GIT
A free and open source distributed version control system

User Guide
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What is Git Service?

Git ([https://git-scm.com](https://git-scm.com)) is the most commonly used open source distributed version control system. Git is distributed, so the local copy is fully equivalent to the original repository and enables users to commit offline. The service ‘git.cse.iitkgp.ac.in’ is configured to provide a reliable git repository to the department. A web based ‘github’ like interface called ‘gitlab’ is provided to maintain the projects more effectively.

User Registration Procedure

To use the Git service at least one user needs to be registered in git.cse.iitkgp.ac.in. Registered users can create projects, assign systems to the project and/or add other existing users to the project. To create a login in the Gitlab portal, please send a mail to the gitadmin.cse@iitkgp.ac.in mentioning the following information.

1. Name
2. Supervisor’s Name (for non-faculty login)
3. Email Id
4. Preferred username

User will get a confirmation mail once the account is created containing the username and password. User will have to change the password provided on the first login.

Creating a Project

To create a project, login to the git.cse.iitkgp.ac.in and click on the Create a project link shown below.

Enter project name and description and select visibility level as shown below.
The following screen appears if the project is created successfully.

<table>
<thead>
<tr>
<th>Project path</th>
<th>Project name</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://git.cse.iitkgp.ac.in/testuser/">http://git.cse.iitkgp.ac.in/testuser/</a></td>
<td>test</td>
</tr>
</tbody>
</table>

Want to house several dependent projects under the same namespace? **Create a group**

**Visibility Level**

- **Private**
  - Project access must be granted explicitly to each user.
- **Internal**
  - The project can be accessed by any logged in user.
- **Public**
  - The project can be accessed without any authentication.

[Create project] [Cancel]

Change the protocol from the dropdown and select **SSH**. Please note the complete URL which is required to setup the client. For example, a project test is created under the user testuser and the repository path is shown below.

```
SSH < git@git.cse.iitkgp.ac.in:testuser
```

**Project URL:**  
[git@git.cse.iitkgp.ac.in:testuser/test.git](git@git.cse.iitkgp.ac.in:testuser/test.git)
Deploying SSH key

Open project and click on the settings button as shown below.

Click on the Repository link from the dropdown shown below.

Click on the Expand button in the Deploy keys section as shown below.
Copy the contents of the id_rsa.pub received from the client and paste it in the key box. Enter a title for reference. Check Write access allowed check box if you want to allow this client to push the changes to the repository. Click Add key button to add the key to the project repository.

If the key is successfully added, the key appears in the Deploy keys section as shown below.
Configuring Linux Client

Install package git-core in the client system.
Example:
Ubuntu:       sudo apt-get install git-core
Centos:       yum install git-core

Open terminal and setup git global variable for one time only.

```
git config --global user.name "username"
git config --global user.email "email address"
```

Note: The user.name and user.email variable is for the user who will be using the client system. This name and email will appear in the log of repository.

Locate and existing key pair
Open terminal and enter the following command

```
cat ~/.ssh/id_rsa.pub
```

If you see a string starting with ssh-rsa you already have an SSH key pair and you can skip the key generate portion.

Generate a new SSH key pair

```
ssh-keygen -t rsa -C "email address"
```

Select the default options and press enter to complete the process.
Send the generated file (~/.ssh/id_rsa.pub) to the project administrator assigning into the project.

Once the key is deployed in the project and you have received the project URL, you can now either clone the project or add existing code the project.
Clone a project

Change the current directory where you want to keep the project.

`git clone git@git.cse.iitkgp.ac.in: testuser/test.git`
`cd test`

Now, you can add or modify any file. To commit the changes to the repository user the following command.

`git commit -m "comment"`
`git push -u origin master`

The above command ‘`git push –u origin master`’ pushes the master branch to the project repository.

Add existing folder to the repository

`cd existing_folder`
`git init`
`git remote add origin git@git.cse.iitkgp.ac.in: testuser/test.git`
`git add .`
`git commit -m "comment"`
`git push -u origin master`
Configuring Windows Client

Install Git for Windows
  Download the Windows setup from the link given below.
  
  https://git-scm.com/download/win

  Start the installation procedure and make sure that the following settings are checked during installation.

![Git 2.16.1 Setup](https://gitforwindows.org/)

![Git 2.16.1 Setup](https://gitforwindows.org/)

Use Git and optional Unix tools from the Windows Command Prompt

*Warning: This will override Windows tools like "find" and "sort". Only use this option if you understand the implications.*
Keep all other default options as it is and finish the installation.

**Locate and existing key pair**

Open command prompt and enter the following command:

```
notepad %homepath%\ssh\id_rsa.pub
```

If you see a string starting with ssh-rsa you already have an SSH key pair and you can skip the key generate portion.

**Generate a new SSH key pair**

Open command prompt and enter the following command:

```
ssh-keygen -t rsa -C "email address"
```

Select the default options and press enter to complete the process.

Send the generated file (C:\Users\username\ssh\id_rsa.pub) to the project administrator assigning into the project.

Once the key is deployed in the project and you have received the project URL, you can now either clone the project or add existing code the project.

**Clone a project**

Change the current directory where you want to keep the project.

```
git clone git@git.cse.iitkgp.ac.in:testuser/test.git
cd test
```

Now, you can add or modify any file. To commit the changes to the repository use the following command.

```
git commit -m "comment"
git push -u origin master
```

The above command ‘`git push -u origin master`’ pushes the master branch to the project repository.
Add existing folder to the repository

```bash
cd existing_folder

git init

git remote add origin git@git.cse.iitkgp.ac.in:testuser/test.git

git add .

git commit -m "comment"

git push -u origin master
```