Marneman's BlackerICE Mod for Hearts of Iron 3

INTRODUCTION:

BlackerICE is a total overhaul mod for Paradox Interactive's classic WW2 grand strategy game, Hearts of Iron 3 (HOI3). Yes, I tried HOI4, and I didn't like it ... at all. Paradox has removed some of the key features that made HOI3 such a fun experience. Sorry, but I don't want to play a supply sergeant simulation. :) If you are like me, and think HOI3 is a better game than HOI4, keep reading!

BlackerICE was originally based on the BlackICE (no "er" in the middle) mod, of which I was a major contributor.

NOTES:

- Minimum Specs to run BlackerICE:
    - A 64-bit version of the Windows Operating System (It will not run under a 32-bit version)
    - Hearts of Iron III with Their Finest Hour expansion installed (patched to the latest release, which was v4.02)
    - A version of the hoi3_tfh.exe file that is Large Address Aware (LAA). See notes below for how to do this.
    - At least 8GB of RAM (technically, all it needs is 4GB, but you have to have some RAM left over for your OS and other apps)
    - A graphics card capable of running the game at 1920x1080. BlackerICE was/is designed and tested on the PC platform, at 1920x1080. Using anything else may or may not work, but has not been tested.
- Distributions for the Mac have not yet been developed, though if you are familiar with how to install mods under the Mac version of HOI3, you should/may be able to use the PC distribution of BlackerICE.
- Many of the in-game menus and other things use hardcoded English text. This will change over time, but I have some custom font work to do first.
- BlackerICE v1.0 started from the last release of BlackICE that I was involved in (v8.5), so anything the new BlackICE team has done since then is not in this mod.

DIFFERENCES BETWEEN BLACKICE AND BLACKERICE

Since BlackerICE was originally based on BlackICE, there are obviously some similarities. However, quite a lot has changed! Here are a few helpful notes for veteran BlackICE players who are just getting into BlackerICE:

- The unit statistics (things like attack and defense values) have been scaled WAY back from BlackICE. This, of course, affects techs as well. Over the years, the units in BlackICE became very laden with stats, making balance tricky to achieve. We purposely reset every stat to 0 and used some formulas to create the initial unit stat values and values of tech benefits.
- There is an increased focus on "support battalions" rather than just brigades. For many brigade-level units, there are battalion-sized equivalents. These are great for smaller forces, backwater garrisons, etc. Even larger division formations can benefit from the battalions.
- Because of this trend, we have deprecated the venerable "mixed support brigade" (and the motorized and armored versions of this unit), which really has outlived its usefulness at this point.
- Also, as a part of this trend, we have increased the number of slots available to divisions to 10 (or 11 if you have the Superior Firepower tech).
- The air war is relevant again. While every ground unit has some form of defense against air attacks, the only ones capable of "shooting back" and damaging those enemy aircraft are AA units. So you'll want to keep this in mind as you build out your forces. No longer will a stack of bombers get pummeled by a stack of infantry ☺
- There is an increased focus around Special Forces units.
- There are a variety of new units in BlackerICE. The range from battalion-sized support elements (AA, AT, etc), to niche support units such as the Medical Support Battalion, the Armor Service Battalion (Recovery), and the Quartermaster battalion.
- All the screens have been reworked, as have a great many of the techs and tech folders. So, you'll want to spend some time browsing through these before digging into your first serious game.

DOWNLOAD AND INSTALLATION

There are two ways to install BlackerICE: Network Installer and Manual Installation. Each is discussed below. Additionally, no matter what method you use to install, you will need to make sure that your `hoi3_tfh.exe` file is Large-Address Aware (LAA). HOI3 is a 32-bit program, which means by default it can only address 2GB of RAM, no matter how much RAM you have in your PC. Unfortunately, there is no 64-bit version of HOI3. However, you can make HOI3 recognize up to 4GB of RAM by making it LAA. To do this, you need to either have the version of the `hoi3_tfh.exe` distributed by Podcat on the Paradox forums, or use a tool such as this one to make your .EXE large-address aware.

- http://www.ntcore.com/4gb_patch.php

1) Network Installer

The Network Installer is by far the easier way to install BlackerICE. However, if you run into strange issues with the installer, you may choose to use the manual method outlined below.

First, you will need to download the network installer. You can download it here:

https://s3.amazonaws.com/blackerice/blackerice-installer.exe

Once you download the installer, simply run it and follow the instructions. Please note: Some Antivirus programs will either block the installer, or do other things that cause it to fail. We HIGHLY RECOMMEND that you temporarily disable your Antivirus software BEFORE running the network installer!

Once you've installed BlackerICE using the network installer, skip *step 2* below and proceed to *step 3!*

2) Manual Installation

- In the instructions below, "HOI3" refers to your BASE Hearts of Iron III installation directory
  - e.g. `c:\program files\Hearts of Iron III`
  - e.g. `c:\program files\steam\steamapps\common\Hearts of Iron III`
  - etc.
- Download the following files and save them somewhere on your PC.
  - https://s3.amazonaws.com/blackerice/blackerice-latest-release.zip
  - https://s3.amazonaws.com/blackerice/blackerice-map-cache.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-ENG.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-USA.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-GER.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-SOV.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-JAP.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-FRA.zip (OPTIONAL)
  - https://s3.amazonaws.com/blackerice/blackerice-image-pack-ITA.zip (OPTIONAL)
- Unzip the `blackerice-latest-release.zip` file into `HOI3\tfh\mod\blackerice` folder

- Go into the `HOI3\tfh\mod\blackerice\misc` folder. Move the .bat file to your main HOI3 folder.
- Move the `HOI3\tfh\mod\blackerice\misc\blackerICE.mod` file into the `HOI3\tfh\mod folder`
- Rename the folder `HOI3\gfx\cursors` to `HOI3\gfx\cursors.old` or something
- Move the `HOI3\tfh\mod\blackerice\gfx\cursors` folder to `HOI3\gfx\cursors`
- If you downloaded any or all of the optional model image packs, you can simply unzip them into:
  - `HOI3\tfh\mod\blackerice\gfx\models`
- If you downloaded the map cache file, unzip it into:
  - `My Documents\Paradox Interactive\Hearts of Iron III\blackerice\map\cache`
- You will also need to edit the .bat file you copied earlier, replacing "INSTALLATION_DIR" with the full path of your base HOI3 folder

3) Memory/CPU Optimization

Before we get started, a little background information may be helpful. For starters, HOI3 was release in 2009. That is almost 10 years ago as of this writing! Back in those days, 32-bit applications like HOI3 were the standard. Unfortunately, 32-bit applications can only access 2GB of RAM. So even if you had 16GB of RAM in your gaming machine, HOI3 couldn't make use of it. When 64-bit operating systems became the norm, you were able to get around this, somewhat, by "flipping a bit" in the .EXE file, allowing a 32-bit application to run in Large Address Aware (LAA) mode. Basically, it extended the RAM availability to up to 3.5GB. Progress! Unfortunately, that is the hard limit for HOI3, since it is, and always will remain, a 32-bit application.

Making matters worse, is the fact that HOI3 has a tendency to allocate RAM for things like event images, then not freeing up that memory when it is no longer needed. It does a rather pitiful job of memory management overall. If you open up Task Manager while the game is running, you will notice all sorts of whacky behavior with its memory usage (even when paused at times!).

When running big mods such as the original BlackICE, and now BlackerICE, HOI3 maxes out this 3.5GB of RAM generally around 1942 or so in game time. The symptoms are rather obvious. The game lags to hell and back, scrolling the map takes forever (even when the game is paused), and events pop up with no event image (as there is no memory left to allocate for them).The good news is that I'm not one who looks kindly on being bested by a computer! I have spent quite a bit of time optimizing the "memory footprint" of BlackICE, and it largely mitigates this issue!

I also did some fairly extensive research and testing on some things, and have come up with additional workarounds. It involves just a few easy steps.

1. First and foremost, make sure your hoi3_tfh.exe file has been properly patched by the LAA tool located in the blackerice/misc folder.

2. Next, as soon as you start a new game or load a saved game, IMMEDIATELY open the console (` key) and type "reloadinterface" and hit ENTER. This will very quickly free up 64MB or so of RAM in the game. You can also enter that command in throughout the game and it will free up a MB or two of RAM should you start lagging.

Assuming you have 8GB or more of RAM in your system, you should be fine with the steps and can skip the 3 steps below. However, should you still need additional workarounds, read on (especially the part about limiting HOI3 to certain CPU cores).

Step 1: Memory Management/Cleaning

Install one of the three memory cleaning tools I've enclosed in the "blackerice/misc/Memory Tools" folder. I did not write these particular programs, but I tested several different freely available "memory cleaners" until I found the ones that satisfied my requirements (for the technical among you, I needed something that would prune/trim a process's "working set of RAM").Personally, I recommend the MZRAM tool. It's fairly easy to use, though I've tested all 3 tools with success. So pick one, install it, and give it a go should you need to. Just fire up the memory cleaner, configure it accordingly, then start the game.

1. MZRAM
2. MiniMem
3. MemClean

Step 2: Limiting the game to certain CPU cores (Optional)

Since HOI3 is not multi-core/multi-thread aware, allowing it to run using all available CPU cores may actually slow things down! By limiting HOI3 to a single (or perhaps a few) core(s), you may gain some needed speed increase. When you run the blackerice.bat file to start the game, and after selecting your language of choice (as in previous releases), you will then be presented the option to *limit* HOI3 to a certain CPU core, a set of CPU cores, or let it use all available CPU cores. This is where you will need to do some trial and error, as every system is different. On my development machine, I have 16GB of RAM, and 16 virtual CPU cores. I have tried it with all cores, and just one core, and it runs about the same. Your mileage may vary. When in doubt, just enter "A" for all cores, or try limiting it to a single core or group of cores separated by commas.

When choosing a single core to use, remember that the higher the number of the core being used, the less likely it will be used by Windows and other apps. And cores start numbering at 0, not 1. So if you have an 8 core machine, you have CPU cores numbered 0 through 7. 0 will almost always be the busiest core in the lot. In this case, I would recommend using core 6 or 7 for HOI3.

After entering in your selection, the game will automatically be launched, with its priority set to "HIGH", giving it a little extra boost.

Step 3: Reloading the HOI3 Interface

As you are playing the game, the memory cleaner tool will periodically free up RAM that HOI3 captures then doesn't use. However, eventually, your interface will start to lag. When this happens, simply open up the HOI3 console mode by pressing the back tick/tilde key (`). Once the console is open, enter the command "reloadinterface" (without the quotes). Then simply close the console by hitting the back tick key again. You should find that your game is running smoothly again! As a reminder, you should ALWAYS execute this command when starting a new game or loading a save game, as it will immediately free up 64MB of RAM within the HOI3 process!

BLACKERICE BUILD SYSTEM:

One of the things that made us completely crazy managing and working on the original BlackICE mod was the fact that due to the sheer number of events, custom units, etc., it often became very tedious and difficult to make changes, find and fix bugs, etc. I decided to automate the original BlackICE build, to some extent, and it was somewhat effective - at least in terms of saving us time when making changes.

With BlackerICE, I decided to kick it up a notch. :) I rewrote the build system from scratch, adding 100X more functionality in it than I had originally with BlackICE. I won't bore you too many of the details, but I will say this: It is very cool. All of the mod data has been migrated to a relational MySQL database. When I say "all of the mod data", I mean everything. Techs, units, counters, models, etc. Everything. I created a rules-based engine around it all. Here are some highlights:

- Core files for units, technologies, and models are all auto-generated by the build system. No more managing thousands of files by hand!
- Each unit has a "balance rating" in the database. This value is an indication of where it should fall on a scale of 0 to 5 (0 being completely useless, and 5 being absolutely amazing). Fractions are supported, so the scale is truly infinite.
- Each tech has a "range" of possible values for a benefit. For example, the "body armor" tech might have a range of 0 to 12 for increasing a unit's "toughness". Depending on a unit's "balance rating", they will fall somewhere along that scale (0-12) as far as getting the benefit.
  - So a unit that has a balance rating of 5 would get 12 to toughness (top of the scale). Likewise, a unit that has a balance rating of zero (0) wouldn't get anything for toughness (bottom of the scale).
- This balance rating factors into the techs considerably, as now the build engine automatically calculates tech benefits for units based on this balance rating, along with some other attributes about the tech and the unit itself.
- So, if I want to buff or nerf a given unit type, I simply nudge the slider a bit in either direction. And with the click of a button, all of the technology files can be rebuilt with new values and tested. What took a week before now takes milliseconds. Likewise, if I want to buff or nerf a tech, I do the same thing, but for the tech itself, not the unit. When the tech is rebuilt, all of the unit-related values for that tech are re-calibrated and rebuilt.

- So, in theory, everything stays in "balance".
- Since all of the unit model files are auto-generated as well, so hopefully, there will be no more cases of unit models getting stuck and not progressing!
- To make a build for distribution, I just click a button, and it bundles everything up into a distribution archive.

There is a LOT more to the build system, but the net result is that changes to the mod can be made very quickly. And those changes be very minor, or very major! By implementing a lot of automation, calculations, checks and balances and rules, we will hopefully reduce human-error significantly, and decrease the chance of random CTDs.

FREQUENTLY ASKED QUESTIONS:

Miscellaneous Questions

Q: What are these references to "Pattongine" that I keep seeing in the Facebook posts?

Pattongine is a new grand-strategy engine that I have been working on. We have a separate Facebook group for it (called "Pattongine"). Not much up there right now, but there are some early videos and other things.

Q: When I start the installer, I see a splash image for "Incursus" – who are they?

Incursus, Inc. is my company. We are an open-source creative design and software development studio headquartered in Atlanta, Georgia, USA. We sponsor the mod! If you have a need for custom application development, mobile development, or 2D/3D creative design, we'd love to hear from you! You can learn more about us on the web at http://incurs.us.

Q: I love BlackerICE! Do you accept tips?

I don't require any form of monetary payment for BlackerICE. That would go against the open and transparent nature of the BlackerICE community that we are building. But I do have a beer fund, yes. If you are so inclined, you can send me beer funds via Paypal to scott@incursio.com.

Q: Now that I have your email address (hahahaha!), can I email you bug reports?

Oh god, please no. I get over 100 emails a day, not counting the spam which gets filtered out. I have a day job, don't forget! ☺ Please post bug reports in the Facebook group.

Q: I have a question that isn't answered by this document. Where can I ask it?

If it hasn't occurred to you by now, we have a Facebook group. ☺ It's called "BlackerICE". Just search for it and jump on in and post away.

Installation / General Support Questions

Q: It seems that I have to be connected to the internet to install the mod - is that correct? Do I have to be connected to the internet to use the mod when I play?

No. You only need Internet access to actually download the mod. Internet access is not required for playing the game (unless you are trying to do a multiplayer game or something).

Q: Do I need to install the original BlackICE mod before installing BlackerICE?

No. BlackerICE does not rely on the original BlackICE mod, though it was originally forked from it. It was forked from the last release of BlackICE that I worked on (v8.5).

Q: After installing BlackerICE, I have an empty folder in `Hearts of Iron III\tfh\mod\blackerice`

While I haven't personally seen this issue, some folks have reported that their Anti-Virus program doesn't seem to like my installer, and they freak out and silently remove all of the installed files. I've no idea why. The workaround is to temporarily disable your AV program before trying to install the mod.

Q: When I try to start or play the game it immediately crashes or hangs.

By far, the most common causes of this:

- *Not running HOI3 with the TFH (Their Finest Hour) expansion installed*
- *Not running on the 64-bit version of Windows with at least 8GB of RAM*
- *Not running the Large Address Aware (LAA) .EXE file*
- *You are trying to run at a resolution lower than 1920x1080*
- *You have chosen a language set at the beginning that is not fully translated at this time (try "1" for English/US to test and see)*

In some situations, you may need to right click on the .bat file and run it with Administrator privileges.

Q: Are you planning on adding support for resolutions lower than 1920x1080?

Absolutely not. It's 2018, after all.

Q: But my laptop doesn't support 1920x1080 resolution! What should I do?

Get a new laptop. Seriously though, if you want to edit all of the .GUI files to make it work for your resolution, have at it.

Q: I am trying to run another mod or sub-mod with BlackerICE but am having issues.

Unless the mod was developed specifically for BlackerICE, you are very likely going to have problems, crashes, etc. So much has changed in BlackerICE, that pretty much every sub-mod out there for the original BlackICE is incompatible.

Q: After playing for a while, the game lags horribly, I get event popups that have no image, or the game freezes altogether.

You must keep in mind that we are significantly extending the life of an old (fun, but poorly written) 32-bit game. It will eventually run out of memory, no matter how much RAM you have installed in your system. There is a reasonable workaround, however. See the earlier section in this document about "Memory/CPU Optimization". I have managed to play into the late 40s without restarting using this approach. It isn't a bulletproof solution, but it does help.

Q: After launching the blackerice.bat file, I choose my language, and the game crashes, hangs when loading, or looks weird after starting.

Not all of the translations have been completed, so some languages may exhibit weird behaviors. If you'd like to help translate, jump into the Facebook group and let me know!

Q: The mod doesn't show up in the HOI3 launcher, or it does show up but doesn't launch properly, or crashes.

BlackerICE was designed to be launched from its custom .bat file, not the launcher. The launcher very likely won't work for you. When you installed BlackerICE, it should have made a desktop shortcut for you, which points to the .bat file, which is located in your main HOI3 installation folder (e.g. Hearts of Iron III\blackerice.bat).

Q: When I start the mod, the game crashes, and an error message appears that says "Unknown error while loading the files".

Could be a few things causing this. One is you need to be on a 64-bit version of Windows, and running a Large Address Aware (LAA) version of the .exe file. It has also been reported by at least one player that he had to manually delete his map cache first. No idea why this would be an issue, but you can try it by simply removing the My Documents\Paradox Interactive\Hearts of Iron III\blackerice\map\cache folder.

Q: I'd like to help translate things, what do I need to do?

Hop into the Facebook group and let me know what your expertise is. I'll definitely be happy to put you to work! :D One caveat, though. Because HOI3 doesn't support UTF-8 character sets (only "ANSI" / Windows-1252), language translations can't use certain special characters. If your language of choice has characters beyond those listed on this site (https://en.wikipedia.org/wiki/Windows-1252), you will need to "Romanize" or "Transliterate" the strings.

Q: Are there any plans to have any other starting dates than 1936?

I'd like to add some other start dates at some point, yes. In particular, a 1933 option.

Q: How long do Events trigger in BlackerICE? Is there any post-WW2 content? Is a Cold War included? Like the Vietnam and Korea war?

There isn't much in the way of post-WW2 events, at least not yet. I may expand it at some point, but it would require a great deal of work adding new (more modern) unit models, historical events, leaders, generals, etc. Frankly, there is so much in the way of content that can be added around WW2 itself, I may very well never get to the point of a Cold War! We'll see … plus, my goal is to focus more on Pattongine once BlackerICE gets out of alpha and beta. Trust me – you'll thank me later for that. ☺

Q: The "Statistics" screen is horrible looking! Are you going to clean this up?

I wish I could. Unfortunately, it is largely hardcoded into the game. With all of the units and new buildings, etc. in BlackerICE, it really shits up the Statistics screen quite a bit, making it largely unusable.

Q: What is the best division build for an XYZ division?

With Vanilla HOI3, this question was pretty easily answered. Even with the original BlackICE mod, there were a handful of favorites. Given the sheer number of subordinate unit combinations available to you within BlackerICE, this is impossible to answer. Your best bet is to post in the Facebook group and seek guidance from others.

Q: I don't like all of the new graphics. How can I play BlackerICE with the vanilla look?

I don't like you either. Kidding! Unfortunately, you can't do that. Too much has changed and the vanilla HOI3 interface is incompatible at this point.

Q: I don't like all of the colorful counters with unit insignias on them. Is there a way to play with just the NATO-style counters?

Sort of. I personally play with the unique historical insignia/counters, but if you go into the tfh/mod/blackerice/interface folder, you will see a file called counters-generic.gfx. Just copy that file over the counters.gfx file, and it will get you most of the way there.

Q: I really like the new music/soundtrack for BlackerICE! Can I copy them for use in another mod, or for my personal listening?

The music files included with BlackerICE are licensed music. In other words, I paid for the right to distribute the songs with the mod. As such, they should not be copied, otherwise, you will be in violation of digital rights and software copyright laws!

Q: I really like certain features of BlackerICE. Can I copy and use in my own HOI3 mod?

This is a sticky and tricky subject with me. A lot of the things that have gone into BlackerICE are what make it unique, fun, and stable! Here are the ground rules:

- *Since BlackerICE was based originally on BlackICE v8.5, anything that predated v8.5 you will need to take up with the official BlackICE team.*
- *By default, nothing particular to BlackerICE may be used without my written consent. I promise I'm not a meanie, however. Reach out to me in the support group and ask. Depending upon your request, I might say "yes". ☺ Or not.*

Gameplay / Balance Questions

Q: In Vanilla HOI3, a "destroyer" unit represented a flotilla of destroyers, but in BlackerICE, I see that destroyer units have individual ship names. What is the unit resolution in BlackerICE?

Most of the units in BlackerICE have been made into individual or "discrete" units. So a destroyer unit represents a single destroyer (DD), a light cruiser unit represents a single light cruiser (CL), etc. There are a few exceptions.

- *Auxiliary vessels (both normal and the long-range variants) represent small flotillas, as do all forms of landing craft.*
- *Air units no longer represent "wings" of 100 planes, but "squadrons" of roughly 25 planes each, the exception being transport planes.*

Obviously, land units represent individual battalions and brigades/regiments accordingly.

Q: Why doesn't Country X have XYZ unit? Why is ABC not listed as a leader or general for my country? Why aren't there more events for my favorite country? Etc.

There is no one single person on the planet that is the definitive source of all things related to WW2. That includes me ☺ If you'd like to help contribute as a researcher, by all means jump into the Facebook group and let me know! I am happy to work with people to add more quality content to the game/mod.

Q: Country X is way over/under-powered! Why the hate/Where's the love?

See previous question. I invite and encourage professional and civil discussions in the Facebook group about such things. Most all BlackerICE players love to learn new things and debate history! ☺

Q: I understand that there are Swastikas on the Nazi Flag in this game. Why are you promoting Nazism?

Sigh. I'm not promoting Nazism. I'm simply promoting historical accuracy. There is a difference ☺ If the Germans had Mickey Mouse on their historical flags, that is what would be in BlackerICE.

Q: I was shocked to discover that I could choose to build internment, labor, concentration, and extermination camps in BlackerICE. Shame on you for glorifying such vile acts!

BlackerICE does feature certain content which could be considered "controversial" in nature. These include issues regarding race-relations, internment, and genocide and atrocities committed (by all sides). You can choose to enable or disable this content via event at the start of the game.

NOTE: I do not support nor condone these behaviors and actions in any form, and that most certainly extends to the notion of the various types of camps depicted in BlackerICE. However, I am a firm believer that we must not forget the past, lest we be condemned to repeat it. I am married to a Jewish woman who lost relatives in concentration camps, and am very familiar with the seriousness of the Holocaust (in particular).

The events portrayed in BlackerICE were horrific ordeals for millions of people, and we should all be very respectful of what actually transpired. It is my hope that the inclusion of this content in BlackerICE will provide a mechanism for people of all countries to learn more about them, and the very real human price that was paid. Yes, BlackerICE is a "game", but I believe it to be a very compelling platform for historical education as well. I want BlackerICE to be fun, but I also want it to make people "think".

NOTE: In certain countries, particularly in Europe, such content is forbidden by law! I claim no liability or responsibility should you choose to play with this content enabled.

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