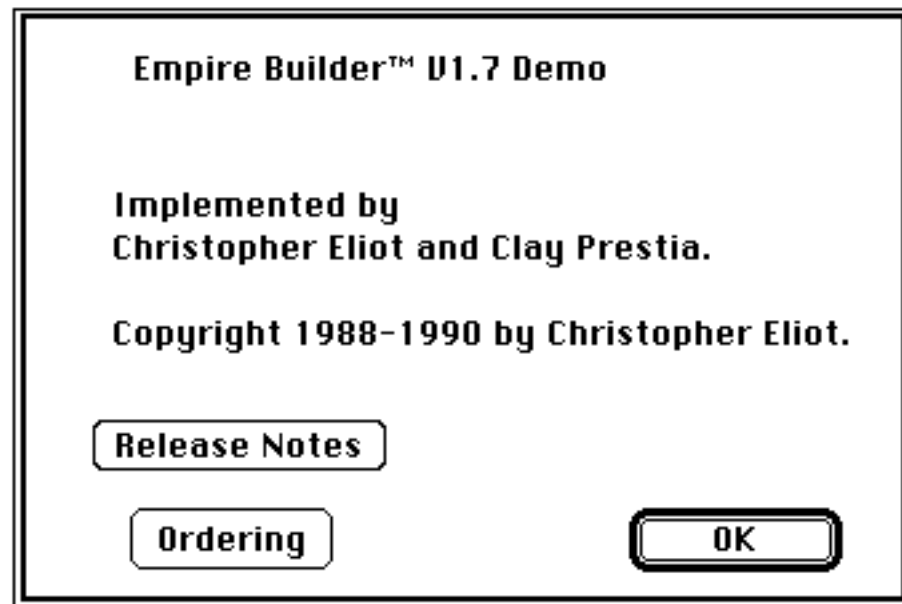




Empire Builder Documentation



Quick start: Just make sure the files EmpireBuilder 1.7 Demo and EB Prefs are in the same folder, double click and run!

Existing users: Change notes are at the end. An upgrade order form may be printed from the File menu or from About Empire Builder.

**1. Introduction**

Empire Builder Documentation

Empire Builder is a computerized war game for the Macintosh. It is based upon a similar game called EMPIRE which was implemented for Vax computers. A demo version of **Empire Builder** is distributed freely, but the registered version is only available by mail. The Print Order Form command in the File menu will generate an order form that you can use. It also prints bug reports and upgrade forms. The demo version does not include any of the rule editing facilities, the map parameters (size and density) can only be varied among tight limits and saved games cannot be read back in. A game saved by the demo version can be read by the unrestricted version. Since a single game can take a number of hours to play this is a useful feature. To register please send \$25.00 to:

Christopher Eliot
P.O. Box 371
Leeds Massachusetts, 01053

An order form can be printed from Empire Builder with the Print Order Form under the file menu.

(Full time students can register for \$15.00 with proof of status.) When you register I will send you a disk containing the latest release of the program and a printed copy of the documentation. The documentation describes each of the commands and includes pictures to explain everything. The disk will also contain the latest demo version which you can give away to anyone. Please let me know how you found out about **Empire Builder** and which version you have seen.

If enough people register I will produce enhanced versions. When you register be sure and include your address so I can send you the updated and registered version.

Empire Builder has been tested on most Macs including the Mac 512K, SE, II, IIfx, Plus and portable. It works with or without multifinder. It does require quite a bit of memory to play a game with a large map. A 512K mac user should not use switcher, multifinder or memory consuming "inits" and should not play with maps larger than 100 by 100, preferably smaller. To play a full size 255 by 255 map requires two to four megabytes of memory, especially late in the game. Version 1.7 tries much harder to die gracefully when it runs out of memory. (Previous versions tended to crash.)

Bug Reports should be sent to the same address. I try to ensure that the game is bug free, but with as large a program as this there are likely to be some problems. The Print Order Form command will also print a bug report form. If you don't (or can't) print a bug report form, please describe the computer you are using (type, memory size, system version etc.) Whenever possible I answer every letter I receive. Sometimes I will send free, corrected, upgrades to whoever first reports a bug.



The point of this game is to conquer the world and wipe out the machine's military. The cities you control will produce more units for you. When the game starts you will have only one city (unless you have selected more using the Fairness command under the Edit menu). The key to the game is to capture as many cities as possible quickly. Initially you must explore the territory around your home city. Once you have conquered all of the cities on your home island you will have to cross the sea to invade another island. A transport is required to carry armies across the sea. Air units can quickly map the area near your cities, but their range is limited by the amount of fuel they can carry.

Eventually your units will meet with enemy units controlled by the computer. While you have been expanding your territory the computer has also been busy and may have a considerable amount of strength. Perhaps you will choose to attack the enemy immediately. Perhaps it is better to keep exploring and find neutral cities that are easy to capture. But eventually the enemy will invade your territory and the stronger side will capture the world.

2. Overview

1. Playing the Game

This is a very complex game. Both sides can have hundreds of units. Every unit can move during each turn. In order to make the game playable there are a large number of ways to program your units to move automatically. Once you have mastered the automatic movement commands you will find that the game is quite playable. While you are in complete control of your pieces you do not need to worry about most of them. Instead you will focus only on the few pieces that are involved in crucial or tricky maneuvers.

2. Terrain of the map.

There are four basic types of terrain: land, sea, lake and city. Furthermore, cities can be neutral or owned by the machine or the player. The difference between a lake and a sea is that a lake only touches one island. Generally there will be one sea and there may be a number of small lakes.

There are eight types of units and up to eight more could be defined. The currently defined units are armies, fighters, bombers, destroyers, transports, submarines, carriers and battleships. Armies move only on land or on transports. Fighters and bombers can move anywhere within range of fuel. Destroyers, transports, submarines, carriers and battleships can only move on sea squares or into port cities.



The picture shows a section of the map as it may appear early in the game. White squares are land, gray squares are sea and black squares are unexplored. The player's home city is near the middle surrounded by three armies and there are two neutral cities visible. The player's fighter has just discovered one of the neutral cities, and it is flashing to indicate that it is time to move the fighter. No enemy units or cities are visible.

Features on the map are identified by small pictures as shown here:

Terrain and Units

	Friendly	Enemy
Land	Army	Army
Sea	Fighter	Fighter
Lake	Bomber	Bomber
Neutral City	Destroyer	Destroyer
Enemy City	Submarine	Submarine
Friendly City	Transport	Transport
	Carrier	Carrier
	Battleship	Battleship

These pictures can be edited using a built in fat-bits style editor. The pictures of units change completely when using different display scales. This means there are 120 different icons to design and I have (clearly) been lazy about some of them.



3. Future Releases and Upgrades.

Future releases can only be guaranteed if users continue to support the game! Please distribute the demo version as widely as possible.

Already at least five versions of the game have been distributed. Sometimes the difference is minor and sometimes substantial. For now the upgrade policy is given by the Upgrade Form option in the Print Order Form FILE menu item. Currently the charge for upgrades only pays for copying and mailing expenses. The prices in that form will be honored through March, 1991.

The major changes planned for **Empire Builder** affect the strategy and the option of playing against another person. Support for modems, networks and play by mail has been designed and should be included in a future version and the machine strategy will be improved as much as possible also.

4. Commands

The basic movement commands are given from the keyboard or with the mouse. The keypad commands are based upon the keypad layout.

The numbers 1 - 9 indicate directions, except 5 which commands the unit not to move this turn. For example a "6" would command the fighter above to move over the neutral city. Think of it as if the unit were sitting on top of the "5" key. (The keypad is not treated specially: you may use the number keys on the main keyboard interchangeably.)

Some modifiers provide shortcuts. The **Shift** key makes commands apply to every unit of the same type in the square. The shift modifier applies whenever it makes sense. The S (sleep), 1-9 (Keypad) and mouse click commands all support the shift modifier. This makes it very easy to move a whole stack of units.

The **Option** modifier does different things to different commands. For mouse movement commands the option modifier makes the unit sleep when it gets to its destination. For the 1-9 (Keypad) commands the option modifier makes the unit keep going in the specified direction until something happens. (You may always use the W (wake) command to a previous order.) For example, a land unit will move until it reaches the sea, or an enemy unit. A sea unit will move until it reaches the edge of the board, land or the enemy. The L (Load) command with the option modifier will order a transport to load armies as long as there are some immediately available. The Option Load command will never cause a transport to wait if no armies are present.

Clicking the mouse on any square adjacent to the current unit will also move it to that square. Clicking on the unit itself and dragging to another square will move the unit to that square, even if this requires more than one turn. Further commands can be given using the **Commands** menu or from the keyboard.



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5. Command Summary

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Mouse Command Summary

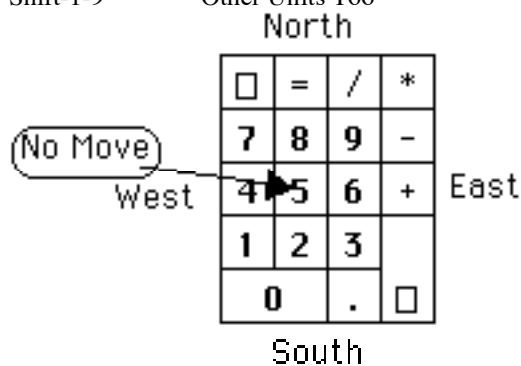
On Friendly City	<u>Double-Click</u>
On Friendly Unit	Set City Production
On <u>visible</u> enemy unit or city	Describe Unit(s)
	Describe visible unit(s)

Adjacent to flashing unit	<u>Single-Click</u>
On other Friendly unit	Go There
	Move that unit now

On Unit	<u>Click and Drag</u>
With Shift	Set destination for unit
the same type in this square	Also set destination for city and units of
With Option	Also sleep at destination

Keyboard Command Summary

C	Set City Destination
D	Duplicate Destination
E	Explore
F	Fuel or Fix
L	Load Transport
Option-L	Available Units Only
P	Patrol
Q	Quit
R	Random
S	Sleep
Shift-S	Sleep All
W	Wake
1-9	Movement
Shift-1-9	Other Units Too



Option-1-9	Go as far as possible
(Option-Shift-1-9 combines)	
5	Don't move
[Space]	Move later this turn
?	Help



6. Version 1.7 changes and comments.

by Clay Prestia, Empire Builder co-author.

- **Color and Multiple Screens.** Using the Color menu item under the Map menu one can choose the colors used to display the various map features (and, indeed, choose whether to use color at all). Additionally, if one has multiple monitors, one can choose which monitor to display the various windows on. (For now, window position within the monitor is predefined and fixed, and only the main map window is resizable.) Although color looks nice, experienced users will find that size is more critical. For example, I have 3 screens, including a standard size Mac II monitor, but I place the main map on my Sigma Designs L-*View in 96dpi mode (which is, effectively, like a 25 inch monitor at the normal 72 dpi resolution.) Users with large color monitors without acceleration hardware may find that color is just too slow, and also opt for black and white (setting the screen to black and white in the Monitors CDEV). We have just about completely rebuilt the screen draw portions of Empire Builder in this release, primarily to speed up this function, but even given our success here, Macs short of the IIfx probably just don't have the horsepower to drive color tubes as rapidly as the game requires.

- **EB Prefs file.** Earlier versions of Empire Builder "remembered" things like rule and option setting from run to run by changing bits of the application file. Because this can have some bad side effects, we have opted to save this info in a separate EB Prefs file. Empire Builder will look for this file either in the folder where the application file is, or in the System Folder. If it can't find the file, it will create a new one (set with some initial, slightly funky values) and tell you that it did so. Included in this release package is a preset EB Prefs file. You should place it in the folder with Empire Builder itself or in your system folder. (No, we won't look for a "Preferences" sub-folder, but I promise, next release...)

- **Sounds.** Empire Builder can now play a user specified sound on the occasion of certain events during the play of the game. This is controlled by the Sound item under the map menu. The dialog presented by selecting that item allows one to choose from all sounds available in the system file (or through utilities such as Suitcase II). Additionally, Empire Builder will look for sound resources in a file named "EB Sounds" (without the quotes) in the same folder as the application. That file is not required to run the program or make the sound feature operational. It is only distributed with the full version of Empire Builder sent to registered users. (If you choose, you can construct your own using ResEdit or SoundMover. Empire Builder looks for ordinary SND resources.)

- **Rule Sets.** The full version of Empire Builder allows one to edit (change) the characteristics of the military units used in the game. Their relative strengths, speeds, production costs, move timing, name, mobility, and many other aspects can be changed to vary the nature of the game. These capabilities are disabled in the demo, but we supply two different rule sets to illustrate some of the differences.

These rules sets are in the files "Clay's EB Rules" and "Chris' EB Rules" included in the demo release set.



There are three major differences between the rules sets, each of which illustrates a new feature in EB 1.7.

- **Missiles.** Each rule set defines a type of unit called an ICBM. (This is actually a misnomer — the behavior of the unit is much more analogous to a cruise missile). These missiles are nuclear — they destroy everything (friend and foe) within the radius of their blast. (Cities are reverted to neutral status.) In Chris' rules, the blast has a radius of 2, so 25 squares are affected by the blast; in Clay's rules, the radius is only one. They are launched either by selecting a flight direction or (more typically) by selecting a destination using the normal click and drag method. They will be detonated by any enemy unit encountered along their path. Units may attack and destroy them if they can reach them and initiate an attack, so there are defenses against them, but you must be skillful with your pieces. BE CAREFUL with them. Once launched (moved) they can't be withdrawn, and they will blow up friendly units and cities if caught in the blast. (They are normally transported to a battle area using Bombers or Submarines, the two unit types equipped to carry them.)

- **Counterattacks.** In Clay's rules, the Fighters and Submarine have counterattack capability. This means they will automatically attack any unit which moves adjacent to them which they have a decent probability of defeating. (In practice, this means fighters will counterattack missiles, bombers and, maybe, fighters. Submarines will counterattack destroyers, transports, crippled capital ships, and, maybe, other submarines.) In this rule set, your main defense against missiles is to position fighters over potential targets so they will automatically counterattack the approaching missile.

- **Mines.** The game supports this type of unit now, but the machine strategy doesn't (it simply wouldn't use them). Consequently neither of the rule sets include them.

- **Empire Builder, in earlier versions, allowed one to place ("stack") an unlimited number of armies and air units on any square, but limited each sea square to occupation by just one unit. In V1.7, all units may be stacked on a given square, subject to editable "stacking limits". In Clay's rules, the limits are set to infinity. In Chris' rules, the limits are 10, 2, and 5 pieces per square for land, sea and air units, respectively. 15, 5 and 10 are allowed to be within a city.**

- **Machine strategy.** We have significantly improved the quality of the game played by the machine. We believe this is the first ever implementation of Empire which, without giving the computer opponent any handicap, will give an experienced human player a game that is not easy to win. Indeed, it will win many games itself.

In addition, the program "learns" how to play better, both during the game and from game to game. (The latter is not enabled in the demo version.) The program, given a couple games to gather some experience, will be able to adapt to radically different rule sets.

- **More on Memory.** Empire Builder requires a lot of it. The demo set, which is limited to a board size no larger than 100 x 100 requires a megabyte. I play fully expanded games (255 x 255 with



lots of cities) with the MultiFinder partition size set to over 3 megabytes. (EB works well under Connectix' Virtual.) To play the demo under MultiFinder will require at least 2 megabytes of memory; to play on a 1Mb machine will require that MultiFinder not be used, and that you have a minimum number of memory hungry Inits and use a small (if any) RAM cache.

We did a lot of work in this release to make EB use memory more conservatively and to react more gracefully to memory low conditions. Unfortunately, the new machine logic, flight graphing, and other new features consumed much of our savings.

But, then, you were looking for an excuse to buy more memory. Now you have it!

- **Speed.** We also continued our efforts to speed the game up. It is now to the point where we have begun to favor memory savings over compute savings when the choice presents itself. If you have used an older version, we think you will appreciate the results.

One note. We made some major “apparent” speed savings by doing some of the computational chores needed to maintain status in the background while waiting for a user action and during other “dead time” conditions, such as the time spent doing the flickering animation when a piece engages in battle. Consequently, EB may sometimes appear a bit sluggish responding to a mouse click or other command. We felt this was a small price to pay to avoid having to wait for 5 to 15 seconds every time a city is conquered or for half a minute or more at the start of each turn for certain calculations to be performed.

- **Patrol Mode.** The “P” command for patrol now simply has a unit patrol areas. The areas chosen are those squares which have been moved into least recently. The old “Patrol” mode (describing a triangle for the piece to traverse endlessly) can be requested by the Triangle command on the file menu or by typing a “T”.

This is the first step toward making available to the human player some of the higher level logic used by the machine's playing strategy. Our intent is to allow the user to use the machine's automation logic in the area of transport army gathering and other loading in the future.

- **Other New Features.** Look around, there are many more of them. Menu layouts have changed a bit. Try waking a unit you have previously set for (and want to “undo”) no more moves this turn, either by “sleeping” it or using a “5” command. Try a “known world” game. Most importantly, when playing in simultaneous mode, and near enemy units, use the space command (“move later”) liberally. The machine logic will. (The name of the game is “chicken”).

- **Bugs.** We squashed a bunch. Then we rustled up a whole pile of new ones. Then we squashed those. And then squashed a few that thought they had got away. Then we played the game a bunch, and let some others do it too, and fixed a few more. We think it's in pretty good shape. But then, we've been wrong about this before (and, thankfully, right on other occasions.) In any case, if you find 'em, please let us know. There's a bug report form which will print from the file menu and can be sent to Chris, or you can reach me (Clay Prestia):



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- The Future. Our “to do” lists seem to get longer rather than shorter with each new release. Seems that each new idea spawns three more beyond, and adding to the pile are the excellent suggestions we have received from users. (keep those cards and letters coming, folks.) There will be new versions of Empire Builder with exciting new features available to registered users at very nominal costs.



Empire Builder



Game



Template



Rules