

Fix Simple Git Mistakes

To add extra files/changes or to fix the commit message:

```
git commit --amend
```

To remove files mistakenly added:

```
git reset --soft HEAD~1
```

```
git reset HEAD <file>
```

To undo changes from an entire commit:

```
git revert <SHA>
```

Git commit --amend

- Made a commit but missed files

```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git init
Initialized empty Git repository in /home/jneal/Phd/Codes/test_git/.git/
[jneal@localhost test_git]$ git add file1
[jneal@localhost test_git]$ git status
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   file1

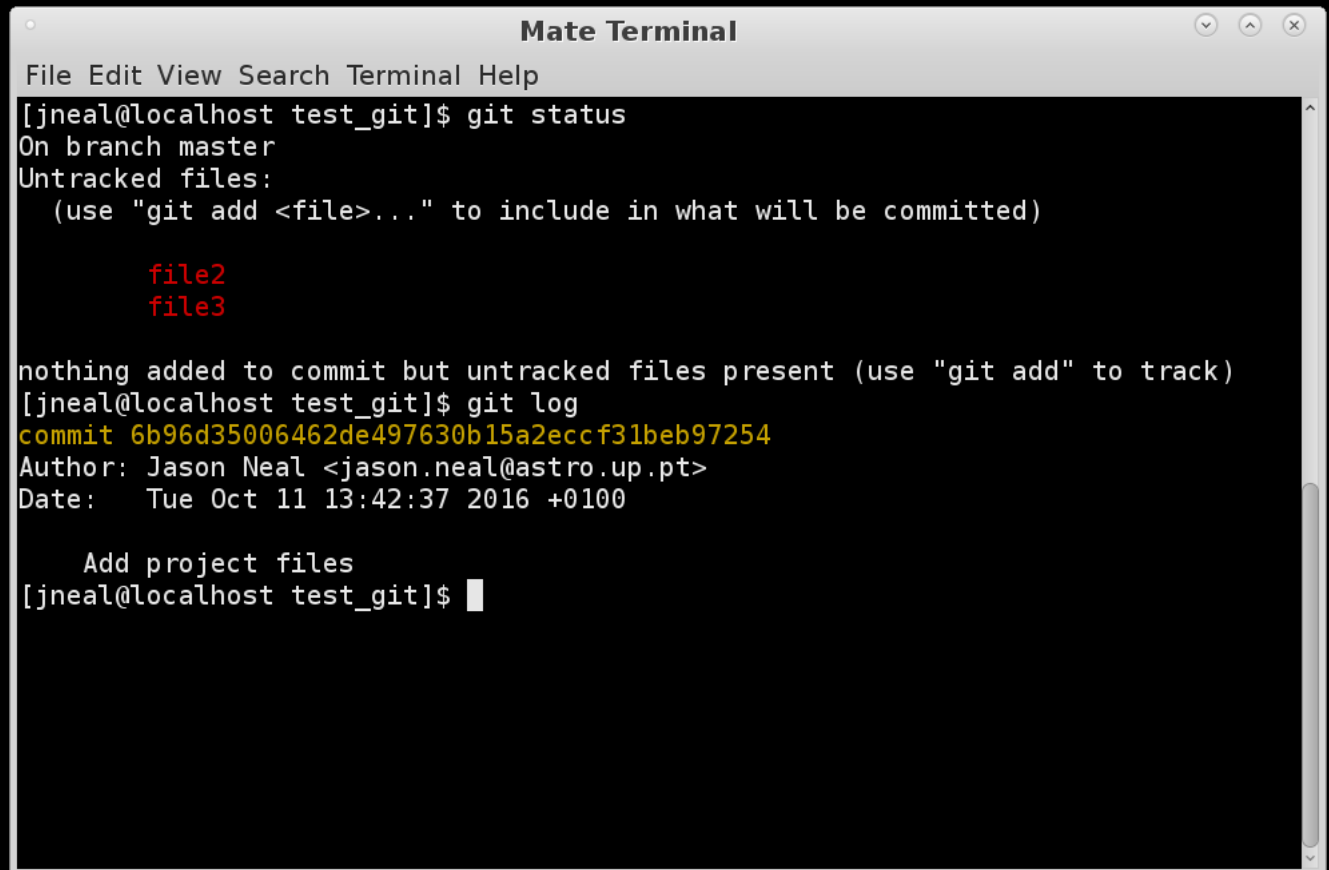
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file2
        file3

[jneal@localhost test_git]$ git commit -m "Add project files"
[master (root-commit) 6b96d35] Add project files
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 file1
[jneal@localhost test_git]$
```

Git commit --amend

- Made a commit but missed files



The screenshot shows a terminal window titled "Mate Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal output shows the user running `git status` and `git log`. The status command shows untracked files `file2` and `file3`. The log command shows a commit with hash `6b96d35006462de497630b15a2eccf31beb97254` by Jason Neal. The prompt `[jneal@localhost test_git]$` is followed by the text "Add project files".

```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file2
        file3

nothing added to commit but untracked files present (use "git add" to track)
[jneal@localhost test_git]$ git log
commit 6b96d35006462de497630b15a2eccf31beb97254
Author: Jason Neal <jason.neal@astro.up.pt>
Date:   Tue Oct 11 13:42:37 2016 +0100

    Add project files
[jneal@localhost test_git]$
```

Git commit --amend

- Made a commit but missed files
- Stage the changes you want to add to the last commit

```
Mate Terminal
File Edit View Search Terminal Help
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file2
        file3

nothing added to commit but untracked files present (use "git add" to track)
[jneal@localhost test_git]$ git log
commit 6b96d35006462de497630b15a2eccf31beb97254
Author: Jason Neal <jason.neal@astro.up.pt>
Date:   Tue Oct 11 13:42:37 2016 +0100

    Add project files
[jneal@localhost test_git]$ git add file2 file3
[jneal@localhost test_git]$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   file2
        new file:   file3

[jneal@localhost test_git]$
```

Git commit --amend

- Made a commit but missed files
- Stage the changes you want to add to the last commit
- Amend the commit

```
Mate Terminal
File Edit View Search Terminal Help
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file2
        file3

nothing added to commit but untracked files present (use "git add" to track)
[jneal@localhost test_git]$ git log
commit 6b96d35006462de497630b15a2eccf31beb97254
Author: Jason Neal <jason.neal@astro.up.pt>
Date:   Tue Oct 11 13:42:37 2016 +0100

    Add project files
[jneal@localhost test_git]$ git add file2 file3
[jneal@localhost test_git]$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   file2
        new file:   file3

[jneal@localhost test_git]$ git commit --amend
```

Git commit --amend

- Made a commit but missed files
- Stage the changes you want to add to the last commit
- Amend the commit
- The extra files were added to the last commit

```
Mate Terminal
File Edit View Search Terminal Help
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

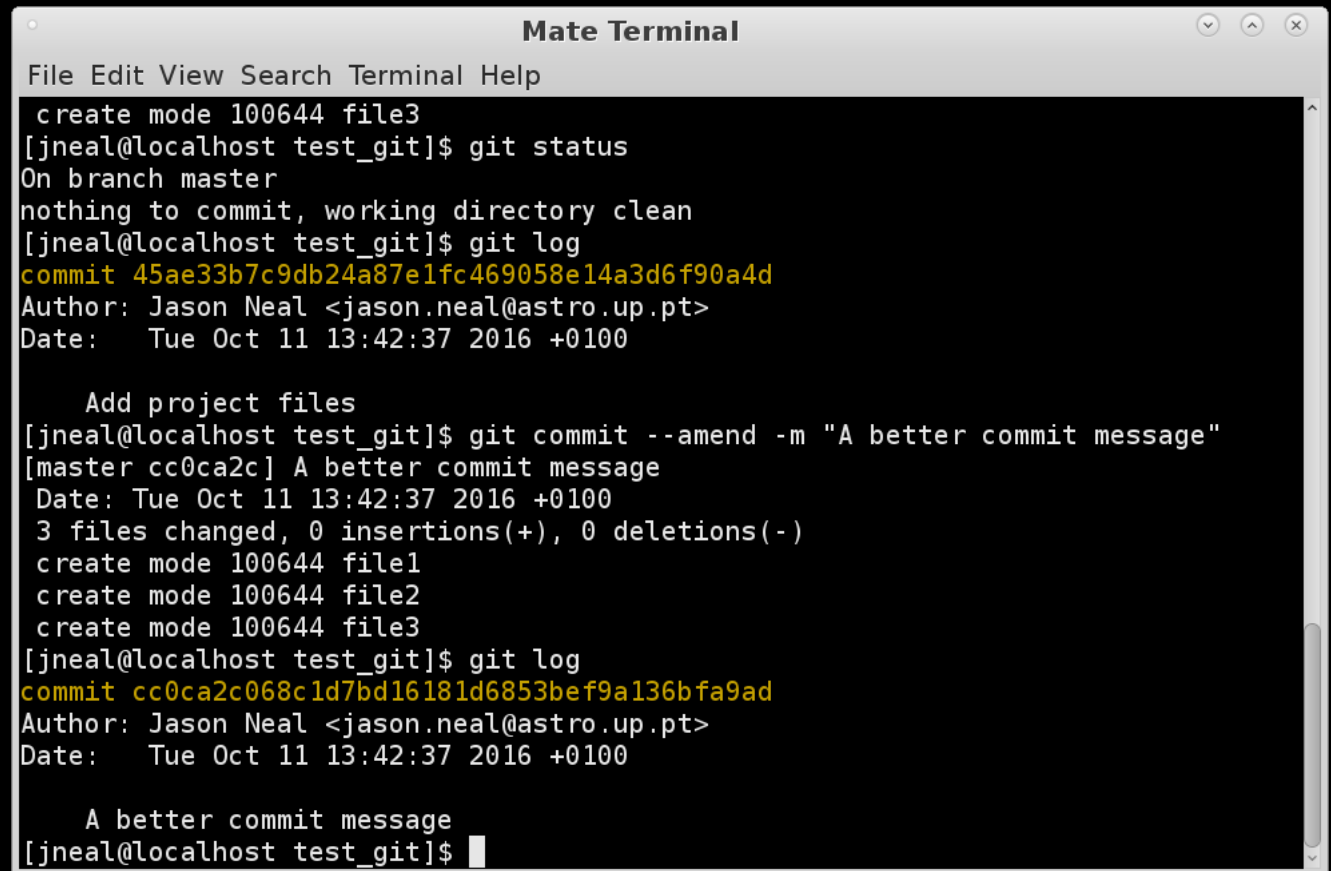
       new file:   file2
       new file:   file3

[jneal@localhost test_git]$ git commit --amend
[master 45ae33b] Add project files
Date: Tue Oct 11 13:42:37 2016 +0100
3 files changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file1
create mode 100644 file2
create mode 100644 file3
[jneal@localhost test_git]$ git status
On branch master
nothing to commit, working directory clean
[jneal@localhost test_git]$ git log
commit 45ae33b7c9db24a87e1fc469058e14a3d6f90a4d
Author: Jason Neal <jason.neal@astro.up.pt>
Date:   Tue Oct 11 13:42:37 2016 +0100

    Add project files
[jneal@localhost test_git]$
```

Git commit --amend

- Can also change the last commit message.

A screenshot of a terminal window titled "Mate Terminal". The window has a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal output shows a sequence of Git commands and their results. It starts with creating a file, then checking the status and log. A commit is made with a specific message. Then, the user runs "git commit --amend -m 'A better commit message'", which updates the previous commit. Finally, the user runs "git log" again, showing the updated commit message.

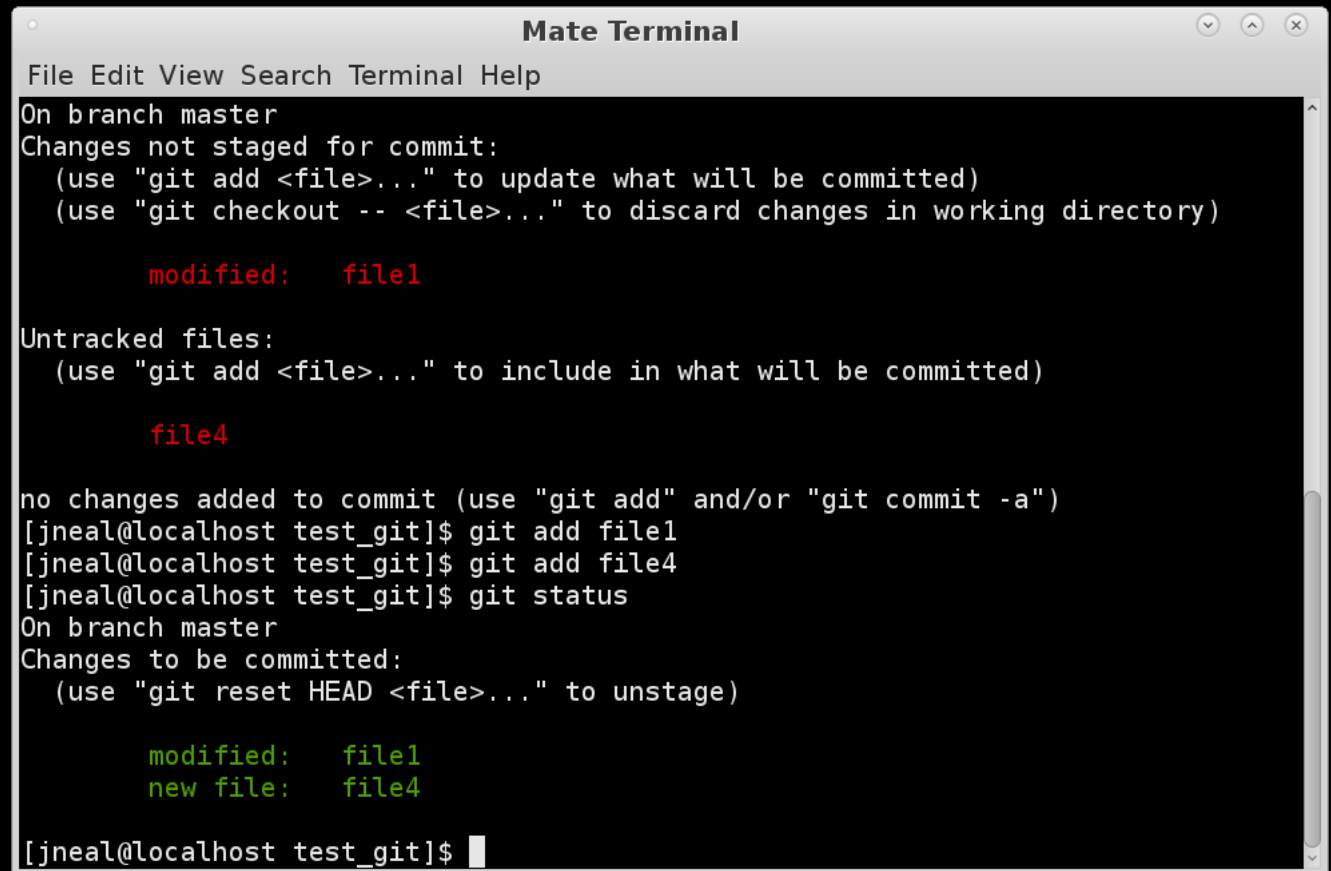
```
Mate Terminal
File Edit View Search Terminal Help
create mode 100644 file3
[jneal@localhost test_git]$ git status
On branch master
nothing to commit, working directory clean
[jneal@localhost test_git]$ git log
commit 45ae33b7c9db24a87e1fc469058e14a3d6f90a4d
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 13:42:37 2016 +0100

Add project files
[jneal@localhost test_git]$ git commit --amend -m "A better commit message"
[master cc0ca2c] A better commit message
Date: Tue Oct 11 13:42:37 2016 +0100
3 files changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file1
create mode 100644 file2
create mode 100644 file3
[jneal@localhost test_git]$ git log
commit cc0ca2c068c1d7bd16181d6853bef9a136bfa9ad
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 13:42:37 2016 +0100

A better commit message
[jneal@localhost test_git]$
```

Git reset

- Accidentally added extra files.
- i.e. build files or files with sensitive information

A screenshot of a terminal window titled "Mate Terminal". The window shows the output of several Git commands. It starts with "On branch master" and "Changes not staged for commit:". It then shows "modified: file1" in red. Next, it shows "Untracked files:" and "file4" in red. Then, it shows "no changes added to commit" and the user runs "git add file1", "git add file4", and "git status". The status shows "On branch master" and "Changes to be committed:" with "modified: file1" and "new file: file4" in green. Finally, the prompt "[jneal@localhost test_git]\$ " is shown at the bottom.

```
Mate Terminal
File Edit View Search Terminal Help
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   file1

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file4

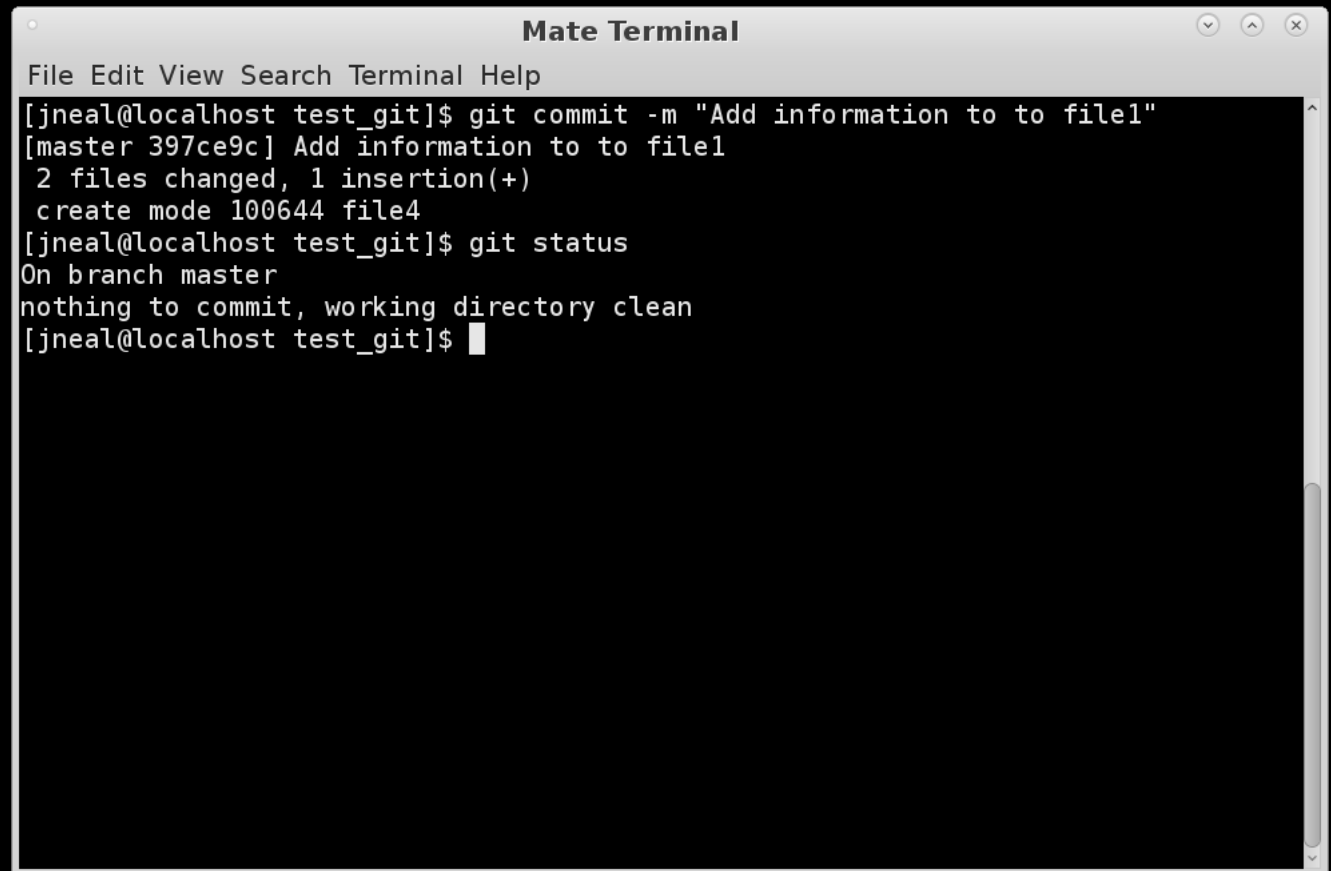
no changes added to commit (use "git add" and/or "git commit -a")
[jneal@localhost test_git]$ git add file1
[jneal@localhost test_git]$ git add file4
[jneal@localhost test_git]$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   file1
        new file:   file4

[jneal@localhost test_git]$
```


Git reset

- Accidentally added extra files and committed them.
- i.e. build files or files with sensitive information

A screenshot of a terminal window titled "Mate Terminal". The terminal shows a series of Git commands and their outputs. The user is in a directory named "test_git" on a "localhost". They run "git commit -m 'Add information to to file1'", which results in a commit on the "master" branch with hash "397ce9c". The commit message is "Add information to to file1". The output shows "2 files changed, 1 insertion(+)" and "create mode 100644 file4". Then, they run "git status", which shows "On branch master" and "nothing to commit, working directory clean". The prompt returns to "[jneal@localhost test_git]\$".

```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git commit -m "Add information to to file1"
[master 397ce9c] Add information to to file1
2 files changed, 1 insertion(+)
create mode 100644 file4
[jneal@localhost test_git]$ git status
On branch master
nothing to commit, working directory clean
[jneal@localhost test_git]$
```

Git reset

- Reset HEAD to the previous commit.

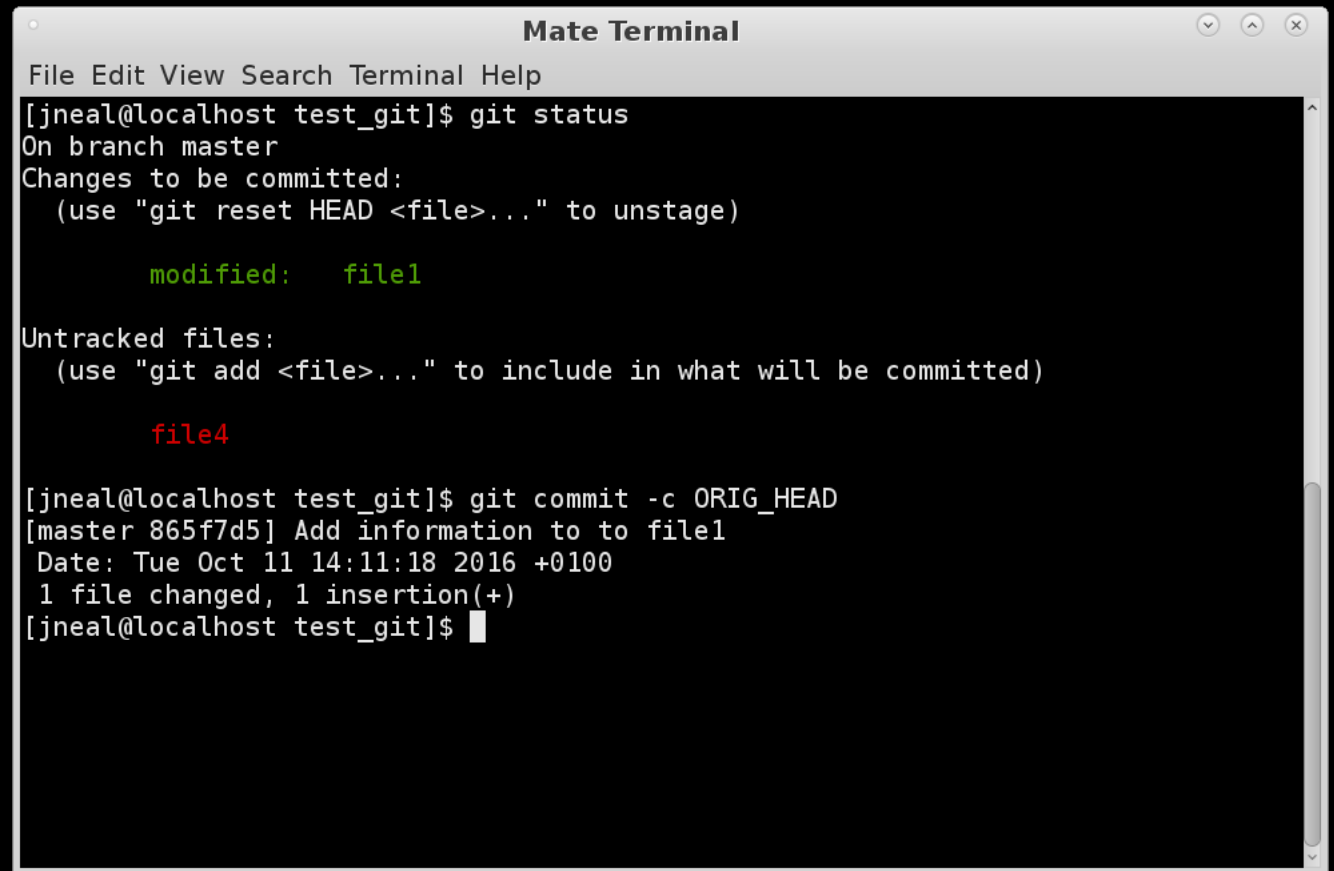
```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git commit -m "Add information to to file1"
[master 397ce9c] Add information to to file1
2 files changed, 1 insertion(+)
create mode 100644 file4
[jneal@localhost test_git]$ git status
On branch master
nothing to commit, working directory clean
[jneal@localhost test_git]$ git reset --soft HEAD~1
[jneal@localhost test_git]$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   file1
        new file:   file4

[jneal@localhost test_git]$ git reset HEAD file4
[jneal@localhost test_git]$
```

Git reset

- Reset HEAD to the previous commit.
- Unstage files not wanted in this commit.
- Commit with the files removed.



```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git status
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   file1

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        file4

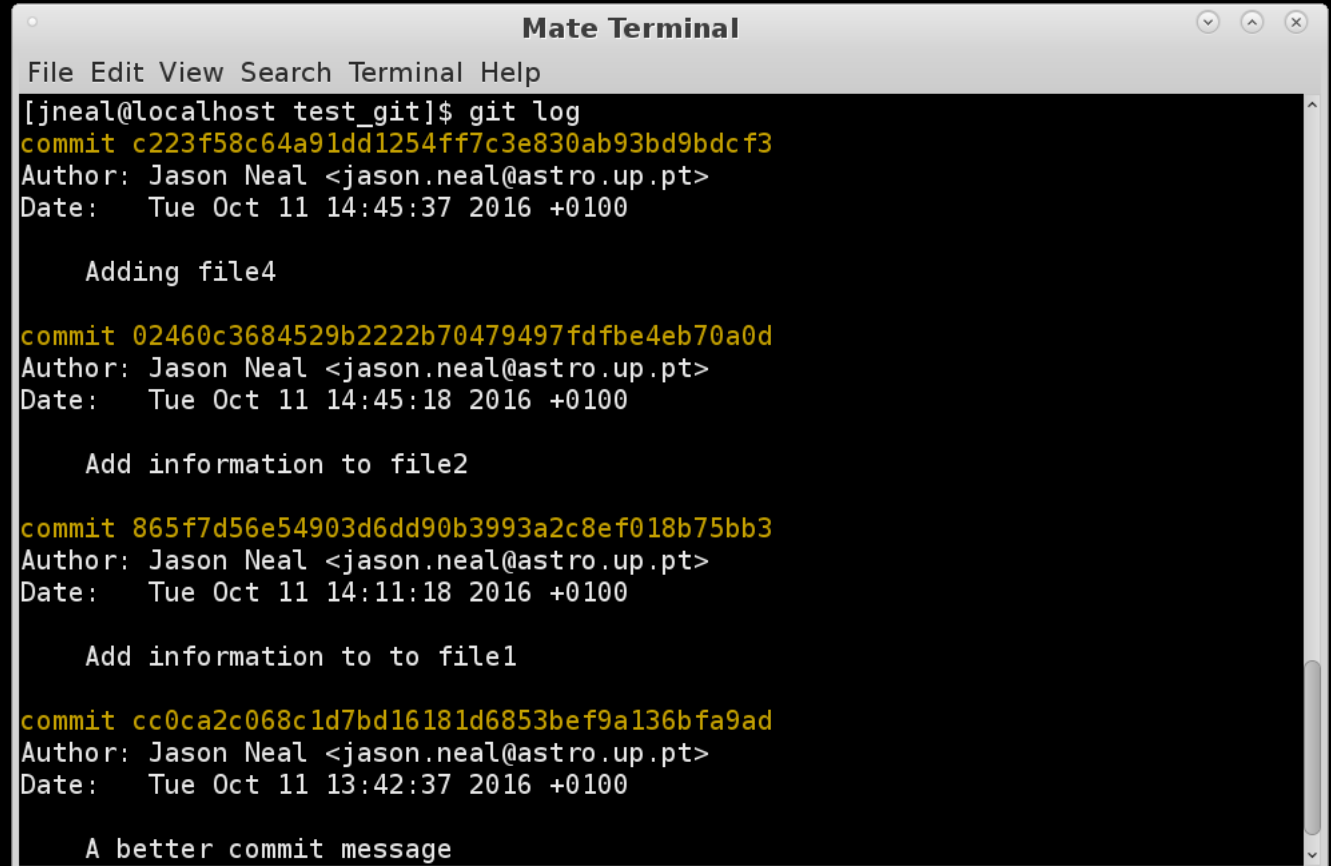
[jneal@localhost test_git]$ git commit -c ORIG_HEAD
[master 865f7d5] Add information to to file1
Date: Tue Oct 11 14:11:18 2016 +0100
1 file changed, 1 insertion(+)
[jneal@localhost test_git]$
```

Git revert <SHA>

- Reverses (undoes) all the changes from a previous commit.
- Creates a new commit with the revert applied.
- You can also revert a revert.
- Need to provide the first few digits of the commit hash.
- The changes remain in your commit history! (Doesn't remove the sensitive information)

Git revert <SHA>

- Now we have a number of commits.



```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git log
commit c223f58c64a91dd1254ff7c3e830ab93bd9bdcf3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:37 2016 +0100

    Adding file4

commit 02460c3684529b2222b70479497fdfbe4eb70a0d
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:18 2016 +0100

    Add information to file2

commit 865f7d56e54903d6dd90b3993a2c8ef018b75bb3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:11:18 2016 +0100

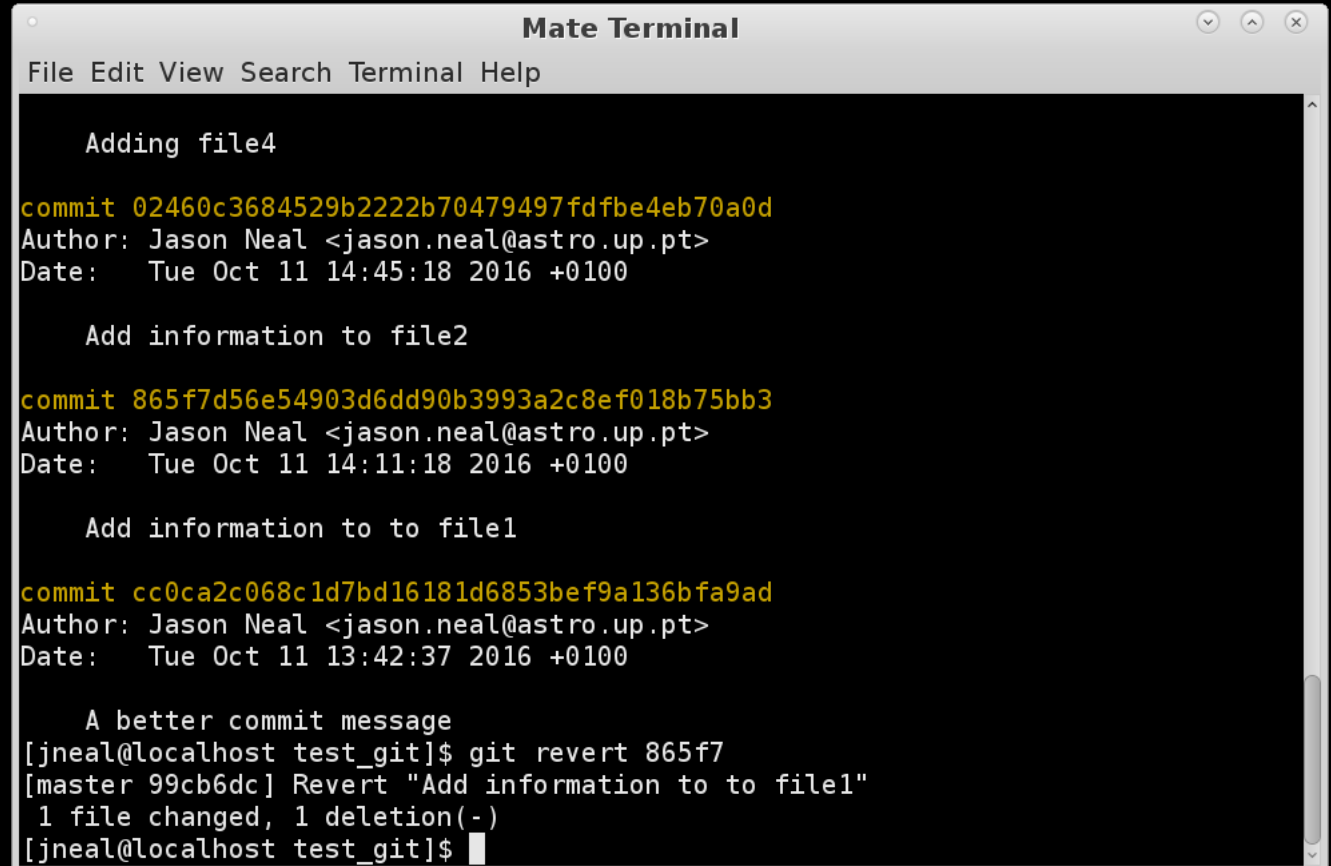
    Add information to to file1

commit cc0ca2c068c1d7bd16181d6853bef9a136bfa9ad
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 13:42:37 2016 +0100

    A better commit message
```

Git revert <SHA>

- Now we have a number of commits.
- We revert a previous commit starting 865f7.



```
Mate Terminal
File Edit View Search Terminal Help

Adding file4
commit 02460c3684529b2222b70479497fdfbe4eb70a0d
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:18 2016 +0100

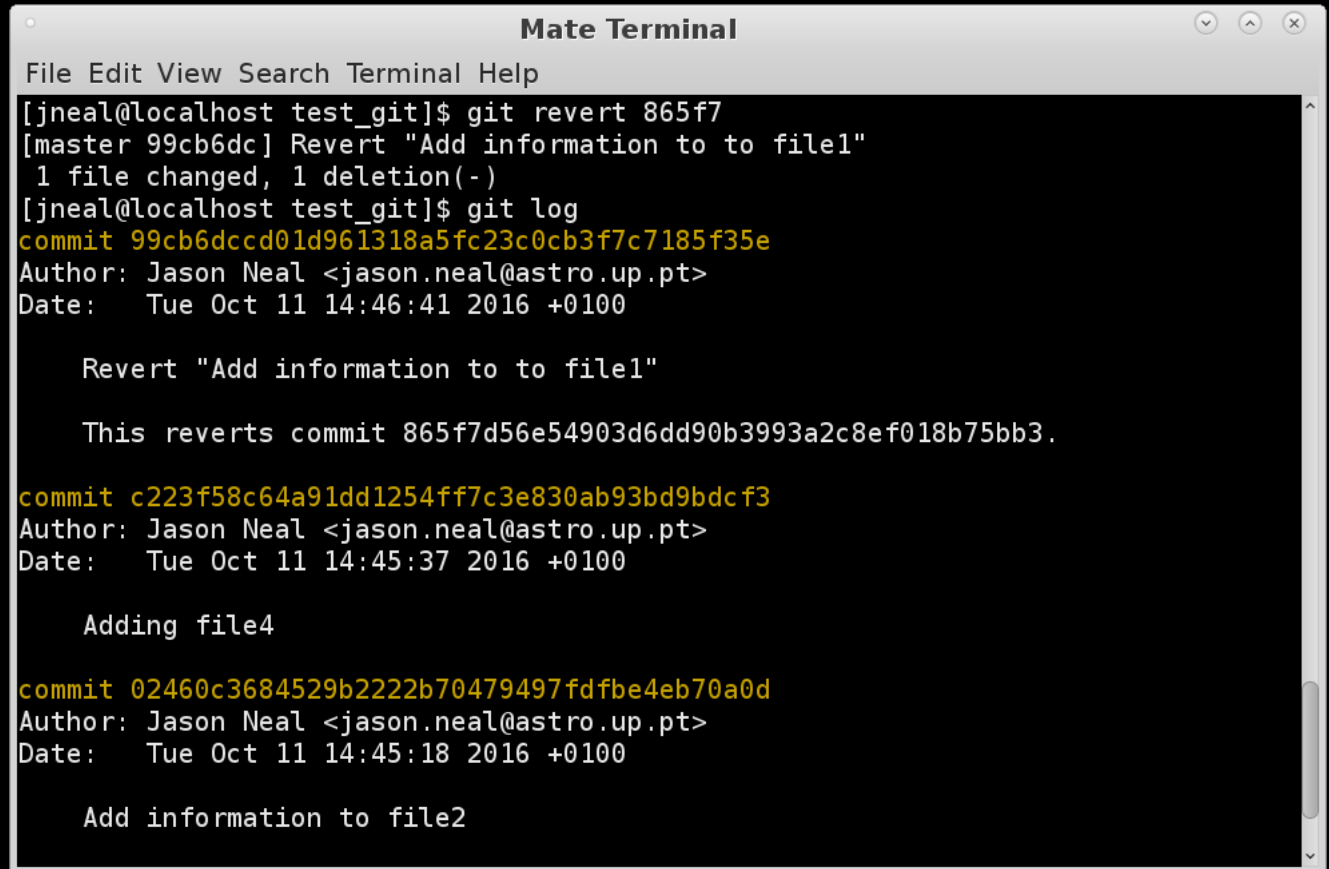
Add information to file2
commit 865f7d56e54903d6dd90b3993a2c8ef018b75bb3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:11:18 2016 +0100

Add information to to file1
commit cc0ca2c068c1d7bd16181d6853bef9a136bfa9ad
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 13:42:37 2016 +0100

A better commit message
[jneal@localhost test_git]$ git revert 865f7
[master 99cb6dc] Revert "Add information to to file1"
1 file changed, 1 deletion(-)
[jneal@localhost test_git]$
```

Git revert <SHA>

- Now we have a number of commits.
- We revert a previous commit starting 865f7.



```
Mate Terminal
File Edit View Search Terminal Help
[jneal@localhost test_git]$ git revert 865f7
[master 99cb6dc] Revert "Add information to to file1"
1 file changed, 1 deletion(-)
[jneal@localhost test_git]$ git log
commit 99cb6dccd01d961318a5fc23c0cb3f7c7185f35e
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:46:41 2016 +0100

    Revert "Add information to to file1"

    This reverts commit 865f7d56e54903d6dd90b3993a2c8ef018b75bb3.

commit c223f58c64a91dd1254ff7c3e830ab93bd9bdcf3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:37 2016 +0100

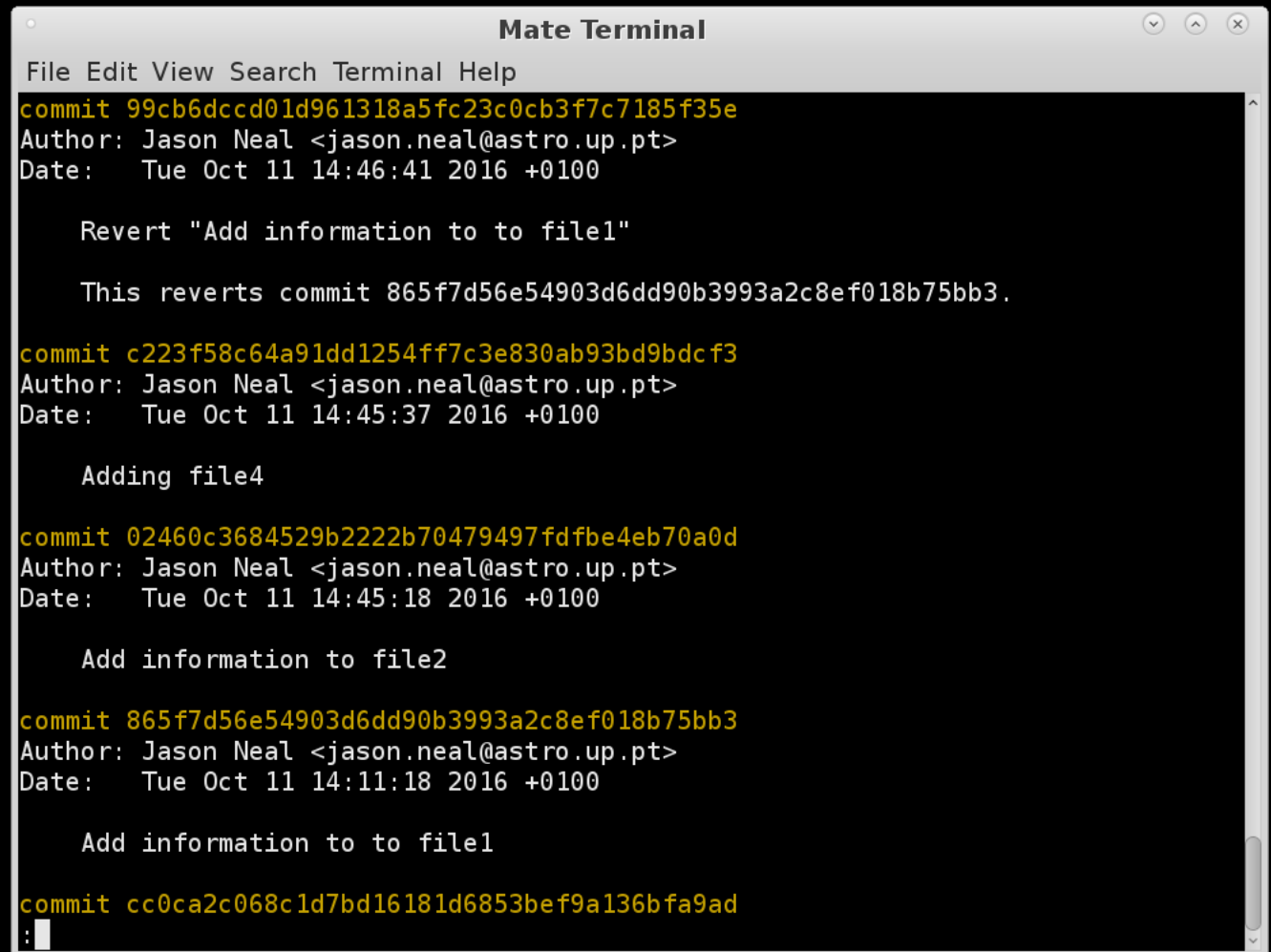
    Adding file4

commit 02460c3684529b2222b70479497fdfbe4eb70a0d
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:18 2016 +0100

    Add information to file2
```

Git revert <SHA>

- Now we have a number of commits.
- We revert a previous commit starting 865f7.
- A new commit is created but the old commit remains!



```
Mate Terminal
File Edit View Search Terminal Help
commit 99cb6dccd01d961318a5fc23c0cb3f7c7185f35e
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:46:41 2016 +0100

    Revert "Add information to to file1"

    This reverts commit 865f7d56e54903d6dd90b3993a2c8ef018b75bb3.

commit c223f58c64a91dd1254ff7c3e830ab93bd9bdcf3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:37 2016 +0100

    Adding file4

commit 02460c3684529b2222b70479497fdfbe4eb70a0d
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:45:18 2016 +0100

    Add information to file2

commit 865f7d56e54903d6dd90b3993a2c8ef018b75bb3
Author: Jason Neal <jason.neal@astro.up.pt>
Date: Tue Oct 11 14:11:18 2016 +0100

    Add information to to file1

commit cc0ca2c068c1d7bd16181d6853bef9a136bfa9ad
:
```