

4. GitLab-HOL

Objectives

- Explain how to resolve the conflict during merge.

In this hands-on lab, you will learn how to:

- Implement conflict resolution when multiple users are updating the trunk (or master) in such a way that it results into a conflict with the branch's modification.

Prerequisites

The following are the pre-requisites to complete this hands-on lab:

- Hands-on ID: “**Git-T03-HOL_001**”

Notes*:

Please follow the below steps for creating a free account in GitHub.
Do not use cognizant credentials to login to GitHub.

Estimated time to complete this lab: **30 minutes**.

Please follow the instructions to complete the hands-on. Each instruction expect a command for the Git Bash.

1. Verify if master is in clean state.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)
```

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 3 commits.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```

2. Create a branch “**GitWork**”. Add a file “hello.xml”.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git checkout -b GitWork
Switched to a new branch 'GitWork'

HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ echo "<greeting> Hello from GitWork branch </greeting>" > hello.xml

HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ git add hello.xml
warning: in the working copy of 'hello.xml', LF will be replaced by CRLF the next time Git touches it
```

3. Update the content of “hello.xml” and observe the status

```
HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ echo "<greeting> Updated content in GitWork branch </greeting>" > hello.xml

HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ git status
On branch GitWork
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   hello.xml

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   hello.xml
```

4. Commit the changes to reflect in the branch

```
HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ git add hello.xml
warning: in the working copy of 'hello.xml', LF will be replaced by CRLF the next time Git touches it

HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ git commit -m "Update hello.xml in GitWork branch"
[GitWork 2563828] Update hello.xml in GitWork branch
1 file changed, 1 insertion(+)
create mode 100644 hello.xml
```

5. Switch to master.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (GitWork)
$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 3 commits.
  (use "git push" to publish your local commits)
```

6. Add a file “**hello.xml**” to the master and add some different content than previous.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ echo "<greeting> Different content in master branch </greeting>" > hello.xml

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git add hello.xml
warning: in the working copy of 'hello.xml', LF will be replaced by CRLF the next time Git touches it
```

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git commit -m "Add hello.xml in master branch"
[master c87c428] Add hello.xml in master branch
1 file changed, 1 insertion(+)
create mode 100644 hello.xml
```

7. Commit the changes to the master

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git add .gitignore

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git commit -m "Ignore log files in .gitignore"
On branch master
Your branch is ahead of 'origin/master' by 4 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
```

8. Observe the log by executing “**git log --oneline --graph --decorate --all**”

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git log --oneline --graph --decorate --all
* c87c428 (HEAD -> master) Add hello.xml in master branch
| * 2563828 (GitWork) Update hello.xml in GitWork branch
|/
* f854e54 Ignore .log files
* abccffd Added two files in GitNewBranch
* 9633270 Update .gitignore to ignore log files and log folder
* b780c03 (origin/master) Added welcome.txt file This file contains an introductory message for version control practice.
```

9. Check the differences with Git diff tool

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git diff master GitWork
diff --git a/hello.xml b/hello.xml
index d762f43..db3271d 100644
--- a/hello.xml
+++ b/hello.xml
@@ -1,1 @@
-<greeting> Different content in master branch </greeting>
+<greeting> Updated content in GitWork branch </greeting>
```

10. For better visualization, use P4Merge tool to list out all the differences between master and branch

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git mergetool
No files need merging
```

11. Merge the bran to the master

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git add welcome.txt
warning: in the working copy of 'welcome.txt', LF will be replaced by CRLF
next time Git touches it

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git commit -m "Update welcome.txt"
[master b01f35c] Update welcome.txt
1 file changed, 1 insertion(+)

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 5 commits.
(use "git push" to publish your local commits)

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git merge GitWork
Auto-merging hello.xml
CONFLICT (add/add): Merge conflict in hello.xml
Automatic merge failed; fix conflicts and then commit the result.

HP@VASUPPRADHA MINGW64 ~/GitEx (master|MERGING)
$ git commit
[master 4110ffc] Merge branch 'GitWork'
```

12. Observe the git mark up.

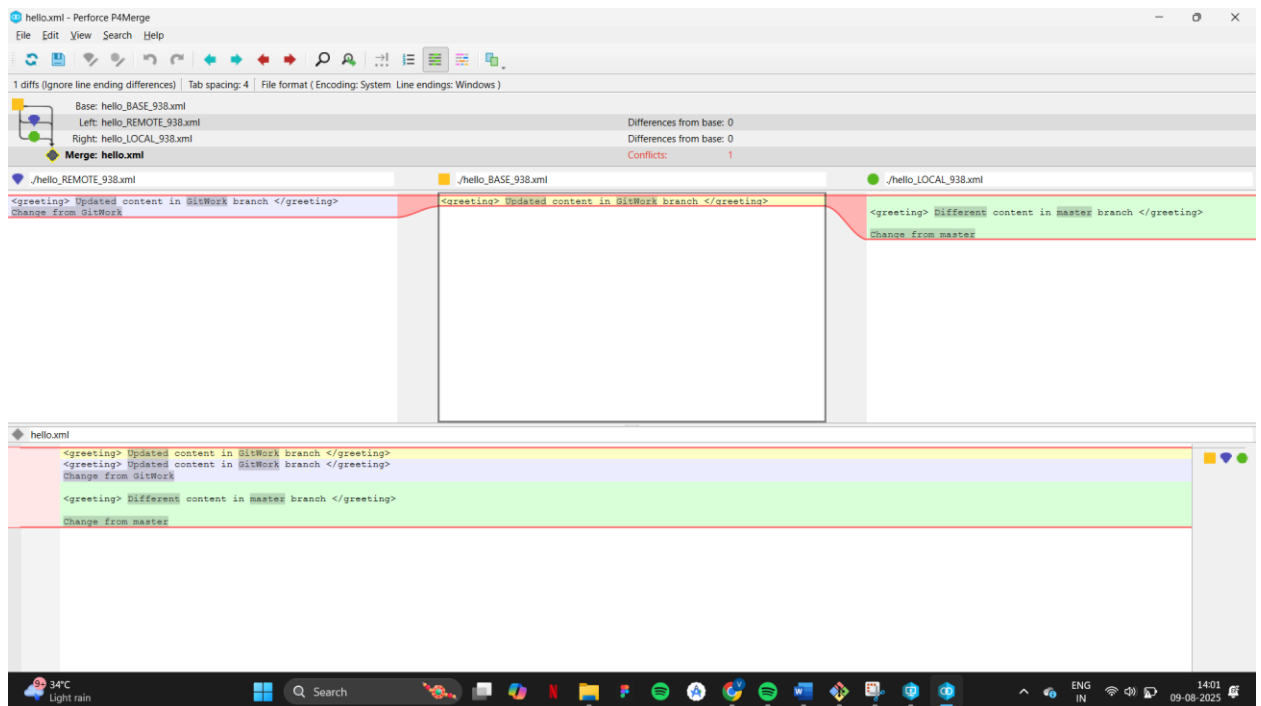
```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git log --online --graph --decorate --all
fatal: unrecognized argument: --online

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git log --oneline --graph --decorate --all
* 4110ffc (HEAD -> master) Merge branch 'GitWork'
| \
|  * 2563828 (GitWork) Update hello.xml in GitWork branch
|  * | b01f35c Update welcome.txt
|  * | c87c428 Add hello.xml in master branch
| /
* f854e54 Ignore .log files
* abccffd Added two files in GitNewBranch
* 9633270 Update .gitignore to ignore log files and log folder
* b780c03 (origin/master) Added welcome.txt file This file contains an introductory message for version control practice.
```

13. Use 3-way merge tool to resolve the conflict

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master|MERGING)
$ git mergetool
Merging:
hello.xml

Normal merge conflict for 'hello.xml':
  {local}: modified file
  {remote}: modified file
```



14. Commit the changes to the master, once done with conflict

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master|MERGING)
$ git add hello.xml

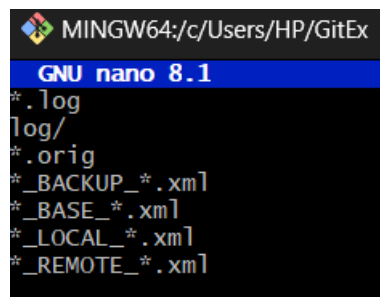
HP@VASUPPRADHA MINGW64 ~/GitEx (master|MERGING)
$ git commit -m "Resolved merge conflict in hello.xml"
[master 03f4da3] Resolved merge conflict in hello.xml
```

15. Observe the git status and add backup file to the .gitignore file.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 10 commits.
(use "git push" to publish your local commits)

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        hello.xml.orig
        hello_BACKUP_430.xml
        hello_BACKUP_507.xml
        hello_BACKUP_590.xml
        hello_BACKUP_668.xml
        hello_BACKUP_853.xml
        hello_BASE_430.xml
        hello_BASE_507.xml
        hello_BASE_590.xml
        hello_BASE_668.xml
        hello_BASE_853.xml
        hello_LOCAL_430.xml
        hello_LOCAL_507.xml
        hello_LOCAL_590.xml
        hello_LOCAL_668.xml
        hello_LOCAL_853.xml
        hello_REMOTE_430.xml
        hello_REMOTE_507.xml
        hello_REMOTE_590.xml
        hello_REMOTE_668.xml
        hello_REMOTE_853.xml

nothing added to commit but untracked files present (use "git add" to track)
```



The screenshot shows the nano 8.1 text editor interface. The title bar indicates the file path is MINGW64:/c:/Users/HP/GitEx. The editor content shows the following lines in the .gitignore file:

```
*.log
log/
*.orig
*_BACKUP_*.xml
*_BASE_*.xml
*_LOCAL_*.xml
*_REMOTE_*.xml
```

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 11 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
```

16. Commit the changes to the .gitignore

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ nano .gitignore

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git add .gitignore

HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git commit -m "Ignore merge backup files"
[master 4ae71f8] Ignore merge backup files
1 file changed, 5 insertions(+)
```

17. List out all the available branches

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git branch
  GitWork
* master
```

18. Delete the branch, which merge to master.

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git branch -d GitWork
Deleted branch GitWork (was 722dd71).
```

19. Observe the log by executing “git log –oneline –graph –decorate”

```
HP@VASUPPRADHA MINGW64 ~/GitEx (master)
$ git log --oneline --graph --decorate
* 4ae71f8 (HEAD -> master) Ignore merge backup files
*   03f4da3 Resolved merge conflict in hello.xml
|\
| * 722dd71 Conflict change in GitWork
| * bb0d58c Conflict change in master
| * 4110ffc Merge branch 'GitWork'
|/
| * 2563828 Update hello.xml in GitWork branch
| * b01f35c Update welcome.txt
| * c87c428 Add hello.xml in master branch
|/
* f854e54 Ignore .log files
* abccffd Added two files in GitNewBranch
* 9633270 Update .gitignore to ignore log files and log folder
* b780c03 (origin/master) Added welcome.txt file This file contains an introductory message for version control practice.
```