



Battle Command

Users Guide



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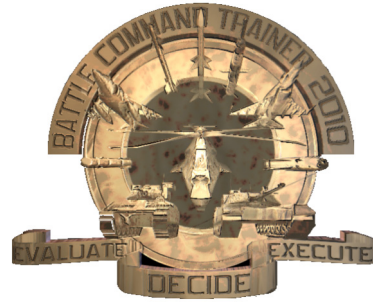
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Introduction

Battle Command is a training application that allows leaders and their supporting staff to practice planning for and executing a training simulation. Battle Command gives you all the tools required to develop a scenario to meet your training requirements on the terrain of your choosing. You can operate the Battle Command simulation in stand-alone and multi-player modes of operation, and can interoperate with other simulations and real-world command and control systems.

1.1. Game Modes

When you run Battle Command, you may operate as a player, an observer, or an instructor. A player can open a scenario, maneuver units, make unit plans, and conduct other real-time tasks. An observer can watch a scenario, check a unit's status, and manipulate the map view, but cannot affect the simulation in any way. An instructor can create scenarios, can observe game play without the fog of war in effect, and can interact with the game. The instructor can do everything a player can and can also record the entire scenario, conduct the after-action review either locally or distributed, and evaluate the performance of the training audience.

1.2. Scenarios

Game play takes place in the context of a scenario. The components of a scenario are:

- ♦ A terrain database - defines the geographical location of the scenario.
- ♦ An order of battle - specifies the units in the scenario.
- ♦ At the option of the instructor:
 - Overlay graphics.
 - Mission documents.
 - Unit plans.
 - Scenario events (injects).

1.2.1. The Terrain Database

Each scenario is associated with a terrain database. A terrain database provides three-dimensional information about a geographic area and provides the environment within which simulated entities function. With the information in a terrain database, Battle Command can calculate height, line-of-sight, and other three-dimensional information.

Units have knowledge of the terrain and interact with it. For example, if the terrain is rugged or has a slope, units traversing that terrain will move through it at an appropriate pace.

1.2.2. The Order of Battle

Battle Command simulates the following kinds of units:

- ♦ Individual units, such as aircraft, vehicles, ships, submarines, and structures.
- ♦ Pseudo-aggregate units - organizational units such as platoons and companies or a flight of multiple aircraft, that are created by aggregating individual units (which retain their individual identity).
- ♦ True aggregates - organizational units such as platoons and companies that are not divisible into individual members. You can aggregate true aggregates into higher-level pseudo-aggregate units.

For a list of the units supplied with Battle Command, please see Appendix B, [Using the Unit Editor](#).

1.2.3. Overlay Graphics

Battle Command supports a wide variety of overlay graphics. You can create graphics to represent a wide variety of lines, areas, and points, and organize them in multiple force-specific layers. You can display and hide different overlays at will. Units can move along lines and axes and move to points. Battle Command can use unit orientation with overlay objects as part of conditional statements in unit plans. For more information, please see Chapter 7, [Creating Overlay Graphics](#).

1.2.4. Mission Planning

You can create plans for units that contain tasks, set data request statements, and conditional statements. You can save plans and edit them. For convenience, you can copy a unit plan and paste it into another unit's plan. Plans can include all of the tasks available to you through the simulation interface.

For more information, please see [Chapter 9, *Writing Plans*](#).

1.3. How to Use This Manual

This manual is organized from the player's point of view. It starts out explaining how to start Battle Command and then it describes the interface. Next, the manual explains how to prepare for a Battle Command training event.

An instructor needs to know everything that a player needs to know. Additionally, an instructor needs to know how to create terrain databases and scenarios. These subjects are covered later in the manual, along with configuration information and other special topics.



System Requirements

This section describes the computer configurations on which Battle Command has been deployed to customer sites. It is recommended that Battle Command be installed on systems that meet or exceed these requirements.

For a detailed discussion of system requirements and hardware configurations, please see *.\doc\MAK_trainer_2008_machine_specs*.

A laptop computer functioning as a server should meet or exceed the following system configuration:

- ♦ Processor: Mobile Intel 2.4GHz, 4MB L2 Cache, 800MHz FSB
- ♦ Memory: 2GB DDR2, 667MHz
- ♦ Graphics: Nvidia Dual GeForce 8700MGT, 512MG GDDR3
- ♦ Hard drive: 120GB, 7200RPM SATA
- ♦ Windows XP SP2.

A laptop computer functioning as a client should meet or exceed the following system configuration:

- ♦ Processor: Intel Core 2 Duo T7500, 2.2GHz, 4M L2 Cache, 800MHz FSB
- ♦ Memory: 2GB DDR2 667MHz
- ♦ Graphics: Nvidia GeForce 8600M GT, 256MB
- ♦ Hard drive: 160GB, 5400RPM, SATA
- ♦ Windows XP SP2.



Installing and Configuring Battle Command

3.1. Installing Battle Command

Battle Command installs all files in accordance with U. S. Air Force Standard Desktop Configuration (SDC), which conforms to the technical requirements of the “Designed for Microsoft Windows XP” Application Specification Version 2.3 January 2, 2002 or the Windows 7 Client Software Logo Program (Version 1.9 OCT 2009), as follows:

- ♦ Program executables and libraries are installed to *C:\Program Files\MAK Technologies\Battle Command-2.17.3\game*.
- ♦ Configuration files and data files are installed to:
 - Windows XP: *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3*.
 - Windows 7: *C:\ProgramData\MAK Technologies\Battle Command-2.17.3*.

You may need to install additional terrain database files. These are provided in separate installation packages.

By default, user-generated files are saved to

- ♦ Windows XP: *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3*.
- ♦ Windows 7: *C:\ProgramData\MAK Technologies\Battle Command-2.17.3*.

To install Battle Command:

1. If you received an installation file, run the executable.

If you received an installation CD, insert the Battle Command CD into your CD-ROM drive. If you have autorun enabled, the CD will display the opening screen automatically. If autorun is disabled, open the Windows Explorer and double-click the executable program in the root of your CD drive.

2. Follow the prompts on the installation program.



Battle Command installs all files in accordance with U. S. Air Force Standard Desktop Configuration (SDC), which conforms to the technical requirements of the “Designed for Microsoft Windows XP” Application Specification Version 2.3 January 2, 2002 or the Windows 7 Client Software Logo Program (Version 1.9 OCT 2009), as follows:

- ♦ Program executables and libraries are installed to *C:\Program Files\MAK Technologies\Battle Command-2.17.3\game*.
- ♦ Configuration files and data files are installed to:
 - Windows XP: *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3*.
 - Windows 7: *C:\ProgramData\MAK Technologies\Battle Command-2.17.3*.

You may need to install additional terrain database files. These are provided in separate installation packages.

By default, user-generated files are saved to

- ♦ Windows XP: *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3*.
 - ♦ Windows 7: *C:\ProgramData\MAK Technologies\Battle Command-2.17.3*.
-

3.2. Configuring Battle Command

The Settings dialog box lets you set several parameters that affect the display when you are running a simulation. You can also specify parameters for multiplayer scenarios. You can set most of these parameters dynamically while you are running Battle Command. For more information about settings, please see:

- ♦ [“Changing Display Settings,”](#) on page 4-6.
- ♦ [“Preparing for a Multiplayer Exercise,”](#) on page 12-1.
- ♦ [“Configuring License Management,”](#) on page 3-2.

3.3. Configuring License Management

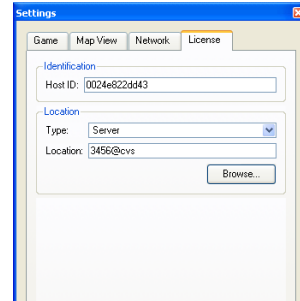
Your version of Battle Command may require a license. Battle Command supports two types of license management – node-locked and server. A node-locked license is only valid on one specific computer. A server license supports multiple computers that connect to it for authorization. Follow the procedure in this section that is appropriate to your installation.

3.3.1. Configuring a Node-Locked License

If you need a license just for your computer, follow this procedure:

To install a node-locked license:

1. After you install Battle Command, start it as described in “Starting Battle Command,” on page 4-1.
2. Choose **Options** → **Settings**. The Settings dialog box opens.
3. Select the License tab.
4. Note the contents of the Host ID text box.
5. Send an email to support@mak.com with your name, organization, and the Host ID. MÄK will send you a license file.



Sometimes email attachments get incorporated into the text of the email. If your license file information is in the body of the email, rather than an attachment, copy the license file text to a text file using a program such as Notepad. Save the file with the name license.lic.

6. Put the license file in the *.lgame* directory.
7. Open the Settings dialog box and select the License tab.
8. Set the Location: Type to Node-Locked.
9. Click the Browse button.
10. Navigate to the location of the license file and select it.
11. Click OK in the Browse window.
12. Click OK in the Settings dialog box.

3.3.2. Configuring Server-Based License Management

If you are using a server-based license, one PC is configured as the license server and other PCs are configured to connect to the license server.

Configuring the License Server

To configure the license server PC, follow the procedure in [“Configuring a Node-Locked License,”](#) on page 3-3. The server-based license is only valid on the server PC (that is, it is locked to that Host ID), however the license permits multiple PCs (up to the number of licenses purchased) to connect to the server, check out a license, and run Battle Command.

Configuring Your Computer to Connect to A Server

If you need to connect to a license server (instead of having a license file just for your computer), follow this procedure:

To connect to a license server:

1. After you install Battle Command, start it as described in [“Starting Battle Command,”](#) on page 4-1.
2. Choose **Options** → **Settings**. The Settings dialog box opens.
3. Select the License tab.
4. In the Location group box, from the Type list, select Server.
5. In the Location text box, enter the name of the server in the format:
@servername
where servername is the name of the server that has been provided to you.
6. Click OK.

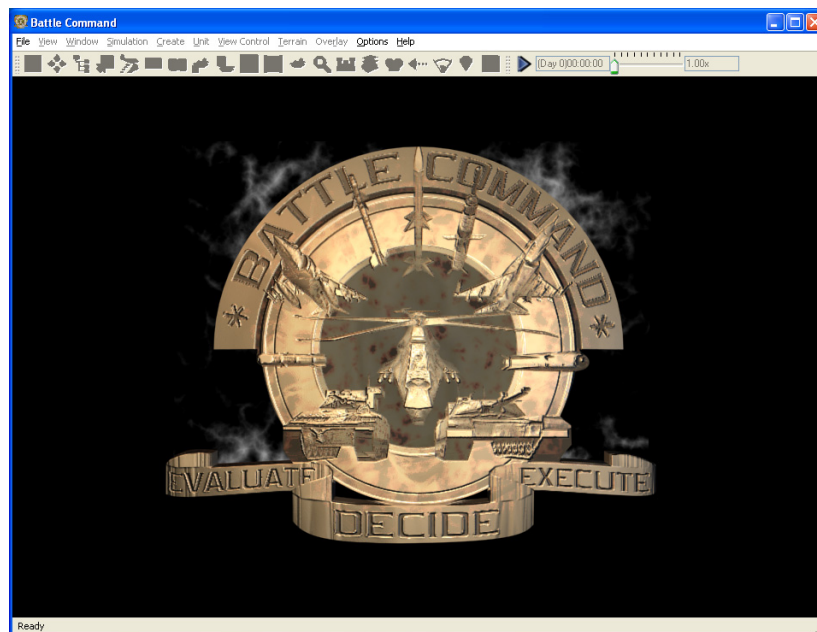


Getting Started

This chapter explains basic procedures and describes the Battle Command interface. (If you are in player mode, some aspects of the interface may not be available to you.)

4.1. Starting Battle Command

- To start Battle Command, on the Start menu, choose **Programs** → **MAK Technologies** → **Battle Command-2.17.3** → **Battle Command-2.17.3**. The Battle Command window opens.



4.2. Scenarios

All Battle Command simulations are based on scenarios, which specify a terrain database, an order of battle, overlay objects, scenario events, and plans for some or all of the units. When you load a scenario, you choose the force that you will be commanding.

4.2.1. Choosing a Role

Before you open a scenario, choose one of the following roles:

- ♦ Instructor
- ♦ Player
- ♦ Observer.

In instructor mode, there is no fog of war effect. Instructors can see all forces and can command both friendly and hostile forces. Instructors have access to all Battle Command features.

In player mode, the fog of war is in effect. You can see your forces, and only those other friendly, neutral, or opposing forces that you have come into contact with or otherwise identified. You can command only those units within your chain of command.

However, you can get status on other units in your force. Players cannot create scenarios or add units to the scenario. They cannot record scenarios or use the AAR tools. They are also unable to make changes to the Hostility Map or Event list.

In Observer mode, you can view all forces, but you cannot create objects or entities, command entities, or do anything else that affects the outcome of the simulation.

To select a role:

1. Choose **Options** → **Settings**. The Settings dialog box opens to the Game tab.
2. In the Mode list, select a role.
3. Click OK.

4.2.2. Loading a Scenario

To load a scenario:

1. Choose **File** → **Open** → **Single Player Scenario**. The Open dialog box opens. (For a multiplayer scenario, please see Chapter 12, *Multiplayer Scenarios*.)
2. Select a scenario directory, then select the scenario file (.scn) in that directory.
3. Click Open. The Select Forces to Command dialog box opens. (If you are in instructor mode, you do not choose a force.)
4. Choose the forces that will be under your control. To select multiple forces, hold down the **Ctrl** key while you click the force icons. The options are Friendly, Opposing, and any other force that is part of the scenario.
5. Click OK. Battle Command loads the scenario.



4.2.3. Closing a Scenario

- To close a scenario, choose **File** → **Close Scenario**.

4.3. Configuring the Map View

When Battle Command loads a scenario, it opens a two-dimensional map of the terrain for the scenario. Units are displayed using MILSTD 2525B symbols or raster images.

You can manipulate the map view as follows:

- ♦ Display contour lines.
- ♦ Display grid lines.
- ♦ Select units using your mouse.
- ♦ Zoom in and out.
- ♦ Scroll the map view.
- ♦ Display explosions.
- ♦ Display destroyed units.
- ♦ Find location.
- ♦ Center on a location and zoom in and out on a location.
- ♦ Select the map scale.

4.3.1. Specifying How Terrain is Displayed

The information conveyed by a terrain database view depends on how it is rendered. Battle Command lets you change terrain rendering dynamically. It can display terrain in the following formats:

- ♦ CIB
- ♦ CADRG
- ♦ Raster
- ♦ Polygonal.

CIB and CADRG are geodetic latitude/longitude, flat earth projections from NGA. Raster and polygonal databases are UTM projections.

A polygonal terrain database is drawn from the data that the simulation engine uses. It provides a view of the terrain as the units in the simulation see it. However, it does not provide a good sense of the contours of the terrain (which is why you might want to display contour lines.) A polygonal view may not match the data in a NGA CADRG database.

A rasterized database overlays the terrain with a bitmap that looks like a relief map.

A CIB terrain is a single color image similar in appearance to a satellite photograph. CADRG provides a map-like view of the terrain. If you have CADRG data, you may be able to specify the scale of the map.

Figure 4-1 shows CIB and CADRG views of the Quantico database, and rasterized and polygonal versions of the Hohenfels terrain database. Figure 4-2 illustrates the Lejeune CADRG view at two different map scales.

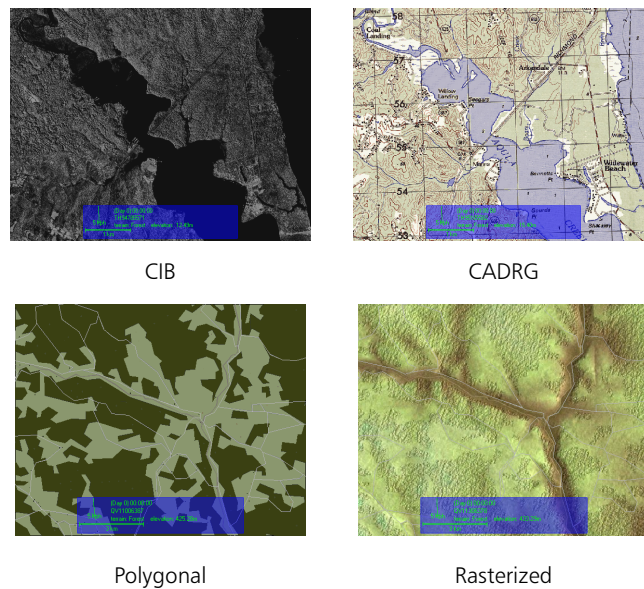


Figure 4-1. Terrain rendering styles

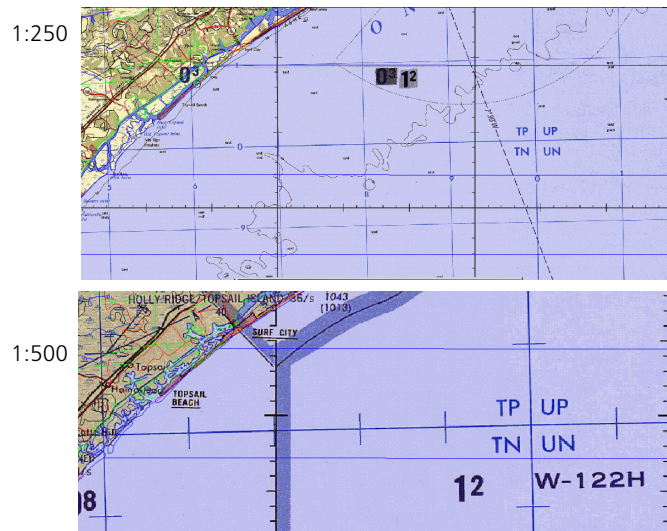
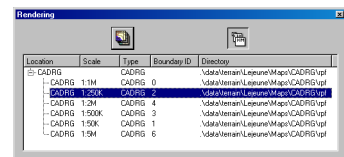
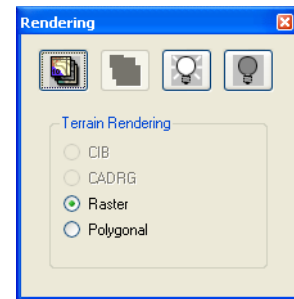


Figure 4-2. Changing the map scale with CADRG data

The Rendering dialog box also lets you lighten and darken the contrast of the terrain database. This can help you see light-colored overlay objects on a light terrain, or dark overlay objects on a dark terrain.

To change the way that the terrain is rendered:

1. Choose **Terrain** → **Rendering Options**. The Rendering dialog box opens.
2. To select one of the four rendering styles, click the Choose Map Data Type button (🗺️). Select the rendering option that you want to use. You cannot select options that are not configured for the current database (see “[Setting Up and Configuring Terrain Databases](#),” on page A-8.) The raster option is available only if it is enabled in the Settings dialog box. Please see “[Enabling and Disabling Display of Rasterized Databases](#),” on page 4-6.
3. To lighten or darken the terrain contrast, click the appropriate light bulb icon.
4. If you have CADRG data and want to specify the map scale, click the Choose Map Data Source button (📁). (If CADRG data is not available, you cannot click the button.) The dialog box redisplay to show the CADRG rendering options.
5. Select the map scale you want to display. The map redisplay using the new scale.



Enabling and Disabling Display of Rasterized Databases



If you turn off the raster display, performance may improve. This is particularly beneficial if, in a multiplayer exercise, you are using a PC just for simulation purposes, with no one actively playing on that machine.

To enable or disable use of rasterized databases:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. To enable use of rasterized databases, select the Load Raster Terrain at Scenario Start check box. To disable use of rasterized database, clear the check box.
4. Click OK.

Enabling and Disabling the Display of Vector Data

Some terrain databases display vector data. Vector data contains information about features such as roads, bridges, waterways, buildings, and so on. As with other graphics, you may not always want to display vector data.

To enable or disable display of vector data:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. Select the Show Vector Network Data check box to display vector data. Clear the check box to hide vector data.

4.3.2. Changing Display Settings

You can toggle the following display settings on and off:

- ♦ Grid lines
- ♦ Contour lines
- ♦ Rasterized terrain
- ♦ Engagement lines
- ♦ Unit labels.

You can also change the coordinate system used to display unit coordinates in dialog boxes and on the Information Panel and you can change the location of the Navigation Panel.

To turn display settings on or off:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
 - To turn on display of a feature, select the appropriate check box.
 - To turn off display of a feature, clear the appropriate check box.

To specify the coordinate system to be used for dialog boxes:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. Select an option from the Coordinate Display Format list.

Setting the Minimum Zoom

You can set the smallest terrain width that Battle Command can zoom in to.

To set the minimum zoom:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. In the Min Zoom box, enter the terrain width, in meters, below which Battle Command cannot zoom in.
4. Click OK.

Setting the Maximum Zoom

You can set the largest terrain width that Battle Command can zoom out to.

To set the maximum zoom:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. In the Max Zoom box, enter the terrain width, in meters, above which Battle Command cannot zoom out.
4. Click OK.

Setting the Contour Line Spacing

To set the spacing between contour lines:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. In the Contour Line Interval box, enter the distance, in meters, by which you want contour lines to be separated.
4. Click OK.

Specifying the Location of the Navigation Panel

To set the location of the Navigation Panel:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. Select an option on the Navigation Panel Location drop-down list.
4. Click OK.

4.3.3. Specifying the Measurement Units used in Dialog Boxes

Dialog boxes that display measurement units can do so in MGRS, UTM, or Latitude/Longitude coordinates. They can specify distance, altitude, and speed in several different measurement units. You can specify the coordinate system and measurement units to use.

To specify the default measurement unit and coordinate system:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. In the Measurement Options group box, select the desired unit for each measurement type.
4. Click OK.

4.4. Context Sensitive Menus

Battle Command has context-sensitive popup menus (also called right-click menus) that list command options applicable to the selected units.

- To display a popup menu, right-click a unit or select a group of units and right-click one of them.



The Commands Panel is also context sensitive.

4.5. Saving and Restoring Your View of an Exercise

You can save the layout of windows and dialog boxes so that your preferred layout is restored when you start Battle Command. You can also save your view of the terrain.

4.5.1. Saving the Map View

You can save a particular view of the map so that when you load a scenario Battle Command immediately focuses on the area of interest. Map views are saved per-force. You can save as many views as you have forces.

To save the map view:

1. With a scenario loaded, choose **Options** → **Scenario Map Initialization**. The Scenario Map Initialization dialog box opens.

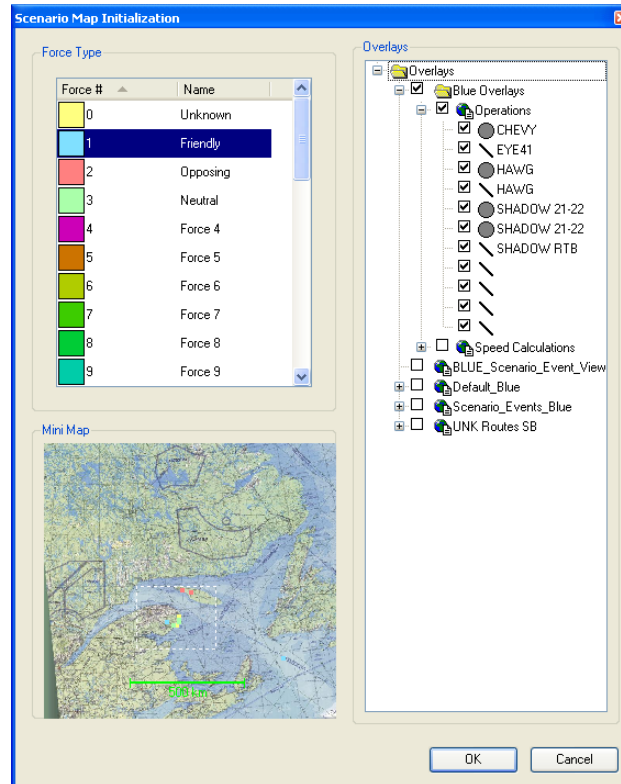


Figure 4-3. Scenario Map Initialization

2. Click a force for which you want to save the map view. For example, in [Figure 4-3](#) click Force 1 (Blue).
3. Draw a bounding box on the Mini Map to specify the area of the map that you want to associate with the force. That is, the area of the map that will be displayed when you load the scenario as a member of this force.
4. In the Overlays window, select the overlays that you want to display automatically when you load a scenario as a member of this force. To select an overlay, check the check box next to its name.
5. Repeat steps 2 through 5 for each force for which you want to save map initialization data.
6. Click OK. The map initialization data is saved with the scenario when you close it.

4.5.2. Saving the Window Layout

If you find that you like to set up the various windows, such as the Mini Map, Echelon Panel, and so on, in a certain configuration, you can save the layout. Thereafter, the windows are automatically opened in the same locations as you saved them.

- To save the layout, choose **Options** → **Layout** → **Save**.

Restoring a Layout

While you are running a simulation, you may change the organization of the windows.

- To return to the saved layout, choose **Options** → **Layout** → **Restore**.

4.6. Exiting Battle Command

- To exit Battle Command, choose **File** → **Exit**, or click the exit button at the upper right corner of the Battle Command window.

4.7. Battle Command Command-Line Options

If you run Battle Command from a command prompt, you can specify the options described in this section. If you start Battle Command from a shortcut on your desktop, you can edit the startup command (the Target field in the Properties dialog box) to include these options.

Table 4-1: Command-line options (Sheet 1 of 2)

Option	Description
-a <i>address</i>	Specifies the IP address of the TCP forwarder. This is for clients only. Battle Command assumes the TCP forwarder is running on the host machine (and so is accessed via the local address).
-b {0 1 2}	Specifies the load bearing status of the computer. 0 = the workstation will not simulate any entities (the default.) 1 = the workstation will simulate some entities 2 = the workstation will simulate all entities.
-c	Specifies a client PC.
-D	Causes a MySQL database to be created using the same name as the logger file.
-f {1 2}	Specifies the force type. 1 = friendly (blue) 2 = enemy (red). This option is ignored for an AAR host. If not specified for any workstation not an AAR host, the Force Type Chooser window opens.

Table 4-1: Command-line options (Sheet 2 of 2)

Option	Description
<code>-F filename</code>	Specifies an alternative name for the logger recording. (Host only.) <i>If provided to a host along with the 's' (scenario) flag, this provides an alternate name to be used for the logger file, which will be created as C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\data\logger-Tapes\filename.lgr.</i> If supplied without the scenario flag, the this will cause instantiation of an AAR session using the indicated log file.
<code>-h</code>	Specifies that the computer is the host computer for the simulation.
<code>-i id</code>	Specifies a session ID for lobby connection.
<code>-M mode</code>	Specifies the player mode, where mode is <code>I</code> , for instructor, or <code>P</code> , for player.
<code>-m</code>	Starts Battle Command in multiplayer mode.
<code>-P player</code>	Specifies the player name.
<code>-p port</code>	Specifies the UDP port. Default: the port value specified in <i>rid.mtl</i> .
<code>-r {0 1}</code>	Specifies use of an rtiexec. 0 = do not use rtiexec 1 = use rtiexec.
<code>-S</code>	If <code>-D</code> is specified, indicates the host where the MySQL server is located. Default: localhost
<code>-s scenario</code>	Specifies a scenario name. The functioning of this flag depends on whether it is given to the host or client; it may also be affected by the presence of the <code>-F</code> flag. Host: Specifies the name of a scenario to load. If this flag is not specified and <code>-F</code> is specified, then an AAR session is started.
<code>-w {0 1}</code>	Specifies use of a LAN (0) or a WAN (1).
<code>-x</code>	Specifies the federate name.



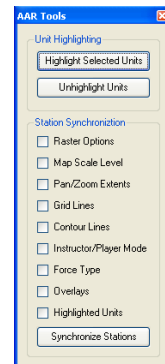
The Battle Command Interface

This chapter illustrates and briefly describes each of the Battle Command windows and dialog boxes.

5.1. AAR Tools Window

The AAR Tools window lets you synchronize the workstations for players who are participating in AAR. You must be in instructor mode to open the AAR Tools window.

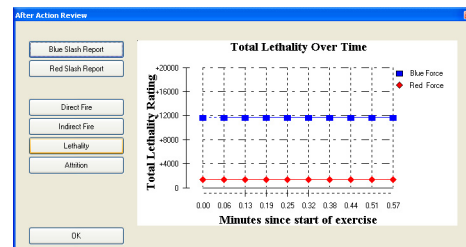
- To open the AAR Tools window, choose **View** → **AAR Tools**.



5.2. After Action Review Window

The After Action Review window displays several different reports that summarize the extent of fire and unit damage during a simulation.

- To open the AAR window, on the Logger toolbar, click the AAR button ().

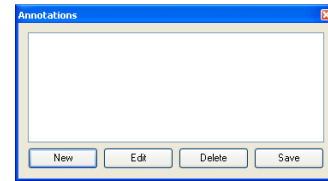


For details about After Action Review, please see Chapter 11, [Reviewing a Simulation Event](#).

5.3. Annotations Window

The Annotations window lists saved annotations for Logger recordings and lets you add, edit, and delete annotations.

- To open the Annotations window, on the Logger toolbar, click the Annotations button ().

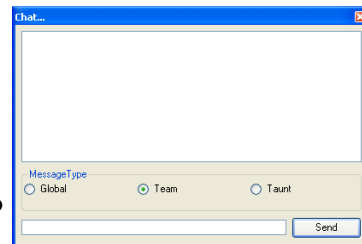


5.4. Chat Window

The Chat window displays:

- ♦ Status messages.
- ♦ Command prompts from Battle Command.
- ♦ Chat messages from other players.

The chat bar allows you to enter messages to be sent to other players. Messages are displayed using the force color of the sender.



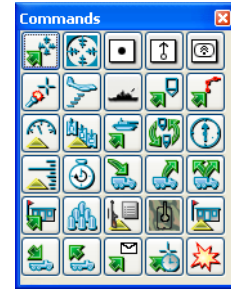
- To open the Chat window, choose **Window** → **Chat Window**, or on the Battle Command toolbar, click the Chat Window icon ().

For more information, please see “[Communicating with Other Players](#),” on page 6-4.

5.5. Commands Panel

The Commands Panel is a resizable button bar that lets you assign commands to units. You can resize the palette.

- To open the Commands Panel, choose **Unit → Command Panel**, or on the Battle Command toolbar, click the Commands Panel button ().



The Commands Panel icons represent the following commands:

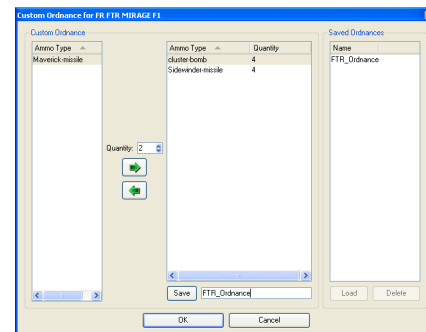
	Altitude		Embark		Move		Return to Base
	Arrive At		Fire mission		Multimove		Send Event
	Assault		Fire on Location		Naval Gunfire		Set Home Base
	CAS		Follow		Patrol		Speed
	Conceal		Formation		Rocket Mission		Target
	Detonate		Heading		ROE		Unload
	Disembark		Load		Resupply		Wait
	Disembark All		Mortar attack				

5.6. Custom Ordnance

The Custom Ordnance dialog box lets you configure the types and amount of ordnance carried by aircraft. For more information, please see [“Configuring Ordnance,”](#) on page 12-7.

To open the Custom Ordnance dialog box, use one of the following methods:

- ♦ In the Unit Painter, select an aircraft type and click Configure Entity.
- ♦ In the Edit Mission dialog box, click Edit SCL.

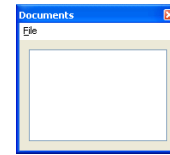


5.7. Documents

The Documents window lists the planning and operational order documents that have been prepared for a scenario.

- To open the Documents window, choose **Window** → **Documents**.

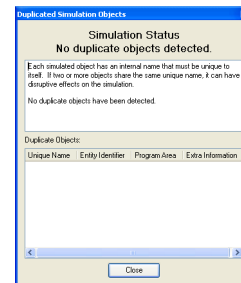
For more information, please see “[Reading Documents](#),” on page 6-2.



5.8. Duplicated Simulation Objects

The Duplicated Simulation Objects window indicates whether or not there are any duplicated simulation objects, and if so, what the duplicated IDs are.

- To open the Duplicated Simulation Objects window, choose **Window** → **Duplicated Objects**.



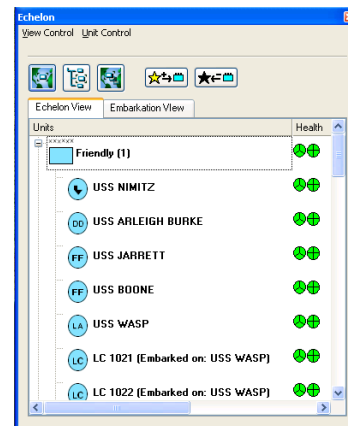
5.9. Echelon Panel

The Echelon Panel displays a hierarchical list of units.

- To open the Echelon Panel, choose **Window** → **Echelon Panel**, or on the Battle Command toolbar, click the Echelon Panel button ().

The Echelon Panel:

- ♦ Allows you to dynamically reorganize units to create task forces.
- ♦ Displays individual instances of opposing units, if discovered by friendly forces.
- ♦ Displays units using MILSTD 2525B symbology.
- ♦ Displays the unit name.
- ♦ Displays “gumball chart” status information for units.
- ♦ Allows you to select units.



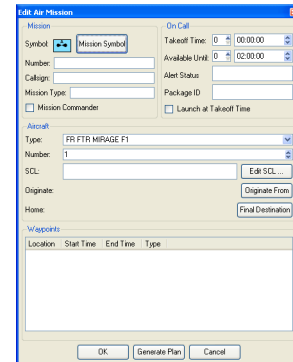
For more information, please see “[Viewing Forces in the Echelon Panel](#),” on page 6-7.

5.10. Edit Air Mission Dialog Box

The Edit Air Mission dialog box lets you create a new air mission or change the parameters of an existing air mission. You can import an Air Tasking Order (ATO) text file. In this version of Battle Command, all ATO missions are imported and you can then sort by any column and assign each air mission tasking in accordance with the ATO or retask missions to fit a new scenario. You must be in instructor mode to access this dialog box.

To open the Edit Air Mission dialog box:

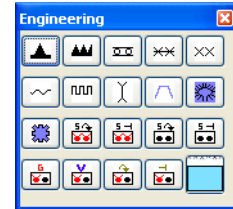
1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View opens.
2. Select the Air Mission tab.
3. Click New Mission.



5.11. Engineering Panel

The Engineering Panel (also called the Combat Engineering Panel) is a resizable button bar that lets you create obstacles and fortifications.

- To open the Engineering Panel, choose **Create** → **Combat Engineering**, or on the Battle Command toolbar, click the Engineering icon ().



The Engineering Panel icons have the following meanings:

	Ditch		Tank ditch		Fence, concertina		Fence, chain link
	Embankment		Fortified line		Breach lane		Defilade, armor
	Strong point		Fortified area		ADAM**, turn		ADAM, block
	RAAM*, turn		RAAM, block		Gator		Conventional block
	Barbed wire		Volcano		Conventional turn		Force type

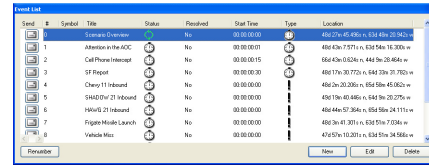
*RAAM = remote anti-armor mine

**ADAM = area-denial artillery mine

5.12. Event List

The Event List displays a list of scenario events.

- To open the Event List, choose **Window → Event List**.

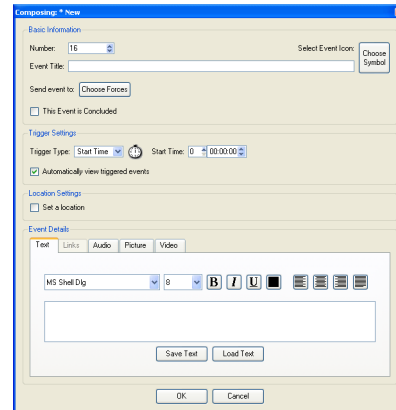


5.12.1. Event Composer

The Event Composer lets you create scenario events. You must be in instructor mode to compose events.

To open the Event Composer:

1. Choose **Window** → **Event List**. The Event List opens.
2. Select an event or create a new one.
3. Click Edit. The Event Composer opens.

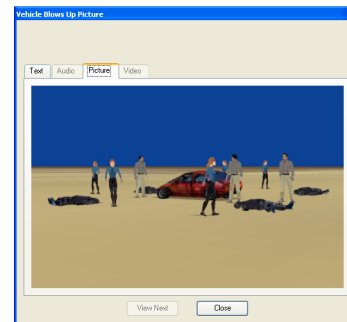


5.13. Event Viewer

The Event Viewer lets you view the contents of an event.

To open the Event Viewer:

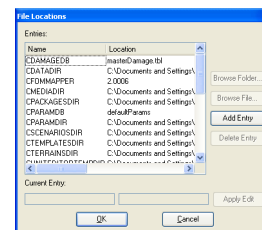
1. Choose **Window** → **Event List**. The Event List opens.
2. Click the Play button for the event you want to view.



5.14. File Locations Dialog Box

The File Locations dialog box allows you to set default and current locations for Battle Command configuration files. For details, please see “[Specifying File Locations](#),” on page A-12.

- To open the File Locations dialog box, choose **Options** → **Locations** → **Settings**.

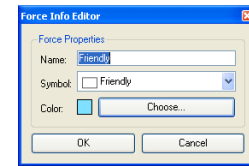


5.15. Force Info Editor

The Force Info Editor dialog box lets you change a force's name, its symbol, and its color. For details, please see [“Editing a Force's Name, Symbol, or Color,”](#) on page 5-20.

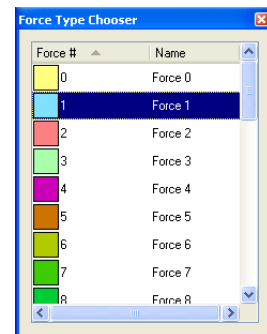
To open the Force Info Editor dialog box:

1. Choose **Unit** → **Hostility Map**, or on the Battle Command toolbar, click the Hostility/ROE button (🛡️).
2. Click the name of the force that you want to edit.



5.16. Force Type Chooser Window

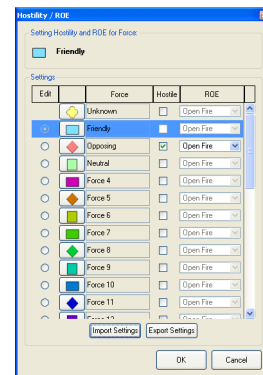
The Force Type Chooser window opens when you click the Force Type button in a dialog box that requires you to select a force, such as the Unit Painter, Air Mission Editor, or Combat Engineering Panel.



5.17. Hostility/ROE

The Hostility/ROE window lets you specify which forces are hostile to each other and set the rules of engagement between the selected unit and various hostile forces. It also provides access to the Force Info Editor, which lets you change a force's name, symbol, and color.

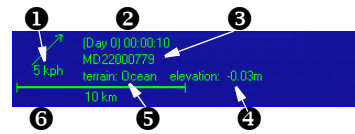
- To open the Hostility/ROE window, choose **Unit** → **Hostility Map**, or on the Battle Command toolbar, click the Hostility/ROE button (🛡️).



5.18. Information Panel

The Information Panel is inset into the map for loaded scenarios. It displays:

- Wind speed and direction (1).
- Simulation time (2).
- Location of the cursor in default location mode (3).
- Elevation of cursor (4).
- Terrain type under cursor (5).
- Map scale (6).

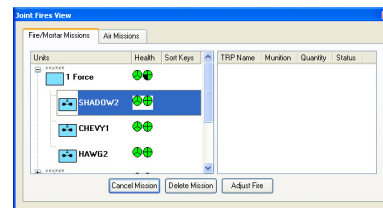


5.19. Joint Fires View

The Joint Fires View lets you view and edit mortar and artillery missions. It also lets you create and edit air missions.

You must be in instructor mode to use the Joint Fires View.

When you select a unit in the Joint Fires View, it is selected on the map and you can assign tasks to it just as you would if it were selected in the Echelon Panel or directly on the map itself.

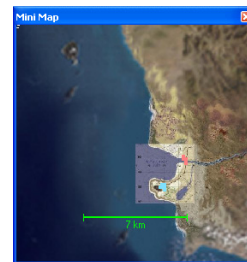


- To open the Joint Fires View, choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View icon (🗺️).

5.20. Mini Map

The Mini Map shows a thumbnail view of the database. If you draw a rectangle on the Mini Map, the map displays that portion of the terrain database. This is the quickest way to view a portion of the terrain.

- To open the Mini Map, choose **View Control** → **Mini Map**, or on the Battle Command toolbar, click the Mini Map icon (🗺️).

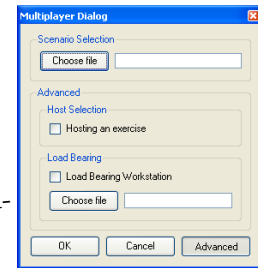


5.21. Multiplayer Dialog Box

The Multiplayer dialog box lets you:

- ♦ Connect to a multiplayer scenario.
- ♦ Specify that you are hosting a multiplayer scenario.
- ♦ Specify that your PC is a load-bearing PC.
- To open the Multiplayer dialog box for a LAN-based simulation, choose **File** → **Open** → **Multiplayer Scenario**.

For more information, please see [“Connecting to a Multiplayer Exercise,”](#) on page 12-8.



5.22. Navigation Panel

The Navigation Panel lets you pan and zoom the map. By default, it opens in the upper left corner of the map window. You can change the location on the Map View tab of the Settings dialog box. For details, please see [“Specifying the Location of the Navigation Panel,”](#) on page 3-11



- To open the Navigation Panel, choose **View Control** → **Navigation**, or on the Battle Command toolbar, click the Navigation button (🧭).

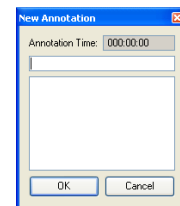
For more information, please see [“Navigating the Map Using the Navigation Panel,”](#) on page 6-5.

5.23. New Annotation Dialog Box

The New Annotation dialog box allows you to add an annotation to a Logger recording.

To open the New Annotation dialog box:

1. Open a Logger recording.
2. Click the Annotations button (📝). The Annotations window opens.
3. Click New.



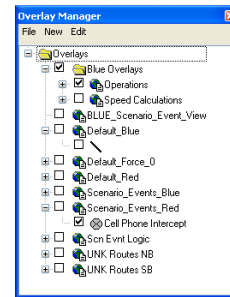
For more information, please see [“Adding Annotations to a Logger Recording,”](#) on page 11-4.

5.24. Overlay Manager

The Overlay Manager allows you to add and delete the overlays on which you create operational graphics. You also use the Overlay Manager to select the overlays that are visible in the map.

- To open the Overlay Manager dialog box, choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button ().

For more information, please see “[Adding an Overlay](#),” on page 7-2.



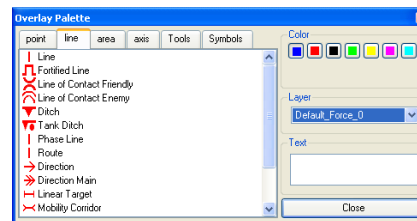
5.25. Overlay Palette

The Overlay palette lets you create operational graphics. It has the following panels:

- ♦ Point
- ♦ Line
- ♦ Area
- ♦ Axis
- ♦ Tools
- ♦ Symbols.

- To open the Overlay Palette, choose **Overlay** → **Palette**, or on the Battle Command toolbar, click the Overlay palette icon ().

For detailed descriptions of the various overlay objects and how to create and manage them, please see “[Adding Graphics to an Overlay](#),” on page 7-4.

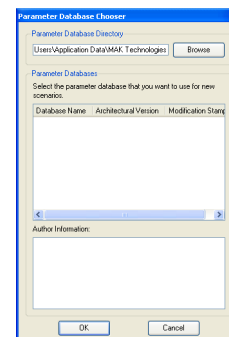


5.26. Parameter Database Chooser

The Parameter Database Chooser lets you specify which parameter database package to use with a new scenario.

- To open the Parameter Database Chooser, choose **Options** → **Parameter Database Chooser**.

For more information, please see “[Specifying the Default Parameter Database Package](#),” on page B-10.

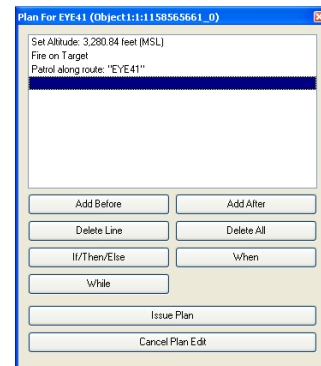


5.27. Plan Editor Window

The Plan Editor lets you create and edit plans for units.

- To open the Plan Editor, choose **Unit** → **Plan Editor**, or on the Battle Command toolbar, click the Plan icon (📋).

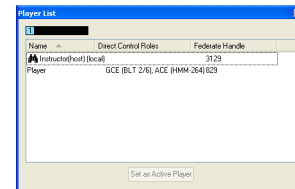
For more information, please see “[Editing Plans](#),” on page 9-2.



5.28. Player List

The Player List lists the participants in an exercise. It takes the names from the Name field of the Settings dialog box, Game tab.

- To open the Player List, choose **Simulation** → **Player List**.



5.29. Rendering Dialog Box

The Rendering dialog box lets you choose how to render the terrain – polygon, raster, CIB, or CADRG, if available. It also lets you change the contrast of the terrain.

- To open the Rendering dialog box, choose **Terrain** → **Rendering Options**.

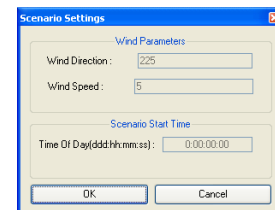
For more information, please see “[Specifying How Terrain is Displayed](#),” on page 4-4.



5.30. Scenario Settings Dialog Box

The Scenario Settings dialog box lets you specify the scenario wind speed and direction, and scenario start time. You can also relabel each force.

- To open the Scenario Settings dialog box, choose **Options** → **Scenario Settings**.

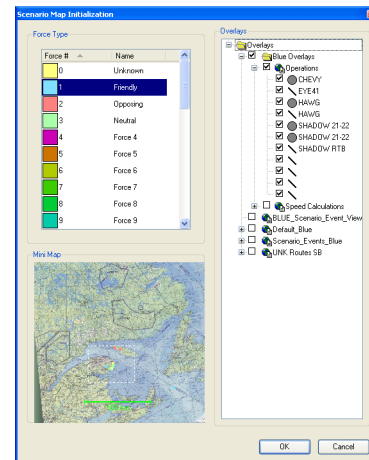


5.31. Scenario Map Initialization Dialog Box

The Scenario Map Initialization dialog box lets you specify an area of the map and a set of overlays to display automatically when you load the scenario.

- To open the Scenario Map Initialization dialog box, choose **Options** → **Scenario Map Initialization**.

For more information, please see “[Saving the Map View](#),” on page 4-9.



5.32. Settings Dialog Box

The Settings dialog box lets you set preferences for how Battle Command works. It has the following tabs: Game, Map View, Network, and License.

- To open the Settings dialog box, choose **Options** → **Settings**.

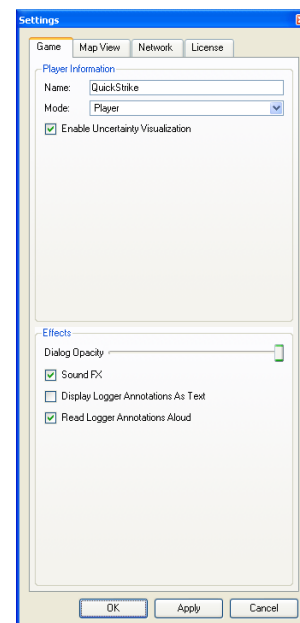
5.32.1. Game Tab

The Game tab lets you change the following settings:

- ♦ Use of sound.
- ♦ Operation mode (instructor, player, observer).
- ♦ The player name.

For details, please see:

- ♦ “[Changing Display Settings](#),” on page 4-6.
- ♦ “[Creating a Scenario](#),” on page 13-2.
- ♦ “[Enabling and Disabling Sound Effects](#),” on page 10-2.

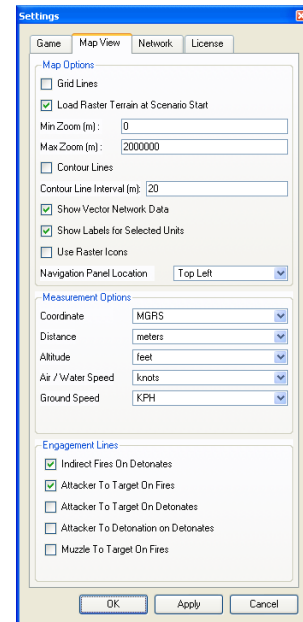


5.32.2. Map View Tab

The Map View tab lets you specify the display of:

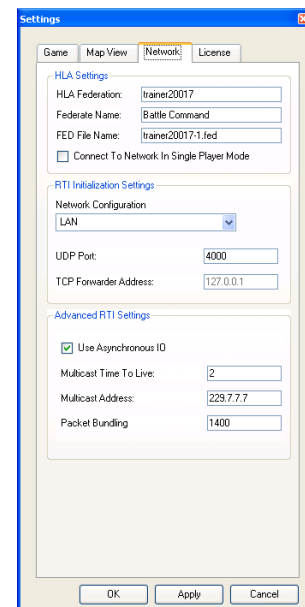
- ♦ Grid lines.
- ♦ Contour lines.
- ♦ Minimum and maximum zoom.
- ♦ Rasterized terrain.
- ♦ Engagement lines.
- ♦ Default values for coordinates and measurements.
- ♦ Location of the navigation panel.

For more information, please see [“Observing Engagement Lines,”](#) on page 10-8.



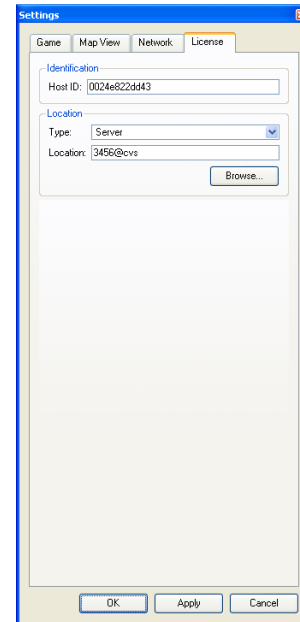
5.32.3. Network Tab

The Network tab lets you specify settings that affect multiplayer scenarios. For more information, please see Chapter 12, *Multiplayer Scenarios* and Appendix A, *Administration and Configuration*.



5.32.4. License Tab

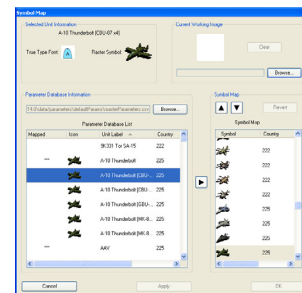
The License tab configures license management for Battle Command.



5.33. Symbol Map Window

The Symbol Map Window allows you to change the raster images mapped to units. For details, please see “[Editing Entity Symbol Mappings](#),” on page A-15.

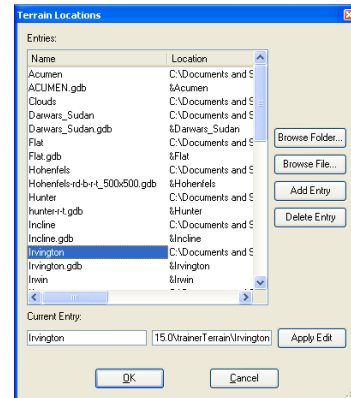
- To open the Symbol Map Window, choose **View Control** → **Symbol Map**.



5.34. Terrain Locations Dialog Box

The Terrain Locations dialog box allows you to alias terrain database files to terrain directories so that a scenario can pick up the data in the MTD file for that terrain. For details, please see “[Specifying Terrain Locations](#),” on page A-13.

- To open the Terrain Locations dialog box, choose **Options** → **Locations** → **Terrain**.



5.35. Toolbars

Battle Command has several toolbars. Each one has a set of icons you can use to invoke frequently used commands. You can undock the toolbars from their default locations and dock them to any side of the window, or leave them to float.

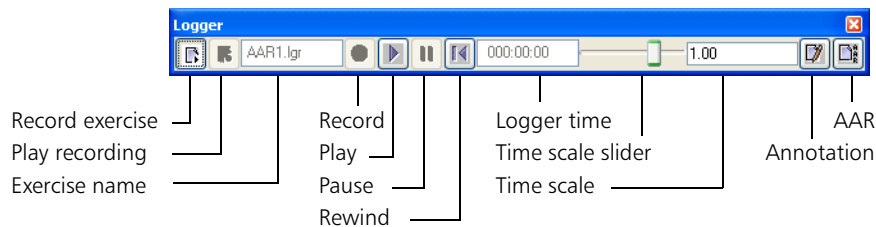
- To undock a toolbar, grab the handle and drag it away from the edge of the Battle Command window.
- To dock a toolbar, drag it to any edge of the Battle Command window. When it changes to a thinner rectangle aligned with the side of the window, let go of it.



5.35.1. Data Logger Toolbar

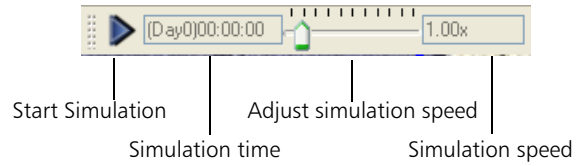
The Data Logger toolbar allows you to record exercises and play them back for review.

- To open the Logger toolbar, choose **View** → **Logger**, or on the Battle Command toolbar, click the Logger button (📄).



5.35.2. Clock Toolbar

The Clock toolbar lets you start and stop the simulation and control its speed. It is displayed by default under the menu bar.



5.35.3. Battle Command Toolbar

The Battle Command toolbar has icons for the following options that are available on various menus:



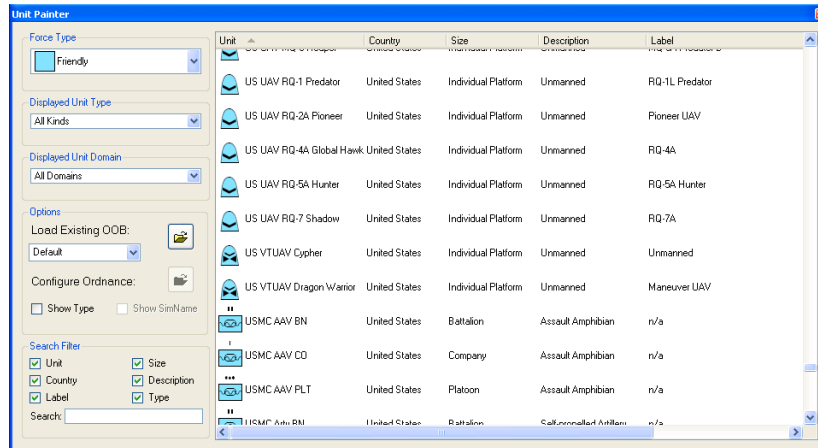
- ♦ Numbers correspond to the callouts in the illustration.
 - ♦ Asterisks indicate icons that are only available in instructor mode.
-

- ♦ Mini Map (1)
- ♦ Navigation Panel (2)
- ♦ Echelon Panel (3)
- ♦ Commands Panel (4)
- ♦ *Joint Fires View (5)
- ♦ Chat Window (6)
- ♦ Unit Status (7)
- ♦ Unit Shortcut Panel (8)
- ♦ Plan Editor (9)
- ♦ Overlay Management (10)
- ♦ Overlay Palette (11)
- ♦ *Unit Painter (12)
- ♦ Scale Units (13)
- ♦ Combat Engineering Panel (14)
- ♦ Terrain Rendering Chooser (15)
- ♦ *Logger (16)
- ♦ Line-of-Sight (17)
- ♦ Weapons Effect Fan (18)
- ♦ *Force Hostility Map (19)
- ♦ *Event List (20).



5.36. Unit Painter

The Unit Painter lists all of the units that you can create and allows you to add them to a scenario.



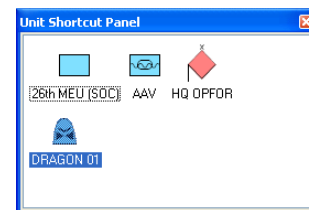
- To open the Unit Painter, choose **Create** → **Units**, or on the Battle Command toolbar, click the Unit Painter icon (🎨).

For more information, please see “Adding a Unit to a Scenario,” on page 13-3.

5.37. Unit Shortcut Panel

The Unit Shortcut Panel allows you to quickly assign tasks to units, even if they are not visible on the map.

- To open the Unit Shortcut Panel, choose **Unit** → **Shortcut Panel**, or on the Battle Command toolbar, click the Unit Shortcut Panel icon (📌).

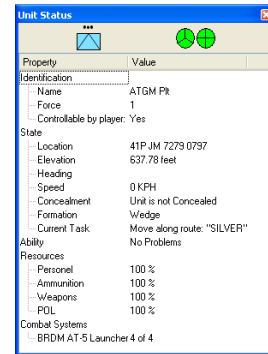


5.38. Unit Status Window

The Unit Status window shows you information about the selected unit.

- To open the Unit Status window, choose **Unit → Status**, or on the Battle Command toolbar, click the Unit Status icon ().

For more information, please see [“Monitoring Unit Status,”](#) on page 10-6.





Planning Your Mission

A Battle Command simulation starts with a planning period in which you determine the terrain required in the appropriate scale, the forces and unit types needed, and the requirements for the training audience. Each scenario is developed to meet a specific need: process practice, training, or mission rehearsal.

(In a multiplayer scenario, you might control opposing forces or serve as a primary staff member.) Before you run the simulation, you must, among other things:

- ♦ Understand the mission background.
- ♦ Review the order of battle.
- ♦ Review the terrain.
- ♦ Optionally, create overlay graphics such as unit or national boundaries, or graphics to display airspace restrictions or coordination (see [“Adding Graphics to an Overlay,”](#) on page 7-4).
- ♦ Optionally, create combat engineering objects (see [“Adding Engineering Objects to the Map,”](#) on page 8-4).
- ♦ Create plans for your forces (see Chapter 9, [Writing Plans](#)).

6.1. Reading the Mission Background

Your scenario may include documents with mission background to help you understand your mission and get you started. It may also have a mission background overlay. To view the overlay, select it in the Overlay Manager, as described in “[Enabling Display of an Overlay’s Objects](#),” on page 7-3.

6.1.1. Reading Documents

Documents are stored in a documents file. Before you can read them, you must load the documents file.

Loading the Documents File

To load a documents file:

1. Open a scenario.
2. Choose **Window** → **Documents**. The Documents window is displayed.
3. In the Documents window, choose **File** → **Load**. An Open dialog box opens.
4. Navigate to the directory that contains the documents file.
5. Select the document file you want to load.



If you do not see any files listed, it is possible that they were saved without the *.mmd* extension. Set the Files of Type filter to All Files.

6. Click Open. The documents in the file are listed in the Documents window.

Reading A Document

To read a document:

1. In the Documents window, double-click the document you want to read.

6.1.2. Writing Documents

As part of scenario development, you may need to create operations documents for familiarization with the scenario, intelligence preparation of the battlefield, review of possible hostile courses or action, significant political influence, and so on. Battle Command includes a set of operational planning document templates. You can create new documents from the templates. You can also edit these templates or create templates of your own. (For information about creating templates, please see Appendix C, [Creating Document Templates](#).)

You can apply the fog of war to documents.



Battle Command maintains the documents in memory during the simulation. Therefore, the next time you display the Documents window, your new document will be in the list. However, if you do not save the document, it will not be available the next time you run the scenario.

To add a new document:

1. Open a scenario.
2. Choose **Window** → **Documents**. The Documents window is displayed.
3. In the Documents window, choose **File** → **New**. An Open dialog box opens.
4. Select a template for the new document.
5. Provide a name for your document.
6. Press **Enter**. The template opens in its own window.
7. Complete the document by adding text anyplace that you see two underline characters (_ _). Put the cursor just in front of the second underline.
8. Start typing. A text entry window opens.
9. Complete the text entry.
10. Click OK.
11. Continue entering text until you complete the document.
12. Close the document.

6.1.3. Saving Documents

All documents you create for a scenario get saved to one documents file, not to individual files. They are not saved automatically. You must explicitly save them.

To save a document:

1. In the Documents window, choose **File** → **Save**. A Save dialog box opens.
2. Select a directory.
3. Give the documents file a name. Be sure to type the *.mmd* extension.
4. Click Save.

6.2. Communicating with Other Players

If you are playing Battle Command in multiplayer mode, you can send messages to other players. When messages are delivered, they are displayed using the force color of the sender.

To send a message:

1. Choose **Window** → **Chat Window**, or on the Battle Command toolbar, click the Chat Window icon ().
2. Select the option button for the recipient of the message, as follows:
 - Global – send to all players.
 - Team – send to members of your force.
 - Taunt – send to all players not on your force.
3. Put the cursor in the chat bar at the bottom of the Chat window.
4. Type your message. The message text is displayed using the force color.
5. Click Send.



Sending messages in the chat bar is meaningful only in a multiplayer scenario.

6.3. Reviewing Your Forces

To review your forces, you can examine their location in the map and their organization in the Echelon View. Your ability to view forces on the map is affected by the fog of war and unit control relationships. For details, please see “Controlling Units,” on page 6-10 and “Situational Awareness (Fog of War),” on page 6-12.

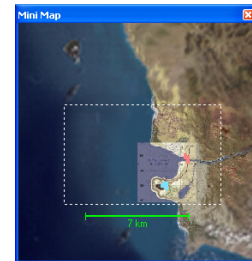
6.3.1. Using the Mini Map

The map is the view of the terrain that is displayed when you open a scenario. If you don't see your forces at first, they may be located outside the current view. To find them, use the Mini Map.

The Mini Map shows a thumbnail version of the entire database.

To use the Mini Map:

1. Choose **View Control** → **Mini Map**, or on the Battle Command toolbar, click the Mini Map button ().
2. Find the icons for your force on the Mini Map.
3. Hold down the left mouse button and, in the Mini Map, draw a rectangle around the portion of the database you want to view. The map displays the area you just outlined.



Navigating the Map

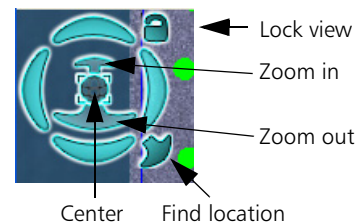
In addition to selecting areas to view in the Mini Map, you can directly manipulate the map view from the Navigation Panel and using your mouse.

Navigating the Map Using the Navigation Panel

To refine your view of the simulation, use the Navigation Panel to pan and zoom the map. You can also access these functions on the right-click menu.

To navigate the map using the Navigation Panel:

1. Choose **View Control** → **Navigation**, or on the Battle Command toolbar, click the Navigation button (). The Navigation Panel opens.
2. Pan the view by clicking the outer ring.
3. Zoom in and out by clicking the inner controls.



Centering the Map on a Specific Coordinate Location

To center the map using coordinates:

1. Right-click the map. A menu is displayed.
2. Choose **Find Location**. The Enter Location to Center On dialog box opens.
3. Choose the coordinate system to use.
4. Enter the desired coordinates.
5. Click OK. The map centers on the location and displays a star at the specified coordinates.

Navigating the Map Using the Mouse

This section describes the different ways to navigate the map using your mouse. The right-click menu has options for zooming and panning the map.

Centering on a Location and Zooming In or Out

You can center the map on the location of the mouse cursor and zoom in or out at the same time.

To center the map on a location and zoom:

1. Place the mouse cursor at the location you want to center on.
2. Right-click. A menu is displayed.
3. Choose **Center on Location and Zoom In** or **Center on Location and Zoom Out**. Battle Command takes the appropriate action.

Selecting a Section of the Map to View

You can specify a section of the terrain to view directly on the map, similar to how you would do so on the Mini Map.

- To specify a section of the map to view, hold down the **Shift** key and drag a bounding outline on the map. The map redisplay to show just the section outlined.

Zooming Using the Mouse

- To zoom the map in and out, scroll the mouse wheel.

Dragging the Terrain

You can drag the map view with the mouse. This may be a quicker way to change the view than panning.

- To drag the map, hold down the mouse scroll wheel and drag the mouse.

6.3.2. Reviewing the Terrain

To understand the terrain in which you are operating, you can view contour lines, grid lines, and the map scale. Please see [“Changing Display Settings,”](#) on page 4-9.

The map scale is displayed in the Information Panel. As you zoom in or out, the scale resets itself.

The Information Panel also displays the type of terrain, the elevation, the frame rate, and the location of the cursor.

6.3.3. Viewing Forces in the Echelon Panel

The Echelon Panel displays units in an organizational hierarchy by force. Each unit displays its icon, its name, and a gumball chart status indicator.

- To open the Echelon Panel, choose **Window → Echelon Panel**, or on the Battle Command toolbar, click the Echelon Panel button (.

Unit Types

The Echelon Panel displays the order of battle. If you are in player mode, the fog of war is in effect, so you can only see units in your force or units for which you have assumed control, and units in other forces that have been sighted by your force. Units in other forces are not displayed hierarchically. In instructor mode, all forces are visible and are displayed hierarchically.

The shading of a unit's label indicates control status. A bold label indicates the unit is commanded by a player. A gray label indicates that no player has control of the unit. (Force level units are always gray.) For more information about control, please see [“Controlling Units,”](#) on page 6-10.

Each force can include the following types of units:

- ♦ Individual unit: the smallest unit in the organization, such as a tank or a helicopter.
- ♦ Aggregate unit: an organizational unit, such as a platoon. Battle Command has two types of aggregates. A true aggregate is a unit that models an organizational unit, but is not made up of individual subordinate units. A pseudo-aggregate is a unit that you create by combining units, both individuals and other aggregates. You can view these subordinate units and assign them plans and tasks independently of their superior.

The same functionality also applies to naval or air units. Please see [“Using the Unit Editor,”](#) on page B-1, for a list of supported unit types.

The Echelon Panel in Figure 6-1 lists several mechanized companies. The first two in the hierarchy cannot be expanded to view subordinates. Therefore, they are true aggregates. The last mechanized company in the list is expandable to show individual members. Therefore, it is a pseudo-aggregate. Notice that it is made up of a true aggregate and another pseudo-aggregate.

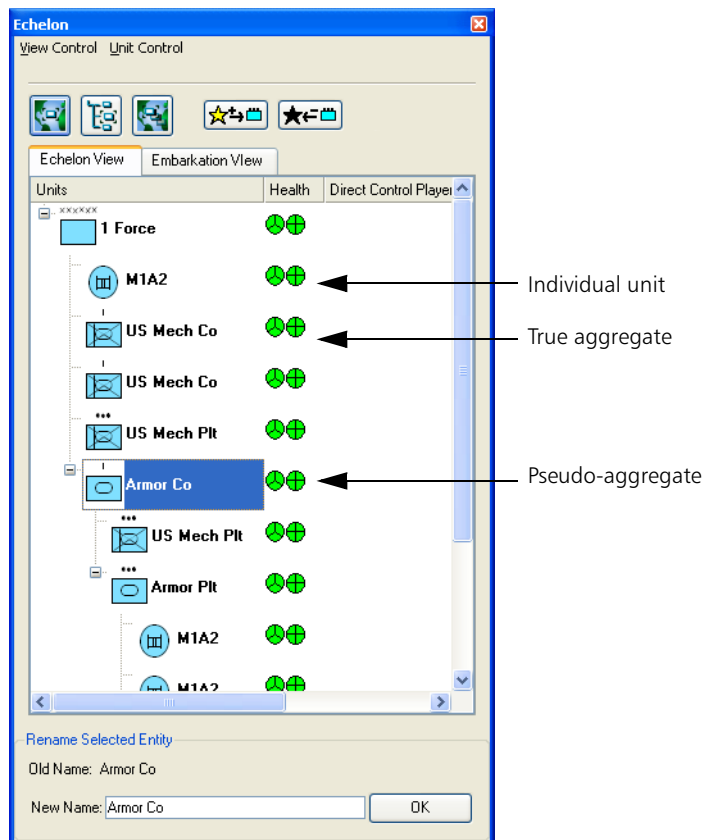


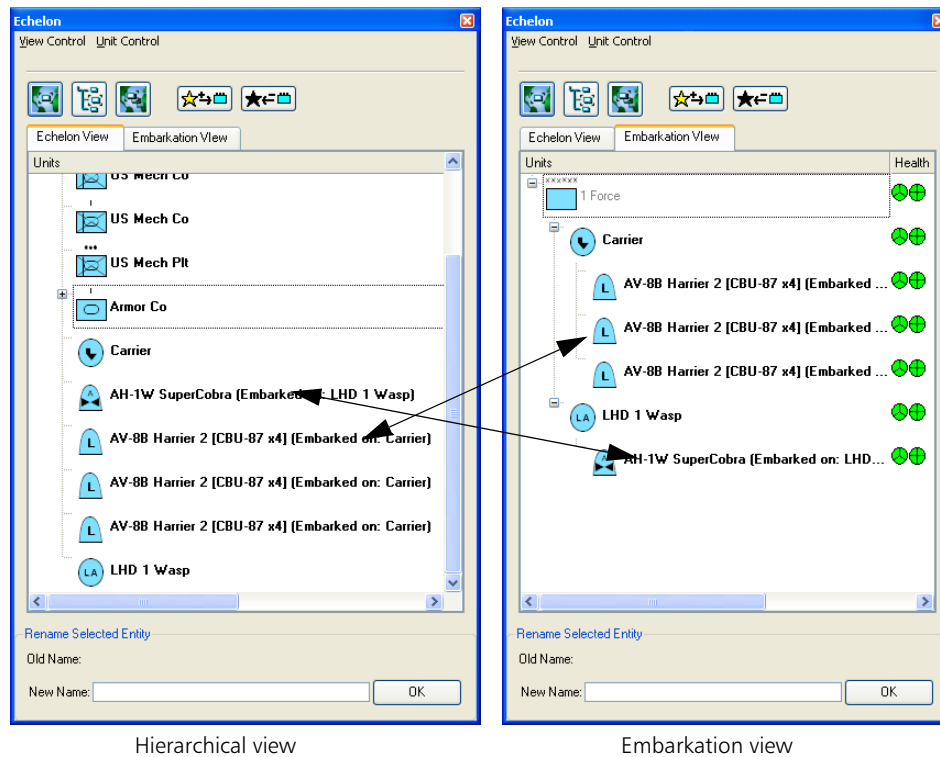
Figure 6-1. Unit types

The Embarkation View

The Echelon Panel has an embarkation view, which displays the order of battle based on the units on which they are embarked. By expanding a transport unit's hierarchy, you can see which units it is carrying.

- To display the Embarkation View, click the Embarkation View tab.

The following figure compares the hierarchical view of the Echelon Panel with the embarkation view.



Displaying A Selected Unit in the Map

When you select a unit in the Echelon Panel, it is automatically selected in the map. However, if the map is not displaying the portion of the terrain where the selected unit is located, you will not see the unit.

- To have the map display the unit selected in the Echelon Panel, on the Echelon Panel, choose **View Control** → **Show Units on Map** or click the Show Units on Map icon.



Displaying A Selected Unit in the Echelon Panel

If you select a unit in the map, you can have the Echelon Panel scroll to display the unit.

- To have the Echelon Panel display the unit selected in the map, in the Echelon Panel, choose **View Control** → **Find Unit in Tree** or click the Find Map Selection in Tree icon.



6.4. Controlling Units

If you run a scenario in Instructor mode, you can see and control all units. In Player mode, you can only see and control units in the forces that you are playing for (see “[Situational Awareness \(Fog of War\)](#),” on page 6-12 for details about fog of war). By default a player can control all units in his force. However, you can further refine the control structure by explicitly taking control of units. Battle Command has the following types of control status:

- Force – The player has made no direct control selection and can control all units in his force types.
- Direct Control – The player has assumed control of a specific unit.
- Implied Control – The player can control the subordinates of the unit for which she has direct control.
- Excluded – If a human player assumes control of another player’s subordinate unit, the other player can no longer control the subordinate units. In other words, direct control overrides implied control. However, since players can share control of units (see “[Sharing Control of a Unit](#),” on page 6-10), a player who has been excluded from an implied control can assume direct control of an excluded subordinate.
- None – If you have assumed direct control of a unit, you have no control relationship to other, non-subordinate units. For example, if you pick A Company, you have no control relationship with B Company.

The Echelon Panel displays the names of the players who have direct and indirect control of units (see Figure 6-2.)

6.4.1. Sharing Control of a Unit

More than one player can assume direct control of a unit. This allows for multiple players to participate as members of the command and control and staff portions of the organization. Please seen this way, assuming control is really just a means for a player to register interest in a certain level of situational awareness.

6.4.2. Assuming Control of a Unit

To assume control of a unit:

1. Select a unit in the Echelon Panel.
2. Choose **Unit Control** → **Assume**, or click the Click the Assume Control button ().

Selecting Multiple Units to Control

You can assume control of multiple units. You can also assume control of more than one portion of an organization. If you are playing for multiple forces, you can control units in any of the forces for which you are playing.



It is recommended that you assume control of units individually, rather than making a multiple selection and clicking Assume Control. Making multiple control selections at once can degrade performance of all participating computers.

6.4.3. Relinquishing Control of a Unit

To relinquish control of a unit:

1. Select a unit in the Echelon Panel.
2. Choose **Unit Control** → **Relinquish**, or click the Relinquish Control button ().

6.4.4. Task Organization and Control Relationships

Task organization affects control relationships as follows:

- ♦ If you have direct control of a unit and it is task organized to another unit with which you have no control relationship, you retain control of the unit.
- ♦ If you have implicit control of a subordinate unit and the unit is task organized to a unit with which you have no control relationship, you lose control of the subordinate.
- ♦ If you have direct control of a unit and another unit with which you have no control relationship gets task organized into your unit, you acquire implicit control of the new unit.

6.5. Situational Awareness (Fog of War)

While you are playing a simulation, fog of war is in effect. Battle Command supports both friendly fog of war and opposing force fog of war.

6.5.1. Friendly Forces Fog of War

Friendly fog of war operates with the following rules:

- ♦ In Instructor Mode, there is no fog of war.
- ♦ If a player does not choose a direct control level, fog of war does not apply within his force type(s). The player always sees “ground truth” for the position of his forces.
- ♦ If a player chooses a direct control level, fog of war applies to units not within his control structure. For example, if Mark is controlling A/1-1, he cannot see units in B/1-1 until a member of his organization reports contact with the adjacent unit (see [“Spot Report Uncertainty,”](#) on page 6-14 for more details.)
- ♦ If a player has direct control of an organization, but a human player has direct control of a subordinate, the following rules apply, as illustrated in Figure 6-2:
 - The controller (Mark) sees the 26 MEU, GCE, and ACE icons plotted as “ground truth”.
 - Mark only sees icons for the sub-controller's (Vitaly) subordinates when their simulated models issue situation reports.
 - Mark processes and displays all spot reports generated from his organization, including spot reports from Vitaly's units, as long as they apply to something observed outside the controller's organization.
 - Vitaly sees his subordinate icons as ground truth.

For more information about the control hierarchy, please see [“Controlling Units,”](#) on page 6-10.

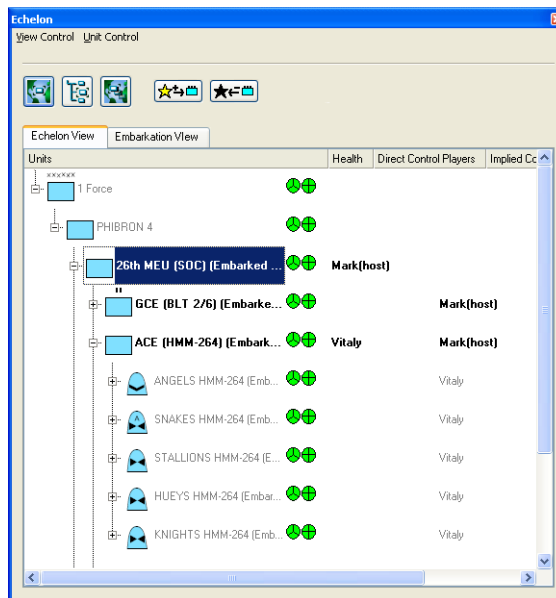


Figure 6-2. Hierarchical control structure and fog of war

Spot Report Uncertainty

As noted in the previous section, when fog of war is in effect, friendly units that are not under your control are displayed when spot reports report their presence. To increase the sense of realism of fog of war, you can enable a greater degree of uncertainty for the information in spot reports. Visualization of uncertainty hides some of the information in a spot report and makes it available over time, as follows:

- ♦ Instructor Mode – no obfuscation of spot reports.
- ♦ Player Mode – one report received:
 - Draw the discovered units as force unknown.
 - Label the units as “Unknown Vehicle” or “Unknown Aircraft”.
 - Display only the object kind and domain (of manufacture).
- ♦ Player Mode – two reports received:
 - Display as force unknown.
 - Label the unit with more detail, for example, “Unknown Tracked Armor”.
 - Display the category for vehicles; for aggregates display the subcategory.
- ♦ Player Mode – three reports received:
 - Display full unit details.

Once full details are displayed, they are displayed for the rest of the simulation play.

To enable uncertainty visualization:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. On the Game tab, check Enable Uncertainty Visualization.

6.5.2. Opposing Forces Fog of War

Opposing force fog of war limits your knowledge of opposing forces. Opposing forces are displayed only when they are sighted by friendly units. Thereafter, they are displayed at their last known location.

The icons for opposing forces change color based on how recently they were sighted. The colors indicate sightings within the past one minute, five minutes, and ten minutes, as shown in the following figure.



If you display the Unit Status Panel for an opposing unit, you can view a spot report that states when and where the unit was last seen.

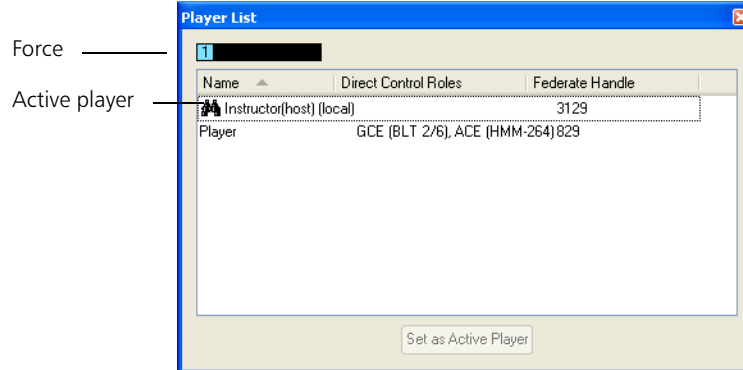
6.5.3. Setting the Active Player

In a multi-player exercise, each player typically joins the exercise from his own workstation. That player is the ‘active player’ on that workstation, and the player’s view of the exercise represents the force and unit control selections made by that player. Battle Command allows you to set the active player on a workstation to be any player in the exercise.

When you set the active player to be someone other than yourself, you assume the view of that player, see the exercise as the player sees it, and control the units that player has control of. To assist in this process, the Player List:

- ♦ Indicates which player is logged in on a computer by displaying (local) next to the player’s name.
- ♦ Indicates which player is the active player, that is the player whose view is shown on the map on a given computer, by displaying a pair of binoculars next to the active player.
- ♦ Lists the units that each player has direct control of.
- ♦ Lists each player’s federate handle.
- ♦ Displays the selected player’s force type in the bar above the player list.

The following illustration shows the components of the Player List as described in this section.



To set the active player:

1. If you are not in Instructor mode, change to Instructor mode.
2. Choose **Simulation** → **Player List**. The Player List opens.
3. Select the player who you want to be active on this computer.
4. Click Set As Active Player.
5. Change to Player mode. The map displays the exercise from the point of view of the selected player.

6.6. The Multi-Force Model and Hostility Mapping

Battle Command can assign units and objects to up to 32 numbered, color-coded force types. This allows you to model environments in which multiple allied and hostile forces operate. You assign units and objects to a force when you create them, as described in the procedures elsewhere in this manual. You configure the relationships between units from different forces, including rules of engagement for them, in the Hostility/ROE window.

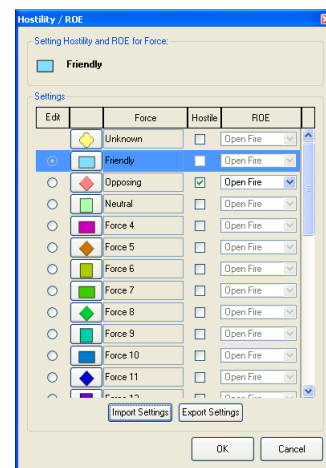
You can save hostility relationships for use in other scenarios and you can import saved hostility relationships into the current scenario.

You can also change a force's name, its symbol, and its color.

You must be in instructor mode to edit the Hostility Map.

To configure hostility relationships:

1. Choose **Window** → **Echelon Panel**. The Echelon Panel opens.
2. Select the force for which you want to configure hostility relationships.
3. Choose **Unit** → **Hostility MAP**, or on the Battle Command toolbar, click the Force Hostility Map icon (). The Hostility/ROE window opens.
4. In the Edit column, select the force for which you want to assign hostility (the edit force).
5. In the Hostile column, select the check box for each force that you want the edit force to be hostile towards.
6. For each hostile force, select the desired ROE from the drop-down list. For more information about setting ROE, please see [“Setting Rules of Engagement,”](#) on page 9-23.
7. Click Apply or OK.



6.6.1. Importing and Exporting Hostility Relationships

When you save hostility relationships, they are saved in the scenario folder in a file with the extension *.hos*. If you want to import relationships, you will need to know which scenario they are stored in so that you can navigate the directory structure to select the file.

To export hostility relationships to a file:

1. Choose **Window** → **Echelon Panel**. The Echelon Panel opens.
2. Select the force for which you want to configure hostility relationships.
3. Choose **Unit** → **Hostility MAP**, or on the Battle Command toolbar, click the Force Hostility Map icon (). The Hostility/ROE window opens.
4. Set up hostility relationships as described in [“The Multi-Force Model and Hostility Mapping,”](#) on page 6-16.
5. Click Export Settings. The Choose a Hostility File Name for Export dialog box opens.
6. Type a name for the hostility file.
7. Click Save.

To import hostility relationships into a scenario:

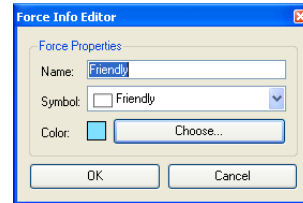
1. Choose **Window** → **Echelon Panel**. The Echelon Panel opens.
2. Select the force for which you want to configure hostility relationships.
3. Choose **Unit** → **Hostility MAP**, or on the Battle Command toolbar, click the Force Hostility Map icon (). The Hostility/ROE window opens.
4. Click Import Settings. The Choose a Hostility File to Import dialog box opens.
5. Select a hostility file. You may need to navigate to another scenario to find a hostility file.
6. Click Open.

6.6.2. Editing a Force's Name, Symbol, or Color

The basic forces (Friendly, Opposing, Neutral, and Unknown) use standard naming, coloring, and symbolic conventions. The rest of the forces that you can assign units to have generic names (Force 5, Force 6, and so on) and are randomly assigned to the basic force symbols and colors. You can edit these force identifiers for any force.

To edit a force's name, color, or symbol:

1. Choose **Unit** → **Hostility MAP**, or on the Battle Command toolbar, click the Force Hostility Map icon (). The Hostility/ROE window opens.
2. Click the name of the force that you want to edit. The Force Info Editor dialog box opens.
3. To change the name of the force, type a new name in the Name box.
4. To change the symbol, select a symbol from the drop-down list.
5. To change the color:
 - a. Click Choose. A color picker dialog box opens.
 - b. Select the color that you want this force to use.
 - c. Click OK.
6. Click OK.



6.7. Selecting Units and Objects

Most of the procedures in this manual ask you to select a unit or an overlay object.

- To select a unit or object, click it on the map or in the Echelon Panel.

To select multiple units or objects, use one of the following methods:

- Hold down the left mouse button and draw a selection box around the units you want to select.
- Hold down the **Ctrl** key and click on each unit or object you want to select.
- Hold down the **Ctrl** key and the left mouse button and draw selection boxes around multiple individual units, groups of units, or both.

6.7.1. Unselecting Units and Objects

To unselect a unit or object:

- If only one unit or object is selected, click on the terrain.
- If multiple units or objects are selected:
 - **Ctrl**-click an individual unit or object to unselect it.
 - Click on the terrain to unselect all objects.

6.7.2. Disabling Object Selection

When units and graphical objects are close to each other, it can be difficult to select multiple units without also selecting graphical objects. You can disable object selection to make it easy to select only units.

- To disable or enable object selection, choose **Options** → **Filter Objects** → **Control Objects** → **Disable Control Object Selection**.

6.8. Expanding and Collapsing Aggregate Units

In “Unit Types,” on page 6-7, we introduced pseudo-aggregate units, units that are made up of other discrete units. Just as you can expand and collapse the unit hierarchy in the Echelon Panel, you can expand and collapse display of pseudo-aggregate units on the map. When a unit is collapsed, only the icon of the superior unit is displayed, for example, a platoon icon. When a unit is expanded, the icons for each member of the unit are displayed, for example, individual tanks that make up a platoon.

To expand an aggregate unit:

1. Right-click the unit.
2. On the popup menu, select Expand.

To collapse an aggregate unit:

1. Right-click a member of the unit.
2. On the popup menu, select Collapse.

6.9. Creating Task Forces

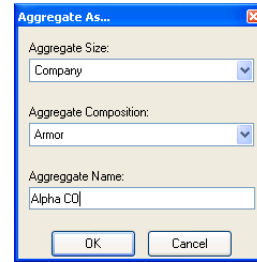
As noted in “Unit Types,” on page 6-7, the Echelon Panel displays each force hierarchically, and displays several types of organizational units. As part of your preparation for a simulation, you may want to reassign units to new commanders to create task forces with the proper capabilities for your mission. You can reassign units in the Echelon Panel. You can also create new pseudo-aggregates.

6.9.1. Creating an Aggregate Unit

You can create pseudo-aggregate units by reorganizing the units in the Echelon Panel.

To create an aggregate unit:

1. Select the units that you want to group into an aggregate unit.
2. From the right-click menu, choose **Aggregate As**. The Aggregate As dialog box opens.
3. From the Aggregate Size list, choose the organizational unit for the new aggregate, for example, platoon or company.
4. From the Aggregate Composition list, choose the type of unit, for example, armor or mechanized infantry.
5. Type a name for the unit.
6. Click OK.



6.9.2. Reassigning a Unit

- To reassign a unit, drag the unit you want to reassign to the pseudo-aggregate unit that you want to be its superior. (If you drag a unit onto a true aggregate, Battle Command will create a new pseudo-aggregate from the two units.)

6.9.3. Renaming a Unit

When a unit is added to a scenario, it has a generic name describing the unit type. You can change the unit's name to make it more meaningful.

To rename a unit:

1. Select the unit you want to rename.
2. On the right-click menu, choose **Rename**. The current name is highlighted.
3. Type the new name.
4. Press **Enter**.



To exit the renaming procedure without changing the name, press **Esc** or click the right mouse button outside of the current selection.



Creating Overlay Graphics

An important part of the planning and scenario development process is preparing graphic overlays that identify ground, air, or maritime management or control measures. Battle Command lets you create multiple overlays of operational graphics and place entity symbols. You can manage which overlays to display.

In addition to creating overlays for planning purposes, you may need to create combat engineering objects for defensive purposes. Engineering objects are discussed in Chapter 8, [*Creating Engineering Objects*](#).

7.1. Adding an Overlay

Battle Command automatically creates overlays under the following circumstances:

- ♦ When battlefield effects are detected, such as smoke or chemical.
- ♦ When you create an engineering obstacle.
- ♦ When you create a Troops in Contact point.
- ♦ When you import an ACO.
- ♦ When a unit detects battlefield effects. For example, if a Blue unit detects a Red obstacle, Battle Command creates the overlay RedObstaclesReportedByBlue.

You can create any number of additional overlays. If your unit has a naming convention for overlays, you can use it with the Battle Command Overlay Manager dialog box.

The fog of war applies to overlays.

To add an overlay:

1. Choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button (). The Overlay Manager opens (Figure 7-1).
2. Choose **New** → **New Overlay**. The New Layer dialog box opens.
3. Type the name of the overlay in the Label text box.
4. Select the force you want to assign to the overlay.
5. Click OK.

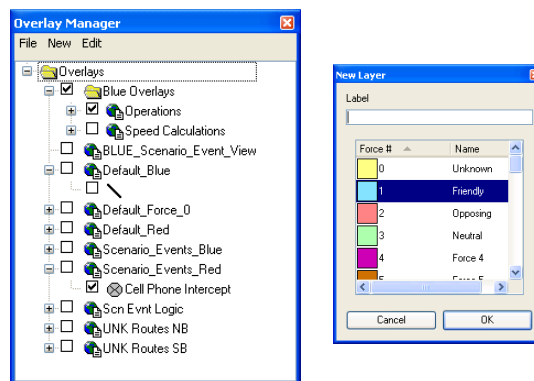


Figure 7-1. Adding an overlay

7.1.1. Enabling Display of an Overlay's Objects

The objects on an overlay are not visible on the map unless you enable the overlay in the Overlay Manager.

To enable display of an overlay's objects:

1. Choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button (). The Overlay Manager opens. Each Overlay has a check box to the left of its name.
2. Select an overlay's check box to enable display of its objects. Clear the check box to disable display of objects.



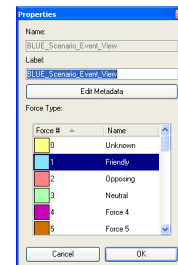
Individual objects on an overlay can be displayed or hidden, so enabling the overlay does not guarantee that the objects will be visible.

7.1.2. Changing an Overlay's Label

Once you create an overlay, you cannot change its name. However, you can change the label displayed in the Overlay Manager.

To change an overlay's label:

1. Choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button (). The Overlay Manager opens.
2. Choose **Edit** → **Properties**. The Properties dialog box opens.
3. In the Label text box, enter the new label for the overlay.
4. Click OK.



7.1.3. Organizing Overlays into Folders

By default, all overlays are contained in the top-level Overlays folder. You can create additional folders to further organize overlays.

To create a folder:

1. In the Overlay Manager window, choose **New** → **New Folder**. The New Folder dialog box opens.
2. Enter a Label for the folder.
3. Click OK.

Moving Overlays to a Folder

To move an overlay into a folder:

1. In the Overlay Manager, left-click the overlay you want to move and hold down the left mouse button.
2. Drag the overlay onto the label of the folder to which you want to move it and release the mouse button. The overlay gets moved to the folder.

7.1.4. Deleting an Overlay

To delete an overlay:

1. Choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button (). The Overlay Manager opens.
2. Select the overlay that you want to delete.
3. Choose **Edit** → **Delete**.

7.2. Adding Graphics to an Overlay

You add graphics to an overlay from the Overlay Palette. You can add:

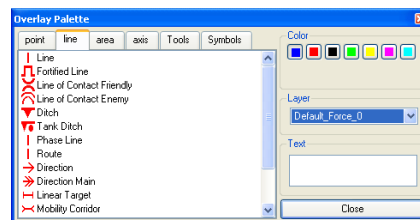
- ♦ Points
- ♦ Lines
- ♦ Areas
- ♦ Axis lines
- ♦ Entity symbols
- ♦ Text.

Each overlay tab lists the types of objects that you can create.

The process of adding a graphics is the same for most graphics. Graphics that have special installation instructions are described after this section.

To add a graphic object:

1. Choose **Overlay** → **Palette**, or on the Battle Command toolbar, click the Overlay Palette button (). The Overlay Palette opens.
2. Select the panel for the type of graphic you want to add.
3. In the Color palette, select a color for the graphic.
4. In the Layer list, select the overlay on which you want to add the graphic.



5. Optionally, enter label text in the Text area. Each label must be unique.
6. Click the graphic type you want to add.
7. Click on the map where you want to add the graphic.
 - For points, click once where you want to put the graphic. (You can also specify the location by entering coordinates. For details, please see [“Specifying Location by Coordinates,”](#) on page 7-6.)
 - For lines, click at the starting point and at each point where you want the line to change direction. Double-click the last point to finish the line. (You can also specify the location by entering coordinates. For details, please see [“Specifying Location by Coordinates,”](#) on page 7-6.) (Air corridors and orbit lines are created differently from other lines. For details, please see [“Creating Air Corridors and Orbit Lines,”](#) on page 7-6.)
 - To escape from the graphic creation process, press **Esc**.
 - Please see [“Creating Areas,”](#) on page 7-7 for details about how to create the different kinds of areas.

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- ♦ You can create overlay objects that do not have labels. However, if you want units to interact with an object, or to include an overlay object in a plan, it must have a unique label.
 - ♦ If you have text in the Text area, it is attached to any graphic that you create. If you want to add text to the overlay without an associated graphic, please see [“Adding Text to an Overlay,”](#) on page 7-9.
 - ♦ If you cannot see the graphic you added, select the overlay in the Overlay Manager to make it visible.
 - ♦ Axes are 6 KM wide. Be sure to make them long enough to see the line.
 - ♦ A line of contact has a direction, left to right or right to left. This affects the direction in which it points. Every line has a left side and a front side. For a line drawn from west to east, the left side and front are on the north side of the line. Drawing a line from east to west, the left side and front are on the south side of the line. This relationship holds true for every line orientation.
-

7.2.1. Specifying Location by Coordinates

In most cases, Battle Command users add graphics by clicking on the map. However, you can also add point graphics by specifying coordinates.

To specify a graphic's vertices by entering coordinates:

1. Choose **Overlay** → **Palette**, or on the Battle Command toolbar, click the Overlay Palette button (). The Overlay Palette opens.
2. Select the graphic that you want to create.
3. Right-click on the map. The Enter Location dialog box opens.
4. If you are creating a point item, enter the coordinates and click OK. The point gets created.

If you are creating a multi-point graphic, such as a line:

- a. Enter the coordinates of the first vertex of the graphic.
- b. Click OK.
- c. Enter the coordinates of the next vertex and click OK. Continue this process for each intermediate vertex.
- d. Enter the coordinates for the final vertex.
- e. Click Finish. The graphics gets created.

7.2.2. Creating Air Corridors and Orbit Lines

Air corridors and orbit lines have a length and a width, so creating them is a two step process. Air corridors can have more than two vertexes. Orbit lines only have two vertexes.

To create an air corridor:

1. On the line tab of the Overlay Palette, click Air Corridor.
2. Click the map to place the first vertex.
3. Click the map for each intermediate vertex.
4. Double-click for the final vertex. The cursor changes from a line to a dot.
5. Drag the mouse to specify the width of the corridor. It is visualized as a circle.
6. Double-click to set the width. The air corridor is drawn on the overlay.

To create an orbit line:

1. On the line tab of the Overlay Palette, click Orbit.
2. Click the map to place the first vertex.
3. Double-click to specify the second vertex. The cursor changes from a line to a dot.
4. Drag the mouse to specify the width of the corridor. It is visualized as a circle.

5. Double-click to set the width. The orbit line is drawn on the overlay.

7.2.3. Creating Areas

Different types of areas are created differently. To escape from the graphic creation process, press **Esc**.

To create restricted areas, refueling tracks, weapons engagement areas, grid reference systems, and so on:

1. Click at a starting vertex and at each intermediate vertex for the area.
2. Double-click to specify the last vertex. Do not try to close the area. It closes automatically from the last vertex to the first.

To create an ellipse:

1. Click where you want to locate the center of the ellipse.
2. Drag the cursor to define the shape of the ellipse.
3. Double-click to create the ellipse.

To create a circle:

1. Click where you want to locate the center of the circle.
2. Drag the cursor to specify the radius of the circle.
3. Double-click to create the circle.

To create a closed arc:

1. Click where you want to locate the center of the arc.
2. Drag the cursor and click to specify the radius of the arc. Battle Command displays a rubber band line until you click.
3. Drag the cursor and click to specify the length of the arc. Battle Command displays a rubber band of the arc length until you click.
4. Double-click to create the arc.

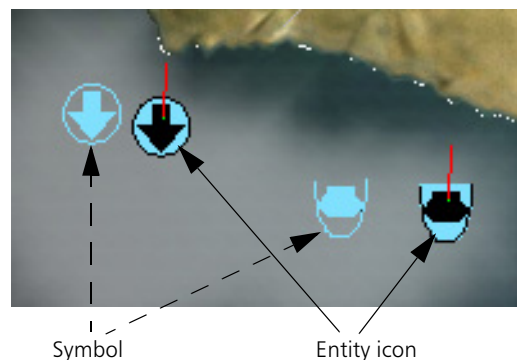
To create a sector:

1. Click where you want to locate the center of the sector.
2. Drag the cursor and click to specify the inner radius of the sector. Battle Command displays a rubber band line until you click.
3. Drag the cursor and click to specify the width (outer radius) of the sector. Battle Command displays a rubber band line until you click.
4. Drag the cursor and click to specify the length of the sector. Battle Command displays a rubber band of the sector length until you click.
5. Double-click to create the sector.

7.2.4. Adding Entity Symbols to an Overlay

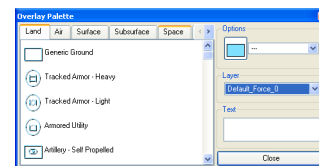
Entity symbols are graphic objects. They look like a negative version of the regular entity icons. Entity symbols do not represent simulated entities in a scenario. Therefore, they do not interact with terrain or other entities and you cannot assign them tasks. However, they are visible on remote computers just like other graphic objects. Entity symbols must be placed on an overlay.

Entity symbols are available for planning purposes. For example, you could use them to represent intelligence information about opposing forces that you cannot see because of the fog of war. The following figure illustrates the difference between entity icons and entity symbols.



To add an entity symbol:

1. Choose **Overlay** → **Palette**, or on the Battle Command toolbar, click the Overlay Palette button . The Overlay Palette opens.
2. Select the Symbols tab. The Overlay Palette redisplay to show tabs for land, air, surface, and subsurface symbols.
3. Select the tab for the type of entity symbol you want to add.
4. In the Options group box, click the Force button to select the force for the symbol.
5. In the Options group box, select the hierarchical level of the symbol from the list.
6. In the Layer list, select the overlay on which you want to add the graphic.
7. Optionally, enter label text in the Text area. Each label must be unique.
8. Click the entity symbol that you want to add.
9. Click on the map where you want to add the graphic.
10. To display the other overlay graphics tabs, click the Graphics tab.



7.2.5. Adding Text to an Overlay

In addition to points, lines, areas, axes, and symbols, you can add plain text to the graphic overlay. The text option is available on the Point tab of the Overlay Palette.

To add text to an overlay:

1. On the Overlay Palette, select the Point tab.
2. In the object list, select Text.
3. Type the text in the Text box.
4. Click on the map. (To see the text, the layer must be active.)

7.2.6. Adding a Troops in Contact Point

To add a Troops in Contact point:

1. Choose **Overlay** → **Palette**, or on the Battle Command toolbar, click the Overlay Palette button (). The Overlay Palette opens.
2. Select the point tab.
3. Click Troops in Contact.
4. Select a location by clicking on the map, or right-clicking and entering coordinates. The Troops in Contact dialog box opens.
5. Complete the fields in the dialog box.
6. Click OK. The point is added. The information you entered is displayed on the screen. The TIC overlay is added to the Overlay Management window on the currently selected overlay.



After you add a TIC point, Battle Command stays in create TIC mode. To exit this mode, press **Esc**.

7.2.7. Enabling Display of an Overlay Graphic

You can enable and disable the display of individual overlay objects.

To enable display of an overlay object:

1. Choose **Overlay** → **Management**, or on the Battle Command toolbar, click the Overlay Manager button (). The Overlay Manager opens.
2. Expand the display for the overlay on which the object is located. Each object has a check box next to its label.
3. Select an object's check box to display it. Clear the check box to hide it.

7.2.8. Moving Overlay Graphics to a Different Overlay

You can move overlay objects from one overlay to another.

To move an overlay object to a different overlay:

1. In the Overlay Manager, click the object you want to move and hold down the left mouse button.
2. Drag the object onto the label of the overlay to which you want to move it and release the mouse button. The object gets moved to the new overlay.

7.2.9. Deleting an Overlay Graphic

To delete an overlay graphic:

1. In the Overlay Manager, select the object you want to delete.
2. Choose **Edit** → **Delete**.

7.3. Importing Airspace Control Orders and Air Tasking Orders

You can import a properly formatted Airspace Control Order (ACO) or Air Tasking Order (ATO) text file. Battle Command includes a sample ACO file. It is recommended that you save your ACO files in *C:\Documents and Settings\All Users\Application Data\MAK Technologies\BattleCommand-2.17.3\data*.

1. Choose **File** → **Import** → **ACO/ATO**. The Import ATO dialog box opens.
2. Select the ATO and ACO files you want to import.
3. If you want Battle Command to build a mission plan from the ACO and ATO files, select Build Mission Plan.
4. Click Import.

ACO graphics are imported into overlay management for organization and management. ATO mission data is imported into the Air Mission tab of the Joint Fires View.

Sample ATO and ACO files are provided using the Scotia terrain.

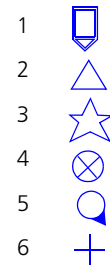
7.4. Overlay Graphics Catalog

This section illustrates each overlay graphic type.

7.4.1. Points

Battle Command supports the following kinds of points:

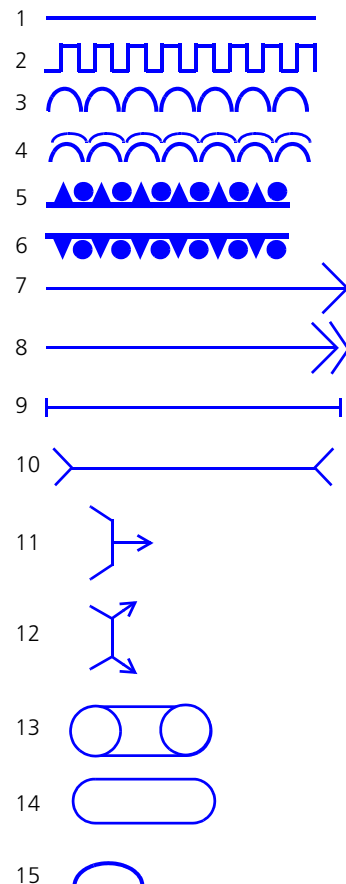
- ♦ Waypoint (1)
- ♦ Target point (2)
- ♦ Decision point (3)
- ♦ Coordination point (4)
- ♦ Point of interest (5)
- ♦ Troops in contact (6).



7.4.2. Lines

Battle Command supports the following kinds of lines:

- ♦ Line (1)
- ♦ Fortified line (2)
- ♦ Line of contact - friendly (3)
- ♦ Line of contact - enemy (4)
- ♦ Ditch (5)
- ♦ Tank ditch (6)
- ♦ Phase line (1)
- ♦ Route (1)
- ♦ Direction (7)
- ♦ Direction main (8)
- ♦ Linear target (9)
- ♦ Mobility corridor (10)
- ♦ Attack by Fire (11)
- ♦ Sector Fire (12)
- ♦ Air corridor (13)
- ♦ Orbit (14)
- ♦ Arc (15).



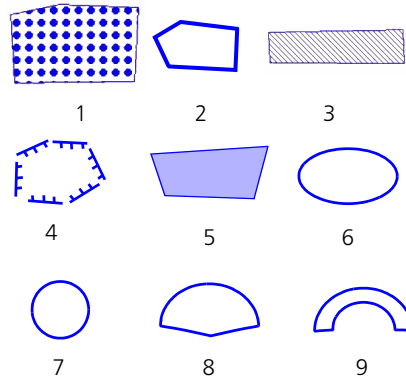
As you might expect, when you draw a direction line, the arrow points in the direction of the end point. Other lines also have a direction. The points on fortified lines, lines of contact, and ditches indicate the direction of the line, as follows:

- ♦ If you draw a line east-to-west, its front and left side are south of the line.
- ♦ If you draw a line west-to-east, its front and left side are north of the line.
- ♦ If you draw a line north-to-south, its front and left side are east of the line.
- ♦ If you draw a line south-to-north, its front and left side are west of the line.

7.4.3. Areas

Battle Command supports the following kinds of areas:

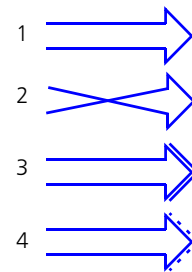
- ♦ Minefield (1)
- ♦ Planned minefield (1)
- ♦ Area (polygonal) (2)
- ♦ NoGo area (3)
- ♦ Fortified area (4)
- ♦ Highlighted area (5)
- ♦ Elliptical area (6)
- ♦ Circular area (7)
- ♦ Closed arc (8)
- ♦ Sector (9).



7.4.4. Axes

Battle Command supports the following kinds of axes:

- ♦ Axis (1)
- ♦ Air axis (2)
- ♦ Main axis (3)
- ♦ Feint (4).



7.4.5. Tools

The Tools tab has tools that create distributed images for AAR: a laser pointer, line-of-sight tool, and weapons effect fan tool.

7.4.6. Symbols

You can add translucent entity symbols for land, air, surface, and subsurface entities.

7.4.7. Text

You can add text to overlays. The text tool is on the Points tab.



Creating Engineering Objects

Battle Command simulates combat engineering objects. They consist of various types of obstacles, minefields, and a breach object. The Engineering palette allows you to add engineering objects to the map. The first time you create an engineering object, Battle Command creates an overlay for the force, for example, EngActual-Friendly. Thereafter, you need to select the overlay on which you are creating an obstacle, just as you select an overlay for overlay objects.

8.1. Engineering Object Descriptions

This section describes the engineering obstacles.

8.1.1. Obstacles

Each obstacle has a base material integrity. The higher the material integrity the better that obstacle can withstand damage. Material integrity is characterized as:

- ♦ Very low – Very easy to destroy.
- ♦ Low – Easy to wear down and destroy.
- ♦ Moderate – Can withstand moderate damage.
- ♦ High – Can withstand a significant amount of damage.

Table 8-1 describes obstacles and their material integrity.

Table 8-1: Obstacles

Obstacle	Integrity	Description
 Concertina wire	Very low	Triple roll concertina wire.
 Barbed wire	Very low	Barbed wire.
 Chain link fence	Very low	Chain link fence.
 Ditch	Low	A generic ditch.
 Anti-tank ditch	Low	A ditch with a width and depth designed specifically to impair tank movement.
 Embankment	Moderate	An earthen barrier.
 Defilade	Moderate	An embankment that curls around a vehicle to provide a protective position.
 Fortified line	High	An line that is a composite of various obstacles.
 Strong point	High	An enclosed position that is a composite of various obstacles and provides a secure position.
 Fortified area	High	The strongest of the obstacles, a sturdier version of the strong point.

8.1.2. Minefields

You can create minefields from the Engineering palette, or through FASCAM (ADAM and RAAM). Please see “[Shooting FASCAM](#),” on page 8-5 for the FASCAM procedure. When you specify the points for a minefield, you determine the front along which the minefield faces. The orientation of the minefield is perpendicular to the face of the line.



Minefields take approximately two minutes to fully arm themselves. Therefore, if you create a minefield during a simulation, opposing units may be able to achieve greater penetration than expected during the first minute or two after it is created.

Table 8-2 lists the types of minefields and describes them.

Table 8-2: Minefields

Minefield	Description
 ADAM scatterable mines - Turn intent	Artillery delivered anti-personnel scatterable minefield. Turn intent has medium density of mines. Dimensions: 200 x 200 m
 ADAM scatterable mines - Block intent	Artillery delivered anti-personnel scatterable minefield. Block intent has high density of mines. Dimensions: 400 x 400 m
 RAAM scatterable Mines - Turn intent	Artillery delivered anti-armor scatterable minefield. Turn intent has medium density of mines. Dimensions: 200 x 200 m
 RAAM scatterable mines - Block intent	Artillery delivered anti-armor scatterable minefield. Block intent has high density of mines. Dimensions: 400 x 400 m
 Gator scatterable mines	Gator is a scatterable minefield with a mixture of about 25% anti-personnel and 75% anti-armor mines. Dimensions: 650 x 200 m
 Volcano scatterable mines	Volcano is a scatterable minefield with a mixture of about 20% anti-personnel and 80% anti-armor mines. Dimensions: 555 x 440 m
 Conventional - block intent	Conventional block is a mixture of about 85% anti-tank and 15% anti-personnel mines that do not have self-detonation capacity. Dimensions: 320 x 500 m
 Conventional - turn intent	Conventional turn is a mixture of about 67% anti-tank and 33% anti-personnel mines that do not have self-detonation capacity. Dimensions: 120 x 250 m

8.1.3. Breach Objects

The nature of a breach object varies. It could be the bridge of an AVLB or it could be a path through a minefield cleared by mine plows or MICLICs.

8.2. Adding Engineering Objects to the Map

To add an engineering object to the map:

1. Choose **Create** → **Combat Engineering**, or on the Battle Command toolbar, click the Combat Engineering button (). The Combat Engineering palette opens.
2. Click the Force Type button. The Force Type Chooser window opens.
3. Click the force that will own the object. (Ownership indicates which force can see the object when fog of war is in effect.)
4. In the Overlay Manager, select the layer on which you want to create the object. (If this is the first object you are creating for this force, Battle Command creates a new layer for you.)
5. Click the button for the object you want to add. (see “[Engineering Object Descriptions](#),” on page 8-2 for a list of objects.)
6. Click on the map where you want to add the object. An object requires two points or multiple points, as specified in Table 8-3 . For a two-point object, click to specify the start-point and end-point. For a multiple-click object, click to specify the start-point and intermediate points. Double-click to specify the end point.

Table 8-3: Engineering object creation (Sheet 1 of 2)

Object	Points	Local Position
Ditch	2	Mid-point
Anti-tank ditch	2	Mid-point
Concertina wire	2	Mid-point
Barbed wire	2	Mid-point
Chainlink fence	2	Mid-point
Embankment	2	Mid-point
Fortified line	2	Mid-point
Defilade	multiple	The center of mass of the vertices.
Strong point	multiple	The center of mass of the vertices.
Fortified area	multiple	The center of mass of the vertices.
Breach	2	Mid-point
ADAM - turn intent	2	Mid-point
ADAM - block intent	2	Mid-point

Table 8-3: Engineering object creation (Sheet 2 of 2)

Object	Points	Local Position
RAAM - turn intent	2	Mid-point
RAAM - block intent	2	Mid-point
Conventional - turn intent	2	Mid-point
Conventional - block intent	2	Mid-point
Gator	2	Mid-point
Volcano	2	Mid-point

8.2.1. Shooting FASCAM

(The simulation must be running to shoot FASCAM.)

To lay down a minefield by firing artillery:

1. Select the artillery unit.
2. On the Commands Panel, click the Fire Mission button (). A selection dialog box opens.
3. In the list, select Fire Mission. The dialog box redisplay.
4. In the list, select FASCAM. The dialog box redisplay.
5. Choose the kind of FASCAM you want, with the intent you want. The number of artillery rounds needed to complete the minefield is specified next to the entry.
6. Click on the map to specify the intended center of the minefield.

8.2.2. Creating a Breach Lane

When you create a breach lane, you have the choice of creating a breach lane as an object or tasking a unit to breach an object. The procedure for creating a breach as a task is in [“Breaching an Obstacle,”](#) on page 10-29.

To create a Breach Lane as an object:

1. On the Combat Engineering palette, click Breach Lane (.
2. In the dialog box, select “Instantaneous creation.”
3. Specify a line.



Writing Plans

You know your mission, your forces, and the area of operation. You've created your overlay graphics to represent control and management measures. Now, you can write plans for your forces. A plan is a sequence of commands that a unit can execute without additional input by you. Plans can include all the commands available on the Commands Panel. Commands can be contingent on several types of conditions.

If this is a single-player scenario, you must write the plans for all your forces. If you are in a multiplayer scenario, the various players will write the plans for the units they control, based on instructions from their superiors.

Instructors can include scenario events in plans. For instructions, please see [“Sending a Scenario Event from a Plan,”](#) on page 13-12.

9.1. Editing Plans



When you edit a plan, remember that you cannot edit a statement once it is in a plan. You can only delete a statement and replace it with a new statement.

To edit a unit's plan:

1. Choose **Unit** → **Plan Editor**, or on the Battle Command toolbar, click the Unit Plan button (). The Plan window opens.
2. On the map or in the Echelon panel, select the unit you want to create a plan for. The window adds an Edit Plan button.
3. Click Edit Plan. The window displays the following set of buttons at the bottom:
 - Add Before
 - Add After
 - Delete Line
 - Delete All
 - If/Then/Else
 - When
 - While
 - Issue Plan
 - Cancel Plan Edit.
4. Add statements or delete statements as described in the following sections. (You can also copy and paste plans.)
 - To change the unit whose plan is being edited in the Plan window, select the unit whose plan you want to edit.



In addition to the name displayed in the Echelon Panel, each unit has an echelon ID that fully describes its place in the force hierarchy. When you create a plan, the plan uses the echelon ID, not the unit's name. So, be aware that the unit identity you see in a plan may not match the name by which you know the unit.

9.1.1. Adding a Command to a Plan

When you add statements to a plan, you add them either before or after the currently selected statement.

To add a command to a plan:

1. Open the Plan window for a unit and enter edit mode as described in [“Editing Plans,”](#) on page 9-2.
2. In the Plan window, select the statement adjacent to where you want to insert a new statement.
3. Click Add Before or Add After, depending on where you want to add a statement to the plan. If the plan does not have any statements yet, you can click either button.
4. Open the Commands Panel.
5. Click the button for the command you want to add. (Please see [“Commands Panel,”](#) on page 5-3 for a list of buttons.)
6. Complete the required parameter information. (Please see [“Assigning Commands to a Unit,”](#) on page 10-11 for individual command procedures.)



The Commands Panel is context sensitive. It enables only those commands that are applicable to the selected unit.

7. The command is added to the plan.
8. Continue to add commands as needed.
9. Click Issue Plan.

9.1.2. Adding a Conditional Statement to a Plan

Plans support the following conditional statements: If/Then/Else, While, and When. The conditions work as follows:

- ♦ If statements are tested once. If the condition is true, the orders in the If block are executed once.

You insert an If statement in a plan at the point where you want it to be tested. As a unit works its way sequentially through the commands in a plan, when it reaches an If statement, it evaluates it. If the condition is false, the unit skips the orders in the If block and continues with the order that follows the if block plan. If the condition is true, the orders between the If/Then/Else and the Else and EndIf statements are executed.

- ♦ When statements are tested continuously until they become true. If the condition becomes true, the orders in the When block are executed once. Once the condition in a When statement has become true, it is not tested any more.

A When statement, also called a trigger, is evaluated periodically by Battle Command. A trigger statement lets you plan for a condition without knowing in advance when the condition will occur. When statements are inserted above the unit plan. The conditions in the When statement are checked continually. If the condition becomes true, the orders between the When and endWhen statements are executed.

- ♦ If a While statement is true the first time it is tested, it keeps getting tested until it becomes false. Use a While statement if you want to execute a series of orders repeatedly as long as the test condition is true.

While statements are inserted in the plan at the point where you want them to be tested. When a plan arrives at a While statement, if the condition is false, the unit jumps to the next statement in the plan after the While block. If the condition is true, the unit executes the orders between the While and endWhile statements and then tests the condition again. If it is true, it repeats the orders again. This process continues until the condition is false, at which point the plan moves to the next statement after the While block.

The conditions supported by Battle Command are:

- ♦ Is an entity in an area that you have defined on the map? (Ent In Area)
- ♦ Is an entity to the left of a phase line? (Ent Left Of Line)
- ♦ Is an entity destroyed? (Ent Destroyed)
- ♦ Is an entity resource greater than, less than, or equal to a specific value or percentage? (Resource)
- ♦ Is the current simulation time before, after, or equal to a specified time? (Current Time)

Conditional statements can include the boolean operators **True** and **False**, and the logical operators **AND**, **OR**, and **NOT**.

To add an If, When, or While statement to a plan:

1. Open the Plan window.
2. Enter edit mode as described in [“Editing Plans,”](#) on page 9-2.
3. In the Plan window, select where you want to insert a condition.
4. Click Add Before or Add After, depending on where you want to add a statement to the plan. If the plan does not have any statements yet, you can click either button.
5. Choose If/Then/Else, When, or While. The window redisplay with the following set of buttons:
 - Ent In Area
 - Ent Left Of Line
 - Ent Destroyed
 - Resource
 - True/False
 - And
 - Or
 - Not
 - Current Time.
6. Create a conditional expression as described in [“Building Conditional Expressions,”](#) on page 9-6.
7. Click OK. A conditional statement block is added to the plan, with the syntax (the condition plus an “end” statement) that defines the bounds of the block of tasks that are executed if the condition is true. You need to add the task statements that you want to have executed. To add the task statements, follow the procedure in [“Adding a Command to a Plan,”](#) on page 9-3.

Building Conditional Expressions

When you add a conditional expression to a plan, Battle Command prompts you for the information it needs to specify the condition. Figure 9-1, illustrates the sequence of windows you complete for a conditional expression. The callouts correspond to the following example procedure (using the entity destroyed condition):

1. Click Add After.
2. Click If/Then/Else. The Conditional Expression screen is displayed.
3. Click EntDestroyed. The window redisplay.
4. Select the unit to test for.
5. Click Complete EntDestroyedExpression. The conditional expression is displayed in the Plan window.
6. Add the tasks to be executed if the condition is true.
7. Optionally, add tasks to complete if the condition is false.
8. Click Issue Plan.

The following sections explain how to complete each type of conditional expression.

Using Prefix Notation to Establish Grouping and Precedence

To specify grouping, the conditional expression dialog boxes use prefix notation, in which the operator comes first, followed by the operands. For example, a condition that you might verbalize as: “If unit 1 is in area A and unit 2 is in area B,” is expressed in prefix notation as:

```
AND(unit 1 in area A, unit 2 in area B)
```

(For simplicity, this example does not use complete Battle Command statement syntax.)

If you are not familiar with prefix notation, you might want to write out your conditional expressions before you begin entering them in the conditional expression dialog boxes.

The following is an example of a complete condition using prefix notation:

```
When (AND(Entity-In-Area Entity:"2 Ar Bn, 2 Force" Area:"7",Entity-  
Destroyed Entity:"1 Inf Bn, 1 Force"))
```

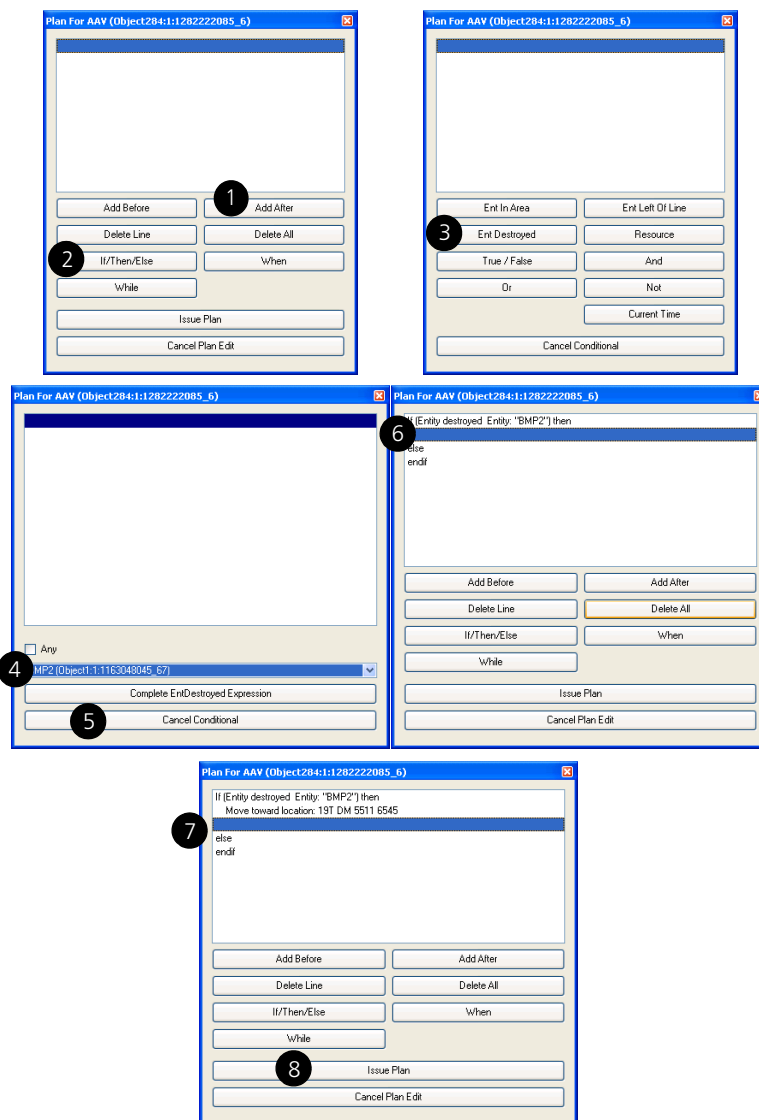


Figure 9-1. Creating a conditional expression

The Entity Destroyed Condition

This condition is true if the named unit is destroyed. If there is no unit with the specified name, the result is always false.

To create an Entity Destroyed condition:

1. Click one of the conditional expression buttons. The Plan window redisplay.
2. Click Ent Destroyed. The Plan window redisplay.
3. Select a unit from the list.
4. Click Complete EntDestroyed Expression.

The Entity In Area Condition

This condition is true if the named unit reports that it is in the named area. You can use the NOT boolean operator, to test whether a unit is outside the area.

To create an Entity In Area condition:

1. Click one of the conditional expression buttons. The Plan window redisplay.
2. Click Ent In Area. The Plan window redisplay.
3. Select a unit from the list.
4. Select an area.
5. Click Complete Ent In Area Expression.



- ♦ If there is no unit with the specified name, the result is always false.
 - ♦ If the specified unit is destroyed, it may never enter or leave the area. Your plan should take this possibility into account.
-

The Entity-Left-Of-Line Condition

This condition is true if the named unit reports that it is to the left of the specified line. A unit is considered to be to the left of a line if it is on the left side of an infinite extension of the line as viewed from a point on the line facing in the direction indicated when the line was created.

To create an Entity Left of Line condition:

1. Click one of the conditional expression buttons. The Plan window redisplay.
2. Click Ent Left of Line. The Plan window redisplay.
3. Select a unit from the list.
4. Select a line from the list.
5. Click Complete EntLeftOfLine Expression.



- ♦ If there is no unit with the specified name, the result is always false.
 - ♦ If the specified unit is destroyed, it may never enter or leave the area. Your plan should take this possibility into account.
-

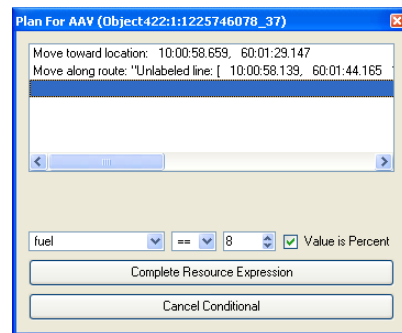
Testing the Status of A Resource

Battle Command plans support relational tests of resources. For the named resource, Battle Command compares the current status to the specified value using one of the following operators:

- ♦ < (less than).
- ♦ <= (less than or equal).
- ♦ > (greater than).
- ♦ >= (greater than or equal).
- ♦ == (equal to).
- ♦ != (not equal).

To specify a resource condition:

1. Click one of the conditional expression buttons. The Plan window redisplay.
2. Click Resource.
3. Select the type of resource from the left-most list.
4. Select the comparison operator from the middle list.
5. Enter the amount of the resource to test for.
To test the value as a percentage, select the Value is Percent check box.
6. Click Complete Resource Expression.



Boolean and Logical Operators

You can use the following boolean and logical operators in conditional expressions:

- ♦ **True.**
- ♦ **False.**
- ♦ **AND** (*expression*, *expression*) – evaluates as true if both conditional expressions are true.
- ♦ **OR** (*expression*, *expression*) – evaluates as true if either of the expressions are true.
- ♦ **NOT** (*expression*) - evaluates as true if the conditional expression is false.

You can nest and combine conditional expressions.

9.1.3. Deleting Statements from A Plan

To delete a statement from a plan:

1. Open the Plan window for a unit.
2. Select the statement you want to delete.
3. Click Delete Line.

You can delete the individual statements in the statement block of an If statement or When statement. If you delete an If statement or When statement, all substatements are also deleted.

Deleting All Statements From a Plan**To delete all statements in a plan:**

1. Open the Plan window for a unit.
2. Click Delete All.

9.1.4. Copying and Pasting Plans

You can copy a unit's plan and paste it into another unit's plan.



When you paste a plan, it replaces the existing plan. It does not insert or merge the plan statements.

To copy a unit's plan:

1. Open the Plan window for a unit.
2. Click Copy Plan.

To paste a plan for a unit:

1. Copy a plan.
2. Open the Plan Editor for the receiving unit.
3. Click Paste Plan. The editor changes to the Edit Plan window (as if you had clicked Edit Plan). The copied plan is pasted into the window.
4. Click Issue Plan.



Running the Simulation

You've prepared for the simulation (as described in previous chapters), and you're ready to go. Or, maybe you've run out of prep time and it's time to start, ready or not.

10.1. Starting a Scenario



If you are playing in a multiplayer scenario, only the host starts the simulation.

- To start, choose **Simulation** → **Run**, or click the Start button (▶) on the toolbar.

The opposing and friendly forces start executing their plans and commands. It's your job now to follow the course of events, issue commands, and change the plans of your forces to achieve the mission objectives.

10.1.1. Pausing a Simulation

If you need to stop a scenario before it is complete, you can pause the simulation.

- To pause a simulation, click the Pause button (⏸) on the toolbar.

10.1.2. Viewing Simulation Time

When you run a simulation, Battle Command starts the simulation time clock. The clock displays the time in days, hours, minutes, and seconds. The clock is displayed in the Information Panel, which is located at the bottom of the map display.

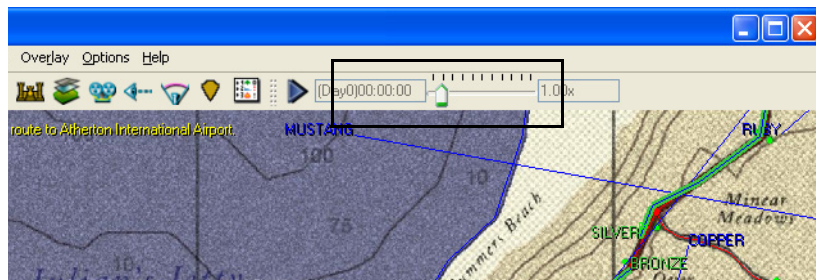
10.1.3. Setting the Simulation Speed



If you are playing in a multiplayer scenario, only the host can change the simulation speed.

You can vary the speed at which Battle Command runs the simulation, from real-time (1X) to ten times real-time (10X).

- To set the simulation speed, adjust the Time Multiplier slider to the value that you want to use.



10.1.4. Enabling and Disabling Sound Effects

Battle Command enhances the realism of the simulation by generating sound effects. You can enable and disable use of sound effects.

To enable or disable sound effects:

1. Choose **Options** → **Settings**. The Settings dialog box is displayed.
2. On the Game tab, check or clear the Sound FX check box to enable or disable sound effects.
3. Click OK.

10.2. Viewing and Editing Plans

You can view a unit's plan.

To view a unit's plan:

1. Choose **Unit** → **Plan Editor**, or on the Battle Command toolbar, click the Unit Plan button (). A window opens.
2. Select the unit whose plan you want to view.

10.2.1. Editing a Unit's Plan

You can edit a unit's plan during a simulation. The procedure is the same as that described for creating a plan in Chapter 9, [Writing Plans](#). However, the following note is critical while a simulation is running.



- ♦ When you issue a plan, the unit starts executing the plan from the beginning. Therefore, if a unit has already executed a portion of its original plan, don't edit the middle of the plan and issue it, unless you want the unit to start at the beginning again. If you want to change the plan mid-stream, delete the already completed and current commands and issue a plan whose first command is the command you want the unit to start immediately.
 - ♦ A unit that is embarked must have a wait order as the first order in its plan that is longer than the time the unit will be embarked. Once the unit is disembarked, it will begin to execute its plan with the first order after the wait order.
-

10.3. Observing Units, Unit Status, and Unit Relationships

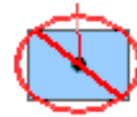
There are several ways to keep track of what is happening during the simulation:

- Observe the map.
- Monitor unit status.
- Monitor radio traffic in the Chat window.
- Monitor environmental conditions.
- Monitor unit interaction using line-of-sight, engagement lines, and weapons effect fans.

10.3.1. Viewing Units in the Map

In Chapter 6, *Planning Your Mission*, we discussed using the map to learn where your forces were located at the start of the simulation. Once the simulation starts, use the map to follow movement of units over the terrain.

In addition to displaying unit movement, the map shows which units are firing munitions and taking enemy fire. If a unit is destroyed, its status is displayed as shown in the illustration. However, the map does not tell you how a unit is faring short of complete destruction. For that, you need to use the Echelon Panel.

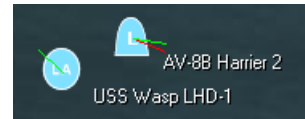


Viewing Unit Labels

You can turn on the display of unit labels for units that are selected.

To turn on the display of unit labels:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Map View tab.
3. To display unit labels when a unit is selected, in the Map Options group box, select the Show Labels for Selected Units check box. To hide labels, clear the check box.



10.3.2. Filtering the Display of Units

You can filter the display of units by domain and force. You can hide all entities, and you can specify how dead units are displayed.

Filtering the Display of Units by Force

- To filter the display of units by force, choose **Options → Filter Objects → By Force → *force***, where *force* is one of the listed forces. An X is placed in the force color box.

You can filter as many forces at the same time as you want.

- To display a force that is filtered out, choose **Options → Filter Objects → By Force → *force***, where *force* is the force you want to display. The X is removed from the force color box.

Filtering the Display of Units by Domain

- To filter the display of units by domain, choose **Options → Filter Objects → By Force → *domain***, where *domain* is Land, Air, Surface, or Subsurface. A check mark is placed next to the domain name.

You can filter as many domains at the same time as you want.

- To display a domain that is filtered out, choose **Options → Filter Objects → By Force → *domain***, where *domain* is the domain you want to display. The check mark is removed from the domain name.

Filtering the Display of All Entities

- To filter the display of all entities, choose **Options → Filter Objects → All Entities**. A check mark is placed next to the menu command.
- To redisplay all entities, choose **Options → Filter Objects → All Entities**.

Filtering the Display of Dead Units

You can filter the display to hide dead units. This declutters the display and makes it easier to focus on the units still functioning. You can hide dead units immediately or configure them to gradually fade from view.

- To display dead units, choose **Options → Filter Objects → Destroyed Objects → Display**.
- To remove dead units immediately, choose **Options → Filter Objects → Destroyed Objects → Remove**.
- To have dead units fade away, choose **Options → Filter Objects → Destroyed Objects → Fade and Remove**.

Clearing All Filters

You can quickly clear all the filters that are currently set.

- To clear all filters, choose **Options** → **Filter Objects** → **Clear All Filters**.

10.3.3. Tracking a Unit in the Map

You can keep the map focused on a unit.

To follow a unit:

1. Open the Echelon Panel.
2. Select the unit that you want to keep in view.
3. In the Echelon Panel, choose **View Control** → **Follow Units**, or click the Follow Units button (.

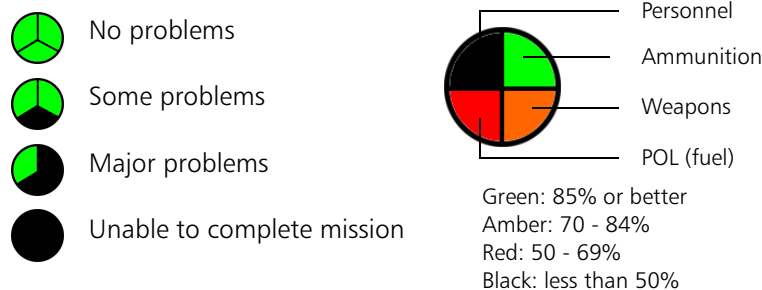
10.3.4. Monitoring Unit Status

You can monitor unit status in the Echelon Panel and in the Unit Status window.

Monitoring Unit Status in the Echelon Panel

The Echelon Panel displays the status of a unit using two gumball charts. If a unit is damaged or has depleted resources, the gumballs change accordingly. Aircraft ordnance load appears in the unit status panel by ammo type and quantity. As ordnance is expended, the remaining type and quantity of ammo will be displayed. Decreases in ammo quantity due to expenditure do not occur immediately and may take a few minutes to update.

The illustration describes the unit status represented by different gumball states.



To view this illustration of gumball states during a simulation, place the cursor over the gumball in the Unit Status window, and press the left or right mouse button.

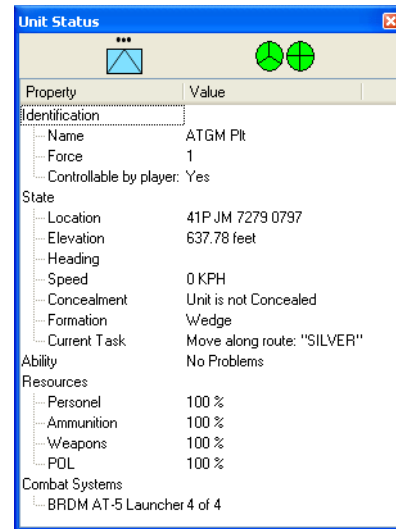
Monitoring Unit Status in the Unit Status Window

The Unit Status window provides more details about unit status than the Echelon Panel. It lists:

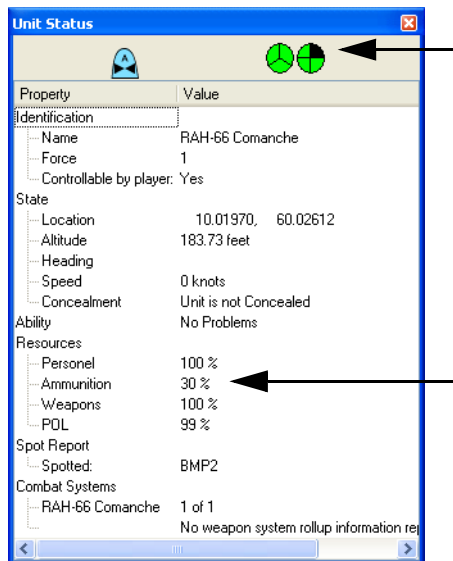
- ♦ Gumball status.
- ♦ Location.
- ♦ Elevation, altitude, or depth.
- ♦ Heading.
- ♦ Speed.
- ♦ Current task.
- ♦ Unit composition.

To view unit status:

1. Select a unit.
2. Choose **Unit** → **Status**, or on the Battle Command toolbar, click the Unit Status button ().

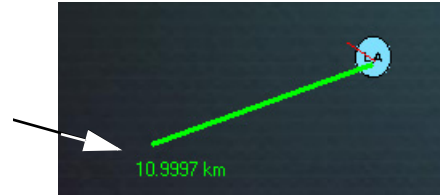


For aggregate units, the Unit Status Panel lists the members of the unit, color coded for their current health. In the following illustration, some subordinate units are at full strength, while some are at reduced strength, and still others are destroyed. The gumball for the unit as a whole shows that it has major problems.



10.3.5. Testing Line-of-Sight

You can find out which units or terrain points are visible from a point on the map. The line-of-sight tool displays the distance spanned by the line.



To test line of sight:

1. Choose **Terrain** → **Line-of-Sight**, or on the Battle Command toolbar, click the Line-of-Sight button ().
2. Click on the map on the point from which you want to view line-of-sight.
3. Move the cursor around the map. A line is displayed between the point you clicked and the location of the cursor. The color of the line indicates visibility as follows:
 - Green: Point is visible.
 - Yellow: Point is not visible.
4. To end the line-of-sight display, press **Esc**.

10.3.6. Monitoring Radio Messages

You send and receive messages in the Chat window (see “[Communicating with Other Players,](#)” on page 6-4).

- To view messages, keep the Chat window open and check it periodically.

10.3.7. Observing Environmental Conditions

The simulation may specify a wind speed and direction. The wind direction and speed is displayed in the Information Panel. You can also determine the presence of wind by observing the orientation of smoke or chemical plumes.

10.3.8. Observing Engagement Lines

Engagement lines indicate which entities are attacking each other. You can specify which types of engagement lines are displayed on the Map View tab of the Settings dialog box. Battle Command can display the following types of engagement lines:

- ♦ Indirect fire on detonates.
- ♦ Attacker to target on fires.
- ♦ Attacker to target on detonates.
- ♦ Attacker to detonation on detonates.
- ♦ Muzzle to target on fires.

Engagement lines are colored according to the force color.

10.3.9. Observing the Weapons Effects Fan

You can display a weapons effects fan (WEF) for each unit. The WEF shows the effective range (solid circle) and maximum range (dashed circle) of a unit's weapon systems. The name of the weapons system is displayed at the top of the effective range circle. The effective range is displayed at the bottom of the circle. It also shows line-of-sight, the assumed field of vision of the unit, and the distance from the unit to the cursor. Figure 10-1 shows the weapons effects fan for a unit.

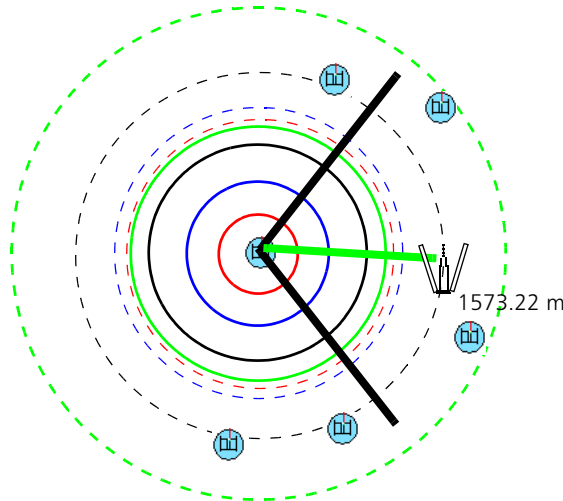


Figure 10-1. Weapons effect fan

To observe the Weapons Effects Fan:

1. Choose **Unit** → **Weapons Effect Fan**, or on the Battle Command toolbar, click the WEF button (🔍).
2. Select the unit whose WEF you want to view.
3. Move the cursor around the unit to see line-of-sight and the field of vision.
4. To remove the weapons effects fan, press **Esc**.

10.3.10. Changing the Size of Unit Icons

When there are many units in a small area, it may be hard to distinguish the icons of individual units. You can resize the icons to make them easier to tell apart.

To resize unit icons:

1. Click the Scale Units button on the toolbar (🔍). A slider is displayed.
2. Adjust the slider to increase or decrease the size of unit icons.
3. Click the Scale Units button to hide the slider.

10.4. Responding to Scenario Events

A scenario can include a special form of input called a scenario event. Scenario events are not simulated by Battle Command. They are some combination of text, video, audio, or graphics that your instructor provides to enhance your training experience. A scenario event might provide additional information to help you solve a training problem. Or it might add additional problems, such as a natural disaster or political event, that you must factor into your use of Battle Command to solve your original mission.

An instructor can dynamically trigger an event to develop a specific decision point at a critical time, or they can be triggered at a specific simulation time, by a link to another event, in a unit plan, or by a certain set of conditions being met.

10.4.1. Playing Scenario Events

Scenario events are subject to the fog of war and may be specific to particular forces. They can be sent directly to the training audience or to a member of a control group (white cell), as a prompt to send the event information to the appropriate part of the training audience. The method you use would depend on the specific decision situation you want to create or specific training objective that you want to meet. The events that you have permission to view are listed in the Event List. When a scenario event gets sent, it automatically runs on your PC. Thereafter, you can view the event at any time.

To view a scenario event:

1. Choose **Window** → **Event List**. The Event List opens.
2. Click the Send button () next to the event that you want to view.



You can also send an event using the Send Event command on the Commands palette.

10.4.2. Viewing Scenario Event Overlays

Scenario events have a location and are listed in the Overlay Manager. You can manipulate them just as you would any other overlay object.

10.5. Assigning Commands to a Unit

In addition to assigning commands as part of a plan, you can assign individual commands to units during the simulation. The same set of commands available for plans is available for individual commands. [Table 10-1](#) describes the commands and explains how to execute them.

You can assign a task to multiple units at one time. Select all the units that you want to task. Then assign the task. Please see [“Selecting Units and Objects,”](#) on page 6-18 for information about selecting units.



- ♦ In addition to tasking units from the Commands Panel, you can access tasks for a unit from the popup menu. You can assign tasks to only one unit at a time using this method.
- ♦ The Commands Panel is context sensitive. It enables only those commands that are applicable to the selected units. If you have a selection of mixed unit types, only the commands common to all units are enabled.

Table 10-1: Command descriptions and procedures (Sheet 1 of 5)

Button	Command	Description and Procedure: Select unit, click the command button, then ...
	Altitude	... enter altitude in Mean Sea Level (MSL) or Above Ground Level (AGL). Specifies an altitude for fixed and rotary wing units.
	Arrive At	1. Click the destination location. 2. Type the time at which the unit should arrive.
	Assault	1. Select the munition type in the Target With dialog box (individual entities only). 2. Click the target unit. Orders unit to close with and destroy the enemy. The unit moves toward the targeted unit and continues firing until the enemy is destroyed, it runs out of ammunition, or is itself destroyed.

Table 10-1: Command descriptions and procedures (Sheet 2 of 5)

Button	Command	Description and Procedure: Select unit, click the command button, then ...
	CAS	1. Choose a munition. (If no munition is listed, the unit cannot provide CAS.) 2. Select a line target. 3. For a specific unit target, click on the map and then on the target unit to provide the selected target run in heading. Selecting CAS and clicking directly on the target unit will result in a default east-west orientation run in heading.
	Concealment	... select Unit Concealing or Unit Not Concealing from the dialog box. A concealed unit has a lower probability of detection than an unconcealed unit. Please see “Concealing Units,” on page 10-18.
	Detonate	... IED detonates. Only applies to IED entities. Can be included in a plan.
	Disembark	1. In the Echelon Panel, select an embarked unit. 2. Click the Disembark button on the Command palette. The unit is disembarked. Simulation must be running.
	Disembark All	No further input required. All embarked units on the selected unit are disembarked.
	Embark	... select unit to mount. (Simulation must be running.) Causes unit to go to second unit and get on board. True aggregates with mountable personnel, such as mechanized infantry, load when embark is applied to themselves. The effect depends on the unit type selected, as follows: ♦ True aggregate: embark self or other. ♦ Pseudo-aggregate: no effect. ♦ Vehicle: mount on second vehicle selected.

Table 10-1: Command descriptions and procedures (Sheet 3 of 5)

Button	Command	Description and Procedure: Select unit, click the command button, then ...
	Fire mission	1. Select the unit that is calling for artillery, or click an artillery unit. 2. Click the Fire Mission button. 3. Select the ordnance. 4. For DPICM HE, select the number of rounds per gun. 5. Optionally, give the mission a name. 6. Click location on map to set coordinates. To change coordinates, edit the mission in the Joint Fires dialog box. To request artillery fire, the requesting unit and the artillery unit must be part of an aggregate unit. For more information, please see “Managing Fire Missions,” on page 10-24.
	Fire on Location	1. Select Specify a Target Location and Desired Weapon. 2. Select the desired weapon. 3. To advance the unit’s readiness to fire, select Set the Shooter’s Readiness Level, and enter a readiness level. 4. To cancel any existing fire on location commands, select Issue a Cease Fire Command. 5. Click OK. 6. Click on the map location where you want the unit to fire.
	Follow	1. Click unit to follow. 2. Enter offset, in degrees. 3. Enter distance. Unit follows the specified unit.
	Formation	Assigns a formation to an aggregate unit. Please see “Specifying a Unit’s Formation,” on page 10-19.
	Heading	... enter the heading, in degrees. Specifies the heading for the unit.
	Load	... select unit on which to load. Loads units instantly. (Instructor mode only, during scenario creation.)

Table 10-1: Command descriptions and procedures (Sheet 4 of 5)

Button	Command	Description and Procedure: Select unit, click the command button, then ...
	Mortar attack	1. Select the unit that is calling for mortar fire, or click a mortar unit. 2. Select the ordnance. 3. Optionally, give mission a name. 4. Click location on map to set coordinates. To change coordinates, edit the mission in the Joint Fires dialog box. Orders a mortar attack on the specified location. To request mortar fire, the requesting unit and the mortar unit must be part of an aggregate unit. For more information, please see “Managing Fire Missions,” on page 10-24.
	Move	... click the point on the map to move to. Moves unit to the specified location.
	Multipoint Move	... click a series of points on the map to define a path for the unit to follow. Double-click the last point. The unit moves to the specified points.
	Naval gunfire	1. Click the ship. 2. Select ordnance. 3. Click the target unit.
	Patrol	... specify a line to patrol. Unit moves to the start of the line and then patrols back and forth along the line.
	Resupply	1. In the Resupply dialog box, select Order The Unit To Resupply At A Location or Immediately Set Resources To. 2. If you select immediate resupply, enter a percentage of resupply. 3. Select Ammunition or Fuel, or both. 4. Click OK. 5. If you selected resupply at a location, click the CSS unit that the resupplying unit must move to.
	Rocket Mission	1. Specify type of mission (volley-type for concentrated fire; effect-type for wide area effect). 2. Type number of rockets and press Enter. 3. Type a label and press Enter. 4. Click target point. Check Joint Fires view for the status of the mission.

Table 10-1: Command descriptions and procedures (Sheet 5 of 5)

Button	Command	Description and Procedure: Select unit, click the command button, then ...
	ROE	... select a rule from list. Specifies the rules of engagement for the unit. Please see “Setting Rules of Engagement,” on page 10-20.
	Return to Base	... entity returns to its base. Valid only for fixed-wing aircraft.
	Send Event	1. ... select an event from the list. (You do not need to select an entity for this command.) 2. Click Send.
	Set Home Base	... click on a unit, such as an aircraft carrier, or on the map where you want to locate the entity’s home base. Valid only for fixed-wing aircraft.
	Speed	... enter the speed, in kph. Specifies the speed of the unit.
	Target	1. Select the munition type in the Target With dialog box. 2. Click the target unit. 3. Set rules-of-engagement to Fire on Target. Specifies the target the unit is to fire on.
	Unload	Instantly unloads the unit. (Instructor mode only, during scenario creation.)
	Wait	... enter the number of minutes to wait (Period in mins) or the simulation time at which to execute the next order in the plan (Absolute time). Enter Absolute Time in simulation time format with a colon (:) separating the values. The unit waits for a specified period of time.

10.5.1. Firing on a Location

[Table 10-1](#) includes the basic procedure for the Fire on Location command. Note the following additional information about this command:

- The readiness level is a percentage of the time it takes to prepare to fire. For example, a SCUD Tel unit takes 90 minutes to prepare for a launch if it starts from a readiness state of 0%. The ability to set the readiness level allows you to represent a situation in which a unit has begun to prepare to launch prior to you issuing the Fire on Location command.
- You can set the readiness level independently of issuing a Fire On Location Command. In other words, you could issue the command to a unit with a 0% readiness level and then 10 minutes later increase its readiness, thereby advancing the time at which it will launch.
- Some fixed-wing aircraft are equipped with air-to-ground missiles, and in some cases cruise missiles. You can use the Fire on Location command to instruct the aircraft to launch these weapons to a location on the map.
- Missiles launched using the Fire on Location command can only attack map locations. You cannot direct tactical missiles to specific entities, spot reports, buildings, and so on. All that is transmitted to the launcher is a coordinate specifying the location on the map where the missile should detonate.

In some cases, the same kind of tactical missile can be used to target locations on the ground, or specific entities like ships or buildings (for example, AGM-154C). If you want to use an Air-to-Ground missile as a direct fire weapon upon a building or other entity, use the Target command.

10.5.2. Close Air Support

The basic procedure for requesting Close Air Support (CAS) is described in [Table 10-1](#). Air units implement the command as follows:

- If a unit has a linear target, it runs in along the line target and expends the selected ordnance type until its ammunition is expended or it is issued a new command.
- If a unit has a point target, drawing a line by clicking on a point on the map and then on the target unit creates a run-in orientation and the attacking aircraft.
- Selecting CAS, munition, and then clicking on the target results in default East-West run in.

10.5.3. Using the Unit Shortcut Panel

The Unit Shortcut Panel lets you quickly assign commands to units, even if they are not visible on the map. To issue a command to a unit, you must select it. Finding a unit on the map or in the Echelon Panel can be a time consuming process. The Unit Shortcut Panel provides a shortcut to the selection process.

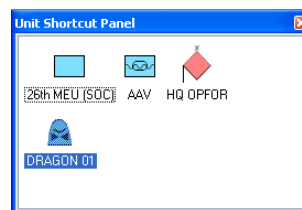
To use the Unit Shortcut Panel, you add shortcut icons for the units to which you think you will want to give commands, but which you do not think will be easily accessible when you most need them. For example, you might want to put artillery units in the Unit Shortcut Panel, so that you can request artillery support while you have the map focused on a forward position. Similarly you might want to put CAS resources or naval units in the Unit Shortcut Panel.

Adding A Unit to the Unit Shortcut Panel

You can add unit shortcuts to the Unit Shortcut Panel from the map or from the Echelon Panel.

To add a unit to the Unit Shortcut Panel from the map:

1. In the map, select the unit.
2. On the right-click menu, choose **Add Shortcut**. The unit icon is added to the Unit Shortcut Panel.
- To add a unit from the Echelon Panel, in the Echelon Panel, select the unit and drag the unit icon onto the Unit Shortcut Panel.



Assigning Tasks to Units in the Unit Shortcut Panel

To assign a command to a unit in the Unit Shortcut Panel:

1. In the Unit Shortcut Panel, select the unit to which you want to assign a command.
2. Select a command on the Commands Panel, or right-click the unit and select a command from the Task menu.
3. Complete the command parameters as described in [Table 10-1](#).

Removing A Unit from the Unit Shortcut Panel

Removing a unit from the Unit Shortcut Panel does not remove it from the simulation.

To remove a unit from the Unit Shortcut Panel:

1. In the Unit Shortcut Panel, select the unit.
2. On the right-click menu, choose **Clear Shortcut**.

10.5.4. Concealing Units

Concealment does not affect all units equally. Each unit type has a concealment bonus that determines its likelihood of being detected. For example, an individual tank is more easily concealed than an armored company.

When you conceal a unit, the following factors come into play:

- ♦ The unit slows to its concealment speed. If you increase its speed with the Set Speed command, the unit loses its concealment status.
- ♦ The unit can fire, but it fires at a diminished rate to reduce the chance of detection.
- ♦ The closer a concealed unit is to an opposing unit, the less likely it is to be successfully concealed.
- ♦ The more a unit fires direct fire from the same position, the greater the change of detection.
- ♦ Use of indirect fire or missiles immediately reveals the unit.

10.5.5. How Aggregate Units Respond when the Leader is Destroyed

If the leader of a pseudo-aggregate unit (see [“Creating an Aggregate Unit,”](#) on page 6-20) is destroyed while the aggregate is executing one of the following tasks, the task is assumed by a subordinate unit:

- ♦ Move
- ♦ Multi-point Move
- ♦ Patrol
- ♦ Embark
- ♦ Follow.

10.6. Specifying a Unit's Formation

To specify a formation for an aggregate unit:

1. Select the unit.
2. On the Commands Panel, click the formation button. The Set Formation dialog box opens.
3. Select the formation to assign.
4. Click OK.

When you select the formation, you have a choice of several named formations, plus None and Special. These formations are not available to true aggregates.

10.6.1. The Special Formation

The Special formation is a way to instantly create a formation for a pseudo-aggregate unit. When you assign the Special formation, Battle Command calculates the relative offsets of the vehicles in the unit and maintains these relationships.

To assign a Special formation:

1. Select the pseudo-aggregate unit that you want to move in formation.
2. On the Commands Panel, click the formation button. The Set Formation dialog box opens.
3. Select the Special formation.
4. Click OK.

10.6.2. Assigning No Formation

If you assign the formation None to a pseudo-aggregate, the members of the aggregate do not maintain any planned spatial relationship. If you task the pseudo-aggregate, the leader is the only unit that moves.

10.7. Setting Rules of Engagement

You can set rules of engagement through the Hostility/ROE window or by using the Rules of Engagement command in the Commands Panel. The Battle Command internal unit TACSOP (Tactical SOP) definitions for the rules of engagement are as follows:

- ♦ Hold Fire – Do not fire.
- ♦ Return Fire – Fire at whoever fires upon this entity.
- ♦ Fire on Target – Fire only at targets assigned to this entity with the Target or Assault command.
- ♦ Open Fire – Fire at will.



These definitions differ from the doctrinal definitions for air defense weapons control status.

When you set rules of engagement through the Commands Panel, the unit-specific rules override any rules of engagement that have been set in the Hostility/ROE window (see “[The Multi-Force Model and Hostility Mapping](#),” on page 6-16.) If you subsequently change rules of engagement in the Hostility/ROE window for a unit that has had its rules set through the Commands Panel, the new settings in the Hostility/ROE window override the individual settings.

10.8. Creating Air Missions

The Joint Fires View allows you to create, plan, launch, and delete air missions. The creation process sets up the parameters of the mission. The plan specifies the actual details of the mission. You can launch a mission at any point during its “on-call” period. When the entities complete their mission, they are removed from the scenario.

You can sort the list of air missions by any column. To do so, click the column heading.



If you edit an air mission that was automatically planned using an ATO, you must redo the plan manually.

You must be in instructor mode to create an air mission.

10.8.1. Creating an Air Mission

When you create an air mission, you specify the type and number of aircraft, the point from which the mission starts, and the time frame in which it will be on call.

To create an air mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.

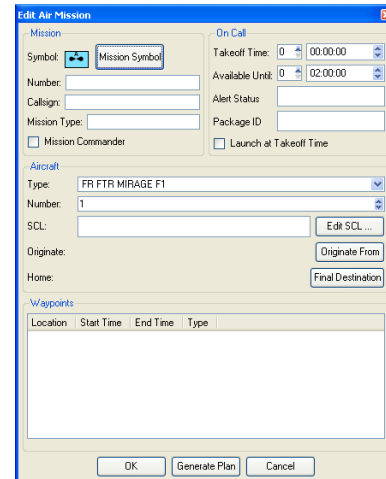
2. Select the Air Missions tab.



3. Click New Mission. The Edit Air Mission dialog box opens.

4. Optionally, choose a symbol for the mission.

- a. In the Mission group box, click Mission Symbol. The Choose Air Mission Force Type dialog box opens.
- b. Click a color to choose the Force Type. The Mission Symbol dialog box opens.
- c. Select the unit size in the Aggregate Size drop-down list.
- d. Select the type of unit in the Aggregate Composition drop-down list.



5. Enter the following mission details in the appropriate text boxes and lists:
 - Mission number.
 - Callsign.
 - Mission type.
 - Takeoff time.
 - Available until time (the ground alert vulnerability window).
 - Alert status (minutes until launch available).
 - Package ID.
 - Mission commander (select to specify).

- Launch at takeoff time (select to enable). If you do not enable this option, the air mission must be launched manually. For details, please see [“Launching an Air Mission,”](#) on page 10-24.
 - Type of aircraft.
 - Number of aircraft in the mission.
 - Weapons loadout. All aircraft have a default weapons configuration. If you customize the configuration, an SCL code is displayed in the SCL box. All mission aircraft use the same ordnance load. For details about customizing the ordnance configuration, please see [“Configuring Ordnance,”](#) on page 12-7.
 - Point of origin. For details, please see [“Specifying an Air Mission’s Origination Point,”](#) on page 10-22.
 - Final destination. To specify the final destination:
 - a. Click Final Destination.
 - b. Click on the map to specify the destination.
6. Click OK. The mission is added to the list in the Air Missions tab.

Specifying an Air Mission’s Origination Point

To specify an air mission’s origination point:

1. In the choose Air Mission Force Type dialog box, click Originate From.
2. Click on the map or an entity (such as an air base or aircraft carrier) where you want the mission to take off from.

A mission can also begin already airborne by selecting a point on the map and a takeoff time that is the same as the simulation start time. Be sure to give the mission a plan with the desired starting altitude and speed.

You can zoom the map out to beyond the extents of the database if you want the mission to start from a point outside of the terrain that you are using for the simulation.

10.8.2. Editing an Air Mission

To edit an air mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Air Missions tab.
3. Select the mission that you want to edit.
4. Click Edit Mission. The Edit Air Mission dialog box opens.
5. Edit the mission information as described in “[Creating an Air Mission](#),” on page 10-21.



If the air mission was created from an Air Tasking Order (US/NATO only), it has a properly formatted SCL code in the SCL box. If you change the ordnance, a new SCL code is generated.

10.8.3. Planning an Air Mission

When you create an air mission, you are just creating the framework of the mission. The creation process does not tell the units what to do. If you do not create a plan, when you launch the mission, the air assets will loiter at their point of origin.

To plan an air mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Air Missions tab.
3. Select the mission for which you want to create a plan.
4. Click Plan Mission. A Plan dialog box opens.
5. Add tasks to the plan as you would for any entity. For information about creating plans, please see [Chapter 9, Writing Plans](#).
6. The last order in the air mission plan should be to Return to Base if a home base has been identified in the plan, or an embark order followed by the desired landing base.

10.8.4. Launching an Air Mission

Air missions do not start automatically unless you select the Launch at Takeoff Time option. If they are not planned to take off at a specified time, such as ground alert missions, you can launch them manually at any time, as long as the air mission is manually launched within the mission availability window.

To launch an air mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Air Missions tab.
3. Select the mission you want to launch.
4. Click Launch Mission.

10.8.5. Deleting an Air Mission

To delete an air mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button ().
2. Select the Air Missions tab.
3. Select the mission you want to delete.
4. Click Delete Mission.

10.9. Managing Fire Missions

You can view, edit, cancel, and delete mortar and artillery fire missions in the Joint Fires View dialog box.

You can assign fire missions to a pseudo-aggregate. If the pseudo-aggregate has the appropriate assets (artillery or mortar) available, it assigns the missions to the subordinate unit. If assets are not available, the pseudo-aggregate unit queues the missions at the pseudo-aggregate level until it can assign them to a subordinate.

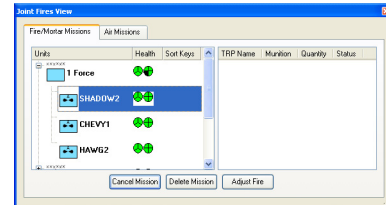
Figure 10-2 illustrates how fire missions are assigned within an aggregate. The first view of the Fire/Mortar Missions tab shows 4 fire missions queued for 2nd Art Btn. When the simulation starts, 2nd Art Btn assigns TRP 001 and TRP 002 to its two field artillery batteries. When one of those batteries completes TRP 002, it is assigned TRP 003.

10.9.1. Viewing Fire Missions

The Joint Fires View lists all fire missions for artillery and mortar units.

To view fire missions:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Fire/Mortar Missions tab.
3. In the Units panel, select the unit whose missions you want to view. The missions are displayed in the right-hand side of the tab.



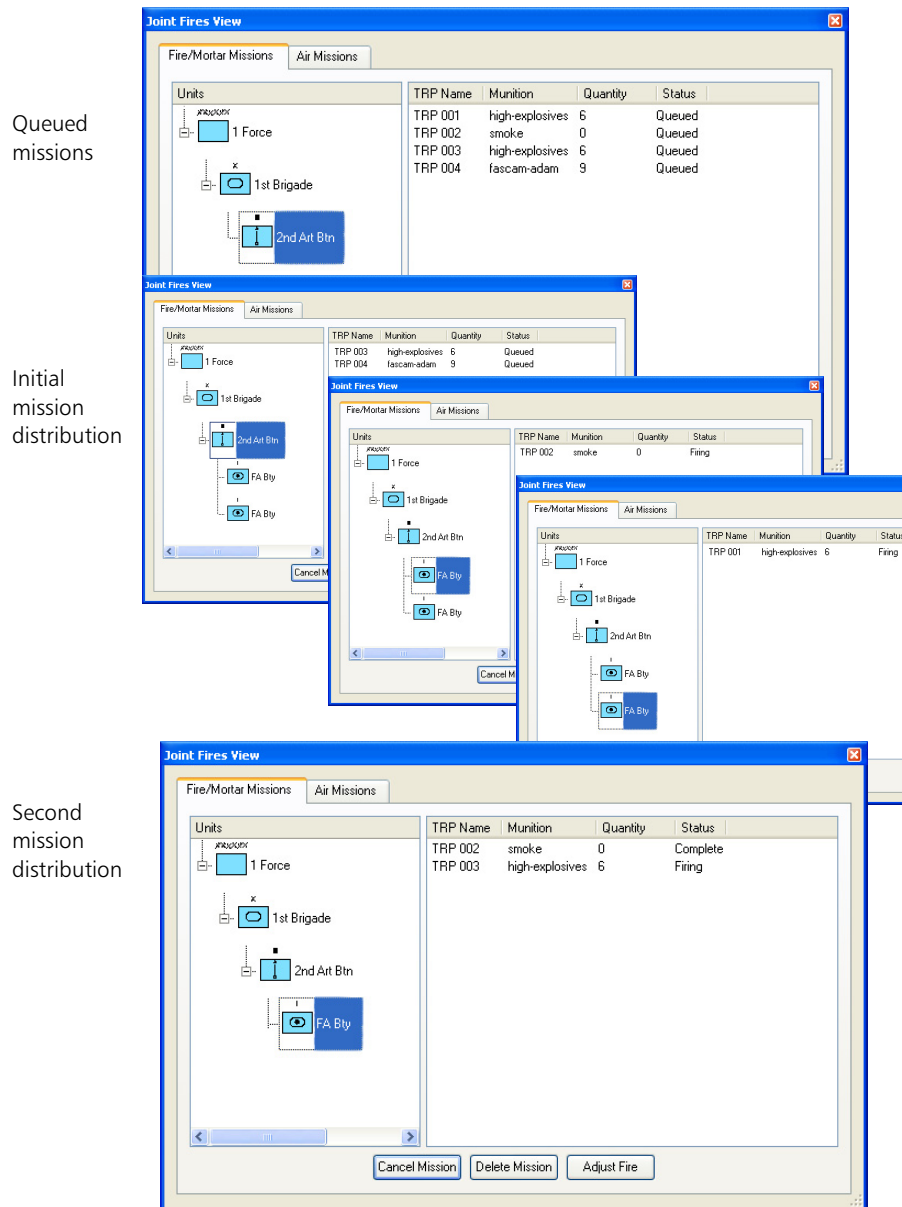


Figure 10-2. Assignment of queued missions in an aggregate

10.9.2. Editing a Fire Mission

You can change the location targeted by a fire mission.

To edit a fire mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Fire/Mortar Missions tab.
3. In the Units panel, select the unit whose missions you want to edit. The missions are displayed in the right-hand side of the tab.
4. Select the mission you want to edit.
5. Click Adjust Fire.
6. Click on the map at the new target location.

10.9.3. Cancelling a Fire Mission

If you cancel a fire mission, it remains in the list of missions, but is not executed.

To cancel a fire mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Fire/Mortar Missions tab.
3. In the Units panel, select the unit whose missions you want to view. The missions are displayed in the right-hand side of the tab.
4. Select the mission you want to cancel.
5. Click Cancel Mission.

10.9.4. Deleting a Fire Mission

If you delete a fire mission, it is removed from the mission list.

To delete a fire mission:

1. Choose **Unit** → **Joint Fires**, or on the Battle Command toolbar, click the Joint Fires View button (). The Joint Fires View dialog box opens.
2. Select the Fire/Mortar Missions tab.
3. In the Units panel, select the unit whose missions you want to view. The missions are displayed in the right-hand side of the tab.
4. Select the mission you want to delete.
5. Click Delete Mission.

10.9.5. Using Fire Finder Radar

The Fire Finder Radar unit can locate the source of incoming artillery or mortar fire and place target points on the overlay for use in targeting your artillery or rocket response. The Fire Finder Radar unit must be facing the source of the incoming fire. The Fire Finder Radar unit has a range of view of approximately 45 degrees, centered on its heading.

To use Fire Finder Radar:

1. Place the Fire Finder Radar unit in the scenario.
2. Set the unit's heading in the approximate direction of the incoming fire. When the entity detects incoming fire, it adds two target points for the source to the FFR Targets Blue (or Red) layer.
3. If necessary, in the Overlay Manager, activate the FFR Targets layer to see the target points. The target points may be obscured by entity icons. Therefore, you may also need to zoom in on the map to see the target points.
4. Create a fire mission for artillery or rocket assets and specify the target points created by the Fire Finder Radar unit as the targets for the mission.

10.10. How Units Interact with Engineering Objects

Units can detect obstacles like they detect other objects. When a unit detects an obstacle it sends out an obstacle report to its fellow units to notify them about the obstacle. The obstacle then appears on the “Reported Obstacles” overlay.

When a unit approaches an engineering object, one of the following will happen:

- ♦ The unit will avoid the object by traveling around it.
- ♦ The unit will slow down and pass through the object.
- ♦ The unit be damaged or destroyed.

The way in which a unit reacts to an engineering object depends on the object type and the unit type. For example, concertina wire will stop dismounted infantry, but not a tank. On the other hand, dismounted infantry might be able to safely pass through a RAAM object, but a tank would be destroyed.

When a unit encounters an obstacle, it checks its counter-mobility factor for that obstacle type and whether or not it can go through it. If the unit cannot cross the obstacle, it must go around it. If the unit goes through the obstacle, its speed is reduced by the counter-mobility factor.

For survivability positions like strong points and fortified areas, if an enemy is occupying it, the obstacle prevents friendly units from entering. You cannot get in without breaching or killing those within.

When a unit is in an obstacle, it receives a survivability bonus for having shelter against direct or indirect fire. An obstacle provides survivability in proportion to its material integrity. The greater the material integrity, the more survivability is awarded to the occupant.

Engineering units can breach the engineering objects that they are designed to breach. If a breach is established, other units can pass through it.

10.10.1. Breaching an Obstacle

“[Creating a Breach Lane](#),” on page 8-5 explains how to create a breach lane as an object. This section explains how to task a unit to breach an obstacle.

To create a breach lane as a unit task:

1. Select the obstacle you want to breach.
2. Select the unit you want to task.
3. On the Engineering palette, click Breach Lane (.
4. In the dialog box, select “Task current selected unit to build”.
5. Specify a line where you want the unit to breach. (Click the start point and end point.)

When you task a unit to breach an obstacle, it does the following:

1. It goes to the first vertex of the breach line.
2. It determines whether it has the means to breach the obstacle. (Make sure the entity you choose has breach resources in its breach controller that match the necessary breach category of the obstacle. For example, don’t breach a minefield with an AVLB!).
3. If it doesn’t have the means, it just quits the task; otherwise it starts to breach the obstacle. The rate it breaches is determined by the breach work rate of the entity (meters per second). This rate is tempered by the material integrity of the obstacle it is breaching. The stronger the composition of the obstacle the longer it takes to breach it.
4. When the entity is done, a breach is spawned spanning the obstacle.



- ♦ If a unit successfully breaches an obstacle, an animation is displayed.
 - ♦ If you want a unit to breach a succession of obstacles, you must task it to breach each obstacle individually. You cannot assign a series of breaches as one task.
-

10.11. Conducting Tactical Operations

You can replicate most tactical tasks using the commands on the Commands Panel. Some tasks can be accomplished with individual commands; others through a combination of simulation commands. The following sections provide examples of tasks built using multiple commands.

10.11.1. Ambush

To set up an ambush:

1. Move the unit to the planned ambush site.
2. Set the unit to be concealed.
3. Change its heading to face the planned direction of fire. If possible, specify a target.
4. Set the unit ROE initially to Hold Fire to prevent it from engaging the target prematurely.
5. At the desired time, change the ROE to Open Fire and remove concealment if you want maximum firepower.

10.11.2. Attack by Fire and Support by Fire

To order attack by fire and support by fire:

1. Move the unit to the desired position.
2. Assign the desired target.

10.11.3. Follow and Support

To order follow and support:

1. Use the Follow command to cause a unit to follow its supported unit.
2. As required, assign other commands such as Assault, Target, and so on, to perform the desired supporting task.

10.11.4. Retrograde Operations

For retrograde operations such as delay, withdrawal, and retire, use the Move To command. During delay operations or withdrawals under pressure, it is critical that the unit be assigned a heading that faces the enemy after reaching each new position. Adroit use of the ROE can also keep your unit from becoming decisively engaged.

10.11.5. Reconnaissance and Security Operations

Offensive and defensive screens and reconnaissance tasks use a combination of the Conceal, Move To, and ROE commands.

10.11.6. Air Refueling Operations

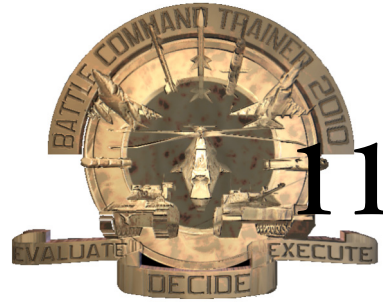
To set up an air refueling operation:

1. Orbit a tanker in a refueling track.
2. Order an aircraft to proceed to the center of the refueling track.
3. Order a wait of 10 minutes per mission aircraft (join up and refueling time).
4. Order resupply of fuel (not ammo) to 100%.

10.11.7. Carrier Operations

To set up a carrier operation:

- ♦ Take off: Set takeoff times on a one and a half hour cycle with 15 second spacing between aircraft take off times.
- ♦ VFR Recovery: Have all recovering aircraft move to the carrier's location, wait for 15 minutes, and then order them to embark on the carrier.
- ♦ IFR Recovery: Have all recovering aircraft move to a point 15 miles away from the carrier and stacked at altitudes 1000 feet apart with lowest at 10,000 feet. At recovery time, order lowest mission to embark on the carrier and then continue the sequence with each mission on up ordered to embark 45 seconds apart.

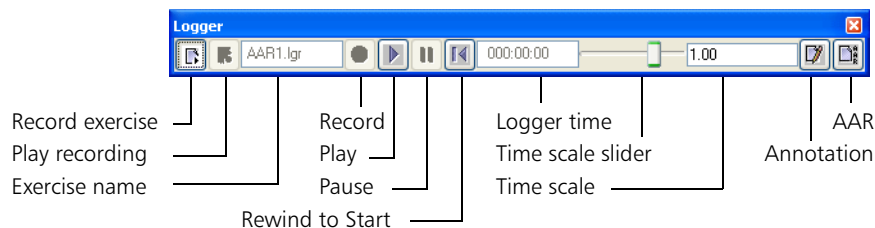


11

Reviewing a Simulation Event

Battle Command has tools that help you review a simulation while it is being played and afterwards.

- ♦ The Logger lets you record a simulation and play it back. You control the recording and playback process from the Logger toolbar.



- ♦ Distributed tools on the Overlay Palette let you draw weapons effect fans, line-of-sight, and laser pointers that are visible on all participating PCs.
- ♦ The AAR Tools palette lets you synchronize the view on all players' PCs and lets you globally highlight units.

11.1. Using the Logger

This section explains how to record simulation events, play them back, and annotate them.

11.1.1. Opening the Logger Toolbar

- To open the Logger toolbar, choose **View** → **Logger**, or on the Battle Command toolbar, click the Logger button ().

11.1.2. Recording a Simulation Event

To record a simulation, you must have a scenario loaded. If the scenario is newly created, you must save it before you can record it.

To record a simulation:

1. Choose **File** → **New** → **Logger Tape**, or on the Logger toolbar, click Record Exercise (). A file selection dialog box opens.
2. Enter a name for the recording. You must include the extension *.lgr*.
3. Click OK. The name is displayed in the Logger toolbar.
4. On the Logger toolbar, click the Record button ().
5. Start the simulation.
6. When you want to stop recording, click the Pause button ().

While the simulation is being recorded, the Logger time display indicates how long the recording is.

11.1.3. Playing a Recording

When you want to play a Logger recording, do not load a scenario. The recording loads the database terrain.

To play a recording:

1. Choose **File** → **Open** → **Logger Tape**, or on the Logger toolbar, click the Play Recording button (). An Open dialog box opens.
2. Select the recording that you want to play.
3. Click Open.
4. Battle Command loads the database and recording. This process appears as though you are loading a scenario.
5. When the recording is loaded, click Play (.



Do not play a recording until you see the units displayed on the map.

Pausing Playback

- To pause playback, click the Pause button (.

Rewinding a Recording

- To move to the beginning of a recording, click the Rewind to Start button (.

Changing the Time Scale of the Logger

You can change the relative speed at which the Logger plays a recording. The range is -10 through 10, or ten times slower than real-time through 10 times faster than real-time.

To change the time scale:

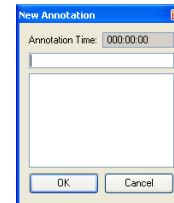
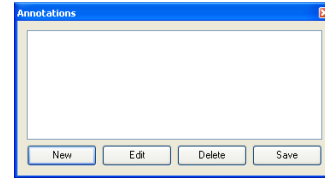
1. Slide the Time Scale slider to the left to slow down the Logger.
2. Slide the Time Scale slider to the right to speed it up.

11.1.4. Adding Annotations to a Logger Recording

You can annotate a Logger recording. The recording must be loaded.

To annotate a recording:

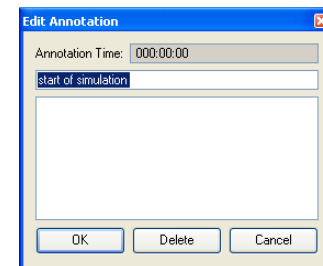
1. On the Logger toolbar, click the Annotations button () . The Annotations window opens.
 2. Click New. The New Annotation dialog box opens.
 3. Enter a name for the annotation in the first line.
 4. Enter the text for the annotation in the box.
 5. Click OK.
 6. The time of the annotation and the name is listed in the Annotations window.
 7. Click Save.
- To close the Annotations window, click the button in the upper right corner.



Editing an Annotation

To edit an annotation:

1. Open a recording.
2. On the Logger toolbar, click the Annotations button () . The Annotations window opens.
3. Select the annotation you want to edit.
4. Click Edit. The Edit Annotation dialog box opens.
5. Make changes to the name or text of the annotation.
6. Click OK.
7. In the Annotations window, click Save.



Displaying Annotations in a Text Window

You can configure Battle Command to automatically display a window with annotation text when the recording reaches the annotation point.

To display annotations in a window:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. On the Game tab, in the Effects group box, select the Display Logger Annotations As Text check box.

Playing Annotations

You can configure Battle Command to automatically read annotation text when the recording reaches the annotation point.

To play annotations:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. On the Game tab, in the Effects group box, select the Read Logger Annotations Aloud check box.

11.2. Using Distributed Review Tools

The distributed overlay tools let an instructor quickly draw transient graphics on the map that all players can see.

To use a distributed review tool:

1. Open the Overlay Palette.
2. Select the Tools tab.
3. Click the tool you want to use (laser pointer, line-of-sight, or WEF.)
4. Use the line-of-sight or WEF tools as described elsewhere in this manual. To use the laser pointer, click on the map where you want the point to be displayed. You can drag the point around the map to maintain a continuous view of the pointer.
5. To disable the tool, press **Esc**.

11.3. Using AAR Tools

The AAR Tools Panel allows an instructor to synchronize the view of all players to that of the instructor's PC. It also allows the instructor to highlight units so that they are highlighted on all PCs.

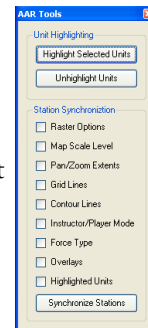


You can use the AAR Tools at any time. They are not restricted to AAR or when you are playing a Logger recording.

11.3.1. Highlighting Units

To highlight units on all PCs:

1. Choose **View** → **AAR Tools**. The AAR Tools Panel opens.
2. Select the units you want to highlight.
3. Click Highlight Selected Units.
4. To remove highlighting from units, select them and click Unhighlight Units.



11.3.2. Synchronizing Views

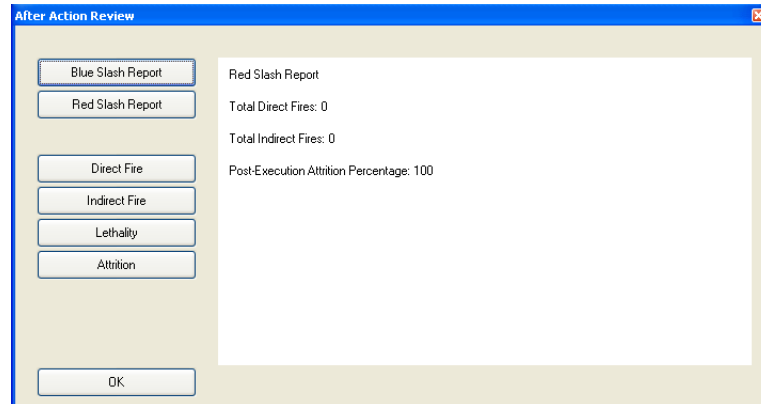
To synchronize the view on all PCs:

1. Choose **View** → **AAR Tools**. The AAR Tools Panel opens.
2. Select the boxes for each view feature that you want to synchronize.
3. Click Synchronize Stations.

11.4. After-Action Review Graphs and Reports

Battle Command provides several graphs and reports for after-action review.

- To review an AAR report, on the Logger toolbar, click the AAR button (). The After Action Review window opens.



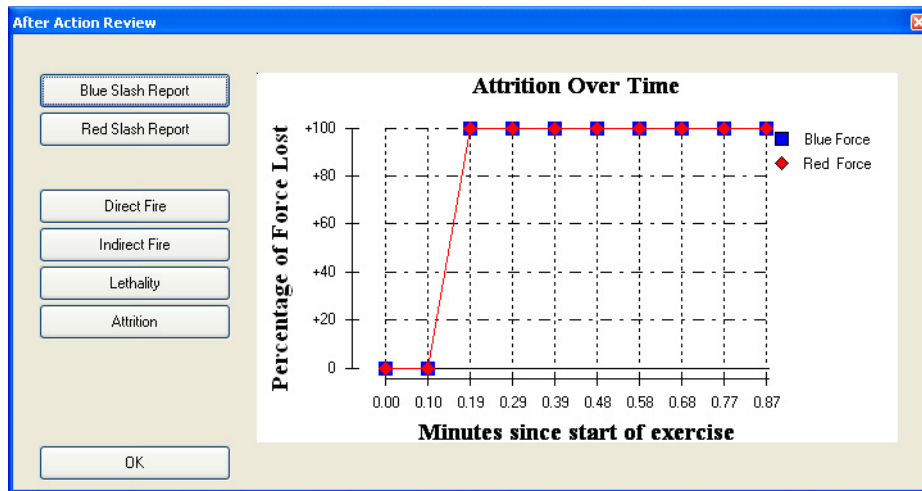
The After Action Review window has a set of buttons that display the following reports:

- ♦ Blue slash report
- ♦ Red slash report
- ♦ Direct fire
- ♦ Indirect fire
- ♦ Lethality
- ♦ Attrition.

The slash reports provide a text version of AAR information. The Direct Fire and Indirect Fire charts show the number of shots fired and the amount of artillery fired over time.

Lethality represents the ability of a force to destroy as a rollup over time, taking into account the relative strength of units. If you compare sharp declines in lethality of one force with corresponding spikes in the direct fire or indirect fire graphs of the opposing force, you can assess the likelihood that units were destroyed by direct fire or artillery.

The following illustration shows a Lethality report:





Multiplayer Scenarios

You can play Battle Command in single-player mode or with other players. In multiplayer mode, you can host a scenario or connect to a scenario hosted by someone else. You can run a multiplayer scenario over your LAN or you can connect through a web-based lobby server.



Every player in a multiplayer scenario must use the same scenario and terrain. All scenario and terrain files must be identical. It is the responsibility of whoever is in charge of running the simulation to ensure this.

12.1. Preparing for a Multiplayer Exercise

To run a multiplayer scenario, you must do the following:

- ♦ Configure simulation settings.
- ♦ Create a load group file or use the default one created with the scenario.
- ♦ Configure network settings.
- ♦ For some network types, you must edit a configuration file.

You can play a multiplayer exercise over the following network topologies:

- ♦ A Local Area Network (LAN). This is the default.
- ♦ A Wide Area Network (WAN), with Distributed Forwarding. This is the recommended method for playing over a WAN, but requires additional setup.
- ♦ A WAN, with centralized forwarding. Centralized forwarding provides reliable network information, but creates a greater load on the network. This is suitable for small exercises and usually no more than two remote LANs

This section describes tasks common to all network topologies. The succeeding sections describe how to configure the various network topologies.

12.1.1. Load Balancing and Load Groups

Simulating the objects in a scenario is a demanding task for a computer. If the number of objects and the amount of activity in a scenario increases beyond the capacity of a computer, performance suffers. You can maintain a high level of performance if you spread the work of simulating objects over several computers. This is called load balancing.

To implement load balancing, you assign the objects in a scenario to load groups. Each load group is simulated on a different computer. The load group assignments are stored in a MÄK Multiplayer Configuration (MMC) file. Battle Command includes a wizard, the Multiplayer Wizard, that walks you through the process of creating or editing an MMC file.

The Multiplayer Wizard can create the following configurations of load groups:

- Single – all objects are in one load group. All objects will be simulated on one computer. This configuration is appropriate for relatively small scenarios.
- Force – objects are assigned to load groups by force. Up to four load groups are created (blue, red, yellow, green) based on the force type of the objects in the scenario. This configuration is good for relatively small scenarios in which each force is managed by a human player (as opposed to the computer simulating one of the forces.)
- Custom – Battle Command can assign objects to any of a set of standard load groups, you can specify custom load groups and assign objects to them manually, or you can mix standard and custom load groups. The custom option lets you create the maximum number of load groups without manually assigning objects to them. It also gives you the flexibility to create custom load groups to meet the particular needs of your scenario or network configuration.

The following sections explain how to start the wizard to create or edit an MMC file and provide tips for completing the wizard.



When you save a scenario, Battle Command creates a default MMC file that uses the force types to create the load groups. You do not need to create an MMC file unless you want to specify custom load groups.

Creating a MÄK Multiplayer Configuration File

You must be in instructor mode to create an MMC file.

To create an MMC file for a scenario:

1. Choose **File** → **New** → **Multiplayer Configuration File**. The Multiplayer Wizard opens.
2. Follow the instructions on each page of the wizard to create the file.

Editing the Load Groups for A Multiplayer Scenario

To edit an MMC file:

1. Choose **File** → **Open** → **Multiplayer Configuration File**. The Multiplayer Wizard opens.
2. Follow the instructions on each page of the wizard to edit the file.

Tips for Editing an MMC File

When you edit an MMC file, after you specify the file and scenario, the Multiplayer Wizard opens the Create Custom Load Groups page, which has a list of the load groups in the file. You can add or remove load groups and proceed to the next page to change object assignments. If the file does not include some or most of the standard load groups (track, other, and force), the wizard can automatically create the standard load groups and assign objects to them. However, if you choose this approach, you will lose any custom groups that are in the file.

To create the standard custom load groups in an existing MMC file:

1. On the Create Custom Load Groups page, remove all load groups from the load group list.
2. Click the Back button. The wizard changes to the Custom Load Groups page.
3. Select the standard load groups you want. Clear those you do not want.
4. Click Next. You return to the Create Custom Load Groups page.
5. Continue completing the wizard.

Tips for Assigning Objects to Load Groups

On the Assign Objects to Load Groups page, the list of objects is organized hierarchically by force. In the list of load groups, the objects in each load group are not listed hierarchically, but the superior for each unit is listed in the Parent Name column. The Assign Objects to Load Groups page works as follows:

- ♦ You can select multiple objects in either list.
- ♦ You can sort the objects list by column.
- ♦ If you collapse the hierarchy for a pseudo-aggregate unit and add it to a load group, all of its subordinates are automatically added also. If the hierarchy is expanded, the subordinates are not automatically added to the load group.
- ♦ If a unit is assigned to a load group, you can move it to a different group without first removing it from its current load group. Just select it in the objects list and assign it to the new group as if it were unassigned.

12.2. Configuring a LAN-Based Simulation Event

This section explains how to configure a simulation event that will run over a LAN.

To configure a PC for a LAN-based simulation:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Network tab.
3. Complete the dialog box as follows:
 - HLA Federation Name. Enter the name that identifies the channel through which players will connect to the network. It must be the same for all participants. The default is *trainer20017*, which matches the name of the FOM.
 - Federate Name. Optionally, enter a name for the machine that is connecting to the network simulation.
 - Fed File Name. Enter the name of the FED file that you are using. The default is *trainer20017-1.fed*, which is an extension of the Real-time Platform Reference (RPR) FOM, version 2 draft 17.
 - Make sure that the Network Configuration is set to LAN.
 - Specify a UDP Port. All stations wishing to connect to this exercise must use the same UDP Port.
4. Click OK.

12.3. Configuring a WAN-Based Simulation using Centralized Forwarding

This section explains how to configure your PCs for a WAN-based exercise using centralized forwarding. To support centralized forwarding, you must run a single RTI Exec and RTI Forwarder and all participants must know the IP address of the PC on which it will run.

To configure centralized forwarding on the PC on which the RTI Exec / RTI Forwarder will run:

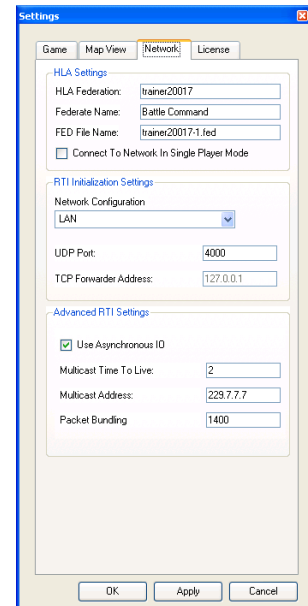
1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Network tab.
3. Change the Network Configuration to WAN (Centralized Forwarding).
4. In the RTI Forwarder Address box, type the IP address of this PC.
5. Click OK.
6. From the Start menu, choose **Tools** → **RTI Exec**. The RTI Assistant icon should be displayed in the taskbar. Please see “[The RTI Assistant](#),” on page A-2 for more details about the RTI Assistant.

To configure centralized forwarding on other participating PCs:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Network tab.
3. Change the Network Configuration to WAN (Centralized Forwarding).
4. In the RTI Forwarder Address box, type the IP address of the PC that is running the RTI Exec and RTI Forwarder.

Run the multiplayer scenario as described in “[Connecting to a Multiplayer Exercise](#),” on page 12-8.

To reconfigure your PCs for normal LAN play, change the Network Configuration to LAN.



12.4. Configuring a WAN-Based Simulation Using Distributed Forwarding

Using a Distributed Forwarding model, local applications send their network data to a local RTI Forwarder, which then sends the data to other remote RTI Forwarders across a WAN connection.

Figure 12-1 illustrates this concept. On the sending side of the illustration, there are three LANs. Each LAN has a Distributed RTI Forwarder (represented by a geometrical shape). The computers on each LAN send to the RTI Forwarders on the two LANs that are remote to them. On the receiving side of Figure 12-1, each RTI Forwarder receives messages addressed to them by the computers on the two remote LANs. They then forward the messages to the computers on their LAN.

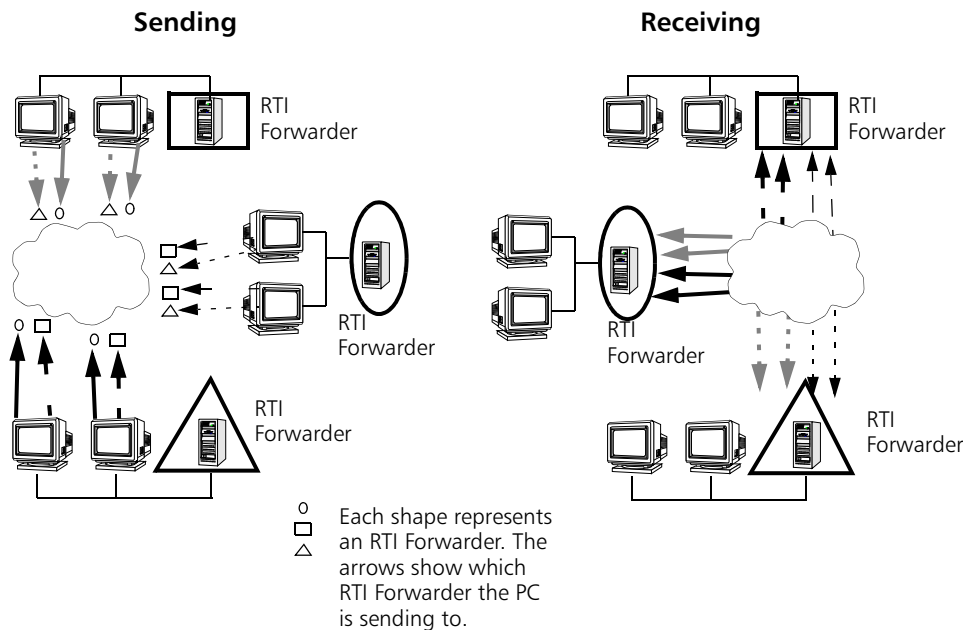


Figure 12-1. Using RTI forwarders

12.4.1. Setting Basic Networking Parameters

Complete this procedure on each computer that will participate in the simulation.

To set basic networking parameters:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Network tab.
3. Change the Network Configuration to WAN (Distributed Forwarding).
4. In the RTI Forwarder Address box, type the IP address of the PC on which the RTI Forwarder will be run for the local LAN.
5. Click OK.

12.4.2. Configuring the *routes.mtl* File

Complete this procedure for each PC that will participate in the simulation.

To configure simulation PCs for Distributed Forwarding, you will need to edit the *routes.mtl* file located in the Battle Command data directory. The file must be the same for every PC participating in the exercise. You can edit the files once and copy the file to all other PCs.

The *routes.mtl* file identifies the IP address of all RTI Forwarders participating in the exercise. For each Forwarder, enter the values for:

```
(RTI_addForwarder "Forwarder_Name_1" "192.168.1.1")  
(RTI-allowMulticastForwarding "Forwarder_Name_1")
```

where Forwarder_Name_1 is a unique name for each forwarder, which contains no spaces and contains the specific IP address on which the forwarder will run.



This configuration is only for use over a WAN connection. If you attempt to test on a LAN, you will get duplicate updates for object information.

12.4.3. Starting an Exercise that Uses Centralized Forwarding

1. For all PCs that will run the RTI Forwarder for a LAN, on the Start menu, choose **Tools** → **RTI Forwarder**. The RTI Assistant icon should be displayed in the taskbar. Please see [“The RTI Assistant,”](#) on page A-2, for more details about the RTI Assistant.
2. Choose 1 of the Forwarder PCs to also run the RTI Exec. On the Start menu for that PC, choose **Tools** → **RTI Exec**.

All RTI Forwarders must be started and connected before this step.

3. Run the multiplayer scenario as described in [“Connecting to a Multiplayer Exercise,”](#) on page 12-8.

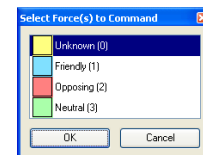
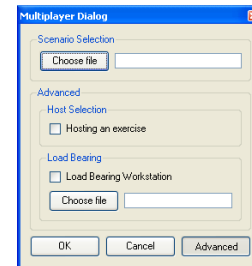
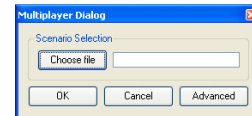
12.5. Connecting to a Multiplayer Exercise

Before you connect to a multiplayer exercise, be sure that all computers are configured as described in the previous sections of this chapter. You can connect to a multiplayer exercise as the host, as a player on a load bearing workstation, or as a player on a non-load bearing workstation.

12.5.1. Hosting a Multiplayer Exercise

To host a multiplayer exercise:

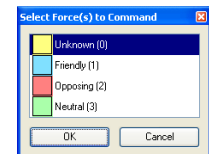
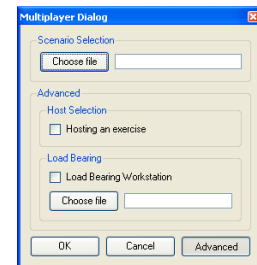
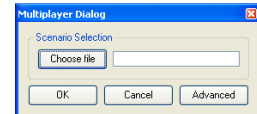
1. If you are running a WAN exercise with *rtiexec.exe* or *udpforwarder.exe*, make sure the forwarders are running.
2. Start Battle Command.
3. Choose **File** → **Open** → **Multiplayer Scenario**. The Multiplayer dialog box opens.
4. Click the Advanced button.
5. In the Scenario Selection group box, click Choose File and select the scenario that you want to play.
6. Select the Hosting an Exercise check box.
7. If your PC will simulate some or all of the objects in the simulation, select the Load Bearing Workstation check box.
8. If you checked the Load Bearing Workstation check box, click the Choose File button. An Open dialog box opens.
9. Select the multiplayer configuration file for this scenario.
10. If your PC will not simulate any objects, be sure the Load Bearing Workstation check box is cleared.
11. Click OK. The Select Load Groups dialog box opens.
12. Select the load group that your PC will simulate and click OK. The Select Forces to Command dialog box opens.
13. Choose the force you are playing for.
14. Click OK. Battle Command loads the scenario.



12.5.2. Connecting as a Load-Bearing Player

To host a multiplayer exercise:

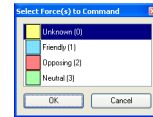
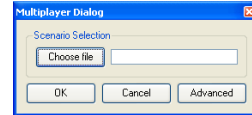
1. If you are running a WAN exercise, make sure the RTI Forwarder(s) and RTI Exec are running. You can use the RTI Assistant to view the status on the RTI Forwarder(s) and RTI Exec on their respective PCs. Please see [“The RTI Assistant,”](#) on page A-2 for more details about the RTI Assistant.
2. Start Battle Command.
3. Choose **File** → **Open** → **Multiplayer Scenario**. The Multiplayer dialog box opens.
4. Click the Advanced button.
5. In the Scenario Selection group box, click Choose File and select the scenario for this exercise. It must be the same scenario that the host chose.
6. Select the Load Bearing Workstation check box.
7. Click the Choose File button. An Open dialog box opens.
8. Select the multiplayer configuration file for this scenario.
9. Click OK. The Select Load Groups dialog box opens.
10. Select the load group that your PC will simulate and click OK. The Select Forces to Command dialog box opens.
11. Choose the force you are playing for.
12. Click OK. Battle Command loads the scenario.



12.5.3. Connecting as a Non-Load-Bearing Player

To host a multiplayer exercise:

1. If you are running a WAN exercise, make sure the RTI Forwarder(s) and RTI Exec are running. You can use the RTI Assistant to view the status on the RTI Forwarder(s) and RTI Exec on their respective PCs. See Please see “[The RTI Assistant](#),” on page A-2 for more details about the RTI Assistant.
2. Start Battle Command.
3. Choose **File** → **Open** → **Multiplayer Scenario**. The Multiplayer dialog box opens.
4. In the Scenario Selection group box, click Choose File and select the scenario that you want to play.
5. Click OK. The Select Forces to Command dialog box opens.
6. Choose the force you are playing for.
7. Click OK. Battle Command loads the scenario.



12.5.4. Viewing the List of Players

- To view a list of the players in a multiplayer exercise, choose **Simulation** → **Player List**.

12.6. Responding to a Duplicated Objects Warning

All objects in an exercise must have unique internal IDs. Under rare circumstances, duplicate objects can be introduced to an exercise. This can, at the least, render these objects to be unmanageable, and at the worst, cause the exercise to become unstable. If an instance of Battle Command detects an attempt to introduce a duplicate object:

- ♦ It discards the new object.
- ♦ It ignores repeated attempts to add the duplicate object.
- ♦ It displays the Duplicated Simulated Objects window.

You can check the status of duplicated simulated objects at any time by displaying this window.

- To display the Duplicated Simulated Objects window, choose **Simulation** → **Duplicated Objects**.

If you receive a warning that there are duplicated simulation objects, you can restart the exercise or try to identify the source of the duplicate objects and remove them from the scenario. Restarting the exercise is the recommended option; however, if the problem occurs after an exercise has been running for a while, you may want to try to preserve the current exercise by removing the duplicate object.

The most likely causes of duplicate simulated objects are:

- ♦ More than one participant in a multiplayer exercise has loaded the scenario.
- ♦ More than one participant in a multiplayer exercise has loaded the same load group.
- ♦ A late joiner to an exercise loads the scenario or an already loaded load group.

In the first two of these instances, the problem will probably be detected at the start of the exercise. Restart the exercise and ensure that participants follow the procedures described earlier in this chapter for starting and joining an exercise.

If the problem is caused by a late joiner, identify the late joiner and have that person exit from the exercise. Then have them join properly.

Under rare circumstances a person can run in single player mode, but broadcast their exercise to the network. This may be harder to detect. The best way to prevent this is to ensure that all players in an exercise use a port number that is unlikely to be used by anyone else on the LAN.

To ensure that a workstation does not broadcast its activity in single-player mode:

1. Choose **Options** → **Settings**. The Settings dialog box opens.
2. Select the Network tab.
3. In the HLA Settings group box, make sure that Connect To Network In Single Player Mode is clear (unchecked.)



Creating A Scenario

All Battle Command simulations take place in the context of a scenario. A scenario specifies:

- ♦ A terrain database.
- ♦ An order of battle.
- ♦ Optionally, plans, graphics, and mission documents.



All the procedures in this chapter assume that you are an instructor and are running Battle Command in Instructor mode.

13.1. Creating a Scenario

To create and edit scenarios, run Battle Command in Instructor mode. If you are in player mode, you will not be able to see any of the entities or objects you create for the opposing force.

To run Battle Command in Instructor mode:

1. Start Battle Command.
2. Choose **Options** → **Settings**.
3. On the Game tab, in the Mode list, select Instructor.
4. Click OK.

To create a scenario:

1. Choose **File** → **New** → **Scenario**. The Open dialog box opens to the directory specified by the CTERRAINS DIR variable in the File Locations dialog box. (Please see [“Specifying File Locations,”](#) on page A-12.)
2. Select a terrain directory.
3. Select a terrain MTD file (*.*mta*). The MTD file specifies the locations of all available terrain data for a terrain database.
4. Click Open. Battle Command loads and displays the database.
5. Add units, control objects, events, and overlay graphics as described in this chapter.

13.2. Adding a Unit to a Scenario

As the scenario developer, you decide which units are available to the forces, their initial location, and initial organization. You can create units by clicking on the map or by specifying the coordinates at which to create it.

To add units to a scenario:

1. Choose **Create** → **Units**, or on the Battle Command toolbar, click the Unit Painter button (). The Unit Painter opens.
2. To select the force for the units you are creating, select one of the forces listed in the Force Type drop-down list. The selected force type is displayed and all available units are displayed with the symbology for the selected force type.
3. Optionally, filter the list of units to make it easier to find the unit you want. For details, please see [“Filtering the Unit List in the Unit Painter,”](#) on page 13-4.
4. In the Unit list window, select the unit that you want to add. When you move the cursor over the map, it changes to an image of the unit icon.
5. Optionally, configure the ordnance. For details, please see [“Configuring Ordnance,”](#) on page 13-6.
6. To create a unit by clicking on the map, click on the map in the location where you want to add the unit. You can continue clicking to add as many units of this type as you want.

To create units by specifying the coordinates:

- a. Right-click. The Enter Location dialog box opens.
 - b. Select the coordinate system that you want to use.
 - c. For each entity you want to create, type the coordinates and click OK.
 - d. Click Finish.
7. Press **Esc** to release the cursor from unit painting mode.
 8. Continue adding units of the desired force and platform type until you are finished.

13.2.1. Filtering the Unit List in the Unit Painter

Each force has many units. To make it easier to select the unit you want without scrolling through the entire list, you can filter the list of units in the Unit Painter window. You can filter the list in the following ways:

- ♦ By unit type, such as lifeforms, platforms, or cultural features. To filter by unit type, select an option in the Display Unit Type list.
- ♦ By unit domain, such as land, air, or surface. To filter by domain, select an option in the Displayed Unit Domain list.
- ♦ By text string. Type a string in the Search box in the Search Filter group box. Select the check box for each column that you want to search. Battle Command displays any units that have the text string in any of the selected columns.
- ♦ Alphabetically. Click a column heading to sort alphabetically on that column.

You can also change the organization of columns by dragging them to a different order.

13.2.2. Importing an Order of Battle

You can import the order of battle from another scenario. You can add some or all of the units from the imported OOB and can add them at their saved locations or new locations.

To import an order of battle:

1. Choose **Create** → **Units**, or on the Battle Command toolbar, click the Unit Painter button (). The Unit Painter opens.
2. In the Options group box, click the Load Existing OOB button. The Load Order of Battle dialog box opens.
3. Navigate to the order of battle file (.oob) you want to import and select it.
4. Click Open.
5. The order of battle is displayed in the Unit Painter window. The loaded OOB name is added to the Unit Painter OOB menu to represent the order of battle.
6. Select a unit from the imported order of battle that you want to add to the scenario. You are prompted to specify whether you want to add the unit at the same database coordinates as it had in its home scenario.
 - If you are not using the same terrain database as the order of battle's home scenario, click No.
 - If you are using the same database, click Yes if you want to locate the units in the same place. Otherwise, click No.
7. If you are not locating units in the same place, select each unit you want to add and click on the map where you want to add them.

If you are locating units in the same place, you can add all of them at once if you want to.

You can toggle between the loaded OOBs and default unit list by selecting the appropriate option from the menu.



Do not import an order of battle into a scenario more than one time.

13.2.3. Moving a Unit

After you add units to the scenario, you can move them around on the map.

To move a unit:

1. Right-click the unit.
2. On the popup menu, select Grab. The unit jumps to the location of the cursor.
3. Click on the map where you want to locate the unit.

13.3. Loading and Unloading Units

When you run a simulation you can embark and disembark individual units, such as aircraft, on other units, such as aircraft carriers. However, they embark or disembark in real time. When you create a scenario, you want to be able to do this quickly. The Load and Unload buttons perform this function.

To load units during scenario creation:

1. Select the unit you want to load.
2. On the Commands Panel, click the Load button (.
3. Click the target unit.

To unload units during scenario creation:

1. In the Echelon Panel, select the unit you want to unload.
2. On the Commands Panel, click the Unload button (.

13.4. Adding Engineering Objects to a Scenario

To add engineering objects to a scenario, follow the procedures in [“Adding Engineering Objects to the Map,”](#) on page 8-4.

13.5. Adding Overlay Graphics to a Scenario

To add overlay graphics to a scenario, follow the procedures in [“Adding Graphics to an Overlay,”](#) on page 7-4.

13.6. Adding Documents to a Scenario

You can add documents to a scenario. Follow the procedure in [“Writing Documents,”](#) on page 6-3. To add new document templates, follow the procedures in Appendix C, [Creating Document Templates](#).

To add a mission objectives overlay:

1. Create an overlay as described in [“Adding an Overlay,”](#) on page 7-2.
2. Using the Text option on the Point panel, add whatever text you desire to the overlay.

13.7. Configuring Ordnance

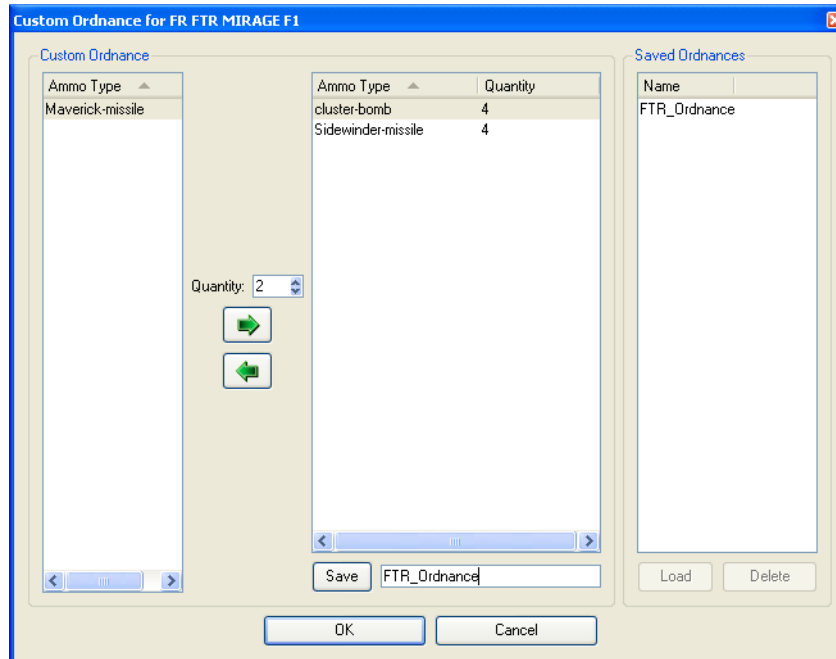
All units have a default configuration for ordnance. You can change the ordnance for many units when you add them to a scenario. You can save configurations and apply them to other instances. You can also configure custom ordnance for air missions.

To configure ordnance:

1. If you are customizing ordnance while adding units to a scenario, in the Unit Painter, select an aircraft type and click Configure Ordnance.

If you are specifying a weapons loadout for an air mission, in the Edit Mission dialog box, click Edit SCL.

The Custom Ordnance dialog box opens.



2. To add an ammunition type to the aircraft, double-click an ammo type in the left column, or select it and click the right arrow.
3. To remove an ammunition type from an aircraft's configuration, double-click an ammo type in the middle column or select it and click the left arrow.
4. To change the amount of an ammunition type:
 - a. Move the ammunition type from the middle column to the left column.
 - b. Change the amount in the Quantity box.
 - c. Move the ammunition type back to the middle column.
5. To save an ordnance configuration, type a name for the configuration in the text box next to the Save button. Then click Save.
6. If a custom configuration exists for the aircraft type and you want to load it, select it in the Saved Ordnances list and click Load.
7. Click OK.

13.8. Creating Scenario Events

A scenario event represents an incident or condition that exercise participants can respond to, for example a political event, a natural disaster, or some other novel event that might require a trainee to respond. Battle Command does not simulate scenario events. Objects in a simulation do not interact with scenario events and scenario events do not affect simulated objects. Scenario events are placeholders that allow you to provide a richer training experience.

Events can include rich text, audio files (WAV), video (AVI) and raster files (BMPs). Use of these media allow you to expand the scope and quality of a training experience without needing to build a complicated simulation to support it. The flexibility of scenario events allows you to use them in any way that adds value to an exercise, for example, mission briefings, and video teaching points.

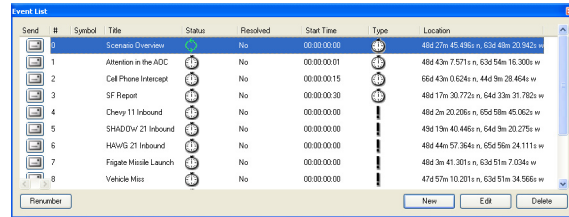
Table 13-1 describes the attributes that you can specify for a scenario event and identifies the icons that are used to indicate status.

Table 13-1: Scenario event attributes

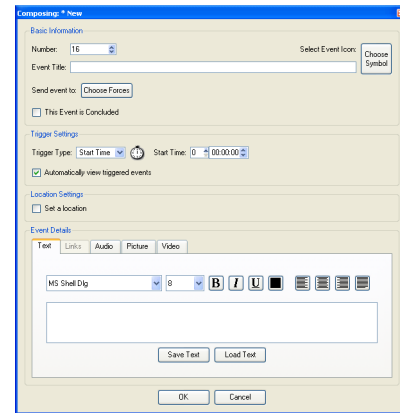
Attribute	Description
Event Force Type	Specifies the force to which this event belongs. Events get sent to the event force as well as any forces permitted by the Permission Mask.
Location	If selected, event icons are placed on overlays in the location specified.
Start Time	The day and time the event will be automatically triggered.
Trigger Type	One of the following: ♦ Manual – The event is triggered when the instructor sends it.  ♦ Start Time – The event is triggered when the start time is reached.  ♦ Linked – The event is triggered after the linked-to event plus the delta time selected during creation. 
Trigger Status	The status of the event, as follows: ♦ None – No status assigned.  ♦ Pending – The event has not been sent yet. It is waiting for the trigger to be satisfied.  ♦ Suspended – The event is on hold. It will not be sent unless its status is changed. This status overrides any triggers that are in effect.  ♦ In Progress – The event has been triggered, but has not been concluded by the instructor.  ♦ Concluded – The event has been concluded by the instructor. 

To create a scenario event:

1. Choose **Window** → **Event List**.
The Event List opens.
2. In the Event List, click **New**.
The Composing New event window opens.
3. Fill out the dialog box as follows:



- ♦ **Number.** Events are numbered in the sequence they are created. You can change the numbers to suit your purposes.
- ♦ **Event Title.** Provide a short descriptive name for the event.
- ♦ **Choose Symbol.** Select an appropriate icon to appear on the map at the location and time of the event (optional).
- ♦ **Choose Forces.** Select the forces you to get the event when it occurs. You may select multiple forces.
- ♦ Select “This Event is Concluded” once the instructor has determined it no longer has an impact on the simulation.
- ♦ **Trigger Settings.** An event can be triggered by time, linked to another event, or triggered manually by anyone in the instructor role.



If you trigger an event by time and the specified time is prior to the start time of the scenario, the event will be triggered when the scenario starts.

- ♦ **Location Settings.** A location can be selected for an event icon to appear when the event is triggered. You can click on the map where you want the event to occur or enter a location in any of the location formats.
 - ♦ **Event Details.** The event can be text, audio, video, or imagery or any combination. Click on the appropriate tab to enter text or an audio, video, or image file for display at triggering. Standard text manipulation options are available.
 - ♦ **Links Tab.** Any number of events can be linked to a previously triggered event. Click the link tab to bring up the Add Link display, select add and the events list will appear. Select the event to link to and enter the Time Delta from the trigger of the selected event until the linked event and click OK.
4. Click **Save Text** to save your text in a different file location or click **OK** when you event is complete.

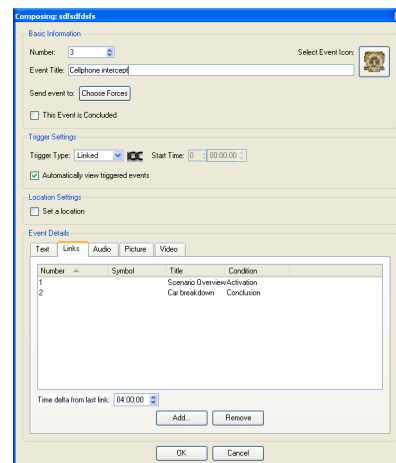
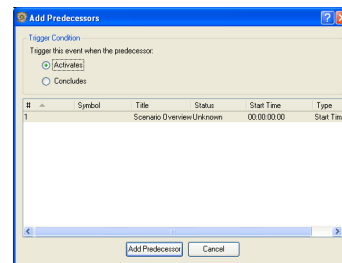
5. Your new event appears in the event list. Events may be sorted by any of the column headings.
6. Click OK.

13.8.1. Adding Linked Events

You can link multiple events to a single preceding event (many to one) or link one event to another linked event if your scenario requires it (one to one). (You cannot link one to many.) You can create a linked event to trigger at any time after the preceding event it is linked to. For example, an event of a bridge being washed away could be linked to a preceding event such as reporting heavy rains, flooding, or rising river levels.

To add a link to a scenario event:

1. Create an event as described in “Creating Scenario Events,” on page 13-8.
2. If there are other events created and you select Linked as the trigger type, the Links tab will be available. Click the Links tab.
3. Click Add. The Add Predecessors dialog box opens. It lists the events that you can link to.
4. Select the event you want to link to.
5. Specify when to activate the linking event - when the predecessor starts, or when it concludes.
6. Click Add Predecessor.
7. Enter the time delta. This is the amount of time to wait after the preceding event before triggering the linked event.
8. Click OK.



13.8.2. Adding Audio, Video, or Graphics to a Scenario Event

You can attach an audio file (in WAV format), a video file (in AVI format), and a bitmap graphic (in BMP, JPG, or PNG) to an event. The files must be in the *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\data\media* directory or in the scenario directory. (Therefore, if you want to put graphics in the scenario directory, you must save the scenario before you create events.)

To add a media file to a scenario event:

1. Create an event as described in [“Creating Scenario Events,” on page 13-8.](#)
2. Select the appropriate media tab (Audio, Picture, or Video).
3. In the Media Source group box, select an option for the location of the media, either the Scenario Folder or the Global Media Folder.
4. Type the name of the media file in the Filename text box, or click Browse and select the file.
5. Optionally, test video and audio files by clicking the Play button.

13.8.3. Adding Text to a Scenario Event

You can add text to a scenario event. You can import the text from an external file and you can save text to an external file.

To add text to a scenario event:

1. Create an event as described in [“Creating Scenario Events,” on page 13-8.](#)
2. Select the Text tab.
3. In the text box, type the text you want to display, or load a text file. To load a text file, click Load Text and select a file in the file browser.
4. You can apply basic formatting to the text (font, color, justification).
5. Optionally, save the text you type to a text file. Click Save Text and specify a file name. You do not have to save the text to preserve it with the scenario event.

13.8.4. Sending a Scenario Event

A scenario event gets activated when it is triggered by time, link, or manually. When an event is triggered, you are prompted to approve sending it to the selected forces. Regardless of the trigger status of a scenario event, you can send an event at any time.



Battle Command checks for time-start triggers approximately every 50 seconds, so if there is no other event traffic that might cause Battle Command to update all events, then you may be prompted to send events as much as 50 seconds after the specified starting time.

To send a scenario event after it is triggered:

- To send a scenario event immediately, regardless of status, in the Event List, click the Send button () for the event.

Sending a Scenario Event from a Plan

You can include scenario events in plans. For example, a unit's plan could have an Entity In Area condition and when that condition is satisfied, you could trigger an event such as, "The enemy has seized your headquarters!" or "Congratulations, you have seized the enemy headquarters!"

- To add a scenario event to a plan, at any point where you would normally include a plan statement, in the Event List, click the Send () button for the event that you want to add to the plan.

13.8.5. Concluding a Scenario Event

An event is concluded when the instructor determines that the impact of the event is over. This is strictly a form of record keeping or status assignment on the part of the instructor. There is nothing inherent in the simulation or Battle Command's management of scenario events that can determine a scenario event is concluded.

To specify that a scenario event is concluded:

1. Select the scenario event in the Event List.
2. Click Edit. The Event Composer opens.
3. Select the This Event is Concluded check box.
4. Click OK.

13.8.6. Managing the Event List

Scenario events can have numbers. The numbers have no effect on when events get sent. They are simply a convenience for instructors and players. You can sort the list by number or by any other column listed.

- To renumber the scenario events, in the Event List, click Renumber.
- To change the sort order of scenario events, click the heading of the column that you want to sort on.

To delete a scenario event:

1. Select the event you want to delete.
2. Click Delete.

13.9. Creating Scenarios Collaboratively

Two or more people can work together to create a scenario. By default, in single-player mode, you cannot see other single-player sessions, even if they are using the same port. However, you can configure Battle Command to allow single-player sessions to be visible to each other.

To configure Battle Command for collaborative operation, do the following on each collaborating computer:

1. Ensure that the `RTI_udpPort` parameter in the *rid.mtl* file on each collaborating computer has the same value.
2. Start Battle Command.
3. Choose **Options** → **Settings**. The Setting dialog box opens.
4. Select the Network tab.
5. Select the Connect To Network In Single Player Mode check box.
6. Start a new scenario (load the same terrain on each computer) or open an existing scenario.
7. Choose **Simulation** → **Player List** and view the list of players to be sure that all expected players are connected.
8. Add units and objects as desired. Units and objects created on any given computer are visible on all participating computers.
9. Save the scenario. Any computer that saves the scenario saves all of the objects, regardless of which computer added them to the scenario.

13.10. Saving a New Scenario

When you create a scenario, you must save it or all of your work will be lost.

To save a scenario:

1. Choose **File** → **Save**. The Save As window opens.
2. Choose a location for saving the scenario.
3. Enter a name for the scenario.
4. Click Save. Battle Command creates a new directory for the scenario and the required files in the directory.

13.10.1. Saving an Existing Scenario

If you edit a scenario, you must save your changes or they will be lost. You can save the scenario under the existing name or to a new name.

➤ To save an existing scenario, choose **File** → **Save**.

Saving A Scenario to A New Name

To save a scenario to a new name:

1. Choose **File** → **Save As**. The Save As dialog box opens.
2. Enter a name for the scenario.
3. Click OK.



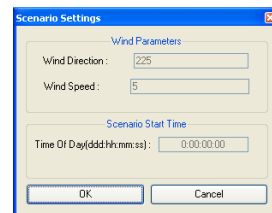
Always save a scenario when the scenario time is at the start time. Saving a scenario after the scenario has run for a period of time will lose all the data prior to the save

13.10.2. Specifying the Starting Day and Time

You can specify the starting day and time for a scenario. You can do this only when you are editing a scenario, not when while the simulation is running.

To set starting day and time for a scenario:

1. Choose **Options** → **Scenario Settings**. The Scenario Settings dialog box opens.
2. In the Scenario Start Time box, enter the starting time, in the format day:hours:minutes:seconds.
3. Click OK.

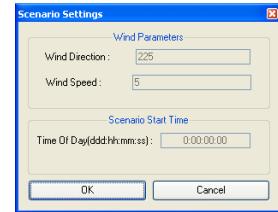


13.10.3. Specifying the Wind Speed and Direction

You can specify the wind speed and direction for a scenario. You can do this only when you are editing a scenario, not when you are running a simulation.

To set the wind speed and direction for a scenario:

1. Choose **Options** → **Scenario Settings**. The Scenario Settings dialog box opens.
2. In the Wind Direction box, enter the direction, in degrees.
3. In the Wind Speed box, enter the speed.
4. Click OK.





Administration and Configuration

This appendix describes how to set simulation preferences and other administration and configuration issues.



Many of the Battle Command configuration files are comma-separated-values (CSV) files. Although CSV files can be imported into spreadsheet programs for editing, MAK recommends that you edit configuration files only in a text editor. Other applications may add extraneous characters, such as quotation marks, or misinterpret the meaning of values (for example, adding up the components of an entity enumeration), resulting in corrupted configuration files.

A.1. The Battle Command Configuration File

Battle Command has an initialization file, *BattleCommand.ini*, that stores preferences and other settings. These settings are configurable using the Settings dialog box. Therefore, there is no need to edit this file by hand. On Windows XP, *BattleCommand.ini* is in the *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3* directory. On Windows 7, it is in *C:\ProgramData\MAK Technologies\Battle Command-2.17.3*. Make sure that you do not delete it.

A.2. The RTI Assistant

This section describes the RTI Assistant, which is the user interface for the MÄK RTI used for Battle Command's HLA network communication. It monitors the status of all RTI-related activity on your computer and communicates with RTI Assistants on other computers on the network.

A.2.1. Starting the RTI Assistant

The RTI Assistant is started when you run Battle Command with Centralized or Distributed Forwarding enabled. You can use the RTI Assistant to view the status of the RTI Exec and RTI Forwarder(s) and to close those applications when no longer needed. When the RTI Assistant starts, an icon is added to the system tray ([Figure A-1](#)).

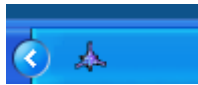


Figure A-1. RTI Assistant icon

A.2.2. The RTI Assistant Windows

The RTI Assistant has the following windows and dialog boxes:

- ♦ Local Notification History
- ♦ RTI Federations View
- ♦ RTI Network Component View
- ♦ RTI Preferences dialog box.

You can open any of these windows by right-clicking the RTI Assistant icon in the system tray and selecting them from the menu.

RTI Federations View

The RTI Federations View ([Figure A-2](#)) lists the federations running on each connection and the federates in those federations. It provides options for managing federations, viewing federation information, running latency testing, and starting the RTIspy diagnostic GUI.

The RTI Federations View does not list applications that are running on a connection, but which are not part of a federation, such as the rtiexec and RTI Forwarder. To see information about those applications, open the RTI Network Component View.

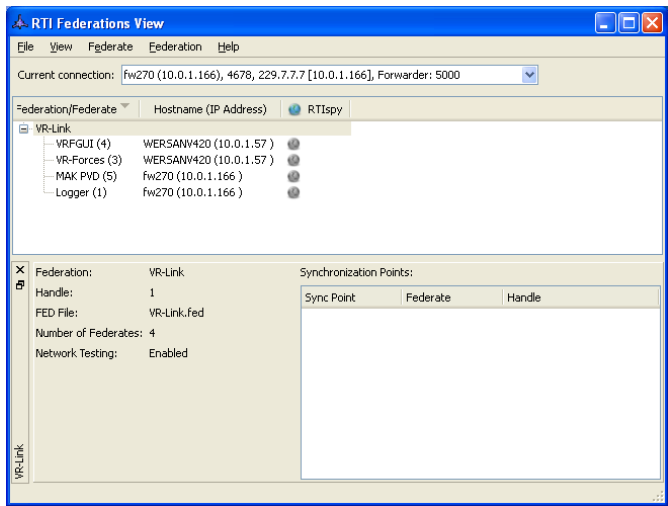


Figure A-2. RTI Federations View

To open the RTI Federations View:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Federations View**.



To quickly open the RTI Federations View window, double-click the RTI Assistant icon.

RTI Network Component View

The RTI Network Component View (Figure A-3) lists the applications (federates, rtiexecs, and RTI Forwarders) running on the selected connection. It provides the same information as the RTIspy network map. The RTI Network Component View lists applications without regard to their participation in a federation. For example, an application may be running, but not joined to a federation. It is displayed in the Network Component View, but not the RTI Federations View.

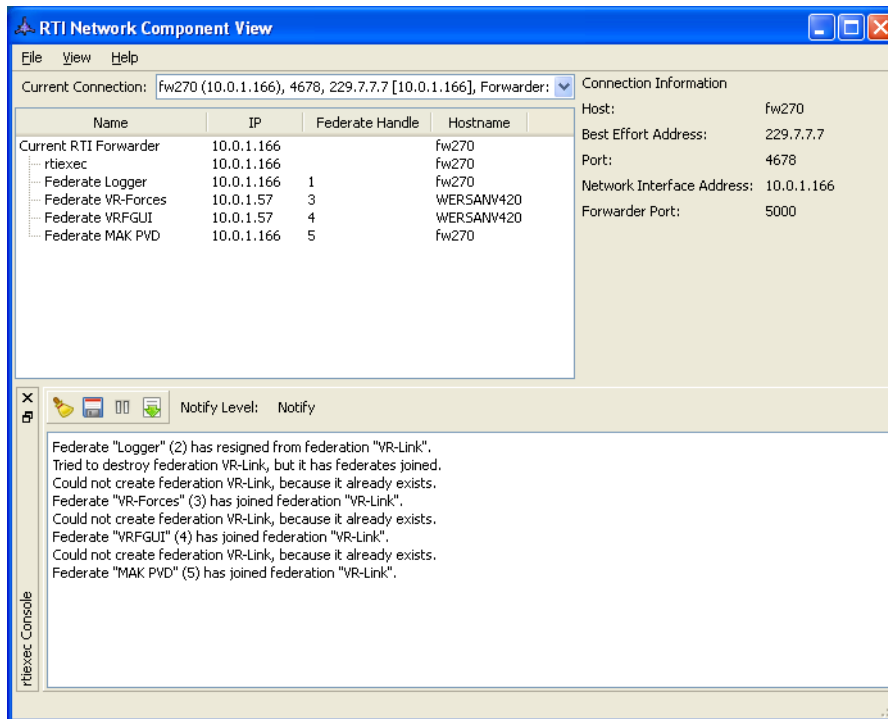


Figure A-3. Network Component View

To open the RTI Network Component View:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Network Component View**.

RTI Preferences Dialog Box

The RTI Preferences dialog box (Figure A-4) lets you configure the RTI Assistant. You can also configure latency testing from this dialog box.

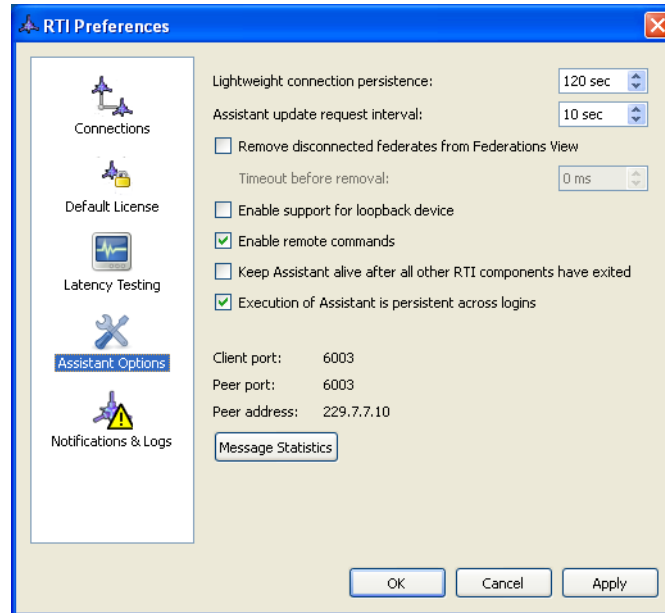


Figure A-4. RTI Preferences dialog box

Local Component Notification History Window

The Local Component Notification History window ([Figure A-5](#)) displays notification messages sent by the local rtiexec and LRCs.

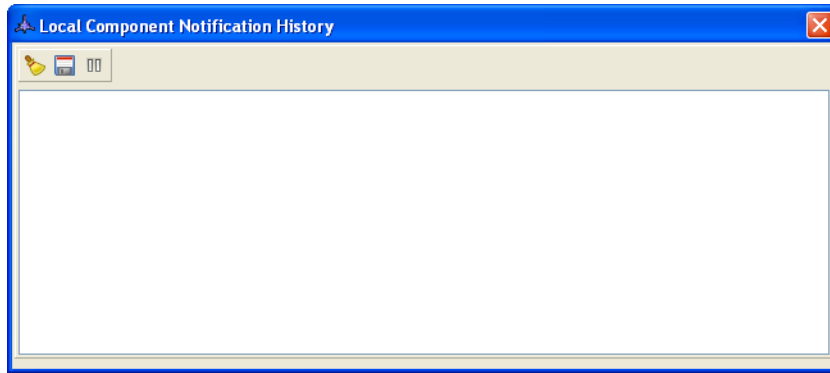


Figure A-5. Local Component Notification History window

To open the Local Component Notification History window:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Local Notification History**.

A.2.3. Configuring the RTI Assistant's Startup Behavior

By default, when you log in, the RTI Assistant restores its status from when you logged off – if it was running when you logged off, it starts automatically; if it was not running it does not start.

To configure the RTI Assistant to never start automatically when you log in:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Preferences**. The RTI Preferences dialog box opens.
3. Select the Assistant Options page ([Figure A-4](#)).
4. Clear the Execution of Assistant is Persistent Across Logins check box.
5. Click OK.

A.2.4. Specifying the RTI Assistant's Exit Policy

You can configure the RTI Assistant to close when all federates and the rtiexec exit, or you can configure it to keep running until you exit manually.

To configure when the RTI Assistant exits:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Preferences**. The RTI Preferences dialog box opens.
3. Select the Assistant Options page (Figure A-4).

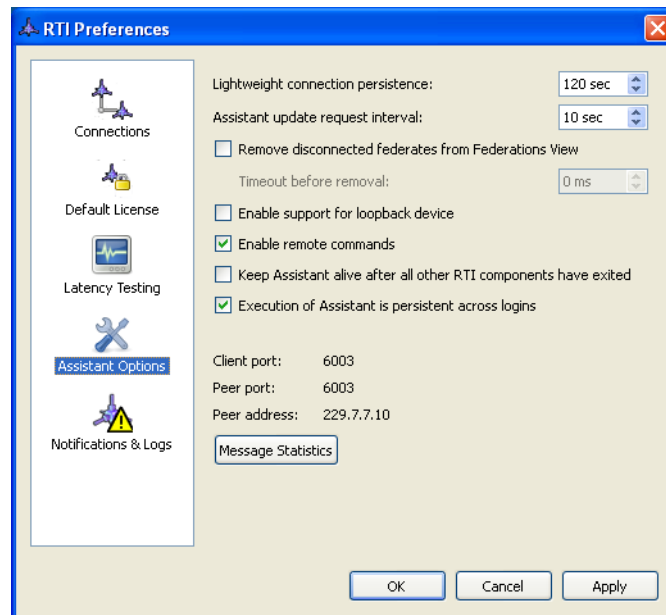


Figure A-6. RTI Preferences dialog box, Assistant Options

4. To keep the RTI Assistant running when federates and the rtiexec have shut down, select the Keep Assistant Alive After All Other RTI Components Have Exited check box. To have it shut down automatically when all components have shut down, clear the check box.
5. Click OK.

A.2.5. Shutting Down the RTI Assistant

If you do not configure the RTI Assistant to shut down automatically, you can shut it down manually. When you shut down the RTI Assistant, it forces all LRCs and rtiexecs on the local computer to shut down. It does not affect RTI components on remote computers.

To shut down the RTI Assistant:

1. Right-click the RTI Assistant icon in the system tray. A menu is displayed.
2. Choose **Shut Down All**.

A.3. Setting Up and Configuring Terrain Databases

Battle Command includes a set of terrain databases. All of these databases include a terrain database in MÄK Terrain Format (GDB). GDB databases provide the polygonal information that simulated units need to move through the terrain. Some databases include additional terrain data in raster, CIB, or CADRG formats. (Please see [“Enabling and Disabling Display of Rasterized Databases,”](#) on page 4-6 for details about how to display the data.) If a database does not include CIB or CADRG data, you can add NGA data to a terrain database directory to display it in Battle Command. This section explains the terrain database structure and the various procedures for configuring Battle Command to use different database data.

A.3.1. Terrain Directory Organization

The terrain directories provided with Battle Command are all subdirectories of *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\TrainerTerrain*. Figure A-7 illustrates a typical terrain directory with all supported terrain types present (assume a terrain database called *myTerrain*). Some terrain directories supplied with Battle Command do not include CIB and CADRG data.

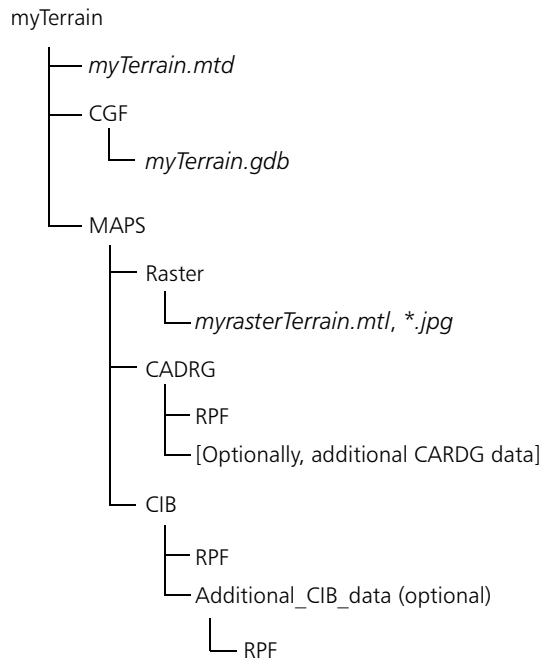


Figure A-7. Terrain directory structure

The files and directories have the following purposes:

- ♦ MAK Terrain Descriptor file (*.mtd*) – A text file that specifies the terrain data available for this terrain database. Please see [“The MTD File,”](#) on page A-10.
- ♦ CGF directory – Contains one or more terrain databases in MAK Terrain Format (GDB). A Battle Command scenario must reference a GDB file either directly, or through an MTD file.
- ♦ MAPS – Contains subdirectories for raster and NGA data:
 - Raster – raster configuration file and raster files, if available. These files are provided by VT MAK in a format that Battle Command can read.
 - CIB – NGA satellite imagery, if available.
 - CADRG – NGA raster images, if available.

The MTD File

A MÄK Terrain Descriptor (MTD) file specifies the terrain database and terrain data available for use in a scenario. Although you can specify a terrain database in GDB format when you create a new scenario, specifying an MTD file is the recommended method. An MTD file must have the same name as the terrain directory in which it is located. For example, the MTD file in the *myTerrain* directory must be named *myTerrain.mtd*.

An MTD file defines variables that Battle Command uses to find terrain data files when it creates or opens a scenario. The following is a sample MTD file:

```
name,alias
CCADRG,NONE
CCIB,Maps/CIB
CGDB,Quantico-s_500x500.gdb
CGDBDIR,CGF
CFLT,Quantico.flt
CFLTDIR,Polygon
CFLTMTL,Config/Quantico.mtl
CRASTERMAP,Quantico_Map.mtl
CRASTERDIR,Maps/Raster
DCADRG,NONE
DCIB,Maps/CIB
DGDB,Quantico-s_500x500.gdb
DGDBDIR,CGF
DFLT,Quantico.flt
DFLTDIR,Polygon
DFLTMTL,Config/Quantico.mtl
DRASTERMAP,Quantico_Map.mtl
DRASTERDIR,Maps/Raster
```

Each entry in the file is in the format *keyword,value*. The keywords are fixed. The alias is a path or filename. All paths are relative to the terrain database directory, for example, *myTerrain* in the example earlier in this section. The keywords are prefaced with a D, for default, or C for current.

The meaning of the keywords is as follows:

- ♦ CADRG – the directory that contains CADRG data. If not applicable, enter NONE.
- ♦ CIB – the directory that contains CIB data. If not applicable, enter NONE.
- ♦ GDB – the name of the GDB terrain database.
- ♦ GDBDIR – the directory that contains the GDB file.
- ♦ RASTERMAP – the configuration file for the raster data, or NONE.
- ♦ RASTERDIR – the directory that contains the raster files, or NONE.

A.3.2. Adding CIB or CADRG Data to a Terrain Directory



The following procedure describes adding CIB data to the terrain directory. The procedure for adding CADRG data is identical. The only difference is the name of the folder (CADRG instead of CIB) and the keywords in the MTD file (CCADRG and DCADRG).

To add CIB data to a terrain directory:

1. Open the Windows Explorer to the *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\TrainerTerrain\<terrain_directory>* folder.
2. If there is a *Maps* folder, open it; otherwise, create a *Maps* folder.
3. In the *Maps* folder, create a folder called *CIB*.
4. The CIB data source has a directory called *RPF*. Copy the *RPF* directory from its source to the *Maps* folder.

If you already have an *RPF* folder in *TrainerTerrain\<terrain_directory>\Maps\CIB*, create a folder under *CIB* and copy the additional *RPF* data into the new folder. Please see the sample terrain directory in “[Terrain Directory Organization](#),” on page A-9 for an example of what multiple *RPF* folders would look like.

5. Open the MTD file for this terrain in a text editor.
6. If you are adding CIB data, locate the CCIB keyword. Replace **NONE** with **Maps\CIB**.
7. If you are adding CIB data, locate the DCIB keyword. Replace **NONE** with **Maps\CIB**.
8. Save the MTD file.

A.3.3. Specifying File Locations

The configuration file *fileDictionary.csv* contains default and current values for the following configuration files, which are required by every scenario:

- ♦ Damage table
- ♦ Data directory
- ♦ Unit parameters configuration file
- ♦ Scenarios directory
- ♦ Terrain directory
- ♦ Terrain alias file.



You do not have to edit *fileDictionary.csv* directly. To update the file, edit values in the File Locations dialog box, as described later in this section.

The values recorded in *fileDictionary.csv* have the following effect on using Battle Command:

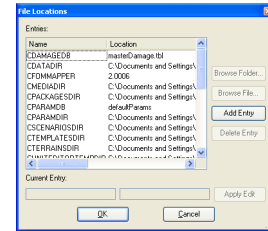
- ♦ When you create a new scenario, it is created using the default values.
- ♦ When you open a scenario, the current values for the scenario and terrain directories are drawn from the scenario file.
- ♦ When you save the settings in the File Locations dialog box, the current scenario directory becomes the default directory for the **File** → **Open** and **File** → **Save** menu options and the current terrain directory becomes the default terrain directory for the **File** → **New** → **Scenario** menu option.



When you load a scenario, the current variables contain the information for that scenario. When you create a new scenario, the current variables may be those of a previously opened scenario.

To edit file locations:

1. Choose **Options** → **Locations** → **Settings**. The File Locations dialog box opens.
2. If you just want to save the current values as the default values, click OK. Battle Command saves the values and closes the dialog box.
3. If you want to change values, select the entry that you want to edit. Its values are displayed in the Current Entry windows. The keywords are prefaced with a C, for current, or D, for default. They have the following meanings:
 - DAMAGEDB – The damage table file.
 - DAMAGEDIR – The directory that contains the damage table.
 - DATADIR – The location of the data directory. The terrain and scenario directories are usually subordinate to this directory.
 - PARAMDB – The parameters configuration file.
 - PARAMDIR – The directory that contains the parameters configuration file and other parameter data.
 - SCENARIODIR – The default value is the directory that contains the scenario directories. The current value is the directory for the loaded scenario.
 - TERRAINSDIR – The default value is the directory that contains the terrain directories. The current value is the terrain directory for the loaded scenario.
 - TERRAINALIAS – The location of the *terrainAlias.csv* file. This variable is not prefaced with a D or C.
4. Change the Location value as desired.
5. Click Apply Edit.
6. Click OK to close the dialog box and save edits. Click Cancel to close the dialog box and cancel all edits.



A.3.4. Specifying Terrain Locations

The configuration file *terrainAlias.csv* aliases terrain files to terrain directories. The principal purpose of this configuration file is to ensure that Battle Command can find the terrain data it needs to open a scenario. When you open a scenario Battle Command reads the terrain database specified in the scenario file. Then it looks for that database name in the *terrainAlias.csv* file. If it finds it, it uses the aliasing mechanism to identify the terrain directory in which the database is located, and opens the terrain using the MTD file in that directory. If it cannot find the terrain, it opens a Browse window and asks you to locate the database. After you specify the database to use, Battle Command adds an alias for that database to Terrain Locations list. If you want to save the new alias, open the Terrain Locations dialog and save the list.

You do not need to edit *terrainAlias.csv*. You can define terrain aliases in the Terrain Locations dialog box. A terrain location mapping is in the format *Name,Location* where:

- ♦ *Name* is one of the following:
 - An arbitrary text string to associate with (alias to) a location.
 - A GDB file name.
- ♦ *Location* is one of the following:
 - *&Name* – An ampersand followed by a *Name*, where *Name* must match a Name entry in the file.
 - A GDB filename.
 - A directory name without path information.

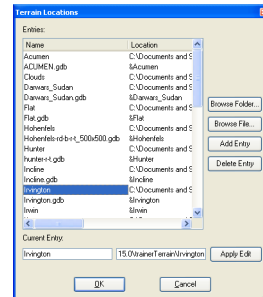
For example, consider the following hypothetical entries:

```
fakeDirectoryName,realTerrainDirectory
realTerrainDatabase.gdb,&fakeDirectoryName
```

The Name *fakeDirectoryName*, is aliased to the *realTerrainDirectory* directory. Then the terrain database, *realTerrainDatabase.gdb* is associated with the alias *&fakeDirectoryName*. Since *&fakeDirectoryName* resolves to *realTerrainDirectory*, *realTerrainDatabase.gdb* is actually associated with *realTerrainDirectory*.

To edit terrain locations:

1. Choose **Options** → **Locations** → **Terrain**. The Terrain Locations dialog box opens.
2. If you just want to save the current list of terrain locations, click OK. The list is saved and the dialog box closes.
3. If you want to edit or add an entry, select the entry that you want to edit or Click Add Entry to add a new entry.
4. In the Current Entry boxes add or change the Name and Location values as desired.
5. Click Apply Edit.
6. Click OK to close the dialog box and save edits. Click Cancel to close the dialog box and cancel all edits.



A.4. Editing Entity Symbol Mappings

The images used to represent entities on the map are configured in a symbol map file. All entities are mapped to characters in a MILSTD 2525B TrueType font. Many entities are also mapped to raster images. You can replace the default image mappings and add new mappings with raster images in a variety of formats, such as BMP, PNG, or JPG.



The ability to edit symbol mappings applies only to individual vehicles and lifeforms.

A.4.1. The Symbol Map Window

This section describes the Symbol Map window. Understanding the different parts of the window will help you follow the procedures for editing symbol mappings. The Symbol Map window has the following main areas (indicated by callouts in Figure A-8):

- ♦ Selected Unit Information group box (1) – Displays the TrueType icon and raster image (if applicable) for the entity selected in the Parameter Database List window. If multiple entities are highlighted, no information is displayed.
- ♦ Parameter Database Information group box (2) – Identifies the object parameters database file being mapped and its contents.
- ♦ Parameter Database List (3) – Lists all of the entities in the selected object parameters database. When you select an entry in this list, its corresponding symbol map entry in the Symbol Map list (7) is highlighted (8).
- ♦ Add Symbol Mapping arrow (4) – Adds a new entry to the Symbol Map based on the entity selected in the Parameter Database List.
- ♦ Current Working Image group box (5) – Displays the raster image currently selected for assigning to a symbol mapping.
- ♦ Symbol Map group box (6) – Contains controls for selecting and editing symbol mappings.
- ♦ Symbol Map list (7) – Lists the symbol mappings in the symbol map file. When you select an entry in this list, the entities in the Parameter Database List (3) that use this symbol mapping are highlighted (9).

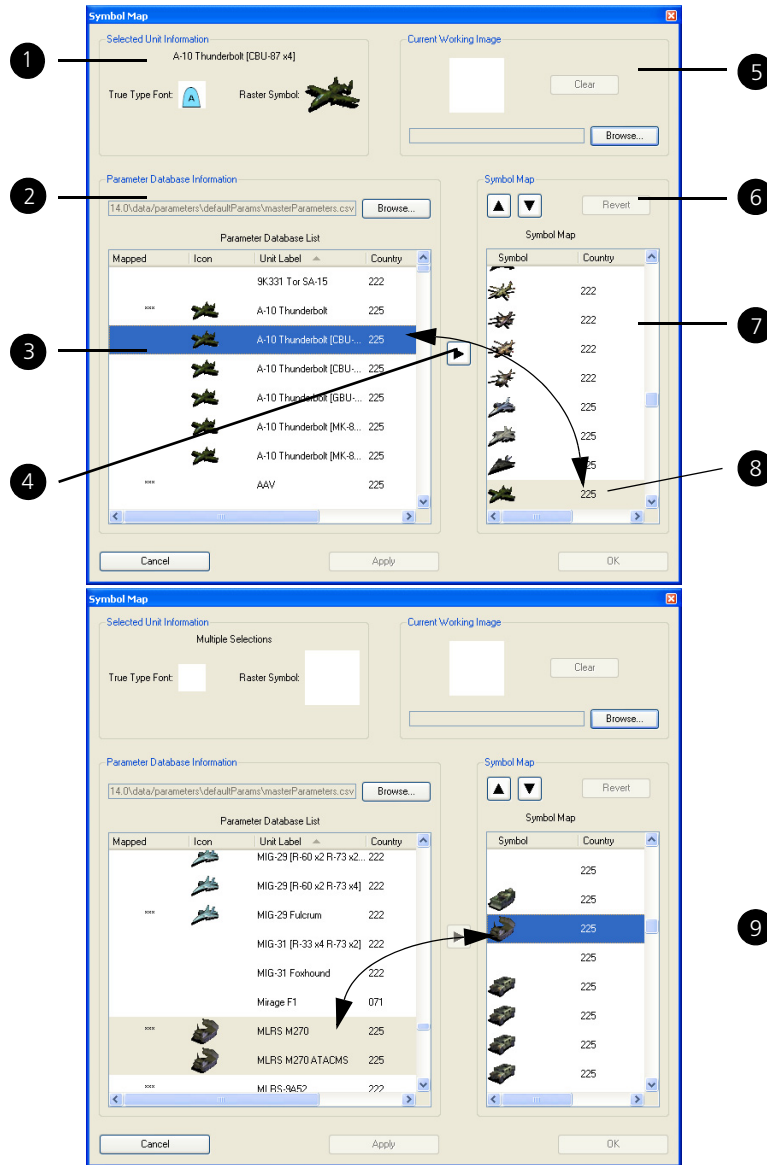


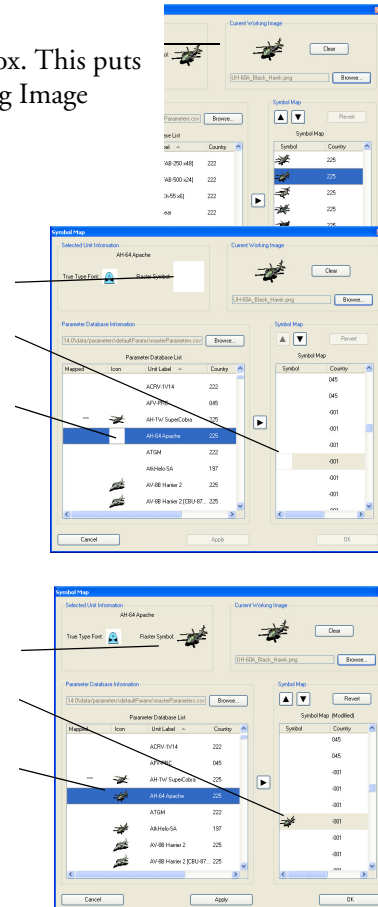
Figure A-8. Symbol Map window

A.4.2. Mapping an Entity to an Existing Image

This procedure explains how to map an entity to one of the images supplied with Battle Command and already referenced in the symbol map file.

To map an entity to a supplied image:

1. Scroll through the Symbol Map list until you find the image that you want to map to a new entity. (For example, the illustration shows the entry 225 1:2:225:21:2:-1:-1 (Black Hawk helicopter).)
2. Select the entry in the Symbol Map list.
3. Click the Up arrow in the Symbol Map group box. This puts the Black Hawk image into the Current Working Image group box, as shown in the illustration.
4. In the Parameter Database List, identify the unit for which you want to create a mapping. For example, select the AH-64 Apache. Note that it does not have a raster image assigned, as shown in the illustration.
5. Select the Apache entry in the Parameter Database List.
6. Click the Add Symbol Mapping arrow. A new entry is added to the Symbol Map list.
7. Click the down arrow in the Symbol Map group box. The image is applied to the new entry. It is also added to the Apache listing in the Parameter Database List and is displayed in the Selected Unit Information group box, as shown in the illustration.
8. Click Apply or OK. The changes are saved.



A.4.3. Mapping an Entity to a User-Supplied Image

This procedure explains how to map an entity to a supported image provided by a Battle Command user.

To map an entity to a user-supplied image:

1. In the Current Working Image group box, click Browse.
2. Navigate to the raster image you want to use and select it. It is displayed in the Current Working Image group box.
3. Select the entry in the Symbol Map list with which you want to associate the new raster image. This can be an entry that already has an image mapped to it (in other words, you are changing the mapping), or it can be a new entry in the Symbol Map list that you added by selecting an entity in the Parameter Database List and clicking the Add Symbol Mapping arrow.
4. Click the down arrow in the Symbol Map group box. The image is applied to the selected entry and it is applied to the entities in the Parameter Database List that are associated with this symbol map entry. The image is copied to *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\artwork\icons\symbols\user*.
5. Click Apply or OK. The changes to the symbol map file are saved.

A.4.4. Undoing Changes to the Symbol Map File

If you are editing the symbol map file and decide that you do not want to apply the changes, you can revert to the last saved version of the symbol map file or cancel the procedure.

- To revert to the last saved symbol map file, in the Symbol Map group box, click Revert. The window stays open and you can begin editing again.
- To close the Symbol Map window without making any changes to the symbol map file, click Cancel.

A.4.5. Distributing Updated Symbol Map Files and Images

If you update the symbol map file, you must install the file on all PCs that are participating in the exercise for which you made the changes. If you map entities to user-supplied images, you must also distribute the images to all participants.

The symbol map file, *symbolmap.mtl*, is in *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\config*. You must install it in the same directory on each participating PC.

User-supplied images are in *C:\Documents and Settings\All Users\Application Data\MAK Technologies\Battle Command-2.17.3\artwork\icons\symbols\user*. You must copy this directory to all participating PCs.

A.5. Text-to-Speech

The Battle Command Text To Speech (TTS) feature is based on the Microsoft Speech SDK 5.1 (including the Speech API (SAPI 5.1)) TTS Engine. The Microsoft TTS Engine runtime is included with Windows XP. However, you can get additional voices via the free download of the SAPI 5.1 SDK (SpeechSDK51.exe) from:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=5e86ec97-40a7-453f-b0ee-6583171b4530&DisplayLang=en>

You can configure voices using the Speech applet in the Windows Control Panel. Several different voices are included with the TTS Engine.

If you need a higher-fidelity voice, several SAPI 5.1-compatible voices are available for purchase. Options include voices available for purchase from the following sites:

<http://nextup.com/TextAloud/SpeechEngine/voices.html>

<http://cepstral.com/downloads/>



Using the Unit Editor

This appendix explains how to use the Unit Editor to edit unit parameters, create new units, and create new parameter packages. It also lists the units modeled by Battle Command.

B.1. Introduction to Unit Parameters and the Unit Editor

Battle Command includes models for many types of individual and aggregate units. Each unit has a set of parameters that affect how it is displayed and how it behaves. Aggregate units have parameters that specify their subordinates. These parameters are specified in a variety of files that are collectively managed as packages. You can manage parameter packages with the Unit Editor.

The Unit Editor lets you:

- ♦ Edit the parameters for individual units.
- ♦ Edit the subordinate lists for aggregates.
- ♦ Create new units based on existing units.
- ♦ Save changes to an existing package or save changes to new packages.
- ♦ Create new packages from a parameters directory.

You can distribute new or updated parameters packages to other Battle Command players. They can import them into Battle Command and can specify which parameters package is to be used when they create a new scenario.



The commands on the Advanced menu are for the use of MÄK developers in support of Battle Command users. They are not intended for use by scenario developers.

B.2. Starting the Unit Editor

- To start the Unit Editor, on the Start menu, choose **Programs** → **MAK Technologies** → **Battle Command-2.17.3** → **Tools** → **Unit Editor**. The Unit Editor opens.

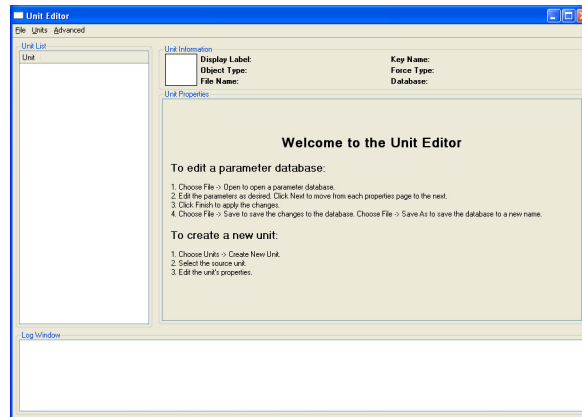


Figure B-1. Unit Editor

B.3. Loading a Parameter Database Package (PDP)

To load a parameter database package:

1. Choose **File** → **Open**. An open dialog box opens.
2. Select a parameter database package (PDP) file.
3. Click Open. The Unit Editor loads the package. The Log window displays messages as the package is loaded. The units in the package are listed in the Unit List window.

B.4. Editing a Unit's Parameters

To edit a unit's parameters:

1. In the Unit List, select the unit whose parameters you want to edit. A summary of the unit is displayed in the Unit Information group box and a subset of editable parameters are listed in the Identification Information group box.

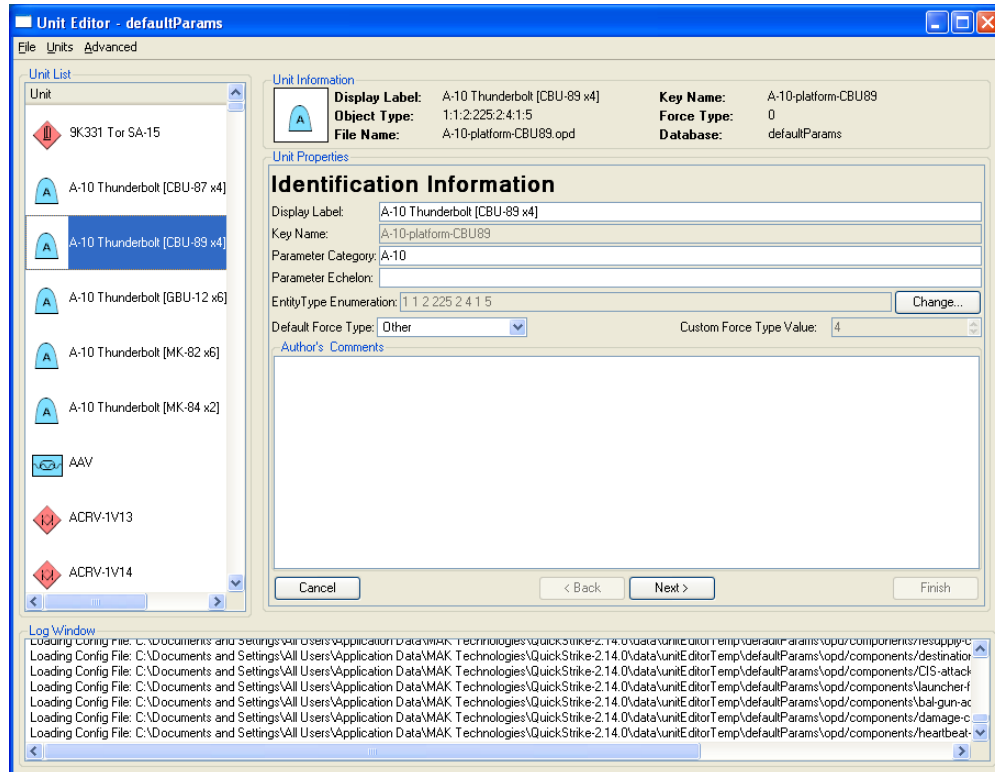


Figure B-2. Unit editor with unit selected

2. Edit parameters by typing new values in the text boxes. Each parameter has tooltip help that briefly describes what it is.
3. When you finish editing the parameters, click Next to move to the next set of parameters. The parameters on the first two panels for individual units are fairly straightforward. The final panel allows you to change the behavior of the unit. This procedure is described in [“Changing a Unit's Behavior,”](#) on page B-4.
4. Click Finish. The parameters are updated and the Unit Editor reports the status of the update.
5. Click Finish to exit the editing process for this unit.
6. When you are finished editing unit parameters, save the package.

B.4.1. Changing a Unit's Behavior

A quick way to change a unit's behavior, is to copy the characteristics of another unit. In addition to saving you from editing individual parameters in the Unit Editor, this operation also allows you to pick up properties of a unit that you cannot edit in the Unit Editor, such as the sensors and armaments that a unit has.

To change a unit's behavior by copying from another unit:

1. Select the Change Behavior check box. The units in the current package are listed in the Unit List window.

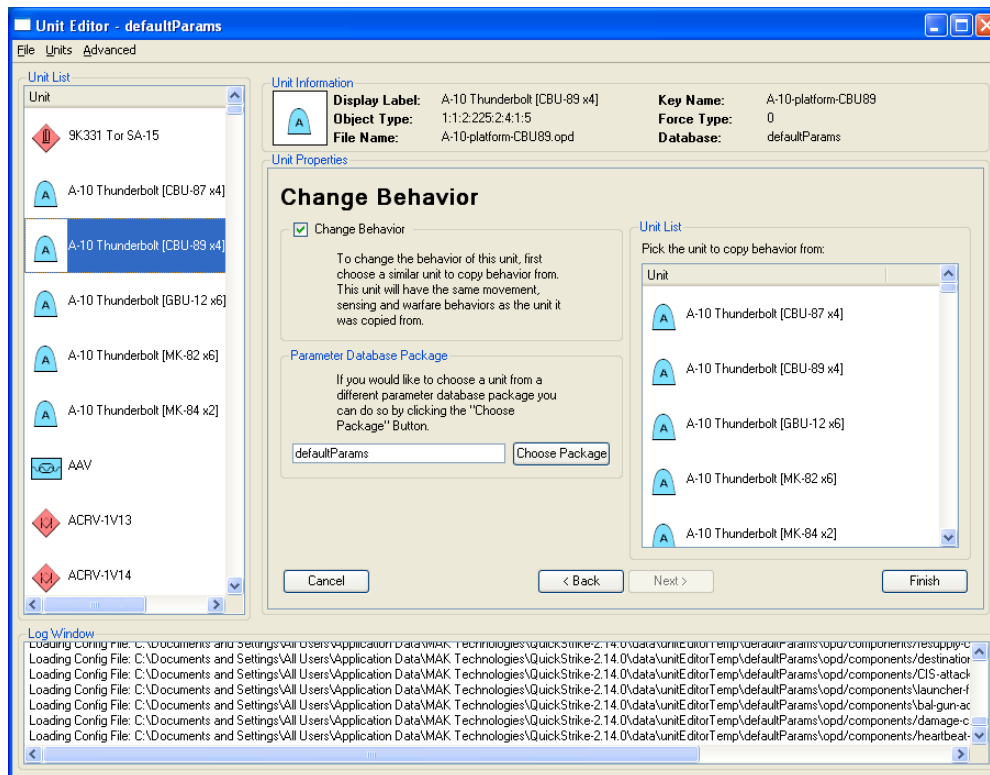


Figure B-3. Change Behavior panel

2. If you want to copy unit in a different parameter database package, click Choose Package and select the package you want to open. Its units are listed in the Unit List window.
3. In the Unit List for the Unit Properties group box, select the unit whose behaviors you want this unit to copy.
4. Click Finish.
5. Continue with the editing process described in “Editing a Unit's Parameters,” on page B-3.

B.5. Editing an Aggregate Unit's Parameters

The procedure for editing an aggregate unit is similar to that of an individual unit. However, you can also specify the subordinate units for the aggregate and its formation.

To edit an aggregate unit's parameters:

1. In the Unit List, select the aggregate unit whose parameters you want to edit.
2. Edit parameters by typing new values in the text boxes. Each parameter has tooltip help that briefly describes what it is.
3. When you finish editing the parameters, click Next to move to the next set of parameters. The procedures for the first three property sheets are described in “Editing a Unit's Parameters,” on page B-3.
4. On the Aggregate Composition panel you can add and remove subordinate units for this aggregate.
 - a. To add a subordinate, select it in the Available Models list and click the Add button.
 - b. To remove a subordinate, select it in the Aggregate Contents list and click Remove.

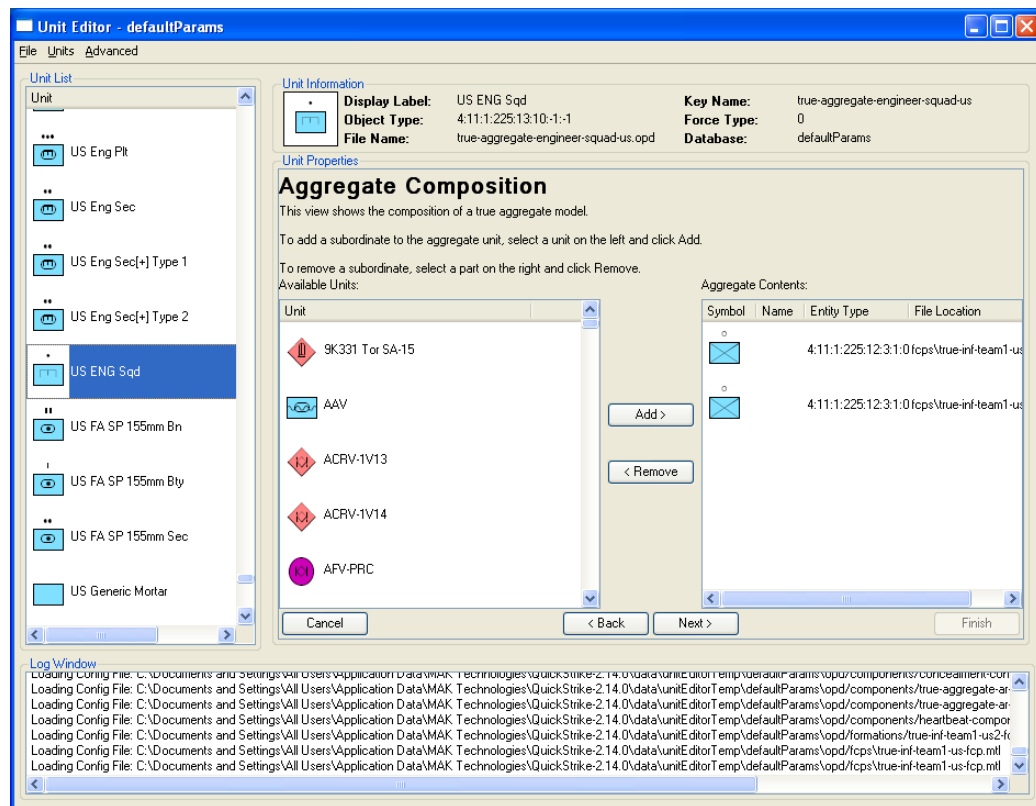


Figure B-4. Aggregate Composition panel

5. Click Next. The Formation panel is displayed. To edit the formation, follow the procedure in “Editing an Aggregate's Formation,” on page B-6.
6. Click Finish. The parameters are updated and the Unit Editor reports the status of the update.
7. Click Finish to exit the editing process for this unit.

B.5.1. Editing an Aggregate's Formation

An aggregate's formation is based on a template. The Current Formation Settings group box lists the aggregate's formation and the template that the aggregate is currently using. You can change an aggregate's formation by choosing a formation template based on another unit or by creating a new formation template.

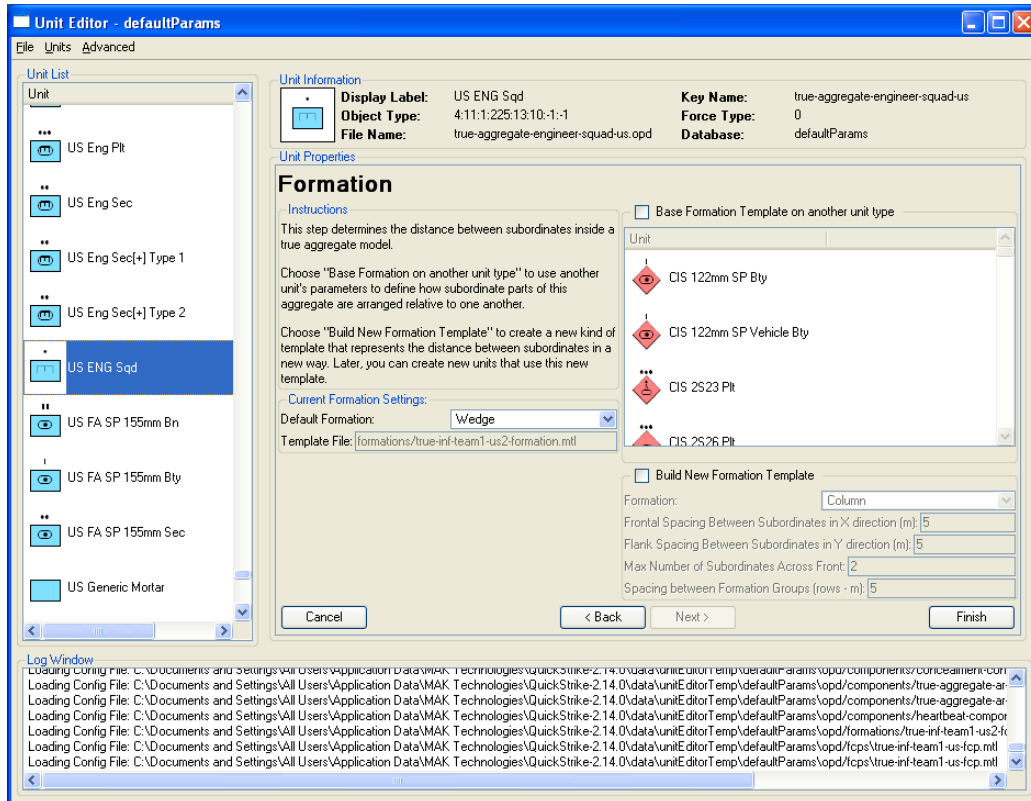


Figure B-5. Formation panel

To change an aggregate's formation by choosing a formation template:

1. Select Base Formation On Another Unit Type.
2. In the Unit list, select the unit whose formation you want to apply to the aggregate you are editing.
3. Click Finish and continue the editing process.

To change an aggregate's formation by creating a new formation template:

1. Select the Build New Formation Template check box.
2. Select a formation from the drop-down list.
3. Type the amount of space you want in front of each member of the aggregate.
4. Type the amount of space you want to the side of each member of the aggregate.
5. Type the maximum number of subordinates allowed across the front of the formation.
6. Type the spacing, in meters, between rows in the formation.
7. Click Finish and continue the editing process.

B.6. Creating a New Unit

You can create new units based on existing units and then edit them to have the desired properties.

To create a new unit:

1. Choose **Units** → **Create New Unit**. The Unit Editor displays the Copy Behavior From panel.

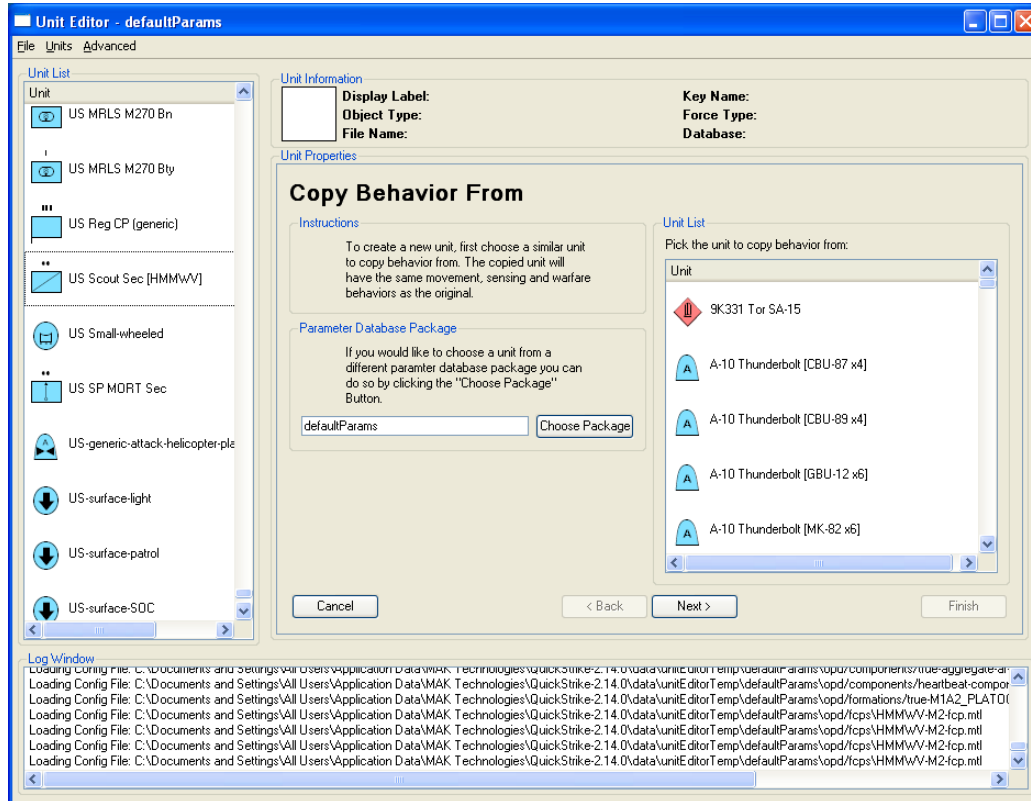


Figure B-6. Copy Behavior From panel

2. In the unit list on the panel, select the unit on whose behavior and properties you want to base the new unit.
3. Click Next. The Identification Information panel is displayed. The text fields are blank.
4. Enter the identifying information for your new unit.
5. Click Finish.
6. Click Finish to return to the main panel of the Unit Editor.

B.7. Saving a Parameter Database Package

After you finish editing a parameter database package, you must save your edits. You can save them to the same package or to a new package.

- To save a parameter database package, choose **File** → **Save**.
- To save a parameter database package to a new name, choose **File** → **Save As**.

B.8. Importing a Parameter Database Package into Battle Command

If you edit a parameter database package, you will probably want to share the new package with other Battle Command users. To do this, you distribute the package to them (or make it available on the network) and each user imports the package into their Battle Command installation.

To import a parameter database package into Battle Command:

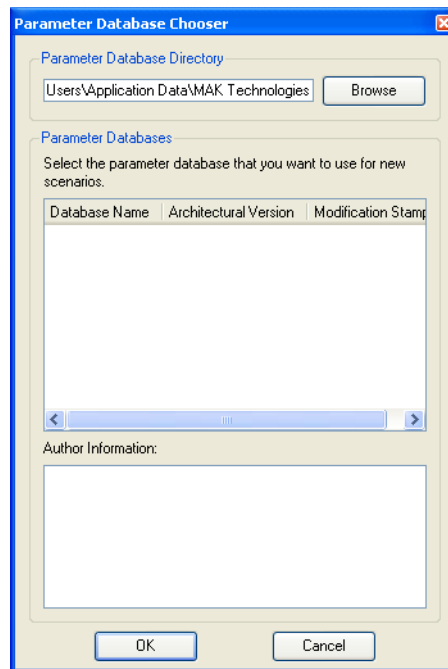
1. In Battle Command, choose **File** → **Import Parameter Database Package**. An Open dialog box is displayed.
2. Select the package you want to import.
3. Click Open. The package is imported.
4. When the import is complete, you are prompted to select the new package to be the default parameter database package when scenarios get created. If you choose not to make it the default, you can always change the default package at some other time.
5. Click Yes or No.

B.9. Specifying the Default Parameter Database Package

If you have more than one parameter database package installed, you can specify which one is used when you create a new scenario. Changing this setting does not affect scenarios that you have already created.

To specify the parameter database for new scenarios:

1. In Battle Command, choose **Options** → **Parameter Database Chooser**. The Parameter Database Chooser opens. The dialog box lists the default location for parameters and the packages that are in that location.



2. If the parameter database that you want to select is not in the default location, click Browse and select a new directory.
3. In the Parameter Databases group box, select the parameter database package that you want to use to create new scenarios.
4. Optionally enter text that you want to associate with the package.
5. Click OK.



Creating Document Templates

Document templates are special HTML documents. Instead of an `<html>` tag at the top, they have a `<qt>` tag. They accept a basic set of HTML tags as described in this appendix.

C.1. QT HTML

This section lists the HTML tags that you can use to create document templates or understand the structure of the templates supplied with Battle Command.

C.1.1. Document Level Tags

`<qt>...</qt>` – A Qt rich text document. It understands the following attributes:

- ♦ `title` – The caption of the document.
- ♦ `type` – The type of the document. The default type is `page`. It indicates that the document is displayed in a page of its own. Another style is `detail`, which can be used to explain certain expressions in more detail in a few sentences. The Text Browser will then keep the current page and display the new document in a small popup similar to What's This? help. Note that links will not work in documents with `<qt type="detail">...</qt>`.
- ♦ `bgcolor` – The background color, for example `bgcolor="yellow"` or `bgcolor="#0000FF"`.
- ♦ `background` – The background pixmap, for example `background="granit.xpm"`.
- ♦ `text` – The default text color, for example `text="red"`.
- ♦ `link` – The link color, for example `link="green"`.

C.1.2. Paragraph Tags

Table C-1 lists the paragraph tags that you can use in document templates.

Table C-1: Paragraph tags

Tag	Description
<code><h1>...</h1></code>	A top-level heading.
<code><h2>...</h2></code>	A sublevel heading.
<code><h3>...</h3></code>	A sub-sublevel heading.
<code><p>...</p></code>	A left-aligned paragraph. Adjust the alignment with the align attribute. Possible values are left, right and center.
<code><center>...</center></code>	A centered paragraph.
<code><blockquote>...</blockquote></code>	An indented paragraph that is useful for quotes.
<code>...</code>	An unordered list. You can also pass a type argument to define the bullet style. The default is type = disc; other types are circle and square.
<code>...</code>	An ordered list. You can also pass a type argument to define the enumeration label style. The default is type = "1"; other types are "a" and "A".
<code>...</code>	A list item. This tag can be used only within the context of ol or ul.
<code><pre>...</pre></code>	For larger chunks of code. White spaces in the contents are preserved. For small bits of code use the inline-style code.

C.1.3. Anchors and Links

Anchors and links use the `<a>...</a>` tag. The reference target is defined in the href attribute of the tag as in `<a href="target.qml">...</a>`. You can also specify an additional anchor within the specified target document, for example `<a href="target.qml#123">...</a>`. If a is meant to be an anchor, the reference source is given in the name attribute.

C.2. Adding Editable Text Areas in a Template

An anchor tag with a “name” attribute allows a simulation user to enter text. For example, the first few lines of the opord.tpl document look as follows in the Document window:

```
(Classification)

_ _ (Change from oral orders, if any)

Copy _ _ of _ _ copies
_ _ Issuing headquarters
_ _ Place of issue
_ _ Date-time group of signature
_ _ Message reference number
```

You can enter text by placing the cursor between the underlines (_ _). You can also replace the text “Issuing headquarters”, “Place of issue”, and so on.

The HTML for these lines is as follows:

```
<qt>
<font size=3 face=times>
(Classification)<br>
<br>
<a name="1">(Change from oral orders, if any)</a><br>
<br>
Copy <u><a name="2"></a></u> of <u><a name="3"></a></u>
  copies<br>
<a name="4">Issuing headquarters</a><br>
<a name="5">Place of issue</a><br>
<a name="6">Date-time group of signature</a><br>
<a name="7">Message reference number</a><br>
<br>
```

By comparing the document output to the HTML, you can see that each editable area in the document window corresponds to a the text (or lack of text) between a tag and a tag.

As long as you understand basic HTML and this special use, you can build your own templates with any text editor or HTML editor.

C.2.1. Character Style Tags

Table C-2 lists the character style tags you can use in document templates.

Table C-2: Character style tags

Tag	Description
<code> ... </code>	Emphasized. By default this is the same as <code><i> ... </i></code> (italic).
<code> ... </code>	Strong. By default this is the same as <code> ... </code> (bold).
<code><i> ... </i></code>	Italic font style.
<code> ... </code>	Bold font style.
<code><u> ... </u></code>	Underlined font style.
<code><big> ... </big></code>	A larger font size.
<code><small> ... </small></code>	A smaller font size.
<code><code> ... </code></code>	Indicates code. By default this is the same as <code><tt> ... </tt></code> (typewriter). For larger chunks of code use the block-tag <code>pre</code> .
<code><tt> ... </tt></code>	Typewriter font style.
<code> ... </code>	Customizes the font size, family and text color. The tag understands the following attributes: ♦ <code>color</code> – The text color, for example <code>color="red"</code> or <code>color="#FF0000"</code>. ♦ <code>size</code> – The logical size of the font. Logical sizes 1 to 7 are supported. The value may either be absolute (for example, <code>size=3</code>) or relative (<code>size=-2</code>). In the latter case the sizes are simply added. ♦ <code>face</code> – The family of the font, for example <code>face=times</code>.

C.2.2. Special Elements

Table C-3 lists special tags that you can use in document templates.

Table C-3: Special element tags

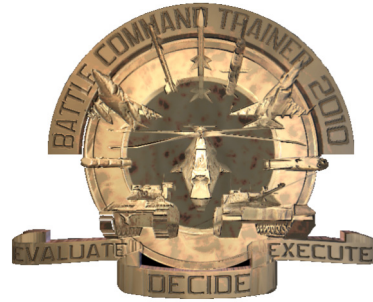
Tag	Description
	An image. The image name for the mime source factory is given in the source attribute, for example The image tag also understands the attributes width and height that determine the size of the image. If the pixmap does not fit the specified size it will be scaled automatically. The align attribute determines where the image is placed. By default, an image is placed inline just like a normal character. Specify left or right to place the image at the respective side.
<hr>	A horizontal line.
 	A line break.
<nobr> ... </nobr>	No break. Prevents word wrap.

C.2.3. Tables

Documents support simple HTML tables. Table C-4 lists the tags you can use.

Table C-4: Table tags

Tag	Description
<code><table> ... </table></code>	A table. Tables support the following attributes: ♦ <code>bgcolor</code> – The background color. ♦ <code>width</code> – The table width. This is either an absolute pixel width or a relative percentage of the table's width, for example <code>width=80%</code>. ♦ <code>border</code> -The width of the table border. The default is 0 (= no border). ♦ <code>cellspacing</code> -Additional space around the table cells. The default is 2. ♦ <code>cellpadding</code> -Additional space around the contents of table cells. The default is 1.
<code><tr> ... </tr></code>	A table row. This is only valid within a table. Rows support the <code>bgcolor</code> (background color) attribute.
<code><th> ... </th></code>	A table header cell. Similar to <code>td</code> , but defaults to center alignment and a bold font.
<code><td> ... </td></code>	A table data cell. This is only valid within a <code>tr</code>. Cells support the following attributes: ♦ <code>bgcolor</code> – The background color. ♦ <code>width</code> – The cell width. This is either an absolute pixel width or a relative percentage of table's width, for example <code>width=50%</code>. ♦ <code>colspan</code> – Specifies how many columns this cell spans. The default is 1. ♦ <code>rowspan</code> – Specifies how many rows this cell spans. The default is 1. ♦ <code>align</code> – Alignment; possible values are left, right, and center. The default is left.



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Link - Simulate - Visualize

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