War2xEd: the Unofficial Map Editor
version 5.1

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1. Introduction

By using War2xEd, you can use every unit type in your PUD, including the expansion CD units, attack peons, rangers, and more!   You can also set the map terrain to swamplands (cheer), and edit everything to an extent you only dreamed of before.

You can use War2xEd no matter what version of WarCraft II you have, but if you use the swamplands terrain, the heroes from the expansion CD, or any of the Expansion AIs, the resulting PUD files won't be useable unless you have WarCraft IIx.

Note: War2xEd is a 32 bit, Windows 95 program.   It will run under Windows 3.11 if you have Win32s version 1.3, but it will not run under Windows 3.1.

2. Using War2xEd

War2xEd is not meant to be used to create PUD files (although by the next version it should be able to).   Instead, it is meant to edit already fleshed out WarCraft II PUD files.   So you need to start by creating or modifing a PUD file using the WarCraft II map editor.   **Important:** if you add the swamp terrain to a PUD with War2xEd, you should change it back before reloading the PUD with the WarCraft II map editor, because otherwise the WarCraft II map editor will crash.

Load the PUD with War2xEd by clicking on the "Load File" button in   the bottom left corner.   If it finds any errors in the PUD, they will be reported and fixed.   There will most likely be some; several errors are introduced every time you save a PUD with the WarCraft II map editor, which can't stand the expansion pack heroes.   Every time you load a PUD with War2xEd after it has been saved by the WarCraft II map editor, you will have to load a Unit File (a file containing unit and upgrade statistics) to repair the carnage.   Fortunately you can save Unit Files as well as load them, so if you are smart you won't lose anything ☺   War2xEd currently only comes with one Unit file, "default.unt", which contains the default values for all the units including the new heroes in the expansion CD.

A. The Button and Tool Bars

On the bottom of War2xed is a row of buttons.   The button with a single sheet of paper on it is the load button.   Click this to load a PUD file into the editor.   Right next door is the save button, which shows the sheet of paper going into a diskette.   The save button will update the PUD on your hard drive with the changes you have made.   Last in that section is an export button, which will save the PUD as a bitmap (the mini-map) and as a text file (a report about the PUD).

After these are two check boxes, one labeled "Units" and the other "Terrain".   These toggle whether Units and Terrain are displayed on the map.

Over on the far lower right is the last group of buttons.   The rotate button toggles the toolbar from being displayed on the top or bottom.   The question mark brings up this help file and   the light bulb brings up a table depicting all the AI types.

You can also perform all these tasks with the tool bar, plus a few more: the Tools section of the tool bar brings up a tabbed dialog box with many useful functions, such as search and replace, and unit editing.

B. The Mega and the Mini Maps

First, the disclaimer.   You will note that your PUD looks slightly different in War2xEd than it does in the WarCraft II editor.   This is because they have ten or so icons for a geographic feature, while I only use one.   They can do this because they load their images from maindat.war, while I have to grab mine in a round about fashion, and then ship them with War2xEd.   If I kept all the details War2xEd would become very big, very fast!   Not to mention I would go bonkers from the cutting and pasting.   That being said, the map gives you a very good idea of what your PUD looks like.

Units on the map are depicted by their icons, allowing you to easily tell at a glance the difference between Teron Gorefiend and a regular Death Knight.   Each unit is surrounded by a box of their side's color.   **Note:** The only units that do not have a unique icon are the Attack Peasants and Attack Peons, which look like normal Peasants and Peons.

If you right click on a unit in the mega-map, it will be deleted.   If   you right click on a blank spot of the mega-map, a new unit will be created there.   I still don't check to see if your unit is in an impossible place, such as a Peasant in the middle of the ocean; I'm getting around to it, promise ☺

Note: if WarCraft II runs into normal human or orc units (such as footmen and grunts) on the wrong side, it will convert them to the proper unit type for your race.   So if you stick a Dragon on the human side, don't be surprised when it shows up as a Gryphon rider.   However, and   this is **important**, heroes are **not** converted, you can put them on either side!

Floating above the mega-map is the mini-map.   The right half of the mini-map has a small map.   If you click on this, the mega-map will jump to that location.   The left half gives some information about the most recently selected square, which is framed on the mega-map with a bright cyan box.

If the current square is a unit, the unit's type, X and Y coordinates, and owner are displayed.   If the unit is a Gold Mine or Oil Well, the quantity in it will also be shown, otherwise an active/pasive checkbox will appear.   If you make changes to any of this information, and want to keep those changes, click on the OK button before selecting another square on the mega-map.

If there is no unit on the current square, or the units have been hidden via the toolbar, you can edit the map square itself.   You can change the type of terrain with the drop down list.   The set of four check boxes in the middle control which quarters of a tile have that type of terrain on it, or, for walls, which directions have other walls.   For example, a wall with the upper and left boxes checked would a corner.   **Note:** the Light   Ground and Space terrain have to take all of the tile; to make a tile which borders Light Ground, use a partial Dark Ground or Light Coast instead.   Also, you will notice two check boxes labeled Bridge and Normal.   Clicking on Bridge makes the tile passable by land and sea units, no matter what terrain it is.   Take a look at the lower left side of "pudbert.pud" for a good example of this.   Clicking on Normal toggles the tile between normal, cave, and space.   Space tiles cannot be entered by any unit,   Cave tiles cannot be used   by flying units, and normal squares are, well, normal.   To keep the changes you have made to a square, click on the OK button.

Editing the tiles directly is meant for detail work; it would get tedious fast on a larger scale.   Until I add in more map editing tools, you will need to switch back and forth with the WarCraft II map editor.

C. The Map and Upgrades Dialog

This map dialog is fairly simple.   In the top left corner is a box with the name of the PUD file, and some basic information.   Beneath it is a box with radio buttons for each terrain type.   To switch to a new terrain, just click on it.   In the bottom of the left hand side is a text box in which you can enter the description for your PUD.   Your description can be up to 31 characters long.

To the right is the Upgrades section, which also is very straightforward.   Just select an upgrade with the list box, and then enter its cost in time, gold, lumber, and oil.

You can use the load and save buttons in the Upgrades section to load and save Unit Files, which are files containing a full set of unit statistics and upgrades.   This is useful because you probably have a few favorite configurations, mages disabled for example, that you use over and over again.   Once you have set up the units once, you can save that setup as a file, and then load them up into as many PUDs as you want!   **Note:** Unit Files are for convenience only, they do **not** have to be distributed with your PUD.

D. The Edit Units Dialog

Wow, lots of fun stuff here!   In the top left is a list box with the name of the unit you are currently editing.   Also, you will note there is another load and save button for Unit Files.   Remember that Unit Files store unit statistics, as well as upgrades (see The Map and Upgrades Dialog for more information).

In the Properties section, you can set the hit points, sight range, priority, and point value of the unit.   Sight range should be higher than attack range, but doesn't have to be.   **Note:** sight has a maximum value of 9, while range has a maximum value of 255!   Priority sets the value that all units place on killing this unit type.   The higher the value, the more intensely they will go after these guys.   This can greatly change the computer's behavior in a fight.   Your score for a scenario is calculated by adding together the point value of all the units you have killed, plus a 500 point bonus if you win the scenario.

To the right of this is the boring Cost section.   Nothing new here, just remember that cost is done in groups of ten, so War2xEd will change your entry to be evenly divisible by ten.   Maximum cost in gold, lumber, or oil is 2550.

In the Missile section you can do two things: change the attack range of the unit, and set the projectile that the unit uses.   Different projectiles have varying properties.   For example, ballista bolts cannot hit air units, and dragon breath does massive collateral damage.

In the Armament section, you can set the Basic, Piercing, and Armor ratings of the unit.   To calculate the average damage a unit does per hit against another unit, use this simple formula:

average damage = 3/4 * (X + Piercing damage)
where X is (Basic Damage - target's Armor) or 0, whichever is larger.

In the Time section you can set the building time and the decay time. Decay is super fun to play with.   Basically, it sets the amount of time it takes for the unit to decay away, like Skeletons and Eyes of Kilrogg do!   Setting decay to 0 means no decaying occurs, and setting it to one means that the unit will decay as soon as it is built, effectively disabling it.   On my machine, each extra point of decay over 1 allows the unit to live six seconds more.   **Important:** decay only applies to units you build or gain via a spell, not that you start with!   **Note:** decay works for buildings too!

One of the more interesting groups is the Can Target section.   This section has three check boxes: land, air, and sea.   By modifying these boxes, you can control which units this type of unit can attack.   The type of missile you are using can affect this: ballista bolts, catapult rocks, and large cannonballs cannot target air units.

The last section, in the top right, shows the flags for the unit.   This section looks different depending on whether the current unit is a building or not.   For buildings, you can set whether peons can bring gold, lumber, or oil to the building, and also if that building type can spot submarines.   **Note:** if you change a building so that you can bring gold to it, you can also bring everything else as well.   For other units, you can again set whether they see submarines, and also if they are a submarine.   **Note:** submarines cannot attack land units for some silly reason.   You can also set whether the unit is undead (i.e. affected by the Exorcism spell), if they can bombard (like catapults and battleships), and if they can upgrade their armor and weapons.

Armor and weapon upgrades are done according to that unit's normal upgrade scheme if there is one, and if there isn't, according to the blacksmithy.   For example, if you give a ranger the ability to upgrade both weapons and armor, the weapon upgrade will occur when you research arrows, and the armor upgrade, since rangers can't normally upgrade armor, will default to the armor that you upgrade at the blacksmithy.

E. The Replace Dialog

This is a fairly powerful search and replace tool.   To perform the search and replace, set the criteria for a match on the left side, specify what you want to replace these units with on the right side, and then click on the replace button.

On the top of the left side is a list box of unit types.   If you only want to match one type of unit, select it here.   Otherwise, leave this box blank.   Underneath are four text boxes, labeled "X … to …" and "Y … to …".   These set the X and Y range that is checked for units to replace.   The default setting is the entire map.   Beneath these is a list box in which you can select the side the unit is on, from red to neutral.   Leave this blank if you want to match all sides.   Nearby are a text box for entering the quantity of resources a gold mine or oil well has and an active/passive checkbox.   The checkbox's default setting is grayed-out, which matches either active or passive units.

The right side is similar to the left side, with two important differences.   First, there are no X and Y boxes.   The X and Y of the matches units is kept.   Second, a blank list box or a grayed-out checkbox tells War2xEd to keep the same statistic as the matches unit.   So the original setting, all blank and grayed on both sides, would match every unit in the PUD, and replace them with themselves.   Real useful, huh?

In the lower right are two buttons.   The first, holding a pencil and erasing some data, clears the fields back to their original state.   The second, which is fingering through some data, performs the search and replace.

You can use this dialog for many things.   Say you decide that you want the red side to be violet.   Simply search for red and replace with violet.   Or what if you put Skeletons with the WarCraft II map editor everywhere you want Attack Peasants?   By setting the units types to Skeletons and Attack Peasants, each new Attack Peasant would preserve the side and passivity of their skeleton counterpart.

F. The Players Dialog

This is straightforward, if a bit condensed.   The dialog is broken into eight rows, one for each player.   The leftmost column is a checkbox; if checked, that player is an orc.   Next column identifies the controller of the player.   If the player is unused, than the columns to the right of this will be invisible.   Next is the computer AI, and then the gold, lumber, and oil that the player starts with.

Note that there are a lot of AI choices!   83 to be exact.   The standard Air, Land, and Sea attack you should be familiar with.   Passive means they just sort of sit there.   The AIs from the original game refer to a scenario, and sometimes even a color in that scenario.   This means that the player will act just like the players did in that scenario.   The expansion CD AIs are simply sorted by number, from Expansion 1 to Expansion 51.   You can see a table of all the AIs and what they have been observed to do by clicking on the light bulb button next to the help button that displays this file.

Be warned that I don't check to see if you have a start location for each player!   If you don't have a start location, then the game will crash if you select "One Peasant Only".

3. Tricky stuff

I virtually guarantee I've been using this longer than you have.   So here are some tips.

Cho'gall starts with all his spells, and Gul'dan doesn't run away when hit like most Death Knights do.

Paladins and Ogre-Mages aren't going to start with any spells.   You can still make good use of them for a) that coolness factor and b) by editing their attributes.   I recommend +10 hps and +1 armor.   Starting with Rangers and Berserkers, however, is a major edge, since they have +10 hps and +1 sight over their scrawnier cousins.

You can make gold mines, oil patches, etc. belong to particular players.   That gives that   player a near permanent scout range around that object.   **Note:** although any one can gather gold from an owned gold mine, the default

(right click) action for enemy peasants is to attack the mine.   Also, no one, owner or otherwise, can build oil wells on owned oil patches, and they can only be destroyed by ships.

Attack Peons, used in WarCraft II during the "Peasant Rebellion" scenario, cannot be distinguished from normal Peons by clicking on them.   However, they can have different stats, and cannot gather resources.   Consider them militia; although they don't have an attack button their default action is to attack, and they will attack automatically if threatened.   I'm sure you can think of a few good uses for a Grunt that looks exactly like a Peon, grin.

Although submarines can't attack land units, spell casting submarines can!   Imagine submarine Death Knights, with the "Can see submarines" flag removed from everything but Eyes of Kilrogg.   Shudder!   Another fun thing to do is to remove the "Is submarine" flag from turtles, and let them attack land units.   Give them about 20 armor   to make up for the loss.   Last but not least: 50 hit point, sight range of 9, submarine scout sheep!

Alleria looks great with bows of lightning, Skeletons kick with Death Touch, Zuljin loves lobbing Giant Turtle missiles, and Teron Gorefiend chills with Daemon Fire, but give a Gryphon Rider hammer to Korgath Bladefist and zowie!!!

You can "disable" units by setting the decay on them to 1, which is such a short time period that they may as well not be there.   Since the decay doesn't apply to units that start on the board, you can give each player some of the "forbidden" units to start with, knowing that they will never have any more.   In addition, you can reduce the power of game-busting units by giving them a reasonable decay rate of 5 minutes or so.   This will prevent stock piling of nasty units.

You can have a form of mission objectives by playing for points, and then setting the point value of certain key targets very high, or alternately, everything else to zero.

You can have stealth distance attacks by setting the missile type to "No missile". They will literally never know what hit them, grin cackle grin.   Can we say, range 9 Rangers with invisible arrows?

Computer players don't need to see to shoot.   So a Cannon Tower with a range of 128 can fire at you all the way across the board, all the time.   Talk about artillery…

Use you imagination, and you can make some incredible PUD's.   Why do you think I wrote this?   I want to play them, so hurry up, grin!

4. Identifying War2xEd PUD files

This isn't going to be regulated or anything like that, but I ask you to put a 2x somewhere in your map description.   Why?   So people know not to use these PUD's on older WarCraft versions, or if they load it up in the map editor, they will know not to save it, which could do funky stuff with the units the map editor doesn't support.   In addition, it will tell people which editor you used, in case others pop up that are somehow incompatible with this one.   Anyway, putting a 2x in there would be a **good idea**.

5. Disclaimer, etc.

You aren't paying me a cent, so if this program takes over your hard disk, rapes your woman, and plays Rock and Roll over your speakers at max volume all night long, and you ask for compensation, I'm just going to laugh.   MU HAHAHAHA! MU HAHAHAHAHA!!!

Now for the etc.

My e-mail address is **lemberg@bayserve.net**.   Send me a line if you are confused, if you think you have found a bug, or if you have found something about PUDs that I don't know.   In addition, I have a WWW site at **http://www.bayserve.net/~lemberg**.   You can download the latest version of War2xEd and the FAQ there, as well as some War2x PUDs and Unit Files.

Thanks for reading the documentation!   Every person who does saves me ten e-mail messages.

6. History

If you don't know it, you are doomed to repeat it.

Version 5.1 (July 27th, 1996)

• Made the mini-map's initial position controlled by Windows; I had it over on the upper right corner of a 1024 by 768 display, so some people weren't seeing it.
• Removed "View: Grid" off of the main menu. It was just a remnant of something I decided not to bother with.
• Changed the way that the Tools menu is enabled.   For some really weird reason, Win32s didn't like it, and left it disabled.

Version 5.0 (July 25th, 1996)

• Added in the mega and mini maps!
• Moved the Units dialog over to the mini-map.
• Error checking now handles the "disappearing unit" bug introduced by loading expansion heroes into Blizzard's map editor and then saving the PUD.
• Fixed a bug with the search and replace that prevented it from replacing neutral units.
• Fixed a bug which generated the wrong replacements for some of the Black Plague tiles.
• Fixed a bug which prevented you from opening the help file if the current PUD wasn't in War2xEd's directory.
• Made the export function report the controller as opposed to the AI for Rescue Active and Rescue Passive players.

Version 4.0 (July 14th, 1996)

• Added the Replace and Edit Upgrades dialogs.
• Expanded the Unit file format to include upgrades also.   Still will load the old Unit files, but always saves the new type.   Upgraded default.unt to the new format.
• Added in the 51 expansion CD AI types.   These are great AIs; most of them can build a town from scratch, and do it well too.
• Added an AI table as an RTF file; it is accessible online.
• Added a "Is submarine" flag to the Edit Units dialog.
• Added some range checking to all text fields.
• Fixed a couple more "Black Plague" tiles.
• Changed the spelling of Demon to Daemon.
• Changed the map to display neutral oil wells as black, critters as gray, and all else as gold.   Also, on 32x32 and 64x64 maps, creatures are only a single pixel, while buildings are four.   All units are four pixels in 92x92 and 128x128 maps.
• Fixed a bug which prevented the "Can target" buttons on the Edit Units dialog from enabling themselves when you switched unit types.
• Fixed a bug that caused the Export PUD function to lock up when writing the text file if player White was in the game.   Also made it report the AI of each side.
• Redid the tab order of all the components so that it actually makes sense.
• Stuck in some nice graphics.

Version 3.3 (June 19th, 1996)

• Added in 28 new AI types. Thanks to Archmage Xander who pointed them out in Dragon.pud!   I'm not too sure what they do, you tell me and I'll tell the world, grin.

- I think I've figured out the tiles that cause the "Black Plague".   These are detected during PUD checks and fixed automatically.   If you still find blank spots on swamp PUDs, send me a copy of the PUD and I'll track it down.
- Fixed a bug with the Load Unit File button.   Although it displayed the stats of the first unit (Alleria), the name in the box was still listed as the last unit edited.
- Fixed a bug with the missile types: Demon Fire was added, and demons have been changed in the default.unt file to use it.

Version 3.21 (June 10th, 1996)

- I accidentally had overwritten the unit data of the demo PUD files with the default.unt file.   This was especially bad for grush.pud.   Anyway I fixed it.   Btw, some of my brothers have come up for a week or so, for computer games and sailing, then I have to go to 2 weddings and a birthday, so don't expect any updates for a while!

Version 3.2 (June 6th, 1996)

- Rearranged the Edit Unit dialog, and added better error checking.   I now blank out or disable buttons and sections that don't make sense for that unit or missile type.
- Added a Points box and a Can Target section to the Edit Units dialog.
- Updated the default.unt file so that the points for the new heroes are now 3x their "type" as opposed to the same (i.e. Alleria is now worth three times more than a Ranger).

Version 3.1 (June 4th, 1996)

- Was informed that I kept writing Warlords II instead of WarCraft II. Doh, and more Doh!   Changed this everywhere.   Sorry for those I confused.
- You can now click on the unit map to switch between units.
- I no longer display the blank unit slots.
- The Edit Units dialog now uses a drop down list instead of the two arrow buttons.

Version 3.0 (May 31st, 1996)

- Added in the Edit Units and Players dialogs.   Edit units will gradually be expanded as I release minor upgrades, but will be backwards compatible (I store everything, its just a matter of interpretation).
- Added in rudimentary error checking.
- Added in an export function.
- Also include 3 new demo PUDs.

Version 2.2 (May 26th, 1996)

- The tabbed dialog box I was using to switch between the map section and the units section was not compatible with Win32s.   I added some buttons that people could use to manually flip through   the   tabbed sections.

Version 2.1 (May 25th, 1996)

- Changed the palettes around to better match the game, and added forest and mountain dithering.

Version 2.0 (May 25th, 1996)

- Fixed two minor bugs, one that caused an "io error" message to appear   when you canceled the open dialog box during the first open, and one that set the unit pointer wrong when you deleted the first unit.
- Added in the mini-maps.   I am not quite happy with the palettes yet, playing will occur.
- Added in a file name and version label.   Also display the map's X by Y.
- Added in a description edit box.
- Added a description (with a 2x in it) to the herowar.pud demo PUD.

Version 1.0 (May 21st, 1996)

- First release.   Also know as the Day of Never Ending E-mail.