Git and GitHub

개요 및 설치

김수환

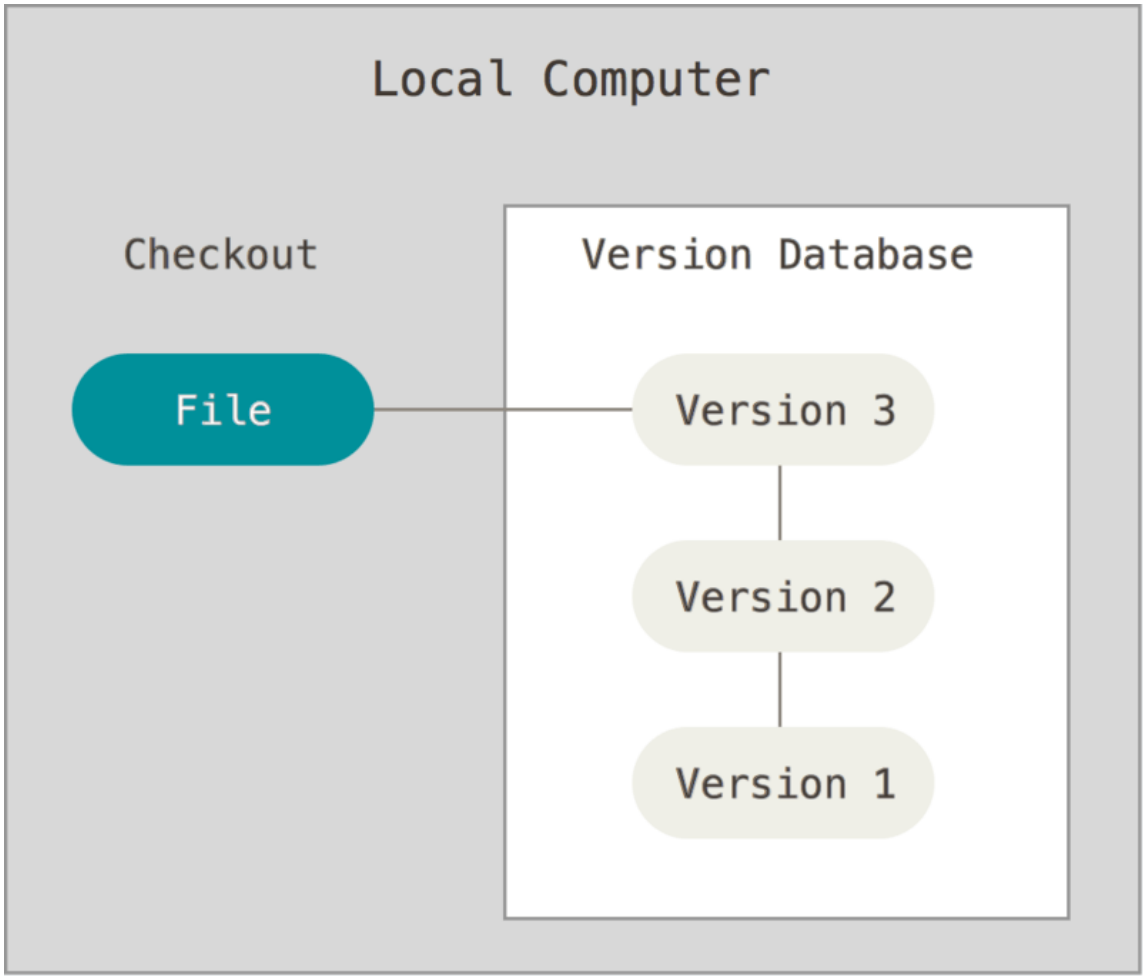
Version Control Systems (VCS)

① Problem: 파일명을 이용한 버전관리

- 보고서.hwp
- 보고서_버전2.hwp
- 보고서_버전3.hwp
- 보고서_최종.hwp
- 보고서_최종2.hwp
- 보고서_최최종.hwp
- 보고서_최최최종.hwp
- 보고서_진짜_최종.hwp
- 보고서_진짜_진짜_최종.hwp
- 보고서_진짜_진짜_진짜_최종.hwp
- 보고서_진짜_진짜_진짜_최종_가즈아.hwp

어떻게 하면 버전관리를 쉽게 할 수 있을까?

① Solution: Local Version Control Systems



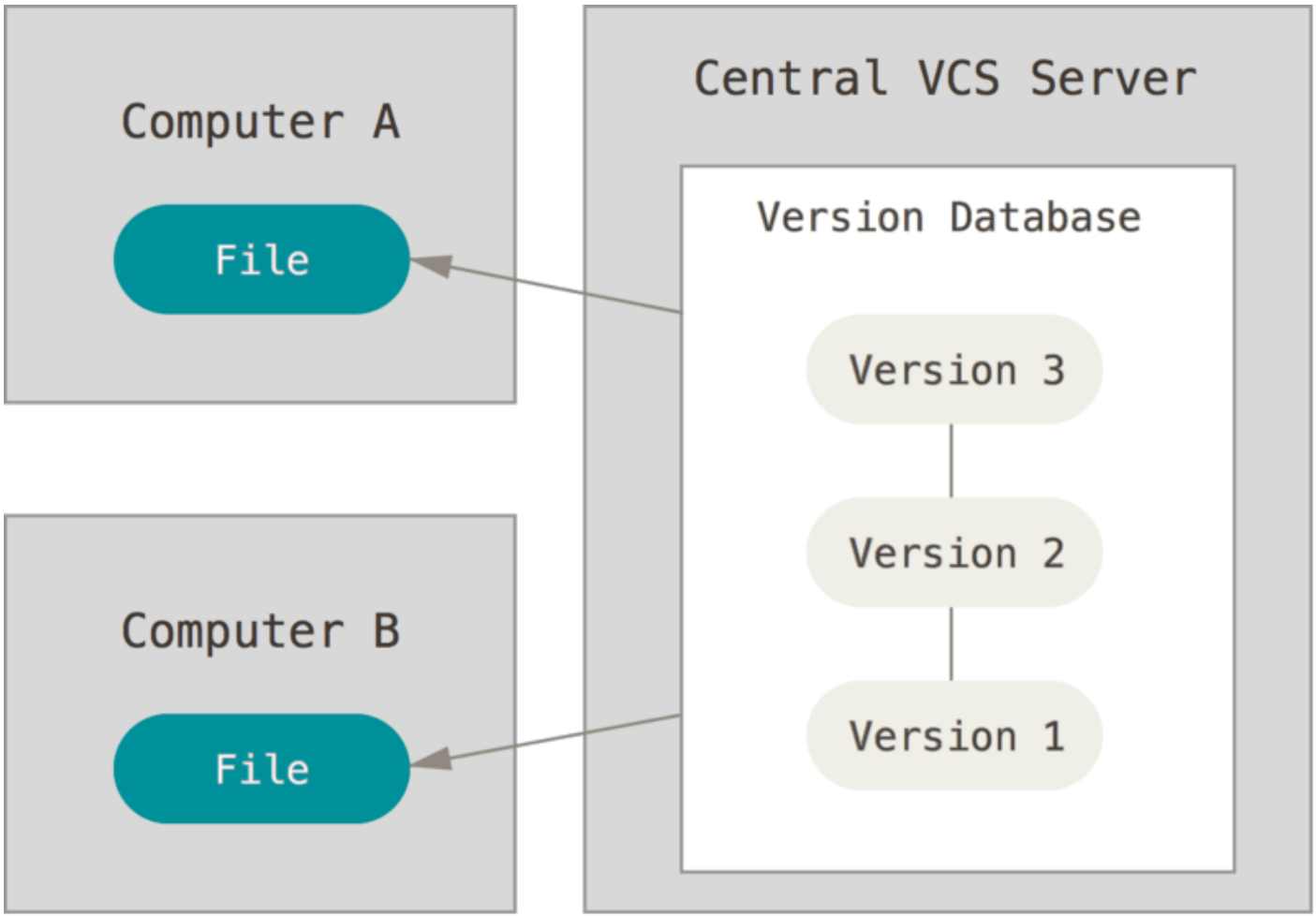
Source: https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control

② Problem: 공동작업

- 보고서.hwp
- 보고서_철수_그림수정.hwp
- 보고서_철수_그림수정_영희_표수정.hwp
- 보고서_버전2.hwp
- 보고서_버전2_민수_차례추가.hwp
- 보고서_제출본.hwp
- 보고서_제출본_철수_그림_다시수정.hwp
- 보고서_제출본_철수_그림_다시수정_민수_폰트수정.hwp
- 보고서_제출본_최종일까?.hwp

어떻게 하면 공동작업을 쉽게 할 수 있을까?

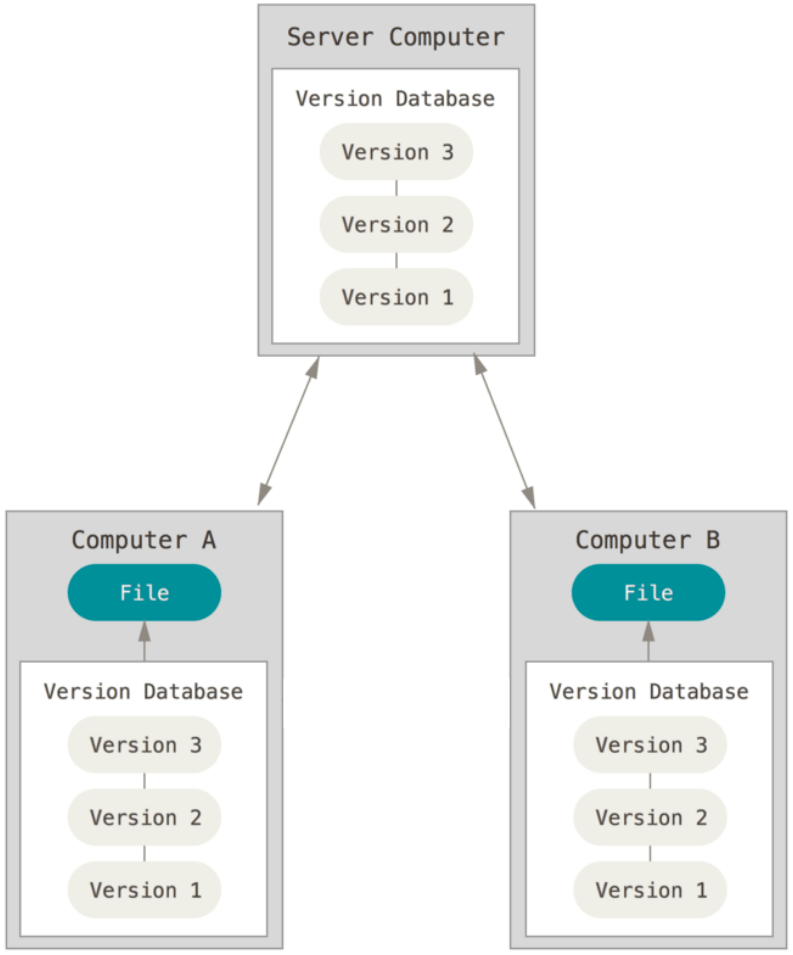
② Solution: Central Version Control Systems



이렇게 하면 어떤 문제가 있을까?

Source: https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control

③ Solution: Distributed Version Control Systems



Nearly Every Operation is Local!

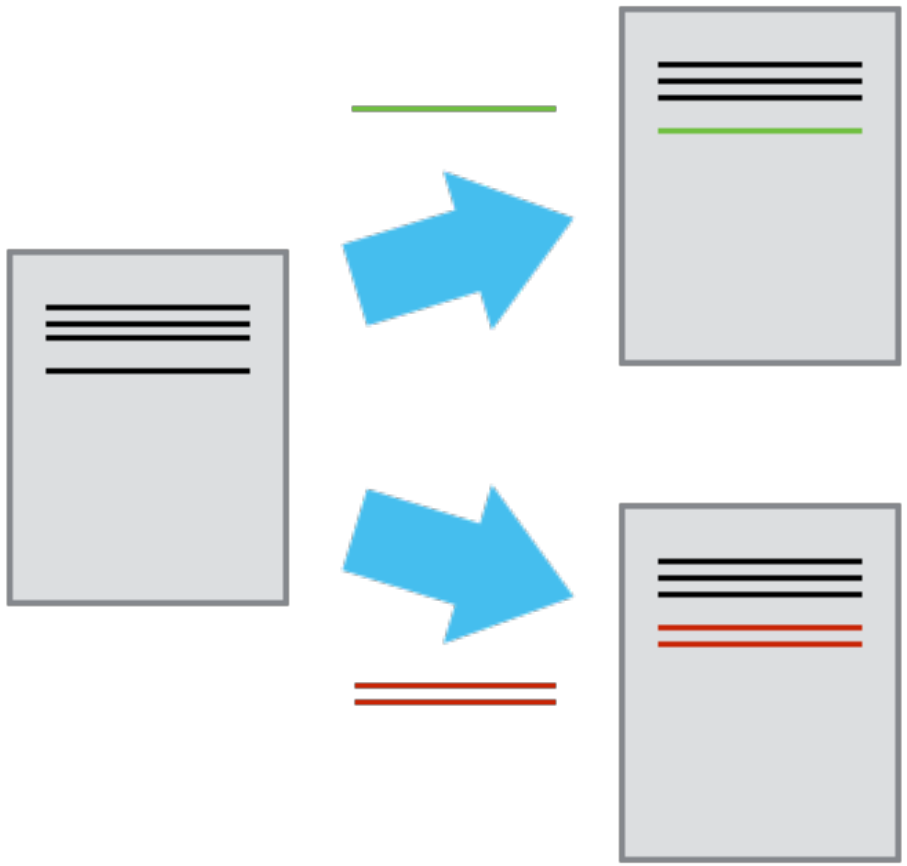
Source: `https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control`

Work Flow

Add Changes Sequentially

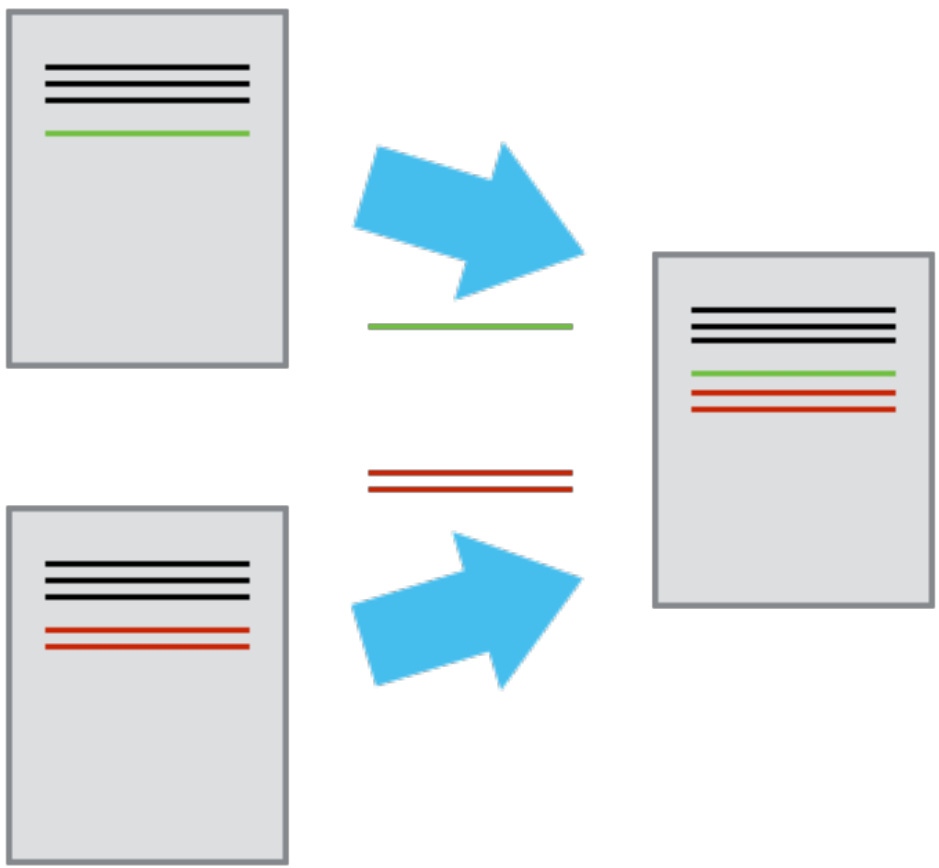
Source: https://gcapes.github.io/git-course/aio/

Save Different Versions



Source: https://gcapes.github.io/git-course/aio/

Merge Different Versions

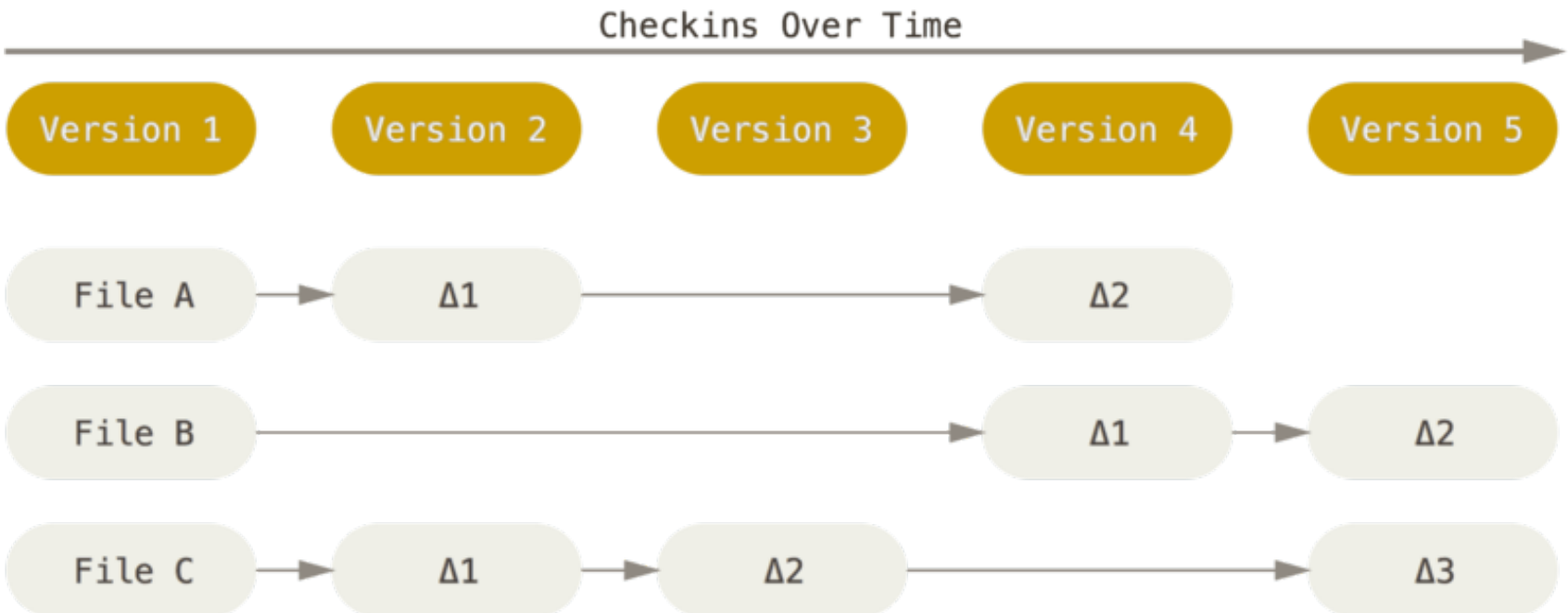


Source: https://gcapes.github.io/git-course/aio/

Differences vs. Snapshots

Delta-based Version Control

CVS, Subversion and etc.

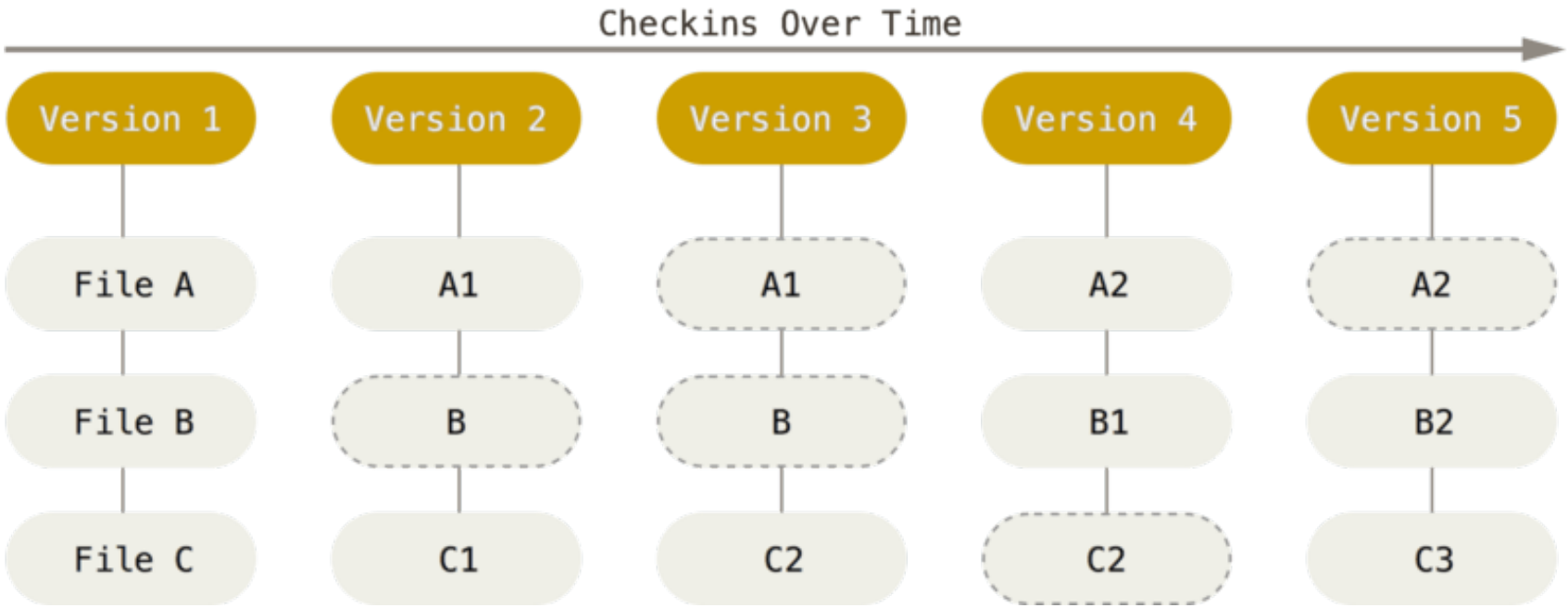


이렇게 하면 어떤 장단점이 있을까?

Source: `https://git-scm.com/book/en/v2/Getting-Started-What-is-Git%3F`

Snapshot-based Version Control

Git



이렇게 하면 어떤 장단점이 있을까?

Source: `https://git-scm.com/book/en/v2/Getting-Started-What-is-Git%3F`

Git Installation

Git

- 분산 버전 관리 시스템 (Distributed Version Control System)
  - 버전 관리: 파일명은 그대로 버전을 추가/삭제/이동
  - 분산: 다른 사람이 파일 수정중에 나도 작업가능
- 원저자: Linus Torvalds (Linux의 아버지/창시자)
- 개발: 2005년 리눅스 커널 개발을 위해 개발
- 다른 VCS: CVS (1986), SVN (2000), Mercurial (2005)

Git 설치

- Linux: http://git-scm.com/download/linux
- Windows: http://git-scm.com/download/win
- Mac: http://git-scm.com/download/mac

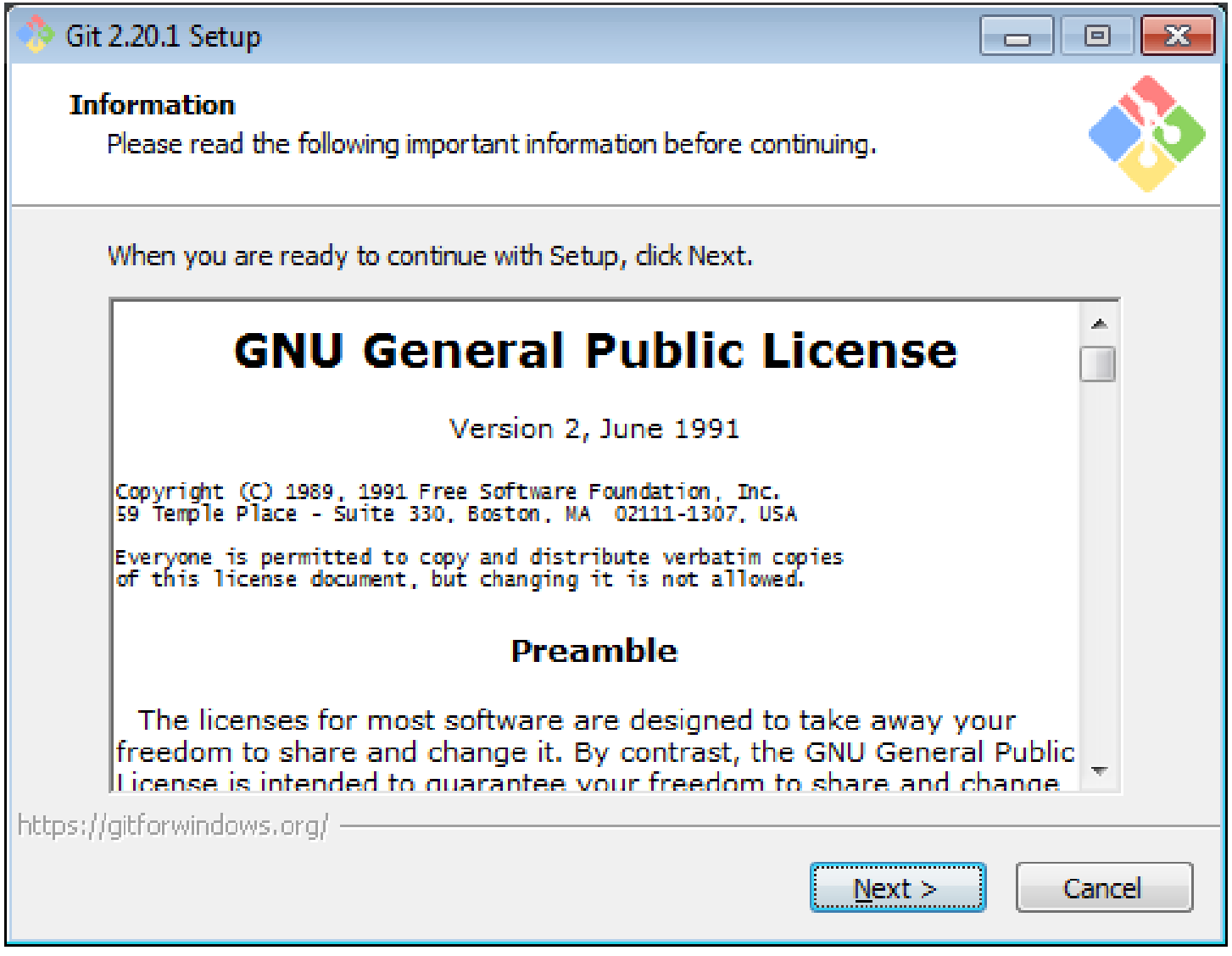
Git 설치: Linux

bash

```
# Git이 설치되었는 확인
$ git --version

# Git 설치
$ sudo apt-get update
$ sudo apt-get install git

E: Could not get lock /var/lib/dpkg/lock-frontend - open
(11: Resource temporarily unavailable)
E: Unable to acquire the dpkg frontend lock
(/var/lib/dpkg/lock-frontend), is another process using
it?

$ sudo rm /var/lib/apt/lists/lock
$ sudo rm /var/cache/apt/archives/lock
$ sudo rm /var/lib/dpkg/lock*
```

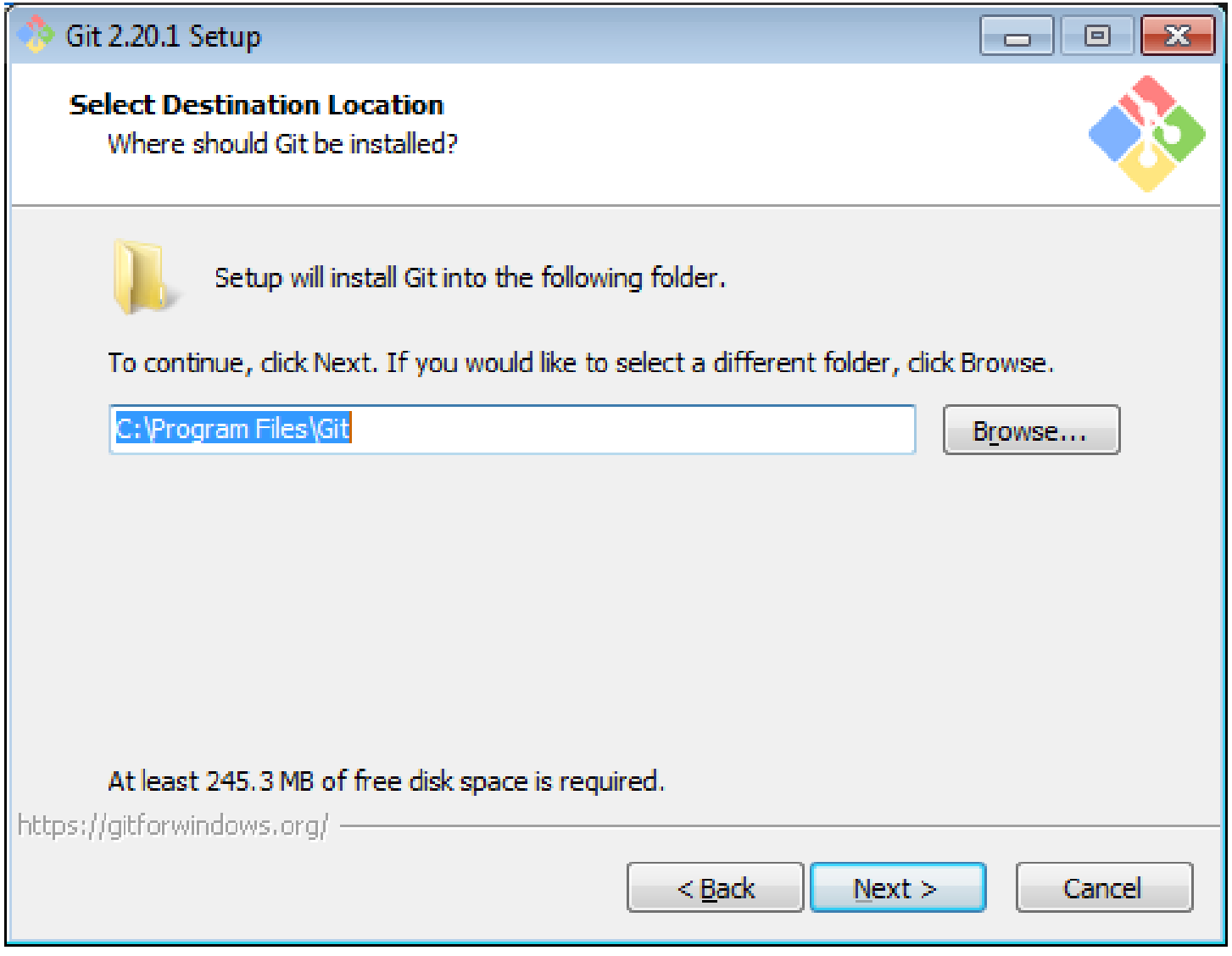
Git 설치: Windows

Step 1



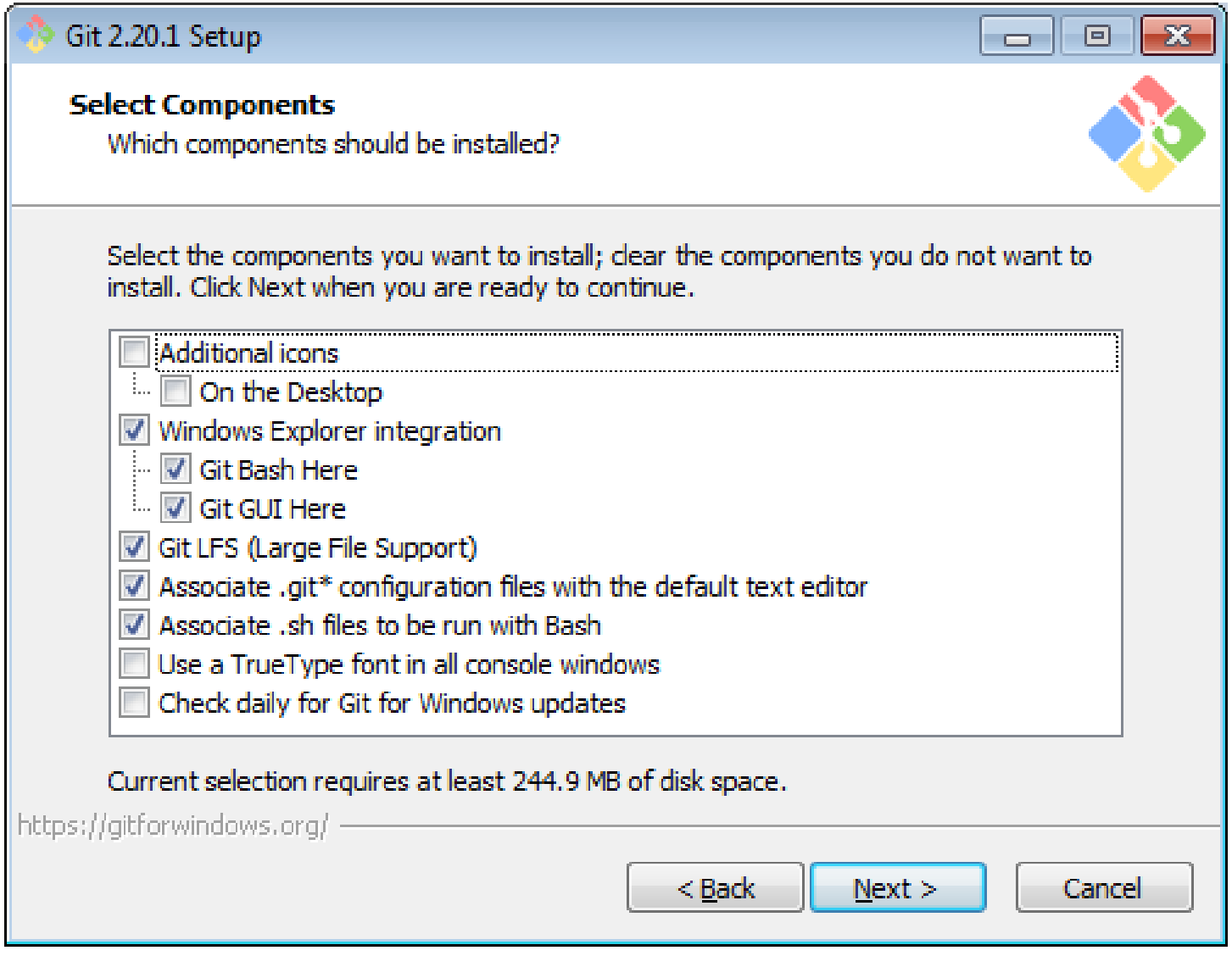
Git 설치: Windows

Step 2



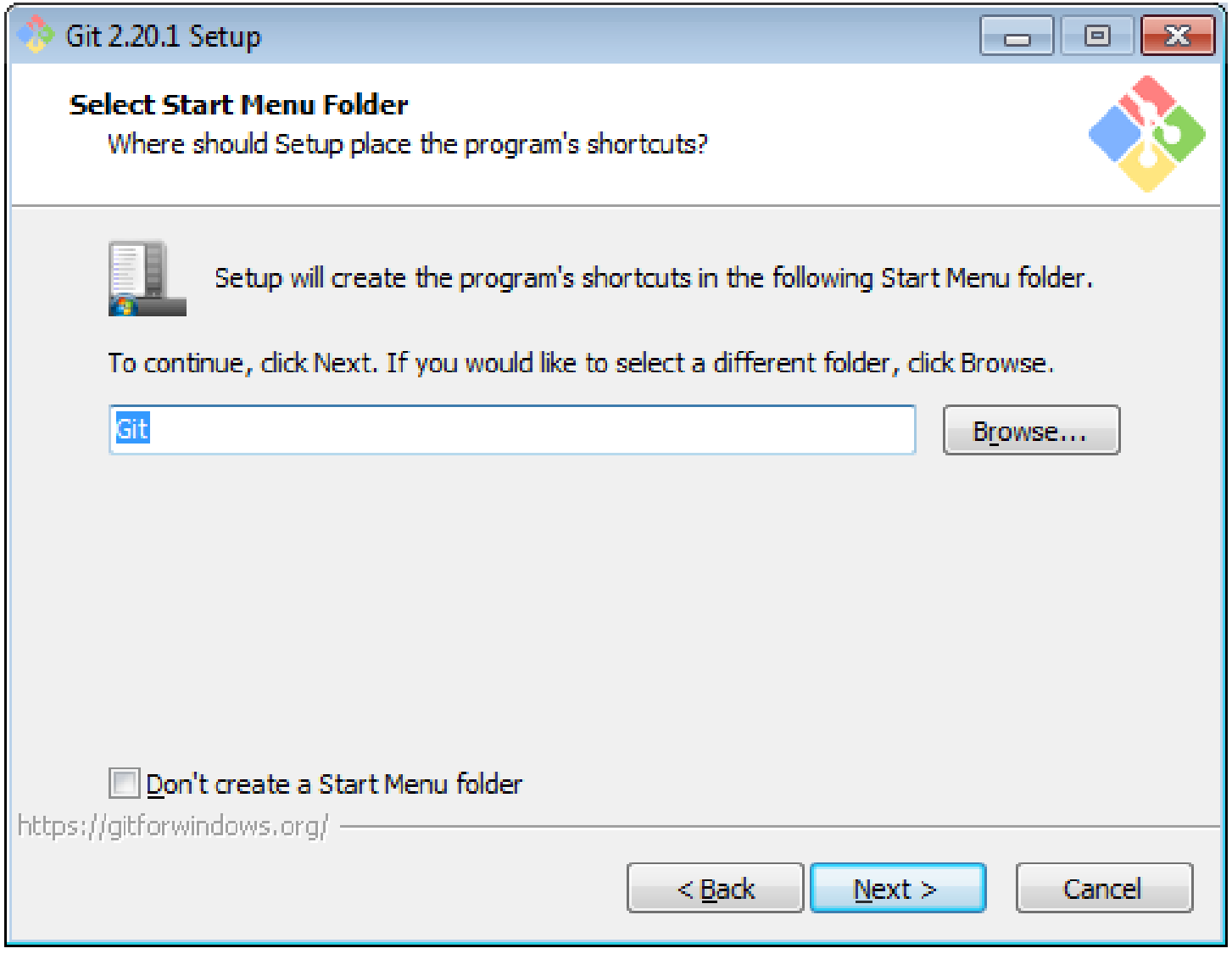
Git 설치: Windows

Step 3



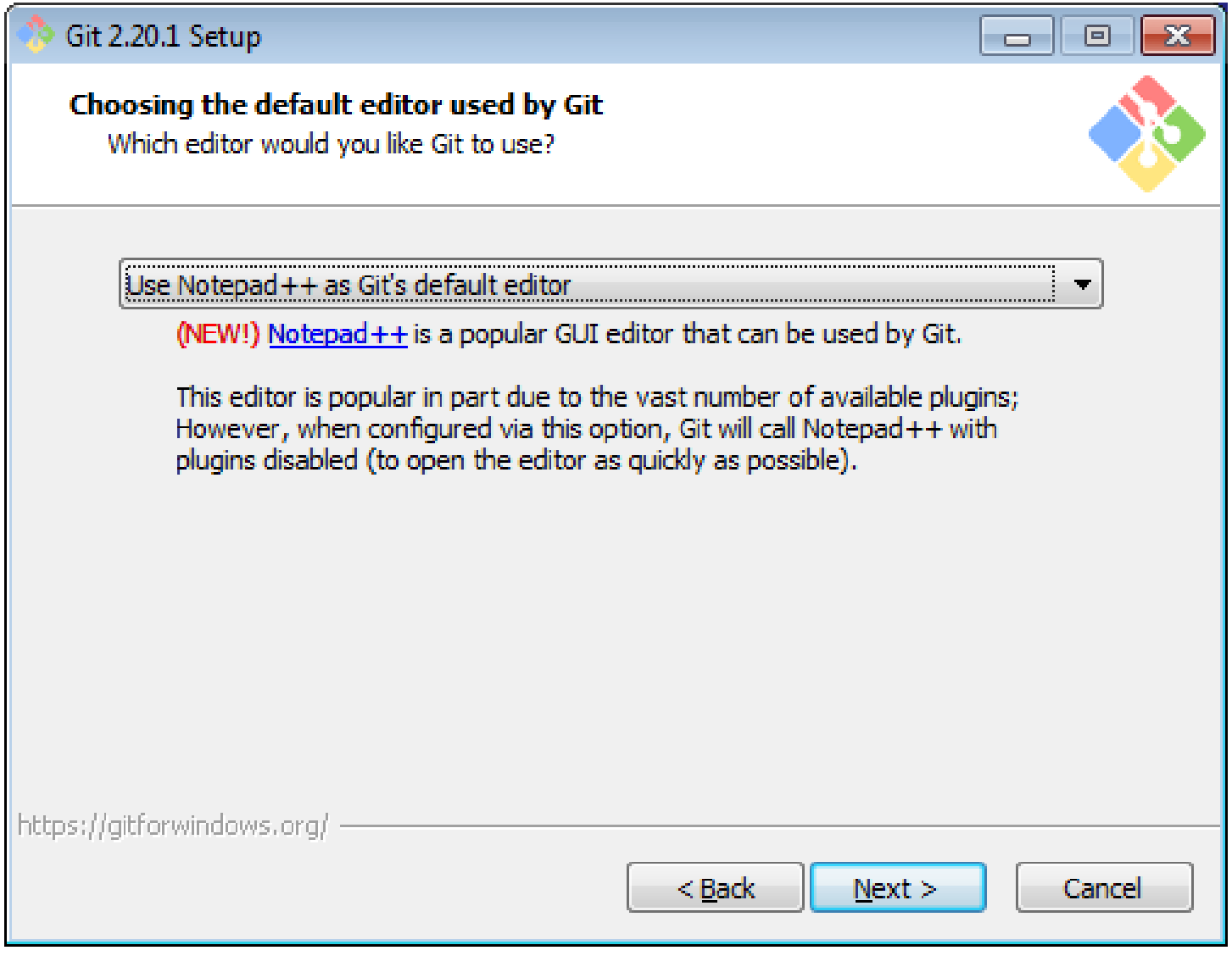
Git 설치: Windows

Step 4



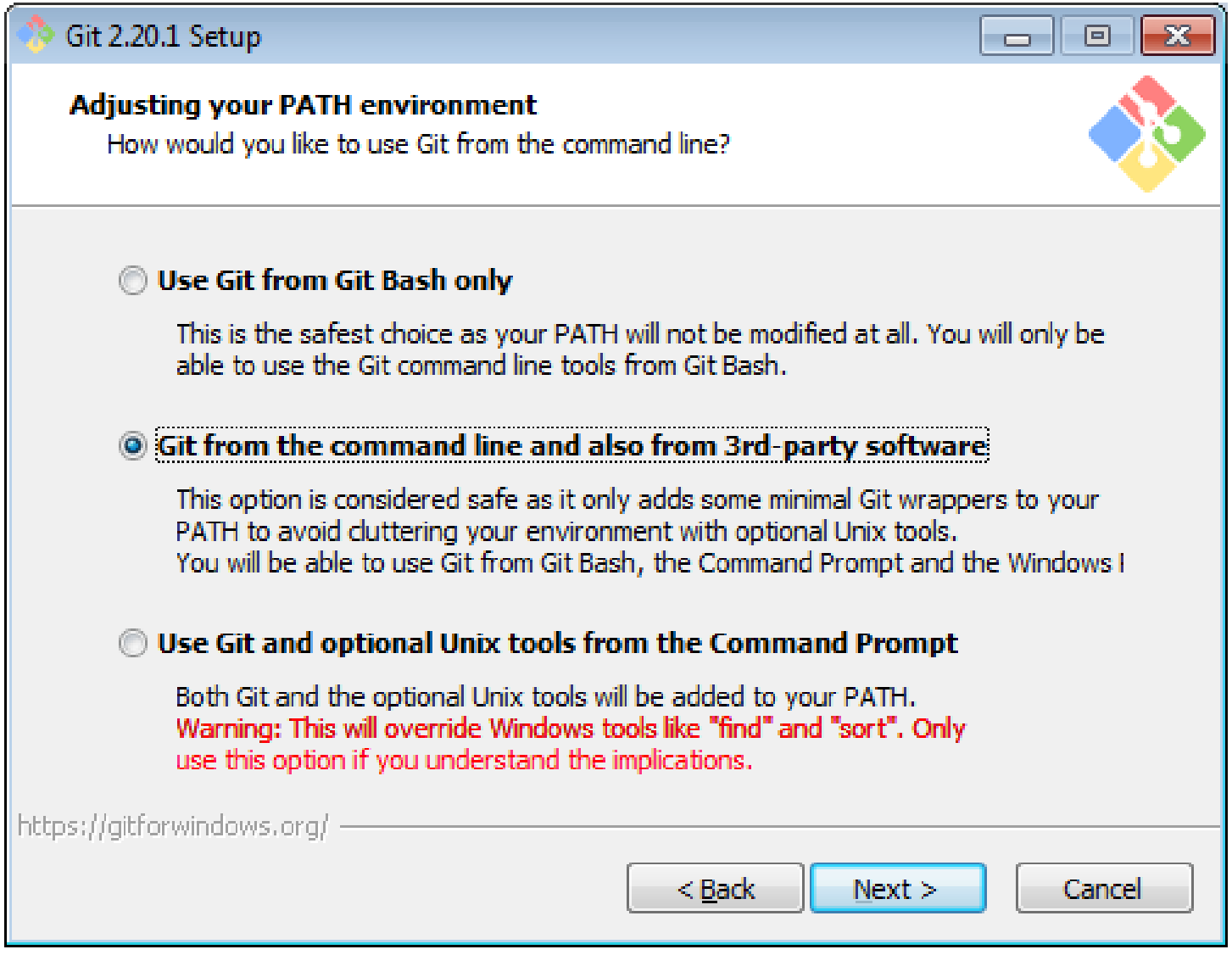
Git 설치: Windows

Step 5



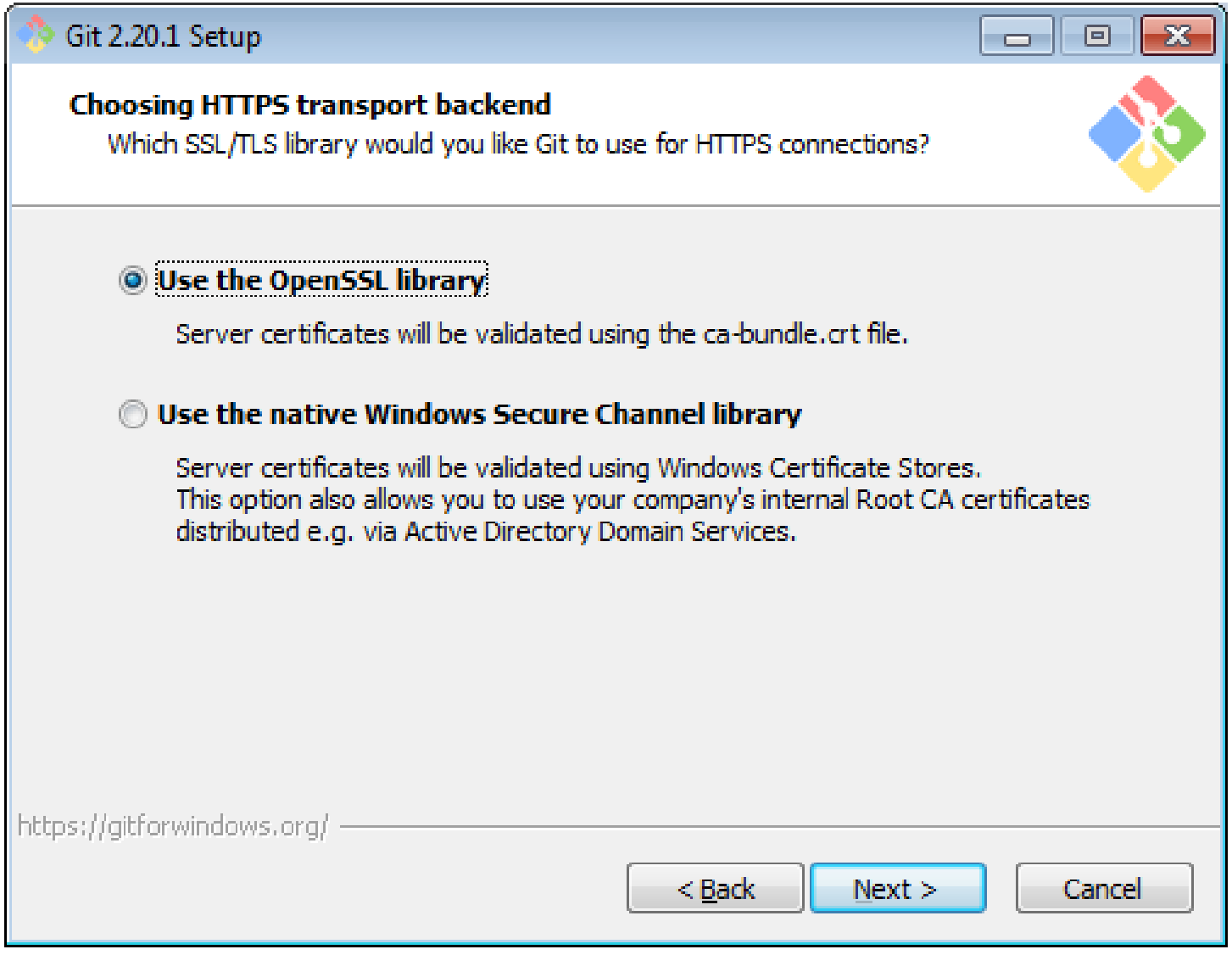
Git 설치: Windows

Step 6



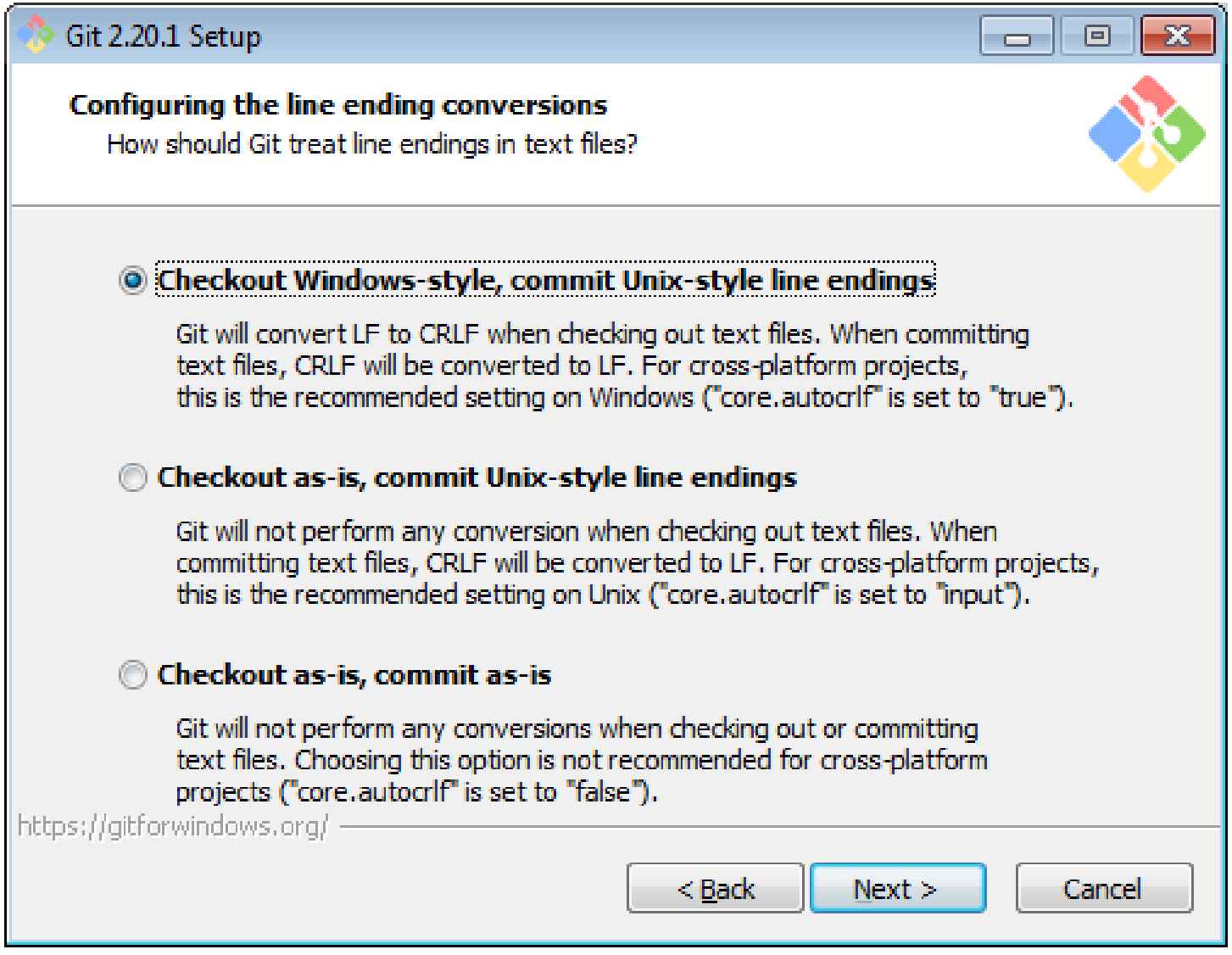
Git 설치: Windows

Step 7



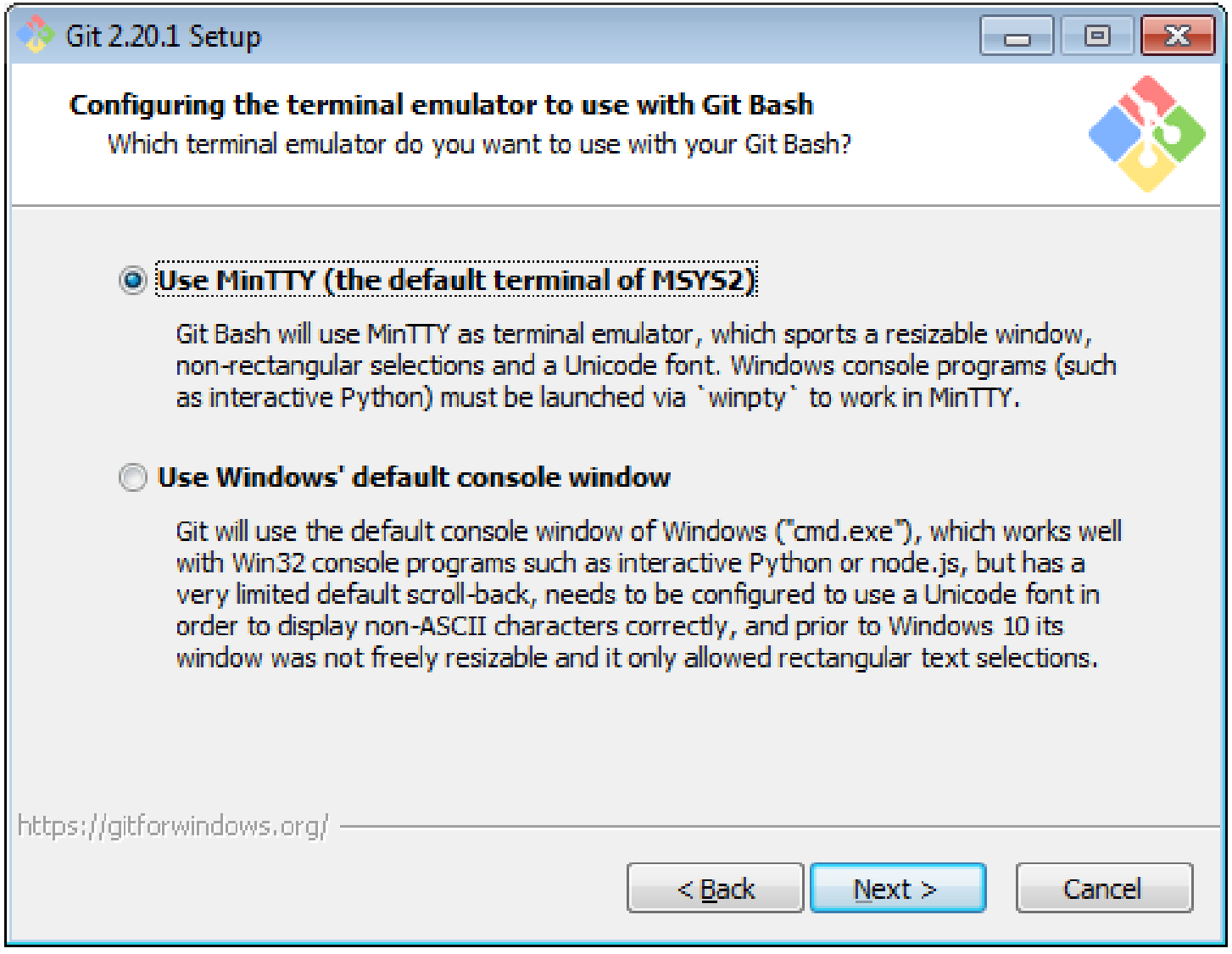
Git 설치: Windows

Step 8



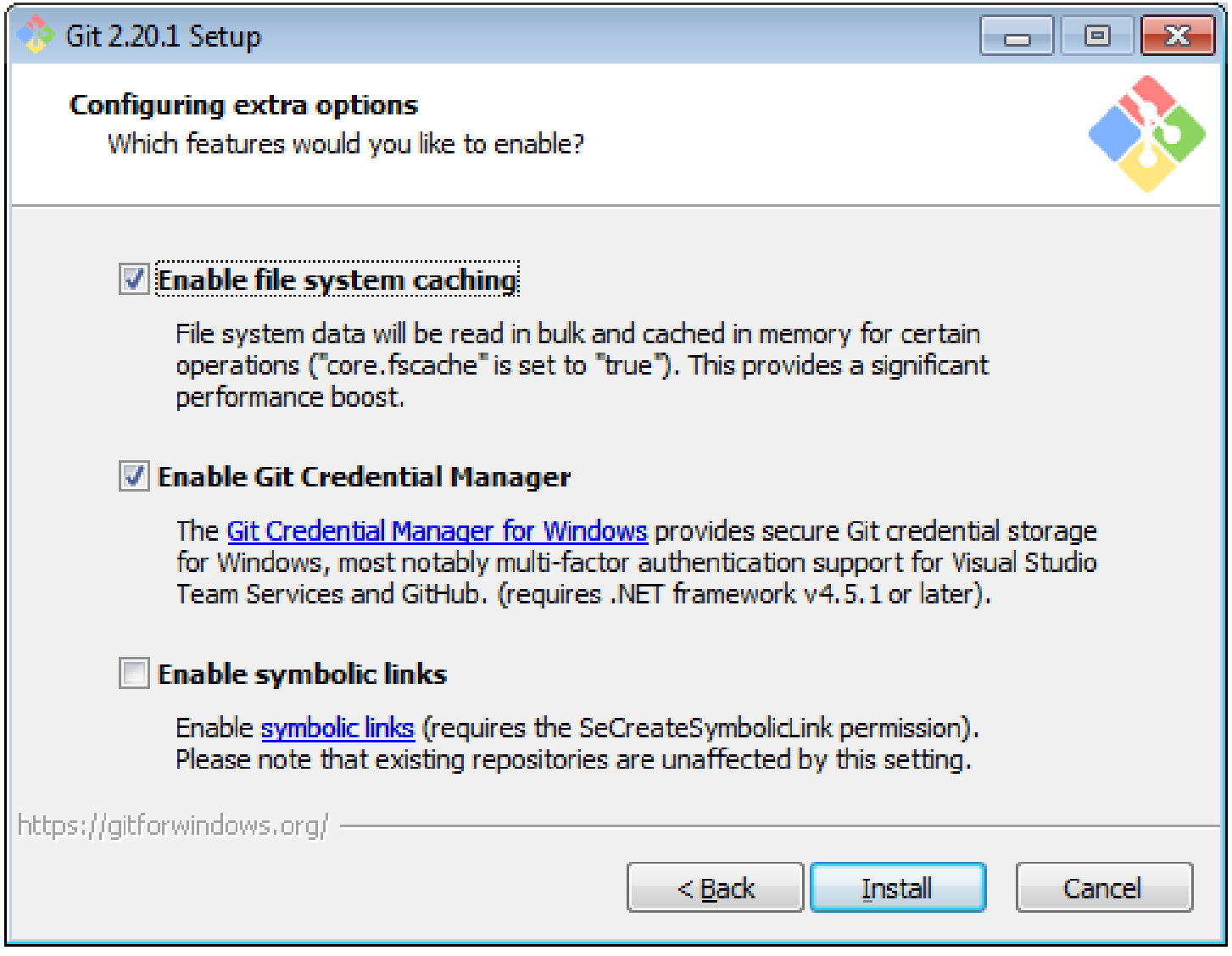
Git 설치: Windows

Step 9



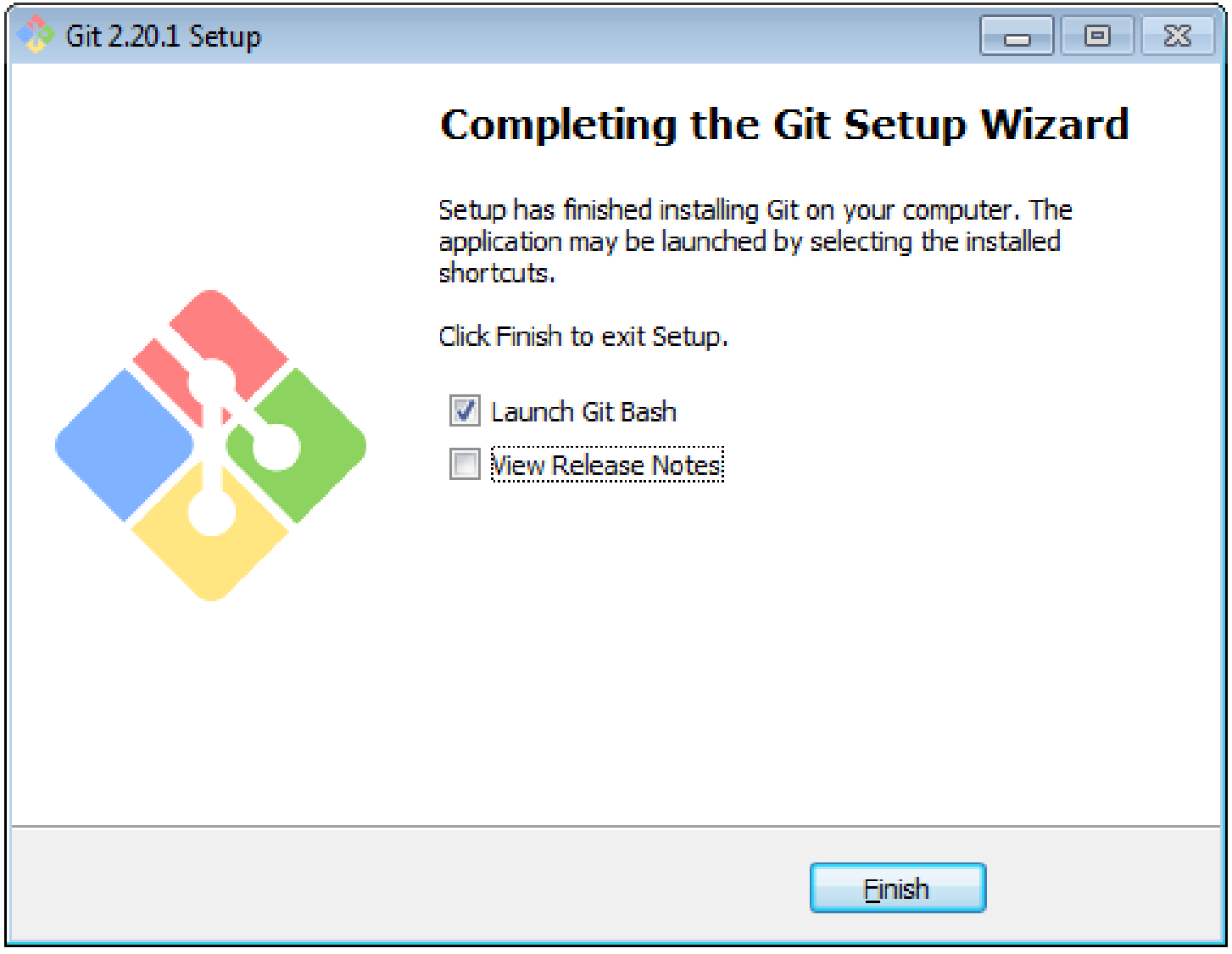
Git 설치: Windows

Step 10



Git 설치: Windows

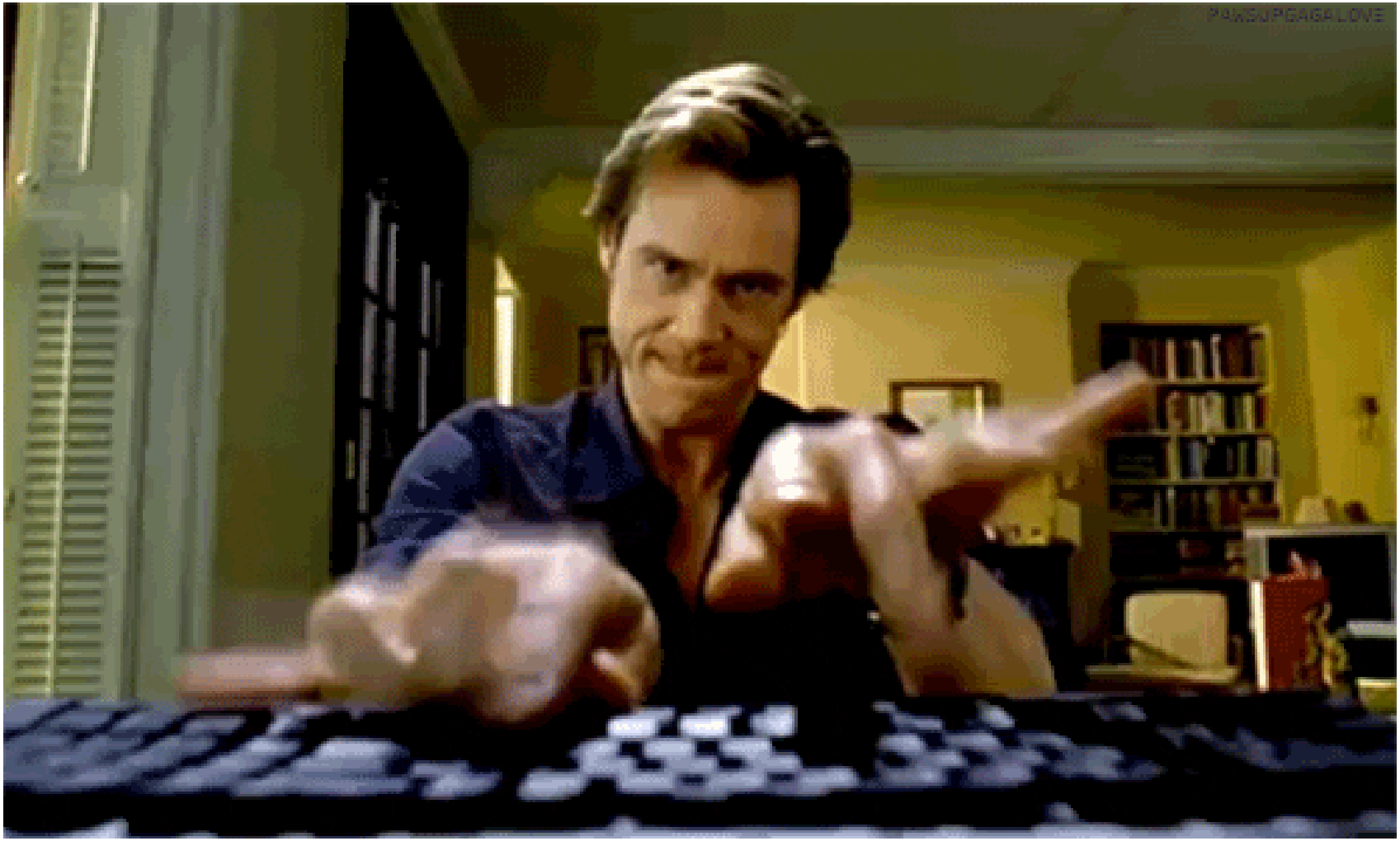
Step 11



Git 학습 순서

1. CLI(Command Line Interface)로 Git 사용하기
    1. 혼자 쓰기 (Local VCS) – Git
    2. 함께 쓰기 (Distributed VCS) – Git + GitHub
2. GUI(Graphical User Interaface)로 Git 사용하기
    1. Git GUI: Windows, Mac, Linux
    2. Sourcetree: Windows, Mac
    3. Visual Studio Code + GitLens: Windows, Mac, Linux

Learn Git in CLI



Source: `https://gph.is/1eRlmt9`

References

- Git Reference
- Atlassian Git Tutorials
- 누구나 쉽게 이해할 수 있는 Git 입문