

Our research has shown that several other Aeria games have been misused in the same way in the past, however, their corresponding unofficial websites have either gone inactive or had the malicious downloads removed in the meantime.

ESET blocks the website serving Joao malware and has informed Aeria Games about the matter.

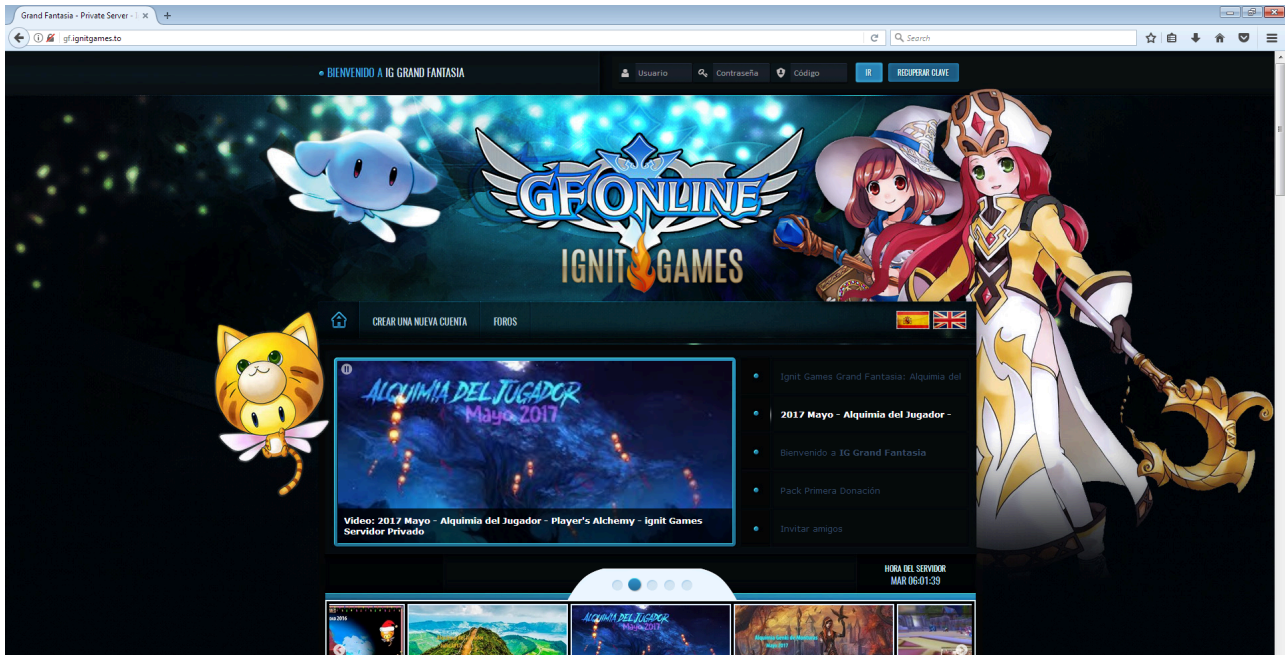


Figure 1: Infected version of Grand Fantasia as distributed via gf.ignitgames[.]to

How does it work?

The affected games have been modified to run Joao's main component – a malicious library mskdbe.dll, detected by ESET's systems as Win32/Joao.A. When users run the game launcher, Joao is launched along with it.

Upon launching, the Joao downloader first sends basic information about the infected computer – device name, OS version and information on user privileges – to the attacker's server because the malware keeps its operations "silent" and since the game works as expected, there's nothing suspicious about the whole infection process from the user's point of view.

Compared to downloading and launching a legitimate Aeria game, the only visible difference is an extra .dll file in the game's installation folder.

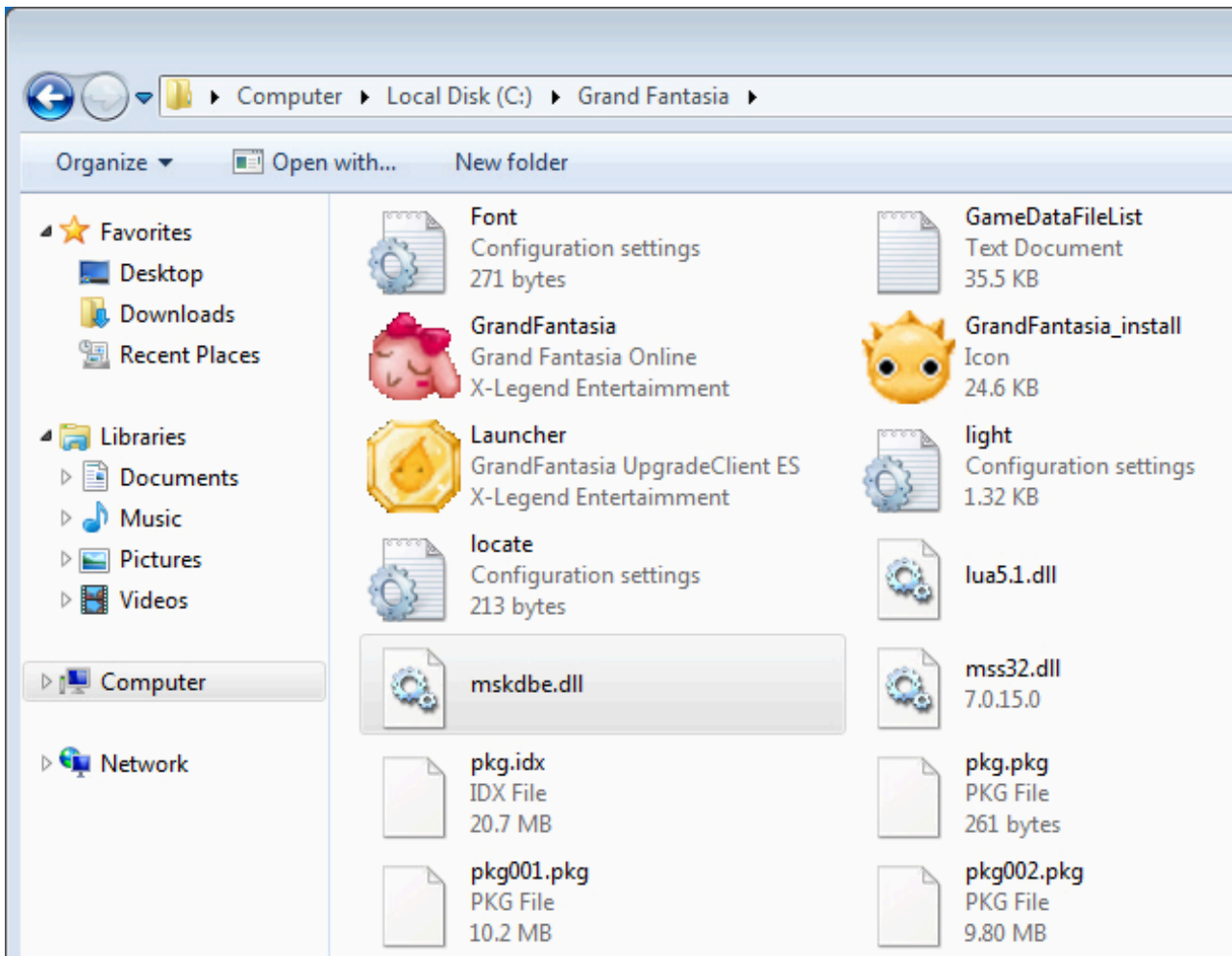


Figure 2: Joao downloader in the game’s installation folder

After the communication with the server has been established, server-side logic decides whether and which components will be sent to the victim’s computer. The Joao components we discovered during our research had backdoor, spying, and DDoS capabilities.

Has my computer been infected? How do I clean it?

Downloading lots of games from different sources and unsure if any of this applies to you? For a quick check of Joao’s presence on your computer, you can try running a search for “mskdb.dll” – if the search returns a result, your computer has most likely been infected with the Joao malware. If no such file is found, it doesn’t automatically mean you haven’t crossed paths with the malware – the crooks can rename the file at any moment.

Therefore, it’s best to use a reliable security solution to detect the threat and remove it for you – you can also use [ESET’s Free Online Scanner](#).

How to stay safe?

With the [gamescom](#) fair underway, let’s take a look at how you can enjoy gaming without being faced with threats.

- **Favor official sources whenever possible.** The MMORPGs targeted by these particular attackers are just a fraction of what might be lurking under download links on thousands of other unofficial websites and forums distributing games.
- **Keep your games updated.** Games, too, have vulnerabilities that can be exploited by malicious actors. Make sure you have all available patches applied.
- **Use a reliable security solution and keep it turned on while gaming.** At any point of your gaming experience, things might take a wrong turn – and you want to be prepared for that. Many security solutions today have a gamer mode option that lets you enjoy your games without interruptions while also keeping your computer protected.
- **Keep in mind that there are other threats targeting gamers.** Check out ESET’s further [security tips for gamers](#).

Additional information

ESET’s systems have detected Joao all around the world. The following map shows which countries have been most affected:

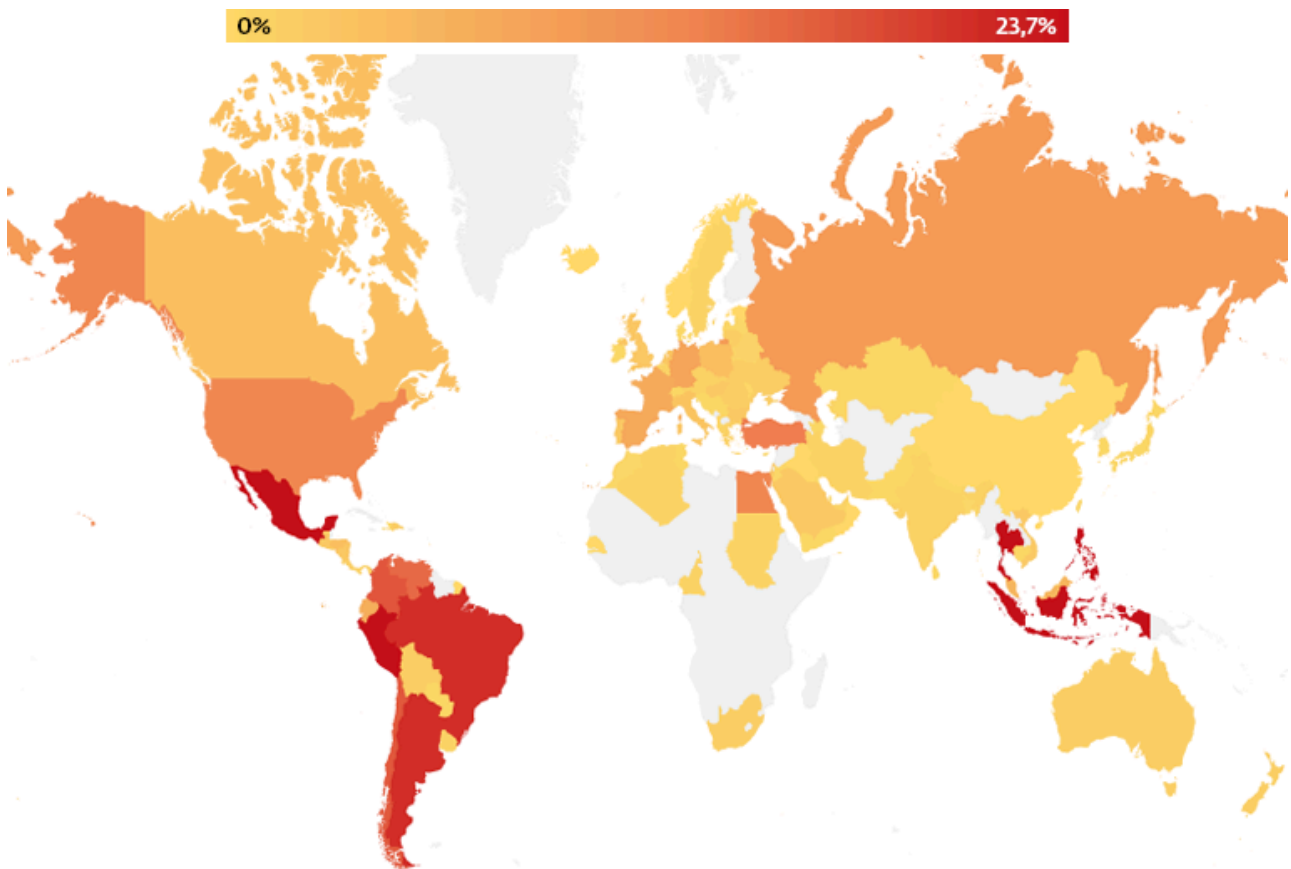


Figure 3: Joao detections distribution based on ESET’s detection systems

IoCs
Joao downloader : mskdbe.dll – Win32/Joao.A
Hashes:

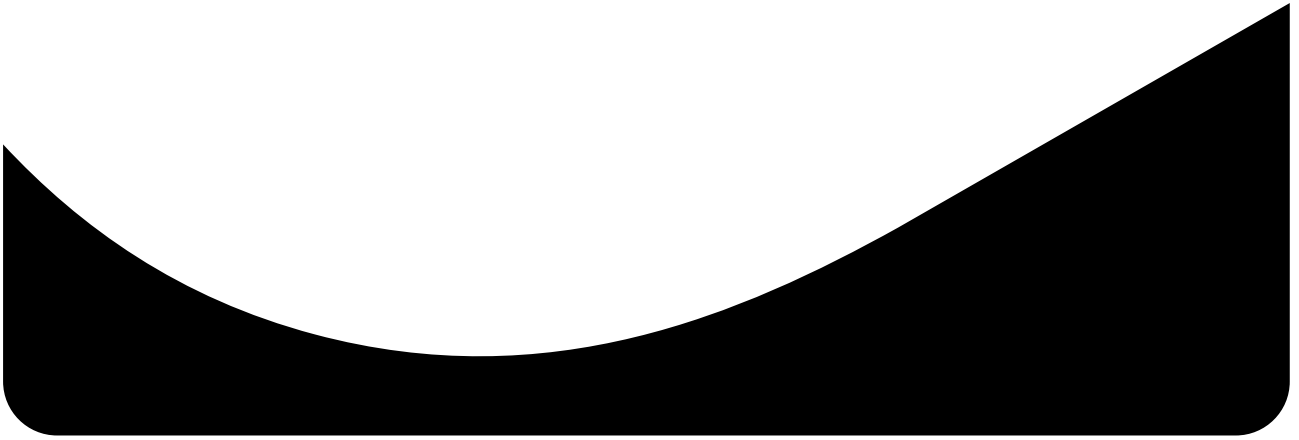
IoCs
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e44dbadcd7d8b768836c16a40fae7d712bfb60e2
b37f7a01c5a7e366bd2f4f0e7112bbb94e5ff589
fdbb398839c7b6692c1d72ac3fcd8ae837c52b47
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c3abd23d775c85f08662a00d945110bb46897c7c
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c1b4c2696294df414cfc234ab50b2e209c724390
844f20d543d213352d533eb8042bd5d2aff4b7d4
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IoCs
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a158f01199c6fd931f064b948c923118466c7384
350fc8286efdf8bcf4c92dc077088dd928439de9
2da8a51359bf3be8d17c19405c930848fe41bb04
Components:
JoaoShepherd.dll – Win32/Joao.B
joaoDLL.dll – Win32/Joao.C
joaoInstaller.exe – Win32/Joao.D
JoaoShepherd.dll (x64) – Win64/Joao.B
joaoInstaller.exe (x64) – Win64/Joao.D
Hashes:
0d0eb06aab3452247650585f5d70fa8a7d81d968
f96b42fd652275d74f30c718cbcd009947aa681a
6154484d4acf83c21479e7f4d19aa33ae6cb716c
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IoCs
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