The OpenGATE Collaboration

Contributing to GATE developments using GitHub

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Outline

- Basics of GitHub
- Step-by-step tutorial to
  - Fork Gate repository
  - Keep your fork synced
  - Submit changes with pull requests
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 Basics of GitHub

 Step-by-step tutorial to
  Fork Gate repository
  Keep your fork synced
  Submit changes with pull requests
Install Git and create a GitHub account

- **Install Git**
  - Prefer using git on the command line

- **Create a GitHub account at** [https://github.com/](https://github.com/)
Using GitHub

GATE project’s homepage available at https://github.com/OpenGATE/Gate

1. How many people are watching it
2. How many people have forked it to make changes and contribute to it
3. Number of commits to the current branch
4. Number of branches
5. Number of releases
6. Number of contributors
Using GitHub

**Code**: the view you’re on by default, showing the *files in the project*

Listing of the **top-level files** in the project, and when the *last commit was*
Using GitHub

**Issues**: a simple but effective issue tracker to report bugs and problems or make request for new features.

Any people identified as a GATE contributor can create, assign and close an issue.
Outline

 Basics of GitHub

 Step-by-step tutorial to
  ▶ Fork Gate repository
  ▶ Keep your fork synced
  ▶ Submit changes with pull requests
A fork is a **copy** of a repository

- It lets you make changes to a project **without affecting** the original repository
- It can be used to **fetch updates** from or **propose changes** to the original repository

Rather than logging an issue for a bug you can

- **Fork** Gate repository
- Make the **fix**
- Submit a **pull request** to the OpenGATE collaborators so that they pull your work into the original Gate repository
Fork GATE repository is a two-step process

1. On GitHub, navigate to the OpenGATE/Gate repository
2. In the top-right corner of the page, click Fork

Now you have a fork of the original OpenGATE/Gate repository
Keep your fork synced (1/4)

Step 1: Set Up Git

1. Open Terminal

2. Tell Git your name so your commits will be properly labeled

   $ git config --global user.name "YOUR NAME"

3. Tell Git the email address that will be associated with your Git commits. The email you specify should be the same one found in your email settings.

   $ git config --global user.email "YOUR EMAIL ADDRESS"
Keep your fork synced (2/4)

Step 2: Create a local clone of your fork

1. On GitHub, navigate to your fork of the OpenGATE/Gate repository

2. Under your repository name, click Clone or download

3. In the Clone with HTTPS section, click ⌨️ to copy the clone URL for the repository

4. Open Terminal, type `git clone`, and then paste the URL you copied in 3

```
$ git clone https://github.com/YOUR-USERNAME/Gate.git
Cloning into 'Gate'...
remote: Counting objects: 20182, done.
remote: Total 20182 (delta 0), reused 0 (delta 0), pack-reused 20182
Receiving objects: 100% (20182/20182), 13.83 MiB | 3.24 MiB/s, done.
Resolving deltas: 100% (13674/13674), done.

!! YOUR-USERNAME = Your GitHub username !!
```

Now you have a local copy of your fork of the Gate repository
Keep your fork synced (3/4)

**Step 3**: Configure Git to sync your fork with the original Gate repository

1. Change directories to the location of the fork you cloned in Step 2
   Type `git remote -v`

   ```
   $ git remote -v
   origin  https://github.com/YOUR_USERNAME/Gate.git (fetch)
   origin  https://github.com/YOUR_USERNAME/Gate.git (push)
   ```

2. Type `git remote add upstream https://github.com/OpenGATE/Gate.git`, and then paste the URL of the OpenGATE/Gate repository

   ```
   $ git remote add upstream https://github.com/OpenGATE/Gate.git
   ```

3. To verify the new upstream repository you've specified for your fork, type `git remote -v` again

   ```
   $ git remote -v
   origin  https://github.com/YOUR_USERNAME/Gate.git (fetch)
   origin  https://github.com/YOUR_USERNAME/Gate.git (push)
   upstream https://github.com/OpenGATE/Gate.git (fetch)
   upstream https://github.com/OpenGATE/Gate.git (push)
   ```

   URL for the original repository as `upstream`

   URL for your fork as `origin`
Keep your fork synced (4/4)

Now, you can sync your fork with the upstream repository

1. Fetch the branches and their respective commits from the upstream repository

```bash
$ git fetch upstream
remote: Counting objects: 75, done.
remote: Compressing objects: 100% (53/53), done.
remote: Total 62 (delta 27), reused 44 (delta 9)
Unpacking objects: 100% (62/62), done.
From https://github.com/OpenGATE/Gate.git
 * [new branch] develop -> upstream/develop
```

2. Check out your fork's local develop branch

```bash
$ git checkout develop
Switched to branch 'develop'
```

3. Merge the changes from upstream/develop into your local develop branch

```bash
$ git merge upstream/develop
Updating a422352..5fdff0f
Fast-forward
  README                        |   9 +++-----
  README.md                     |   7 +++++++
2 files changed, 7 insertions(+), 9 deletions(-)
delete mode 100644 README
create mode 100644 README.md
```
To contribute back to the original Gate repository, we recommend creating branches **locally**, on your computer.

1. **Create a new branch** within your repository

   ```
   $ git checkout -b branch mynewbranch
   Switched to a new branch "mynewbranch"
   ```

2. **Create or edit a file** in your repository

3. **Push** your changes on GitHub

   ```
   $ git push origin mynewbranch
   Username for 'https://github.com': albertine
   Password for 'https://albertine@github.com':
   Counting objects: 3, done.
   Writing objects: 100% (3/3), 216 bytes | 0 bytes/s, done.
   Total 3 (delta 0), reused 0 (delta 0)
   To https://github.com/albertine/Gate.git
     * [new branch] mynewbranch -> mynewbranch
   Branch mynewbranch set up to track remote branch mynewbranch from origin.
   ```
Submit changes with pull requests (2/3)

Create a **pull request** so that OpenGATE collaborators can review the changes in your branch.

1. Navigate to the **OpenGATE/Gate** repository.

2. To the right of the branch picker, click **New pull request**.

3. On the Compare changes page, click **compare across forks**.

4. Select **OpenGATE/Gate** as the **base fork**. Use the base branch drop-down menu to select the branch you'd like to merge changes into.

5. Use the **head fork** drop-down menu to select **your fork**, then use the compare branch drop-down menu to select the branch you made your changes in.
Submit changes with pull requests (3/3)

Create a **pull request** so that OpenGATE collaborators can review the changes in your branch

6. **Type a title and description** for your pull request

7. **Click Create pull request**

After your pull request has been reviewed, your proposed changes can be merged into the OpenGATE/Gate repository
Summary

► For you
  ► The easiest way to contribute to Gate source code
  ► Even if you are external to the OpenGATE collaboration

► For us
  ► A good way (and maybe the only one) to manage the Gate source code by benefiting from contributions of developers all around the world