

Galactic Civilizations

GOLD



Credits...

Programming for Galactic Civilizations Gold...
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Programming for Galactic Civilizations
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Special Thanks to...
The entire OS/2 community for their help, input, and support!

Introduction

In 1993, after making suggestions on the news groups for a new game that would be similar to Civilization but take place in space and add in features based on suggestions by other people on the newsgroups, Brad Wardell wrote Galactic Civilizations. OS/2 was chosen as the platform partly out of advocacy for OS/2 but also because Wardell wanted to write a strategy game that had a very complex universe. The only way to have the complex universe be playable is if it did its “book-keeping” in the background instead of while the player waited. In 1993, there was only one operating system that had a significant installed base that could handle this -- OS/2.

In November, 1994, Galactic Civilizations I was released. Stardock developed it and contracted a third party recommended by IBM to publish it -- Advanced Idea Machines. For Christmas 1995, Stardock took over the publishing of Galactic Civilizations and released Galactic Civilizations II and in the early months of 1996 released Shipyards for Galactic Civilizations II.

In early 1997, the game’s designer, Brad Wardell went back and decided to add some new features to the game that were beyond what was available in the freely available 2.5 version of GalCiv. This updated version was called the Galactic Civilizations II Expansion Pack.

In the Fall of 1997, Stardock began talking to Code by Design who was interested in porting Galactic Civilizations to Linux. Wardell had also observed that there was a growing discontent with the “real time multiplayer strategy games” available and felt that the time might be right to reintroduce a game that gave strategy game players something different from the new wave of simple real time games. By the beginning of 1998, after Entrepreneur 1.1 was done (another Stardock game), Wardell returned to the GalCiv code and began updating Galactic Civilizations and prepared it to be ported over to Linux and possibly to Windows later on. Graphics were updated, new features have been added, the AI enhanced.

Galactic Civilizations Gold is not just new features, it integrates all of the various add ons for GalCiv -- Shipyards and the Expansion Pack. We hope you enjoy our efforts!

What's New

GalCiv 2.95 (Galactic Civilizations GOLD)

- > Enormous Galaxy size - 36 x 36 universe! (incredible)
- > Addressed mini map repainting speed so it doesn't repaint as often
- > Added Deep Space Colony Ship (much more expensive but long range)
- + New player: Rebels (player 8)
- > Added 13 new technologies
- + Added "The Outsiders" alien race
- > Ominorians only allowed in games with greater than 36 quadrants.
- + Added ability for star ships to be refitted if they get a new armor technology.
- + "Outsiders" star fleet created
- > Rebels have a decent AI personality behind them.
- > Fixed human bug where human player got a 25% resource advantage
- + Added advanced armor advances
- > Fixed the Center dialog function so that dialogs try to stay off the mini map.
- + Added the ability to give ships and money to any known friendly player any time.
- > Fixed AI so that it researches more effectively
- > Re-did the CalcRange functions so that it's a lot faster.
- + Added WorldCivilization Game Module
- + Created 40+ techs for World Civilization
- + Created dozen or so new units for World Civilization
- + Created dozen or so new city improvements for World Civilization
- > Changed it so that it now displays the map as "sectors" instead of quadrants
- > Modified the AI to not keep around so many colony ships
- > Made it so that the advanced techs are a LOT more expensive so that you can't finish all the techs easily.
- > Fixed it so that it displays "%" on percentage values.
- + Added a new event
- + Added ability to have Shipyards available when you load the game.
- > Rewrote how ranges are calculated to be faster
- > Moved code into the background thread so that in long games the pause between turns is shorter.
- > Changed AI philosophy of building transports based on the number of enemies to building them
based on how many planets you have so that you don't end up having too many transports.
- > Changed AI so that it will not target ships faster than the ship they are currently creating orders for unless it's a transport.
- + Numerous cosmetic improvements
- + For the land module, a new dialog was created that gives details on the colonization quality of a region
- + Integrated Shipyards into the base game. It is not on by default.
- + Added Caravans to WorldCiv
- + Battle Module now takes technology into account when doing orbital attacks
- + Ton of work done on Torian AI module.

- + Considerable work on Empire and Drengin AI module
- > Fixed bug in Drengin and Torian AI where ships would stay on assignment forever
- > Fixed bug where it was targeting wrong star system to attack on Drengin and Torian
- > Fixed AI issue of over building wimpy ships at the beginning and then not attacking
- + Empire AI module now builds its military might relative to others (it's the only one which does this)
- > Thanks to Timur Tabi, changed star map redrawing code to be faster.
- + Added a new Altarian star symbol
- + Created new graphics for the bridges (which take damage as the ship takes damage)
- + New graphic for the left icon bar.

GalCiv 2.9 (Expansion Pack)

- > Changed "auto pilot cheat" so that players can't go beyond their range by stacking with ships with low ranges and high ranges.
- > "Exploding Economy" problem fixed.
- > Signed SHORT replaced by LONG for incomes >\$32,000
- > Population ceiling raised to near infinite (was ~8 million per planet).
- > Population growth more in tune to the features of the planet, less with approval rating.
- > People get unhappier with higher taxes (more so now)
- > Pollution makes people even unhappier.
- > Population now affects morale by 20% more.
- > Poor worlds now very difficult to keep people happy.
- + Ominorians added (optional feature)
- + Ominorian text written by David H. McCoy (Thanks!)
- + Ominorian star ship fleet created
- + Military Governor created, you can now switch all your ship projects from one to another. (Very cool)
- + About a dozen new technologies added.
- + Several new ships added that balance the game towards tough and fast as well as powerful instead of just powerful. (previously, Avatars were the way to go, now there are more choices).
- + New "Odin" class ship added that can see all ships in a quadrant.
- + Smart Auto Pilot added. Now fleets will move at the same speed (set to the slowest ship in the fleet).
- + Threading improved to make it easy for people to give orders to ships even during the time the computer is moving.
- + Performance improved.
- + Torian AI Personality re-written.
- + Altarian AI Personality re-written.
- + Empire AI Personality heavily modified.
- + Quadrants now have their own unique backgrounds.
- > Improved repaint speed (which no one will probably notice)
- > Ship Ranges restricted. Now harder to get across the galaxy.

- > AI now puts more focus on social development.
- + New Events added.
- > Darth Vader complex removed. Once you are really "evil" or really "good" you can't turn back.
- > Technologies reorganized to make more sense. Now need artificial gravity to really get anywhere.

GalCiv 2.5

- > Changed Technologies so that Super Projects/Achievements don't become obsolete
- > Hall of game bug fixed
- > You can no longer select unused planets
- + You can now load up transports from outside a star system by having the transport fly into a star system (bringing up the star dialog) and choosing "Reload".
Suggested by Bill Hardy.
- > More planet names added to list
- + Aliens much more aggressive at trading technologies
- > Altarians don't get stuck on researching old tech
- > Annoying Planet and improvement updates do not popup after you've won the game.
- + Changed the fonts away from scalable to bitmap fonts so that they don't look awful under Merlin (way to go IBM on breaking the font engine...)
- + Altarians will get rid of old unwanted ships
- + Altarians won't build tons of useless ships

GalCiv 2.14b

- > Added updated Techs.txt that was corrected by usres on Stardock's CFORUM!
- Thanks guys!
- > Data.bin fixed with new values and corrected errors with certain technologies not popping up.

GalCiv 2.14

- > REALLY fixed the DeathKnight problem with Shipyards
- > Fixed Tax dialog to reflect integer values instead of short.
- + SDS/AI updated to 2.14 (this is what fixes the Deathknight problem and AI personality #3 made smarter -- Torians).
- + Starship.DLL can now be placed locally and it will use that. If you are creating custom scenarios, this is obviously useful.
- + You can now specify how many good planets there are upon starting a new game.
- + When you give ships to another player, they automatically leave orbit.
- > Lot's of little things fixed that no one will probably notice..

GalCiv 2.12a

- > Fixed Shipyards problem where taking over a pirate planet will give you all the technologies of the universe.

> Moving fleets works correctly (bug added in 2.12).

GalCiv 2.12

- + Added ability to read in .SDS files which can modify ships and techs values.
- + Added ability to use alternative aliens.dll if in directory.
- > Made Fleet movement easier by having all stacked ships move right away
- > "Go Home" now works properly
- > Music from CD interfering with loading graphics when Event comes up eliminated.
- > Made great planets MUCH less likely to exist.

GalCiv 2.11

- + Added HALL of FAME
- > Fixed some Enhanced Governor issues.

GalCiv 2.1

- + Added Enhanced Governors
- > Fixed lots of issues that annoyed users.

GalCiv 2.01

- + Made it playable from the hard drive.
- > Fixed Excalibur bug.

Other Issues

World Civilizations

The World Civilization module of Galactic Civilizations was meant as a bonus. We are fully aware that parts of it still mention “stars” and “planets” despite it taking place on a planet. The game is still Galactic Civilizations but we felt that some people would like to try a different twist on the game.

Another limitation of WorldCiv is that you can only play against the Torians and the Drengin. Even if you select more AI players, only those two will be allowed to play.

Scenarios

Galactic Civilizations Gold only comes with one scenario. However, Stardock plans to make more scenarios available after release and they will be available at <http://www.stardock.com/products/gcgold/gcgold.html>

The Scenarios module was added in to make it easier for us to release scenarios more than to include them with the game.

Fleet Movement

You can put all your ships in the same location, double click on them and choose a destination and all those ships will go to the same place at the speed of the slowest ship.

Foreign Aid

If you're not at war with a particular race and have diplomatic relations, you can give that race money and ships. You cannot choose which ships go to them but the game has some basic AI on choosing which ships to send to that race.

Ominorians

The Ominorians are not present in very small galaxies anymore.

Enormous Sized Galaxies

It is not recommended that you play on this size of a galaxy unless you have a Pentium Pro or faster CPU. This sized galaxy is huge and even with OS/2's multithreaded features, it will be too slow on slower machines.

Support

Technical support for Galactic Civilizations Gold is available either by email: support@stardock.com or via Stardock's News Server (news.stardock.com). Note, this is not a news group, it is a server that you would have to add to your news reader.

Updates and enhancements and FAQ lists are available at <http://www.stardock.com>.

Other Support Channels

Compuserve: GO STARDOCK

IBM Link: Stardock CFORUM

Galactic Civilizations: DESIGN PHILOSOPHY

Introduction

This next part will only be of interest to you if you are interested in how the programming of Galactic Civilizations was done.

Block Diagrams

The best way to think of Galactic Civilizations is by dividing it into three sections:

User Interface

AI engine

Calculation Functions

The User Interface is very specific to the platform (in this case OS/2). It was written in C using OS/2 API calls and if you were trying to port Galactic Civilizations, it would be best to just rewrite the user interface. The core part of Galactic Civilizations comes from the AI engine and Calculation functions. It is these two modules that make the game what it is. The user interface merely asks questions of these modules and then presents data on the screen based on the answers.

These are the files:

GalCiv.exe	User Interface (OS/2 API)
Calcs.DLL	Calculation Functions (ANSI C)
SDSAI.DLL	AI module (ANSI C)
GCAI.DLL	AI module for politics (decides when to go to war, how to respond to diplomacy) (ANSI C and OS/2 API)
Battle.DLL	Returns who has lost a given battle (ANSI C)
Invasion.DLL	Calculates what happens when an invasion occurs (OS/2 API mostly)
Ships.DLL	Shipyards (should not be used in a port)

SDS/AI

At some point during the turn, the user interface asks the AI a number of questions. Here are those questions:

```
short AIShipMove( GalaxyType *, short);
int AI_Level(void);
short AIChooseSocialProject(GalaxyType *, short);
short AIChooseMilitaryProject(GalaxyType *, short);
short AIChooseDiscovery(GalaxyType *, short);
void AIInitialize(GalaxyType *);
```

GalaxyType * is just all the global variables being sent over to the DLL's. It's kind of a hack but it makes it very easy to extend the game. Had we not done it this way, there's no way we could have kept releasing free upgrades to the game because we would have had to release the entire game if we wanted to change a parameter.

The first variable in most of these is the index to an array. There are no pointers in Galactic

Civilizations when it comes to accessing most of its data. All the ships in Galactic Civilizations are arrays for instance: StarShip[X] or for Planets: WorldNumber[X] or StarNumber[X] or Player[X]. So in these functions above, it is sending an index value to them. AIShipMove(Galaxy,X) to move ship number X. It will return a number which corresponds to a direction for it to be moved. AI_Level just returns a version number. ChooseSocial and ChooseMilitary just send a planet number, ChooseDiscovery sends a player, and AIInitialize just gets the players set up.

As long as you know the galaxy structure of Galactic Civilizations, you could essentially write your own game (as long as it was similar) for any platform and only include the parts you want in the user interface.

