

Contents

1.0 The Main Program

1.1 The Menu

- 1.1.1 The File Menu
- 1.1.2 The Phase Menu
- 1.1.3 The Units Menu
- 1.1.4 The Assault Menu
- 1.1.5 The Reinforce Menu
- 1.1.6 The Status Menu
- 1.1.7 The Display Menu
- 1.1.8 The A/I Menu
- 1.1.9 The Modem Menu
- 1.1.10 The Options Menu
- 1.1.11 The Help Menu

1.2 The Dialogs

- 1.2.1 The Target Dialog
- 1.2.2 The A/I Action Dialog
- 1.2.3 The Order Dialog
- 1.2.4 The Strength Dialog
- 1.2.5 The Objectives Dialog
- 1.2.6 The Victory Dialog
- 1.2.7 The Locations Dialog
- 1.2.8 The A/I Selection Dialog
- 1.2.9 The Artillery Dialog
- 1.2.10 The Organization Dialog
- 1.2.11 The Schedule Dialog
- 1.2.12 The Arrived Dialog
- 1.2.13 The Jump Window
- 1.2.14 The Modem Settings Dialog
- 1.2.15 The Communications Dialog
- 1.2.16 The Dial Dialog
- 1.2.17 The New Modem Scenario Dialog

1.3 The Hex Information Area

- 1.3.1 The Terrain Info Field
- 1.3.2 The Unit List
- 1.3.3 The Status Bar

1.4 Other Features

- 1.4.1 Using The Mouse
- 1.4.2 Accelerators
- 1.4.3 Auto Movement
- 1.4.4 Auto Target
- 1.4.5 Drag and Drop
- 1.4.6 The Tool Box

1.4.7

Auto Scrolling

1.0 The Main Program

The Battleground Ardennes [Main Program](#) is normally invoked by double clicking on a scenario icon. The scenario icon executes the main program and passes to it the name of a subdirectory containing the scenario information.

At startup, the program looks for the following files in the scenario subdirectory:

- [main.map](#) - map information
- [main.oob](#) - the order of battle
- [main.pdt](#) - scenario parameter data
- [main.org](#) - organization information
- [main.ai](#) - AI parameter data
- [main0.bmp](#) - the map in low-resolution bitmap format
- [main1.bmp](#) - the map in medium-resolution bitmap format
- [main2.bmp](#) - the map in high-resolution bitmap format
- [jump1.bmp](#) - the jump map in 2D
- [jump2.bmp](#) - the jump map in 3D

The following files must exist in the main Battleground Ardennes subdirectory:

- [splash.bmp](#) - Talon Soft logo
- [cover.bmp](#) - cover graphics
- [icons1d.bmp](#) - 1D icons
- [icons2d.bmp](#) - 2D icons
- [icons3d.bmp](#) - 3D icons
- [terrain.bmp](#) - terrain graphics
- [units.bmp](#) - unit graphics
- [weather.bmp](#) - weather graphics
- [blankbox.bmp](#) - unit list graphics
- [phasebox.bmp](#) - next phase graphics
- [animat3d.bmp](#) - 3D animations

After the main program is invoked, a battle can be loaded by using the [File Menu](#).

The main program display has a menu bar at the top which is used to invoke most features of the program. Under the menu bar is the map display. The map display will have scroll bars if the map is too large to be displayed in the available area. Under the map display is the [Hex Information Area](#). This area is used to display information about the status of the program and specific hexes on the map.

1.1 The Menus

These menus are associated with the Battleground Ardennes program:

The File Menu

The Phase Menu

The Units Menu

The Assault Menu

The Reinforce Menu

The Status Menu

The Display Menu

The A/I Menu

The Modem Menu

The Options Menu

The Help Menu

Command hints for each menu item are displayed in the status bar at the bottom of the main window when the item is selected.

1.1.1 The File Menu

The **File Menu** is used to start new battles and to load and save previously started battles.

To start a new battle, select the **New** menu item. A file selection dialog will appear so that the starting scenario can be selected. By convention, a starting scenario has the extension scn. Scenarios are usually named for the day of the battle.

To load a previously saved battle, select the **Open** menu item. A file selection dialog will appear so that the file name of the battle can be specified. By convention, a battle file has the extension btl.

To save a battle that has been started new or loaded from a file, select the **Save** menu item. If the battle has never been saved, a file selection dialog will appear so that the file name of the battle can be specified. A battle file should be saved under a file name with extension btl. Note: in general it is a good idea to save a battle periodically and not wait until exiting before saving the battle. Saving the battle protects against its loss due to accidents such as power failures and allows for recovery in the event of a mistake in the use of the program.

The **Save As** menu item can be used to save a battle under a file name other than the one that currently is being used for the battle. This allows the current state of a battle to be saved in another file without affecting the file being used for the battle.

The **Snapshot** menu item can be used to save a map of the current situation including the currently spotted units to a file. A file selection dialog will appear so that the file name of the graphics file to be generated can be specified. The created graphics file can be viewed or printed with any standard graphics application.

The **Exit** menu item is used to exit the program. If the current battle has changed since the last time it was saved, then a dialog will appear giving the option to save the battle before exiting.

1.1.2 The Phase Menu

The [Phase Menu](#) is used to advance the phase. Selecting the menu item [Next](#) causes the battle to advance to the next phase. The phases are:

- [Prep Fire Phase](#)
- [Movement Phase](#)
- [Defensive Fire Phase](#)
- [Offensive Fire Phase](#)
- [Assault Phase](#)
- [Mechanized Phase](#)

In each turn, there are 12 such phases: 6 under the control of the Allied side and 6 under the control of the Axis side. The first side to move in any turn is determined by the parameter data associated with the scenario. For example, if the Axis side is the first to move, then the 12 phases of a given turn would be:

- Axis Prep Fire Phase
- Axis Movement Phase
- Allied Defensive Fire Phase
- Axis Offensive Fire Phase
- Axis Assault Phase
- Axis Mechanized Phase
- Allied Prep Fire Phase
- Allied Movement Phase
- Axis Defensive Fire Phase
- Allied Offensive Fire Phase
- Allied Assault Phase
- Allied Mechanized Phase

At the beginning of a Prep Fire Phase for a given side, internal calculations are performed to determine such events as recovery from disruption and spotting.

At the end of a turn, the time is advanced by an amount that depends on parameter data associated with the scenario. Typically a turn is 10 minutes long.

A scenario ends on the last phase of the turn once the time limit has been reached. The time limit associated with a scenario is shown after the current time in the [Status Bar](#).

The [Skip To End](#) menu item is used to mark the current battle for scoring, display the [Victory Dialog](#), and exit the main program. If the current battle is being played with one side under A/I control and if the main program was entered via the Front End interface program, then selecting this menu item will cause the score for the current battle to be recorded in the Hall of Fame.

1.1.3 The Units Menu

The [Units Menu](#) is used to change the state of selected units and to initiate air attacks. Before changing the state of units, the units must be selected using the [Hex Information Area](#). Most changes to selected units can only occur during the Movement Phase by the controlling side and are subject to limitations as a result of the internal rules and movement allowances.

The [To Top Of Stack](#) menu item will move the selected units to the top of the stack. This can be done by the controlling side at any time.

The [To Bottom of Stack](#) menu item will move the selected units to the bottom of the stack. This can be done by the controlling side at any time.

The [Load/Unload](#) menu item is used to either load units into carrier units, or to load units which are currently being carried. To load units, first select both the units to be loaded and the units to be used as carriers. To unload units, the carrier is selected from the Unit List. After selection of the units, the Load/Unload menu item is invoked.

The [Air Attack](#) menu item is used to initiate an air attack on an enemy unit. Air attacks can be initiated during the Movement Phase by the controlling side provided that side has air attacks available. The number of air attacks is displayed in the alternative information area of the [Terrain Info](#) area. The hex to be attacked should first be selected by clicking on the hex with the left mouse button. Next the Air Attack menu item should be selected or a keyboard [accelerator](#) pressed. If there are multiple targets in the selected hex, then a [Target Dialog](#) will be displayed. If the initiation of the air attack is successful, an airplane icon will appear in the target hex. Air attacks are automatically resolved at the beginning of the next Offensive Fire Phase.

The [Artillery Dialog](#) menu item is used to display the [Artillery Dialog](#). This dialog is used to select artillery units during the Prep Fire Phase.

The [Undo Last Movement](#) menu item can be used to undo the last movement. It can also be used to undo the total move generated by a single [Auto Movement](#).

1.1.4 The Assault Menu

The [Assault Menu](#) is only used during the Assault Phase by the controlling side. To conduct an assault attack, a defending hex must first be selected using the right mouse button. A special icon is drawn on the selected hex indicating that it is the hex being attacked.

Each group of units that is to attack in this assault must first be selected using the [Hex Information Area](#) and then added to the assault using the [Add to Assault](#) menu item. Attacking units must be adjacent to the defending hex and satisfy all other internal rules for assaults.

After all attacking units have been selected, the assault can be resolved by selecting the [Resolve Assault](#) menu item. This will resolve the assault according to the internal rules and a dialog will be displayed showing the results of the assault. If the defending units are eliminated, the attacking units will automatically occupy the defending hex.

The [Show Odds](#) menu item can be used to review the odds associated with the current assault.

1.1.5 The Reinforce Menu

The **Reinforce Menu** can be used to determine what reinforcements are scheduled to appear in the current scenario and to determine what reinforcements have arrived and are available to be placed on the map.

The **Scheduled** menu item displays the Schedule Dialog. This dialog is used to display the reinforcements that are scheduled to arrive during the current scenario.

The **Arrived** menu item displays the Arrived Dialog. This dialog is used to display the reinforcements that have arrived and are available to be placed on the map.

1.1.6 The Status Menu

The **Status Menu** can be used at any time to display information about the current status of the battle including strength, objective, and victory information. Selecting the **Strength** menu item causes the Strength Dialog to be displayed. Selecting the **Objectives** menu item causes the Objectives Dialog to be displayed. Finally, selecting the **Victory** menu item causes the Victory Dialog to be displayed.

1.1.7 The Display Menu

The [Display Menu](#) is used to control how information is displayed on the map.

The [Units Off](#) menu item toggles the display of units on the map. When this item is checked, the position of units on the map is indicated with a hollow outline. This option is used to be able to view the underlying map terrain better.

The [Unit Bases Off](#) menu item toggles the display of bases under units in the 3D graphics. When this item is checked, units are drawn on the 3D map without their oval base.

The [Specials On Top](#) menu item is used to control the display of special counters such as forts and mine fields on the map. When this item is checked, special counters will be displayed on top of the stack of units. When this item is unchecked, special counters will be displayed on the bottom of a stack.

The [Objectives](#) menu item is used to control the display of objective hexes on the map. Objective hexes are scenario-specific hexes with assigned values that are used to determine victory and defeat in a given scenario. When this item is checked, objective hexes will be displayed with a special icon. Objective values are also displayed in the [Terrain Info](#) area of the main program.

The [Locations](#) menu item is used to display the [Locations Dialog](#). This dialog can be used to find specific locations on the map. Locations can also be displayed on the map itself by pressing and holding either Shift key.

The [Hex Outlines](#) menu item is used to control the display of the hex outlines on the map. When this item is checked, hex outlines will be shown on the map.

The [Find Org](#) menu item is used to display the [Organization Dialog](#). This dialog is used to display specific organizations on the map.

When the [Spotted Units](#) menu item is checked, all enemy units on the map that are currently spotted will be displayed with a highlighted border.

When the [Fired/Fought Units](#) menu item is checked, all units on the map that have either fired at an enemy unit or fought in an assault during the current phase will be displayed with a highlighted border.

When the [Moved Units](#) menu item is checked, all units on the map that have moved during the current phase will be displayed with a highlighted border.

When the [Disrupted Units](#) menu item is checked, all units on the map that are disrupted will be displayed with a highlighted border.

When the [Indirect Fire Units](#) menu item is checked, all units capable of firing using indirect fire will be displayed with a highlighted border.

When the [Organization](#) menu item is selected, all units in the same organization as the first selected unit in the current stack will be displayed with a highlighted border.

The Spotted, Fired/Fought, Moved, Disrupted, Indirect Fire Units, and Organization menu options are mutually exclusive so that selecting one of these will clear any of the others that have been previously selected. During the Assault Phase, if no other highlight options have been selected, then units which are Attacking will be highlighted.

The [Zoom Out](#) menu item is used to change the display resolution of the map. When the map is "Zoomed Out", a low resolution map is displayed that allows more of the map to be shown on the screen.

The [Normal View](#) menu item restores the map resolution to the original setting.

The [Zoom In](#) menu item is used to change the display resolution of the map. When the map is "Zoomed In", a high resolution map in isometric perspective is displayed that shows more detail on the screen. In this view, units are shown as physical entities and have a facing associated with them. This facing is only used for display purposes and has no impact on combat or movement. The facing of a unit is automatically changed as a result of movement. It may also be changed manually using keyboard [Accelerators](#).

When the map is zoomed in and out, the map is scrolled to display the current Hot Spot near the middle of the map.

The [Rotate Tool Box](#) menu item causes the orientation of the [Tool Box](#) to be toggled between vertical and horizontal.

1.1.8 The A/I Menu

The [A/I Menu](#) is used to invoke the "Artificial Intelligence" capabilities of the program. When A/I is in effect, some or all of the decisions for a particular side will be made by the software and the software will automatically carry out the appropriate actions such as firing and moving. The A/I feature can be used in three modes: Manual, Semiautomatic, and Automatic. Each mode can be applied independently to each side: Allied and Axis.

In [Manual A/I](#) mode, the user makes all decisions for a particular side and is responsible for making all moves and firings for that side. This is the default mode.

In [Semiautomatic A/I](#) mode, the user will be prompted to make certain high-level decisions for that side, but the software will automatically take care of all low-level actions such as moving and firing. In this mode, the user plays the part of the overall commander of that side, but does not have to get involved with the details of carrying out the orders.

In [Automatic A/I](#) mode, the software takes care of all decisions and actions for that particular side. This mode is appropriate when the user wants to take one side and have the software play the role of the other side.

An additional option that can be applied to Automatic A/I mode is [Fog-of-War](#). In this mode, only the units that can currently be spotted for that side will be displayed on the map. If units hidden by Fog-of-War are encountered during a move phase, then they are displayed using question mark graphics. These units will be displayed in full detail at the beginning of the next phase.

The current A/I mode for a scenario is saved and restored from the battle file. The [Activate A/I](#) menu item is used after A/I processing has been interrupted to restart the A/I from the point it was canceled. Even when a phase is not under the control of A/I, A/I processing can be activated through the remainder of the phase using the Activate A/I menu item.

The [Order Dialog](#) menu item is used to display the [Order Dialog](#). This dialog is used to specify orders for a side in Semiautomatic A/I mode.

The message "A/I Control" will be appended to the phase description in the [Status Bar](#) when that phase is under the control of A/I processing.

1.1.9 The Modem Menu

The [Modem Menu](#) is used to establish and manage a modem connection with another computer for modem play. In modem play, one computer will be the "host" and the other computer will be the "caller". The host is responsible to starting new battles and reading and writing existing battles. The user on the caller system is responsible for supplying an encryption key which is used to encrypt the battle file on the host system. Battles which are currently being played under modem play are saved with the extension ".btx" and have a different format than ordinary battle files. Battles being played over a modem may be played either with Fog-Of-War on or off. This option is decided at the beginning of the battle by the user on the host system. The [Communications Dialog](#) supports a "chat" capability which allows the two users engaged in modem play to communicate with each other.

While using modem play, each computer system will either be under Local Control or Remote Control in each phase. While under Local Control, the user can perform actions normally and these actions will be communicated to the remote system. While under Remote Control, a user is prevented from making changes to the battle and is dependent on the remote system for the actions that take place. The current status of Local or Remote Control is listed as part of the phase description in the [Status Bar](#).

The [Host](#) menu item is used to establish a computer system as the host for modem play. After establishing communications parameters, the host system is put into a state where it will accept outside calls from the caller system.

The [Caller](#) menu item is used to establish a computer system as the caller for modem play. After establishing communications parameters, the user on the caller system then specifies a phone number to dial and an encryption key to use to encrypt and decrypt battle files.

The [New Encryption Key](#) menu item is used by the user on the caller system to establish a new encryption key. This new key will be used for all subsequent reads and writes of battle files by the host system.

The [Resync with Remote](#) menu item is used whenever communication problems between the host and caller cause the current battles being played on the two systems to get out of sync with each other. Either side in modem play can initiate a resync using this menu item. It should only be used when the users decide that the current battle has become out of sync.

The [Communication Dialog](#) menu item is used to reestablish the [Communications Dialog](#) after it has been closed by the user. The [Communications Dialog](#) is automatically opened once modem play has been established and will be automatically opened whenever there is "chat" communication from the remote system or if communication lags cause the

number of messages waiting to be sent to the remote system to reach 20.

1.1.10 The Options Menu

The [Options Menu](#) is used to control certain options associated with the main program. The setting of these options is saved in the initialization file [bga.ini](#) located in the Windows directory. Changes to these options will carry over to subsequent executions of the main program.

The [Introduction](#) menu item controls the playing of the introductory material at the beginning of the main program.

The [Beep on Error](#) menu item toggles the option that causes the program to beep when the user makes an error.

The [Blink Hot Spot](#) menu item toggles the option that causes the Hot Spot indicator to blink on the map.

The [Smooth Scroll](#) menu item toggles the option that causes the map to be scrolled smoothly when a new Hot Spot is displayed by the main program. When this option is disabled, the map will be redrawn directly at the new Hot Spot location without scrolling through the intermediate hexes.

The [Sound Effects](#) menu item toggles the playing of sound effects associated with various actions of the main program.

The [Video Effects](#) menu item toggles the playing of video effects associated with various actions of the main program.

The [Graphical Unit Icons](#) menu item toggles the display of unit icons between graphical and schematic versions.

The [Graphical Unit List](#) menu item toggles the unit list display between graphical and standard list versions.

The [3D Dialogs](#) menu item toggles the appearance of the main program dialogs between the enhanced 3D appearance and the standard Windows dialog appearance.

The [Dialog Help Buttons](#) menu item toggles the appearance of Help buttons in the dialogs used by the main program.

The [Auto Save](#) menu item toggles the auto-save option. When the auto-save option is in effect, the current battle is automatically saved before the phase is advanced except for phases under A/I control.

1.1.11 The Help Menu

The [Help Menu](#) is used to get information about how to use the Battleground Ardennes program, about the battle being fought, and about the program itself. The [General Help](#) menu item invokes the Windows help program using the Battleground Ardennes general help file. The [Unit Handbook](#) menu item invokes the Windows help program using the Battleground Ardennes unit handbook file. The [Parameter Data](#) menu item invokes the Windows help program using a help file with information about parameter data specific to the current battle. The [About Battleground Ardennes](#) menu item displays a dialog with certain information about the Battleground Ardennes program including version and copyright information.

1.2 The Dialogs

These dialogs are associated with the Battleground Ardennes program:

The Target Dialog

The A/I Action Dialog

The Order Dialog

The Strength Dialog

The Objectives Dialog

The Victory Dialog

The Locations Dialog

The A/I Selection Dialog

The Artillery Dialog

The Organization Dialog

The Schedule Dialog

The Arrived Dialog

The Jump Window

The Modem Settings Dialog

The Communications Dialog

The Dial Dialog

The New Modem Scenario Dialog

1.2.1 The Target Dialog

The [Target Dialog](#) is displayed whenever a hex is fired upon that contains more than one different target unit.

The Target Dialog displays the list of possible target units. An entry from the list should be selected by clicking on it with the left mouse button and the [OK](#) button pressed. Alternatively, when the buttons are not displayed, a target can be selected by double-clicking on the entry with the left mouse button.

A unit which appears in the Target Dialog as a grayed entry is one that cannot be fired upon by all firing units due to range limitations.

If the [Cancel](#) button is clicked on or the Escape key pressed, then no firing will occur.

1.2.2 The A/I Action Dialog

The [A/I Action Dialog](#) is used to display the results of A/I processing. By default, the dialog will appear in the lower right corner of the screen and the map will be scrolled to bring the corresponding portion of the map to the center of the display. The Dialog will reappear in its previous position each time it is displayed.

The A/I Action dialog has [Step](#), [Run](#), and [Cancel](#) buttons. The [Step](#) button is normally the default and will be outlined in black. The user has the option of clicking on any button with the mouse, or invoking the default button by hitting return. If the user invokes the [Step](#) button, then A/I processing will continue until the next A/I step. If the user invokes the [Run](#) button, then A/I processing will continue until there are no more A/I actions for that phase. Clicking on the Run button a second time while the A/I Action dialog is displayed turns this option off. The user can select the [Cancel](#) button to halt the A/I processing before it terminates for that phase. Alternatively, the user can press the Escape key to cancel the A/I dialog while it is visible on the screen. If the A/I dialog is terminated, then the [Activate A/I](#) menu item from the A/I Menu should later be selected to resume the A/I processing at the point it was canceled.

1.2.3 The Order Dialog

The [Order Dialog](#) allows the user to specify the order for a turn when a particular side is in Semiautomatic A/I Mode. The Order Dialog lists the organizations of the current side. As an organization is selected, information about the organization and any order currently given to the organization are displayed. The information displayed about an organization includes the size of the organization in units, the percentage of those units that are currently undisrupted, and the center location of the organization. The center location of the organization is calculated as the average of the positions of the units in the organization. Reinforcements that have not arrived have their entry hex as their location for this calculation.

Orders can be given to the selected organization using the Order Dialog and the map. The type of order is first selected from the list shown. Once the type of order is selected, the objective hex is selected by clicking on the map hex with the right mouse button.

The Order Dialog is redisplayed at the beginning of each player turn. Existing orders can be left unchanged by clicking on the OK button. Clicking on the Cancel button cancels the A/I processing at that point. The A/I processing can be resumed by using the A/I menu or clicking on the A/I button in the toolbox.

1.2.4 The Strength Dialog

The [Strength Dialog](#) displays the number of units on the map and the losses associated with each side during the current battle. If there is a single number associated with a unit type in the strengths listing, then that number indicates the total number of units on the map of that type. If there is a second number in parentheses in the strengths listing, then that indicates the total number of disrupted units of that type on the map. The number in square brackets is the number of Victory Points associated with the unit. This dialog is simply an informational dialog to give some information about the status of the current battle.

1.2.5 The Objectives Dialog

The [Objectives Dialog](#) displays a list of objectives, their value, and which side is currently in possession of the objective. Clicking on an entry in the list causes the map to scroll to the objective hex location and for that hex to be made the Hot Spot. If an objective hex is not currently occupied, then possession of the hex is based on which side last occupied the hex.

1.2.6 The Victory Dialog

The [Victory Dialog](#) displays the current state of the victory conditions. The number of units lost by each side and the value of each unit is displayed as well as total loss for that side. Depending on which side is the first side for that scenario, the objective points held by that side is displayed and the total of objective points adjusted by the total unit losses is also displayed. The range of values used to determine victory is displayed and the resulting outcome at that point.

1.2.7 The Locations Dialog

The [Locations Dialog](#) displays a list of the map labels and can be used to find specific locations on the map. Each map label in the list is followed by its hex coordinates. Clicking on an entry in the list causes the map to scroll to the hex location and for that hex to be made the Hot Spot.

1.2.8 The A/I Selection Dialog

The [A/I Selection Dialog](#) allows the A/I setting of a scenario to be set at the beginning of the scenario. For more information on the A/I settings, see the [A/I Menu](#).

1.2.9 The Artillery Dialog

The [Artillery Dialog](#) allows artillery to be selected and fired during the Prep Fire Phase. To fire a unit which is displayed in the Artillery Dialog, first select the unit using the left mouse button, and then click on the target hex with the right mouse button. When a unit in the Artillery Dialog is selected, the potential targets of that unit are highlighted on the map.

Depending on the scenario, there may be units which are defined to be [off-board artillery](#). These units have a location which is not within the boundaries of the map. Off-board artillery units are designated in the Artillery Dialog with an asterisk (*) preceding their name. Using the Artillery Dialog is the only way to fire using off-board artillery units.

1.2.10 The Organization Dialog

The **Organization Dialog** allows the various organizations associated with the units on the map to be displayed. When the Organization Dialog is displayed, it shows a list of all the organizations. Selecting an organization from the list causes all of the units associated with that organization to be highlighted.

Clicking on OK causes the selected organization to continue to be highlighted, while clicking on Cancel cancels the display of the organization. Alternatively, double clicking on an organization entry causes the organization to continue to be highlighted after the dialog is closed.

1.2.11 The Schedule Dialog

The [Schedule Dialog](#) is used to display reinforcements which are scheduled to arrive in the current scenario. Selecting an item in the list of reinforcements automatically scrolls the map to the arrival location of the reinforcement and makes the location the current hot spot.

1.2.12 The Arrived Dialog

The [Arrived Dialog](#) is used to display reinforcements which have arrived and are available to be placed on the map.

Reinforcements may only be placed on the map during the Movement Phase. There are two ways to place units listed in the Arrived Dialog on the map. First, units to be placed on the map may be double clicked on. Second, units to be placed on the map may be selected with a single click followed by clicking on the OK button on the Arrived Dialog. Both of these cause the unit and any associated carrier or passenger unit to be placed on the map if possible and the map scrolled to the arrival location. Placement of reinforcements is prevented if placement of the units would cause overstacking in the arrival hex. If enemy units occupy the placement hex, they are automatically overrun by the placement of the reinforcements. If placement of the reinforcements would cause overstacking, then the Arrived Dialog can be dismissed, the units in the arrival hex moved, and the Arrived Dialog redisplayed.

1.2.13 The Jump Window

The [Jump Window](#) allows the user to easily go from one part of the map to another. The Jump Window displays a reduced version of the map with the current portion of the map visible on the screen drawn in a rectangle and the hot spot identified with a small square. Clicking on a location of the Jump Window with the left mouse button causes the map to be repositioned so that the selected hex is the new hot spot and is centered as much as possible in the middle of the screen. Hitting return causes the map to be repositioned so that the hot spot is centered as much as possible in the middle of the screen.

1.2.14 The Modem Settings Dialog

The **Modem Settings Dialog** is used to configure the modem before starting modem play. The values set in this dialog are saved in the Battleground Ardennes initialization file `bga.ini` and restored in subsequent executions of the main program.

The **Initialization** string is sent to the modem before any other commands. This command resets the modem back to its initial state. The default value of this string is `ATZ`.

The **Dial Prefix** string is sent to the modem just prior to dialing the remote phone number. The default value of this string is `ATDT`.

The **Dial Suffix** string is sent to the modem just after dialing the remote phone number. The default value of this string is empty.

The **Escape** string is sent to the modem to cause it to go off-hook just prior to hanging up. The default value of this string is `+++`.

The **Hangup** string is sent to the modem to cause it to hangup the phone and to put it in a state where it will not auto-answer. The default value of this string is `ATHS0=0`.

The **Auto Answer** string is sent to the modem to put it in a state where it auto-answers any incoming call. The default value of this string is `ATS0=1`.

The **Baud Rate** setting in this dialog establishes the baud rate of the communication between the computer and the modem. This setting should correspond to the highest speed supported by the modem. For modems which support 28.8Kb, the baud rate should be set at 38400.

The **Port** setting in this dialog should correspond to the port that the modem is connected to.

The **Timeout** setting determines how long the communication code will wait after issuing a modem command for a reply from the modem. The default timeout value is `30` seconds.

1.2.15 The Communications Dialog

The **Communications Dialog** is used to provide communication information to the user during modem play and to support "chat" communication. There are two main windows in the Communications Dialog. One of them can be used by the user to type chat communication for transmission to the other system. The Remote window is used to display chat communication typed by the remote user.

The Queue window is used to display the number of events waiting to be communicated to the other side. If this number is 0, then both sides are in sync. The Status window displays a message indicating the current status of communications between the two systems.

1.2.16 The Dial Dialog

The [Dial Dialog](#) is used by the client system in modem play to dial the server system and to specify the [encryption key](#) to be used when reading and writing modem battle files on the server system. The encryption key chosen by the user on the client system should be kept secret to prevent other users from reading the modem battle file on the server system.

1.2.17 The New Modem Scenario Dialog

The [New Modem Scenario Dialog](#) is used at the beginning of a scenario that is going to be played using the modem to define which sides each user will be playing and whether Fog-of-War will be in effect for the battle. If Fog-of-War is assigned at the beginning of the battle, it cannot be disabled during the battle.

1.3 The Hex Information Area

The [Hex Information Area](#) is displayed below the map. The Hex Information Area is used to display information about the current state of the program and information regarding the current "Hot Spot". A hex is selected to be the Hot Spot by clicking in the hex with the left mouse button. The Hot Spot hex is indicated on the map with a red outline. The Hex Information Area contains three parts:

The Terrain Info Field

The Unit List

The Status Bar

1.3.1 The Terrain Info Area

The [Terrain Info](#) area displays information about the terrain in the Hot Spot hex. The Terrain Info area appears in the lower left hand corner of the main screen. A picture of representative terrain of the Ardennes is shown in the upper half of the Terrain Info area.

The terrain type in the Hot Spot hex and the combat modification associated with this terrain type are displayed on the first text line of the info area. The elevation of the hex in meters is displayed on the next line. Icons displaying special features of the terrain are shown on the last line. These include objective values, mines, improved positions, and smoke counters.

Clicking either the left or right mouse button in the Terrain Info area displays alternative information. The first line of alternative information is the number of air points assigned to the current scenario. This information is shown as two numbers separated by a slash. The first number is the number of [air attacks](#) available to the Allied side. The second number is the number of air points available to the Axis side. If a particular side is under Fog-of-War, then its number is replaced with a question mark.

The second line of alternative information is the number of [smoke attacks](#) available to each side in the current scenario. As for air points, this is shown as a pair of numbers with the Allied value first and the Axis value second.

1.3.2 The Unit List

The **Unit List** displays the units in the Hot Spot. There can be a total of four units and wrecks in any location on the map. When the Hot Spot location on the map is empty, then the Unit List displays a panoramic view of the weather conditions associated with the current scenario, plus a description of these conditions including the maximum visibility.

Each unit in the Unit List has several fields that are used to display the capabilities of the unit. The field labeled **Ak** displays the hard and soft attack values of the unit. The hard attack value is used when firing on armored units. The soft attack value is used when firing on unarmored units.

The field labeled **Rg** displays the hard and soft range values of the unit. The hard range value is the maximum range of the unit when firing at armored units. The soft range value is the maximum range of the unit when firing at unarmored units.

The field labeled **Aslt** displays the assault value of the unit. This value is used when the unit conducts an assault attack.

The field labeled **Mov** displays the remaining movement value of the unit. During a movement phase, this value will decrease as the unit is moved. Once this value reaches zero, the unit is no longer capable of moving that phase.

The field labeled **Def** displays the defensive value of the unit. This value is used to determine the outcome when the unit is fired upon.

The field labeled **VP** displays the victory points assigned to the unit. These points establish how many victory points are awarded the other side for eliminating this unit.

The field labeled **Mr** displays the current morale of the unit. Morale values in general range from 1 to 9. The current morale value of a unit is affected by combat results and determines how easily the unit will retreat under fire.

There are a number of icons associated with each unit in the Unit List. A full-color **bullet icon** indicates that the unit can fire or assault in the current phase. A brown bullet icon indicates that the unit has already fired in the current phase.

A full-color **wheel icon** indicates that the unit can move in the current phase. A brown wheel icon indicates that the unit has started moving in the current phase or is incapable of moving because it has previously fired. The absence of a wheel icon indicates that the unit cannot move in the current phase.

A full-color **helmet icon** for vehicles indicates that the vehicle is currently carrying a passenger. A brown helmet icon for vehicles indicates that the

vehicle is currently empty. A brown helmet icon for other units indicates that the unit can be carried as a passenger.

A full-color [binoculars icon](#) indicates that the unit is currently spotted by enemy units. A brown binoculars icon indicates that the unit is currently spotted by an enemy unit that cannot fire on it such as a truck or wagon.

When a vehicle is carrying a unit, only the vehicle is shown in the Unit List. To see the passengers being carried by vehicles in the Unit List, click on the Unit List with the right mouse button, or click in the [Terrain Info](#) area with the left mouse button. The passenger units will be displayed until the mouse button is released.

1.3.3 The Status Bar

The **Status Bar** displays informational messages about the current status of the program and error messages. The Status Bar is shown at the bottom of the main program screen. By default, the Status Bar shows the current phase of the scenario. The elapsed time and time limit associated with the current scenario are shown with the current phase. If the current phase is being performed using A/I, then the words "A/I Control" will follow the description of the current phase.

While playing using Modem Play, the status bar will either show the words "Local Control" or "Remote Control". While under Local Control, the user has the ability to move and fire units normally. While under Remote Control, the user is waiting for the remote user to complete the current phase.

At the right end of the status bar, the map coordinates of the Hot Spot hex are shown.

1.4 Other Features

Other features associated with the main program are:

Using The Mouse

Accelerators

Auto Movement

Auto Target

Drag and Drop

The Tool Box

Auto Scrolling

1.4.1 Using The Mouse

The mouse is used to get information on the units and terrain on the map and to control the actions of units on the map.

Single-click with Left Mouse Button: This will display information on the units and terrain in the designated hex. This action can be performed on any hex during any phase.

Double-click with Left Mouse Button: In addition to displaying information on the units and terrain in the designated hex, this action also selects all units in the Unit List. This is commonly done before moving units, having them fire, or using them in an assault.

Single-click with Right Mouse Button: The result of this action is dependent on the current phase.

1. During the **Movement Phase**, this action causes the units selected in the Unit List to be moved to the designated hex
2. During a **Fire Phase**, this action causes the units selected in the Unit List to fire on the designated hex. If the fire is direct and there is more than one potential target in the target hex, a Target Dialog will be displayed that allows for the selection of the target. If the **Ctrl** key is held down while the Right Mouse Button is clicked, then this causes smoke to be fired into the hex. Only certain indirect fire units are capable of firing smoke and the ability to fire smoke is dependent on available smoke ammunition.
3. During an **Assault Phase**, this action causes the selected hex to be designated as the defending hex. After this has been done, adjacent units can be designated as attacking units using the Left Mouse Button, selecting from the Unit List, and adding them to the attack using the Assault Menu.

If the Right Mouse Button is clicked in the current Hot Spot during a movement phase, then the counters in that hex will be cycled with the top counter moving to the bottom of the stack.

1.4.2 Accelerators

The main program supports the use of the following accelerators:

- Ctrl-N - advance to next phase
- Ctrl-U - undo last movement
- Keypad 0 - load/unload selected units
- Keypad 1 - move selected units down and left
- Keypad 2 - move selected units down
- Keypad 3 - move selected units down and right
- Keypad 5 - initiate air attack on hot spot hex
- Keypad 7 - move selected units up and left
- Keypad 8 - move selected units up
- Keypad 9 - move selected units up and right
- Left Arrow - scroll map to the left
- Right Arrow - scroll map to the right
- Up Arrow - scroll map up
- Down Arrow - scroll map down
- Shift - display location names on the map
- F1 - open general help file
- F2 - open unit handbook
- F3 - display parameter data

The following accelerators only affect the appearance of the unit icons while in Zoom In mode and have no effect on the scenario.

- Delete or Ctrl-L - turn selected unit icons counter-clockwise
- Page Down or Ctrl-R - turn selected unit icons clockwise
- Home or Ctrl-F - move selected unit icons forward
- End or Ctrl-B - move selected unit icons backward

1.4.3 Auto Movement

Auto Movement is used to automatically move units from one location to another on the map without having to specify all of the intermediate hexes. To use Auto Movement, you first select the units to be moved in the normal way using the first mouse button and making selections in the Unit List. You then click on the destination hex using the right mouse button while holding down the **Alt** key. This causes the program to determine a minimum-distance path towards the destination hex and then to move the selected units along that path up to the limits of the movement allowance. You can use the Undo feature of the Units Menu to undo the total movement generated by a use of Auto Movement. Note however, that the Undo feature is disabled when Fog-of-War or Modem Play are in effect.

The normal Auto Movement minimum-path algorithm will only search for direct paths from the source to the destination hexes. This is to avoid inadvertently causing units to move away from the destination hex due to obstructions such as rivers. Holding down the **Ctrl** control key in addition to holding down the **Alt** key causes Auto Movement to use an extended minimum-path algorithm that will search for detours if a direct path is not available.

1.4.4 Auto Target

Auto Target can be used to facilitate firing on or assaulting a specific hex. The Auto Target feature is invoked by clicking on the target hex with the right mouse button while holding down the **Alt** key. If the current phase is a fire phase, then a suitable firing unit will be automatically selected to fire on the target hex. If the current phase is the Assault Phase, then attacking units will be automatically selected to assault the target hex. In either case, a dialog with the resulting action will be displayed for confirmation before the action is carried out.

1.4.5 Drag and Drop

Drag and Drop can be used to facilitate moving, firing, and assaulting in place of the standard use of the right mouse button. To use Drag and Drop, units must first be selected. This can be done by either clicking on a hex with the left mouse button and making the selection from the Unit List or by double clicking on a hex and thus selecting all units in the hex. In either case, Drag and Drop is initiated by holding down the left mouse button in the hex after the selection has been made. The mouse is then moved to the destination hex while holding the left mouse button down. Drag and Drop is activated by releasing the left mouse button in the destination hex. The effect of Drag and Drop depends on the current phase. If the current phase is the Movement Phase, then Drag and Drop causes an Auto Move of the selected units toward the destination hex. If the current phase is a fire phase, then Drag and Drop causes the selected units to fire on the destination hex. If the current phase is the Assault Phase, then Drag and Drop initiates and resolves an Assault against the destination hex using all valid selected units.

1.4.6 The Tool Box

The **Tool Box** is a floating box of buttons that can be used to facilitate certain actions of the main program. The buttons in the box and the action they perform are:

 1-20

Next - Advance to the next phase



Zoom - Toggle display between normal and zoom-in view



Cycle Stack - Cycle the units in the hot spot stack



Artillery - Display the Artillery Dialog



Units - Toggle the display of units on the map



Bases - Toggle the display of unit bases on the 3D map



Load/Unload - Load or unload selected units



Assault - Resolve the current assault



Display Indirect - Highlight indirect fire units



Display Spotted - Highlight spotted units



Display Moved - Highlight units that have moved



Display Fired/Fought - Highlight units that have fired or fought



Display Disrupted - Highlight units that are disrupted



Display Org - Highlight units in same organization as selected



Air Attack - Initiate air attack against current hex



Jump Window - Display the Jump Window



Next Stack - Jump to the next stack to be processed



A/I - Complete current phase under A/I

Command hints for each tool box button are displayed in the status bar at the bottom of the main window when the button is pressed. Leaving the button without releasing clears the command hint.

1.4.7 Auto Scrolling

Auto Scrolling can be used to scroll the map display without having to use the scroll bars. To cause the map to auto scroll, click the left mouse button in the map area and while holding the mouse button down, drag the mouse outside the boundaries of the map display. This will cause the map display to automatically scroll in the direction of the mouse cursor. Releasing the mouse button or bringing the mouse cursor back into the map display stops the scrolling.

