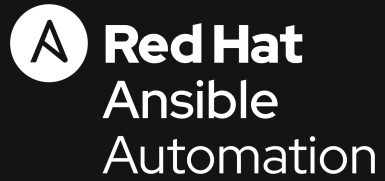


Ansible Best Practices, Part 2

Develop Automation in Teams



IBM Hackathon, Part 2

Develop Automation in Teams

A dense, chaotic pile of multi-colored jigsaw puzzle pieces. The pieces are in various colors including blue, yellow, orange, green, and red, and are scattered across the entire frame. The text is overlaid on this background.

**CODE MUST BE
ORGANIZED**

USE GIT!



git

Invented 2005 by Linus Torvalds for kernel.org

- Distributed Version Control
- Easy to use on all platforms
- Snapshot based
- Support for many branches
- Handle large projects

Supports different Server Backends

- Github.com
- Gitlab.com
- Self hosted (Gitea, Googs, Gitlab)

Reads:

<https://opensource.com/downloads/cheat-sheet-git>

Pro Git: <https://git-scm.com/book/en/v2>

Reference: <https://git-scm.com/docs>

Github Docs: <https://guides.github.com/>

Gitlab Basics: <https://docs.gitlab.com/ee/gitlab-basics/>



git

Git Local

```
yum/dnf install git  
or (Debian/Ubuntu)  
apt install git
```

```
cd folder  
git init  
git add -A  
git commit -m "Initial commit"
```

Reads:

<https://opensource.com/downloads/cheat-sheet-git>

Pro Git: <https://git-scm.com/book/en/v2>

Reference: <https://git-scm.com/docs>

Github Docs: <https://guides.github.com/>

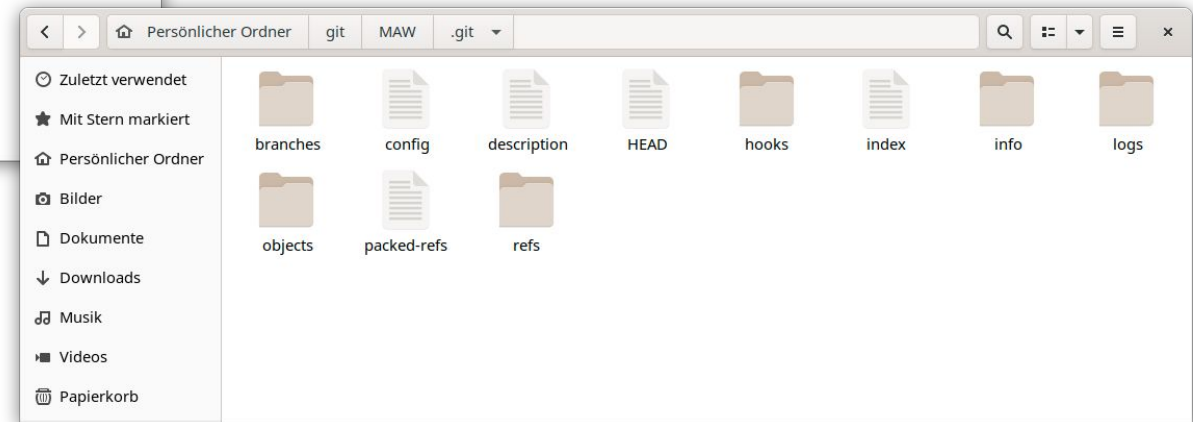
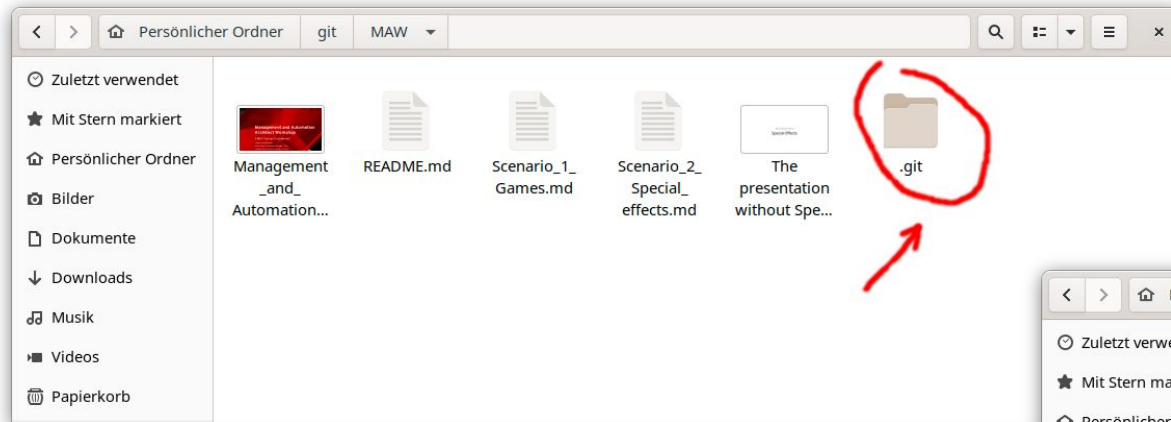
Gitlab Basics: <https://docs.gitlab.com/ee/gitlab-basics/>



git

Git is a content-addressable filesystem.

At the core of Git is a simple key-value data store. You can insert any kind of content into a Git repository, for which Git will hand you back a unique key you can use later to retrieve that content.





git

Git Remote

```
git remote add origin git@<SERVER URL>:<USER>/<repo>.git  
git push -u origin master
```

After Initial Push

On Change:

```
git add <changed file> or git add -A
```

Commit Change:

```
git commit -m "Comment for this Commit"
```

And send to remote

```
git push
```

Reads:

<https://opensource.com/downloads/cheat-sheet-git>

Pro Git: <https://git-scm.com/book/en/v2>

Reference: <https://git-scm.com/docs>

Github Docs: <https://guides.github.com/>

Gitlab Basics: <https://docs.gitlab.com/ee/gitlab-basics/>

1 commit
1 file changed

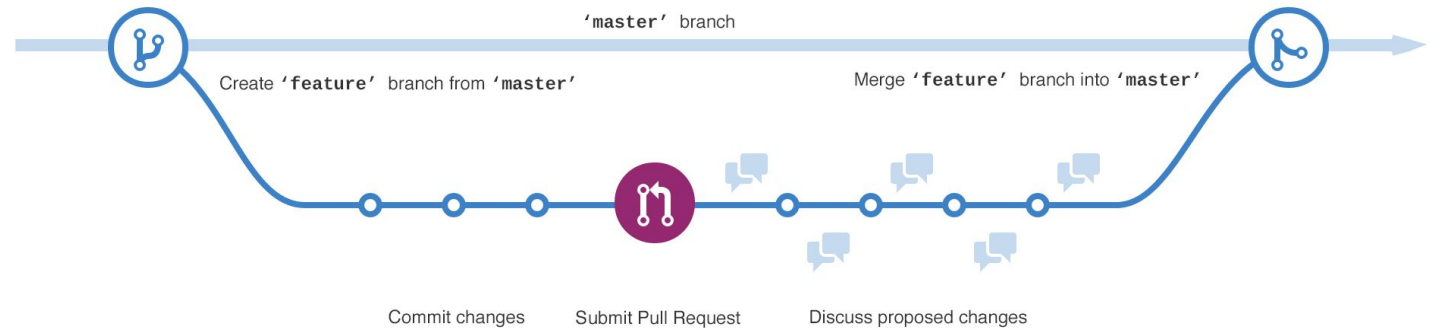
Commits on Oct 27, 2014

hubot
Finish README ...

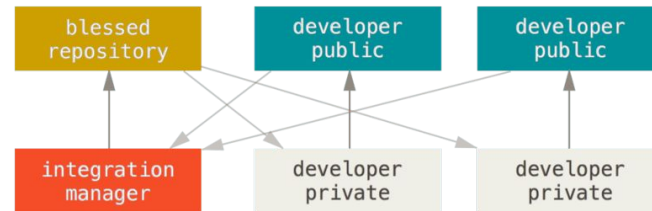
Showing 1 changed file with 1 addition and 1 deletion.

2 README.md		
...	...	@@ -1,4 +1,4 @@
1	1	hello-world
2	2	=====
3	3	
4		-Just another repository
	4	+Hubot here, I like Node.js and Coffee
		them far superior to Earth tacos.

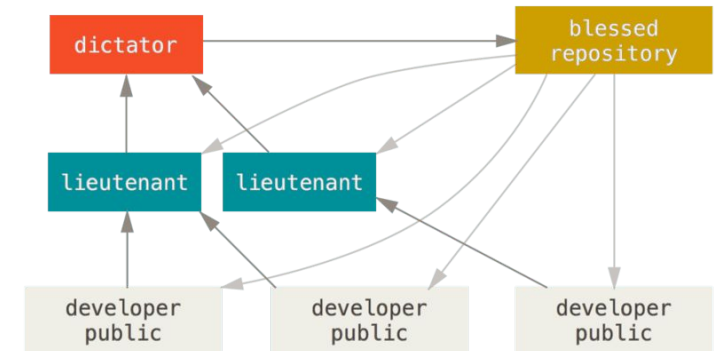
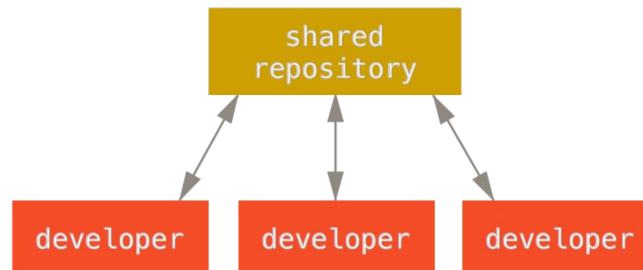
Snapshots show changes between commits



Branches allow to split development trees from the main code repository and merge changes back



Hierarchical Workflows for distributed development in Git





git

In case of fire



1. `git commit`



2. `git push`



3. leave building

Git Services

The screenshot shows the GitHub profile for 'Ansible'. The header includes a search bar and navigation links for Pull requests, Issues, Marketplace, and Explore. The profile section displays the Ansible logo, a verified website link (https://www.ansible.com/), and statistics: 127 Repositories, Packages, 62 People, and 4 Projects. Under 'Pinned repositories', the 'ansible' repository is featured with a description: 'Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts or custom code to deploy and update your applications — automat...'. It shows 42.3k stars and 18.7k forks. Below this is a search bar for repositories and filters for Type (All) and Language (All). A section titled 'Top languages' lists Python, JavaScript, Shell, Dockerfile, and Ruby. 'Most used topics' are listed as 'Loading...'. A 'People' section shows a grid of 62 contributors. The bottom section lists other repositories like 'project-config'.

Github.com: Most popular for Open Source Projects, owned by Microsoft

The screenshot shows the GitLab 'Projects' page. The header includes the GitLab logo, navigation links for Projects, Groups, and More, and a search bar. The main section is titled 'Projects' and includes a 'New project' button. Below this are tabs for 'Your projects' (27), 'Starred projects', and 'Enterprise projects'. A filter bar allows searching by name and sorting by 'Last updated'. A list of projects is displayed, including 'rhepds_tower', 'ansible', 'ansible-azure', 'regy', 'Google Calendar to Sheet', 'Introduction', 'MAW', 'robopy', and 'CIAW'. Each project entry shows the owner, repository name, access level (e.g., Maintainer, Developer), star/fork counts, and the last update time. A tooltip for the 'rhepds_tower' project states: 'Private - Project access must be granted explicitly to each user. If this project is part of a group, access will be granted to members of the group.'

Gitlab.com: Less popular, more features in free tier, Code available for on-prem Installation.



Gogs

- Written in Go
- Simple, easy and fast
- Runs Linux, Linux ARM, Windows

Local Datacenter
Staging Environments
Airgap (Export / Import)



Gitea

- Forked from Googs
- Written in Go
- Simple, easy and fast
- Runs Linux, Linux ARM, Windows
- Better Maintained



Bonobo

- Written in .NET
- Integrates in IIS
- Windows only

Start with one Git repository - but when it grows, use multiple!

At the beginning: put everything in one Git repository

In the long term:

- One Git repository per role
- Dedicated repositories for completely separated teams / tasks
- Integration via roles/requirements.yml

Tower requires SVN for Playbooks

The screenshot shows the Ansible Tower web interface. The top navigation bar includes the 'TOWER' logo, a user profile 'admin', and several icons for notifications, help, and power. The left sidebar contains a menu with categories: VIEWS (Dashboard, Jobs, Schedules, My View), RESOURCES (Templates, Credentials), Projects (highlighted), Inventories, Inventory Scripts, ACCESS (Organizations, Users, Teams), and ADMINISTRATION. The main content area is titled 'PROJECTS / Gitlab' and displays the configuration for a project named 'Gitlab'. The 'DETAILS' tab is selected, showing fields for NAME, DESCRIPTION, ORGANIZATION, SCM TYPE, SOURCE DETAILS (SCM URL, SCM BRANCH/TAG/COMMIT, SCM REFSPEC), SCM CREDENTIAL, and SCM UPDATE OPTIONS. The 'SAVE' button is highlighted in green.

- Every Project is based on one Repository
- Templates are based on Playbooks from Projects

Tower can import a repository multiple times with different branches

- Use feature or staging branches in your Git
- Import them all separately, address them separately
- Useful for testing of new features but also to move changes through stages

Roles and Requirements

requirements.yml

```
# from GitHub
- src: https://github.com/bennojoy/nginx

# from GitHub, overriding the name and specifying a specific tag
- name: nginx_role
  src: https://github.com/bennojoy/nginx
  version: master

# from GitLab or other git-based scm, using git+ssh
- src: git@gitlab.company.com:mygroup/ansible-base.git
  scm: git
```

- Specific Roles as a part of the Main Repository
- Generic Roles in separate Repositories
- Import via roles/requirements.yml
- Project refresh will update dependencies

Tower automatically imports Roles during Project update

- Do not copy roles into your playbook repository, just create a `roles/requirements.yml`
- Tower will automatically import the roles during Project installation
- Mix roles from various sources
- Fix version in `roles/requirements.yml` to have auditable environment!

Collections from AutomationHub and Galaxy

requirements.yml

collections:

- name: junipernetworks.junos
source: <https://galaxy.ansible.com>
- name: f5networks.f5_modules
source: <https://cloud.redhat.com/api/automation-hub/>

- Modules, Plug-Ins and Roles
- Import via collections/requirements.yml
- Project refresh will update dependencies
- Works together with other Role Sources

Mixed Dependencies and ressources

- Use AutomationHub for secure and supported Collections
- Publish your generic Roles on Galaxy
- Open Source your free Playbooks on Github/Gitlab
- Keep confidential content and variable declarations in local Repositories

Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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twitter.com/RedHat