How to contribute to OSM

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Agenda

- Get an EOL / Individual Contributor Account
- Prepare your environment
- Testing before committing
- Contribute your changes
Get an EOL / Individual Contributor Account
Get an EOL /Individual Contributor Account

If you are contributing on behalf of your company, you should login with your ETSI Online Account (EOL).

If your company is not yet an OSM Member or Participant, you can check here how to join OSM as an organization: https://osm.etsi.org/about/how-to-join

If your company has already joined OSM but you do not have an EOL account yet, you can request an EOL account at: https://portal.etsi.org/createaccount

If you are an individual contributor, you can create your OSM individual contributor account at: https://osm.etsi.org/register

If you need any help, contact us at: OSMsupport@etsi.org
Prepare your environment
Configure git to use ssh key

- Create an SSH key (e.g. with ssh-keygen)
  - ~/.ssh/id_rsa
  - ~/.ssh/id_rsa.pub

- Add your public key to Gerrit
  - Go to [https://osm.etsi.org/gerrit/#/settings/ssh-keys](https://osm.etsi.org/gerrit/#/settings/ssh-keys) --> Add Public Key

- Configure the file .ssh/config. Add following content to the .ssh/config file.
  ```
  Host osm.etsi.org
  Hostname osm.etsi.org
  User <your_etsi_user>
  IdentityFile ~/.ssh/id_rsa
  PubkeyAcceptedAlgorithms +ssh-rsa
  HostkeyAlgorithms +ssh-rsa
  ```

- Test your ssh connection
  - ssh -p 29418 osm.etsi.org
Configure git username and e-mail

- Configure your git user globally:
  
  ```bash
  git config --global user.user <username>
  ```

- Configure your git name globally:
  
  ```bash
  git config --global user.name <name>
  ```

- Configure your git email address:
  
  ```bash
  git config --global user.email <email>
  ```

- Check your git configuration:
  
  ```bash
  git config --list
  ```

- Sample Output:
  
  ```bash
  git config --list
  user.email=gulsum.atici@canonical.com
  user.name=Gulsum Atici
  user.user=aticig
  ```

- In case you are using git in the same computer for other open source projects, you can restrict your git variables to the local folder:
  
  ```bash
  cd <LOCAL_FOLDER>
  git config --local user.name <username>
  git config --local user.email <email>
  ```
Clone the projects you are going to work on

- Go to Gerrit Projects (https://osm.etsi.org/gerrit/#/admin/projects/), select a Project, then clone the project with SSH and commit message hook
Clone the projects you are going to work on

The following script can help you to clone all OSM projects with SSH and the commit-msg hook

```bash
mkdir ~/OSM/
cd ~/OSM
BRANCH=master
# Update <EOL_USERNAME> accordingly
MY_EOL=<EOL_USERNAME>
for MDG in common devops IM LCM MON N2VC NBI NG-SA NG-UI osmclient PLA POL RO tests; do
git clone ssh://${MY_EOL}@osm.etsi.org:29418/osm/${MDG}.git
(cd "${MDG}" && curl https://osm.etsi.org/gerrit/tools/hooks/commit-msg > .git/hooks/commit-msg ;
chmod +x .git/hooks/commit-msg)
git -C ${MDG} checkout ${BRANCH}
done
```
Work in your environment

- Check README.md file
- Recommended editor: VSCode
- Make sure that Python 3.10 is installed in your environment
  
  ```
  python3 --version
  Python 3.10
  ```
- If you do not have Python 3.10, please follow the links to install Python 3.10
  
  - For Windows 10 and 11: [https://www.tomshardware.com/how-to/install-python-on-windows-10-and-11](https://www.tomshardware.com/how-to/install-python-on-windows-10-and-11)
  - For Ubuntu 22.04|20.04|18.04: [https://computingforgeeks.com/how-to-install-python-on-ubuntu-linux-system](https://computingforgeeks.com/how-to-install-python-on-ubuntu-linux-system)
- Install dependencies (ideally in a virtual environment)
  
  ```
  python3 -m pip install -r requirements.txt -r requirements-dev.txt -r requirements-test.txt
  ```
Testing before committing
Testing your commits

- Every commit in OSM is validated in a Jenkins CI/CD pipeline:
  - Per-Project validation: check code format, code linting, and run unit tests
  - E2E sanity tests

- You should validate your commits locally before committing
  - Otherwise, Jenkins will score it with -1

- The recommended way is to run from the Project folder the following command: `./devops-stages/stage-test.sh`
  - This is equivalent in most of the projects to run `tox`
Testing your commits using E2E Robot Tests

- For complicated changes, you need to make sure that your code does not break anything
- Run Robot tests using opensourcemanono/tests image:
  
  ```
  docker run --rm=true --name tests -t --env-file envconfig.rc 
  -v ~/.config/openstack/clouds.yaml:/etc/openstack/clouds.yaml 
  -v ~/tests/reports:/robot-systest/reports 
  opensourcemanono/tests:testing-daily 
  -t sanity
  ```

- Different tags can be used (there is one for each test suite)
- Check README of osm/tests project for more details:
  
  [https://osm.etsi.org/gitlab/osm/tests/-/blob/master/README.md](https://osm.etsi.org/gitlab/osm/tests/-/blob/master/README.md)
Contribute your changes
Add Apache license to the header of new files

If you are adding a new file, add the apache license to the header of the file. Apache license allows users to use the software for any purpose, to distribute it, to modify it, and to distribute modified versions of the software under the terms of the license, without concern for royalties.

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# implied.
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# limitations under the License.
Add Release Notes

● For RO and common projects, release notes are mandatory for all the changes.

● Add release notes using tox
  ● tox -e release_notes "<your_text>"

● Go the release notes file and update the related section (upgrade, security, feature, prelude, other, fixes ..) of file

● Add the release notes file to the commit
  ● git add release_notes/notes/<...>.yaml
Commit changes to your local repository

● Add your changes to the staged area
  
git add example-file

● Commit the change to your local repository
  
git commit -s -m "Fix of bug XXXX fixed"

● The -s parameter is mandatory. It signs the commit by adding the following line at the end of your commit message:

  Signed-off-by: Random Developer random@developer.example.org
Push your contribution to gerrit

- OSM uses **gerrit** as code review tool. All changes are pushed to gerrit, which is a kind of intermediary git repository, with web-based UI for review

- Do a pull with rebase before pushing your contribution in order to merge latest changes made by other users. This avoids conflicts in Gerrit.
  
  ```
  git pull --rebase
  ```

  Note: you can force git to use always the --rebase option with:

  ```
  git config --local pull.rebase true
  ```

- Push your change to the appropriate branch (e.g. master).
  ```
  git push origin HEAD:refs/for/master
  ```

- You can review your contribution on Gerrit web interface:
  
  ```
  https://osm.etsi.org/gerrit/#/q/status:open
  ```
Last but not least

- Gerrit will send you email notifications about the progress of your change

- Check Jenkins validation
  - If -1, check Jenkins output to see the errors

- Code submitted to Gerrit, will be merged only after getting
  - Code Review +2
  - Verified +1
Additional how-to’s

- Developer guide: https://osm.etsi.org/docs/developer-guide

- How to amend a change and re-contribute it: https://osm.etsi.org/docs/developer-guide/05-git-review.html?highlight=amend#amending-a-change


- How to run Robot tests: https://osm.etsi.org/gitlab/osm/tests/-/blob/master/README.md
Thank You!
How to build a docker image of a component as it is done in Jenkins CI/CD pipeline (1/2)

- Build your project as it is done in Jenkins
- Clone devops repo at the same level that your project
  ```
git clone ssh://${MY_EOL}@osm.etsi.org:29418/osm/devops.git
(cd "devops" && curl
  https://osm.etsi.org/gerrit/tools/hooks/commit-msg >
  .git/hooks/commit-msg ; chmod +x .git/hooks/commit-msg)
  ```
- Start HTTP server
  ```
./devops/tools/local-build.sh --run-httpserver
  ```
- Build the debian packages associated to your project (e.g. NBI) and its dependencies
  ```
rm -f ~/.osm/httpd/*.deb
./devops/tools/local-build.sh --module NBI,IM,common stage-2
  ```
How to build a docker image of a component as it is done in Jenkins CI/CD pipeline (2/2)

● Build Docker image
  ./devops/tools/local-build.sh --module NBI stage-3

● Patch the image of the component
  kubectl -n osm patch deployment nbi --patch '{"spec":
  {"template": {"spec": {"containers": [{"name": "nbi", "image": "opensourcemanono/nbi:devel"}]}}}}
  kubectl -n osm scale deployment nbi --replicas=0
  kubectl -n osm scale deployment nbi --replicas=1