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## How to Create and Download Roles on Ansible Galaxy and Use Them – Part 9

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In Part 9 of [Ansible Series](#), you will learn how to create and download roles on Ansible Galaxy and use them. Ansible is a simple yet effective configuration management & automatic deployment tool that seamlessly automates complex tasks in an efficient manner. You can manage hundreds or even thousands of servers from a single control node using a [single playbook file](#).

However, writing playbooks for managing the same service in different environments can be quite cumbersome and this usually leads to code redundancy. Additionally, more complexity can add to the difficulty in managing all the devices.

In comes roles. In Ansible, roles are used for breaking down playbooks into reusable files that can be used across several other instances where the need arises to perform a similar task. This eliminated the need for rewriting playbooks over and over again and saves a great deal of time and energy.

Roles are simply functionalities of playbooks. A role ships with pretty much what would constitute a playbook: Tasks, files, modules, variables, and templates. Also, note that each role is limited to a particular task or the desired output.

### Creating an Ansible Role

---

To create a role in Ansible, simply use the syntax.

```
# ansible-galaxy init role_name
```

Multiple directories and files will be created in your current working directory. In this case, I have decided to create a role in the `/etc/ansible/roles` directory.

Let's create a role called `apache`.

```
# ansible-galaxy init apache
```

```
[root@rhel-8 roles]#  
[root@rhel-8 roles]# ansible-galaxy init apache  
- apache was created successfully  
[root@rhel-8 roles]#
```

Create Apache Role in Ansible

Use the [tree command](#) to have a glance at the directory structure of the role.

```
# tree apache
```

```
[root@rhel-8 roles]#  
[root@rhel-8 roles]# tree apache  
apache  
├── defaults  
│   └── main.yml  
├── files  
├── handlers  
│   └── main.yml  
├── meta  
│   └── main.yml  
├── README.md  
├── tasks  
│   └── main.yml  
├── templates  
├── tests  
│   ├── inventory  
│   └── test.yml  
├── vars  
│   └── main.yml  
8 directories, 8 files
```

Check Directory Structure of Ansible Role

As you can see, several directories have been created, however, not all of them will be used in the playbook.

Now, to use your newly created role in a playbook, define a task in the `main.yml` file contained in the tasks directory of your new role.

```
/apache/tasks/main.yml

---

- hosts: database_servers

  tasks:

    - name: Install Apache2 on Ubuntu webserver
      apt:
        name: apache2
        state: installed
```

Afterward, create a playbook file and call the role as shown.

```
---

- hosts: webservers
  roles:
    - apache
```

## Installing a Role from Ansible Galaxy

---

Roles play a crucial role in sharing code with other users in the Ansible community using the Ansible Galaxy platform. In Ansible Galaxy, you get thousands of roles performing different tasks such as the installation of web servers and databases, [monitoring tools](#), etc.

Ansible Galaxy is a database or a repository of Ansible roles that you can leverage in your playbooks and help streamline your tasks.

To search a role in Ansible Galaxy, simply run the command.

```
# ansible-galaxy search <role>
```

For example to search for a role named mysql run.

```
# ansible-galaxy search mysql
```

```
[root@rhel-8 ~]# ansible-galaxy search mysql

Found 1174 roles matching your search. Showing first 1000.

Name                                Description
----                                -
Outsider.ansible_zabbix_agent       Installing and maintaining zabbix-agent for
lmr.unattended                       install and configure unattended upgrade
lnfinitum.mysql                      Simply installs MySQL 5.7 on Xenial.
4linuxdevops.mysql-server           Instalacao e Configuracao do servidor MySQL
5KYDEV0P5.skydevops-mysql           Install and configure MySQL Database
AAbouZaid.yourls                     Manage Yourls, a URL shortener web app.
aalaesar.install_nextcloud          Add a new Nextcloud instance in your infrast
aalaesar.upgrade-nextcloud          Upgrade an Nextcloud instance in your infras
AAROC.AAROC_fg-db                   your description
aaronpederson.ansible-autodeploy     Simple deployment tool with hooks
aaronpederson.aws-infrastructure     aws-infrastructure builds out things accordi
aaronpederson.mariadb                MariaDB - An enhanced, drop-in replacement f
abednarik.mysql-exporter             Install and configure mysqld_exporter
abelboldu.openstack-glance           OpenStack Glance controller role
abelboldu.openstack-neutron-controller OpenStack Neutron controller role
```

#### Search Role in Ansible

As you can see, there are hundreds of roles that match the search keyword mysql. However, not all roles will perform what you intend, so its recommended that you read through the instructions carefully.

To gather more information about a role, simply run the Ansible command:

```
# ansible-galaxy info 5KYDEV0P5.skydevops-mysql
```

```
[root@rhel-8 ~]#
[root@rhel-8 ~]# ansible-galaxy info SKYDEVOP5.skydevops-mysql

Role: SKYDEVOP5.skydevops-mysql
  description: Install and configure MySQL Database
  active: True
  commit: ac719d757ded3f239ceefealbl9322be750c963d
  commit_message: Removed dependency info from meta
  commit_url: https://github.com/SKYDEVOP5/skydevops-mysql/commit/ac719d75
  company: SKYDEVOPS
  created: 2018-06-10T06:48:22.870134Z
  dependencies: []
  download_count: 29
  forks_count: 0
  galaxy_info:
    author: Shashi Yebbare
    company: SKYDEVOPS
    galaxy_tags: ['MySQL']
    github_branch: master
    license: license (Apache 2.0)
    min_ansible_version: 2.4
    platforms: [{'name': 'EL', 'versions': [7, 6]}, {'name': 'Ubuntu
```

#### Check Ansible Role Information

In our example, we are going to install the role SKYDEVOP5.skydevops-mysql.

```
# ansible-galaxy install SKYDEVOP5.skydevops-mysql
```

```
[root@rhel-8 ansible]#
[root@rhel-8 ansible]# ansible-galaxy install SKYDEVOP5.skydevops-mysql
- downloading role 'skydevops-mysql', owned by SKYDEVOP5
- downloading role from https://github.com/SKYDEVOP5/skydevops-mysql/archive/v1.0.3.tar.gz
- extracting SKYDEVOP5.skydevops-mysql to /root/.ansible/roles/SKYDEVOP5.skydevops-mysql
- SKYDEVOP5.skydevops-mysql (v1.0.3) was installed successfully
[root@rhel-8 ansible]#
```

#### Install Role in Ansible

The role is downloaded and extracted to the default roles directory located at /etc/ansible/roles.

The role can thereafter be called in a playbook, for example:

```
---
- name: Install MySQL server
  hosts: webservers

  roles:
    - SKYDEVOP5.skydevops-mysql
```

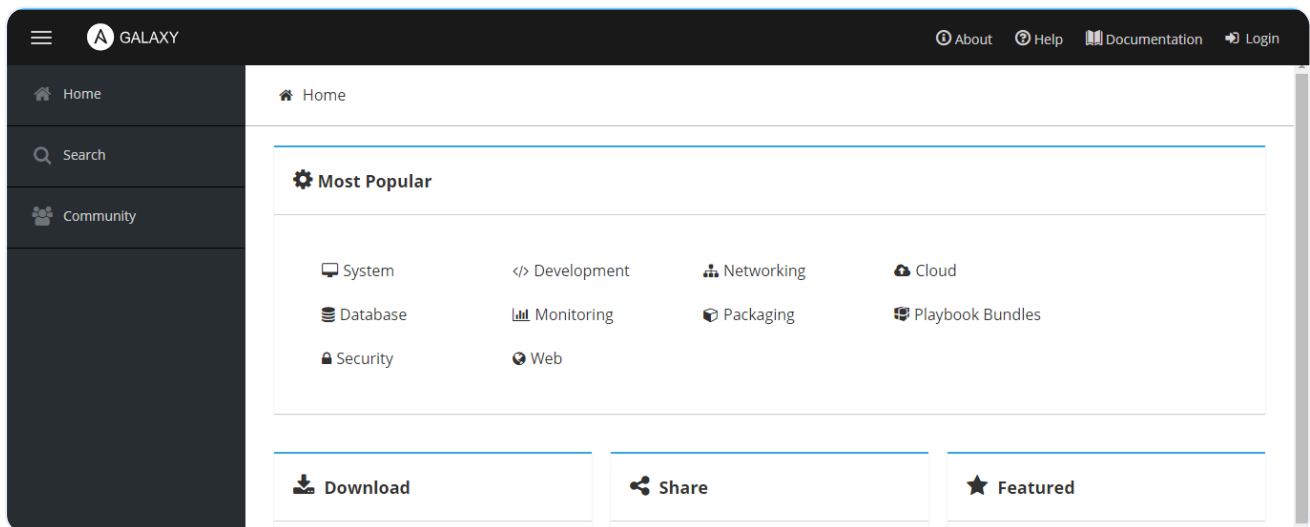
Now you can safely run the Ansible playbook as shown.

```
# ansible-playbook install_mysql.yml
```

```
[root@rhel-8 ansible]#  
[root@rhel-8 ansible]# ansible-playbook install_mysql.yml  
  
PLAY [Install MySQL server] *****  
  
TASK [Gathering Facts] *****  
ok: [173.82.115.165]  
  
TASK [5KYDEV0P5.skydevops-mysql : include_tasks] *****  
included: /root/.ansible/roles/5KYDEV0P5.skydevops-mysql/tasks/variables.yml for 173.82.115.165  
  
TASK [5KYDEV0P5.skydevops-mysql : Include OS-specific variables.] *****  
  
TASK [5KYDEV0P5.skydevops-mysql : Include OS-specific variables (RedHat).] *****  
ok: [173.82.115.165]  
  
TASK [5KYDEV0P5.skydevops-mysql : Define mysql_packages.] *****  
ok: [173.82.115.165]
```

#### Run Ansible Playbook

Additionally, you can visit [Ansible Galaxy](https://galaxy.ansible.com/) via your web browser and manually search for roles for performing various tasks as outlined by the dashboard.



#### Ansible Galaxy

For example, to search for a monitoring role such as `elasticsearch`, click on the 'Monitoring' option and search for the role as shown.

The screenshot shows the Ansible Galaxy search interface. The search bar contains 'elasticsearch' and shows 198 results. The 'Active filters' section shows 'Tag: monitoring'. The results list two roles: 'elasticsearch' and 'elasticsearch-curator', both by 'geerlingguy'. The 'elasticsearch' role has a 5/5 score, 327877 downloads, and is tagged with 'efk', 'elasticsearch', 'elk', 'logging', 'lucene', 'monitoring', 'system', and 'web'. The 'elasticsearch-curator' role has a 5/5 score, 4303 downloads, and is tagged with 'curator', 'efk', 'elasticsearch', 'elk', 'monitoring', 'system', and 'web'. Both roles have a 'build passing' status.

### Search Monitoring Role in Ansible Galaxy

Ansible Galaxy makes it easier for users to install the best roles by listing the most popular and the most downloaded roles. To get more information about a specific role, simply click on it.

The screenshot shows the details page for the 'elasticsearch' role by 'geerlingguy'. The page includes a profile picture of the author, the role name 'elasticsearch', and a description 'Elasticsearch for Linux.'. The role has a 5/5 score, 327877 downloads, and is tagged with 'efk', 'elasticsearch', 'elk', 'logging', 'lucene', 'monitoring', 'system', and 'web'. The 'Details' tab is selected, showing the 'Minimum Ansible Version' as 2.4, the 'Installation' command as 'ansible-galaxy install geerlingguy.elasticsearch', the 'Last Commit' as 6 days ago, and the 'Last Import' as 5 days ago. The 'Content Score' section shows a 'Quality Score' of 5/5, a 'Community Score' of 0/5, and a 'Tell us about this role' section with a 'Quality of docs?' rating of 5/5 and a 'Does what it' rating of 5/5.

### Check Role Info on Ansible Galaxy

In a playbook, you can also specify more than one role, for example.

```
---  
- name: Install MySQL server  
  hosts: webserver  
  
  roles:  
    • 5KYDEV0P5.skydevops-mysql  
    • Aaronpederson.mariadb
```

To list the roles installed, simply run.

```
# ansible-galaxy list
```

```
[root@rhel-8 ~]#  
[root@rhel-8 ~]# ansible-galaxy list  
# /root/.ansible/roles  
- 5KYDEV0P5.skydevops-mysql, v1.0.3  
- telusdigital.logrotate, master  
- telusdigital.apt-repository, master  
- aaronpederson.mariadb, master  
# /usr/share/ansible/roles  
# /etc/ansible/roles  
- mysql, (unknown version)  
- apache, (unknown version)  
[root@rhel-8 ~]#
```

List Installed Roles in Ansible Galaxy

## Conclusion

Roles make it quite easy to reuse and share Ansible playbooks. This way they save a user a lot of time trying to write lots of redundant code and spend too much time which would have been used in other system administration tasks. And that's it for this guide.

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**James Kiarie**

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```
aaronk@tecmint:~$ ansible prod_servers -a "systemctl status firewalld" -u root
[REDACTED].235 | FAILED! => {
  "changed": false,
  "module_stderr": "Shared connection to [REDACTED].235 closed.\r\n",
  "module_stdout": "/bin/sh: /usr/bin/python: No such file or directory\r\n",
  "msg": "MODULE FAILURE",
  "rc": 127
}
[REDACTED] 80 | FAILED! => {
  "changed": false,
  "module_stderr": "Shared connection to [REDACTED] 80 closed.\r\n",
  "module_stdout": "/bin/sh: /usr/bin/python: No such file or directory\r\n",
  "msg": "MODULE FAILURE",
  "rc": 127
}
aaronk@tecmint:~$
```

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