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Git init

This page will explore the `git init` command in depth. By the end of this page you will be informed on the core functionality and extended feature set of `git init`. This exploration includes:

- `git init` options and usage

- `.git` directory overview

- custom `git init` directory environment values

- `git init` vs. `git clone`

- `git init` bare repositories

- `git init` templates

The `git init` command creates a new Git repository. It can be used to convert an existing, unversioned project to a Git repository or initialize a new, empty repository. Most other Git commands are not available outside of an initialized repository, so this is usually the first command you'll run in a new project.

Executing `git init` creates a `.git` subdirectory in the current working directory, which contains all of the necessary Git metadata for the new repository. This metadata includes subdirectories for objects, refs, and

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Aside from the `.git` directory, in the root directory of the project, an existing project remains unaltered (unlike SVN, Git doesn't require a `.git` subdirectory in every subdirectory).

By default, `git init` will initialize the Git configuration to the `.git` subdirectory path. The subdirectory path can be modified and customized if you would like it to live elsewhere. You can set the `$GIT_DIR` environment variable to a custom path and `git init` will initialize the Git configuration files there. Additionally you can pass the `--separate-git-dir` argument for the same result. A common use case for a separate `.git` subdirectory is to keep your system configuration "dotfiles" (`.bashrc`, `.vimrc`, etc.) in the home directory while keeping the `.git` folder elsewhere.

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Usage

Compared to SVN, the `git init` command is an incredibly easy way to create new version-controlled projects. Git doesn't require you to create a repository, import files, and check out a working copy. Additionally, Git does not require any pre-existing server or admin privileges. All you have to do is cd into your project subdirectory and run `git init`, and you'll have a fully functional Git repository.

```
git init
```

Transform the current directory into a Git repository. This adds a `.git` subdirectory to the current directory and makes it possible to start recording revisions of the project.

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Create an empty Git repository in the specified directory. Running this command will create a new subdirectory called `<directory>` containing nothing but the `.git` subdirectory.

If you've already run `git init` on a project directory and it contains a `.git` subdirectory, you can safely run `git init` again on the same project directory. It will not override an existing `.git` configuration.

git init vs. git clone

A quick note: `git init` and `git clone` can be easily confused. At a high level, they can both be used to "initialize a new git repository." However, `git clone` is dependent on `git init`. `git clone` is used to create a copy of an existing repository. Internally, `git clone` first calls `git init` to create a new repository. It then copies the data from the existing repository, and checks out a new set of working files. Learn more on the [git clone page](#).

Bare repositories --- git init --bare

```
git init --bare <directory>
```

Initialize an empty Git repository, but omit the working directory. Shared repositories should always be created with the `--bare` flag (see discussion below). Conventionally, repositories initialized with the `--bare` flag end in `.git`. For example, the bare version of a repository called `my-project` should be stored in a directory called `my-project.git`.

The `--bare` flag creates a repository that doesn't have a working directory, making it impossible to edit files and commit changes in that repository. You would create a bare repository to git push and git pull from, but never directly commit to it. Central repositories should always be created as bare repositories because pushing branches to a non-bare repository has the potential to overwrite changes. Think of `--bare` as a way to mark a

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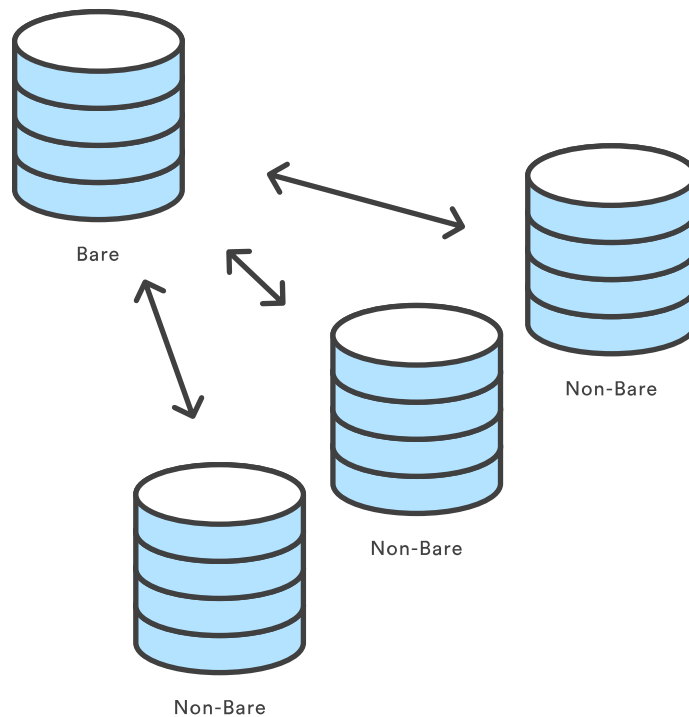
The most common use case for `git init --bare` is to create a remote central repository:

```
ssh <user>@<host> cd path/above/repo git init --bare my-project.git
```

First, you SSH into the server that will contain your central repository. Then, you navigate to wherever you'd like to store the project. Finally, you use the `--bare` flag to create a central storage repository. Developers would then clone `my-project.git` to create a local copy on their development machine.

git init templates

```
git init <directory> --template=<template_directory>
```

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Templates allow you to initialize a new repository with a predefined `.git` subdirectory. You can configure a template to have default directories and files that will get copied to a new repository's `.git` subdirectory. The default Git templates usually reside in a `` `/usr/share/git-core/templates` `` directory but may be a different path on your machine.

The default templates are a good reference and example of how to utilize template features. A powerful feature of templates that's exhibited in the default templates is Git Hook configuration. You can create a template with predefined Git hooks and initialize your new git repositories with common hooks ready to go. Learn more about Git Hooks at the [Git Hook page](#).

Configuration

```
git init <directory> --template=<template_directory>
```

All configurations of `git init` take a `<directory>` argument. If you provide the , the command is run inside it. If this directory does not exist, it will be created. In addition to the options and configuration already discussed, `Git init` has a few other command line options. A full list of them follows:

`-Q`

`--QUIET`

Only prints "critical level" messages, Errors, and Warnings. All other output is silenced.

`--BARE`

Creates a bare repository. (See the "Bare Repositories" section above.)

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section above.)

```
--SEPARATE-GIT-DIR=
```

Creates a text file containing the path to . This file acts as a link to the `.git` directory. This is useful if you would like to store your `.git` directory on a separate location or drive from your project's working files. Some common use cases for `--separate-git-dir` are:

- To keep your system configuration "dotfiles" (`.bashrc`, `.vimrc`, etc.) in the home directory while keeping the `.git` folder elsewhere

- Your Git history has grown very large in disk size and you need to move it elsewhere to a separate high-capacity drive

- You want to have a Git project in a publicly accessible directory like `` `www:root` ``

You can call `git init --separate-git-dir` on an existing repository and the `.git` `dir` will be moved to the specified path.

```
--SHARED[=(FALSE|TRUE|UMASK|GROUP|ALL|WORLD|EVERYBODY|0XXX)]
```

Set access permissions for the new repository. This specifies which users and groups using Unix-level permissions are allowed to push/pull to the repository.

Examples

Create a new git repository for an existing code base

```
cd /path/to/code \
git init \
```

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Create a new bare repository

```
git init --bare /path/to/repo.git
```

Create a git init template and initialize a new git repository from the template

```
mkdir -p /path/to/template \
echo "Hello World" >> /absolute/path/to/template/README \
git init /new/repo/path --template=/absolute/path/to/template \
cd /new/repo/path \
cat /new/repo/path/README
```
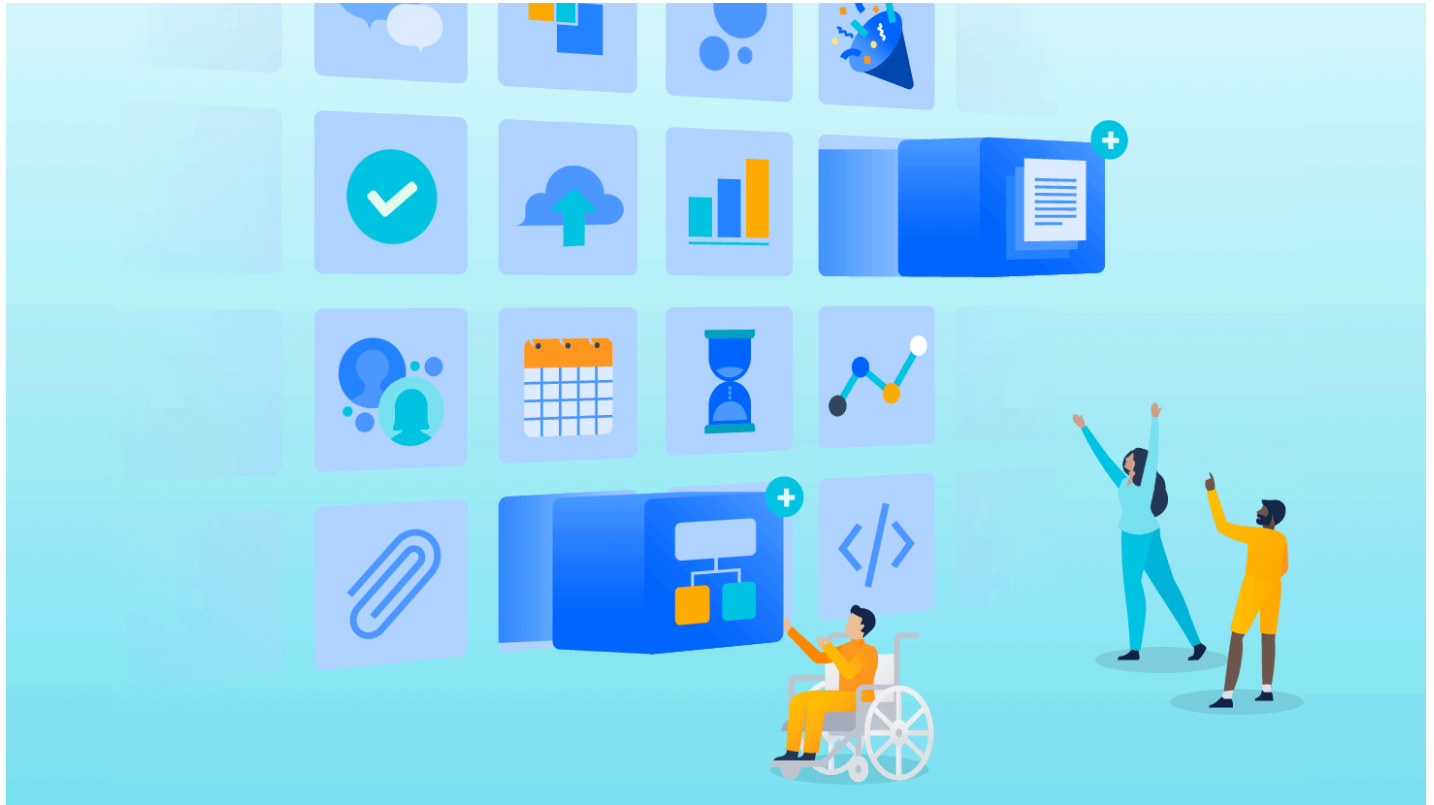
SHARE THIS ARTICLE
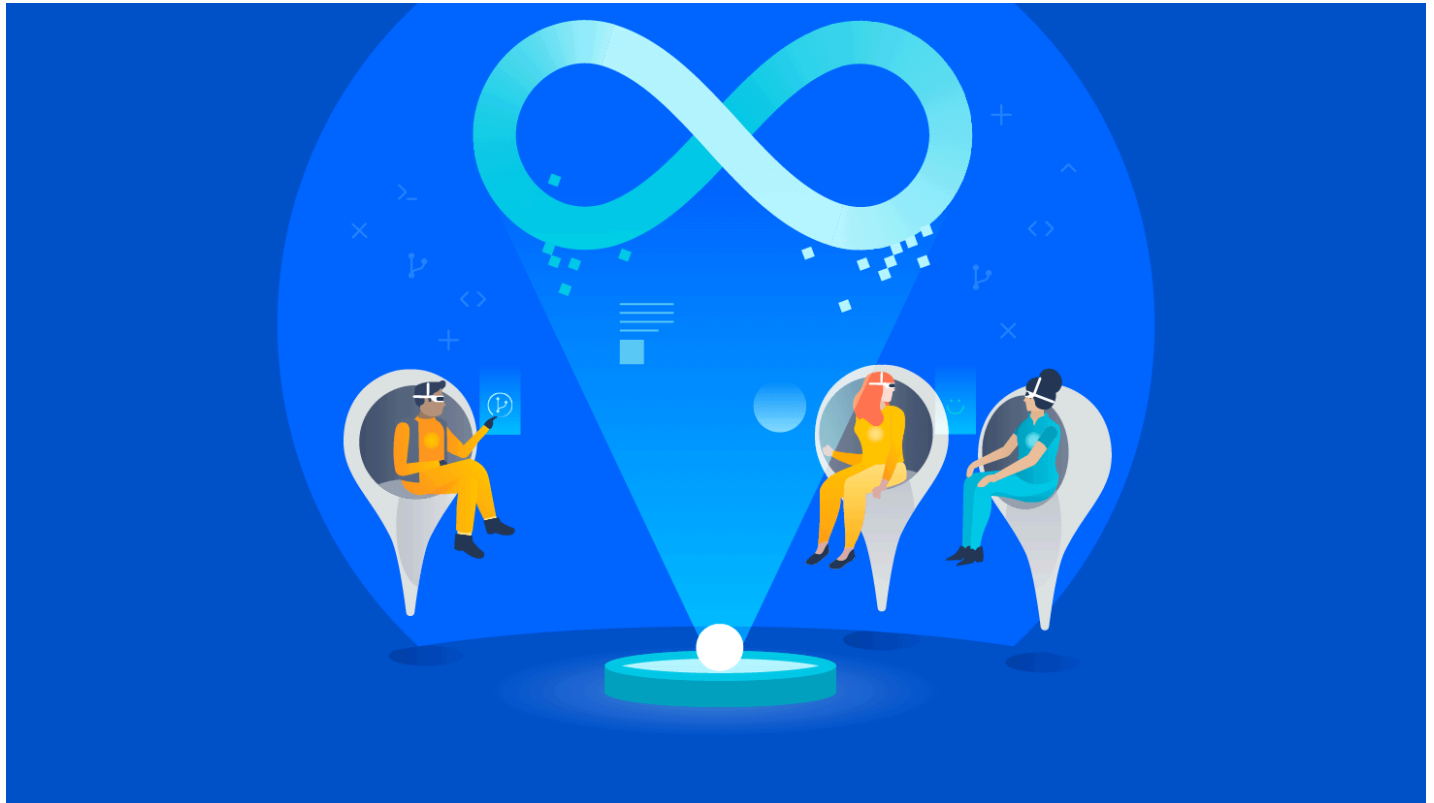
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Git clone →

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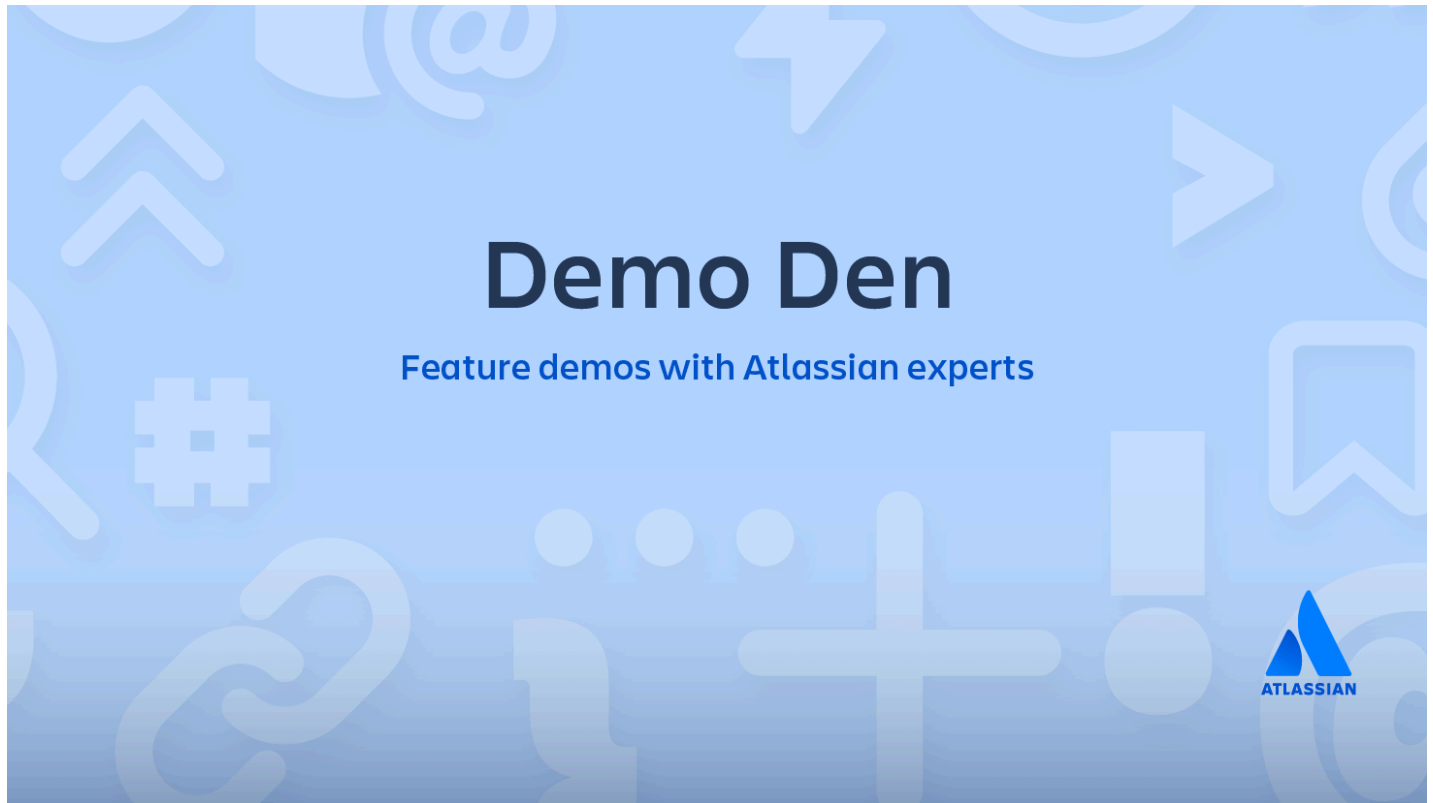
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