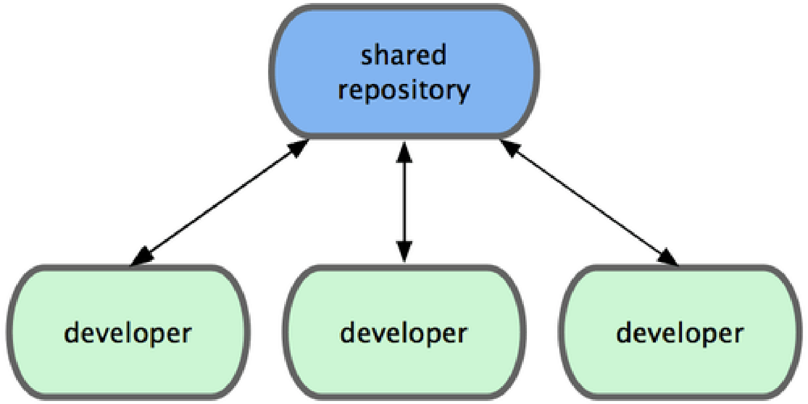
Git & GitHub

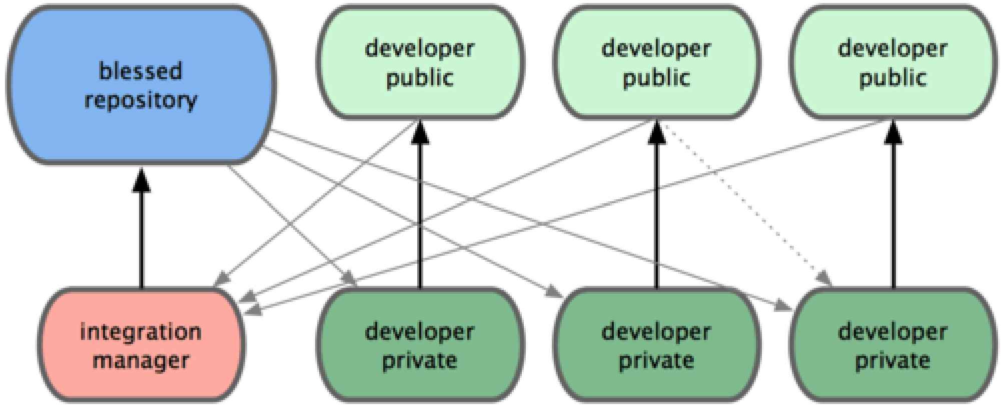
Have you met octocat?

Petr Svihlik - 2015

Git - a distributed version control system

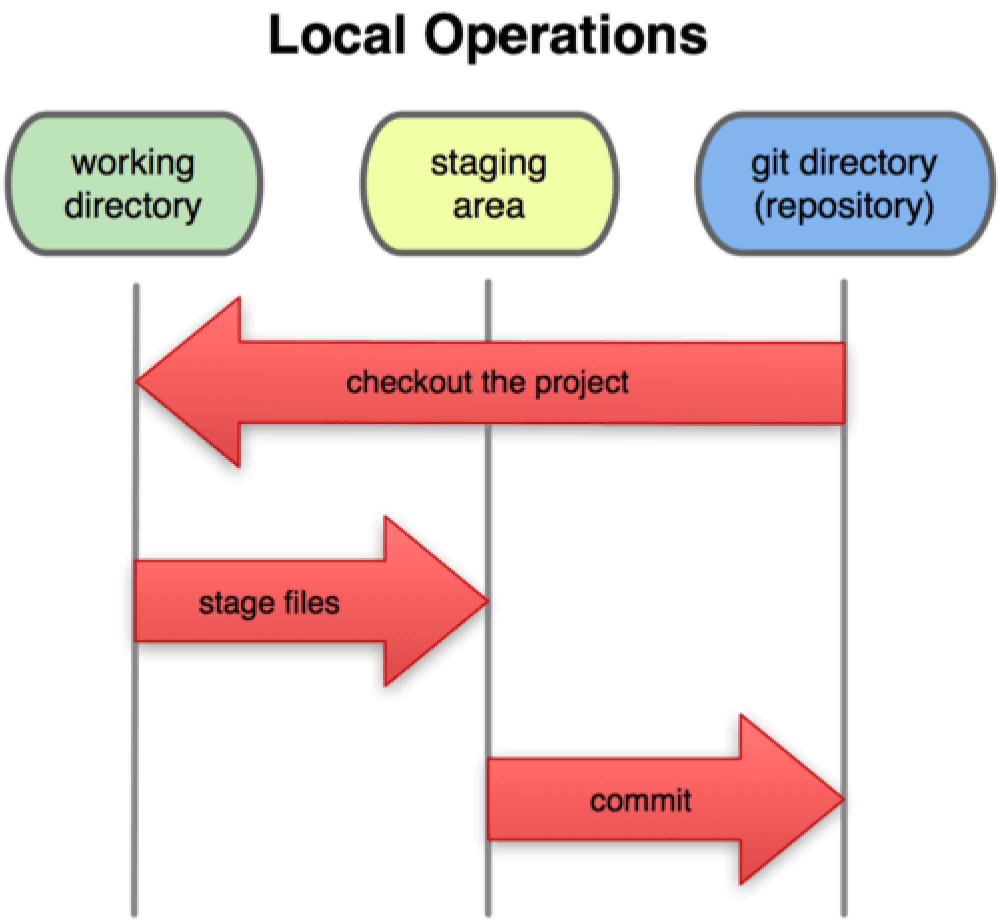
- In centralized systems, every developer is a node working more or less equally on a central hub.
- In Git, however, every developer is **potentially** both a node and a hub
- Distributed doesn‘t mean that there is no central repository. There is always a repo that is in a way leading or considered as a „reference“ (called „blessed“ in the figure below).
- https://git-scm.com/book/no-nb/v1/Distributed-Git-Distributed-Workflows



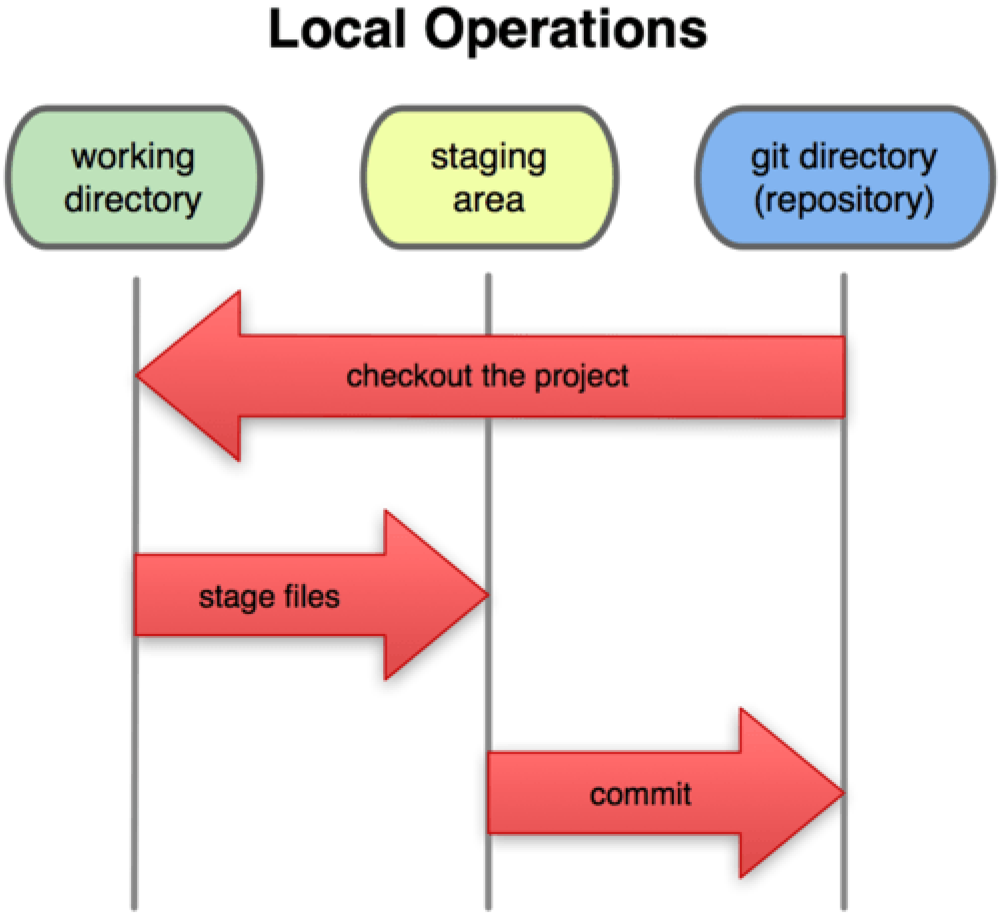


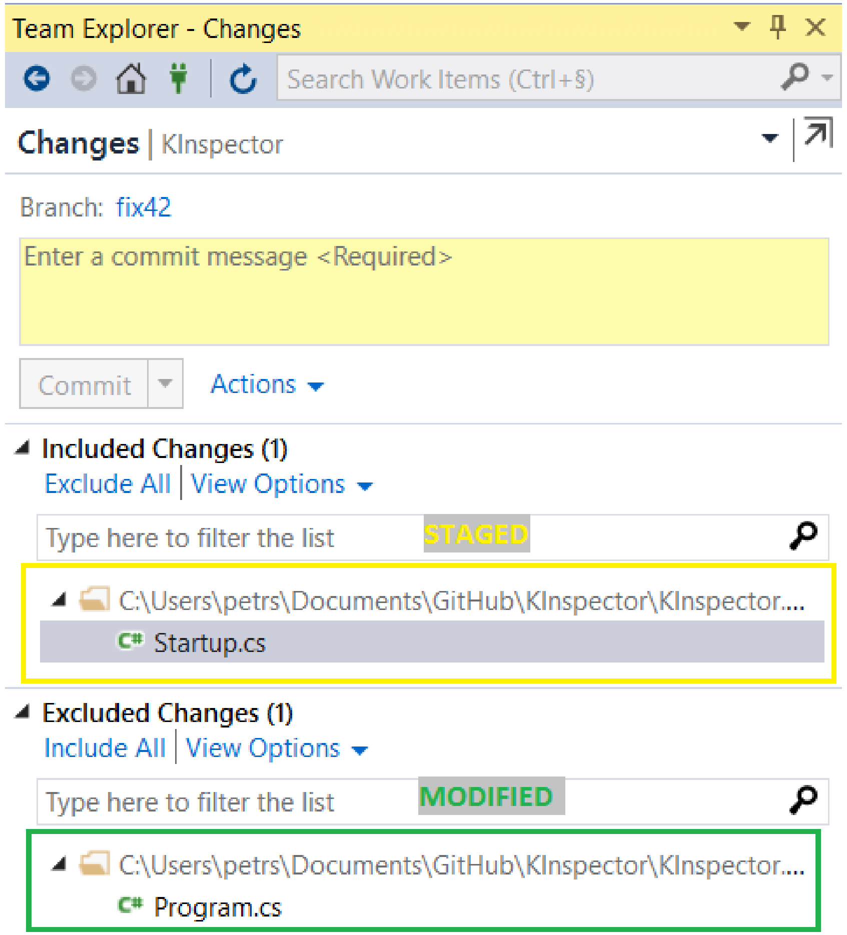
Git – the three states

- **File can be:**
- **Commited** – stored safely in a local repo database (in git directory)
- **Modified** – changed = differs from version that has been checked out (in a working directory)
- **Staged** – marked to go to the next commit (in staging area aka **index**)
- https://git-scm.com/book/en/v1/Getting-Started-Git-Basics



Git – staging in Team Explorer




Team Explorer - Changes

Search Work Items (Ctrl+§)

Changes | KInspector

Branch: fix42

Enter a commit message <Required>

Commit | Actions

Included Changes (1)

Exclude All | View Options

Type here to filter the list

STAGED

C:\Users\petrs\Documents\GitHub\KInspector\KInspector....

Startup.cs

Excluded Changes (1)

Include All | View Options

Type here to filter the list

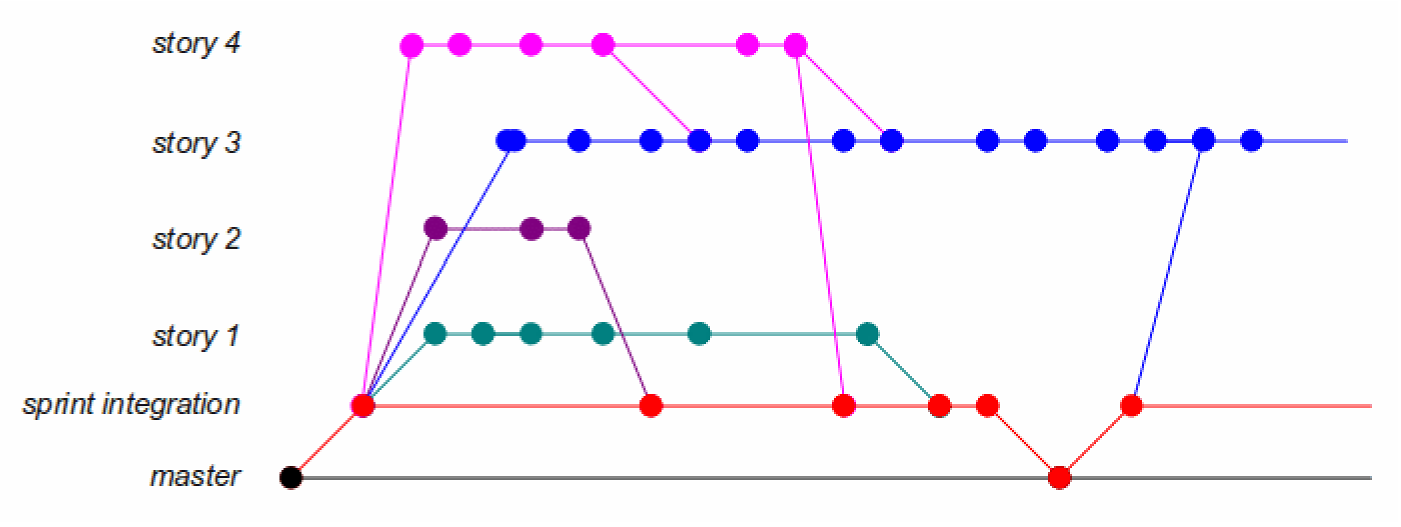
MODIFIED

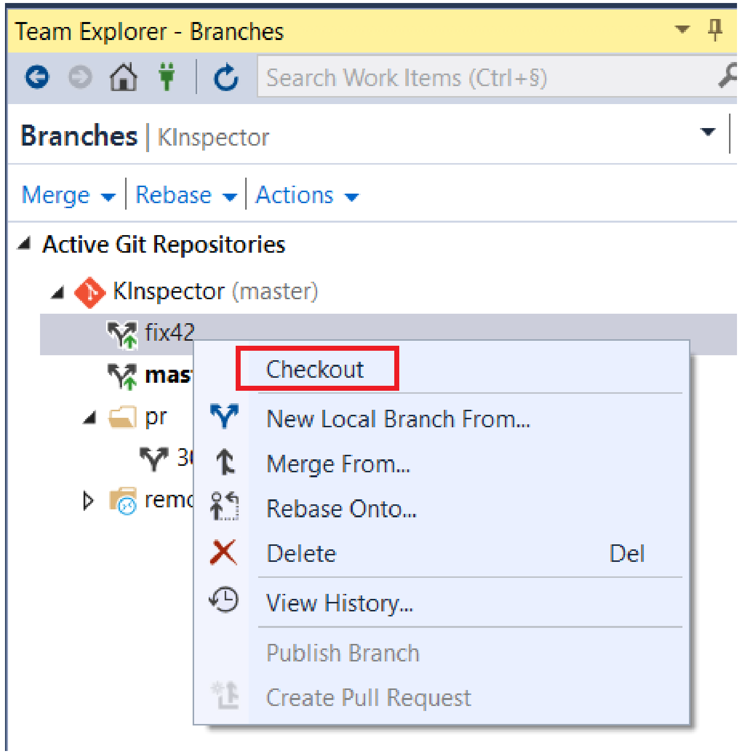
C:\Users\petrs\Documents\GitHub\KInspector\KInspector....

Program.cs

Git – Checkout

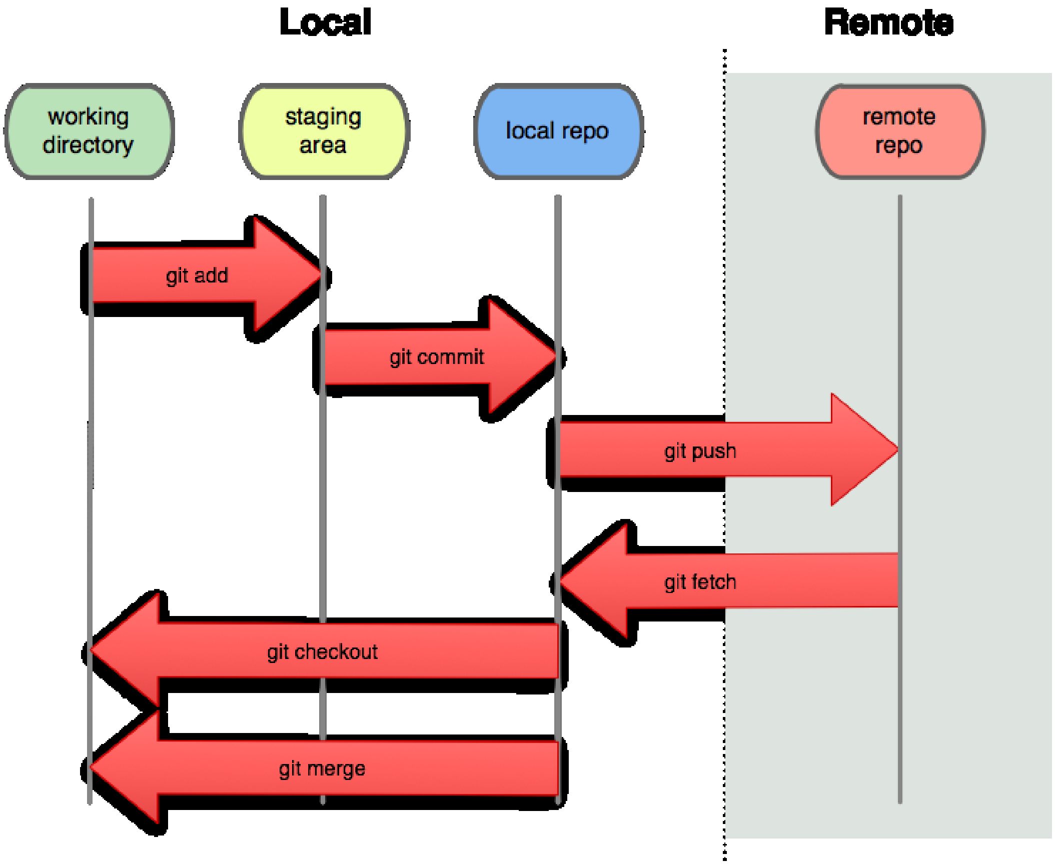
Each repository can have multiple branches. We switch between them using „git checkout“ command.





Git - remotes

- Remote repositories are versions of your project that are **hosted on the Internet or network** somewhere
- **You can have several** of them, each of which genera is either read-only or read/write for you.
- This is what allows you to **collaborate**
- [https://git-scm.com/book/en/v2/Git-Basics-Working with-Remotes](https://git-scm.com/book/en/v2/Git-Basics-Working-with-Remotes)

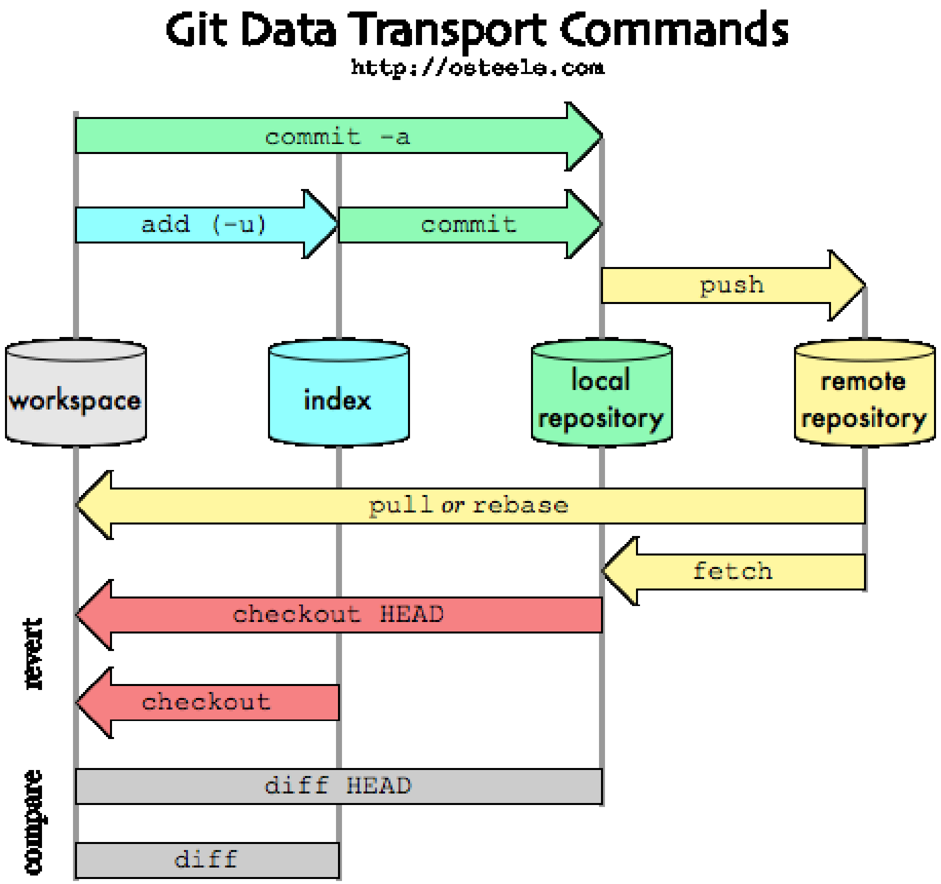


Git(Hub) – Pull requests

- PRs allow you to promote your changes to repositories you don‘t have write access to
- You are basically **requesting** the maintainer of the repository to **pull your changes**
- Based on commands:
  - **git request-pull** - takes the base branch into which you want your topic branch pulled and the Git repository URL you want them to pull from, and outputs a **summary of all the changes**
  - ->Make sure you create a branch for each topic/feature – it‘s easier to maintain (merge) them.
  - **git pull** - Fetch from and integrate with another repository or a local branch
    - **git pull** does a **git fetch** followed by a **git merge**
- GitHub has its own Pull Request mechanism

https://git-scm.com/book/tr/v2/Distributed-Git-Contributing-to-a-Project

Git – Fitting together



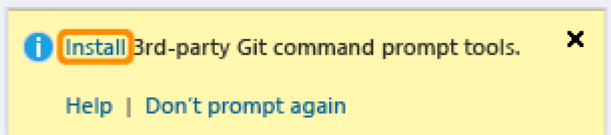
Git – Getting a repo (Init, Clone, Fork)

Init – creates an empty repo out of a folder
Clone – Copies a repository and sets its „remotes“ to the original repo
Fork – Clones a repo server-side. Not a Git command. More info:
http://stackoverflow.com/a/6286877/1332034

https://git-scm.com/book/en/v2/Git-Basics-Getting-a-Git-Repository

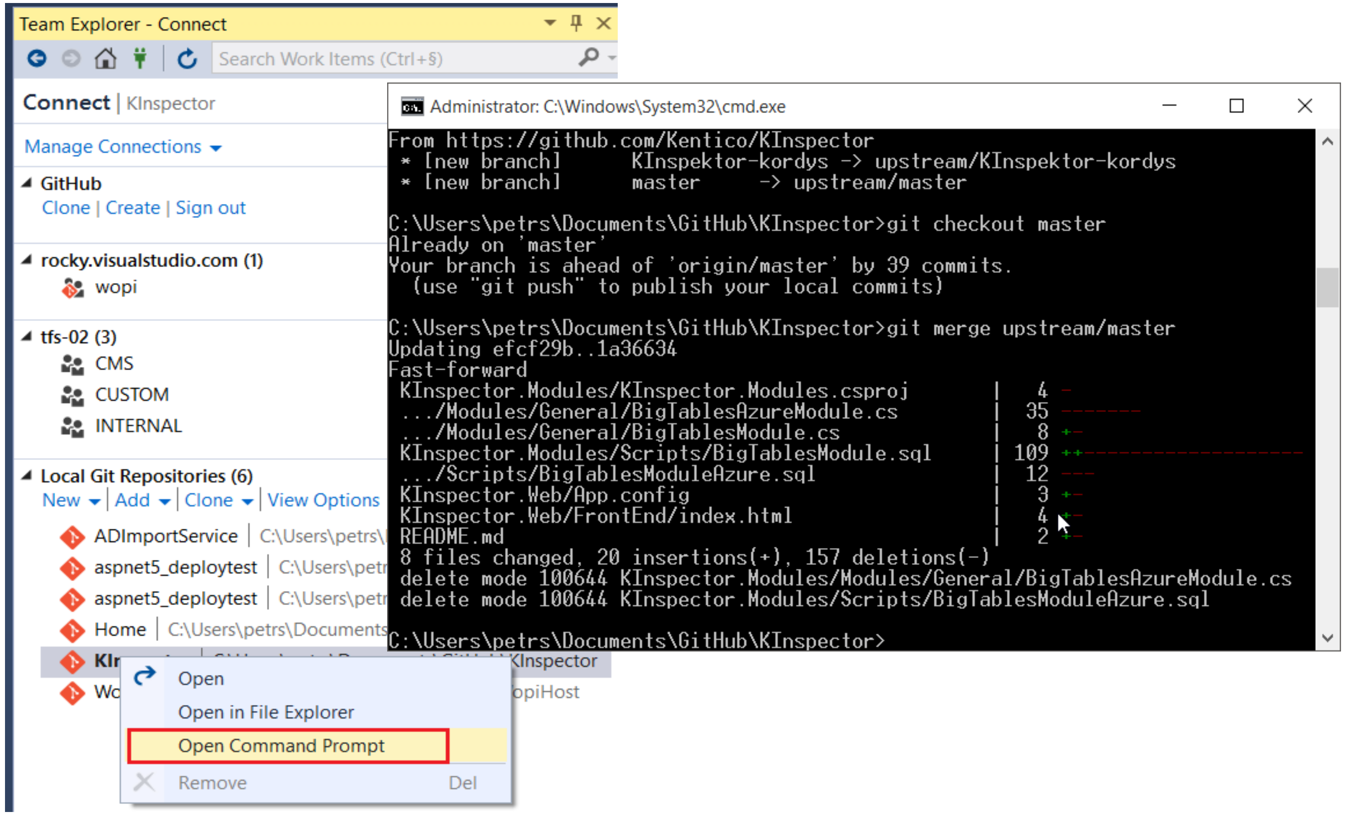
Git – Using command line from VS

- Sometimes, especially when performing advanced operations (such as syncing a fork) there's no other way than doing it via command line.
- In order to do that you need to install 3rd party Git cmd prompt tools.



Install 3rd-party Git command prompt tools.

Help | Don't prompt again



Team Explorer - Connect
Search Work Items (Ctrl+§)
Connect | KInspector
Manage Connections
GitHub
Clone | Create | Sign out
rocky.visualstudio.com (1)
wopi
tfs-02 (3)
CMS
CUSTOM
INTERNAL
Local Git Repositories (6)
New | Add | Clone | View Options
ADImportService | C:\Users\petrs\
aspnet5_deploytest | C:\Users\petr
aspnet5_deploytest | C:\Users\petr
Home | C:\Users\petrs\Documents
KInspector
opiHost
Open
Open in File Explorer
Open Command Prompt
Remove Del

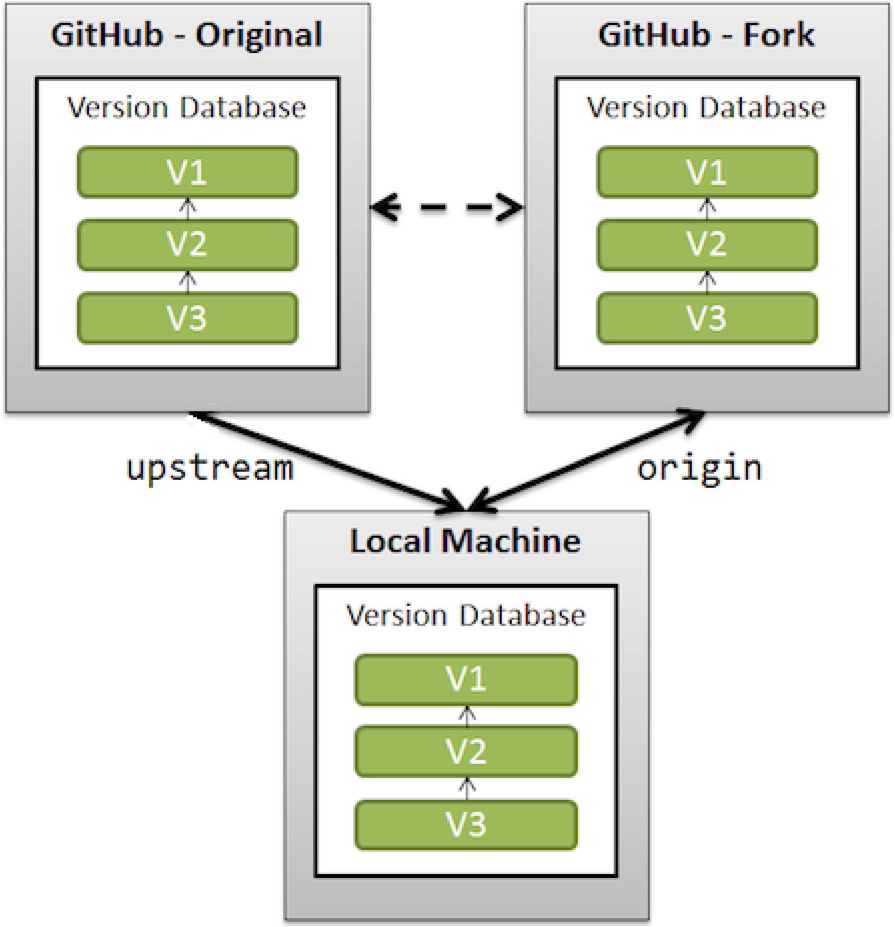
Administrator: C:\Windows\System32\cmd.exe

```
From https://github.com/Kentico/KInspector
 * [new branch]      KInspektor-kordys -> upstream/KInspektor-kordys
 * [new branch]      master     -> upstream/master

C:\Users\petrs\Documents\GitHub\KInspector>git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 39 commits.
  (use "git push" to publish your local commits)

C:\Users\petrs\Documents\GitHub\KInspector>git merge upstream/master
Updating efcf29b..1a36634
Fast-forward
 KInspector.Modules/KInspector.Modules.csproj        |   4 -
 .../Modules/General/BigTablesAzureModule.cs         |  35 -------
 .../Modules/General/BigTablesModule.cs              |   8 +-
 KInspector.Modules/Scripts/BigTablesModule.sql      | 109 ++------------------
 .../Scripts/BigTablesModuleAzure.sql                |  12 ---
 KInspector.Web/App.config                           |   3 +-
 KInspector.Web/FrontEnd/index.html                  |   4 +-
 README.md                                           |   2 +-
 8 files changed, 20 insertions(+), 157 deletions(-)
 delete mode 100644 KInspector.Modules/Modules/General/BigTablesAzureModule.cs
 delete mode 100644 KInspector.Modules/Scripts/BigTablesModuleAzure.sql

C:\Users\petrs\Documents\GitHub\KInspector>
```

Git – Upstream vs Origin

- upstream generally refers to the original repo that you have forked
- origin is your fork: your own repo on GitHub, clone of the original repo of GitHub
- upstream and origin are aliases on your local machine for particular repositories

- More info: http://stackoverflow.com/questions/9257533/what-is-the-difference-between-origin-and-upstream-in-github
- http://stackoverflow.com/questions/9529497/what-is-origin-in-git

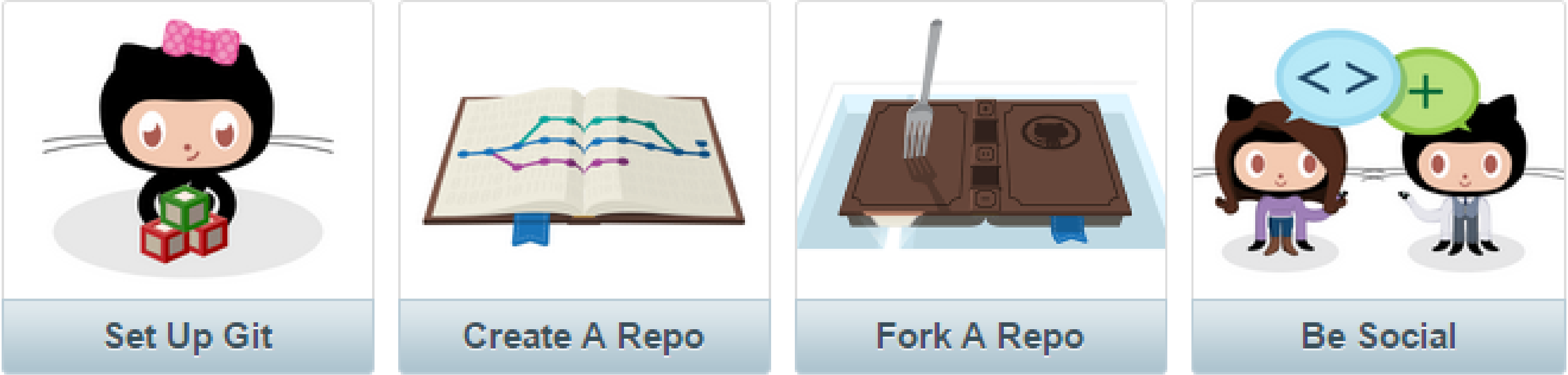


GitHub – Creating your first pull request

- Don't be afraid! http://firstpr.me/ + The Myth of the Genius Programmer
- Step-by-step manual on confluence
- Sign-in to GH
- Go to KInspector and Fork it
- Clone the repository to your local machine
- Open the solution and do some changes
- Go to changes and hit Commit & Sync
- Go to GitHub and 🔃

References

- http://git-scm.com/
- https://help.github.com/



Author

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