Personal Research:
Installer

Hello!

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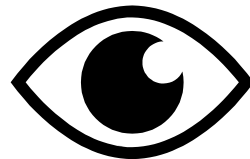
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Let's review some concepts

What is an Installer?

I'll explain what Installers are, what they are used for, important information, and more!

Have you seen it in games?

I'll show some examples of Installers in real life.

What is the approach to this problem in this research?

I'll explain important things to know in order to develop an installer for Windows OS

Can it be improved?

A short list on how using the tools I will introduce, you can go beyond.

How can YOU do it?

This is the practical side. I will teach you what to do with small steps to create your own Installer.

What to do next?

If you want to continue learning about installers or what I have shown you isn't for you, you have more options! You just have to wait for this part

1.

What is an Installer?

The basics of the basics

What is an Installer?

- Definition
- Concepts
- Purpose
- Deployment

What is the **Definition**?

- An **Installer** is used to install software programs on a system.
- **simplify** the process of installing software.
- depends on your **OS** and the **program** you are installing.

What should you know?

- Requisites before installing software
  - your computer meets the system/software requirements of the program you are attempting to install
  - check the manual or readme file
  - first close or disable any running programs
  - reboot the computer

What is their purpose?

- Convenient
- Marketing tool
- Upgrade and patching features
- Uninstall and cleanup
- Digital certificates

Why is **deployment** for Installers

- Built-in essentials provided by deployment tools:
  - ☐ check if the system is suitable for installation
  - ☐ install prerequisites and runtimes
  - ☐ provide a competent GUI
  - ☐ allow installation in silent mode
- Because:
  - ☐ Errors are cumulative
  - ☐ A disciplined approach is needed
  - ☐ Setup requirements are always changing and growing
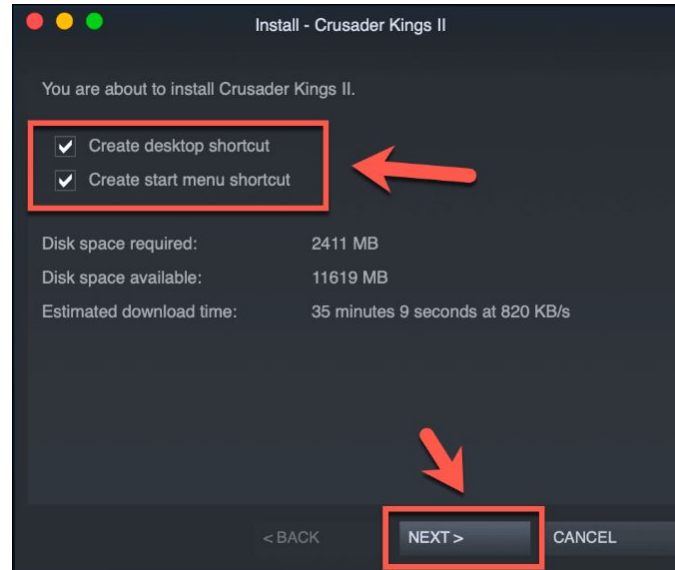 - ☐ Basically, you can't do everything!

2.

Have you seen it in games?
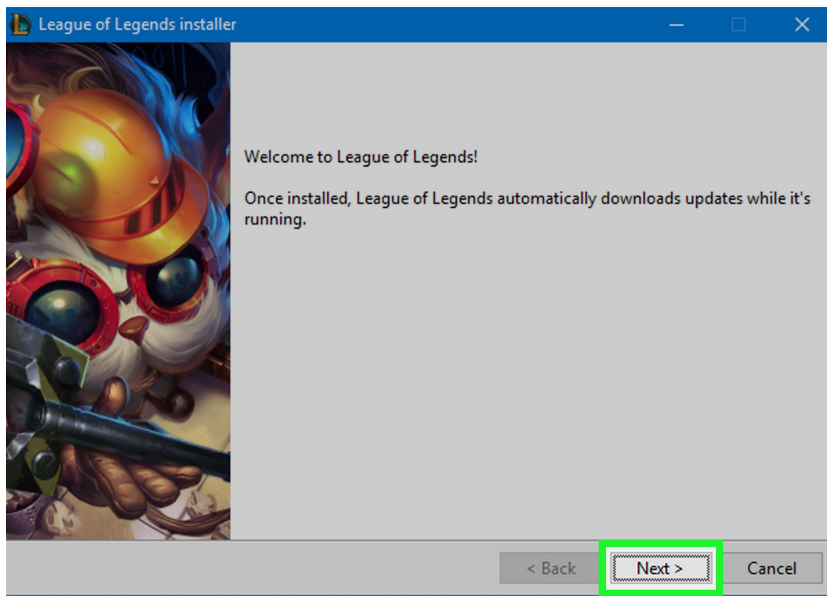
Usage in action

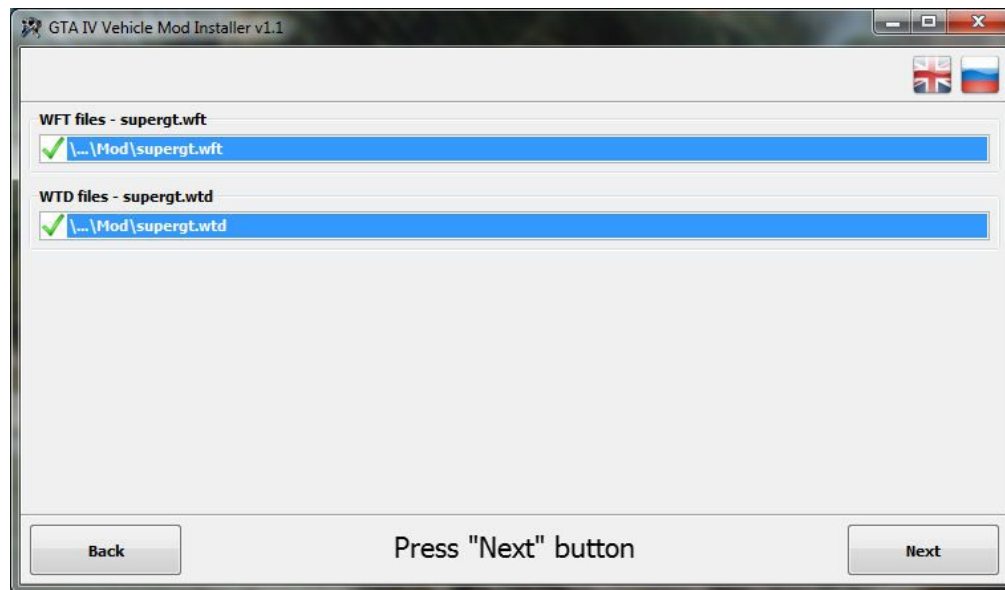# Have you seen it in <mark>games</mark>?

- Game shops
- Games
- Mods

Game Shops

Games

Mods

What is the approach to this problems in this research?
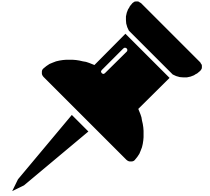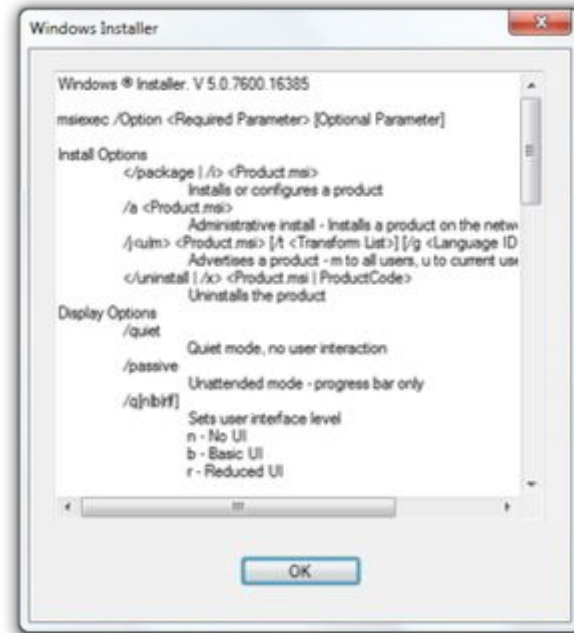
The theory

3.

What is the approach to this problem in research?

- MSI
- Why use MSI?
- How does it work?
- MSI files
- How to sign an Application Packaging
- Virtual Machines and VirtualBox
- NSIS and NSIS-QSSG

MSI

- ■ installer package file format used by Windows
- ■ used for installation, storage and removal of programs
- ■ Freeware License

Why use MSI?

- Automatic, install, uninstall, reinstall, repair support and add/remove components
- maintenance interface.
- repair functionality is automatically run every time a shortcut for the application is activated
- Installer's advertising feature

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How does it work?

Implementation
- Repackaging or transformation
- Merge modules
- Distribution (Microsoft IntelliMirror® or enterprise software distribution mechanism)
- Installation with higher privileges
- Component (redirection)
- Rollback support

Maintenance
- Auto-repair
- Service packs
- Patches and hot fixes
- Upgrades

Retirement
- Uninstallation

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MSI files

- .msi file
- Msiexec.exe
- MSI Extensions

- Others:
  - ☐ .msi: Windows Installer database
  - ☐ .msm: Windows Installer merge module
  - ☐ .msp: Windows Installer patch
  - ☐ .mst: Windows Installer transform
  - ☐ .idt: Exported Windows Installer database table
  - ☐ .cub: Validation module
  - ☐ .pcp: Windows Installer patch creation file

How to **sign** an Application Package

- Digital signature: verify the authenticity of digital messages or documents.
- [Here](#) you have a tutorial

Virtual Machine and VirtualBox

- Virtual Machine:
  - emulation of a computer system
  - The main purpose of VM is to test software in the safest way
- Oracle VM VirtualBox:
  - free and open-source compatible with Windows, macOS, Linux, Solaris and OpenSolaris.
  - here you have a Tutorial

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NSIS and **NSIS-QSSG**

- **NSIS:**
    - ☐ is a professional open source system to create Windows installers
    - ☐ Many features: most important, it's small and flexible
- **NSIS-QSSG:**
    - ☐ Is a script generator for NSIS

nullsoft scriptable install system

4.

Can it be improved?

Go beyond the basics

Can it be **improved**?

- Yes! With your own code for example
- Custom actions

5.

How can YOU do it?

The practice

How can YOU do it?

- Exercices
- Solution

Summary of the exercices

- Executable from a .zip
- .nsi language
- Create/Generate a script with NSIS-QSSG
- Personalize your installer

TODO0–1:
Executable from a .zip

- Experiment with NSIS to create an Installer from a .zip

TODO0-2:
Learn the NSI language

- ■ You will be provided with a .nsi script with errors, which you have to find
- ■ You are also provided with a link to the language summary

TODO0:

Icon game

- In Visual Studio, you need to add an icon to your game.
- You need a .ico image

TODO1:
Using NSIS-QSSG to create a basic script

- NSIS-QSSG is very intuitive. You have to use it to generate a script for an Installer

TODO2:

Icon Menu

- One of the many personalization features is adding an Image to your heather.
- You need a .bmp image

TODO3:

Icon executable

■ One of the many personalization features is adding an Image to your installer's executable.
■ You need a .ico image

How can YOU do it?

6.

What to do next?

Learn more about this topic

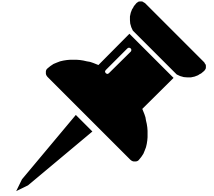# What to do next?

- WiX Toolset
- Inno Setup
- Advanced Installer

WiX Toolset

- builds Windows Installer packages from [XML]
- C++ and C#
- target OS is always Windows

☐ [Tutorial]

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Inno Setup

- ■ free installer for Windows programs.
- ■ Many features
  - ☐ Uninstall capabilities
  - ☐ Shortcuts
  - ☐ Multilingual
  - ☐ Supports encrypted and passworded installs
  - ☐ And more!

☐ Tutorial

Advanced Installer

- Powerful and easy
- Paid software, trial 30 days

☐ [Tutorial](#)

Thanks!

Any questions?

You can find me at

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Credits

Special thanks to all the people who made and released these awesome resources for free:

- ■ Presentation template by <u>SlidesCarnival</u>
- ■ Photographs by <u>Unsplash</u>