Introduction To
Git and GitHub

About Me

Abin Joseph

S7 CSE

Full Stack WEB Developer

Currently working as an intern at **Emvigo Technologies**

Introduction to
Git and GitHub

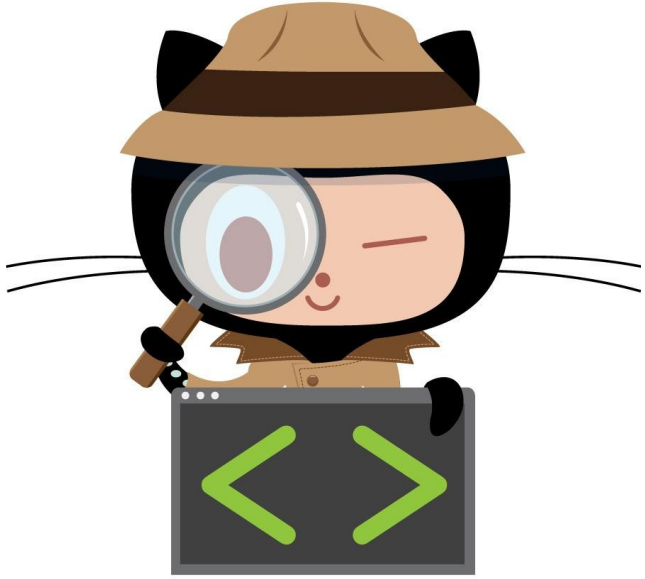
Adi Shankara

@abjs

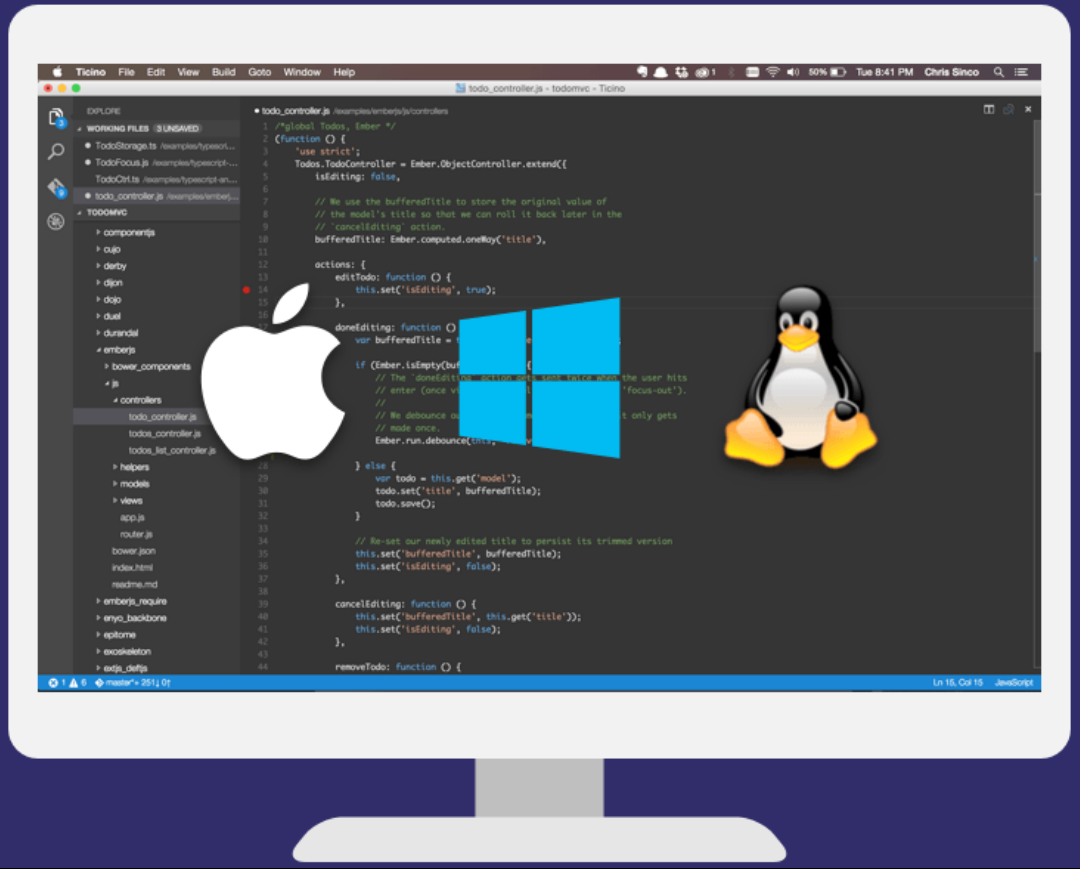
Abin Joseph

Before we start...

- Git Installed (Install from git-scm.org)
- GitHub account
- Your favorite editor



Why Vs Code ?


Ticino File Edit View Build Goto Window Help
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todo_controller.js - todomvc - Ticino
EXPLORE
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TODOMVC
componentjs
cujo
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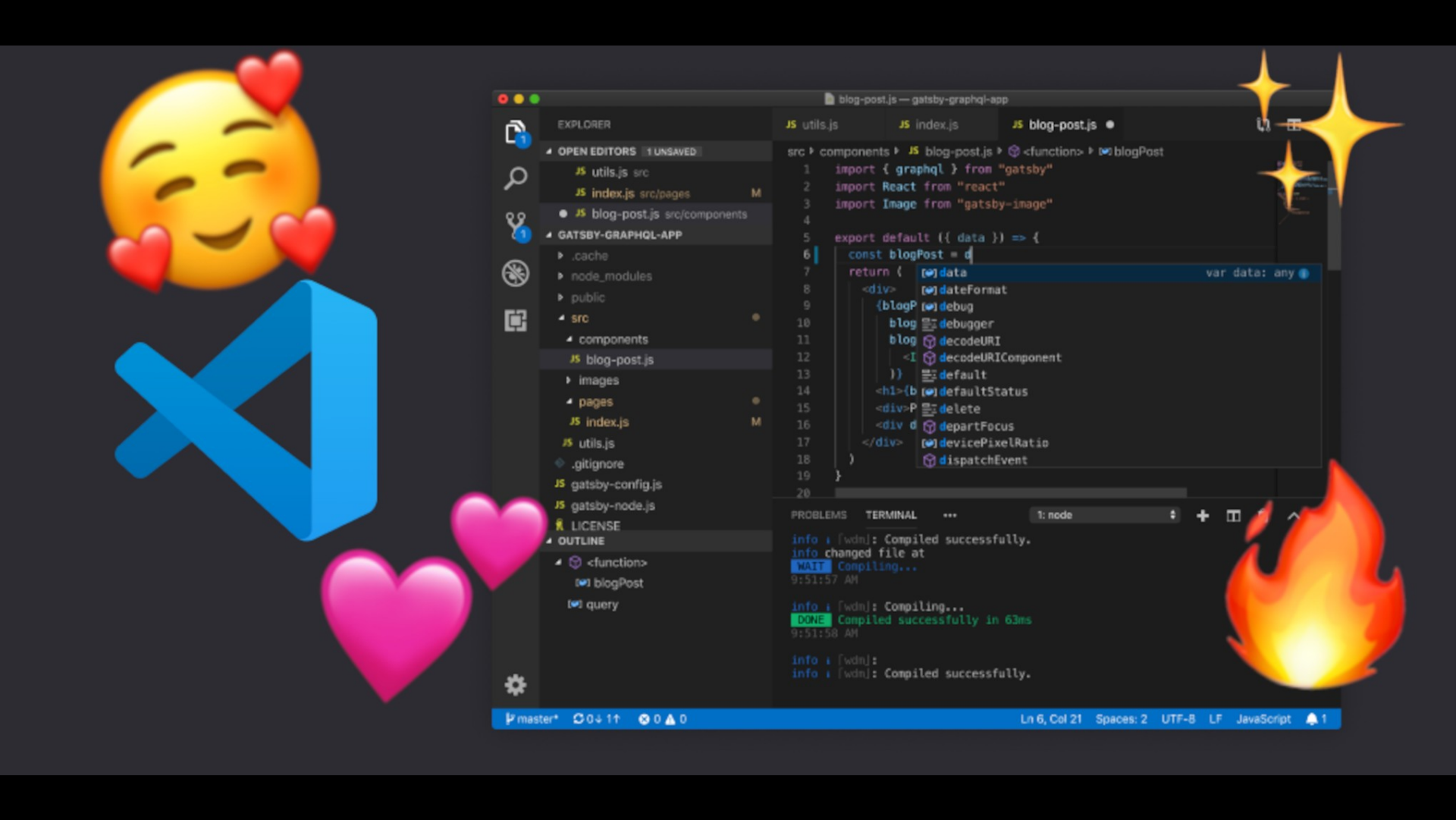
js
controllers
todo_controller.js
todos_controller.js
todos_list_controller.js
helpers
models
views
app.js
router.js
bower.json
index.html
readme.md
emberjs_require
enyo_backbone
epitome
exoskeleton
extjs_deftjs
/*global Todos, Ember */
(function () {
'use strict';
Todos.TodoController = Ember.ObjectController.extend({
isEditing: false,
// We use the bufferedTitle to store the original value of
// the model's title so that we can roll it back later in the
// `cancelEditing` action.
bufferedTitle: Ember.computed.oneWay('title'),
actions: {
editTodo: function () {
this.set('isEditing', true);
},
doneEditing: function ()
var bufferedTitle =
if (Ember.isEmpty(buf
// The `doneEditing` action gets fired twice when the user hits
// enter (once v
'focus-out').
//
// We debounce o
t only gets
// made once.
Ember.run.debounce(
} else {
var todo = this.get('model');
todo.set('title', bufferedTitle);
todo.save();
}
// Re-set our newly edited title to persist its trimmed version
this.set('bufferedTitle', bufferedTitle);
this.set('isEditing', false);
},
cancelEditing: function () {
this.set('bufferedTitle', this.get('title'));
this.set('isEditing', false);
},
removeTodo: function () {
Ln 15, Col 15
JavaScript

Vs Code Built-In GIT Support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index.js src/pages M
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OUTLINE
<function>
blogPost
query
utils.js
index.js
blog-post.js
src ▸ components ▸ blog-post.js ▸ <function> ▸ blogPost
import { graphql } from "gatsby"
import React from "react"
import Image from "gatsby-image"
export default ({ data }) => {
const blogPost = d
return (
data var data: any
dateFormat
debug
debugger
decodeURI
decodeURIComponent
default
defaultStatus
delete
departFocus
devicePixelRatio
dispatchEvent
PROBLEMS TERMINAL
1: node
info ℹ [wdm]: Compiled successfully.
info changed file at
WAIT Compiling...
9:51:57 AM
info ℹ [wdm]: Compiling...
DONE Compiled successfully in 63ms
9:51:58 AM
info ℹ [wdm]:
info ℹ [wdm]: Compiled successfully.
master*
Ln 6, Col 21
Spaces: 2
UTF-8
LF
JavaScript

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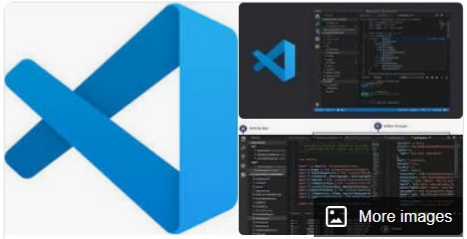
Which is better VS or VS code?



Visual Studio Code

Visual Studio Code is a freeware source-code editor made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git. Wikipedia

Written in: TypeScript, JavaScript, HTML, and CSS

Developer(s): Microsoft

Stable release: 1.55.2 (13 April 2021; 26 days ago)

Initial release: April 29, 2015; 6 years ago

Preview release: 1.55.0-insider

Size: Windows: 40.8–68.3 MB; Linux: 46.5–66.6 MB; macOS: 67.5 MB

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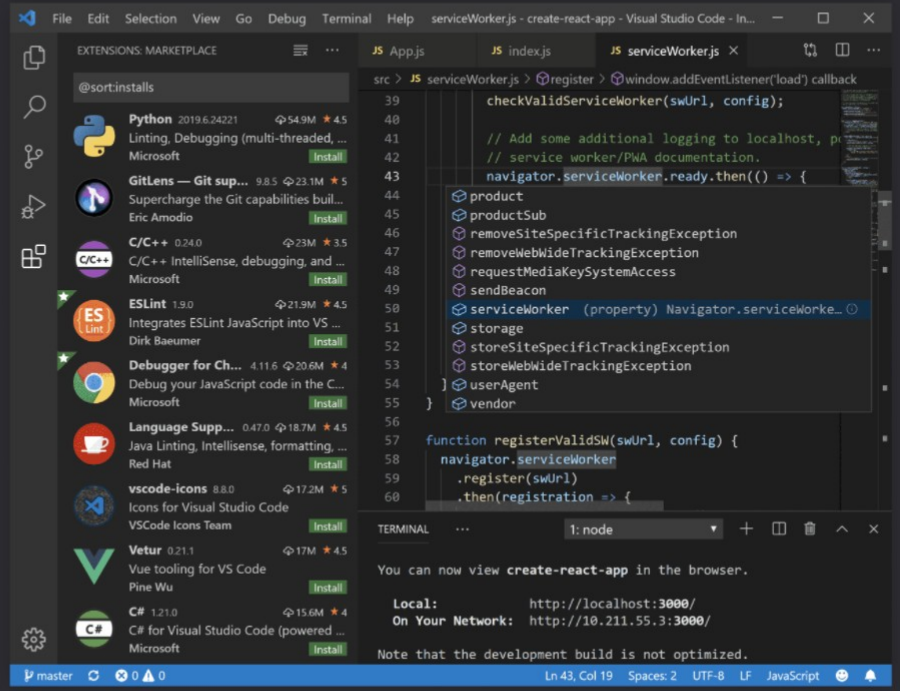

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Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity). Begin your journey with VS Code with these introductory videos.

Visual Studio Code in Action

```
var server = express();
server.use(bodyParser.json);

server.g
        get  (property) Application.get: ((name: string)…
        getMaxListeners
```

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        get  (property) Application.get: ((name: string)…
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```

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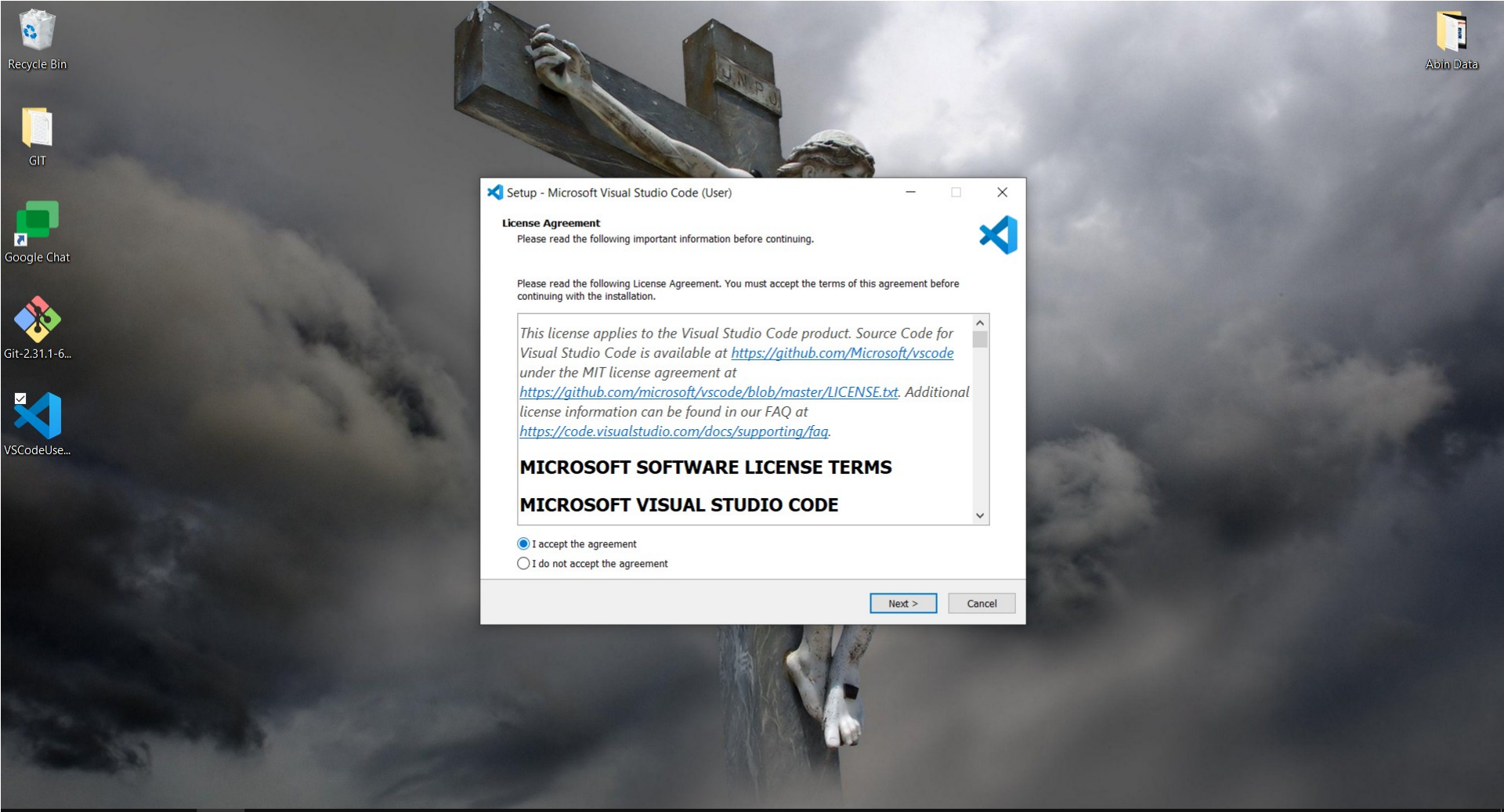
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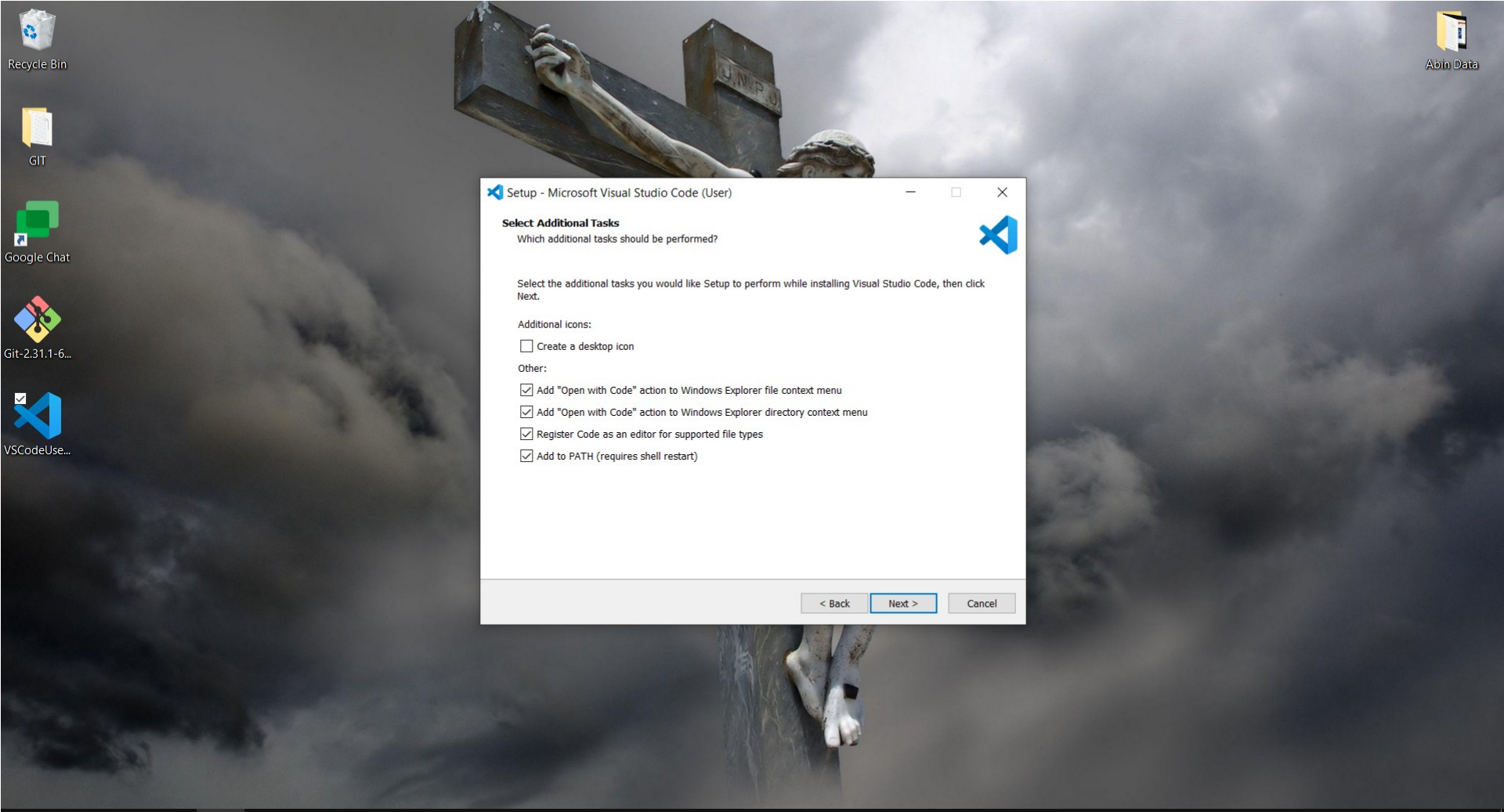
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VSCodeUse...
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Select the additional tasks you would like Setup to perform while installing Visual Studio Code, then click Next.
Additional icons:
Create a desktop icon
Other:
Add "Open with Code" action to Windows Explorer file context menu
Add "Open with Code" action to Windows Explorer directory context menu
Register Code as an editor for supported file types
Add to PATH (requires shell restart)
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GIT

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Git

Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency. **Git** is easy to learn and has a tiny footprint with lightning fast performance.

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GUI Clients. **Git** comes with built-in GUI tools (**git**-gui, gitk), but there are several third-party tools for users looking for a platform-specific experience. View GUI ...

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What Git means?

Git

Software

Git is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows. Wikipedia

Developer(s): Junio Hamano and others

Stable release: 2.31.1 / 26 March 2021; 44 days ago

Initial release: 7 April 2005; 16 years ago

Original author(s): Linus Torvalds

Operating system: POSIX (Linux, macOS, Solaris,

https://www.google.com/search?q=git&sxsrf=ALeKk0018HrQfahyS8GtKRRaMXXzhI17oA:1621655097851&tbm=isch&source=iu&ictx=1&fir=ISKXxo67NRC4TM%252C8968Bbp6gWV1xM%252C_&vet=1&usg=AI4_-kTU4IWW1mWn6OziqG_OG-kHKb-nfw&sa=X&ved=2ahUKEwjXs7i...

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Git

git-scm.com

git --distributed-even-if-your-workflow-isnt

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Git is a free and open source distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is easy to learn and has a tiny footprint with lightning fast performance. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like cheap local branching, convenient staging areas, and multiple workflows.

About

The advantages of Git compared to other source control systems.

Documentation

Command reference pages, Pro Git book content, videos and other material.

Downloads

GUI clients and binary releases for all major platforms.

Community

Get involved! Bug reporting, mailing list, chat, development and more.

Pro Git by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.

Latest source Release

2.31.1

Release Notes (2021-03-26)

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File name: Git-2.31.1-64-bit.exe
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Git, it's time to start using it.

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Downloading Git

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You are downloading the latest (**2.31.1**) **64-bit** version of **Git for Windows**. This is the most recent maintained build. It was released **about 2 months ago**, on 2021-03-27.

Click here to download manually, if your download hasn't started.

Other Git for Windows downloads

Git for Windows Setup
32-bit Git for Windows Setup.

64-bit Git for Windows Setup.

Git for Windows Portable ("thumbdrive edition")
32-bit Git for Windows Portable.

64-bit Git for Windows Portable.

The current source code release is version **2.31.1**. If you want the newer version, you can build it from the source code.

Now What?

Git-2.31.1-64-bit.exe
https://github-releases.git...

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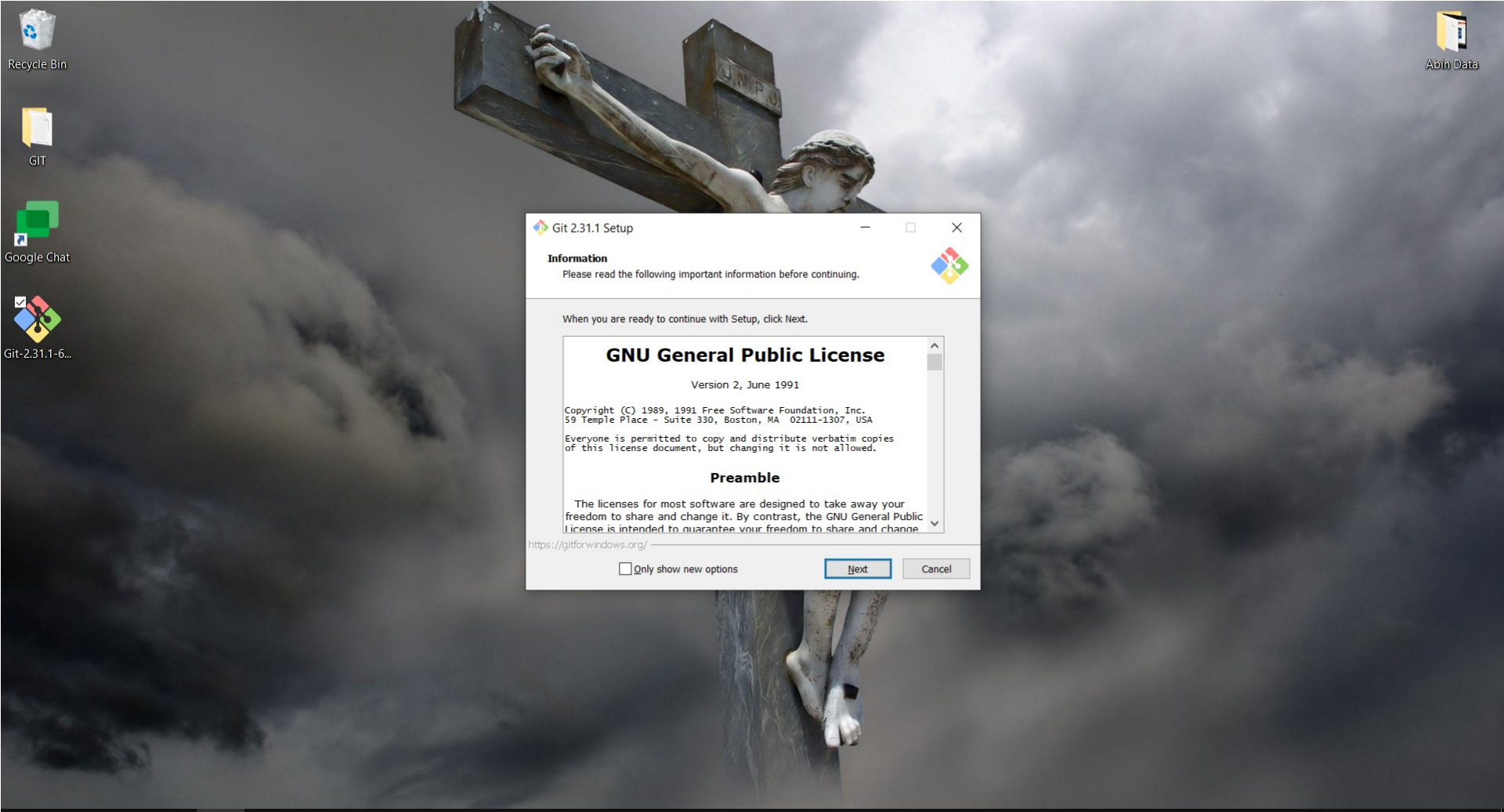
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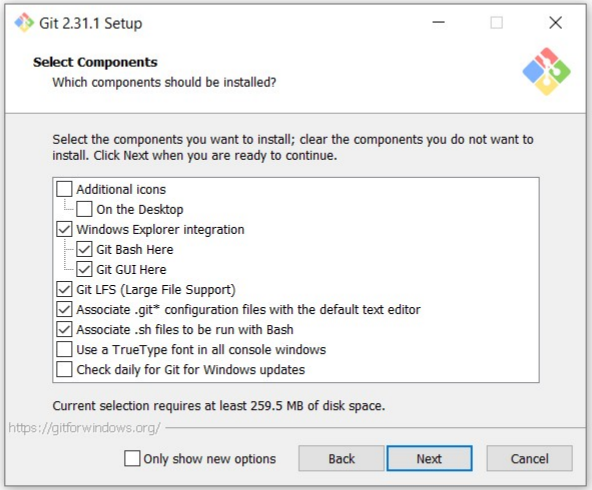

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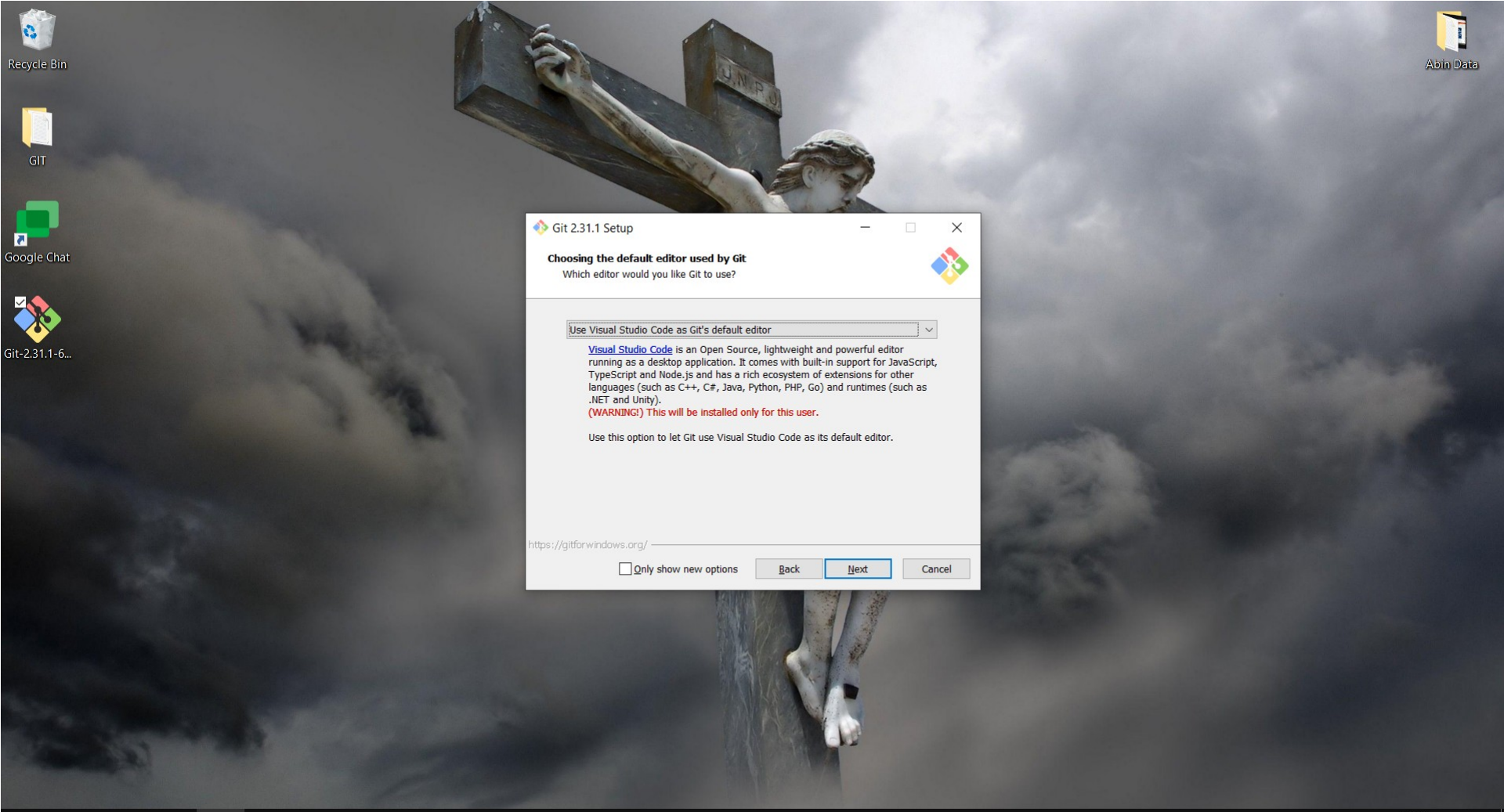
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Abin Data
Git 2.31.1 Setup
Choosing the default editor used by Git
Which editor would you like Git to use?
Use Visual Studio Code as Git's default editor
Visual Studio Code is an Open Source, lightweight and powerful editor running as a desktop application. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).
(WARNING!) This will be installed only for this user.
Use this option to let Git use Visual Studio Code as its default editor.
https://gitforwindows.org/
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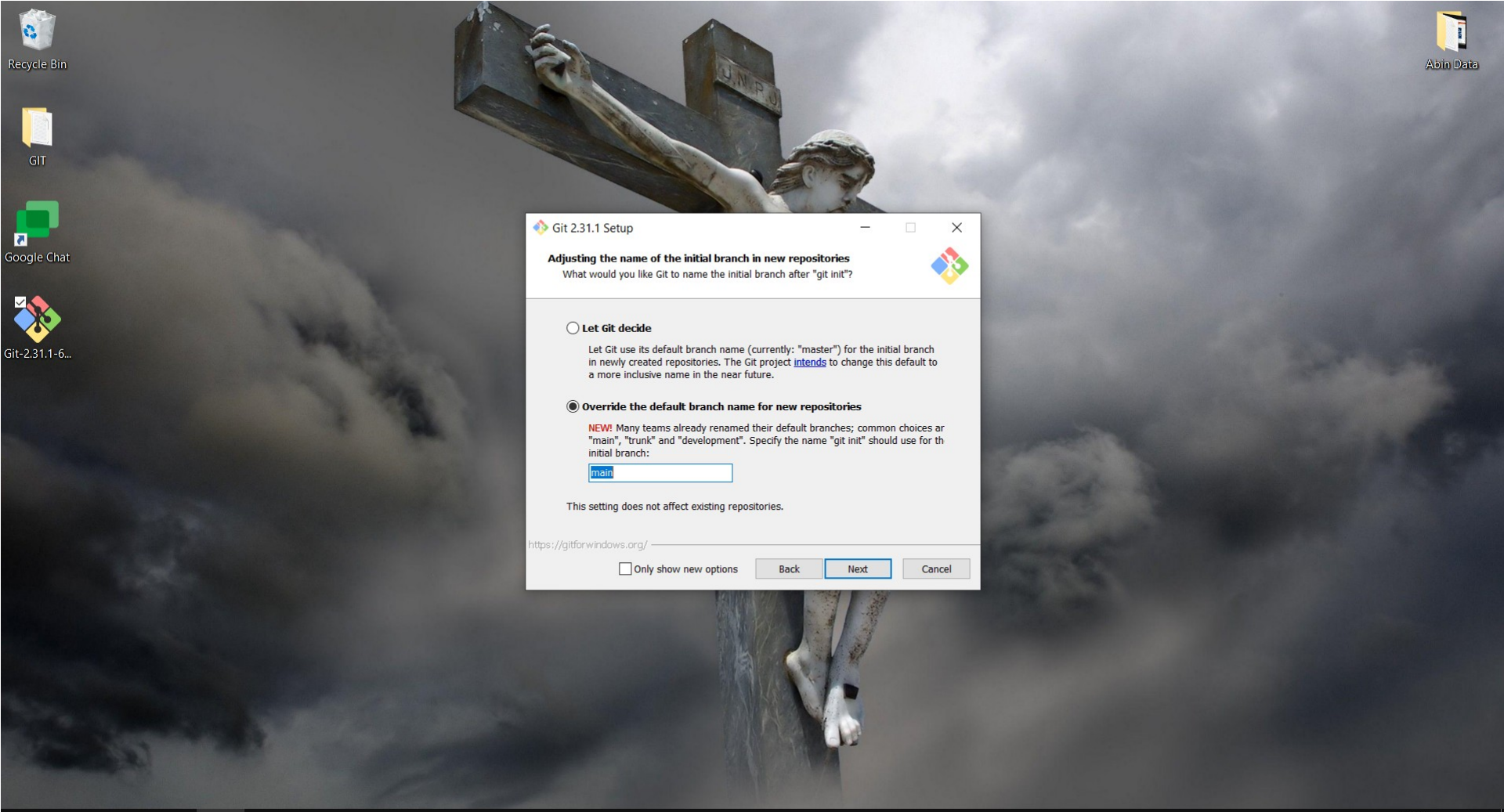
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Git 2.31.1 Setup
Adjusting the name of the initial branch in new repositories
What would you like Git to name the initial branch after "git init"?
Let Git decide
Let Git use its default branch name (currently: "master") for the initial branch in newly created repositories. The Git project intends to change this default to a more inclusive name in the near future.
Override the default branch name for new repositories
NEW! Many teams already renamed their default branches; common choices ar "main", "trunk" and "development". Specify the name "git init" should use for th initial branch:
main
This setting does not affect existing repositories.
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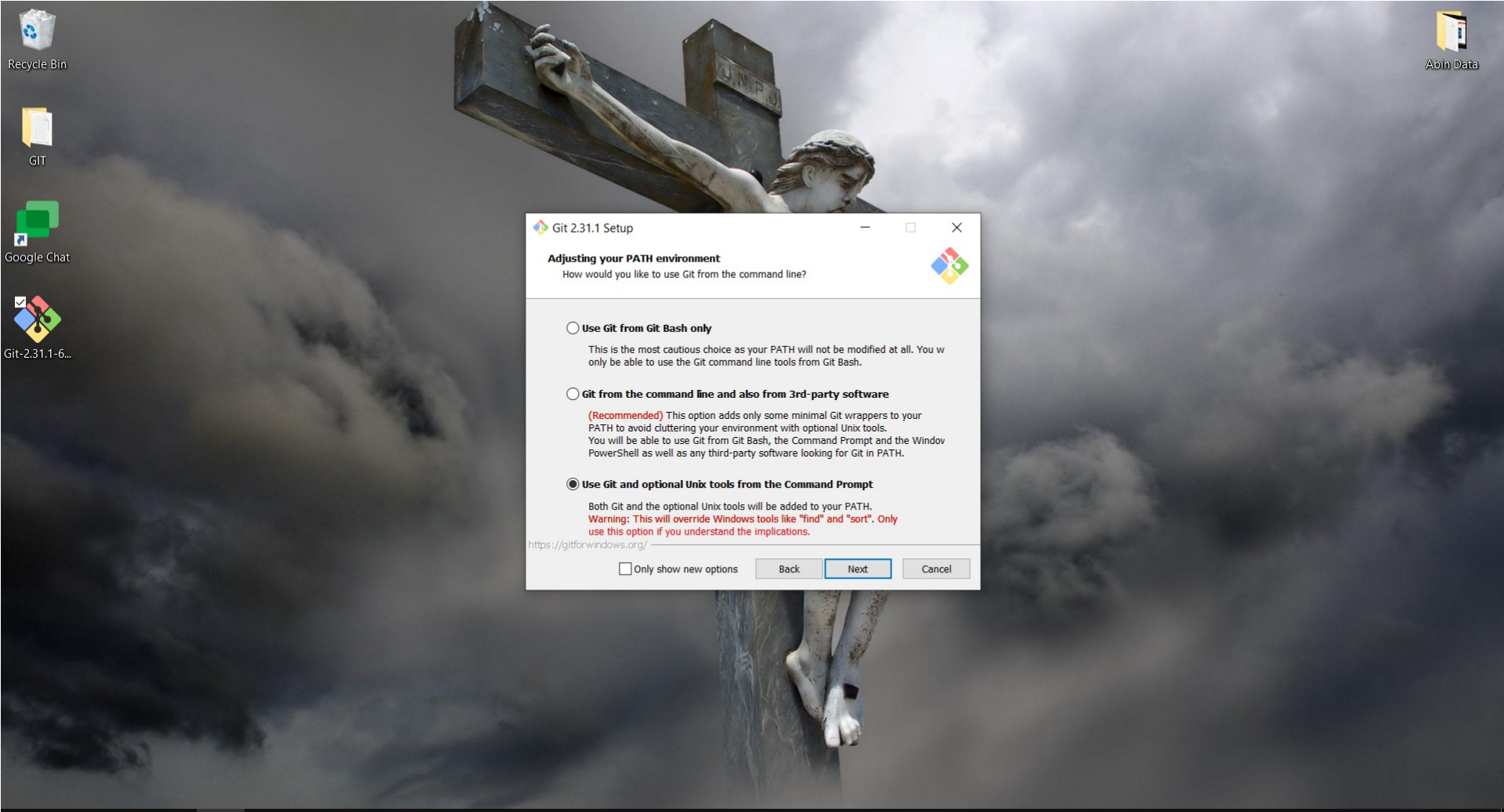
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Git 2.31.1 Setup
Adjusting your PATH environment
How would you like to use Git from the command line?
Use Git from Git Bash only
This is the most cautious choice as your PATH will not be modified at all. You w
only be able to use the Git command line tools from Git Bash.
Git from the command line and also from 3rd-party software
(Recommended) This option adds only some minimal Git wrappers to your
PATH to avoid cluttering your environment with optional Unix tools.
You will be able to use Git from Git Bash, the Command Prompt and the Windov
PowerShell as well as any third-party software looking for Git in PATH.
Use Git and optional Unix tools from the Command Prompt
Both Git and the optional Unix tools will be added to your PATH.
Warning: This will override Windows tools like "find" and "sort". Only
use this option if you understand the implications.
https://gitforwindows.org/
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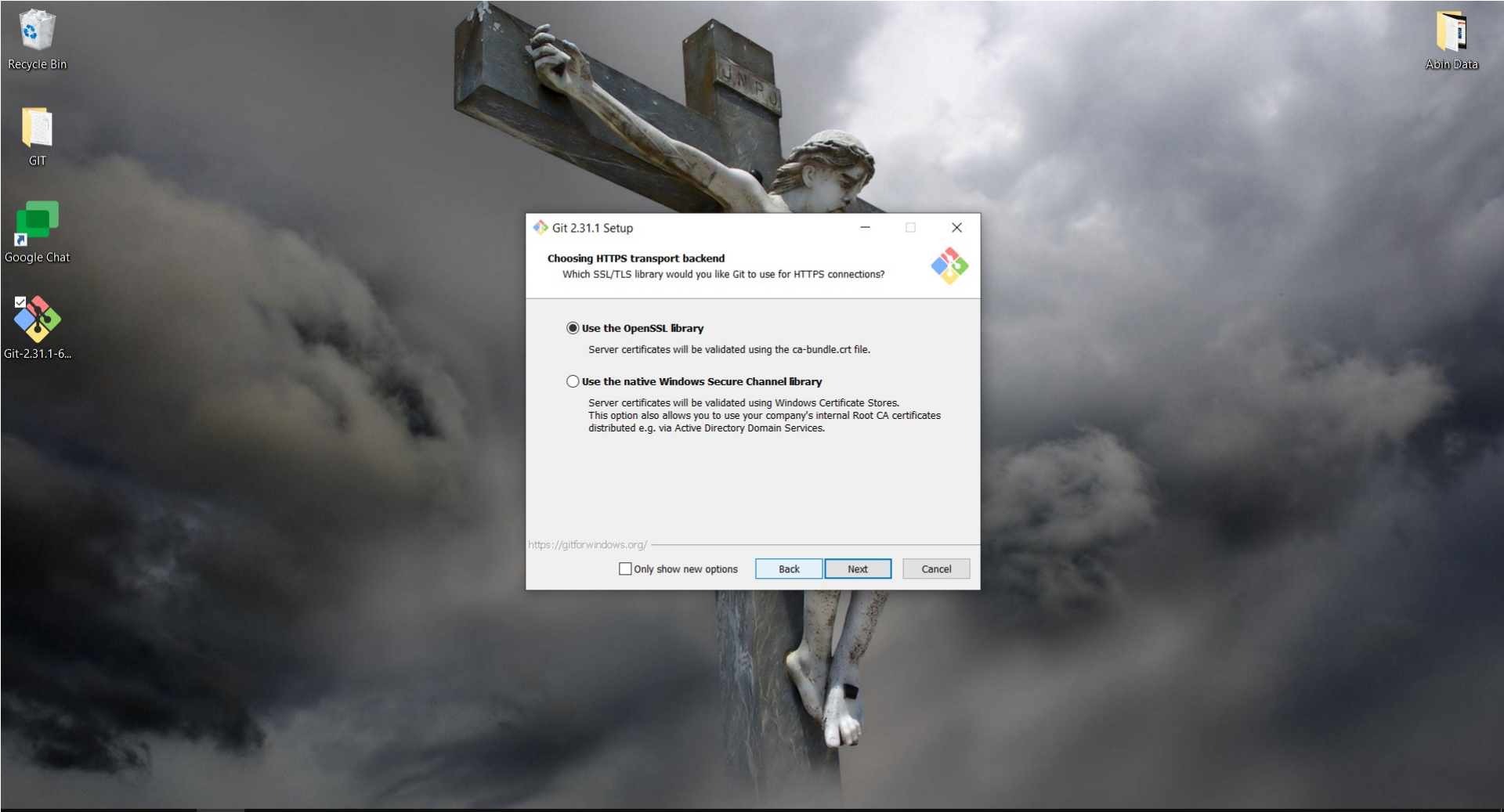
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Git 2.31.1 Setup
Choosing HTTPS transport backend
Which SSL/TLS library would you like Git to use for HTTPS connections?
Use the OpenSSL library
Server certificates will be validated using the ca-bundle.crt file.
Use the native Windows Secure Channel library
Server certificates will be validated using Windows Certificate Stores.
This option also allows you to use your company's internal Root CA certificates
distributed e.g. via Active Directory Domain Services.
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09:18
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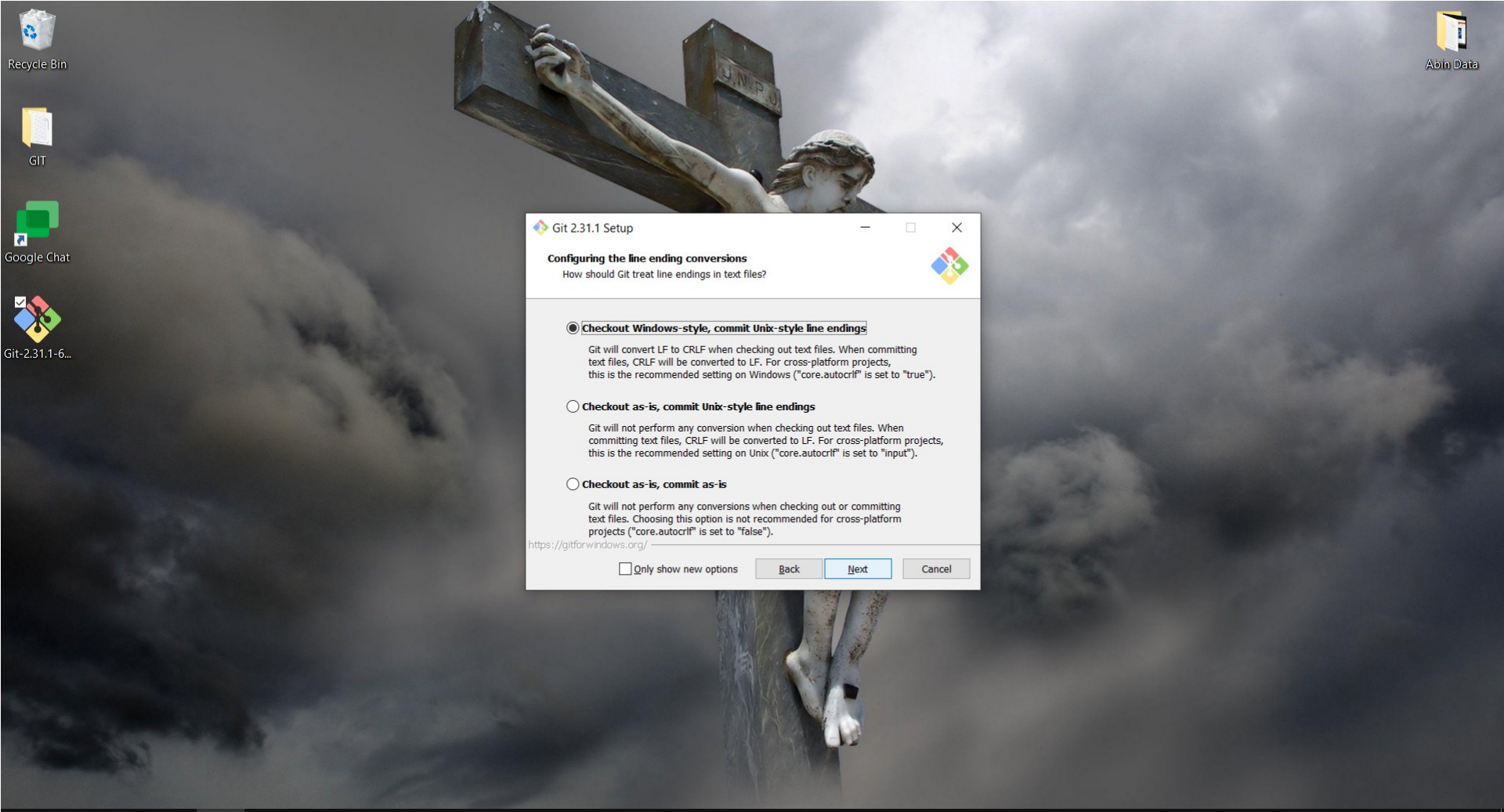
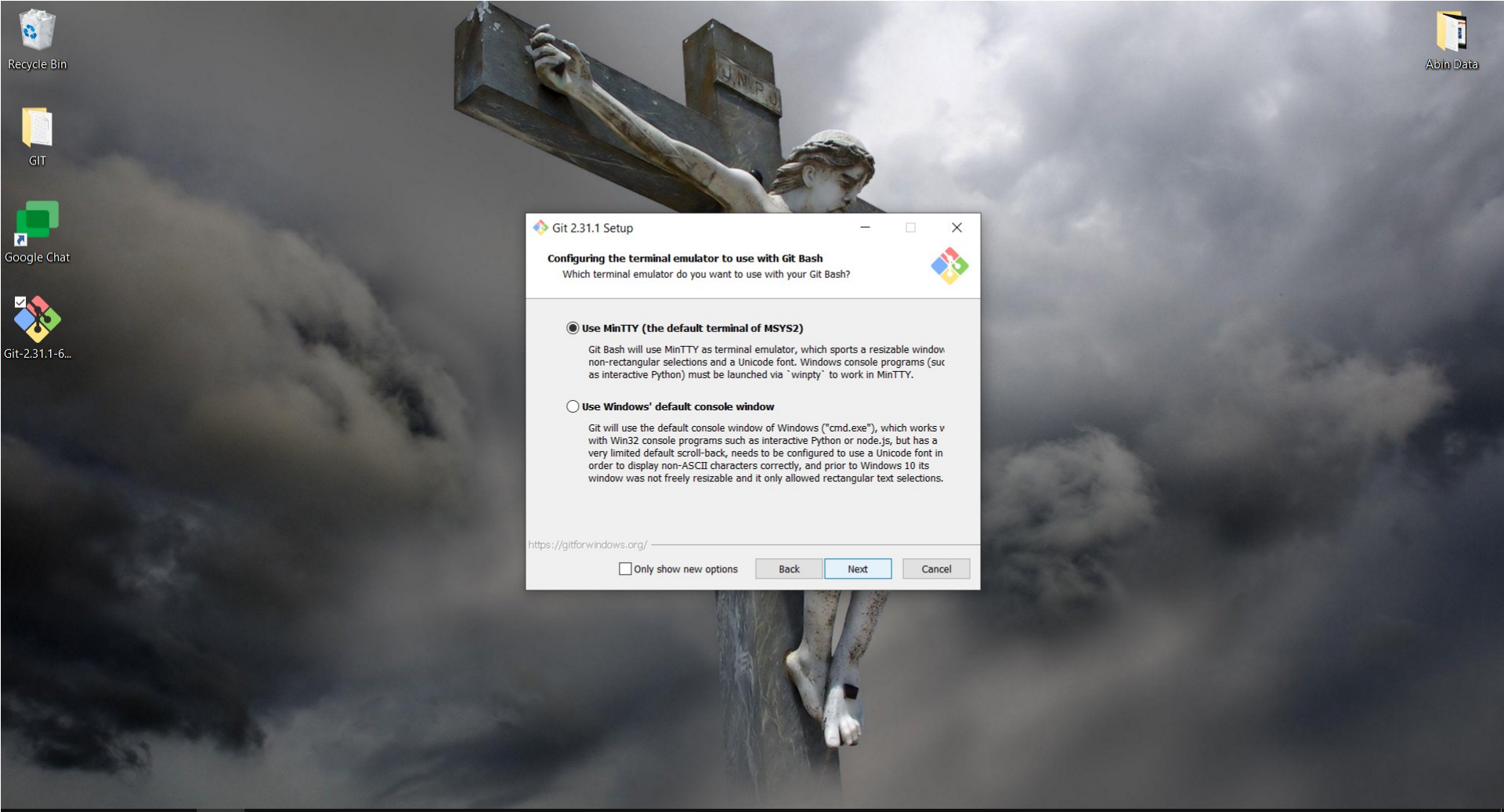
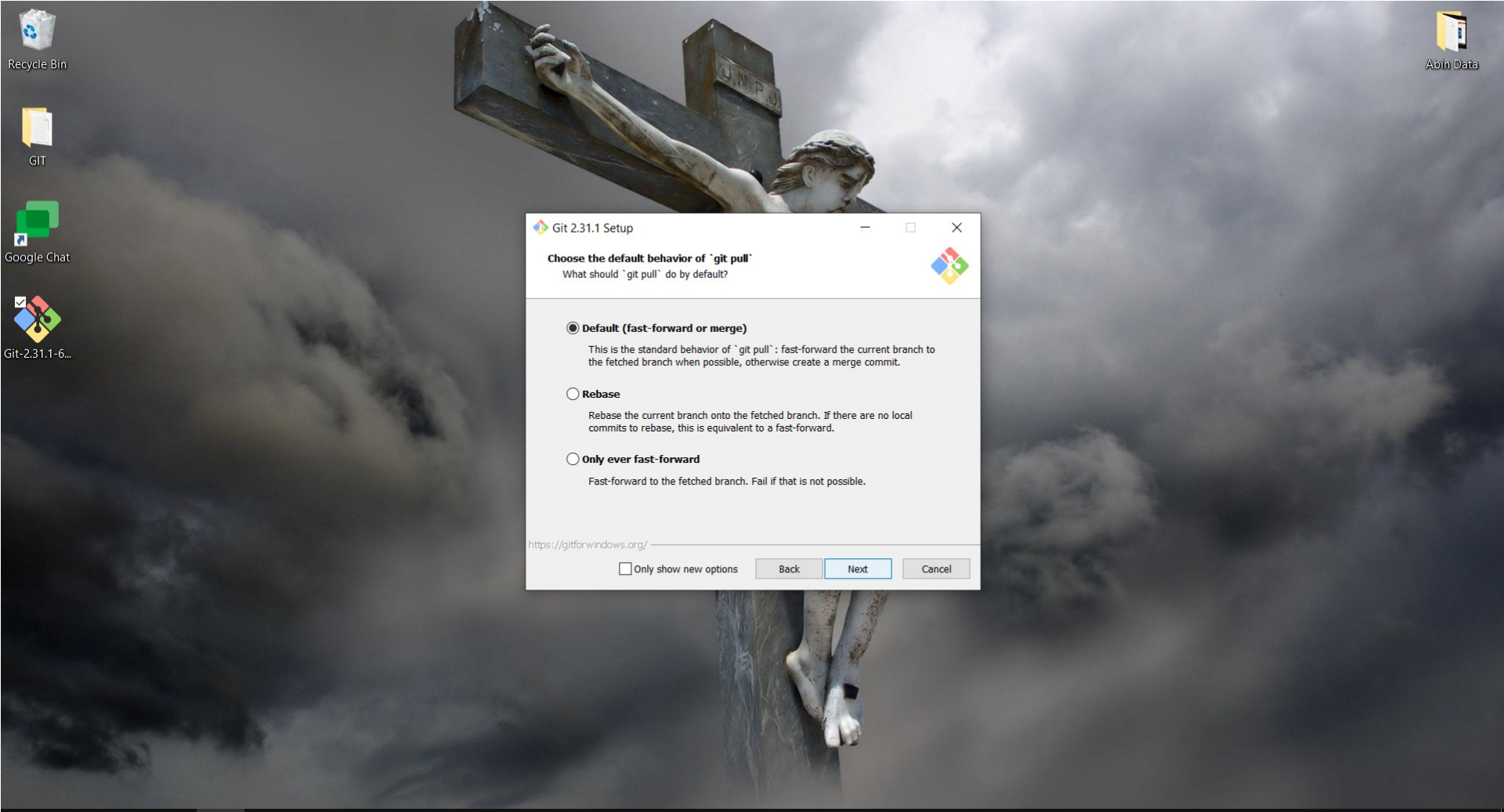
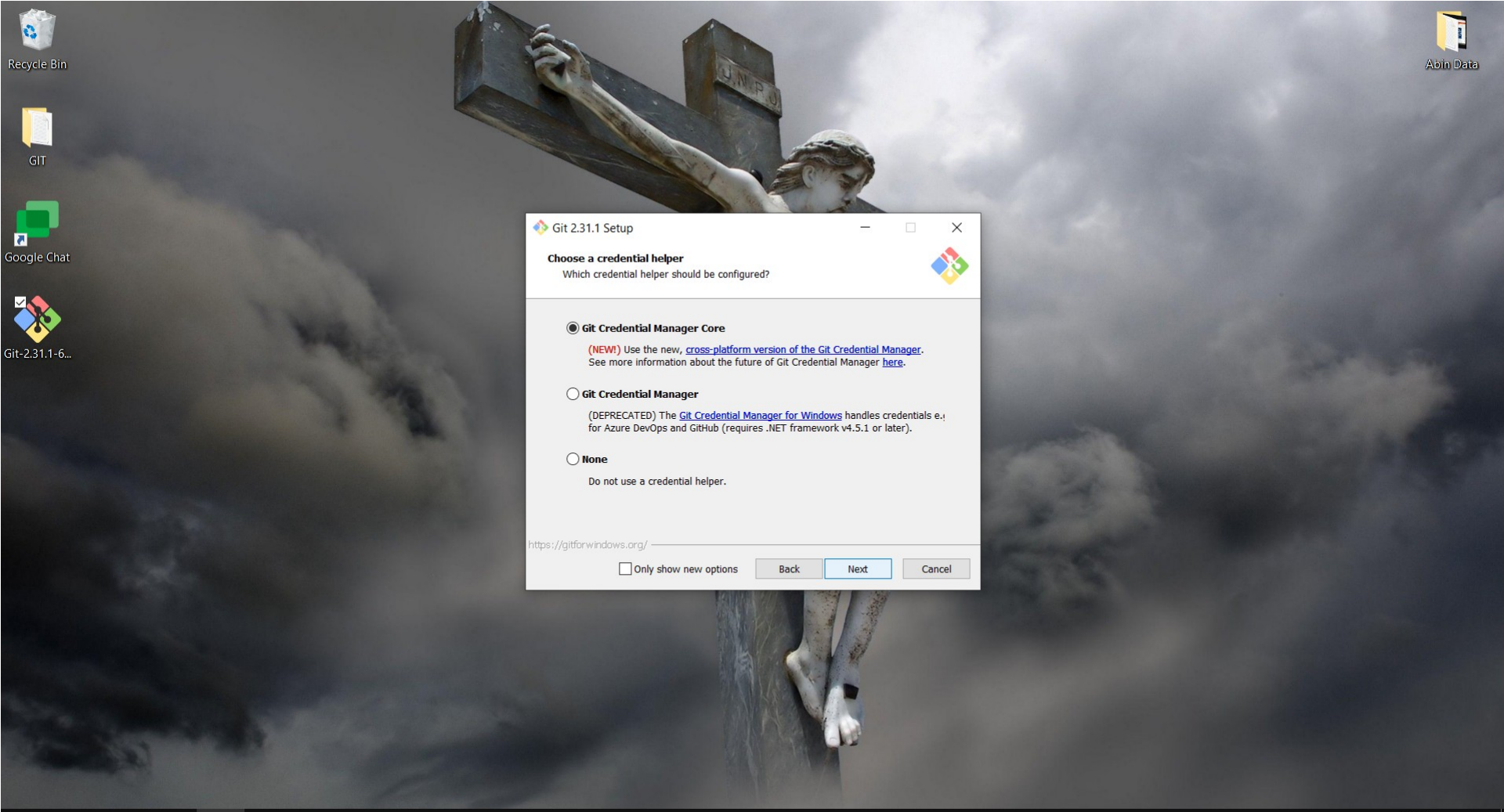
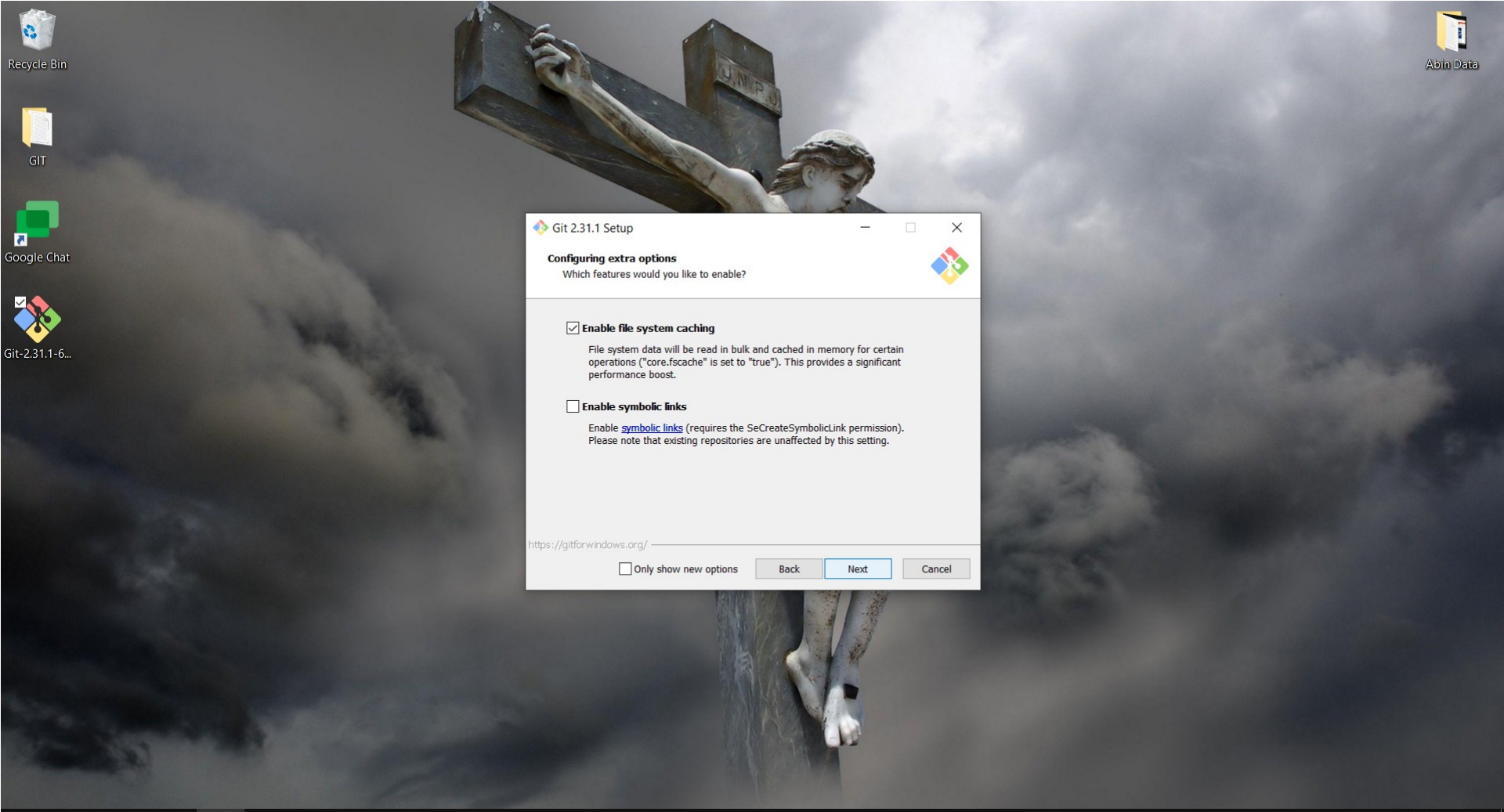
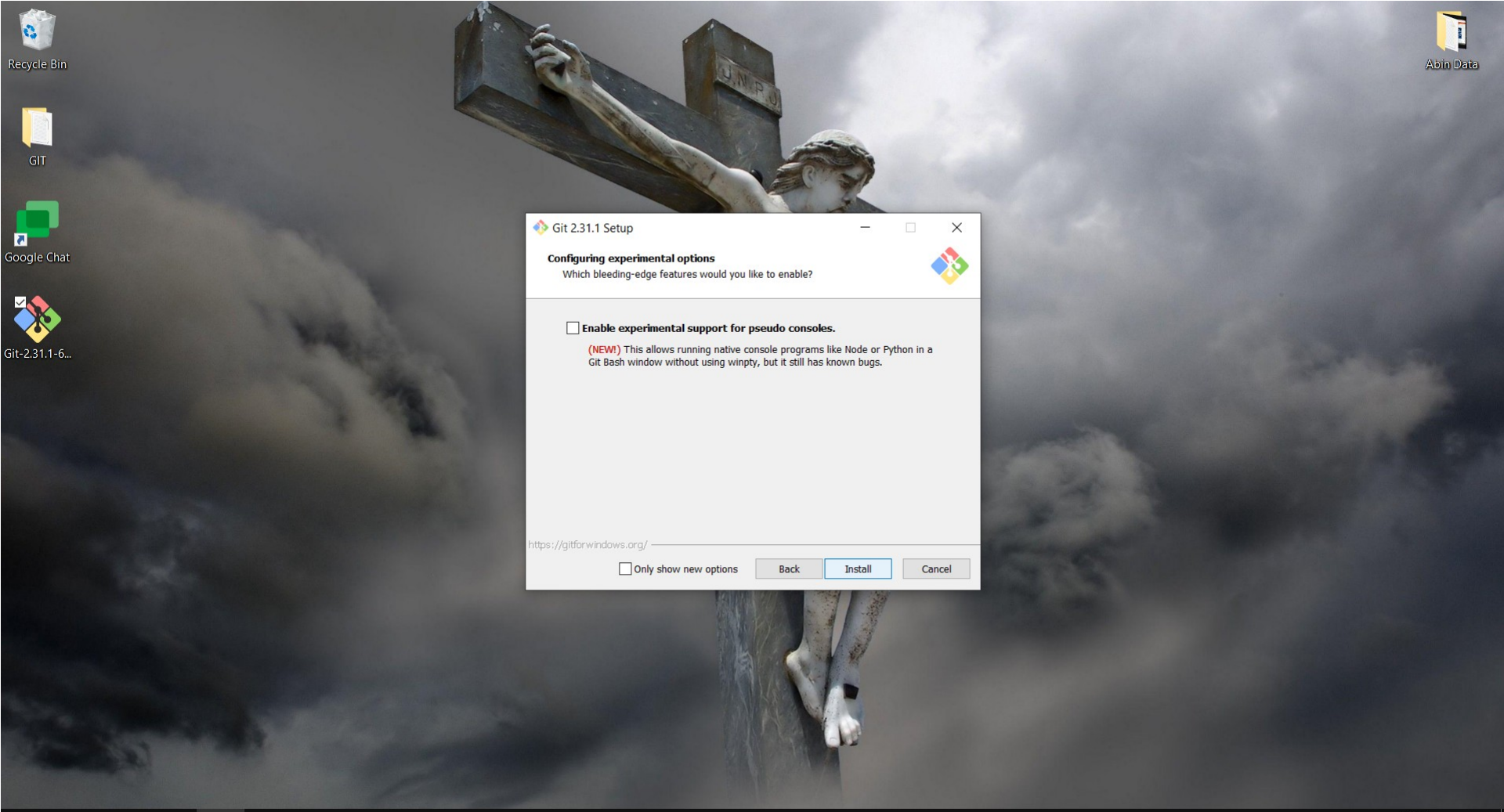

Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Configuring the line ending conversions
How should Git treat line endings in text files?
Checkout Windows-style, commit Unix-style line endings
Git will convert LF to CRLF when checking out text files. When committing text files, CRLF will be converted to LF. For cross-platform projects, this is the recommended setting on Windows ("core.autocrlf" is set to "true").
Checkout as-is, commit Unix-style line endings
Git will not perform any conversion when checking out text files. When committing text files, CRLF will be converted to LF. For cross-platform projects, this is the recommended setting on Unix ("core.autocrlf" is set to "input").
Checkout as-is, commit as-is
Git will not perform any conversions when checking out or committing text files. Choosing this option is not recommended for cross-platform projects ("core.autocrlf" is set to "false").
https://gitforwindows.org/
Only show new options
Back
Next
Cancel
27°C Light rain
ENG
09:19
22-05-2021

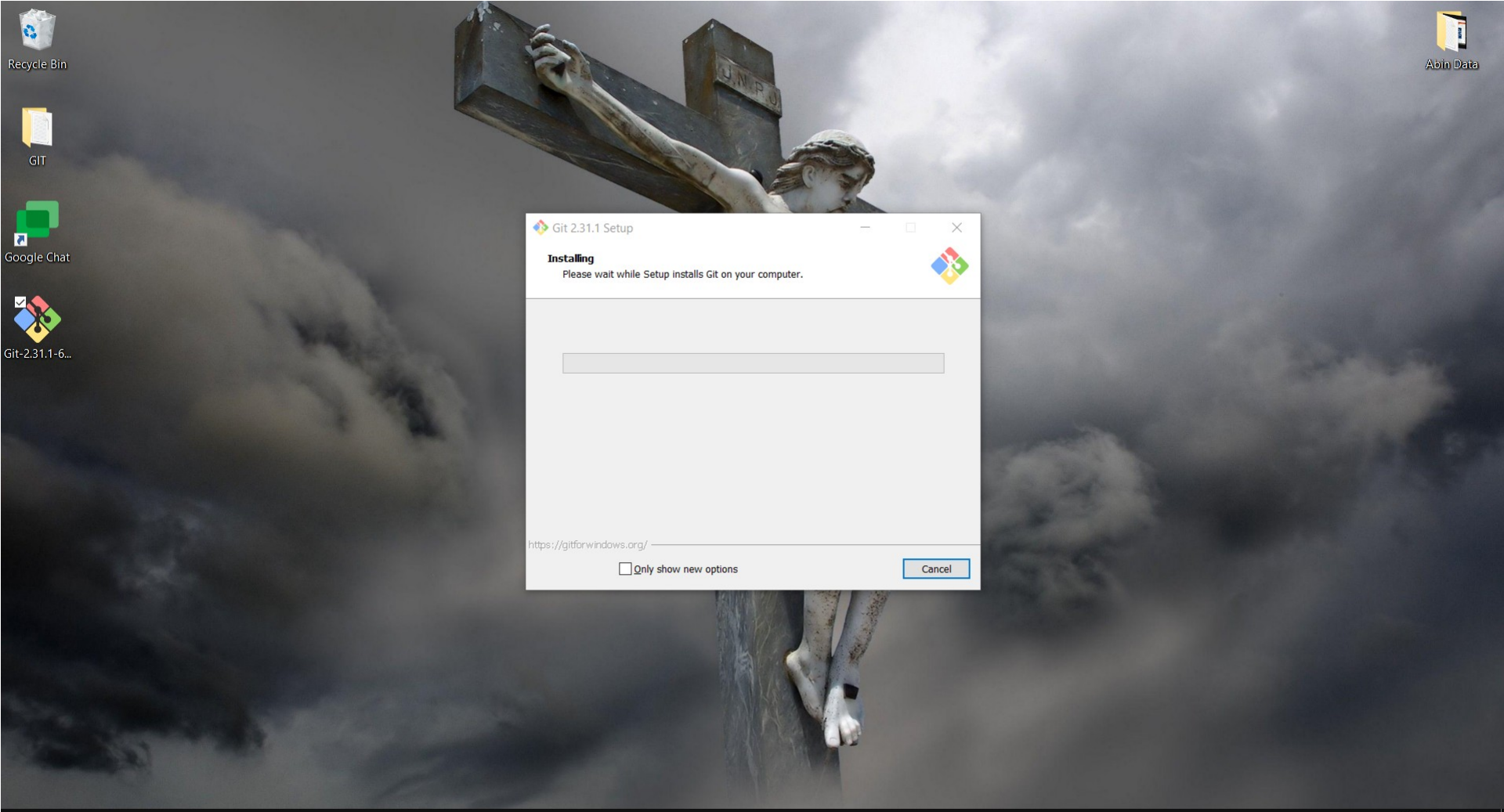

Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Configuring the terminal emulator to use with Git Bash
Which terminal emulator do you want to use with your Git Bash?
Use MinTTY (the default terminal of MSYS2)
Git Bash will use MinTTY as terminal emulator, which sports a resizable window non-rectangular selections and a Unicode font. Windows console programs (suc as interactive Python) must be launched via `winpty` to work in MinTTY.
Use Windows' default console window
Git will use the default console window of Windows ("cmd.exe"), which works v with Win32 console programs such as interactive Python or node.js, but has a very limited default scroll-back, needs to be configured to use a Unicode font in order to display non-ASCII characters correctly, and prior to Windows 10 its window was not freely resizable and it only allowed rectangular text selections.
https://gitforwindows.org/
Only show new options
Back
Next
Cancel
28°C Rain showers
ENG
09:19
22-05-2021

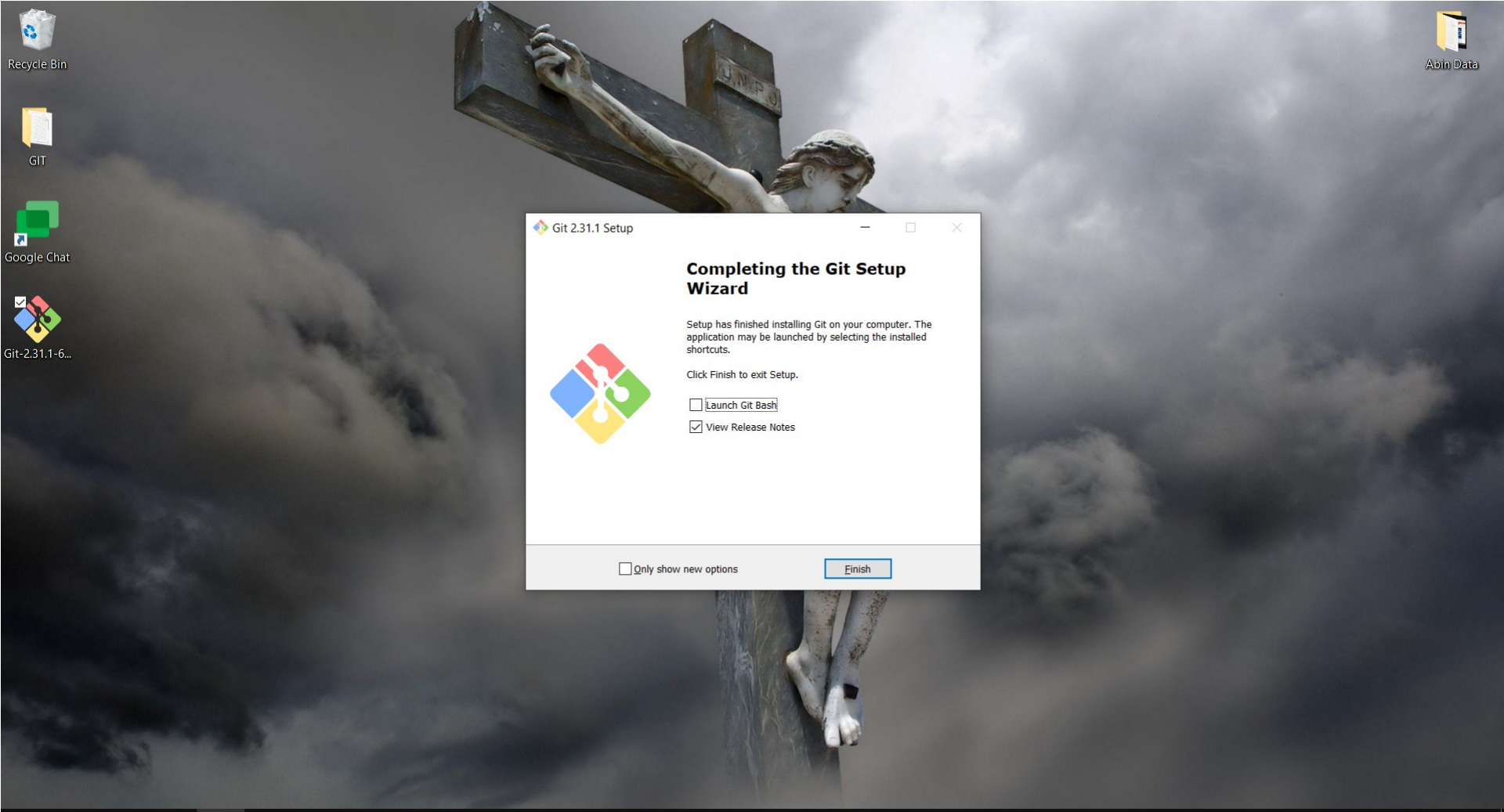

Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Choose the default behavior of `git pull`
What should `git pull` do by default?
Default (fast-forward or merge)
This is the standard behavior of `git pull`: fast-forward the current branch to the fetched branch when possible, otherwise create a merge commit.
Rebase
Rebase the current branch onto the fetched branch. If there are no local commits to rebase, this is equivalent to a fast-forward.
Only ever fast-forward
Fast-forward to the fetched branch. Fail if that is not possible.
https://gitforwindows.org/
Only show new options
Back
Next
Cancel
28°C Rain showers
ENG
09:20
22-05-2021


Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Choose a credential helper
Which credential helper should be configured?
Git Credential Manager Core
(NEW!) Use the new, cross-platform version of the Git Credential Manager.
See more information about the future of Git Credential Manager here.
Git Credential Manager
(DEPRECATED) The Git Credential Manager for Windows handles credentials e.
for Azure DevOps and GitHub (requires .NET framework v4.5.1 or later).
None
Do not use a credential helper.
https://gitforwindows.org/
Only show new options
Back
Next
Cancel
28°C Rain showers
ENG
09:20
22-05-2021


Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Configuring extra options
Which features would you like to enable?
Enable file system caching
File system data will be read in bulk and cached in memory for certain operations ("core.fscache" is set to "true"). This provides a significant performance boost.
Enable symbolic links
Enable symbolic links (requires the SeCreateSymbolicLink permission). Please note that existing repositories are unaffected by this setting.
https://gitforwindows.org/
Only show new options
Back
Next
Cancel
28°C Rain showers
ENG
09:20
22-05-2021


Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Configuring experimental options
Which bleeding-edge features would you like to enable?
Enable experimental support for pseudo consoles.
(NEW!) This allows running native console programs like Node or Python in a Git Bash window without using winpty, but it still has known bugs.
https://gitforwindows.org/
Only show new options
Back
Install
Cancel
28°C Rain showers
ENG
09:20
22-05-2021


Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Installing
Please wait while Setup installs Git on your computer.
https://gitforwindows.org/
Only show new options
Cancel
28°C Rain showers
ENG
09:21
22-05-2021


Recycle Bin
GIT
Google Chat
Git-2.31.1-6...
Abin Data
Git 2.31.1 Setup
Completing the Git Setup Wizard
Setup has finished installing Git on your computer. The application may be launched by selecting the installed shortcuts.
Click Finish to exit Setup.
Launch Git Bash
View Release Notes
Only show new options
Finish
28°C Rain showers
ENG
09:21
22-05-2021

Let git know who you are

```
$ git config --global user.name "your_username"
$ git config --global user.email "hello@mail.com"
```

GitHub uses the email address set in your local Git configuration to associate commits pushed from the command line with your GitHub account.

What is **git** ?

What is **GitHub**?

matam_hw_3 - Final 2

matam_hw_3 - Final 3

matam_hw_3 - v4 -Ready for submission

matam_hw_3 - submit

matam_hw_3 - Final 3 - no leaks

matam_hw_3 - Final

matam_hw_3 - v4

matam_hw_3 - submit - Copy

matam_hw_3 - Final 3.3- enhanced prin...

matam_hw_3 - v4 -Fixed typos

matam_hw_3

Use cases

Consider this scenario:

- You have a homework submission in Matam for today and the assignment is ready for submission
- While testing it you discovered a minor bug and decided to fix it

- After attempting to do so, you accidentally changed a working code and got yourself in a big mess
- You no longer remember what was and what wasn’t there
- It is 23:58 PM

Now you realize that **CTRL + Z** won’t solve your problems

What is git?

What is git?

- Open source project originally developed in 2005 by Linus Torvalds
- A command line utility
- You can imagine **git** as something that sits on top of your file system and manipulates files.
- A distributed version control system - **DCVS**

What is Git?

A Distributed **Version Control System.**

Any project which uses Git will have a **.git** folder which stores all the history of the project.

History:

Know exactly which files changed, who made those changes, and when those changes occured.

Backup:

Ability to have different versions of the code in different places.

Collaboration:

Collaborate easily with other people on the same project by uploading and receiving changes

What is GitHub?

GitHub is a website that allows us to use **git** and create repositories **online**. It can also store all your projects online for free.

My First Repo!

What is Git and GitHub?

What is a repository?

A repository is a container that houses your project and its history. If your project folder contains the **“.git”** folder you’re working with a repository!

Let’s get started!

If you are on windows, open Git-Bash.

If you are on linux or Mac, fire up a terminal.

Git Commands

- git init
- git clone
- git log
- git diff
- git status
- git add
- git commit

Clip slide

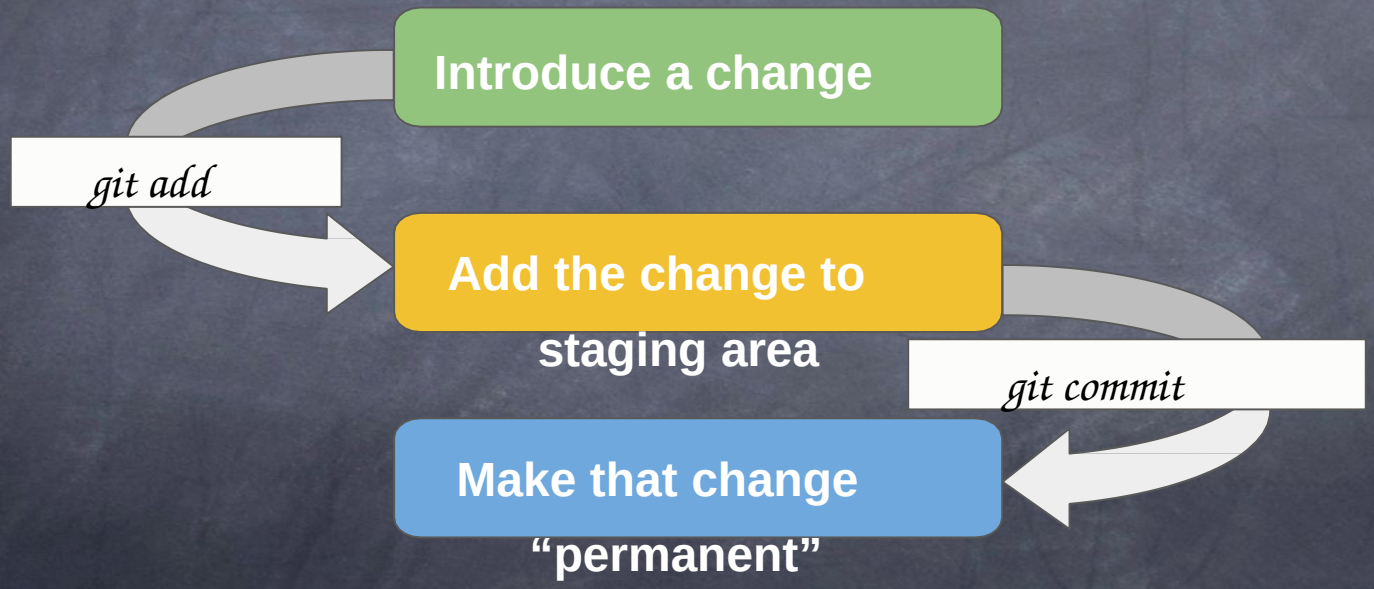
Good news!

git init
git status
git log
git add
git commit
git diff
git rm
git mv

75% of the time you'll be using only these commands

Git add

- Adds changes



Initializing a new repository

```
# creating a new folder for our project
$ mkdir MyProject
# changing directory to our project folder
$ cd MyProject
# initializing the current folder as a repository
$ git init

Initialized empty Git repository in /home/user/MyProject/.git/
```

Creating your first commit

```
# shows the state of the working directory and the staging area.
$ git status
# Add the files to staging area
$ git add fruits.txt
# Commit the changes into the repository
$ git commit -m "Add fruits.txt"
```

Commits

Checkpoints/Snapshot of the state of your repository (project) at a particular time.

To Reset your Commits

```
# To reset files from the staging area after git add
$ git reset [options]
# To reset particular commit or file
$ git reset HEAD/file_name [options]
# resets the code and commits
--hard
# resets the code and commits but keeps it in the staging area
--soft
# rests commits and keeps it in the workingdirectory (default)
--mixed
```

Git Good!

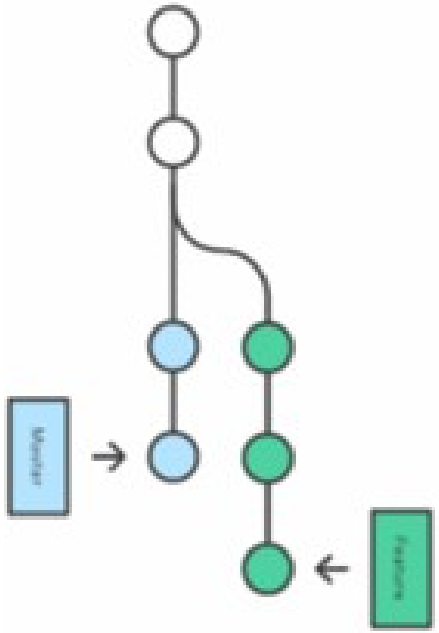
Working with GitHub and fundamentals of Git 101.

Downloading/Updating repos

```
# To download a remote repository
$ git clone <repository url>
# To grab changes from a remote repository and add to yours
$ git pull
# To submit your changes to remote repository
$ git push
```

Git Branches

```
# To list all branches
$ git branch
# To create a new branch
$ git branch MyBranch
# To change the control to new branch
$ git checkout MyBranch
# To merge two branches together
(master)$ git merge MyBranch
```



What can we do with GitHub?

Well, what not?

GitHub Education

Programs and **technology leadership** at your school

GitHub
Student Developer Pack

GitHub Classroom

GitHub
Campus Experts

GitHub Campus Advisors

The GitHub Student Developer Pack

"To give students free access to the best developer tools in one place so they can learn by doing."

Get the Pack at

https://education.github.com/pack