# Modifying Gameshield Licenses – Nieylana

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## Introduction

This tutorial is designed to accompany the unpacking tutorial presented by SSlEvIN, it does not continue on with what he taught in his tutorial but rather we will take a different approach to GameShield. As with most things there is more than one way to get something done, unpacking is surely the best option but for targets that do not want to cooperate perhaps the next best option is to attempt to modify the license files.

In this tutorial we will cover what is needed to properly modify a license file. With the license files open to the world we can manipulate it as we see fit (extend trial period, trial reset, etc). The implications of what is to be detailed here has not been fully explored and it is the wish of the author that you take this information and play around with other applications to see what you can do as far as license modifications go. Some of the basic mods will be detailed here in the course of our learning but it is by no means an exhaustive list.

Because this tutorial has a lot of information to cover in a short time, some things may not be explained to the fullest extent possible, the author assumes that you have a fairly decent grasp on reverse engineering, basic knowledge of cryptography (Blowfish) and the use of common reversing tools such as LordPE.

The information contained in this tutorial is meant for academic purposes only, and is not the work of any one individual. Many have helped with the information provided within the next pages (and tools). Without them and their desire for helping others neither this paper nor the tools provided would have come into being.

The tools provided within this package are provided solely to demonstrate that the techniques we've learned do in fact work. They are not given out so that users may cheat well deserving authors out of money that they're due. If you like an application/game that is protected with GS, BUY IT! Enough of that stuff, let's have some phun!

--Nieylana

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## Disclaimers

All code included with this tutorial is free to use and modify; we only ask that you mention where you found it. This tutorial is also free to distribute in its current unaltered form, with all the included supplements. All the commercial programs used within this document have been used only for the purpose of demonstrating the theories and methods described. No distribution of patched applications has been done under any media or host. The applications used were most of the times already been patched, and cracked versions were available since a lot of time. ARTeam or the authors of the paper cannot be considered responsible for damages to the companies holding rights on those programs. The scope of this tutorial as well as any other ARTeam tutorial is of sharing knowledge and teaching how to patch applications, how to bypass protections and generally speaking how to improve the RCE art. We are not releasing any cracked application.

## Verification

ARTeam.esfv can be opened in the ARTeamESFVChecker to verify all files have been released by ARTeam and are unaltered. The ARTeamESFVChecker can be obtained in the release section of the ARTeam site:
h tt p :// r e l ea s e s . a c ce ss r oo t . c o m

## Table of Contents

# 1. Modifying GameShield Licenses

## 1.1 Abstract

This tutorial will cover the process of modifying a GameShield (from here on refered to as GS) protected application's license file. In order to do so we must reverse the GS protector to find potential starting points for our attack. Once attack points have been located we must successfully attack the target to recover the required information for the decryption/encryption of the license files. After decrypting the files we must learn the license file format and figure out useful modifications for the files.

Also covered in this tutorial will be how to 'trial reset' an application that's is protected with GS, the ability to trial reset is important for those applications whose license files have become corrupted and for those applications that refuse to unpack via SSlEvIN's unpack method.

## 1.2 Targets

In order to prevent lengthy downloads I've protected a copy of ARTeam's Xilisoft Crypter tool and set it as a 30-minute demo. It can be found in this tutorial package under the folder 'target'.

This application will be the main focus for the duration of the tutorial, but things learned in this tutorial can easily be used on other 'real' targets if you so choose.

## 1.3 Tools Used

- ☐ Olly debugger v1.10 (um… what's this for again ☐ )
  - http://diablo2oo2.di.funpic.de/downloads/d2k2.ollydbg.public.rar
- ☐ Lord PE (for dumping things)
  - http://www.woodmann.com/collaborative/tools/images/Bin_LordPE_2010-6-29_3.9_LordPE_1.41_Deluxe_b.zip
- ☐ DCPCrypt Library (for analysis of their Algorithms)
  - http://www.cityinthesky.co.uk/files/dcpcrypt2.zip
- ☐ Some brain as usual … (this is NOT optional)
  - No download available ☐
- ☐ Maybe some things I forgot to put here lol

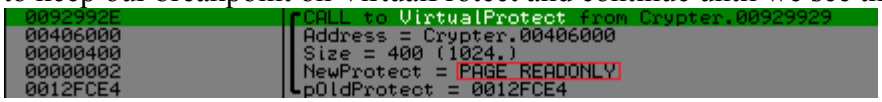
## 2. Reversing The Shell

As with any protection system, one important step is to reverse the shell to the extent that we need to be able to successfully attack their system. In our case we are interested in the license files of GS.

### 2.1 Finding/Dumping Protector DLL

Much like Armadillo for those familiar with it, GS embeds a protector dll in the executable file that is unpacked into memory at runtime. This dll (as we'll see) handles most if not all of their protection logic. Before we can do anything, we first need to find this DLL and dump it to disk to better analyze things

First thing to do is fix the PAGE_NO_ACCESS as mentioned in SSlEvIN's tutorial, but this time we're going to keep our breakpoint on VirtualProtect and continue until we see this in the stack:




Once this is found press Alt+F9 to return to user code, we are now in the DLL unpacking routine. I've taken a snapshot of the code and commented where necessary: