

Git ????? ?? .git ?? ?? ??(1?)

1. git merge ? ?? ??

1.1 ?? ???

```
git checkout main
git merge feature
```

1.2 .git ?? ??

| ?? ?? | ?? ?? |
|----------------------|---|
| .git/objects/ | ?? ?? ?? merge commit ?? ?? |
| .git/refs/heads/main | ??? ???? merge ???? ?? |
| .git/HEAD | ??? ref: refs/heads/main ?? |
| .git/MERGE_HEAD | ?? ?? ?? (feature) ?? ?? (?? ?? ? ???) |
| .git/logs/HEAD | HEAD ?? ?? ?? (reflog) |

1.3 ?? ??

```
A---B---C ← main
      \
      D---E ← feature

► git merge feature

??:
```

$$\begin{array}{ccc} & \backslash & / \\ & D \text{ --- } E & \end{array}$$

2.1 ?? ???

2.2 .git ?? ??

| 本地文件 | 远程仓库 |
|-------------------------|----------------------------|
| .git/objects/ | feature 对象 分支 提交 对象 提交 对象 |
| .git/refs/heads/feature | 提交 分支 提交 |
| .git/REBASE_HEAD | 提交 分支 提交 |
| .git/HEAD | 提交 ref: refs/heads/feature |
| .git/logs/HEAD | HEAD 提交 提交 提交 提交 |

2.3 ?? ??

```
main:      A---B---C
feature:    D---E

► git rebase main

□□:
main:      A---B---C
feature:    D'---E' ← HEAD
```

3. `git reset` ? ?? ??

3.1 ?? ???

```
git reset --hard HEAD~1
```

3.2 `.git` ?? ??

| □□ □□ | □□ □□ |
|-----------------------------------|---------------------------------------|
| <code>.git/refs/heads/main</code> | □□□ □□□ □□ □□□ □□ |
| <code>.git/HEAD</code> | □□□ <code>ref: refs/heads/main</code> |
| <code>.git/index</code> | □□□ □□ □□□ □□□ □□ □□□ |
| □□ □□□□ | <code>--hard</code> □□ □□ □□□ |
| <code>.git/ORIG_HEAD</code> | □□ HEAD □□ □□□ □□ |
| <code>.git/logs/HEAD</code> | □□ □□ □□ □□□ |

3.3 ?? ??

```
A---B---C ← main, HEAD
```

```
↑
```

```
ORIG_HEAD
```

```
► git reset --hard B
```

```
□□:
```

```
A---B ← main, HEAD
```

4. ?? HEAD ?? ??

| ?? ?? | ?? ?? | ?? |
|-----------------------|------------------|-------------|
| .git/MERGE_HEAD | git merge ?? | ?? ?? ?? ?? |
| .git/REBASE_HEAD | git rebase ?? | ?? ?? ?? |
| .git/ORIG_HEAD | git reset, merge | ?? ?? ?? |
| .git/FETCH_HEAD | git fetch | ???? ?? ?? |
| .git/CHERRY_PICK_HEAD | git cherry-pick | ?? ?? ?? |

5. ?? ???

| ?? | ?? ?? | ?? ?? | HEAD ?? | ???? ?? | ?? ?? ?? |
|--------------|------------|-------|---------|----------|-------------|
| merge | | | | ?? ?? ?? | MERGE_HEAD |
| rebase | (rewrite) | | | ?? ?? ?? | REBASE_HEAD |
| reset --hard | (?? ????) | | | ✓ ?? ?? | ORIG_HEAD |