will be active. Without a mouse, using the <TAB> key will alternate the active window between the Battle Window and the Reference Map.

When the Reference Map is the active window, the direction keys will move the Battle Window in the direction specified. Each keystroke will scroll the window 1 unit in that direction. Using the direction key with the <SHIFT>

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key will increase the scroll amount to 10 units.

When the Reference Map is NOT the active window, the direction keys will cause the Target Cursor to move. The Target Cursor is the WHITE hexagonal outline. It specifies the destination or target of orders.

Moving the Target Cursor near the edge of the displayed area causes the Battle Window to scroll in that direction. As above, using the <SHIFT> key will accelerate the movement per key press.

Using the mouse:

Moving the mouse pointer to the extreme edge of the screen causes the Battle Window to scroll in that direction.

You also can use the Reference Map to scroll the Battle Window. With the mouse pointer inside the rectangle representing the current view, press and hold the left button. Now you can drag this rectangle to a new area within the Reference Map. As you move this rectangle, the Battle Window will scroll its view to follow your movement. Release the left mouse button when you have positioned the view as desired.

You also can point to an area in the Reference Map and single-click the left button. This will move the Battle Window display to show the area you selected.

Available Commands Menu

During play of the game, a hidden menu exists listing the commands available. You can make the menu visible whenever needed by using the <F1> key from the keyboard. Single-clicking of the RIGHT mouse button also will show the menu. NOTE: with the Battle Screen displayed, clicking the RIGHT mouse selector within the Battle Window has a different meaning! To request the menu, be sure the mouse pointer is not within the Battle Map Window.

Each selection on the menu will highlight a single letter as part of the command name. The color of this letter will be WHITE, with the rest of the command name BLACK. This is the keyboard key that you can use to select the

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command. Also, many menu items will have another keystroke highlighted at the right edge of the item, enclosed in [brackets]. This represents the Hot-Key equivalent for the command. You can use this Hot-Key (once learned) directly from the Battle Screen to issue the command. This allows you to issue most commands without having to use the menus.

Many of the available commands are specific to a situation. Other commands will be available throughout the game. We will first discuss the commands always available. Following this section, we will discuss the specific commands that relate to individual game phases. Note that the Hot-Key equivalents are shown next to the command name, enclosed in brackets.

These commands are always available, except where noted.

Help [CONTROL-H]

Quick aid is within easy reach. The game will provide help specific to the situation.

Ignore Unit this Phase [I]

Use this command to choose not to give an order to the active unit during this phase. The computer will not ask you again for an order for this unit until the next phase. You can specifically select this unit during the phase, however. Refer to the "Select Unit" command for more information.

This command is not available during the Unit Placement phase.

Next Unit [N]

This command permits the temporary bypassing of the selected unit. The computer will move to the next available unit, and prompt for an order. It will reselect this unit later in this phase.

This command is not available during the Unit Placement phase.

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Select Unit [S]

This command issues an implicit "Next Unit" order for the selected unit. You then can choose to which of your units you wish to give an order. If the Target (white) Cursor highlights a unit that can receive an order, that unit becomes selected. Otherwise, the game asks you to select the unit.

Display Control [D]

Many options are available with this command. With them, you can control the type of information available on the Battle Screen display. A secondary menu will appear showing the following options.

Window Display ON | OFF [W]

The Battle Screen display has a limited area available for the actual Battle Map window. This allows room for the information provided at the right side of the screen. However, you might prefer seeing a wider section of the Battle area. If you turn the Window Display OFF, the Battle Map will use the entire width of the screen. This command is a toggle. If the Window mode is ON this command turns it OFF. Similarly, if the Window mode is OFF, the command turns it on.

Victory Points ON | OFF [V]

This command toggles the display of Victory Point values next to the Towns on the Map.

Artillery Targets ON | OFF [CONTROL-T]

This is also a toggle command. When enabled, the targets of all of your plotted indirect fire orders will be shown. You will not see your opponent's targets with this command.

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Show LOS [L]

Issuing this command will put the game system into a special "View Line of Sight" mode. This mode allows you to explore the sighting capabilities from various locations. The play pauses while this mode is active, and a new menu of commands is available.

Show LOS[L]

Tells the game to display sighting information from a specific location. This is the default state if "View Line of Sight" mode begins with the "Show LOS" command from the Display Control menu. You also may select it when the game is displaying the locations visible by all of your units.

The computer calculates line of sight from the perspective of the Unit Cursor (yellow) position. Using the keypad direction keys or the LEFT mouse selector, you can move this cursor to a new location. The computer will now calculate and display new sighting paths from that location.

The display will shade locations that are not visible from the cursor location.

LOS of All Units [A]

This tells the game to show the locations that are visible to any of your units. This is the default state if this mode begins with the "LOS of All Units" command from the Display Control menu. You also may select this when the game is showing the sighting from a specific location.

The display will shade locations that are not visible to any of your units.

Exit LOS View [E]

This will allow you to exit from "View Line of Sight" mode. The game can now proceed.

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LOS of All Units [CONTROL-L]

This command is the same as the previous (Show LOS) command. It also will put you into the special "View Line of Sight" mode, as explained above. The only difference is the type of information that the map displays initially. Please refer to the above discussion.

Center Screen [C]

This command will cause the area displayed in the Battle Window to center the Unit (yellow) Cursor on the display. This changes the area displayed in the window. It does not move the cursor to a new location.

Hex Grid ON | OFF [CONTROL-G]

This command toggles the displaying of the underlying hexagonal grid on the Battle Map. Remember that the game bases all range and movement values on this grid. Turning this option on allows you easily to see these distances. It also will slow down and clutter the display. Most people will find that this is unnecessary once accustomed to the game system.

Recon Map [R]

This command requests the game to display the Reconnaissance Map. This is a full-screen size map showing the entire battle area.

A rectangular outline will show on the map, representing the section of the area that is now visible in the Battle Window. This rectangle is movable. Moving it will cause the Battle Window to scroll to the new position when you exit the Recon Map display.

From the keyboard, you can move the rectangle with the keypad directions keys. The <SHIFT> key will cause the rectangle to move in larger steps. Using the mouse, press and hold the LEFT selector with the pointer inside the rectangle. Drag the rectangle to a new location.

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Several options are available to show various pieces of information on the Map. Note that scaling on this map is approximate. A menu is available, containing the following options.

Units Display ON | OFF [U]

When on, the map shows RED rectangles representing the attacker units. BLUE ones represent defender units.

Victory Points ON | OFF [V]

When on, the map will show Victory Point values next to the towns for which they apply.

Note that you cannot display both Victory Points and Map Labels together.

Reinforcement Area ON | OFF [R]

PURPLE rectangles represent areas that may earn reinforcements. Consult the scenario's documentation for more information concerning available reinforcements.

Neutral Countries ON | OFF [N]

When enabled, locations containing WHITE rectangles show the Neutral Countries, if any.

Map Labels ON | OFF [M]

When turned on, the map will show the names of Cities and Towns. It also will show the names of other significant geographical formations.

Note that you cannot display both Victory Points and Map Labels together.

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Exit Recon Map [E]

This command returns you to the Battle Screen. If you have moved the rectangular outline on the Recon Map, the Battle Window will contain the new area.

Game Control [G]

This command also provides several options, presented as a secondary menu. Note that most of these options do not have an available Hot-Key command.

Save Game

This command allows you to save the current state of the game to disk. You can later reload this saved game (from the Game Start menu). The game will restart at the point saved.

Selecting this command causes the display of the File Requester, asking you to supply the name for the file. Note that the file-name extension of ".SVG" is forced by the program.

After saving the game, a requester will appear asking if you wish to exit the game. Responding NO will return you to the game. An answer of YES will end the current game and return you to the Game Start menu.

Adjust Delays

This command allows you to change the Message Delay and Response Delay values. These values (and the associated requester) were discussed in detail in the Game Rules Screen discussion. Please refer to that discussion for more information.

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Sound Volume ON | OFF

This command toggles the sound effects. Note that the command will not do anything if you have set your Hardware Configuration to use No Sound.

Long Description

This will cause the game to display the scenario's Long Description in a Requester. This is the same "Long Description" command available on the Scenario Selection screen.

Show Current Score

This command will display a requester showing the current Victory Point totals. Since the game only counts Victory Points at the end of a turn, the totals will be the values as of the end of the previous turn.

Show Rule Options

A requester will show the Game Rules used in this game. If you frequently play the game with different rules, this provides a quick reminder.

Quit Game [CONTROL-Q]

This command allows you to end the game prematurely. We recommend that you save the game before using this command. The Battle History will not record any games ended prematurely.

Upon selecting this command, you will see a requester containing three options. "Continue" provides a way to cancel the "Quit Game" command and returns you to the game. "Exit Game" will return you to the Game Start menu. "Quit to DOS" will end the program and return you to your computer's operating system.

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Phase Complete [CONTROL-P]

This causes the game to give implicit "Ignore Unit this Phase" commands to all of your remaining units. The game will now proceed to the next cycle. If you are the Attacker, this will be the Defender's half of this phase. Otherwise, the Attacker's half of the next phase will be next.

These commands are specific to the Unit Placement phase.

Next Unit Type [N]

You can place a different type of unit than the type you are now placing. The computer will cycle through the types remaining to be placed. Note that this command will not do anything if you only have a single type of unit remaining.

These commands are specific to the Mobile Artillery Plot phase.

There are no commands specific to this phase.

Note that giving the "Ignore Unit this Phase" will permit the unit to receive a Direct Fire order later this turn.

These commands are specific to the Artillery Resolution phase.

No commands are used in this phase, as the computer has full control during this phase. The computer automatically will execute Artillery orders that were set earlier.

These commands are specific to the Artillery Plot phase.

There are no commands specific to this phase.

Note that giving the "Ignore Unit this Phase" will permit the Artillery unit to receive a Direct Fire order later this turn. It will also be possible for one of your armored units to transport the Artillery unit.

These commands are specific to the Direct Fire phases.

Next Target [SPACE]

When asking you for a Direct Fire order, the computer will automatically choose the target with the highest chance of success. This target may not, however, be the best tactical target. Using this command, you can cycle through all available targets. Note that the probability of success appears in the Target Cursor Info Box, ' in the lower right corner of the screen. Targets with a 0 percent chance are not available targets.

These commands are specific to the Movement phase.

Sentry Duty [Y]

This command tells the computer not to ask about moving the current unit again. Once given, this command is effective for the remainder of the game. You can explicitly change this order, however, by using the "Select Unit" command to select the Sentry unit.

Note that the computer will automatically cancel a Sentry order if all remaining units have been given a Sentry order.

Load Transported Unit [T]

This is only available when the selected unit can transport the unit occupying its current location. Please refer to the Game Rules section that discusses Transport. Issuing this command will cost 1 movement point.

Unload Transported Unit [T]

This command will only be available if the selected unit is transporting another unit. It also must have enough movement points remaining to move from its current location after spending 1 movement point to perform this command. Please refer to the Transport rules section of this manual.

Build Bridge [B]

This command will only be available when the selected unit is an Engineer positioned on a River location. Building the bridge will take 2 turns, during which the Engineer cannot move.

Destroy Bridge [B]

This command will only be available when the selected unit is an Engineer positioned on a Bridge. Destroying the bridge will take 2 turns, during which this unit cannot move.

Build Mine Field [M]

This command will only be available when the selected unit is an Engineer. Building the mine will take 1 turn. Note that an Engineer cannot build mines in Cities or on Bridges.

Disarm Mine Field [M]

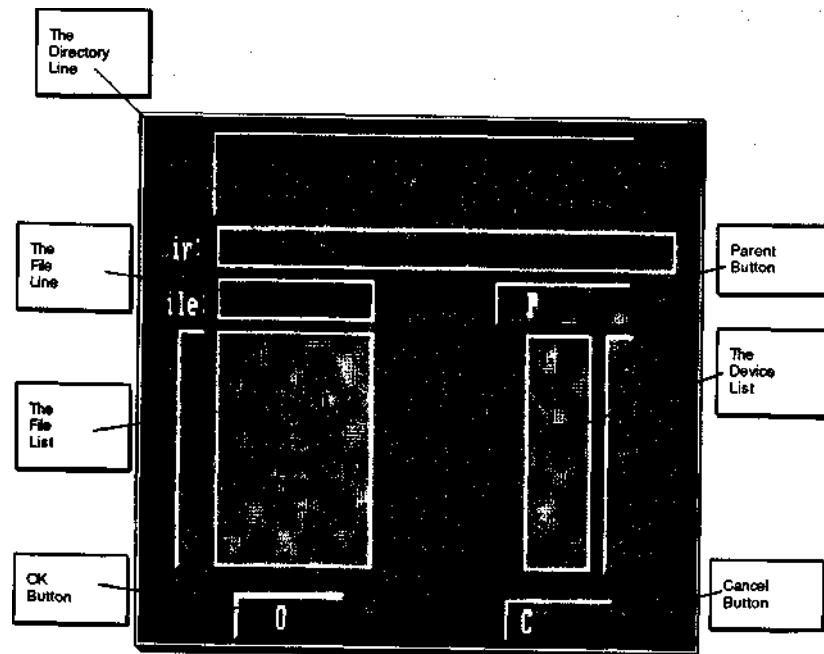
This is available when the selected unit is an Engineer located in a position containing a Mine. Disarming the mine will take 1 turn. Note that the Engineer is the only unit type that can move onto the Mined location without damage.

These commands are specific to the Scoring phase.

No commands are used in this phase, as the computer has full control during this phase. The computer will update and report the score.

USING THE FILE REQUESTER

The file requester is a special requestor designed to make saving and loading saved games as painless and flexible as possible.. This section of the manual will describe the features of the File Requester.



The following describes the elements labeled above.

1. The Directory Line

This line displays the current drive and directory to which we will save the game or from which we load it. You can change several ways. Selecting a directory from the file list box will "move" to that directory. Selecting the Parent button will move back one level. Selecting a new drive from the device list box will move to that device.

The directory line is also editable directly by either selecting the string with the mouse, or hitting the <D> key. Then use the keyboard to edit the string. After editing, the <ENTER> key will select the new directory. The <Escape> key will abort back to the last Directory Line with the mouse will select the edited text.

2. The File Line

This line displays the current file name used in saving or loading a game.

The file name also is editable directly, similarly to the Directory Line. To select it, just click in the File Line with the mouse, or use the <F> key.

3. Parent Button

This button selects the parent directory of the current directory.

Note the File List Box and the Device List Box are controllable by the arrow keys. To switch between boxes from the keyboard, use the <TAB> key. The requester highlights the active box in yellow.

4. The File List Box

This box shows all of the subdirectories and saved games in the current directory. Subdirectories are shown ending with the \ character. If more names exist than fit in the list box, you can scroll the names with the arrow keys or using the slider bar.

To select a file to load or save to, use the mouse or the arrow keys. Select once and the name moves to the File Line. A second mouse click or the <ENTER> key will confirm your choice. Select the file name in this manner, and the game loads or saves the file.

To enter a subdirectory, just select it as you would select a file.

5. The Device List Box

This box displays all the current devices on your system. To change to a different device, select the entry desired in the same manner as selecting a file or subdirectory.

6. OK Button

This button selects the current file displayed in the File Line.

7. Cancel Button

This button allows the user to abort saving or loading the game.

PLAYING BY MODEM

INTRODUCTION TO MODEM PLAY.

The play-by-modem ability allows two-player competition with a hidden unit factor. (Note that hidden units are **not** possible when two human-players are playing on the same system). The connected systems must continually synchronize with each other. This is because a player can give orders while his opponent is in command. This may cause the game-play to appear slower than when playing on a single system.

CONFIGURATION.

To use the play-by-modem features, you must have enabled the modem (or direct connect) features. You specify this initially during the game installation procedure. You can always change this from the Hardware Configuration screen. Select CHANGE HARDWARE CONFIGURATION from the Main Menu.

There are two areas within the Hardware Configuration that concern the play-by-modem feature. The first is on the main Hardware Configuration Screen. Here you will tell the program where it will need to speak to the modem or null-modem. (A "null-modem" is special cable used to connect two computers directly.)

For the Amiga system, you will specify the "device-name" and "unit number" for the serial port you will be using. The default values of Device "serial.device" and Unit "0" use the standard, built-in serial port. This is part of every Amiga system. If you are using an add-on serial-port card or an internal modem, you will have to change these values. Please consult the documentation for these peripherals to determine the needed values for those devices.

For MS-DOS systems, you will be selecting the proper COM port name for your system. The game supports COM1 through COM4. You select one of these in the same way that you would set up a telecommunications (terminal) program. Both the Port Address and IRQ (interrupt) number will default to the standard values associ-

ated with the COM port you select. You may have to change these values for a non-standard system. The values supplied will work for 99 percent of serial-port cards. You should not change them unless you know what you are doing. Setting these to an incorrect value can cause unpredictable and undesirable results.

This first part of the configuration process involves telling the game where to talk to the communications hardware. The second part of the process will tell the software how to communicate with the connected system. You access the second set of options by selecting the "Configure" command on the Hardware Configuration screen. This command will display the Modem/Serial Definition screen. You will see four groups of options available on this screen.

1. We are talking to what type of device?

There are three buttons on the screen used to answer this question.

Not Connected

This means that our serial port does not connect to anything. If this is the selected option, the game will not allow play-by-modem use.

Direct

This choice tells the game that you are connecting directly to a second computer using a null-modem cable.

Modem

Selecting this button tells the game that we will be using a modem (and telephone line) to call up another computer system. With this option selected, the program can aid you in dialing the phone. The program also can answer the phone for you if your opponent calls you.

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2. How fast can we send and receive information through the serial port?

You may be familiar with the technical term for this, which is "baud rate". This value must be set to match that used by the computer system with which we are connecting. Values supported are 300,1200, 2400, 4800, 9600, and 19200. Note that many computer systems will have difficulty at the highest rate (19200), and some slower systems may have difficulty at 9600. We recommend that you use 9600 baud on both systems when using a direct connection. When using a modem, we recommend that the rate used is the highest rate supported by the modems on both systems. In either case, if problems occur try using a lower baud rate.

3. How are "characters" of data sent?

Those of you who have used modems for a while, the "data-bits, parity, stop-bits" settings are familiar. They are confusing to many users, however. The play-by-modem design of this game does not need the use of "parity" for error checking. We recommend that both systems use the 8N1 setting (8 data-bits, no parity, 1 stop bit). In a few rare instances, you may need to use one of the other settings. Unless you know this, it is safe to use 8N1.

4. What are the basic commands used by your modem?

This section of the configuration only applies if you are using a modem to connect to your opponents system via telephone. The default values used by the program are the commands used by "Hayes-compatible" or "AT-command-standard" modems. This includes most modems in use today for Personal Computers. Consult the documentation provided by your modem manufacturer for the specific commands that you may need.

The program will send the command strings to the modem as entered, with a few exceptions.

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The 'carat' character (^) is a special modifier to specify a control character. A control character is a special value that a letter, number, or punctuation character cannot represent. You can "type" a control character by holding down the <CTRL> key on your keyboard and pressing another key. The game will not allow you to use this <CTRL><key> method to enter a value into the command strings, however. We use the '^' character instead. For example, the character sequence "^M" is the way to specify holding down the CTRL key and pressing the M key. This sequence, <CTRL><M>, is the same as hitting the return key. Computers frequently use this to represent the end of a line of text.

The other "special" character used in the Modem Command strings is the tilde (~). The program does not send this special character to the modem. Instead, using this character in a Modem Command String tells the program to wait 1 second. After this wait, the program uses the next character in the command string.

The game requires the following commands.

Modem Command Suffix

This is not a real modem command. It tells the program how to say "this is the end of the command I just sent you." The default is "^M" which is the same as the <ENTER> key.

Modem Initialization

This command should set your modem to a ready-to-use condition. The default, "ATZ", puts a Hayes-standard modem into its default configuration.

Modem Dial Prefix

This is the command sent to the modem to tell it to dial the phone. The program sends the phone number you provide (when asked) after this command prefix. The default, "ATDP" tells the "standard" modem to dial, using pulse dialing. If you have a touch-tone phone system (and a standard modem), you will want to change this command to "ATDT".

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Modem Hangup Command

This command will tell your modem to hang up the phone.

Modem Auto Answer

This will tell your modem to answer the phone. The default command, "ATSO=2", tells the modem to answer the phone when you receive a call. You should send this command to the modem before your opponent calls you.

You have now set the Modem/Serial Definition options as needed. Select the "OK" button to return to the Hardware Configuration screen. Selecting "Save" on this screen will make your changes permanent. The "Use" command will use your changes for this session only.

Starting a Play-by-Modem Game

To play The Perfect General with a second computer system, select "Play by Modem" from the Game Start menu. (NOTE that you cannot use "New Game - One Computer" or "Reload Saved Game" for modem play).

When you select the "Play by Modem" option, you will see a large grey window. Either three or six command buttons are at the top of the window. You are now in Terminal Mode, similar to a standard communications program. The program sends all characters that you type through your serial port to the modem (or null-modem). The program also will display any characters received from the serial port on your screen. From this screen, your goal is to connect with your opponent's computer. Then the two of you need to decide the type of game you will be playing, etc.

You will find command buttons at the top of the window. You can easily select one of these buttons with the mouse in the standard way. The standard method does not work with the keyboard, however. This is because the program will send any normal keystrokes typed to the serial port. The program will not recognize them as a command selection. Otherwise, the program might be confused if you tried to send a "hello" to your opponent.

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Were you trying to select the HELP command? To select any of the command buttons by keyboard, you will use the <ALT> key. Holding the <ALT> key down, press the "hot-key" value corresponding to the desired command. For example, to select the HELP command, hold down the <ALT> key and press the <H> key.

The 6 command buttons available are:

Help

As we have already discovered, help is available with a simple command.

Echo | No Echo

This command is a toggle. The program is using Echo mode when the button label is "No Echo". The "Echo" label displays when the program is not using this mode.

If you only use The Perfect General to call another computer running the same program, you can ignore this command. The program will work well with the default used on both systems.

You will need this command only if you are connecting indirectly, using a system such as CompuServe™ or GEnie™.

Some computer systems automatically send back characters that they receive. If the computer called does this, you will see the characters that you send to it when the remote system echoes back. If your program also displays the characters as you type them, you will see each character twice. The program will first show the character that you type. It will then send the character to the other system, which echoes the character back to you. When your program receives this echoed character, it will display it again, since it displays all characters received from the other system.

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If you are seeing this double-character condition, use the "No Echo" command. This tells the program not to display characters as you type. The program will still display them when the other system echoes them back to you.

The opposite is also true if the remote system is not returning the echo. If the program is expecting the other system to use echo, words that you type will not appear on your screen. Simply use the "Echo" command to tell the program to display what you type.

Hangup

This requests the program to command the modem to hang-up the phone. You will only need to use this command after you have connected with the remote system. Note that this button is only available if the program thinks that you have a modem on the serial port.

Answer

This command will put your modem into "answer the phone" mode. You should select this command if your opponent is going to call you. This command is only available when connected to a modem.

Dial

This command will cause your system to tell the modem to pick up the phone line and dial a number. When you select this command, a requester will ask you for the phone number to dial. When you are making the call, your opponent should have put his system into "answer the phone" mode. Only one of you can make the phone call.

Play/Quit

This command will exit Terminal Mode. Note that when one player selects this command, both systems will process it. The program then displays a menu, offering the following choices.

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New Game - Primary Control

In play-by-modem mode, The Perfect General requires that one of the two computers be the "Primary" system and the other the "Secondary" system. There are some minor differences between the two, but there is no real advantage to either. You and your opponent must, however, decide which of you will be Primary before you begin play.

The player on the Primary System will be Player 1. Player 2 is the opponent on the Secondary System. Player 1 will be selecting the scenario to play. He also will choose which Rules Options are used. The game will inform Player 2 the choices made. He has the option of either accepting or rejecting the choices. He cannot change them, however.

New Game - Secondary Control

Please refer to the above description. You will use this option when your opponent is using the Primary Control selection.

Reload Saved Game

You restart saved games from earlier play-by-modem sessions using this option. Some restrictions apply, however. The games must have been saved on BOTH systems. They also must have been saved at the same point in the game. The program will automatically verify that the reloaded saved games do match.

Please note that you cannot simply copy a single saved-game file to the remote system. One copy of the game must be from the Primary System and the other from the Secondary System.

Back to Chat Mode

This command will return you to the Terminal Mode window.

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Exit Play-by-Modem

Using this command will return you to the main, Game Start menu. This ends your use of the modem. You can then start a new single-system game, or end the program.

Starting a new game, either you or your opponent will have chosen to be the Primary Control system. The other has chosen the Secondary Control option. The game will now ask for your names. We are now ready to begin the game.

We first need to select a scenario to play. The player on the Primary system will now see the Scenario Selection screen, showing the list of available scenarios. The use of this screen was described previously. After having set the Scenario Rules options and chosen the scenario, the player selects the "Play This Scenario" button. The program will now send his choices to the remote (Secondary) system.

The player on the Secondary system will now see the Scenario Selection screen. It will, however, only contain one scenario name in the list area. This player can use the available commands like "Show Map" or "Long Description". He also can view the rules chosen with the "Scenario Rules" command. He cannot, however, change any of the Rules options on the Scenario Rules screen. After having examined his opponent's choices, he has the option of either Accepting or Rejecting. The "Play This Scenario" button accepts the game choices. The "Cancel Selection" command will reject the offering.

Once you have agreed to scenario and rules, the game will proceed like a single-system game. Both players will purchase and place their initial forces, and the battle will begin.

There are very few differences between two-computer and one-computer games. The game will have minor additional delays. The two computers must inform each other every time an event occurs.

Two additional commands are available during play-by-modem games. These commands do not appear on the command menus. They are only available using Hot-Keys.

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<CONTROL><C>

This command is available whenever your computer is waiting for an action from the remote system. It is for EMERGENCY USE only. This command will cancel the game immediately. You cannot recover the game once you have used this command. You may need it, for example, if you lose the phone connection to the remote system. This command may take a long time to complete, as the program is still trying to talk to the other computer. Here, it is trying to tell that system that you have issued this command. If the connection has really been lost, it can take as long as 2 minutes. Eventually, the program will decide that no one home on the other end of the line. At that point, the game will end and you will see the Terminal Mode window again.

<F3>

At any point in the game, you can use this command to talk to your opponent. This command opens a smaller version of the Terminal Mode window on both systems. The game pauses temporarily and you and your opponent can type messages to each other. When you are ready to resume play, select the "Continue" command button. Remember that you must use the <ALT><C> keys to select the command with the keyboard. The Continue command will close the Chat Window on both systems, so only 1 player needs to select

This chat command is very handy! In the heat of battle, superior tactics often require the use of correct name-calling technique!

Saved Games and Play-by-Modem

As explained above, modem-mode saved games must match to be restartable. The program tries to make this easier for the players. One player chooses to save the game, using the same procedure as used for a single-system game. This causes the sending of a message to the other computer system. The program on the second system then tells the player, and requires him also to save the game. The File Requester appears and the player must provide a name for the saved game. Note that the names used for the saved file do not have to match on both systems.

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When saved in this manner, the two files (one on each system) match. The players can then reload the game and restart at this point in the game.



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Appendix A.

SCENARIO DESCRIPTIONS AND MAPS AND ADVICE.

1. FIRST BATTLE - 6 turns-An introductory level game, where the selection of units is limited to infantry and bazookas.

Attacker: Simply move forward, attack and fire: Try to take Leadville as quickly as possible.

Defender: You can get to Leadville sooner than your opponent. If you can hold out you will probably win the game.

2. A NEED FOR SPEED -6 turns-Considerably more involved than First Battle. No artillery or engineers are available to you. For both sides light armor and it's good use can make the difference.

Attacker: Quickly getting behind your opponents lines to his towns in the rear is vital. Punching through anywhere and rapidly moving forward will not only garner those extra town points, but will keep the enemy scampering, to constantly re-group.

Defender: You must hold everywhere. If you can prevent the enemy forces from breaking through you will probably win the day. But this is one of those contests that a strong attack at some point could really upset his apple-cart. He will be thinking you should be defending and all of a sudden your attacking. It might work.

3. TWO COUNTRIES, ONE ISLAND -6 turns-This is a tough one for the attacker. No artillery available. Engineers can come in mighty handy in this scenario.

Attacker: Your work is cut out for you. To take Bristol in the first couple of turns is a must. The taking of the rest of your opponents towns in the allotted time is the real challenge. Be sure to use a little defense for your own towns.

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Defender: You have many options. Everything from mounting a strong attack at one point on the front line to merely delay tactics. If you have the courage to make a very strong stand at Bristol (which will make you weak everywhere else), there is a good chance you will easily win the game. But this is not your only option. A very slow tactful delay and withdrawal should work for you. Try destroying the bridges, with engineers, well behind the front lines.

A SIMPLE LITTLE WAR - 7 turns - The selection of all units is available in this scenario. And a balanced choice of forces works well for both sides in this particular contest.

Attacker: An aggressive push at one or two spots on the front line is not a bad idea. The enemy's artillery can give you considerable trouble. So when you move forward, do so quickly. Counter artillery on his artillery may help. You can't be a whimp as the attacker or you could lose this battle.

Defender: Artillery should serve you well. But it is expensive (buy pts.) and cannot move without being carried, but if used carefully, you could give the attacker a real hard time. To really make your day try a major attack on Moscow. If you succeed your opponent probably will not be able to adjust in time. But if you make such an attack, this means that you are paper thin in defense all over the rest of the map. And your friendly attacker will know it.

RUMBLE IN THE JUNGLE -10 turns - A true challenge for both sides. Mines are not available in your initial unit selection (they can be built by engineers throughout the course of the game). Heavy artillery is not available during the game at all. There is limited visibility the first two turns of the game due to fog. The attacker starts the game strongly outnumbering the defender, but the defender receives reinforcements (75 pts.) on the second turn. These reinforcements can come on any road at the edge of the map in the north (upper) or the east (right) side of the battlefield.

Attacker: To win this one you must move through the woods at times, not just down the roads. Mobile artillery will help you soften up his ambush positions. You should attack on all fronts almost evenly. On you have secured the general center road area you can selectively decimate any pockets of resistance.

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Defender: You've got a tough one here. Use a couple of light artillery to create choke points on the roads. But be careful, is they should drift in the first couple of turns you could be in big trouble. To attack at any point in this scenario will not be wise for you. Delay is the key word. If you can keep him at a near stand still until your reinforcements (75 pts.) come on in the second turn (north and east edges at any of the roads) you will do alright. Don't be afraid to take heavy types of units in that second turn. (Heavy tanks and medium tanks).

6. **BOMBARD** -10 turns - This scenario is one grand artillery dual. Tanks, mines, and bazookas are not available. Turn one is a fog situation (low visibility). The defender receives replacements (50 pts.) on the third turn. These replacements will come on the northwest corner (upper-left) of the map.

Attacker: You start with overwhelming forces over your opponent, so move it out. Capture as many towns as soon as possible before your opponent starts receiving his reinforcements on the third turn. Mobile artillery will come in handy in this scenario as well as a sprinkling of heavy artillery.

Defender: Using the few artillery that you can afford to bring on, in a judicious manner, could turn the battle in your favor Trying to attack, even a mini attack, may prove unworthy. Use those replacements in the northwest corner, on the third turn wisely, it is only 50 pts.

7. **CAUGHT IN THE MIDDLE** - 8 turns - Both sides have many options in this one. Starting turn 2 each side will receive 10 pts. of replacements for each town they hold.

Attacker: Going for the two big point towns of Bilboa and Valencia will certainly render a lot of points, but there are a lot of small towns (100 pts.) in the lower right of the map that whoever owns them will get a lot of replacements. Don't be afraid to attack on two fronts. There may not be enough time to clean out one side and then reconnoiter to fight the other side.

Defender: You are in a good position to launch a little attack somewhere, to throw off some of your opponents plans. You might have two goals - a. protect the two high pt. towns (Bilboa and Valencia) and

b. hold as many of the small point towns as long as possible to get those much needed replacements. But after all is said and done, a good and solid defense may be best.

8. **THE LONG AND WINDING ROAD** - 8 turns- A classic frontline confrontation. The defender will get reinforcements (100 pts.) in the sixth turn at the two roads (Chosan and Mopko) at the top of the map (if they are not blocked by the attacker).

Attacker: One possible strategy is to drive straight up the middle, split his forces and go for the two replacement roads at the top of the map. Be careful not to get bogged down in the extreme left of the map because of enemy artillery fire. At times you may have to drive straight through the woods to get to his artillery units. Heavy artillery may be of some assistance to in this scenario.

Defender: Artillery can be a very powerful weapon for you in this scenario. Don't forget to use those engineers to build mines and/or destroy bridges. Make sure you forcefully hold at least one of those replacement roads to get your sixth turn units (100 pts.). They will not win you the game, but will come in handy in regaining some lost territory. Your most vulnerable region is the center of the map. Defend accordingly.

9. **AN ISLAND AT PEACE** -11 turns. One tough invasion situation. Mud on turns 6 and 12 (half movement rate off road). For defender only, on fourth turn 20 pts. replacements per turn if he controls Cherbourg and fifth turn 10 pts. per turn if he controls Caen. Neutral country - Whoever invades it, his opponent will get 100 pts. that he can set up in the just invaded country.

Attacker: You have so many options. Most combinations of beaches, if done right, will work. Trial and error is in order here depending on your playing style. Do not invade the neutral country on the first few turns, because with the extra 100 pts. your opponent will receive, plus his initial army, it will be too much to deal with. If and when you do decide to invade the neutral country be sure you have him well outnumbered in that area. Also try to capture Cherbourg and Caen as soon as possible to prevent him from getting his replacements. You are going to have to move fast in this scenario.

Defender: Defend everywhere, yet somehow establish a significant force to be able to deal with his massive invasion. One way you may do this is to have a fluid and mobile reserve at map center to be able to re-act to wherever he invades. This often works. To invade the neutral country during any part of the game usually is not a good idea for the defender. Once your replacements come on, don't hesitate to counterattack.

10. **IN THE MIDDLE AGAIN** -11 turns. Starting third turn replacements will come on at the roads exiting the map in the northwest (from Louisville) and southeast (from Clarksville) and at the town of Chattanooga at the rate of 20 pts. per turn for the side that controls (with a unit) these locations. There will be fog on the first turn and every third turn thereafter. There are also two neutral countries ripe for the picking.

Attacker: The most obvious tactic would be to take Chattanooga and the two exit roads as soon as possible, to gain control of the replacements. If you do this early enough and start to get globs of new units, you will have no problem invading the neutral countries with their lucrative points. Don't take the defender for granted, because he just may be planning to dominate one end of the map to get these replacements for himself.

Defender: Use engineers. Use mines. Use artillery. Gang up on one end of the map. With some wise planning and slick maneuvering the defender has a good chance of winning this scenario. On rare occasion the defender had a good enough position to be able to invade a neutral country. Use the fog that occurs every third turn to your advantage.

11. **ALAMEIN** - 8 turns. The great Africa Corp. The attacker gets replacements starting second turn and every other turn thereafter on the eastern edge of the map and the defender gets replacements on the third turn and every other turn thereafter on the western edge of the map. Heavy artillery is not available in this scenario.

Attacker: A two pronged attack - a full southern sweep and a head on assault up the coast, should serve you well. Quickly get to and destroy his artillery and you should be able to have a field day. Don't delay in occupying all those little 25 pt. forts, because by game's end they all add up.

Defender: You are going to have to hold on all fronts. If he breaks through on the southern flank it will be curtains for you. If he punches through up and along the coast, your supply and replacements will be

threatened. Fast moving units may be the order of the day. Any kind of counter-attack for you may be out of the question in this scenario (even though it has been done and done successfully).

12. **DIVIDE AND CONQUER** -12 turns. One wild scenario. Both sides start at random locations scattered throughout the map. All towns are neutral territory. To capture any town you must (invade) attack the tiny force that your opponent will set up in and around the town. Any towns on the coast (starting turn 5) will get 15 pts. replacements per turn for whoever controls them. (These towns are Cawnpore, Jaunpur, Nasirabad, Sitapur, and Madhoganj). Night will fall every seventh turn. Mines are not available in your initial unit selection (but they can be built by engineers during the game).

Attacker: Somehow get to those ports, and on the way capture as many towns for points as possible. This is truly a wide open game. It would be smart to establish a frontline situation as soon as possible to be able to make a concerted attack as well as protect what you already own. A balanced unit selection would be wise.

Defender: You must try and prevent your opponent from getting to those supply ports as well as taking some yourself. Light artillery and mobile artillery may be the thing to use extensively in this scenario, with a sprinkling of heavy artillery. Concentrate on one of his strong points and keep pelting him. This may either delay or confuse him long enough to give you a victory.

13. **PATTON KICKS BUTT** -12 turns. Attacker will periodically get replacements at the top of the map. Defender will receive replacements on the bottom, left and right sides of the map throughout the course of the game, This is one intriguing scenario for both sides.

Attacker: Simply attack across the entire front vigorously. He will be doing things like destroying all those beautiful bridges and laying mines. So you may need a few engineers along the way. Try to make at least one break-through to swing around and disrupt his rear guard, because he is likely to only infantry in those hinterland towns.

Defender: Load up those behind the lines towns with low cost units (infantry) to start scoring for them immediately. This may make you very weak everywhere else so be careful. You will be getting a lot of reinforcements all during the game, but if he breaks through you will have a tough time counterattacking and regaining any territory you lost. As defender it won't be easy but with careful maneuvering you can win the battle.

14. GOING FOR THE GOLD - 10 turns. Attacker chooses 2 beaches and defender 4 beaches. Both will come on only 2 beaches. There will be additional invasion forces for both sides on the fifth turn and this time each side will be able to invade on 1 beach. Every fifth turn is night. Mud on the seventh turn (half movement off road). Starting on the third each side will get 10 Pts. of replacements for each town they control. The one neutral country will have 125 pts. to be used if invaded.

Attacker: In this scenario both sides have to be aggressive in order to have a chance to win, but the attacker has to be a little more so. Invade with a solid punch and you will do well. Almost any combination of beaches can render you a victory if played right.

Defender: Your opponent is strong, so take as much territory as quickly as possible before you get into any kind of defensive posture. Use heavy artillery to disrupt his movement and even to cause him to lose victory points in his towns. Armored cars can be quite effective in this scenario (moving through the desert).

OVERALL STRATEGIES AND TACTICS

One of the first things to master in strategy and tactics in 'The Perfect General' is selecting the appropriate combat units to fit each scenario. In one game artillery is a must, but in the very next game artillery would generally be a waste of time. To learn this will take trial and error. But meanwhile it should be interesting to experimenting with all the combinations. Don't be afraid to use a lot of one specific unit in certain situations. Usually a balanced selection works best, but we have seen some wild games where the players used 90% of their forces as

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armored cars or 80% heavy tanks/20% medium tanks or 70% infantry types/30%light tanks. There are many combinations that have been theorized but not yet used.

Armored cars are great for transporting artillery and infantry types. They are the fastest moving unit that you have and, with any breakthroughs, can prove to be most valuable in getting behind your opponents lines. But they have the least fire-power of the mobile units and they are the easiest to destroy. Use them to carry infantry close to potential enemy ambush locations to be flushed out. If your enemy artillery has blown out units in towns behind your lines, armored cars can quickly scamper back to regain those towns for your victory points.

Tanks: Light, medium and heavy tanks are the heart and soul of your forces. Heavy tanks move slow (roads become important with these units), but they fire at long ranges, are hard to destroy, and have devastating fire power. They also eat up those buy points quickly. Use your lights to clear the way for the mediums and heavies. If you control any hill top with a couple of mediums or heavies sitting there, you will have a field day. But if your opponent has any artillery within range of that hilltop, he just may have a field day too. So be careful.

Artillery: Light artillery is a good unit when you are on the defense. It is more accurate (less chance of drift) than the other types of artillery. It is good for destroying bridges, blocking roads (interdiction) and when located right behind your front line, it can be devastating in killing or delaying concentrated enemy units. Heavy artillery has a much longer range and as such it is less accurate than light artillery. If you were lucky this artillery could control an entire flank for you, when you're on the defensive, but if you were unlucky (a lot of drifting) that whole flank could collapse right before your very eyes. Use it sparingly, because it is inaccurate and costly (buy pts.). Mobile artillery is even more inaccurate, but can be a valuable unit if used right. When you are the attacker it is great for firing into possible ambush positions or into your opponents tightly grouped forces. As defender it may be used as a delaying play and to destroying bridges.

Infantry Types: Infantry themselves are inexpensive and are used best for holding towns for those victory points, as spotters for your artillery fire and for seeking out enemy ambush units. Bazookas are best used on defense. If there should be a breakthrough against you, when he gets to your hinterlands it can be a significant surprise to find bazookas in your back towns instead of infantry.

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As the attacker in 'The Perfect General', generally speaking, it is best to keep plunging forward, as you usually have your opponent outnumbered. Sometimes attack across the entire front and other times punch through in one or two particular areas with strength. Remember in some regions of the map you may have to defend properly as you are attacking elsewhere. Never lose sight of the real objectives - the towns and their victory points.

The defender may just have a whole new book of thinking. In most situations a good solid defense will be the order of the day. But to really confuse your opponent once and a while launch a small offensive somewhere on the battlefield. This will usually make you very thin in other areas, but it may work. Try it. Light artillery and mobile artillery can help the defender a great deal. Heavy artillery is much less accurate. In all games be sure to get units in all the towns you initially own at the start of the game to score victory points quickly. Re-supply points become vital to the defender, because you always start outnumbered. Figure out the key road junctions for movement and lob some artillery barrages (interdiction) on them. If and when you per chance weaken a flank or his middle counterattack. He'll never regroup. There have been occasions (in the long game) where the defender conquered the whole battlefield. Though rare, it was certainly exciting to see this unfold.

This game, though simple to play, will take a lot of enjoyable practice to master. Maybe a lifetime!!

Appendix B. UNIT ATTRIBUTE TABLES

Table 1 - Units Chart
* May be carried by vehicles.

Unit Type	ID	Cost	Speed	Range						Damage to Destroy	Damage Inflicted on Enemy
				AC	LT	MT	HT	Other	Bombardment		
Armored Car	AC	5	9	6	3	1	-	6	-	3	2
Light Tank	LT	6	6	8	6	4	2	8	-	6	3
Medium Tank	MT	8	5	10	8	6	5	10	-	8	4
Heavy Tank	HT	12	4	13	11	8	6	13	-	15	6
Mobile Artillery	MA	14	4	13	11	8	6	13	11	6	6
Light Artillery	LA	9	0*	13	11	8	6	13	13	1	6
Heavy Artillery	HA	20	0*	13	11	8	6	13	26	1	6
Infantry	IN	1	1*	1	1	1	1	5	-	4	2
Bazooka	BZ	3	1*	8	6	4	2	8	-	4	3
Engineer	EN	5	1*	1	1	1	1	5	-	4	2

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Table 2 - Probability of Hit Table

Range to Target	Range to Target													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Armor, Bz, Artillery	90%	80%	71%	63%	56%	50%	45%	40%	35%	32%	28%	25%	22%	18%
Infantry v/s														
Armor	10%													
Infantry	75%	65%	50%	35%	20%									
Engineer v/s														
Armor	50%													
Infantry	65%	50%	35%	20%	10%									

Terrain modifies the above table. Targets in cities and forest normally have their chance of being hit reduced by 20%. Altitude advantage modifies the hit probability by 10% for the unit with the height advantage.

Appendix C

HOT-KEY COMMAND REFERENCE

Quick Reference hot keys for the Perfect General

(* = not available in unit placement screen)

Normal Play Key Controls:

C.....Center screen around current unit*
D.....Display control menu
E.....Exit LOS view*
G.....Game control menu
Control-G... Hex grid toggle ON/OFF*
I.....Ignore this unit*
L.....Show line of sight for current unit (LOS)*
Control-L ... Show line of sight for all units (LOS)*
N.....Next unit; return to this unit later*
Control-P... Phase complete
Control-Q...Quitgame*
R.....View reconnaissance map
S.....Select new unit*
Control-T ... Artillery target toggle ON/OFF*
V.....Victory points toggle ON/OFF*
Y.....Sentry unit*
ARROWS ..Moves cursor across battle map*
TAB.....Toggles between battle map and recon map on screen* (only works if mouse not activated)

Commands Specific to Direct Fire Phase:

RETURN ...Selects target at the current cursor location*
SPACE.....Cursor moves to next possible target*

Commands Specific to Movement Phase:

B.....Build bridge/Destroy Bridge (Engineer only)*
MBuild/Disarm minefield (Engineer only)*
T.....Load/Unload unit onto or off of vehicle*
W.....Window display toggle ON/OFF*

Reconnaissance Map Options

E.....Exit Reconnaissance Map
U.....Units display toggle ON/OFF
M.....Map labels toggle ON/OFF
N.....Neutral countries toggle ON/OFF
R.....Reinforcement Area toggle ON/OFF
V.....Victory point toggle ON/OFF

Commands specific to the Unit Placement Phase

N or SPACE.....Next Unit type
RETURN.....Place unit

Appendix D BIOGRAPHIES

About the Authors

Mark Lewis Baldwin

Previous rumors had it that Mark was born on the three hundred and twenty-second planet of Betelgeuse where in his second year he was stolen away by space gypsies. But a great deal of research by QQP has proven that this is impossible since said planet is missing. Therefore, we must conclude that the more unlikely possibility that he was born in Detroit Michigan in 1952 must be believed.

Anyway, Mark spent a semi-normal life growing up in Michigan, Indiana, Alabama, Japan, Georgia, Germany and Florida. It was during this time that he picked up an interest in strategy games of which he claims that he now has over 600. College was next on the agenda, where Mark received both Bachelors and Masters degrees in Engineering in 1974 from Purdue University. It was also during this time that Mark picked up his interest in computers. That was due to the fact that as a freshman, one could avoid taking drafting by taking a computer class.

Since Uncle Sam had paid for Mark's four years at Purdue, Mark had to return the favor at SAC Headquarters in Omaha Nebraska. From this, he learned everything there was to know about Soviet ICBM's which has been of absolutely no value in designing The Perfect General.

Realizing this failure of value, Mark left life in a Blue suit to work on the Space Shuttle Program in Houston Texas in 1979. There he worked on shuttle flights for seven years. It was during this time that Mark also started his own business and got involved with the Computer Entertainment Industry. Having been bitten by the publishing bug, Mark has never desired to leave.

As such, in 1986 Mark left the Shuttle Program to move to Colorado to work on entertainment software full time. It was during this time that he co-authored the award winning EMPIRE, along with many other products.

So now, Mark is still wasting away on the computer and spending his free time in the mountains panning for gold.

Bob Rakosky

The year 1951 marks the beginning of the world as we know it. Bob was born and raised in New London, Connecticut, the home of submarine races and the world's best submarine sandwiches (known locally as grinders). The public school system in that community breathed a collective sigh of relief when, in 1969, Bob graduated from New London High School.

Bob next attended Clark University and Winter Camp, in Worcester, Massachusetts. Having studied a wide spectrum of subjects while at Clark (computer science being one noticeable exception), Bob graduated magna cum laude in 1974. He received a BA degree in Mathematics, with a minor in Education.

Thus armed and prepared for the world, Bob took a job as a math teacher at a private boarding school for emotionally-disturbed adolescents. After three years of this emotionally-draining life style, Bob decided to pack his bags (both of them) and move on. After a few twists and turns, Bob found himself working as a potter in Boston. Earning the grand total of \$.50 per pot, paying the rent was a challenge. With this great motivation, our story takes a significant turn as Bob found a job as a computer programmer at a major bank in the Boston area. Never having used a computer before was not a problem. This bank had an 8-week training program that taught the basics of programming in COBOL. Bob was now a real "programmer" - it said so in his job title so it must be so!

Lucky for us (and for The Perfect General), Bob was a quick learner and managed to mine the needed knowledge on his own, and eventually became a real programmer. He was still faced with a few dilemmas, however. First, he could never figure out which of the three pieces of the suit he should wear. Also, he just couldn't find a good taco in Boston. These, combined with an innate sense of wanderlust and an appreciation of terrific skiing, brought our hero to Denver, Colorado. Here, his professional advancement continued as he worked in a number of organizations as both Applications and Systems programmer. Computers, of course, were "mainframes" and were controlled by "Information Systems Departments". It did pay the bills, however.

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Bob discovered personal computers in about 1982. Here was a tool that was "almost as powerful" as a mainframe, but did not have "departmental policy" controlling its use! One could actually enjoy this tool! Play with it! Accomplish nothing with it, if desired! Real "power to the people"!

With the publication of a hard disk backup utility (saf-T-net) for the Amiga in 1987, Bob got his first taste of commercial software development for personal computers. Even though it didn't come close to paying the bills, it tasted great! Bob then connected with Mark Baldwin, and eventually contracted to create the Amiga conversion of Mark's successful Empire.

After another conversion project, Bob decided to concentrate full-time on personal computer software, and gave up his "real job". In 1990, Mark and Bob together formed White Wolf Productions. They found the synergy of the partnership to be powerful! Perfect General is the first project produced by that team, but it won't be the last!

Bruce Williams Zaccagnino

Born sometime within the last century Bruce has been playing and designing games of the 'third kind' for a longer time than that. Bruce was designed and created in New Jersey and was also raised there. He even lives there now. (What a great place this New Jersey is).

Attended Rutgers U. and Rider College. Then worked at insignificant jobs and read most of the great literature of the world (in his twenties) in search of the meaning of life. Having (so he thinks) found the meaning of life (art and hard work) Bruce embarked on building the World's Largest Model R.R. It is nearing completion. Annual showings to the public has brought over 80,000 people in attendance. (Proceeds go to local charities.) A quick rundown on size. Takes 81 men to operate. Over 13,000 feet of track. Over 1000 switches. It is the size of a football field. 15 foot mountains. Over 400 bridges, some of which are 17 feet long and 6 feet high. The scale is H O.

His love of games is no less than model railroading. A game designer from way back and his introduction to computer games in 1985 coupled with the latest improvements in graphics and interface in the last few years

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sparked his enthusiasm to port some of his ideas to the computer medium. Thus the creation of The Lost Admiral and The Perfect General.

Bruce Williams Z is also a concert musician. He performs on the theater pipe organ. He has several recordings that he has successfully sold around the country. He is the owner of an installed 5 manual 39 rank theater pipe organ where he does most of his recordings.

Jean, Bruce's wife is convinced that each night, while he is sleeping, Martians are communicating new thoughts and ideas for the R.R., his music, and games. Bruce vehemently denies this!!

Well if you are still reading this long-winded story, Bruce Williams is still living in N.J., practicing the organ for upcoming recordings, working on the model railroad, and designing and publishing quality computer games.

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