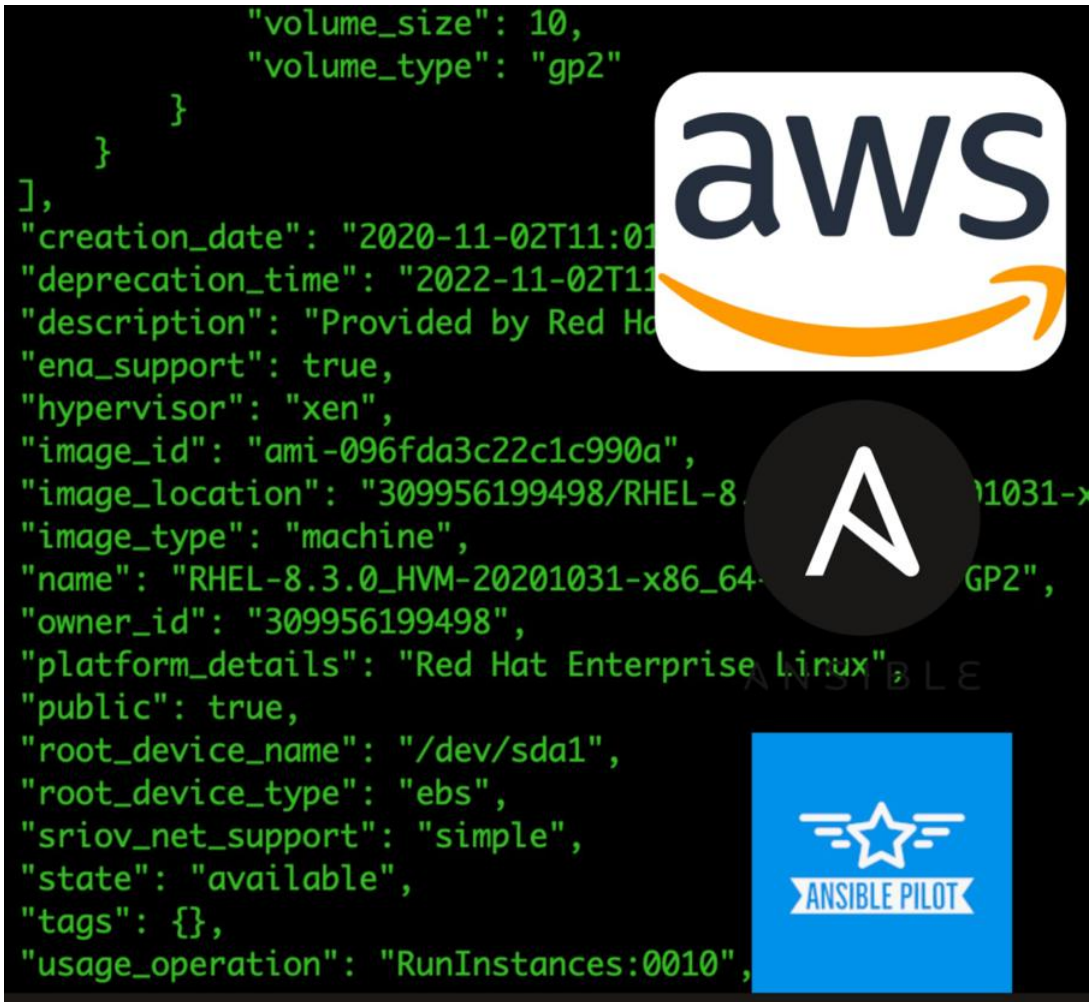
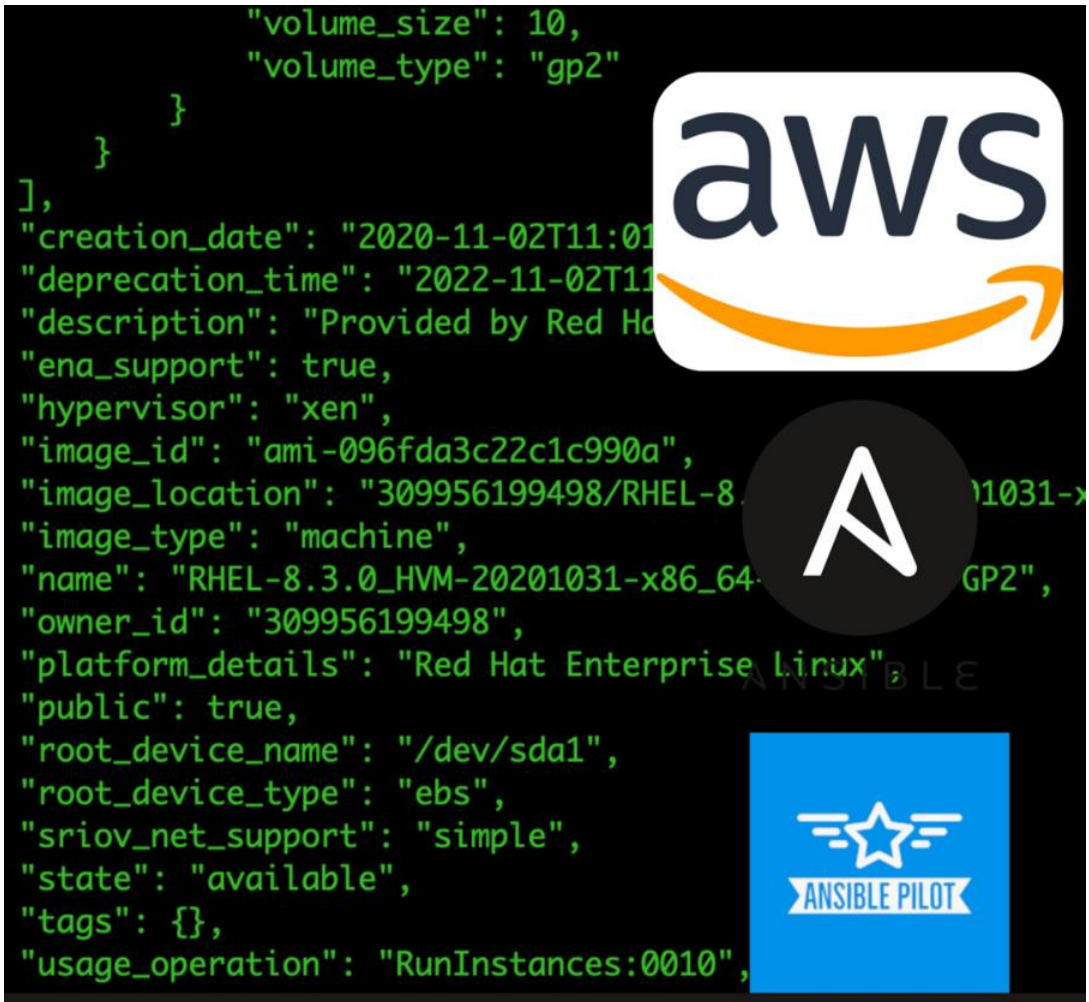



# ANSIBLE FOR AMAZON WEB SERVICES AWS BY EXAMPLES

10+ Examples To Automate Your AWS Modern Infrastructure

Luca Berton




# ANSIBLE FOR AMAZON WEB SERVICES AWS BY EXAMPLES

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# Ansible For Amazon Web Services AWS By Examples

## 10+ Examples To Automate Your AWS Modern Infrastructure

**Luca Berton**

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# Introduction

This course provides an introduction to the Ansible language.

Ansible is a popular open source IT automation technology for scripting applications in a wide variety of domains.

It is free, portable, powerful, and remarkably easy and fun to use.

This course is a tool to learn the Ansible automation technology with some real-life examples.

Learn the Ansible automation technology with some real-life examples.

Every successful IT department needs automation nowadays for bare metal servers, virtual machines, could, containers, and edge computing. Automate your IT journey with Ansible automation technology.

I’m going to teach you example by example how to accomplish the most common IT Professional tasks to automate your AWS Infrastructure.

Each of the lessons summarizes a specific use case for the Modern AWS Infrastructure. Each lesson is focused on a module from the most important parameter with some live demo of code and real-life usage. Each code is battle proved in the real life. Console interaction and verification are included in every video.

How to configure Ansible to interact with AWS infrastructure - EC2, VPC, security groups, etc.. You could automate the creation, update, and gather information for EC2 machines, and many more use-cases using Ansible.

A mundane activity like creating an AWS EC2 machine is the most used with Ansible For AWS. Each example is using the secure connection protocol to guarantee sensible data are encrypted and reserved.

Maintain your AWS infrastructure network the most efficiently as possible with Ansible Automation, the simple human-readable automation technology.

Are you ready to automate your day with Ansible?

Some recommended follow-up books:

Ansible for DevOps - Server and configuration management for humans by Jeff Geerling

Red Hat Certified Engineer Study Guide - Ansible Automation for the Red Hat Enterprise Linux 8 Exam by Andrew Mallett

Mastering Ansible - Automate configuration management and overcome deployment challenges with Ansible by James Freeman, Jesse Keating

Some interesting resources to deep dive in the product:

Official Ansible Documentation

Wikipedia Ansible page

# Modern IT Infrastructure

Deploying and managing applications requires more and more server machines that are reliable and efficient. Traditionally, System Administrators were taking care of this burden for internal (developers) and external (users) stakeholders that interact with the systems.

The day-to-day tasks of a System Administrator involved manual installation of software, change of configurations, and administration of services on individual servers. As data centers grew, and hosted applications became more complex, administrators realized they couldn’t scale their manual systems management as fast as the applications demands. API-driven server management and configuration management tools like Ansible helped make things manageable for a time.

This was the rise of the application-as-service, developer-centric methodologies (DevOps), microservices and serverless application architecture meant that a more seismic shift was coming. Instead of thinking in terms of servers and infrastructure, developers expect to be able to manage containerized application lifecycles, with no regard for the servers on which their applications run.

Modern business applications require one or more of the following features:

self-healing infrastructure

auto-scaling / elastic

high-availability with multi-server failover

flexible or multi-tier storage backends

multi-cloud compatibility

The containerized app development and deployment became more and more popular with a huge number of technologies to realtime check these boxes, like Apache Mesos and Docker Swarm. Some cloud vendors like Amazon Web Services (AWS) even built their own container scheduling products (Elastic Container Service) to meet the needs of cloud-native applications.

# Whois Luca Berton

I’m Luca Berton and we’re going to have a lot of fun together.

First of all, let me introduce myself.

I’ve been an Ansible Software Quality Engineer of Red Hat, based in the Czech Republic, even though I’m Italian.

I’ve been more than 15 years System Administration, working with infrastructure, either on-premise or on the major cloud providers.

I’m an enthusiast of Open Source and support the community by sharing my knowledge in different events of public access.

I’m also a co-founder of the FSUG Padova, my hometown Linux Users Group, visited by Richard Stallman, the founder of the Free Software Movement in 2007.

I consider myself a lazy person so I always try new ways to automate the repetitive task of my work.

After years of Perl, Bash, and python scripting I landed in Ansible technology. I took the certification and worked for more than a year with the Ansible Engineer Team.

I consider Ansible the best infrastructure automation technology nowadays, it’s human-readable, the learning curve is accessible, and very requested by the recruiters in the market.

This ultimate guide contains all of the obvious and not-so-obvious solutions using Ansible automation.

In every lesson of this course, I’m going to share with you one specific use case, the possible solution, the code, the execution, and the verification of the target system.

All these solutions are battle-tested and used by me in my everyday automation.

You could easily jump between lessons and review again all the times that you need.

# Awards & Recognition

Since 2021 I share my knowledge about Ansible in my Ansible Pilot project.

Some major milestones:

Ansible Anwendertreffen - From Zero to Hero: How to build the Ansible Pilot Community - by Luca Berton (Red Hat CZ) 15:15 - 16:00 15 Feb 2022

Red Hat Ansible Playbook included in RHSB-2021-009 Log4Shell - Remote Code Execution - log4j (CVE-2021-44228) 12 Jan 2022

AWS Tip Set sysctl kernel parameters — Ansible module sysctl 12 Jan 2022

The Ansible Bullhorn #41 - A Newsletter for the Ansible Developer Community 7 Jan 2022

The Ansible Bullhorn #34 - A Newsletter for the Ansible Developer Community 17 Sep 2021

The course is going to keep track of the evolution of the Ansible technology adding more content whenever is needed.

---

Are you ready to have fun?

# Ansible For Beginners With Examples

In this chapter you’re going to discover the Ansible Basics, Architecture and Terminology.

# What is Ansible

In this chapter, I'll explain to you what Ansible is and why it is so powerful for your IT department.

Ansible was started in February 2012, when Michael DeHaan, the project's founder, took inspiration from several tools he had written prior, along with some hands-on experience with the state of configuration management at the time. Some of Ansible's unique attributes like its module-based architecture and agentless approach quickly attracted attention in the open source world.

# Ansible

Infrastructure Automation tool

Open Source infrastructure as code

First of all, let's begin our adventure with the fabulous Open Source technology named Ansible. It is classified as an Infrastructure Automation tool, so you could automate your

System Administrator tasks very easily. Infrastructure as code is the process of managing and provisioning computer data centers through machine-readable definition files, rather than physical hardware configuration or interactive configuration tools. Ansible follows the DevOps principles. With Ansible you could deploy your infrastructure as code on-premise and on the most well-known public cloud provider.

# Ansible Three Main Use Cases

Provision

Config management

Application deployment

The three main use cases of Ansible are provision, configuration management, and app deployment. But after touching the technology I’m sure you could invent some more ways to use it!

## Provisioning

The process of setting up the IT infrastructure

Let’s start talking about provisioning: all the System Administrators know how important it is to manage a uniform fleet of machines. Some people still rely on software to create workstation images. But there is a drawback, with imaging technology you’re only taking a snapshot in time of the machine. So every time you need to reinstall software because of the modern key activation systems or update manually to the latest security patches. Ansible is very powerful to automate this process being able to create a more smooth process.

## Configuration management

The process for maintaining systems and software in a desired and consistent state

The second key use case is “configuration management”: maintain up-to-date and in a consistent way all your fleet, coordinating rolling updates and scheduling downtime. With Ansible you could verify the status of your managed hosts and take action in a small group of them. A huge variety of modules is available for the most common use cases. Not to mention the common use case to check the compliance of your fleet to some international standard and apply resolution plans.

### Application deployment

The process to publish your software between testing, staging and production environment

The third key use case where Ansible is useful is Application deployment. It could automate the continuous integration / continuous delivery workflow pipeline of your web application for example. Your DevOps team will be delighted!.

# Ansible For DevOps

Ansible is used to apply the DevOps principles in worldwide organizations. Let me quickly summarize.

DevOps is a set of practices that combines software development (Dev) and IT operations (Ops). As DevOps is intended to be a cross-functional mode of working, those who practice the methodology use different sets of tools referred to as “toolchains” rather than a single one. These toolchains are expected to fit into one or more of the

following categories, reflective of key aspects of the development and delivery process.

The seven categories: Code: code development and review, source code management tools, code merging. Build: continuous integration tools, build status. Test: continuous testing tools that provide quick and timely feedback on business risks. Release: artifact repository, application pre-deployment staging. Deploy: change management, release approvals, release automation. Operate: infrastructure configuration and management, infrastructure as code tools. Monitor: applications performance monitoring, end-user experience.

## Four Key Tenets of Ansible

1. Declarative

You declare what you want rather than how to get to.

2. Agentless

You don’t need to install an agent. It takes advantage of OpenSSH.

3. Idempotent

An operation could be run multiple times without changing beyond the initial operation.

4. Community driven

Published in Ansible Galaxy as collections and roles.

The four key tenets of ansible are: declarative, agentless, idempotent, and community-driven. With “declarative” it means that you could use in a way very similar to a programming language to apply sequencing, selection, and iteration to the code flow. With “agentless” it means that you don’t need to install and update any agents on the target machine, it uses the SSH connection and python interpreter. The language itself is “idempotent”, which means that the code will check a precise status on the managed machine. It means that for example the first time your code will change something, the following runs it only verifies that nothing changed and moves forward. The last tenet is “community-driven”, which means that there exists a public archive called “Ansible Galaxy” where you could download the code made by other open source contributors. This code is organized in roles and collections, but we’ll see it in the future.

# Ansible Six Values

Simple: YAML human readable automation

Powerful: Configuration management, workflow orchestration, application deployment

Cross-platform: Agentless support for all major OS, physical, virtual, cloud and network

**Work with existing tools: Homogenize existing environment**

**“batteries included”: bundled with 750+ modules**

**Community powered: Download 250k/months, People3500 contributors, 1200 users on IRC**

Now let’s talk about the six values of Ansible. The first is that it is “simple’’: the code is written in YAML language, which is a human-readable data serialization language. It is well known and easy to learn, it is commonly used for configuration files and in applications where data is being stored or transmitted. Ansible is Powerful, it is battle-tested as Configuration management, workflow orchestration, application deployment. The third value is “cross-platform” by nature, the Agentless support for all major Operating Systems, physical, virtual, cloud, and network providers. Another value of Ansible is that it works with existing tools, it is easy to homogenize the existing environment. The “batteries included” means that Ansible included bundled more than 750 modules to automate the most common tasks. The last value is that Ansible is “community-powered”, every month has more than 250000 downloads, an average of 3500 contributors, and more than 1200 users on IRC.

# Ansible history

2012: Developed by Michael DeHaan

2015: Acquired by Red Hat

2016: AnsibleFest events

2020: Red Hat Ansible Automation Platform 1.0

2021: Red Hat Ansible Automation Platform 2.1

The main events in Ansible history are the following. The first release of Ansible was released on the 20th of February 2012.

The Ansible tool was developed by Michael DeHaan. Ansible Inc., originally AnsibleWorks Inc., was the company set up to commercially support and sponsor the project. On the 16th of October 2015 Red Hat acquired Ansible Inc., and evaluated Ansible as a “powerful IT automation solutions” designed to help enterprises move toward frictionless IT.

AnsibleFest is an annual conference of the Ansible community of users, contributors since 2016 in London and the USA.

# Ansible & Ansible Tower & Ansible Automation Platform

Ansible

Community driven project fast-moving innovations Open Source but only command line tools.

Red Hat Ansible Tower / Ansible Automation Platform

It is a framework designed by RedHat. It provides a web UI to manage your infrastructure.

Ansible is a community-driven project with fast-moving innovations Open Source but only command-line tools.

Enterprise needs more services and some stable releases. For example, they need an SLA for support.

Red Hat offers this service to companies namely under the Ansible Tower umbrella, now rebranded as Ansible Automation Platform. Ansible Tower is a REST API, web service, and web-based console designed to make Ansible

more usable for IT teams with members of different technical proficiency and skill-sets.

It is a hub for automation tasks. The tower is a commercial product supported by Red Hat Inc. but derived from AWX upstream project, which is open source since September 2017. Red Hat also maintains Ansible Core (previously known as Ansible Engine).

With Ansible Core, organizations can access the tools and innovations available from the underlying Ansible technology in a hardened, enterprise-grade manner. Ansible Engine is developed by Red Hat with the explicit intent of being used as an enterprise IT platform.

# Getting Started

In this chapter, I'll explain to you how to move the first steps with Ansible technology. How to connect to the managed hosts and how to execute some simple tasks using the command line.

# Ansible architecture

Let's begin by talking about Ansible architecture. The node where Ansible is actually installed is called "control node" and it manages all your fleet of nodes. The controlled node on the other hand is called a "managed node". The target nodes could be Linux, Mac, Windows and several network equipment. Each target has some specificity like different Linux distribution and module usage. We will discuss the specificity in the next sections.

# Connection with managed nodes

The connection between “control node” and “managed nodes” is managed by SSH protocol without any requirement of a specific client on the target machine. Other competitors require a client software often called “agent”. With SSH connection the only requirements are a username and a certificate to access the target machine. There are some ways to automate this first script step. After completing SSH connection another requirement is “python” interpreter, which comes out-of-the-box for modern operating systems. By default Ansible uses SFTP to transfer files but you could switch to SCP in configuration. The Windows target could be connected using WinRM technology and uses PowerShell as interpreter.

# Create a basic inventory

/etc/ansible/hosts

---

```
1 host1.example.com
```

---

default inventory file /etc/ansible/hosts

“host1.example.com” is a managed host

The list of managed hosts is stored in /etc/ansible/hosts. In this example it contain only one host named host1.example.com.

## Run your first Ansible command

---

```
1 $ ansible all -m ping 2 host1.example.org | SUCCESS => { 3     "ansible_facts": { 4 "discovered_interpreter_python": "/usr/bin/python" 5     }, 6   "changed": false, 7     "ping": "pong" 8 }
```

---

“ping” module executed on “all” hosts

“host1.example.com” replied with a success code

Now we’re ready to run your first Ansible command. The Ansible command is called module in Ansible slang. The first line executed the Ansible ping module on all hosts. The response is a pong. Please note that this means that Ansible is able to connect with SSH username, identify using public

key and execute the local python executer. So it’s completely different from any ping in networking.

## Run ad-hoc command on Ansible

---

1 $ ansible all -a “/bin/echo hello” 2 host1.example.org | CHANGED | rc=0 >> 3 hello

---

“/bin/echo hello” command executed on “all” hosts

“host1.example.com” replied with a changed code and print “hello” on standard output

Ansible could also execute some command on the target host and report the status on the console of “control node”. In this example the “/bin/echo hello” command was executed on “all” hosts. “host1.example.com” replied with a changed code and printed “hello” on standard output. Please note that you would receive a “changed” state every time you run a command on the remote machine.

# Run ad-hoc command with privilege escalation on Ansible

---

```
1 $ ansible all -m ping -u devops --become 2
host1.example.org | SUCCESS => { 3     "ansible_facts": { 4
       "discovered_interpreter_python": "/usr/bin/python" 5
}, 6     "changed": false, 7     "ping": "pong" 8 }
```

---

“ping” module executed on “all” host as user “root” after login with user “devops”

“host1.example.com” replied with a changed code and print “hello” on standard output

In this example I run the “ping” module against the “all” host as user “root” after login with user “devops”. “host1.example.com” replied with a changed code and printed “hello” on standard output.

## Recap

In this module we learned the basic concept of Ansible architecture, how to write the list of managed hosts and how to execute some simple commands against it.

# Inventory

In this chapter, I’ll explain to you what is an Ansible inventory, why you need it, the different types, how to edit and use it in your day to day journey.

---

1 An inventory is the set of hosts Ansible could work again\
2 st. 3 They could be categorized as groups/patterns.

---

The list of multiple hosts managed by Ansible is called “inventory”. It is fundamentally the list of nodes or hosts in your infrastructure at the same time, using a list or group of lists known as inventory. You could organize your inventory with “groups” or “patterns” to select the hosts or group you want Ansible to run against.

“all” keyword

---

1 the keyword all includes all hosts of the inventory, exce\ 2 pt localhost

---

The special keyword “all” includes all the hosts of the inventory used. It will be very useful in the following lessons. The only exception is localhost that you need to specify.

## Simple INI inventory

./ini_simple_inventory

---

1 one.example.com 2 3 [webservers] 4 two.example.com 5 three.example.com

---

file name: ini_simple_inventory

“one.example.com” is ungrouped

“two.example.com” and “three.example.com” are grouped as “webserver”

The simplest inventory type is the INI inventory, by the type of the file. The default location is “/etc/ansible/hosts” but you could use your customized “-i” parameter. In this example host “one.example.com” is ungrouped and “two.example.com” and “three.example.com” are grouped as “webserver”.

## Simple YAML inventory

./simple_yaml_inventory.yml

---

1 --- 2 all: 3 hosts: 4 one.example.com: 5 children: 6 webservers: 7 hosts: 8 two.example.com: 9 three.example.com:

---

file name: inventory.yml

“one.example.com” is ungrouped

“two.example.com” and “three.example.com” are grouped as “webserver”

You could express the same inventory using YAML syntax. In this example, the host “one.example.com” is ungrouped and “two.example.com” and “three.example.com” are grouped as “webserver”.

## Add ranges of hosts

./ini_range_inventory

---

1 [webservers] 2 www[01:99].example.com 3 4 [databases] 5 db-[a-f].example.com

---

“webservers” group contains all hosts from www01.example.com to www99.example.com

“Databases” group contains all hosts from db-a.example.com to db-f.example.com,

Group members could be defined also using ranges by numbers or letters. In the range by numbers you could also specify a stride the increment between a sequence of number. In this INI example “webservers” group contains all hosts from “www01.example.com” to “www99.example.com”. “databases” group contains all hosts from “db-a.example.com” to “db-f.example.com”.

## Host in multiple groups

./ini_groupsmultiple_inventory

---

1 one.example.com 2 3 [webservers] 4 two.example.com 5 three.example.com 6 7 [prod] 8 two.example.com 9 10 [dev] 11 three.example.com

---

hosts “two.example.com” and “three.example.com” are present in multiple groups

Hosts could be present in multiple groups. In this INI example hosts “two.example.com” and “three.example.com” are grouped as “webserver”. “two.example.com” is present in “webserver” as well as “prod” group. “three.example.com” is present in the “webserver” and “dev” groups.

# Host variables

./ini_hostinventory

---

```
1 [webservers] 2 localhost  ansible_connection=local 3
one.example.com ansible_connection=ssh
ansible_user=devops 4 two.example.com
ansible_connection=ssh ansible_user=ansib\ 5 le
```

---

Customization of “ansible_connection” and “ansible_user” variables

In inventory you might like to store variable values that relate to a specific host or group. This example scenario is

common because it defines different connections with different hosts. For example to use “local” connection for the localhost and “ssh”, default, for all the other hosts. For each host you could also customize the login user “devops’’ for “one.example.com” and “ansible” for “two.example.com”.

## Group variables

./ini_groupsvariables_inventory

---

```
1 [webservers] 2 one.example.com 3 two.example.com 4 5 [webservers:vars] 6 ntp_server=europe.pool.ntp.org
```

---

./inventory.yml

---

```
1 --- 2 webservers: 3   hosts: 4     two.example.com: 5 three.example.com: 6   vars: 7     ntp_server: europe.pool.ntp.org
```

As well as per single host it is possible to define group variables. In the two inventory files in the example (INI and YAML format) the variables “ntp_server” have assigned the value “europe.pool.ntp.org” for all the hosts of the group.

## Inheriting variable values

./ini_variableinheriting_inventory

---

1 [asia] 2 host1.example.com 3 4 [europe] 5 host2.example.com 6 7 [webserver:children] 8 asia 9 europe 10 11 [webservers:vars] 12 ntp_server=europe.pool.ntp.org

---

./variableinheriting_inventory.yml

---

```
1 --- 2 children: 3   webservers: 4     children: 5       asia: 6
    hosts: 7          host1.example.com: 8       europe: 9
hosts: 10          host2.example.com: 11     vars: 12
ntp_server: europe.pool.ntp.org
```

---

Hosts and groups could be combined together. In this example the group “webserver” has two members “asia” and “europe”. These two elements are defined as a single host “host1.example.com” and “host2.example.com”, respectively, but could contain more hosts as well. “ntp_server” variables are defined at “webservers” level. So in the end the “ntp_server” variable is available for “webserver”, “asia” and “europe” groups. “ntp_server” variable is available as well in “host1.example.com” and “host2.example.com” hosts.

## Use multiple inventory sources

---

```
1 $ ansible-playbook playbook.yml -i production -i
developm\ 2 ent
```

---

Execute ansible playbook named “playbook.yml” against “production” and “development”

It is possible to use multiple inventory files for each execution. In this example is going to be executed a playbook named “playbook.yml” against “production” and “development” inventories.

# localhost inventory

./ini_local_inventory

---

1 localhost ansible_connection="local"

---

file name: inventory

/etc/ansible/hosts default

One special case in inventory is with localhost. You need to specify the connection type as “local”, otherwise Ansible presumes to use the default SSH connection.

# Recap

Now you know more about Ansible INI and YAML inventory files, host and group variables.

# Playbook

In this chapter, I’ll explain to you what an Ansible Playbook is and why you need it. We’ll cover how to start with a simple playbook, from the basic syntax and how to add more tasks.

---

```
1 A playbook is a set of Plays to be executed against an In\ 2
ventory.
```

---

# YAML syntax

---

```
1 # This is a YAML comment 2 some data # This is also a
YAML comment 3 4 this is a string 5 'this is another string' 6
"this is yet another a string" 7 8 with_newlines: | 9 Example
Company 10 123 Main Street 11 New York, NY 10001 12 13
without_newlines: > 14 This is an example 15 of a long
string, 16 that will become 17 a single sentence. 18 19
yaml_dictionary: {name1: value1, name2: value2} 20 21
```

yaml_list1: 22 - value1 23 - value2 24 yaml_list2: [value1, value2]

---

Every playbook is based on YAML syntax so the file is easy and human readable. YAML is a text format and you could easily recognize by the presence of the three dash symbols at the beginning and three dots in the end. The three dots are not mandatory so a lot of people simply omit them. This file type is very sensitive to spacing between elements. It’s strictly important that elements of the same level are in the same indentation, despite some programming languages. You could use the symbol “#” for comments, even on the lines with some previous code. String is very important and you could specify directly or with a single or double quote. I recommend you to use a double quote as a general rule. Using the pipe and major statement you could define multi-line strings. The first statement will keep the newlines, the second not. Other useful data structures are dictionaries and lists that you could see in action in the grayboard.

## helloworld.yml

helloworld.yml

---

```
1 --- 2 - name: Hello World sample 3   hosts: all 4   tasks: 5
  - name: Hello message 6       ansible.builtin.debug: 7
msg: "Hello World!" 8 ...
```

---

---

1 file name: helloworld.yml 2 Name of the playbook 3 Hosts of execution 4 List of tasks 5 One task named “Hello message” 6 Module ansible.builtin.debug 7 Argument “msg” of module debug

---

This is the output of the execution of the “helloworld.yml”. I’d like you to note the command used is “ansible-playbook”. The first parameter is the inventory file and the second is the playbook. In this execution the play is executed against the “host1.example.com” node. The output is very clear of the step by step execution. When the command is successful the output is highlighted with green color. A warning will be presented in orange and an error in red. The most attent of you have noticed an extra task executed called “Gathering Facts” that is performed by Ansible to acquire some information of the managed node. We’ll discuss more facts gathering in the following lesson. Try by yourself the execution of this code and become confident with this output summary. It will be very useful. Two tasks are being executed.

# Tip1: ansible-playbook –check option

---

```
1 $ ansible-playbook -i inventory  --check  helloworld.yml 2
PLAY [Hello World sample] ******************************\ 3
**********************************************************\ 4
********** 5 TASK [Gathering Facts]
***********************************\ 6
**********************************************************\ 7
******** 8 ok: [host1.example.com] 9 TASK [Hello message]
***********************************\ 10
**********************************************************\ 11
****** 12 ok: [host1.example.com] => { 13     "msg": "Hello
World!" 14 } 15 PLAY RECAP
************************************************\ 16
************************************************** 17
host1.example.com      : ok=2    changed=0    unreachabl\
18 e=0    failed=0    skipped=1    rescued=0    ignored=0
```

---

A very useful option of “–check” for ansible-playbook commands. This option to perform a dry run on the playbook execution. This causes Ansible to report what changes would have occurred if the playbook were executed, but does not make any actual changes to managed hosts.

# Tip2: debug day-to-day usage

helloworld_debug.yml

---

1 --- 2 - name: Hello World sample 3  hosts: all 4  tasks: 5  - name: Hello message 6  debug: 7  msg: "Hello World!" 8  verbosity: 2 9 ...

---

---

1 file name: helloworld_debug.yml 2 Name of the playbook 3 Hosts of execution 4 List of tasks 5 One task named “Hello message” 6 Module debug 7 Argument “msg” of module debug 8 Argument “verbosity” is “2”

---

This tip allows you to keep the debug code in your playbook and enable the execution only when you need it. For example the message is printed only when Ansible is invoked with output level two.

# helloworld_debug.yml - execution - part 1

---

1 ansible-playbook -i inventory helloworld_debug.yml 2 PLAY [Hello World sample] ********\ 3 **********\ 4 ********** 5 6 TASK [Gathering Facts] ********\ 7 **********\ 8 ******** 9 ok: [host1.example.com] 10 11 TASK [Hello message] ********\ 12 **********\ 13 ****** 14 skipping: [host1.example.com] 15 16 PLAY RECAP **********\ 17 ********** 18 host1.example.com : ok=1 changed=0 unreachabl\ 19 e=0 failed=0 skipped=1 rescued=0 ignored=0

---

This is the output of “helloworld_debug.yml” when it is executed normally, which means not in debug mode. As you could notice the hello message is skipped.

# helloworld_debug.yml - execution - part 2

---

```
1 $ ansible-playbook -i inventory -vv helloworld_debug.yml
2 PLAY [Hello World sample] ******************************\
3 ********************************************************\
4 ********** 5 TASK [Gathering Facts]
**********************************\ 6
**********************************************************\ 7
******** 8 ok: [host1.example.com] 9 TASK [Hello message]
**********************************\ 10
**********************************************************\ 11
****** 12 ok: [host1.example.com] => { 13     "msg": "Hello
World!" 14 } 15 PLAY RECAP
***********************************************\ 16
************************************************** 17
host1.example.com      : ok=2    changed=0    unreachabl\
18 e=0    failed=0    skipped=1    rescued=0    ignored=0
```

---

This is the output of “helloworld_debug.yml” when it is executed in debug level two mode, please notice the two “V” in the command line. As you could notice the hello message is printed.

# Idempotency

---

1 idempotency 2 modules check the desired final state has already been ac\ 3 hieved, otherwise apply

---

One important characteristic of most Ansible modules is to be “idempotent”. It means that before executing any actions on the target node, the module is going to check the actual status. If the actual status matches the desired once, no action is going to be performed. If the current status diverges from the expected once an action will take place. Please note that if you execute another time the playbook the desired status will be found and no further actions will be performed. This property is called “idempotency” and you’re young to take advantage of it.

# multipleplays.yml

---

1 --- 2 - name: first play 3 hosts: web.example.com 4 tasks: 5 - name: first task 6 ansible.builtin.yum: 7 name: httpd 8 status: present 9 - name: second

task 10 ansible.builtin.service: 11 name: httpd 12 enabled: true 13 - name: second play 14 hosts: database.example.com 15 tasks: 16 - name: first task 17 ansible.builtin.service: 18 name: mariadb 19 enabled: true

---

file name: multipleplays.yml

Two plays inside to be execute against of web.example.com and database.example.com

The “multipleplays.yml” playbook contains two plays. The first play is executed against the “web.example.com” host and install and apache web server and enable on boot. The second play is going to be executed against “database.example.com” and enable on boot the execution of “mariadb” database management system. As you could see using multiple play is very powerful to execute different tasks in different hosts. Now the definition of playbook make more sense.

## privilege_escalation.yml

---

```
1 --- 2 - name: install httpd 3   hosts: web.example.com 4 become: true 5   become_method: sudo 6   become_user: root 7   tasks: 8     - name: install httpd 9 ansible.builtin.yum: 10         name: httpd 11         status: present
```

---

privilege_escalation.yml

“become” specify that privilege escalation is necessary

“become_method” specify the escalation method

“become_user” specify the destination user (default “root”)

Some action needs to be taken by a user with administrative power. Linux typically is the “root” user. Some distributions allow the privilege escalation using the “sudo” command using the “wheel” group. In this example I’m going to install a software so I need the privilege escalation. The “yum” module needs to perform some action on the managed node. In the playbook when it is not necessary you could disable.

# Most common Ansible modules

Files modules

copy: copy a local file to the managed host

fetch: copy files from remote nodes to local

file: set permissions and other properties of files

lineinfile: ensure a particular line is or is not in a file

synchronize: synchronize content using rsync

Software package modules

package: manage packages using autodetected package manager native to the operating system

yum: manage packages using the YUM package manager

apt: manage packages using the APT package manager

dnf: manage packages using the DNF package manager

gem: manage Ruby gems

pip: manage Python packages from PyPI

System modules

firewalld: manage arbitrary ports and services using firewalld

reboot: reboot a machine

service: manage services

user: add, remove, and manage user accounts

Net tools modules

get_url: Download files in HTTP, HTTPS, and FTP

nmcli: Manage networking

uri: Interact with web services

# Recap

In this module we put the foundation of the following operation on Ansible Playbook. Keep going and soon you will

be able to automate all your System Administrator tasks.

# Variables

In this chapter, I’ll explain to you what are Ansible variables, why do you need them, the different types, how to edit and use them in your day to day journey.

---

1 variable store dynamic value for a given environment.

---

In your Playbook is a good practice to use Variables to store all the dynamic values that you need. Editing variables you could reuse your code in the future only parameterized according to your business needs.

# Not permitted variables names

no white spaces my var

no dots my.var

don’t starts with number 1stvar

don’t contain special character myvar$1

Ansible allows all the combinations of letters and numbers in variable names. If you plan to use numbers, be aware that you can’t use them at the beginning, but this is a general rule in the information technology world. The four main limitations in variable names are: no white spaces are allowed, no dots, don’t start with numbers, and don’t contain special characters. So on the right you see some examples of invalid variable names.

## variableprint.yml

./variableprint.yml

---

1 --- 2 - name: Variable print sample 3  hosts: all 4  vars: 5  fruit: "apple" 6  tasks: 7  - name: Print variable 8 ansible.builtin.debug: 9  msg: "Print the value of variable {{ fruit }}"

---

---

1 file name: variableprint.yml 2 Name of the playbook 3 Hosts of execution 4 List of tasks 5 One task named “Print variable” 6 Module debug 7 Argument “msg” of module debug

---

The “variableprint.yml” playbook is similar to “helloworlds.yml” playbook. The syntax and the structure of the element is very similar except for the presence of the variable “fruit”. Variables store information like strings, numbers and more complex data structures like lists, dictionaries, etc. In this case the variable has name “fruit” and value “apple”. The “debug” module in this case will concatenate the text “Print the value of variable” with the value of the variable “fruit”. Please note the double bracket that means the values of the variable. It’s a best practice always to include the double brackets within double quote in the code.

## variableprint.yml - execution

---

1 $ ansible-playbook -i inventory variableprint.yml 2 PLAY [Variable print sample] ****************************\ 3 ********************** 4 5 TASK [Gathering Facts] ********************************\ 6 **********************

```
7 ok: [host1.example.com] 8 9 TASK [Print variable]
**********************************\ 10
********************** 11 ok: [host1.example.com] => { 12
    "msg": "Print the value of variable apple" 13 } 14 15 PLAY
RECAP ********************************************\ 16
********************** 17 host1.example.com  : ok=2
changed=0    unreachable=0  \ 18 failed=0    skipped=0
rescued=0    ignored=0
```

---

This is the output of the execution of the “variableprint.yml” is very similar to the one of “helloworld.yml” file. Please note print of the message “Print the value of variable apple” obtained combining the string with the value of the variable. Also this execution is successful as you could see in the play recap area and the green color. Two tasks are being executed.

## variableprint.yml - extra variables

---

```
1 $ ansible-playbook -i inventory  -e fruit=banana  variabl\ 2
eprint.yml 3 PLAY [Variable print sample]
****************************\ 4 ********************** 5 6
TASK [Gathering Facts] **********************************\ 7
********************** 8 ok: [host1.example.com] 9 10
TASK [Print variable] ***********************************\ 11
```

```
********************** 12 ok: [host1.example.com] => { 13
    "msg": "Print the value of variable banana" 14 } 15 16
PLAY RECAP *********************************************\
17 ********************** 18 host1.example.com  : ok=2
changed=0    unreachable=0  \ 19 failed=0    skipped=0
rescued=0    ignored=0
```

---

You could override the playbook variables specify the value from the command line. Variables set on the command line are called extra variables.

This is the output of the execution of the “variableprint.yml” is very similar to the previous one. Please note print of the message “Print the value of variable banana” obtained combining the string with the value of the variable. The value passed from the command line override any playbook value.

# Host Variables and Group Variables

inventory_host_variables

---

```
1 [servers] 2 host1.example.com ansible_user=devops
```

inventory_group_variables

```
1 [servers] 2 host1.example.com 3 host2.example.com 4 5
[servers:vars] 6 user=alice
```

Host and group variables could be defined in your inventory file. In the left column you could see an example of a host variable. The variable “ansible_user” is assigned the value “devops”. This host variable is available for host1.example.com. On the right column you see an example of a group variable. The variable “user” is assigned the value “alice”. This group variable will be available for host1.example.com and host2.example.com with the same value.

inventory_host_dir

```
1 [servers] 2 host1.example.com
```

host_vars/demo1.example.com

1 ansible_user=devops

inventory_group_dir

1 [servers] 2 host1.example.com 3 host2.example.com

group_vars/servers

1 user=alice

You can achieve the same result also using directories to populate host and group variables. As you could see the result will be the same as the previous slide but using more files. In the left column you could see an example of a host variable. The variable “ansible_user” is assigned the value “devops”. This host variable is available for host1.example.com. On the right column you see an example of a group variable. The variable “user” is assigned the value “alice”. This group variable will be available for host1.example.com and host2.example.com with the same value.

# Array variables

array.yml

---

1 --- 2 - name: Array sample 3 hosts: all 4 vars: 5 users: 6 alice: 7 firstname: Alice 8 homedir: /users/alice 9 bob: 10 firstname: Bob 11 homedir: /users/bob

---

---

1 file name: array.yml 2 Users are organized in a hierarchical data structure. 3 4 Returns 'Alice' 5 users.alice.firstname 6 Returns 'Alice' 7 users['alice']['firstname']

---

A very useful data structure is the Array. You could organize the information in a hierarchical data structure. In the example it’s easy to read the list of users: alice and bob. Each element of the list has some two properties: firstname and homedir. You could access the data with dot notation or square brackets. In both cases you obtain the same result as you could see in the slide.

## array.yml - execution

---

1 $ ansible-playbook -i inventory array.yml 2 PLAY [Array sample] ***********************************\ 3 ***************************************************\ 4 ***** 5 TASK [Gathering Facts] *********************************\ 6 ***************************************************\ 7 ******** 8 ok: [host1.example.com] 9 TASK [Print Alice's firstname] ************************\ 10 ***************************************************\ 11 ****************ok: [host1.example.com] => { 12     "msg":

"Print Alice's firstname: Alice" 13 } 14 PLAY RECAP ********************************************\ 15 **********************************************************host\ 16 1.example.com : ok=2 changed=0 unr\ 17 eachable=0 failed=0 skipped=0 rescued=0 ignor\ 18 ed=0

---

This is the output of the execution of the “array.yml” is very similar to the previous one. You could notice the output of “Print Alice’s firstname: Alice”. Ansible accessed the array variable value and showed it in the output message as expected.

# Registered Variables

registeredvariables.yml

---

1 --- 2 - name: Installs a package and prints the result 3 hosts: all 4 become: true 5 tasks: 6 - name: Install the package 7 ansible.builtin.yum: 8 name: wget 9 state: installed 10 register: install_result 11 12 - name: debug 13 ansible.builtin.debug: 14 var: install_result

1 file name: registeredvariables.yml 2 3 Store the standard output in variable install_result 4 that could be printed as well

Another very useful data structure are registered variables. You could save inside registered variables the output of any commands. This example will be printed on screen.

## registeredvariables.yml - execution

1 $ ansible-playbook -i inventory registeredvariables.yml 2 PLAY [Installs a package and prints the result] **********\ 3 **************************************************\ 4 ********************************************** 5 TASK [Gathering Facts] *********************************\ 6 ********************************************************** 7 ok: [host1.example.com] 8 TASK [Install the package] ******************************\ 9 ********************************************************** 10 ok: [host1.example.com] 11 TASK [debug]

```
**********************************************\ 12
**************************************************** 13
ok: [host1.example.com] => { 14     "install_result": { 15
    "changed": false, 16         "failed": false, 17         "msg":
"Nothing to do", 18         "rc": 0, 19         "results": [] 20     }
21 } 22 PLAY RECAP
**********************************************\ 23
**************************************************** 24
host1.example.com          : ok=3    changed=0    unreach\
25 able=0    failed=0    skipped=0    rescued=0
ignored=0
```

---

This is the output of the execution of the “registeredvariables.yml” is like expected. At first the yum module verify the presence of the package, if missing proceed with the installation. The output of the setup process is stored inside a registered variable that is printed on screen.

# Recap

In this module we explored the variable usage inside the Ansible Playbook. You now are aware about the use of tools like the user defined, Host, Group and registered variables.

# Facts and Magic Variables

In this chapter, I'll explain to you what are Ansible facts and magic variables, why do you need them, the different types, how to edit and use them in your day to day journey.

# Ansible Facts

---

1 facts are variables related to remote hosts.

---

Variables related to remote systems are called facts. With facts, you can use the behavior or state of one system as configuration on other systems. They are so powerful because you could obtain a very comprehensive vision of the current host, the operating system, the distribution used, the ip address, the networking configuration, the storage configuration, etc.

### List all facts of a machine ad-hoc

```
1 $ ansible -m setup hostname 2
"ansible_all_ipv4_addresses": [ 3         "REDACTED IP
ADDRESS" 4     ], 5     "ansible_all_ipv6_addresses": [ 6
"REDACTED IPV6 ADDRESS" 7     ], 8     "ansible_apparmor":
{ 9         "status": "disabled" 10     }, 11
"ansible_architecture": "x86_64", 12     "ansible_bios_date":
"11/28/2013", 13     "ansible_bios_version": "4.1.5", 14
"ansible_cmdline": { 15         "BOOT_IMAGE": "/boot/vmlinuz-
3.10.0-862.14.4.el7.\ 16 x86_64", 17         "console":
"ttyS0,115200", 18         "no_timer_check": true, 19
"nofb": true, 20         "nomodeset": true, 21         "ro": true,
22         "root": "LABEL=cloudimg-rootfs", 23         "vga":
"normal" 24     "ansible_date_time": { 25         "date":
"2018-10-25", 26         "day": "25", 27         "epoch":
"1540469324", 28         "hour": "12", 29         "iso8601":
"2018-10-25T12:08:44Z", 30         "iso8601_basic":
"20181025T120844109754", 31         "iso8601_basic_short":
"20181025T120844", 32         "iso8601_micro": "2018-10-
25T12:08:44.109968Z", 33         "minute": "08", 34
"month": "10", 35         "second": "44", 36         "time":
"12:08:44", 37         "tz": "UTC", 38         "tz_offset":
"+0000", 39         "weekday": "Thursday", 40
"weekday_number": "4", 41         "”weeknumber": "43", 42
      "year": "2018" 43     }, 44     "ansible_default_ipv4": { 45
        "address": "REDACTED", 46         "alias": "eth0", 47
[...]
```

The best way to understand Ansible facts is to list by yourself using this simple ad-hoc command. You will be surprised by the amount of information you’re going to obtain by the host. For example the current hardware configuration: architecture, processor, ram, available memory, storage configuration, etc. There is also more information about the software configuration: operating system, the distribution used, the ip address, the networking configuration, the storage configuration, etc.

**List all facts of a machine playbook**

facts_printall.yml

---

1 --- 2 - name: facts_printall 3 hosts: all 4 tasks: 5 - name: Print all facts 6 ansible.builtin.debug: 7 var: ansible_facts

---

You could access the same amount of data from the Ansible playbook. In this simple example you’re going to list all the ansible facts for all the hosts of the inventory. The expected result will be the same as the previous ad-hoc execution.

**facts_printall.yml - execution**

---

```
1 ansible-playbook -i inventory facts_printall.yml 2 PLAY
[facts_printall] ***********************************\ 3
**************************************************\ 4
******* 5 TASK [Gathering Facts]
***********************************\ 6
**************************************************\ 7
******** 8 ok: [host1.example.com] 9 TASK [Print all facts]
***********************************\ 10
**************************************************\ 11
******** 12 ok: [host1.example.com] => { 13
"ansible_facts": { 14        "architecture": "x86_64", 15
"bios_date": "10/12/2020", 16        "bios_version":
"N22ET66W (1.43 )", 17        "br_4332d8483447": { 18
   "active": false, 19           "device": "br-4332d8483447",
20           "features": { 21               "esp_hw_offload": "off
[fixed]", 22               "esp_tx_csum_hw_offload": "off
[fixed]", 23               "fcoe_mtu": "off [fixed]",
```

---

This is the output of the execution of the “facts_printall.yml”. In this execution the play is executed against the “host1.example.com” node. The output is very long with all the facts re obtained automatically by Ansible in the task “Gathering Facts”. I encourage you to run this code and be confident with Ansible Facts.

**Reference a fact**

facts_printone.yml

---

```
1 --- 2 - name: facts_printone 3   hosts: all 4   tasks: 5   -
name: Print a fact 6     ansible.builtin.debug: 7       var: “{{
ansible_facts['ansible_architecture'] }}”
```

---

You could easily interact with facts specifying the fact name. In this example we’re listing the architecture of all the managed nodes. Feel free to customize the code to the ansible facts that better fit your needs.

# Magic variables

---

1 Magic variables are variables related to Ansible.

Variables related to remote systems are called facts. With facts, you can use the behavior or state of one system as configuration on other systems.

## Most common magic variables

hostvars

groups

group_names

inventory_hostname

ansible_version

The most common magic variables are “hostvars”, “groups”, “group_names”, “inventory_hostname” and “ansible_version”. With “hostvars” magic variable you could access variables defined for any host in the play. It is very useful when you would like to access the property of one host from another one. You could combine “hostvars” with ansible facts to access property of other hosts. “groups” magic variable lists all the groups in the inventory. You could use “groups” and “hostvars” magic variables together to list

all the IP addresses of the hosts in a group. “group_names” is a list of which groups is the current host part of. “Inventory_hostname” magic variable contains the name of the host configured in the inventory. “ansible_version” magic variable contains the version information about Ansible.

## Recap

Ansible Facts and Magic Variables are very useful in your Ansible Playbook especially when you need to execute some operations that impact all hosts in the inventory. For example to generate a custom /etc/hosts file for all hosts involved in the inventory. You could apply a loop or other statements that you’re going to explore in the next lessons.

# Vault

In this module, we are going to talk about how to store in a secure way encrypted any sensitive data such as passwords or API keys using Ansible Vault.

---

```
1 Ansible Vault encrypts variables and files to protect sen\ 2
sitive content and let you use in playbooks or roles
```

---

Ansible Vault stores variables and files in an encrypted way and lets you use them in playbooks or roles. The cipher used to protect files is AES 256 in recent versions of Ansible.

# Creating an encrypted file

---

```
1 $ ansible-vault create secret.yml 2 New Vault password:
password 3 Confirm New Vault password: password 4 5 $
```

```
ansible-vault create --vault-password-file=vault-passwo\ 6
rd.txt secret1.yml
```

---

To create a new encrypted file, use the ansible-vault create filename command. The command prompts for the new vault password and then opens a file using the default editor. In this example the password used is password but I strongly encourage you to use one more secure as possible.

## Viewing an encrypted file

---

```
1 $ ansible-vault view secret1.yml 2 Vault password:
password 3 INFERNO. 4 I. 5 Nel mezzo del cammin di nostra
vita 6 mi ritrovai per una selva oscura 7 ché la diritta via era
smarrita. 8 Ahi quanto a dir qual era è cosa dura 9 esta
selva selvaggia e aspra e forte 10 che nel pensier rinova la
paura! 11 Tant'è amara che poco è più morte; 12 ma per
trattar del ben ch'i' vi trovai, 13 dirò de l'altre cose ch'i' v'ho
scorte.
```

---

You can use the ansible-vault view filename command to view an Ansible Vault-encrypted file without opening it for

editing.

## Editing an existing encrypted file

---

```
1 $ ansible-vault edit secret.yml 2 Vault password: password
```

---

To edit an existing encrypted file, Ansible Vault provides the ansible-vault edit filename command. This command decrypts the file to a temporary file and allows you to edit it. When saved, it copies the content and removes the temporary file.

## Encrypting an existing file

---

```
1 $ ansible-vault encrypt cleartext1.yml --output=vault1.yml
2 New Vault password: password 3 Confirm New Vault
password: password 4 Encryption successful
```

---

To encrypt a file that already exists, use the ansible-vault encrypt filename command. The --output option saves the encrypted file with a new name. If you omit this option the original file will be overwritten with the encrypted one.

## Decrypting an existing file

---

```
1 $ ansible-vault decrypt vault1.yml --
output=decrypted.yml 2 Vault password: password 3
Decryption successful
```

---

An existing encrypted file can be permanently decrypted by using the ansible-vault decrypt filename command. When decrypting a single file, you can use the --output option to save the decrypted file under a different name.

## Changing password of an encrypted file

```
1 $ ansible-vault rekey secret.yml 2 Vault password: password1 3 New Vault password: password 4 Confirm New Vault password: password 5 Rekey successful
```

You can use the ansible-vault rekey filename command to change the password of an encrypted file. This command can rekey multiple data files at once. It prompts for the original password and then the new password.

## Playbooks and Ansible Vault

```
1 $ ansible-playbook playbook.yml 2 TASK [include_vars] **********\ 3 **********fatal: [localhost]: FAIL\ 4 ED! => {"ansible_facts": {}, "ansible_included_var_files"\ 5 : [], "changed": false, "message": "Attempting to decrypt\ 6 but no vault secrets found"} 7 8 $ ansible-playbook --vault-id @prompt playbook.yml 9 Vault password (default): password 10 11 $ ansible-playbook --vault-password-file=vault-password.t\ 12 xt playbook.yml
```

To run a playbook that accesses files encrypted with Ansible Vault, you need to provide the encryption password to the ansible-playbook command. If you do not provide the password, the playbook returns an error. To provide the vault password to the playbook, use the --vault-id option. For example, to provide the vault password interactively, use --vault-id @prompt as illustrated. Alternatively you could use a password file.

# Recap

In this module we explored the Ansible Vault security storage to save secrets and confidential information inside Ansible. As we saw, these tools are robust and completely integrated inside Ansible Technology.

# Conditional

In this module, I’ll explain to you what are Ansible conditionals operations and how you could use them every day in your Ansible Playbook.

---

1 Conditional statement check a condition and change the be\ 2 havior of the program accordingly

---

Let’s start! In order to write useful code, we almost always need the ability to check conditions and change the behavior of the program accordingly. Conditional statements give us this ability. The Ansible form is the “when” statement. Ansible uses Jinja2 tests and filters in conditionals. Ansible supports all the standard tests and filters, and adds some unique ones as well.

## Basic conditionals with “when”

conditional_basic_false.yml

---

```
1 --- 2 - name: conditional_basic 3   hosts: all 4   vars: 5
configure_nginx: false 6   tasks: 7     - name: reload nginx 8
    ansible.builtin.service: 9         name: nginx 10         state:
reloaded 11       when: configure_nginx
```

---

This is the basic example of usage of “when” statement in your Ansible playbook. The task “reload nginx” is going to be executed only when the “configure_nginx” boolean variable is set to “true”. In this example is not so we expect this task to be skipped. Let’s see the output of the executed code.

Execution:

---

```
1 $ ansible-playbook -i inventory conditional_basic_false.y\ 2
ml 3 PLAY [conditional_basic]
*********************************\ 4
*************************************************************\ 5
********** 6 TASK [Gathering Facts]
*********************************\ 7
*************************************************************\ 8
```

```
******** 9 ok: [host1.example.com] 10 TASK [reload nginx]
*************************************\ 11
*************************************************************\ 12
***** 13 skipping: [host1.example.com] 14 PLAY RECAP
*********************************************\ 15
************************************************** 16
host1.example.com      : ok=1    changed=0    unreachabl\
17 e=0    failed=0    skipped=1    rescued=0    ignored=0
```

---

This is the output of the execution of the “conditional_basic_false.yml”. In this execution the play is executed against the “host1.example.com” node. The output is highlighted with green and blue colors. As you could see the task of the task “reload nginx” is read by Ansible but skipped based on our conditional statement.

conditional_basic_true.yml

---

```
1 --- 2 - name: conditional_basic 3   hosts: all 4   vars: 5
configure_nginx: true 6   tasks: 7     - name: reload nginx 8
   ansible.builtin.service: 9         name: nginx 10         state:
reloaded 11       when: configure_nginx
```

---

This is the same basic example of usage of “when” statement in your Ansible playbook but we changed the variable value from “false” to “true”. The task “reload nginx” is now going to be executed because the “configure_nginx” boolean variable is set to “true”. Let’s see the output of this code execution.

Execution:

---

```
1 $ ansible-playbook -i inventory conditional_basic_true.yml
2 PLAY [conditional_basic] ********************************\
3 ********************************************************\
4 ********** 5 TASK [Gathering Facts]
**********************************\ 6
**********************************************************\ 7
******** 8 ok: [host1.example.com] 9 TASK [reload nginx]
**************************************\ 10
**********************************************************\ 11
***** 12 ok: [host1.example.com] 13 PLAY RECAP
**********************************************\ 14
********************************************************** 15
host1.example.com      : ok=2    changed=0    unreachabl\
16 e=0    failed=0    skipped=0    rescued=0    ignored=0
```

---

This is the output of the execution of the “conditional_basic_true.yml”. In this execution the play is executed against the “host1.example.com” node. The

output is highlighted with green color. As you can see, the task of the task “reload nginx” is read by Ansible and executed successfully in our conditional statement.

## Conditionals based on ansible_facts

conditional_facts.yml

---

```
1 --- 2 - name: conditional_facts 3   hosts: all 4   tasks: 5   - name: Shut down Debian-like systems 6 ansible.builtin.command: /sbin/shutdown -t now 7     when: ansible_facts['os_family'] == "Debian"
```

---

It is very useful combine conditional and facts. So you’re able to adapt the execution of your code based on individual hosts conditions, IP address, operating system, the status of a filesystem, and many more. In this example we’re going to execute the shutdown if the target system in Debian-like so Debian and Ubuntu managed hosts.

Execution:

```
1 $ ansible-playbook -i inventory conditional_facts.yml 2
PLAY [conditional_facts] ********************************\ 3
*****************************************************\ 4
********** 5 TASK [Gathering Facts]
*********************************\ 6
*****************************************************\ 7
******** 8 ok: [host1.example.com] 9 TASK [Shut down
Debian-like systems] ********************\ 10
*****************************************************\ 11
********************** 12 skipping: [host1.example.com] 13
PLAY RECAP **********************************************\
14 ************************************************** 15
host1.example.com                  : ok=1    changed=0  \ 16
unreachable=0    failed=0    skipped=1    rescued=0    i\ 17
gnored=0
```

It is very useful to combine conditional and facts. So you’re able to adapt the execution of your code based on individual hosts conditions, IP address, operating system, the status of a filesystem, and many more. In this example we’re going to execute the shutdown if the target system is Debian-like so Debian and Ubuntu managed hosts.

# Recap

Conditionals are very important because they enable us to create Ansible Playbooks that respond to some events, conditions or Ansible Facts. This statement is the foundation of the smart Ansible Playbook.

# Loop

In this chapter, I'll explain to you what are Ansible loop operations and how you could use them every day in your Ansible Playbook.

---

1 Loop automate repetitive tasks

---

Computers are great in the automation of repetitive tasks. Repeating identical or similar tasks without making errors is something that computers do well and people do poorly. Repeated execution of a set of statements is called iteration. Ansible has several statements for iteration – the "loop" statement, and the "with_items" statements. The with statement relies on plugins.

loop_simple.yml

---

```
1 --- 2 - name: Check services 3   hosts: all 4   tasks: 5   -
name: httpd and mariadb are running 6
ansible.builtin.service: 7       name: "{{ item }}" 8       state:
started 9     loop: 10       - httpd 11       - mariadb
```

---

A simple loop iterates a task over a list of items. The “loop” statement is added to the task, and takes as a value the list of items over which the task should be iterated. The loop variable item iterates the current value during each iteration.

loop_hash_or_dict.yml

---

```
1 --- 2 - name: Users exist and are in the correct groups 3
hosts: all 4   tasks: 5   - name: Users exist and are in the
correct groups 6     ansible.builtin.user: 7       name: "{{
item.name }}" 8       state: present 9       groups: "{{
item.group }}" 10     loop: 11       - name: alice 12
group: wheel 13       - name: bob 14         group: root
```

---

The loop list does not need to be a list of simple values. In the following example, each item in the list is actually a hash or a dictionary. Each hash or dictionary in the example

has two keys, name and groups, and the value of each key in the current item loop variable can be retrieved with the “item.name” and “item.group” variables, respectively.

# with_* statement

with_items

Like “loop” for simple lists, list of strings or a list of hashes/dictionaries.

Flatter to list if lists of lists are provided

with_file

This keyword requires a list of control node file names. The loop

variable item holds the content of the file

with_sequence

requires parameters to generate a list of values based on a numeric sequence

## loop_with_items.yml

---

```
1 --- 2 - name: Example with_items 3   hosts: all 4   vars: 5
  data: 6       - alice 7       - bob 8   tasks: 9   - name: Print
values of data 10     ansible.builtin.debug: 11       msg: "{{
item }}" 12     with_items: "{{ data }}"
```

---

In the “loop_with_items.yml” playbook the variable “data” is a list of strings. The task “Print values of data” uses the “with_items” to iterate item by item and print on screen.

## Recap

Loops statements are very useful to automate repetitive tasks. Loops are the foundation of a successful Ansible

Playbook.

# Handler

In this chapter, I'll explain to you what an Ansible Handler statement is and how you could use it every day in your Ansible Playbook.

---

1 Handler run operations on change

---

Handlers are very important for idempotency. They allow you to execute some steps only if necessary and to save computer cycles when there is no need to be executed.

# rollingupdate.yml

---

```
1 --- 2 - name: Rolling update 3   hosts: all 4   become: true
5   tasks: 6     - name: latest apache httpd package is
installed 7       ansible.builtin.yum: 8         name: httpd 9
  state: latest 10       notify: restart apache 11 12   handlers:
```

```
13     - name: restart apache 14       ansible.builtin.service:
15         name: httpd 16         state: restarted
```

---

The “rollingupdate.yml” is composed by one task and one handler. The handler code is executed only if necessary. Please note the “notify” statement mention the name of the handler to run. This playbook check the version of apache http web server on all hosts, if an update is available, the yum module provide the upgrade process and restart the daemon at the end. If an upgrade is not necessary the handler code is not necessary.

A more complex playbook could have multiple handlers and you could reference by name.

# Role

n this chapter, I’ll explain to you what Ansible’s role is in code re-use and how you could use it every day in your Ansible Playbook.

---

1 Role enable code reuse to Ansible

---

Roles are like functions in the traditional programming world. Use Ansible roles to develop playbooks more quickly and to reuse Ansible code.

# Role tree directories

---

1 $ tree user.example 2 user.example/ 3 ├── defaults 4 │ 5 └── main.yml 6 ├── files 7 ├── handlers 8 │ 9 └── main.yml 10 ├── meta 11 │ 12 └── main.yml 13 ├── README.md 14 ├── tasks 15 │ 16 └── main.yml 17 ├── templates 18 ├──

tests 19 │ 20 ├── inventory 21 │ 22 └── test.yml 23 └── vars 24 └── main.yml

---

Directory description:

defaults the main.yml file in this directory contains the default values of role variables that can be overwritten when the role is used. These variables have low precedence and are intended to be changed and customized in

plays.

files This directory contains static files that are referenced by role tasks.

handlers The main.yml file in this directory contains the role’s handler definitions.

meta The main.yml file in this directory contains information about the role, including author, license, platforms, and optional role dependencies.

tasks The main.yml file in this directory contains the role’s task definitions.

templates This directory contains Jinja2 templates that are referenced by role tasks.

tests This directory can contain an inventory and test.yml playbook that can be used to test the role.

vars The main.yml file in this directory defines the role's variable values. Often these variables are used for internal purposes within the role. These variables have high precedence, and are not intended to be changed when

used in a playbook.

Not every role will have all of these directories.

## Using Ansible roles in a playbook

./role_simple.yml

---

1 --- 2 - name: role example 3  hosts: all 4  roles: 5  - role1 6  - role2

---

---

1 file name: role_simple.yml 2 Apply the “role1” and “role2” to the “all” managed hosts

---

./role_vars.yml

---

1 --- 2 - name: role example 3  hosts: all 4  roles: 5  - role: role1 6  - role: role2 7  var1: value 8  var2: value

---

---

1 file name: role_vars.yml 2 Apply the “role1” and “role2” to the “all” managed hosts 3 4 “Role2” has two variables parameters

---

# Order of execution

./role_vars.yml

---

1 --- 2 - name: order of execution example 3 hosts: all 4 pre_tasks: 5 - debug: 6 msg: 'pre-task' 7 notify: my handler 8 roles: 9 - role1 10 tasks: 11 - debug: 12 msg: 'first task' 13 notify: my handler 14 post_tasks: 15 - debug: 16 msg: 'post-task' 17 notify: my handler 18 handlers: 19 - name: my handler 20 debug: 21 msg: Running my handler

---

For each play in a playbook, tasks execute as ordered in the tasks list. After all tasks execute, any notified handlers are executed.

When a role is added to a play, role tasks are added to the beginning of the tasks list. If a second role is included in a play, its tasks list is added after the first role.

Role handlers are added to plays in the same manner that role tasks are added to plays. Each play defines a handlers list. Role handlers are added to the handlers list first, followed by any handlers

defined in the handlers section of the play. In certain scenarios, it may be necessary to execute some play tasks before the roles. To support such scenarios, plays can be configured with a pre_tasks section. Any task listed in this

section executes before any roles are executed. If any of these tasks notify a handler, those handler tasks execute before the roles or normal tasks.

Plays also support a post_tasks keyword. These tasks execute after the play’s normal tasks, and any handlers they notify, are run.

# Ansible Galaxy

https://galaxy.ansible.com/

### Installing Roles from Ansible Galaxy manually

---

```
1 $ ansible-galaxy install geerlingguy.redis -p roles/
```

---

### Installing Roles from Ansible Galaxy requirements.yml

./requirements.yml

---

1 - src: geerlingguy.redis 2   version: "1.5.0"

---

---

1 $ ansible-galaxy install -r roles/requirements.yml  -p ro\ 2
les

---

# Ansible Best Practices

Following the Ansible Best Practices allows you to have a successful execution of your code, simplify the troubleshooting, and impact positively on your automation journey.

## Use whitespaces

Use spaces and not tabs for your YAML code. Adding a new line before each block or task makes a playbook easy to read.

For example:

WRONG

---

```
1 --- 2 - hosts: all 3   tasks: 4   - ansible.builtin.yum: 5
name: httpd 6       state: latest 7   - name: end message 8
ansible.builtin.debug: 9       msg: "httpd successfully
installed"
```

---

CORRECT

---

```
1 --- 2 - hosts: all 3   tasks: 4   - ansible.builtin.yum: 5
name: httpd 6       state: latest 7 8   - name: end message 9
    ansible.builtin.debug: 10       msg: "httpd successfully
installed"
```

---

# Assign a “name” to every step

Always set the “name” parameter for every Ansible statement of your code: Ansible Plays, Tasks, Blocks.

For example:

WRONG

---

```
1 --- 2 - hosts: all 3   tasks: 4   - ansible.builtin.yum: 5
name: httpd 6       state: latest
```

---

CORRECT

---

```
1 --- 2 - name: install apache 3   hosts: all 4   tasks: 5     -
name: install apache packages 6       ansible.builtin.yum: 7
      name: httpd 8         state: latest
```

---

# Use human-readable and meaningful names for variables

Variables are very important to store parameters or save the result of a previous task.

Using human-readable and meaningful names increases your code reuse and readability between your team.

It’s also easy to use the “ansible-playbook” command “–extra-vars” extra variable parameter to override a variable at execution.

For example:

WRONG

---

1 httpkeepalive: 25 2 webpo: 80 3 aaaa: 8080

---

CORRECT

---

1 apache_max_keepalive: 25 2 apache_port: 80 3 tomcat_port: 8080

# Use native YAML

The usage of native YAML improves code readability and allows you to find the mistakes faster and easier. It also allows using some YAML linter and parser to validate.

For example:

WRONG

```
1 - name: install apache 2   ansible.builtin.yum: 3     name:
apache-{{ apache_version }} state=present updat\ 4
e_cache=yes disable_gpg_check=yes enablerepo=apache 5
  notify: restart apache
```

CORRECT

```
1 - name: install apache 2   ansible.builtin.yum: apache-{{
apache_version }} 3     state: present 4     update_cache:
yes 5     disable_gpg_check: yes 6     enablerepo: apache 7
notify: restart apache
```

---

# Use native modules against run commands

Always prefer to use native modules to command modules. Native modules are built for idempotency and have business logic inside to validate parameters before execution. Command modules (“command”, “shell”, “raw”, and “script”) are great and should be used as a last resort.

For example:

WRONG

---

1 - name: Add repository into repo.d list 2  become: true 3 ansible.builtin.shell: 'echo -e "[google-chrome]\nname=\ 4 google-chrome\nbaseurl=http://dl.google.com/linux/chrome/\ 5 rpm/stable/x86_64\nenabled=1\ngpgcheck=1\ngpgkey=https://\ 6 dl.google.com/linux/linux_signing_key.pub" > /etc/yum.rep\ 7 os.d/google-chrome.repo' 8  args: 9 creates: /etc/yum.repos.d/google-chrome.repo 10  when: ansible_os_family == 'RedHat'

---

CORRECT

---

1 - name: Add repository into repo.d list 2 ansible.builtin.yum_repository: 3  name: google-chrome 4  description: google-chrome repository 5  baseurl: http://dl.google.com/linux/chrome/rpm/stable\ 6 /x86_64 7  enabled: true 8  gpgcheck: true 9  gpgkey: https://dl.google.com/linux/linux_signing_key\ 10 .pub

---

## Configure debug messages

When developing Ansible code it is very useful to rely on “debug” tasks to display the content of a variable while your playbook runs. However, it could be considered annoying to read too much at the production level. Set the “verbosity” parameter to “2” allows you to see the messages only when you want.

For example:

WRONG

---

```
1 - name: message output 2   ansible.builtin.debug: 3 msg: "This text always displays"
```

---

CORRECT

---

```
1 - name: message output 2   ansible.builtin.debug: 3 msg: "This text displays with ansible-playbook -vv" 4 verbosity: 2
```

# Execute your task with less possible privilege

This is a piece of general advice for any security best practice to execute a task with less possible privilege. In Ansible you could implement specifying the “become: true” at the task level and not for all the playbooks if not all the tasks need to execute as root/administrator user.

For example:

WRONG

---

```
1 --- 2 - name: install apache 3   hosts: all 4   become: true 5
  tasks: 6     - name: message output 7
ansible.builtin.debug: 8         msg: "This text always
displays" 9 10     - name: install apache packages 11
ansible.builtin.yum: 12         name: httpd 13         state:
latest
```

---

CORRECT

---

```
1 --- 2 - name: install apache 3   hosts: all 4   tasks: 5     - name: message output 6       ansible.builtin.debug: 7         msg: "This text always displays" 8 9     - name: install apache packages 10       ansible.builtin.yum: 11         name: httpd 12         state: latest 13       become: true
```

---

## Use version control

The use of Source Code Management is used to track modifications to a source code repository such as GitHub, GitLab, BitBucket is a must if you’re a team and allow you to track your progress in time. It also enables code sharing between other colleagues and guarantees that your execution nodes are always up-to-date.

## Always mention the “state” parameter

Many modules have optional “state” parameters with some implicit value.

The default value could vary between different modules for “state”, and some modules support several “state” settings. Explicitly setting state: present or state: absent makes playbooks and roles clearer.

## Use comments

Add a comment (a line starting with “#”) that helps others (and possibly yourself in the future) understand what a statement play or task (or variable setting) does, how it does it, and why.

# Install Ansible

In this chapter you’re going to discover how to install Ansible in the most common Operating Systems nowadays.

# Ansible terminology - ansible vs ansible-core packages

What is ansible-core? What is the ansible community package? What happened to the Ansible project after version 2.9? An overview of the ansible community and ansible-core packages and use-cases nowadays.

# What is ansible-core? What is the ansible community package?

What happened to the Ansible project after version 2.9?

Today we’re going to talk about ansible community and ansible-core packages released since 2021.

# ansible vs ansible-core

What happened to ansible after version 2.9?

Starting with version 2.10, Ansible distributes two deliverables: a community package called ansible and a minimalist language and run time called ansible-core (called ansible-base in version 2.10). Choose the Ansible style and version that matches your particular needs.

The ansible package includes the Ansible language and run time plus a range of community curated Collections. It recreates and expands on the functionality that was included in Ansible 2.9.

You can choose any of the following ways to install the Ansible community package:

Install the latest release with your OS package manager (for Red Hat Enterprise Linux, CentOS, Fedora, Debian, or Ubuntu).

Install with pip (the Python package manager).

## Ansible community package release cycle

The Ansible community team typically releases two major versions of the community package per year, on a flexible release cycle that trails the release of ansible-core. This cycle can be extended to allow for larger changes to be properly implemented and tested before a new release is made available. See Ansible Road map for upcoming release details. Between major versions, the Ansible team releases a new minor version of the Ansible community package every three weeks. Minor releases include new backward-

compatible features, modules, and plugins, as well as bug fixes.

Starting with version 2.10, the Ansible community team guarantees maintenance for only one major community package release at a time. For example, when Ansible 5.0.0 gets released, the team will stop making new 4.x releases. Community members may maintain older versions if desired.

**ansible community**

Uses new versioning (2.10, then 3.0.0)

Follows semantic versioning rules

Does not use semantic versioning

Maintains only one version at a time

Includes language, run time, and selected Collections

Developed and maintained in Collection repositories

**ansible-core (was ansible-base 2.10)**

Continues “classic Ansible” versioning (2.11, then 2.12)

Does not use semantic versioning

Maintains the latest version plus two older versions

Includes language, run time, and built in plugins

Developed and maintained in ansible/ansible repository

# ansible-core

The ansible-core package is primarily for developers and users who want to install only the collections they need.

### What is the ansible-core package?

Ansible Core is the command-line tool that is primarily for developers and users who want to install only the collections they need.

It contains a minimal amount of modules and plugins and allows other Collections to be installed. Similar to Ansible 2.9 though without any content that has since moved into a Collection.

Ansible core or ansible-core is the main building block and architecture for Ansible and includes:

CLI tools such as ansible-playbook, ansible-doc. and others for driving and interacting with automation.

The Ansible language uses YAML to create a set of rules for developing Ansible Playbooks and includes functions such as conditionals, blocks, includes loops, and other Ansible imperatives.

An architectural framework that allows extensions through Ansible collections.

ansible-core releases a new major release approximately twice a year.

# ansible community

The Ansible community package offers the functionality of Ansible 2.9, with 85+ collections containing thousands of modules and plugins.

### What is the ansible community package?

Each major release of the Ansible community package accepts the latest released version of each included Collection and the latest released version of ansible-core.

Major releases of the Ansible community package can contain breaking changes in the modules and other plugins within the included Collections and/or in core features.

The Ansible package depends on ansible-base (soon ansible-core). So when you do pip install ansible, pip installs ansible-core automatically.

Ansible 3.0.0 and following contains more Collections thanks to the wider Ansible community reviewing Collections against the community checklist.

The Ansible community team typically releases two major versions of the community package per year, on a flexible release cycle that trails the release of ansible-core.

# Links

Ansible 3.0.0 Q&A

Releases and maintenance

Installing Ansible

Ansible community change logs

Ansible Core Documentation

pip install ansible-core

pip install ansible

# How to install Ansible in RedHat Enterprise Linux (RHEL) 8 with Ansible Engine

How to install the latest version of Ansible in Red Hat Enterprise version 8 using Ansible Engine software collection.

I’ll show you the easier way to install and maintain Ansible inside RHEL 8 with the distribution tools.

## How to install Ansible in RHEL 8

The easier way to install and maintain Ansible inside Red Hat Enterprise Linux version 8 with the distribution tools.

The repository that contains Ansible is called the Ansible Engine software collection ansible-2.9-for-rhel-8-x86_64-rpms.

The main advantage of using software collection is that you don’t require any external repository such as EPEL for this content.

Software Collections are fully supported by Red Hat and included in your subscription plan.

# Demo

How to install the latest version of Ansible in RHEL8.

---

```
1 #!/bin/bash 2 sudo subscription-manager register 3 sudo subscription-manager repos --enable ansible-2.9-for-\ 4 rhel-8-x86_64-rpms 5 sudo yum install ansible
```

---

# How to install Ansible in Ubuntu 22.04 LTS

**How to install Ansible in Ubuntu 22.04 LTS using the universe and PPA repositories.**

**Today we’re going to talk about the easier way to install and maintain Ansible inside Ubuntu 20.04 with the distribution tools.**

## How to install Ansible in Ubuntu 22.04

**We’re going to see the easy way to install and maintain Ansible inside Ubuntu with the distribution tools.**

**We are going to see how to install Ansible in two different ways.**

**The first method to install Ansible is using the universe repository, the default that you get after installation.**

**The main advantage of using the universe repository is that you don’t require any external repository.**

**And the second method to install Ansible is using the PPA repository. Please bear in mind that adding additional repositories have different quality assurance of software.**

## Demo

**How to install Ansible in Ubuntu 22.04 LTS with universe and PPA repositories.**

# code Universe

---

```
1 #!/bin/bash 2 sudo apt update 3 sudo apt install ansible
```

---

## execution

---

```
1 $ ssh devops@ubuntu.example.com 2 Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.15.0-25-generic \ 3 x86_64) 4 5 * Documentation:  https://help.ubuntu.com 6 * Management:  https://landscape.canonical.com 7 * Support:  https://ubuntu.com/advantage 8 9   System information as of Mon May  2 13:59:01 UTC 2022 10 11   System load:  0.07861328125    Processes:           \ 12   96 13   Usage of /:  7.1% of 39.86GB  Users logged in:      \ 14   0 15   Memory usage: 22%             IPv4 address for enp0s3\ 16 : 10.0.2.15 17   Swap usage:  0%               IPv4 address for enp0s8\ 18 : 192.168.43.7 19 20 21 20 updates can be applied immediately. 22 16 of these updates are standard security updates. 23 To see these additional updates run: apt list --upgradable 24 25 Failed to connect to
```

https://changelogs.ubuntu.com/meta-r\ 26 elease-lts. Check your Internet connection or proxy setti\ 27 ngs 28 29 30 Last login: Mon May  2 13:50:17 2022 from 192.168.43.5 31 $ sudo apt-get install ansible 32 Reading package lists... Done 33 Building dependency tree... Done 34 Reading state information... Done 35 The following additional packages will be installed: 36   ieee-data python3-argcomplete python3-dnspython python3\ 37 -jmespath python3-kerberos 38   python3-libcloud python3-lockfile python3-netaddr pytho\ 39 n3-ntlm-auth python3-packaging 40 python3-pycryptodome python3-requests-kerberos python3-\ 41 requests-ntlm python3-requests-toolbelt 42   python3-selinux python3-simplejson python3-winrm python\ 43 3-xmltodict 44 Suggested packages: 45   cowsay sshpass python3-sniffio python3-trio python-lock\ 46 file-doc ipython3 python-netaddr-docs 47 The following NEW packages will be installed: 48   ansible ieee-data python3-argcomplete python3-dnspython\ 49 python3-jmespath python3-kerberos 50   python3-libcloud python3-lockfile python3-netaddr pytho\ 51 n3-ntlm-auth python3-packaging 52   python3-pycryptodome python3-requests-kerberos python3-\ 53 requests-ntlm python3-requests-toolbelt 54 python3-selinux python3-simplejson python3-winrm python\ 55 3-xmltodict 56 0 upgraded, 19 newly installed, 0 to remove and 16 not up\ 57 graded. 58 Need to get 17.5 MB/22.9 MB of archives. 59 After this operation, 243 MB of additional disk space wil\ 60 l be used. 61 Do you want to continue? [Y/n] y 62 Get:1 http://archive.ubuntu.com/ubuntu jammy/universe amd\ 63 64 ansible all 2.10.7+merged+base+2.10.8+dfsg-1 [17.5 MB] 64 [...] 65 root@ubuntu:/home/devops# ansible --version 66 ansible 2.10.8 67   config file = None 68   configured module search path = ['/root/.ansible/plugin\ 69 s/modules', '/usr/share/ansible/plugins/modules'] 70   ansible python module location = /usr/lib/python3/dist-\ 71 packages/ansible 72   executable location = /usr/bin/ansible

73 python version = 3.10.4 (main, Apr 2 2022, 09:04:19) [\ 74 GCC 11.2.0] 75 root@ubuntu:/home/devops#

---

## code PPA

---

1 #!/bin/bash 2 sudo apt update 3 sudo apt install software-properties-common 4 sudo add-apt-repository --yes --update ppa:ansible/ansible 5 sudo apt remove ansible 6 sudo apt install ansible-base

---

## execution

---

1 root@ubuntu:/home/devops# apt update 2 Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease 3 Hit:2 http://security.ubuntu.com/ubuntu jammy-security In\ 4 Release 5 Hit:3 http://archive.ubuntu.com/ubuntu jammy-updates InRe\ 6 lease 7 Hit:4 http://archive.ubuntu.com/ubuntu jammy-backports In\ 8 Release 9 Reading package lists... Done 10 Building

dependency tree... Done 11 Reading state information... Done 12 16 packages can be upgraded. Run 'apt list --upgradable' \ 13 to see them. 14 root@ubuntu:/home/devops# apt install software-properties\ 15 -common 16 Reading package lists... Done 17 Building dependency tree... Done 18 Reading state information... Done 19 software-properties-common is already the newest version \ 20 (0.99.22). 21 software-properties-common set to manually installed. 22 0 upgraded, 0 newly installed, 0 to remove and 16 not upg\ 23 raded. 24 root@ubuntu:/home/devops# add-apt-repository --yes --upda\ 25 te ppa:ansible/ansible 26 Repository: 'deb https://ppa.launchpadcontent.net/ansible\ 27 /ansible/ubuntu/ jammy main' 28 Description: 29 Ansible is a radically simple IT automation platform that\ 30 makes your applications and systems easier to deploy. Av\ 31 oid writing scripts or custom code to deploy and update y\ 32 our applications— automate in a language that approaches \ 33 plain English, using SSH, with no agents to install on re\ 34 mote systems. 35 36 http://ansible.com/ 37 More info: https://launchpad.net/~ansible/+archive/ubuntu\ 38 /ansible 39 Adding repository. 40 Adding deb entry to /etc/apt/sources.list.d/ansible-ubunt\ 41 u-ansible-jammy.list 42 Adding disabled deb-src entry to /etc/apt/sources.list.d/\ 43 ansible-ubuntu-ansible-jammy.list 44 Adding key to /etc/apt/trusted.gpg.d/ansible-ubuntu-ansib\ 45 le.gpg with fingerprint 6125E2A8C77F2818FB7BD15B93C4A3FD7\ 46 BB9C367 47 Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease 48 Hit:2 http://archive.ubuntu.com/ubuntu jammy-updates InRe\ 49 lease 50 Hit:3 http://archive.ubuntu.com/ubuntu jammy-backports In\ 51 Release 52 Hit:4 http://security.ubuntu.com/ubuntu jammy-security In\ 53 Release 54 Get:5 https://ppa.launchpadcontent.net/ansible/ansible/ub\ 55 untu jammy InRelease [18.0 kB] 56 Get:6

https://ppa.launchpadcontent.net/ansible/ansible/ub\ 57 untu jammy/main amd64 Packages [1128 B] 58 Get:7 https://ppa.launchpadcontent.net/ansible/ansible/ub\ 59 untu jammy/main Translation-en [756 B] 60 Fetched 19.9 kB in 1s (15.3 kB/s) \ 61 62 Reading package lists... Done 63 root@ubuntu:/home/devops# apt remove ansible 64 Reading package lists... Done 65 Building dependency tree... Done 66 Reading state information... Done 67 The following packages were automatically installed and a\ 68 re no longer required: 69 ieee-data python3-argcomplete python3-dnspython python3\ 70 -jmespath python3-kerberos 71 python3-libcloud python3-lockfile python3-netaddr pytho\ 72 n3-ntlm-auth python3-packaging 73 python3-pycryptodome python3-requests-kerberos python3-\ 74 requests-ntlm python3-requests-toolbelt 75 python3-selinux python3-simplejson python3-winrm python\ 76 3-xmltodict 77 Use 'sudo apt autoremove' to remove them. 78 The following packages will be REMOVED: 79 ansible 80 0 upgraded, 0 newly installed, 1 to remove and 16 not upg\ 81 raded. 82 After this operation, 204 MB disk space will be freed. 83 Do you want to continue? [Y/n] y 84 (Reading database ... 102295 files and directories curren\ 85 tly installed.) 86 Removing ansible (2.10.7+merged+base+2.10.8+dfsg-1) ... 87 Processing triggers for man-db (2.10.2-1) ... 88 root@ubuntu:/home/devops# apt install ansible 89 Reading package lists... Done 90 Building dependency tree... Done 91 Reading state information... Done 92 The following packages were automatically installed and a\ 93 re no longer required: 94 ieee-data python3-argcomplete python3-dnspython python3\ 95 -libcloud python3-lockfile 96 python3-netaddr python3-pycryptodome python3-requests-t\ 97 oolbelt python3-selinux 98 python3-simplejson 99 Use 'sudo apt autoremove' to remove them. 100 The following additional packages will be installed: 101 ansible-core python3-nacl python3-paramiko python3-reso\

102 lvelib sshpass 103 Suggested packages: 104 python-nacl-doc python3-gssapi python3-invoke 105 The following NEW packages will be installed: 106 ansible ansible-core python3-nacl python3-paramiko pyth\ 107 on3-resolvelib sshpass 108 0 upgraded, 6 newly installed, 0 to remove and 16 not upg\ 109 raded. 110 Need to get 21.0 MB/21.1 MB of archives. 111 After this operation, 304 MB of additional disk space wil\ 112 l be used. 113 Do you want to continue? [Y/n] y 114 Get:1 https://ppa.launchpadcontent.net/ansible/ansible/ub\ 115 untu jammy/main amd64 ansible-core all 2.12.4-1ppa~jammy \ 116 [954 kB] 117 [...] 118 root@ubuntu:/home/devops# ansible --version 119 ansible [core 2.12.4] 120 config file = /etc/ansible/ansible.cfg 121 configured module search path = ['/root/.ansible/plugin\ 122 s/modules', '/usr/share/ansible/plugins/modules'] 123 ansible python module location = /usr/lib/python3/dist-\ 124 packages/ansible 125 ansible collection location = /root/.ansible/collection\ 126 s:/usr/share/ansible/collections 127 executable location = /usr/bin/ansible 128 python version = 3.10.4 (main, Apr 2 2022, 09:04:19) [\ 129 GCC 11.2.0] 130 jinja version = 3.0.3 131 libyaml = True 132 root@ubuntu:/home/devops#

# How to install Ansible in Fedora 36 - Ansible install

**How to install and maintain the latest version of Ansible inside Fedora 36 using the system repository with a practical demo.**

**The good news is that Ansible is included in the default repository so you could install it simply with your usual package manager.**

**You could expect the latest version of Ansible in the updates repository.**

**At the moment is available the latest 2.12 for ansible-core and 5.7 for ansible.**

**demo**

## Let’s jump in a quick live demo of how to install the latest and a specific version of Ansible in Fedora.

## code

## install-Ansible-Fedora.sh

---

1 #!/bin/bash 2 $ sudo dnf list available ansible 3 $ sudo dnf install ansible 4 $ sudo "rpm -qa | grep ansible" 5 $ sudo dnf list ansible

---

## execution

---

1 $ ssh devops@fedora.example.com 2 [devops@fedora ~]$ sudo su 3 [root@fedora devops]# cat /etc/redhat-release 4 Fedora release 36 (Thirty Six) 5 [root@fedora devops]# hostnamectl 6 Static hostname: fedora.example.com 7 Icon name: computer-vm 8 Chassis: vm 9 Machine ID: 6a5acc6d28614718b9a00f1b3595bd9a 10 Boot ID: 34de0e3a106e4ec78870948a6fdf2018 11 Virtualization: oracle 12 Operating System: Fedora Linux 36 (Cloud Edition) 13 CPE OS Name: cpe:/o:fedoraproject:fedora:36 14 Kernel: Linux 5.17.5-300.fc36.x86_64 15 Architecture: x86-64 16 Hardware Vendor: innotek GmbH 17 Hardware Model: VirtualBox 18 [root@fedora devops]# cat /etc/os-release 19 NAME="Fedora Linux" 20 VERSION="36 (Cloud Edition)" 21 ID=fedora 22 VERSION_ID=36 23 VERSION_CODENAME="" 24 PLATFORM_ID="platform:f36" 25 PRETTY_NAME="Fedora Linux 36 (Cloud Edition)" 26 ANSI_COLOR="0;38;2;60;110;180" 27 LOGO=fedora-logo-icon 28 CPE_NAME="cpe:/o:fedoraproject:fedora:36" 29 HOME_URL="https://fedoraproject.org/" 30 DOCUMENTATION_URL="https://docs.fedoraproject.org/en-US/f\ 31 edora/f36/system-administrators-guide/" 32 SUPPORT_URL="https://ask.fedoraproject.org/" 33 BUG_REPORT_URL="https://bugzilla.redhat.com/" 34 REDHAT_BUGZILLA_PRODUCT="Fedora" 35 REDHAT_BUGZILLA_PRODUCT_VERSION=36 36 REDHAT_SUPPORT_PRODUCT="Fedora" 37 REDHAT_SUPPORT_PRODUCT_VERSION=36 38 PRIVACY_POLICY_URL="https://fedoraproject.org/wiki/Legal:\ 39 PrivacyPolicy" 40 VARIANT="Cloud Edition" 41 VARIANT_ID=cloud 42 [root@fedora devops]# dnf list available ansible 43 Fedora 36 - x86_64 \ 44 2.8 MB/s | 81 MB 00:29 45 Fedora 36 openh264 (From Cisco) - x86_64 \ 46 1.4 kB/s | 2.5 kB 00:01 47 Fedora Modular 36 - x86_64 \ 48 822 kB/s | 2.4 MB 00:02 49

Fedora 36 - x86_64 - Updates \ 50 1.9 MB/s | 13 MB 00:07 51 Fedora Modular 36 - x86_64 - Updates \ 52 921 kB/s | 2.1 MB 00:02 53 Last metadata expiration check: 0:00:01 ago on Mon 16 May\ 54 2022 07:48:42 AM UTC. 55 Available Packages 56 ansible.noarch 5.7.0-1.fc\ 57 36 updates 58 [root@fedora devops]# dnf list available ansible-core 59 Last metadata expiration check: 0:00:14 ago on Mon 16 May\ 60 2022 07:48:42 AM UTC. 61 Available Packages 62 ansible-core.noarch 2.12.5-1\ 63 .fc36 updates 64 [root@fedora devops]# rpm -qa | grep ansible 65 [root@fedora devops]# ansible --version 66 bash: ansible: command not found 67 [root@fedora devops]# dnf install ansible 68 Last metadata expiration check: 0:00:48 ago on Mon 16 May\ 69 2022 07:48:42 AM UTC. 70 Dependencies resolved. 71 ================================================================================\ 72 ================================================================================ 73 Package Architecture Version\ 74 Repository Size 75 ================================================================================\ 76 ================================================================================ 77 Installing: 78 ansible noarch 5.7.0-1\ 79 .fc36 updates 33 M 80 Installing dependencies: 81 ansible-core noarch 2.12.5-\ 82 1.fc36 updates 2.4 M 83 libsodium x86_64 1.0.18-\ 84 9.fc36 fedora 163 k 85 python3-bcrypt x86_64 3.2.2-1\ 86 .fc36 updates 43 k 87 python3-jmespath noarch 1.0.0-2\ 88 .fc36 updates 44 k 89 python3-ntlm-auth noarch 1.5.0-4\ 90 .fc35 fedora 53 k 91 python3-packaging noarch 21.3-2.\ 92 fc36

fedora 72 k 93 python3-pynacl x86_64 1.4.0-5\ 94 .fc36 fedora 108 k 95 python3-pyparsing noarch 2.4.7-1\ 96 0.fc36 fedora 151 k 97 python3-requests_ntlm noarch 1.1.0-1\ 98 6.fc35 fedora 18 k 99 python3-resolvelib noarch 0.5.5-4\ 100 .fc36 fedora 31 k 101 python3-xmltodict noarch 0.12.0-\ 102 14.fc36 fedora 22 k 103 Installing weak dependencies: 104 python3-paramiko noarch 2.10.4-\ 105 1.fc36 updates 301 k 106 python3-pyasn1 noarch 0.4.8-8\ 107 .fc36 fedora 134 k 108 python3-winrm noarch 0.4.1-5\ 109 .fc36 fedora 80 k 110 111 Transaction Summary 112 ================================================================================\ 113 ================================================================================ 114 Install 15 Packages 115 116 Total download size: 36 M 117 Installed size: 328 M 118 Is this ok [y/N]: y 119 Downloading Packages: 120 (1/15): python3-ntlm-auth-1.5.0-4.fc35.noarch.rpm \ 121 162 kB/s | 53 kB 00:00 122 (2/15): python3-packaging-21.3-2.fc36.noarch.rpm \ 123 196 kB/s | 72 kB 00:00 124 (3/15): libsodium-1.0.18-9.fc36.x86_64.rpm \ 125 402 kB/s | 163 kB 00:00 126 (4/15): python3-pyasn1-0.4.8-8.fc36.noarch.rpm \ 127 698 kB/s | 134 kB 00:00 128 (5/15): python3-pynacl-1.4.0-5.fc36.x86_64.rpm \ 129 512 kB/s | 108 kB 00:00 130 (6/15): python3-pyparsing-2.4.7-10.fc36.noarch.rpm \ 131 843 kB/s | 151 kB 00:00 132 (7/15): python3-requests_ntlm-1.1.0-16.fc35.noarch.rpm \ 133 228 kB/s | 18 kB 00:00 134 (8/15): python3-xmltodict-0.12.0-14.fc36.noarch.rpm \ 135 164 kB/s | 22 kB 00:00 136 (9/15): python3-resolvelib-0.5.5-4.fc36.noarch.rpm \ 137 190 kB/s | 31 kB 00:00 138 (10/15): python3-winrm-0.4.1-

5.fc36.noarch.rpm \ 139 407 kB/s | 80 kB 00:00 140 (11/15): python3-bcrypt-3.2.2-1.fc36.x86_64.rpm \ 141 342 kB/s | 43 kB 00:00 142 (12/15): python3-jmespath-1.0.0-2.fc36.noarch.rpm \ 143 307 kB/s | 44 kB 00:00 144 (13/15): python3-paramiko-2.10.4-1.fc36.noarch.rpm \ 145 458 kB/s | 301 kB 00:00 146 (14/15): ansible-core-2.12.5-1.fc36.noarch.rpm \ 147 786 kB/s | 2.4 MB 00:03 148 (15/15): ansible-5.7.0-1.fc36.noarch.rpm \ 149 2.0 MB/s | 33 MB 00:16 150 ----------\ 151 ---------- 152 Total \ 153 2.0 MB/s | 36 MB 00:18 154 Running transaction check 155 Transaction check succeeded. 156 Running transaction test 157 Transaction test succeeded. 158 Running transaction 159 Preparing : \ 160 1/1 161 Installing : python3-jmespath-1.0.0-2.fc36.noarch\ 162 1/15 163 Installing : python3-bcrypt-3.2.2-1.fc36.x86_64 \ 164 2/15 165 Installing : python3-xmltodict-0.12.0-14.fc36.noa\ 166 rch 3/15 167 Installing : python3-resolvelib-0.5.5-4.fc36.noar\ 168 ch 4/15 169 Installing : python3-pyparsing-2.4.7-10.fc36.noar\ 170 ch 5/15 171 Installing : python3-packaging-21.3-2.fc36.noarch\ 172 6/15 173 Installing : python3-pyasn1-0.4.8-8.fc36.noarch \ 174 7/15 175 Installing : python3-ntlm-auth-1.5.0-4.fc35.noarc\ 176 h 8/15 177 Installing : python3-requests_ntlm-1.1.0-16.fc35.\ 178 noarch 9/15 179 Installing : python3-winrm-0.4.1-5.fc36.noarch \ 180 10/15 181 Installing : libsodium-1.0.18-9.fc36.x86_64 \ 182 11/15 183 Installing : python3-pynacl-1.4.0-5.fc36.x86_64 \ 184

12/15 185 Installing : python3-paramiko-2.10.4-1.fc36.noarc\ 186 h
13/15 187 Installing : ansible-core-2.12.5-1.fc36.noarch \ 188 14/15 189 Installing : ansible-5.7.0-1.fc36.noarch \ 190
15/15 191 Running scriptlet: ansible-5.7.0-1.fc36.noarch \ 192 15/15 193 Verifying : libsodium-1.0.18-9.fc36.x86_64 \ 194
1/15 195 Verifying : python3-ntlm-auth-1.5.0-4.fc35.noarc\ 196 h 2/15 197
Verifying : python3-packaging-21.3-2.fc36.noarch\ 198 3/15 199 Verifying : python3-pyasn1-0.4.8-8.fc36.noarch \ 200
4/15 201 Verifying : python3-pynacl-1.4.0-5.fc36.x86_64 \ 202 5/15 203
Verifying : python3-pyparsing-2.4.7-10.fc36.noar\ 204 ch 6/15 205 Verifying : python3-requests_ntlm-1.1.0-16.fc35.\ 206 noarch
7/15 207 Verifying : python3-resolvelib-0.5.5-4.fc36.noar\ 208 ch 8/15 209
Verifying : python3-winrm-0.4.1-5.fc36.noarch \ 210 9/15 211 Verifying : python3-xmltodict-0.12.0-14.fc36.noa\ 212 rch
10/15 213 Verifying : ansible-5.7.0-1.fc36.noarch \ 214 11/15 215 Verifying : ansible-core-2.12.5-1.fc36.noarch \ 216
12/15 217 Verifying : python3-bcrypt-3.2.2-1.fc36.x86_64 \ 218 13/15 219
Verifying : python3-jmespath-1.0.0-2.fc36.noarch\ 220 14/15 221 Verifying : python3-paramiko-2.10.4-1.fc36.noarc\ 222 h
15/15 223 224 Installed: 225 ansible-5.7.0-1.fc36.noarch ansible-\ 226 core-2.12.5-1.fc36.noarch
227 libsodium-1.0.18-9.fc36.x86_64 python3-\ 228 bcrypt-3.2.2-1.fc36.x86_64 229 python3-jmespath-1.0.0-2.fc36.noarch python3-\ 230 ntlm-

auth-1.5.0-4.fc35.noarch 231 python3-packaging-21.3-2.fc36.noarch python3-\ 232 paramiko-2.10.4-1.fc36.noarch 233 python3-pyasn1-0.4.8-8.fc36.noarch python3-\ 234 pynacl-1.4.0-5.fc36.x86_64 235 python3-pyparsing-2.4.7-10.fc36.noarch python3-\ 236 requests_ntlm-1.1.0-16.fc35.noarch 237 python3-resolvelib-0.5.5-4.fc36.noarch python3-\ 238 winrm-0.4.1-5.fc36.noarch 239 python3-xmltodict-0.12.0-14.fc36.noarch 240 241 Complete! 242 [root@fedora devops]# dnf list available ansible-core 243 Last metadata expiration check: 0:01:47 ago on Mon 16 May\ 244 2022 07:48:42 AM UTC. 245 Error: No matching Packages to list 246 [root@fedora devops]# dnf list available ansible 247 Last metadata expiration check: 0:01:50 ago on Mon 16 May\ 248 2022 07:48:42 AM UTC. 249 Error: No matching Packages to list 250 [root@fedora devops]# dnf list installed ansible 251 Installed Packages 252 ansible.noarch 5.7.0-1.fc3\ 253 6 @updates 254 [root@fedora devops]# dnf list installed ansible-core 255 Installed Packages 256 ansible-core.noarch 2.12.5-1.\ 257 fc36 @updates 258 [root@fedora devops]# rpm -qa | grep ansible 259 ansible-core-2.12.5-1.fc36.noarch 260 ansible-5.7.0-1.fc36.noarch 261 [root@fedora devops]# ansible --version 262 ansible [core 2.12.5] 263 config file = /etc/ansible/ansible.cfg 264 configured module search path = ['/root/.ansible/plugin\ 265 s/modules', '/usr/share/ansible/plugins/modules'] 266 ansible python module location = /usr/lib/python3.10/si\ 267 te-packages/ansible 268 ansible collection location = /root/.ansible/collection\ 269 s:/usr/share/ansible/collections 270 executable location = /usr/bin/ansible 271 python version = 3.10.4 (main, Mar 25 2022, 00:00:00) [\ 272 GCC 12.0.1 20220308 (Red Hat 12.0.1-0)] 273 jinja version = 3.0.3 274 libyaml = True 275 [root@fedora devops]#

# before execution

1 $ ssh devops@fedora.example.com 2 [devops@fedora ~]$ sudo su 3 [root@fedora devops]# cat /etc/redhat-release 4 Fedora release 36 (Thirty Six) 5 [root@fedora devops]# dnf list available ansible 6 Available Packages 7 ansible.noarch 5.7.0-1.fc\ 8 36 updates 9 [root@fedora devops]# dnf list available ansible-core 10 Last metadata expiration check: 0:00:14 ago on Mon 16 May\ 11 2022 07:48:42 AM UTC. 12 Available Packages 13 ansible-core.noarch 2.12.5-1\ 14 .fc36 updates 15 [root@fedora devops]# rpm -qa | grep ansible 16 [root@fedora devops]# ansible --version 17 bash: ansible: command not found

# after execution

1 [root@fedora devops]# dnf list available ansible-core 2 Last metadata expiration check: 0:01:47 ago on Mon 16 May\ 3 2022 07:48:42 AM UTC. 4 Error: No matching Packages to list 5 [root@fedora devops]# dnf list available ansible 6 Last metadata expiration check: 0:01:50 ago on Mon 16 May\ 7 2022 07:48:42 AM UTC. 8 Error: No matching Packages to list 9 [root@fedora devops]# dnf list installed ansible 10 Installed Packages 11 ansible.noarch 5.7.0-1.fc3\ 12 6 @updates 13 [root@fedora devops]# dnf list installed ansible-core 14 Installed Packages 15 ansible-core.noarch 2.12.5-1.\ 16 fc36 @updates 17 [root@fedora devops]# rpm -qa | grep ansible 18 ansible-core-2.12.5-1.fc36.noarch 19 ansible-5.7.0-1.fc36.noarch 20 [root@fedora devops]# ansible --version 21 ansible [core 2.12.5] 22  config file = /etc/ansible/ansible.cfg 23 configured module search path = ['/root/.ansible/plugin\ 24 s/modules', '/usr/share/ansible/plugins/modules'] 25 ansible python module location = /usr/lib/python3.10/si\ 26 te-packages/ansible 27  ansible collection location = /root/.ansible/collection\ 28 s:/usr/share/ansible/collections 29  executable location = /usr/bin/ansible 30  python version = 3.10.4 (main, Mar 25 2022, 00:00:00) [\ 31 GCC 12.0.1 20220308 (Red Hat 12.0.1-0)] 32  jinja version = 3.0.3 33  libyaml = True 34 [root@fedora devops]#

# How to install Ansible in CentOS 9 Stream

**The easier way to install the latest version of Ansible and maintain up-to-date in CentOS 9 Stream using DNF and the “AppStream” system repository.**

# How to install Ansible in CentOS Stream 9

**“ansible-core” in system AppStream repository**

**use Extra Packages for Enterprise Linux - EPEL Next additional packages for CentOS Stream**

**The easier way to install and maintain Ansible inside CentOS Stream version 9 is using the system AppStream repository.**

**Another way is to use the additional EPEL Next repository. This repository is maintained by the Fedora Special Interest Group and that manages a high-quality set of additional packages for CentOS Stream, similar to Extra Packages for Enterprise Linux (EPEL) additional packages target for Red Hat Enterprise Linux (RHEL), CentOS, and Scientific Linux (SL) and Oracle Linux (OL).**

## Links

CentOS Stream Download

EPEL 9 is now available

Introducing CentOS Stream 9

Extra Packages for Enterprise Linux (EPEL)

## demo

# How to install Ansible in CentOS Stream version 9 via AppStream system repository.

## code

# Install-Ansible-CentOS-Stream9.sh

---

1 #!/bin/bash 2 sudo dnf install ansible-core

---

# execution

```
  1 $ ssh devops@centos-stream.example.com   2 [devops@centos-stream ~]$ sudo su   3 [root@centos-stream devops]# cat /etc/redhat-release   4 CentOS Stream release 9   5 [root@centos-stream devops]# cat /etc/os-release   6 NAME="CentOS Stream"   7 VERSION="9"   8 ID="centos"   9 ID_LIKE="rhel fedora" 10 VERSION_ID="9" 11 PLATFORM_ID="platform:el9" 12 PRETTY_NAME="CentOS Stream 9" 13 ANSI_COLOR="0;31" 14 CPE_NAME="cpe:/o:centos:centos:9" 15 HOME_URL="https://centos.org/" 16 BUG_REPORT_URL="https://bugzilla.redhat.com/" 17 REDHAT_SUPPORT_PRODUCT="Red Hat Enterprise Linux 9" 18 REDHAT_SUPPORT_PRODUCT_VERSION="CentOS Stream" 19 [root@centos-stream devops]# hostnamectl 20 Static hostname: centos-stream.example.com 21       Icon name: computer-vm 22         Chassis: vm 23       Machine ID: 27ac33d81e2a400cbdaf6ae0b2b82e1d 24         Boot ID: 4060493b76fc4cc680defa0ffe99af41 25   Virtualization: oracle 26 Operating System: CentOS Stream 9              27   CPE OS Name: cpe:/o:centos:centos:9 28           Kernel: Linux 5.14.0-17.el9.x86_64 29     Architecture: x86-64 30 Hardware Vendor: innotek GmbH 31   Hardware Model: VirtualBox 32 [root@centos-stream devops]# dnf search ansible 33 Updating Subscription Management repositories. 34 Unable to read consumer identity 35 This system is not registered with an entitlement server.\ 36 You can use subscription-manager to register. 37 CentOS Stream 9 - BaseOS                                \ 38          1.2 MB/s | 1.6 MB     00:01    39 CentOS Stream 9 - AppStream
```

\ 40 2.7 MB/s | 8.8 MB 00:03 41 Last metadata expiration check: 0:00:01 ago on Mon 06 Dec\ 42 2021 11:55:34 AM UTC. 43 ========== Name & Summary Matched:\ 44 ansible ========== 45 ansible-collection-microsoft-sql.noarch : The Ansible col\ 46 lection for Microsoft SQL Server 47 : management 48 ansible-freeipa-tests.noarch : ansible-freeipa tests 49 ansible-pcp.noarch : Ansible Metric collection for Perfor\ 50 mance Co-Pilot 51 ansible-test.x86_64 : Tool for testing ansible plugin and\ 52 module code 53 ========== == Name Matched: ansi\ 54 ble ========== == 55 ansible-core.x86_64 : SSH-based configuration management,\ 56 deployment, and task execution system 57 ansible-freeipa.noarch : Roles and playbooks to deploy Fr\ 58 eeIPA servers, replicas and clients 59 [root@centos-stream devops]# dnf info ansible-core 60 Updating Subscription Management repositories. 61 Unable to read consumer identity 62 This system is not registered with an entitlement server.\ 63 You can use subscription-manager to register. 64 Last metadata expiration check: 0:00:55 ago on Mon 06 Dec\ 65 2021 11:55:34 AM UTC. 66 Available Packages 67 Name : ansible-core 68 Version : 2.12.0 69 Release : 1.el9 70 Architecture : x86_64 71 Size : 2.4 M 72 Source : ansible-core-2.12.0-1.el9.src.rpm 73 Repository : appstream 74 Summary : SSH-based configuration management, deploy\ 75 ment, and task execution system 76 URL : http://ansible.com 77 License : GPLv3+ 78 Description : Ansible is a radically simple model-driven\ 79 configuration management, 80 : multi-node deployment, and remote task exe\ 81 cution system. Ansible works 82 : over SSH and does

not require any software\ 83 or daemons to be installed 84 : on remote nodes. Extension modules can be \ 85 written in any language and 86 : are transferred to managed machines automa\ 87 tically. 88 [root@centos-stream devops]# dnf install ansible-core 89 Updating Subscription Management repositories. 90 Unable to read consumer identity 91 This system is not registered with an entitlement server.\ 92 You can use subscription-manager to register. 93 Last metadata expiration check: 0:01:13 ago on Mon 06 Dec\ 94 2021 11:55:34 AM UTC. 95 Dependencies resolved. 96 ================================================================================\ 97 ================================================================================ 98 Package Architecture Version \ 99 Repository Size 100 ================================================================================\ 101 ================================================================================ 102 Installing: 103 ansible-core x86_64 2.12.0-1.e\ 104 l9 appstream 2.4 M 105 Installing dependencies: 106 emacs-filesystem noarch 1:27.1-3.e\ 107 l9 appstream 9.2 k 108 git x86_64 2.31.1-2.e\ 109 l9.2 appstream 124 k 110 git-core x86_64 2.31.1-2.e\ 111 l9.2 appstream 3.6 M 112 git-core-doc noarch 2.31.1-2.e\ 113 l9.2 appstream 2.5 M 114 perl-Error noarch 1:0.17029-\ 115 7.el9 appstream 42 k 116 perl-Git noarch 2.31.1-2.e\ 117 l9.2 appstream 43 k 118 python3-babel noarch 2.9.1-2.el\ 119 9 appstream 6.0 M 120 python3-cffi x86_64 1.14.5-4.e\ 121 l9 appstream 254 k 122 python3-cryptography x86_64 3.4.7-5.el\ 123 9 appstream 780 k 124 python3-jinja2 noarch

2.11.3-4.e\ 125 l9 appstream 249 k 126 python3-markupsafe x86_64 1.1.1-12.e\ 127 l9 appstream 35 k 128 python3-packaging noarch 20.9-4.el9\ 129 appstream 78 k 130 python3-ply noarch 3.11-13.el\ 131 9 appstream 107 k 132 python3-pycparser noarch 2.20-5.el9\ 133 appstream 135 k 134 python3-pytz noarch 2021.1-4.e\ 135 l9 appstream 52 k 136 python3-resolvelib noarch 0.5.4-5.el\ 137 9 appstream 34 k 138 sshpass x86_64 1.09-4.el9\ 139 appstream 28 k 140 Transaction Summary 141 ==========\ 142 ========== 143 Install 18 Packages 144 Total download size: 16 M 145 Installed size: 75 M 146 Is this ok [y/N]: y 147 Downloading Packages: 148 (1/18): emacs-filesystem-27.1-3.el9.noarch.rpm \ 149 38 kB/s | 9.2 kB 00:00 150 (2/18): git-2.31.1-2.el9.2.x86_64.rpm \ 151 302 kB/s | 124 kB 00:00 152 (3/18): git-core-2.31.1-2.el9.2.x86_64.rpm \ 153 763 kB/s | 3.6 MB 00:04 154 (4/18): perl-Error-0.17029-7.el9.noarch.rpm \ 155 375 kB/s | 42 kB 00:00 156 (5/18): ansible-core-2.12.0-1.el9.x86_64.rpm \ 157 450 kB/s | 2.4 MB 00:05 158 (6/18): perl-Git-2.31.1-2.el9.2.noarch.rpm \ 159 182 kB/s | 43 kB 00:00 160 (7/18): python3-cffi-1.14.5-4.el9.x86_64.rpm \ 161 655 kB/s | 254 kB 00:00 162 (8/18): git-core-doc-2.31.1-2.el9.2.noarch.rpm \ 163 473 kB/s | 2.5 MB 00:05 164 (9/18): python3-jinja2-2.11.3-4.el9.noarch.rpm \ 165 410 kB/s | 249 kB 00:00 166 (10/18): python3-markupsafe-1.1.1-12.el9.x86_64.rpm \ 167 194 kB/s | 35 kB 00:00 168 (11/18): python3-packaging-

20.9-4.el9.noarch.rpm \ 169 321 kB/s | 78 kB 00:00 170 (12/18): python3-cryptography-3.4.7-5.el9.x86_64.rpm \ 171 640 kB/s | 780 kB 00:01 172 (13/18): python3-ply-3.11-13.el9.noarch.rpm \ 173 397 kB/s | 107 kB 00:00 174 (14/18): python3-pycparser-2.20-5.el9.noarch.rpm \ 175 533 kB/s | 135 kB 00:00 176 (15/18): python3-pytz-2021.1-4.el9.noarch.rpm \ 177 313 kB/s | 52 kB 00:00 178 (16/18): sshpass-1.09-4.el9.x86_64.rpm \ 179 236 kB/s | 28 kB 00:00 180 (17/18): python3-resolvelib-0.5.4-5.el9.noarch.rpm \ 181 236 kB/s | 34 kB 00:00 182 (18/18): python3-babel-2.9.1-2.el9.noarch.rpm \ 183 730 kB/s | 6.0 MB 00:08 184 ----------\ 185 ---------- 186 Total \ 187 1.2 MB/s | 16 MB 00:14 188 Running transaction check 189 Transaction check succeeded. 190 Running transaction test 191 Transaction test succeeded. 192 Running transaction 193 Preparing : \ 194 1/1 195 Installing : git-core-2.31.1-2.el9.2.x86_64 \ 196 1/18 197 Installing : git-core-doc-2.31.1-2.el9.2.noarch \ 198 2/18 199 Installing : sshpass-1.09-4.el9.x86_64 \ 200 3/18 201 Installing : python3-resolvelib-0.5.4-5.el9.noarc\ 202 h 4/18 203 Installing : python3-pytz-2021.1-4.el9.noarch \ 204 5/18 205 Installing : python3-babel-2.9.1-2.el9.noarch \ 206 6/18 207 Installing : python3-ply-3.11-13.el9.noarch \ 208 7/18 209 Installing : python3-pycparser-2.20-5.el9.noarch \ 210 8/18 211 Installing : python3-cffi-1.14.5-4.el9.x86_64 \ 212 9/18 213 Installing : python3-cryptography-3.4.7-5.el9.x86\ 214 _64 10/18 215 Installing : python3-packaging-20.9-

4.el9.noarch \ 216 11/18 217 Installing : python3-markupsafe-1.1.1-12.el9.x86_\ 218 64 12/18 219 Installing : python3-jinja2-2.11.3-4.el9.noarch \ 220 13/18 221 Installing : perl-Error-1:0.17029-7.el9.noarch \ 222 14/18 223 Installing : emacs-filesystem-1:27.1-3.el9.noarch\ 224 15/18 225 Installing : perl-Git-2.31.1-2.el9.2.noarch \ 226 16/18 227 Installing : git-2.31.1-2.el9.2.x86_64 \ 228 17/18 229 Installing : ansible-core-2.12.0-1.el9.x86_64 \ 230 18/18 231 Running scriptlet: ansible-core-2.12.0-1.el9.x86_64 \ 232 18/18 233 Verifying : ansible-core-2.12.0-1.el9.x86_64 \ 234 1/18 235 Verifying : emacs-filesystem-1:27.1-3.el9.noarch\ 236 2/18 237 Verifying : git-2.31.1-2.el9.2.x86_64 \ 238 3/18 239 Verifying : git-core-2.31.1-2.el9.2.x86_64 \ 240 4/18 241 Verifying : git-core-doc-2.31.1-2.el9.2.noarch \ 242 5/18 243 Verifying : perl-Error-1:0.17029-7.el9.noarch \ 244 6/18 245 Verifying : perl-Git-2.31.1-2.el9.2.noarch \ 246 7/18 247 Verifying : python3-babel-2.9.1-2.el9.noarch \ 248 8/18 249 Verifying : python3-cffi-1.14.5-4.el9.x86_64 \ 250 9/18 251 Verifying : python3-cryptography-3.4.7-5.el9.x86\ 252 _64 10/18 253 Verifying : python3-jinja2-2.11.3-4.el9.noarch \ 254 11/18 255 Verifying : python3-markupsafe-1.1.1-12.el9.x86_\ 256 64 12/18 257 Verifying : python3-packaging-20.9-4.el9.noarch \ 258 13/18 259 Verifying : python3-ply-3.11-13.el9.noarch \ 260 14/18 261 Verifying : python3-pycparser-2.20-5.el9.noarch \

262 15/18 263 Verifying : python3-pytz-2021.1-4.el9.noarch \ 264 16/18 265 Verifying : python3-resolvelib-0.5.4-5.el9.noarc\ 266 h 17/18 267 Verifying : sshpass-1.09-4.el9.x86_64 \ 268 18/18 269 Installed products updated. 270 Installed: 271 ansible-core-2.12.0-1.el9.x86_64 emacs-f\ 272 ilesystem-1:27.1-3.el9.noarch 273 git-2.31.1-2.el9.2.x86_64 git-cor\ 274 e-2.31.1-2.el9.2.x86_64 275 git-core-doc-2.31.1-2.el9.2.noarch perl-Er\ 276 ror-1:0.17029-7.el9.noarch 277 perl-Git-2.31.1-2.el9.2.noarch python3\ 278 -babel-2.9.1-2.el9.noarch 279 python3-cffi-1.14.5-4.el9.x86_64 python3\ 280 -cryptography-3.4.7-5.el9.x86_64 281 python3-jinja2-2.11.3-4.el9.noarch python3\ 282 -markupsafe-1.1.1-12.el9.x86_64 283 python3-packaging-20.9-4.el9.noarch python3\ 284 -ply-3.11-13.el9.noarch 285 python3-pycparser-2.20-5.el9.noarch python3\ 286 -pytz-2021.1-4.el9.noarch 287 python3-resolvelib-0.5.4-5.el9.noarch sshpass\ 288 -1.09-4.el9.x86_64 289 Complete! 290 [root@centos-stream devops]# ansible --version 291 ansible [core 2.12.0] 292 config file = /etc/ansible/ansible.cfg 293 configured module search path = ['/root/.ansible/plugin\ 294 s/modules', '/usr/share/ansible/plugins/modules'] 295 ansible python module location = /usr/lib/python3.9/sit\ 296 e-packages/ansible 297 ansible collection location = /root/.ansible/collection\ 298 s:/usr/share/ansible/collections 299 executable location = /bin/ansible 300 python version = 3.9.8 (main, Nov 8 2021, 00:00:00) [G\ 301 CC 11.2.1 20211019 (Red Hat 11.2.1-6)] 302 jinja version = 2.11.3 303 libyaml = True 304 [root@centos-stream devops]# dnf info ansible-core 305 Updating Subscription Management repositories. 306 Unable to read consumer identity 307 This system is not registered with an

entitlement server.\ 308 You can use subscription-manager to register. 309 Last metadata expiration check: 0:02:00 ago on Mon 06 Dec\ 310 2021 11:55:34 AM UTC. 311 Installed Packages 312 Name : ansible-core 313 Version : 2.12.0 314 Release : 1.el9 315 Architecture : x86_64 316 Size : 9.3 M 317 Source : ansible-core-2.12.0-1.el9.src.rpm 318 Repository : @System 319 From repo : appstream 320 Summary : SSH-based configuration management, deploy\ 321 ment, and task execution system 322 URL : http://ansible.com 323 License : GPLv3+ 324 Description : Ansible is a radically simple model-driven\ 325 configuration management, 326 : multi-node deployment, and remote task exe\ 327 cution system. Ansible works 328 : over SSH and does not require any software\ 329 or daemons to be installed 330 : on remote nodes. Extension modules can be \ 331 written in any language and 332 : are transferred to managed machines automa\ 333 tically. 334 [root@centos-stream devops]#

---

# before execution

---

1 # dnf info ansible-core 2 Updating Subscription Management repositories. 3 Unable to read consumer identity 4 This system is not registered with an entitlement server.\ 5 You can use subscription-manager to register. 6 Last metadata expiration check: 0:00:55 ago on Mon 06

Dec\ 7 2021 11:55:34 AM UTC. 8 Available Packages 9 Name : ansible-core 10 Version : 2.12.0 11 Release : 1.el9 12 Architecture : x86_64 13 Size : 2.4 M 14 Source : ansible-core-2.12.0-1.el9.src.rpm 15 Repository : appstream 16 Summary : SSH-based configuration management, deploy\ 17 ment, and task execution system 18 URL : http://ansible.com 19 License : GPLv3+ 20 Description : Ansible is a radically simple model-driven\ 21 configuration management, 22 : multi-node deployment, and remote task exe\ 23 cution system. Ansible works 24 : over SSH and does not require any software\ 25 or daemons to be installed 26 : on remote nodes. Extension modules can be \ 27 written in any language and 28 : are transferred to managed machines automa\ 29 tically. 30 [root@centos-stream devops]#

---

## after execution

---

1 # dnf info ansible-core 2 Updating Subscription Management repositories. 3 Unable to read consumer identity 4 This system is not registered with an entitlement server.\ 5 You can use subscription-manager to register. 6 Last metadata expiration check: 0:02:00 ago on Mon 06 Dec\ 7 2021 11:55:34 AM UTC. 8 Installed Packages 9 Name : ansible-core 10 Version : 2.12.0 11 Release : 1.el9 12 Architecture : x86_64 13 Size : 9.3 M 14

Source : ansible-core-2.12.0-1.el9.src.rpm 15 Repository : @System 16 From repo : appstream 17 Summary : SSH-based configuration management, deploy\ 18 ment, and task execution system 19 URL : http://ansible.com 20 License : GPLv3+ 21 Description : Ansible is a radically simple model-driven\ 22 configuration management, 23 : multi-node deployment, and remote task exe\ 24 cution system. Ansible works 25 : over SSH and does not require any software\ 26 or daemons to be installed 27 : on remote nodes. Extension modules can be \ 28 written in any language and 29 : are transferred to managed machines automa\ 30 tically. 31 [root@centos-stream devops]#

# How to install Ansible in Windows 11 WSL Windows Subsystem for Linux

## How to install and maintain Ansible inside Windows 11 using the Windows Subsystem for Linux and Ubuntu 20.04 LTS.

## The easier way to install and maintain Ansible inside Windows 11 using the Windows Subsystem for Linux.

## How to install Ansible in Windows 11

## Officially Windows is NOT a supported operating system for the control node even if RedHat is working really hard

**to eliminate barriers to native Windows controllers.**

**The reason behind this is that there are a lot of UNIX-isms deeply baked into most of Ansible that prevent it from working on native Windows, basically, Windows doesn’t have the fork() syscall implementation. Ansible controller worker model as of 2.11 makes heavy use of the POSIX fork() syscall.**

## Cygwin

**Some people use Cygwin POSIX-compatibility projects but sometimes it just breaks so it’s not a reliable solution.**

## Windows Subsystem for Linux

**The best alternative is to use Windows Subsystem for Linux, also known as WSL. Run WSL version 2 if Windows 10 later than build 2004 or Windows 11.**

**Ansible works great on WSL and WSL2.**

## Links

**More technical information:**

Windows Subsystem for Linux

Ansible on Windows FAQ

Windows Subsystem for Linux on Windows 11

## demo

# How to install the latest and a specific version of Ansible in Windows using Windows Subsystem for Linux.

## code

## install_wsl.ps1

---

1 wsl --help 2 wsl --list -o 3 wsl --install

---

## execution

# install WSL

---

1 Windows PowerShell 2 Copyright (C) Microsoft Corporation. All rights reserved. 3 4 Install the latest PowerShell for new features and improv\ 5 ements! https://aka.ms/PSWindows 6 7 PS C:\Users\user> wsl --install 8 Installing: Virtual Machine Platform 9 Virtual Machine Platform has been installed. 10 Installing: Windows Subsystem for Linux 11 Windows Subsystem for Linux has been installed. 12 Downloading: WSL Kernel 13 Installing: WSL Kernel 14 WSL Kernel has been installed. 15 Downloading: GUI App Support 16 Installing: GUI App Support 17 GUI App Support has been installed. 18 Downloading: Ubuntu 19 The requested operation is successful. Changes will not b\ 20 e effective until the system is rebooted. 21 PS C:\Users\user>

---

# setup Ubuntu 20.04 LTS WSL and install ansible

---

1 Installing, this may take a few minutes... 2 Please create a default UNIX user account. The username d\ 3 oes not need to match your Windows username. 4 For more

information visit: https://aka.ms/wslusers  5 Enter new UNIX username: demo  6 New password:  7 Retype new password:  8 passwd: password updated successfully  9 Installation successful! 10 To run a command as administrator (user "root"), use "sud\ 11 o <command>". 12 See "man sudo_root" for details. 13 14 Welcome to Ubuntu 20.04 LTS (GNU/Linux 4.4.0-22000-Micros\ 15 oft x86_64) 16 17 * Documentation:  https://help.ubuntu.com 18 * Management:  https://landscape.canonical.com 19 * Support:  https://ubuntu.com/advantage 20 21  System information as of Mon Jan 10 16:57:36 UTC 2022 22 23 System load:  0.52  Users logged in:  0 24  Usage of /home: unknown  IPv4 address for eth0: 10.0.2\ 25 .15 26 Memory usage:  73%  IPv4 address for eth1: 169.25\ 27 4.235.130 28  Swap usage:  1%  IPv4 address for eth1: 192.16\ 29 8.0.209 30  Processes:  7 31 32 0 updates can be installed immediately. 33 0 of these updates are security updates. 34 35 36 The list of available updates is more than a week old. 37 To check for new updates run: sudo apt update 38 39 40 This message is shown once once a day. To disable it plea\ 41 se create the 42 /home/demo/.hushlogin file. 43 demo@demo:~$ sudo su 44 [sudo] password for demo: 45 root@demo:/home/demo# apt-get update 46 Get:1 http://archive.ubuntu.com/ubuntu focal InRelease [2\ 47 65 kB] 48 Get:2 http://archive.ubuntu.com/ubuntu focal-updates InRe\ 49 lease [114 kB] 50 Get:3 http://security.ubuntu.com/ubuntu focal-security In\ 51 Release [114 kB] 52 Get:4 http://archive.ubuntu.com/ubuntu focal-backports In\ 53 Release [108 kB] 54 Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 P\ 55 ackages [970 kB] 56 Get:6 http://archive.ubuntu.com/ubuntu focal/main Transla\ 57 tion-en [506 kB] 58 Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 c\ 59 -n-f Metadata [29.5 kB] 60 Get:8 http://archive.ubuntu.com/ubuntu focal/universe amd\ 61 64 Packages [8628 kB] 62 Get:9

http://archive.ubuntu.com/ubuntu focal/universe Tra\ 63
nslation-en [5124 kB] 64 Get:10
http://security.ubuntu.com/ubuntu focal-security/m\ 65 ain
amd64 Packages [1109 kB] 66 Get:11
http://security.ubuntu.com/ubuntu focal-security/m\ 67 ain
Translation-en [202 kB] 68 Get:12
http://security.ubuntu.com/ubuntu focal-security/m\ 69 ain
amd64 c-n-f Metadata [9104 B] 70 Get:13
http://archive.ubuntu.com/ubuntu focal/universe am\ 71 d64
c-n-f Metadata [265 kB] 72 Get:14
http://archive.ubuntu.com/ubuntu focal/multiverse \ 73
amd64 Packages [144 kB] 74 Get:15
http://security.ubuntu.com/ubuntu focal-security/r\ 75
estricted amd64 Packages [609 kB] 76 Get:16
http://archive.ubuntu.com/ubuntu focal/multiverse \ 77
Translation-en [104 kB] 78 Get:17
http://archive.ubuntu.com/ubuntu focal/multiverse \ 79
amd64 c-n-f Metadata [9136 B] 80 Get:18
http://archive.ubuntu.com/ubuntu focal-updates/mai\ 81 n
amd64 Packages [1445 kB] 82 Get:19
http://security.ubuntu.com/ubuntu focal-security/r\ 83
estricted Translation-en [86.8 kB] 84 Get:20
http://security.ubuntu.com/ubuntu focal-security/r\ 85
estricted amd64 c-n-f Metadata [536 B] 86 Get:21
http://security.ubuntu.com/ubuntu focal-security/u\ 87
niverse amd64 Packages [675 kB] 88 Get:22
http://security.ubuntu.com/ubuntu focal-security/u\ 89
niverse Translation-en [114 kB] 90 Get:23
http://security.ubuntu.com/ubuntu focal-security/u\ 91
niverse amd64 c-n-f Metadata [13.0 kB] 92 Get:24
http://security.ubuntu.com/ubuntu focal-security/m\ 93
ultiverse amd64 Packages [21.8 kB] 94 Get:25
http://security.ubuntu.com/ubuntu focal-security/m\ 95
ultiverse Translation-en [4948 B] 96 Get:26
http://security.ubuntu.com/ubuntu focal-security/m\ 97
ultiverse amd64 c-n-f Metadata [536 B] 98 Get:27

http://archive.ubuntu.com/ubuntu focal-updates/mai\ 99 n
Translation-en [289 kB] 100 Get:28
http://archive.ubuntu.com/ubuntu focal-updates/mai\ 101 n
amd64 c-n-f Metadata [14.7 kB] 102 Get:29
http://archive.ubuntu.com/ubuntu focal-updates/res\ 103
tricted amd64 Packages [663 kB] 104 Get:30
http://archive.ubuntu.com/ubuntu focal-updates/res\ 105
tricted Translation-en [94.6 kB] 106 Get:31
http://archive.ubuntu.com/ubuntu focal-updates/res\ 107
tricted amd64 c-n-f Metadata [532 B] 108 Get:32
http://archive.ubuntu.com/ubuntu focal-updates/uni\ 109
verse amd64 Packages [892 kB] 110 Get:33
http://archive.ubuntu.com/ubuntu focal-updates/uni\ 111
verse Translation-en [195 kB] 112 Get:34
http://archive.ubuntu.com/ubuntu focal-updates/uni\ 113
verse amd64 c-n-f Metadata [19.9 kB] 114 Get:35
http://archive.ubuntu.com/ubuntu focal-updates/mul\ 115
tiverse amd64 Packages [24.8 kB] 116 Get:36
http://archive.ubuntu.com/ubuntu focal-updates/mul\ 117
tiverse Translation-en [6928 B] 118 Get:37
http://archive.ubuntu.com/ubuntu focal-updates/mul\ 119
tiverse amd64 c-n-f Metadata [620 B] 120 Get:38
http://archive.ubuntu.com/ubuntu focal-backports/m\ 121
ain amd64 Packages [42.0 kB] 122 Get:39
http://archive.ubuntu.com/ubuntu focal-backports/m\ 123
ain Translation-en [10.0 kB] 124 Get:40
http://archive.ubuntu.com/ubuntu focal-backports/m\ 125
ain amd64 c-n-f Metadata [864 B] 126 Get:41
http://archive.ubuntu.com/ubuntu focal-backports/r\ 127
estricted amd64 c-n-f Metadata [116 B] 128 Get:42
http://archive.ubuntu.com/ubuntu focal-backports/u\ 129
niverse amd64 Packages [19.5 kB] 130 Get:43
http://archive.ubuntu.com/ubuntu focal-backports/u\ 131
niverse Translation-en [13.4 kB] 132 Get:44
http://archive.ubuntu.com/ubuntu focal-backports/u\ 133
niverse amd64 c-n-f Metadata [656 B] 134 Get:45

http://archive.ubuntu.com/ubuntu focal-backports/m\ 135 ultiverse amd64 c-n-f Metadata [116 B] 136 Fetched 23.0 MB in 7s (3188 kB/s) 137 Reading package lists... Done 138 root@demo:/home/demo# apt-get install ansible 139 Reading package lists... Done 140 Building dependency tree 141 Reading state information... Done 142 The following additional packages will be installed: 143 ieee-data python3-argcomplete python3-crypto python3-dn\ 144 spython python3-jmespath python3-kerberos python3-libclou\ 145 d 146 python3-lockfile python3-netaddr python3-ntlm-auth pyth\ 147 on3-requests-kerberos python3-requests-ntlm python3-selin\ 148 ux 149 python3-winrm python3-xmltodict 150 Suggested packages: 151 cowsay sshpass python-lockfile-doc ipython3 python-neta\ 152 ddr-docs 153 The following NEW packages will be installed: 154 ansible ieee-data python3-argcomplete python3-crypto py\ 155 thon3-dnspython python3-jmespath python3-kerberos 156 python3-libcloud python3-lockfile python3-netaddr pytho\ 157 n3-ntlm-auth python3-requests-kerberos python3-requests-n\ 158 tlm 159 python3-selinux python3-winrm python3-xmltodict 160 0 upgraded, 16 newly installed, 0 to remove and 251 not u\ 161 pgraded. 162 Need to get 9644 kB of archives. 163 After this operation, 90.2 MB of additional disk space wi\ 164 ll be used. 165 Do you want to continue? [Y/n] y 166 Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 p\ 167 ython3-crypto amd64 2.6.1-13ubuntu2 [237 kB] 168 Get:2 http://archive.ubuntu.com/ubuntu focal/main amd64 p\ 169 ython3-dnspython all 1.16.0-1build1 [89.1 kB] 170 Get:3 http://archive.ubuntu.com/ubuntu focal/main amd64 i\ 171 eee-data all 20180805.1 [1589 kB] 172 Get:4 http://archive.ubuntu.com/ubuntu focal-updates/main\ 173 amd64 python3-netaddr all 0.7.19-3ubuntu1 [236 kB] 174 Get:5 http://archive.ubuntu.com/ubuntu focal/universe amd\ 175 64 ansible all 2.9.6+dfsg-1 [5794 kB] 176 Get:6 http://archive.ubuntu.com/ubuntu focal/universe amd\ 177

64 python3-argcomplete all 1.8.1-1.3ubuntu1 [27.2 kB] 178 Get:7 http://archive.ubuntu.com/ubuntu focal-updates/main\ 179 amd64 python3-jmespath all 0.9.4-2ubuntu1 [21.5 kB] 180 Get:8 http://archive.ubuntu.com/ubuntu focal/universe amd\ 181 64 python3-kerberos amd64 1.1.14-3.1build1 [22.6 kB] 182 Get:9 http://archive.ubuntu.com/ubuntu focal/main amd64 p\ 183 ython3-lockfile all 1:0.12.2-2ubuntu2 [14.6 kB] 184 Get:10 http://archive.ubuntu.com/ubuntu focal/universe am\ 185 d64 python3-libcloud all 2.8.0-1 [1403 kB] 186 Get:11 http://archive.ubuntu.com/ubuntu focal/universe am\ 187 d64 python3-ntlm-auth all 1.1.0-1 [19.6 kB] 188 Get:12 http://archive.ubuntu.com/ubuntu focal/universe am\ 189 d64 python3-requests-kerberos all 0.12.0-2 [11.9 kB] 190 Get:13 http://archive.ubuntu.com/ubuntu focal/universe am\ 191 d64 python3-requests-ntlm all 1.1.0-1 [6004 B] 192 Get:14 http://archive.ubuntu.com/ubuntu focal/universe am\ 193 d64 python3-selinux amd64 3.0-1build2 [139 kB] 194 Get:15 http://archive.ubuntu.com/ubuntu focal/universe am\ 195 d64 python3-xmltodict all 0.12.0-1 [12.6 kB] 196 Get:16 http://archive.ubuntu.com/ubuntu focal/universe am\ 197 d64 python3-winrm all 0.3.0-2 [21.7 kB] 198 Fetched 9644 kB in 2s (4411 kB/s) 199 Selecting previously unselected package python3-crypto. 200 (Reading database ... 31836 files and directories current\ 201 ly installed.) 202 Preparing to unpack .../00-python3-crypto_2.6.1-13ubuntu2\ 203 _amd64.deb ... 204 Unpacking python3-crypto (2.6.1-13ubuntu2) ... 205 Selecting previously unselected package python3-dnspython. 206 Preparing to unpack .../01-python3-dnspython_1.16.0-1buil\ 207 d1_all.deb ... 208 Unpacking python3-dnspython (1.16.0-1build1) ... 209 Selecting previously unselected package ieee-data. 210 Preparing to unpack .../02-ieee-data_20180805.1_all.deb .\ 211 .. 212 Unpacking ieee-data (20180805.1) ... 213 Selecting previously unselected package python3-netaddr. 214 Preparing to unpack .../03-python3-netaddr_0.7.19-3ubuntu\

215 1_all.deb ... 216 Unpacking python3-netaddr (0.7.19-3ubuntu1) ... 217 Selecting previously unselected package ansible. 218 Preparing to unpack .../04-ansible_2.9.6+dfsg-1_all.deb .\ 219 .. 220 Unpacking ansible (2.9.6+dfsg-1) ... 221 Selecting previously unselected package python3-argcomple\ 222 te. 223 Preparing to unpack .../05-python3-argcomplete_1.8.1-1.3u\ 224 buntu1_all.deb ... 225 Unpacking python3-argcomplete (1.8.1-1.3ubuntu1) ... 226 Selecting previously unselected package python3-jmespath. 227 Preparing to unpack .../06-python3-jmespath_0.9.4-2ubuntu\ 228 1_all.deb ... 229 Unpacking python3-jmespath (0.9.4-2ubuntu1) ... 230 Selecting previously unselected package python3-kerberos. 231 Preparing to unpack .../07-python3-kerberos_1.1.14-3.1bui\ 232 ld1_amd64.deb ... 233 Unpacking python3-kerberos (1.1.14-3.1build1) ... 234 Selecting previously unselected package python3-lockfile. 235 Preparing to unpack .../08-python3-lockfile_1%3a0.12.2-2u\ 236 buntu2_all.deb ... 237 Unpacking python3-lockfile (1:0.12.2-2ubuntu2) ... 238 Selecting previously unselected package python3-libcloud. 239 Preparing to unpack .../09-python3-libcloud_2.8.0-1_all.d\ 240 eb ... 241 Unpacking python3-libcloud (2.8.0-1) ... 242 Selecting previously unselected package python3-ntlm-auth. 243 Preparing to unpack .../10-python3-ntlm-auth_1.1.0-1_all.\ 244 deb ... 245 Unpacking python3-ntlm-auth (1.1.0-1) ... 246 Selecting previously unselected package python3-requests-\ 247 kerberos. 248 Preparing to unpack .../11-python3-requests-kerberos_0.12\ 249 .0-2_all.deb ... 250 Unpacking python3-requests-kerberos (0.12.0-2) ... 251 Selecting previously unselected package python3-requests-\ 252 ntlm. 253 Preparing to unpack .../12-python3-requests-ntlm_1.1.0-1_\ 254 all.deb ... 255 Unpacking python3-requests-ntlm (1.1.0-1) ... 256 Selecting previously unselected package python3-selinux. 257 Preparing to unpack .../13-python3-selinux_3.0-1build2_am\ 258 d64.deb ... 259 Unpacking python3-selinux (3.0-1build2) ... 260 Selecting previously unselected

package python3-xmltodict. 261 Preparing to unpack .../14-python3-xmltodict_0.12.0-1_all\ 262 .deb ... 263 Unpacking python3-xmltodict (0.12.0-1) ... 264 Selecting previously unselected package python3-winrm. 265 Preparing to unpack .../15-python3-winrm_0.3.0-2_all.deb \ 266 ... 267 Unpacking python3-winrm (0.3.0-2) ... 268 Setting up python3-lockfile (1:0.12.2-2ubuntu2) ... 269 Setting up python3-ntlm-auth (1.1.0-1) ... 270 Setting up python3-kerberos (1.1.14-3.1build1) ... 271 Setting up python3-xmltodict (0.12.0-1) ... 272 Setting up python3-jmespath (0.9.4-2ubuntu1) ... 273 Setting up python3-requests-kerberos (0.12.0-2) ... 274 Setting up ieee-data (20180805.1) ... 275 Setting up python3-dnspython (1.16.0-1build1) ... 276 Setting up python3-selinux (3.0-1build2) ... 277 Setting up python3-crypto (2.6.1-13ubuntu2) ... 278 Setting up python3-argcomplete (1.8.1-1.3ubuntu1) ... 279 Setting up python3-requests-ntlm (1.1.0-1) ... 280 Setting up python3-libcloud (2.8.0-1) ... 281 Setting up python3-netaddr (0.7.19-3ubuntu1) ... 282 Setting up python3-winrm (0.3.0-2) ... 283 Setting up ansible (2.9.6+dfsg-1) ... 284 Processing triggers for man-db (2.9.1-1) ... 285 root@demo:/home/demo# ansible --version 286 ansible 2.9.6 287   config file = /etc/ansible/ansible.cfg 288 configured module search path = ['/root/.ansible/plugin\ 289 s/modules', '/usr/share/ansible/plugins/modules'] 290 ansible python module location = /usr/lib/python3/dist-\ 291 packages/ansible 292   executable location = /usr/bin/ansible 293   python version = 3.8.2 (default, Mar 13 2020, 10:14:16)\ 294 [GCC 9.3.0] 295 root@demo:/home/demo# apt list ansible 296 Listing... Done 297 ansible/focal,now 2.9.6+dfsg-1 all [installed] 298 root@demo:/home/demo#

# Recap

## Now you know how to install the latest version of Ansible in Windows 11 using the Windows Subsystem for Linux.

# How to install Ansible in macOS - Ansible install

How to install the latest and a specific version of Ansible with Homebrew Package Manager.

# How to install Ansible in macOS

The easier way to install and maintain Ansible inside macOS is to use the Homebrew Package Manager. It has already a build of Ansible with some versions available.

The main advantage of using brew is that it takes care of all the necessary dependencies and it manage also manages the upgrade process.

An alternative could be to use Python PIP but you’re going to download the source code and compile the software. It could be a solution for a developer that always has the latest up-to-date release.

# Demo install Ansible in macOS

Let me demonstrate to you how to install the latest and a specific version of Ansible in macOS with Homebrew Package Manager.

**code**

install the latest release

---

1 #!/bin/bash 2 brew --version 3 brew search ansible 4 brew install ansible 5 ansible --version

---

install specific version

---

1 #!/bin/bash 2 brew remove ansible 3 brew search ansible 4 brew install ansible@2.9 5 /usr/local/opt/ansible\@2.9/bin/ansible --version

# How to install Ansible in SUSE Linux Enterprise Server (SLES) 15 SP3

**How to install and maintain up-to-date Ansible inside SUSE Linux Enterprise Server (SLES) 15 SP3 using the SUSE Package Hub repository.**

**How to install Ansible in SLES 15 SP3**

**use SUSE Package Hub repository**

**The easier way to install and maintain Ansible inside SUSE Linux Enterprise version 15 SP 3 is using the SUSE Package Hub repository maintained by the SUSE community.**

# Links

SUSE Package Hub - Community Packages for SUSE Linux Enterprise Server / Desktop

How to register SLES using the SUSEConnect command line tool

Adding SUSE Package Hub repositories to SUSE Linux Enterprise Server

# demo

# How to install the latest version of ansible in SUSE Linux Enterprise Server 15 SP3.

# code

# Install-Ansible-SLES-15-SP3.sh

---

1 #!/bin/bash 2 SUSEConnect --status 3 SUSEConnect --list-extensions 4 SUSEConnect -p PackageHub/15.3/x86_64 5 zypper install ansible 6 zypper info ansible 7 ansible --version

---

## execution

---

1 $ ssh devops@sles.example.com 2 devops@sles:~> sudo su 3 sles:/home/devops # cat /etc/os-release 4 NAME="SLES" 5 VERSION="15-SP3" 6 VERSION_ID="15.3" 7 PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3" 8 ID="sles" 9 ID_LIKE="suse" 10 ANSI_COLOR="0;32" 11 CPE_NAME="cpe:/o:suse:sles:15:sp3" 12 DOCUMENTATION_URL="https://documentation.suse.com/" 13 sles:/home/devops # hostnamectl 14 Static hostname: sles.example.com 15 Transient hostname: sles 16 Icon name: computer-vm 17 Chassis: vm 18 Machine ID: 4a241aac39fa4e75b13748c714c05c47 19 Boot ID: 150e32975f4d4fdd801eb605f7e35393 20 Virtualization: oracle 21 Operating System: SUSE Linux Enterprise Server

15 SP3 22 CPE OS Name: cpe:/o:suse:sles:15:sp3 23 Kernel: Linux 5.3.18-57-default 24 Architecture: x86-64 25 sles:/home/devops # uname -a 26 Linux sles 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 U\ 27 TC 2021 (ba3c2e9) x86_64 x86_64 x86_64 GNU/Linux 28 sles:/home/devops # SUSEConnect --status 29 [{"identifier":"sle-module-basesystem","version":"15.3","\ 30 arch":"x86_64","status":"Registered"}, {"identifier":"SLES\ 31 ","version":"15.3","arch":"x86_64","status":"Registered",\ 32 "regcode":"**********","starts_at":"2021-12-07 00:0\ 33 0:00 UTC","expires_at":"2022-02-07 00:00:00 UTC","subscri\ 34 ption_status":"ACTIVE","type":"evaluation"},{"identifier"\ 35 :"sle-module-server-applications","version":"15.3","arch"\ 36 :"x86_64","status":"Registered"}] 37 sles:/home/devops # zypper refresh 38 Repository 'SLE-Module-Basesystem15-SP3-Pool' is up to da\ 39 te. 40 Repository 'SLE-Module-Basesystem15-SP3-Updates' is up to\ 41 date. 42 Repository 'SLE-Product-SLES15-SP3-Pool' is up to date. \ 43 44 Repository 'SLE-Product-SLES15-SP3-Updates' is up to date\ 45 . 46 Repository 'SLE-Module-Server-Applications15-SP3-Pool' is\ 47 up to date. 48 Repository 'SLE-Module-Server-Applications15-SP3-Updates'\ 49 is up to date. 50 All repositories have been refreshed. 51 sles:/home/devops # zypper search ansible 52 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 53 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 54 86_64'. 55 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 56 _64'. 57 Loading repository data... 58 Reading installed packages... 59 No matching items found. 60 sles:/home/devops # zypper install ansible 61 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 62 Refreshing service

'SUSE_Linux_Enterprise_Server_15_SP3_x\ 63 86_64'. 64 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 65 _64'. 66 Loading repository data... 67 Reading installed packages... 68 'ansible' not found in package names. Trying capabilities. 69 No provider of 'ansible' found. 70 Resolving package dependencies... 71 Nothing to do. 72 sles:/home/devops # SUSEConnect --list-extensions 73 AVAILABLE EXTENSIONS AND MODULES 74 Basesystem Module 15 SP3 x86_64 (Activated) 75 Deactivate with: SUSEConnect -d -p sle-module-basesys\ 76 tem/15.3/x86_64 77 Containers Module 15 SP3 x86_64 78 Activate with: SUSEConnect -p sle-module-containe\ 79 rs/15.3/x86_64 80 Desktop Applications Module 15 SP3 x86_64 81 Activate with: SUSEConnect -p sle-module-desktop-\ 82 applications/15.3/x86_64 83 Development Tools Module 15 SP3 x86_64 84 Activate with: SUSEConnect -p sle-module-deve\ 85 lopment-tools/15.3/x86_64 86 NVIDIA Compute Module 15 x86_64 87 Activate with: SUSEConnect -p sle-module-\ 88 NVIDIA-compute/15/x86_64 89 SUSE Linux Enterprise Workstation Extension 15 SP3 x86_64 90 Activate with: SUSEConnect -p sle-we/15.3/x86\ 91 _64 -r ADDITIONAL REGCODE 92 Python 2 Module 15 SP3 x86_64 93 Activate with: SUSEConnect -p sle-module-python2/\ 94 15.3/x86_64 95 SUSE Cloud Application Platform Tools Module 15 SP3 x86_64 96 Activate with: SUSEConnect -p sle-module-cap-tool\ 97 s/15.3/x86_64 98 SUSE Linux Enterprise Live Patching 15 SP3 x86_64 99 Activate with: SUSEConnect -p sle-module-live-pat\ 100 ching/15.3/x86_64 -r ADDITIONAL REGCODE 101 SUSE Package Hub 15 SP3 x86_64 102 Activate with: SUSEConnect -p PackageHub/15.3/x86\ 103 _64 104 Server Applications Module 15 SP3 x86_64 (Activated) 105 Deactivate with: SUSEConnect -d -p sle-module-ser\ 106 ver-applications/15.3/x86_64 107 Legacy Module 15 SP3 x86_64 108 Activate with:

SUSEConnect -p sle-module-lega\ 109 cy/15.3/x86_64 110 Public Cloud Module 15 SP3 x86_64 111 Activate with: SUSEConnect -p sle-module-publ\ 112 ic-cloud/15.3/x86_64 113 SUSE Linux Enterprise High Availability Extension 15 SP3 \ 114 x86_64 115 Activate with: SUSEConnect -p sle-ha/15.3/x86\ 116 _64 -r ADDITIONAL REGCODE 117 Web and Scripting Module 15 SP3 x86_64 118 Activate with: SUSEConnect -p sle-module-web-\ 119 scripting/15.3/x86_64 120 Transactional Server Module 15 SP3 x86_64 121 Activate with: SUSEConnect -p sle-module-transact\ 122 ional-server/15.3/x86_64 123 REMARKS 124 (Not available) The module/extension is not enabled on yo\ 125 ur RMT/SMT 126 (Activated) The module/extension is activated on your\ 127 system 128 MORE INFORMATION 129 You can find more information about available modules her\ 130 e: 131 https://www.suse.com/documentation/sles-15/singlehtml/art\ 132 _modules/art_modules.html 133 sles:/home/devops # SUSEConnect -p PackageHub/15.3/x86_64 134 Registering system to SUSE Customer Center 135 Updating system details on https://scc.suse.com ... 136 Activating PackageHub 15.3 x86_64 ... 137 -> Adding service to system ... 138 -> Installing release package ... 139 Successfully registered system 140 sles:/home/devops # zypper search ansible 141 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 142 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 143 86_64'. 144 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 145 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 146 _64'. 147 The gpg key signing file 'repomd.xml' will expire in 2 da\ 148 ys. 149 Repository: SUSE-PackageHub-15-SP3-Backports-Pool 150 Key Name: openSUSE:Backports OBS Project <openS\ 151 USE:Backports@build.opensuse.org> 152 Key Fingerprint: 637B32FF 3D83F07A 7AE1C40A 9C214D40 6\ 153 5176565

154 Key Created: Wed Oct 2 15:17:53 2019 155 Key Expires: Fri Dec 10 14:17:53 2021 (expires in \ 156 2 days) 157 Rpm Name: gpg-pubkey-65176565-5d94a381 158 Building repository 'SUSE-PackageHub-15-SP3-Backports-Poo\ 159 l' cache .....[done] 160 Loading repository data... 161 Reading installed packages... 162 S | Name | Summary \ 163 | Type 164 --+-------------+----------\ 165 ------------------------------+-------- 166 | ansible | SSH-based configuration management, de\ 167 ployment, and task execution s-> | package 168 | ansible-cmdb | Ansible Configuration Management Datab\ 169 ase | package 170 | ansible-doc | Documentation for Ansible \ 171 | package 172 | ansible-test | Tool for testing ansible plugin and mo\ 173 dule code | package 174 sles:/home/devops # zypper info ansible 175 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 176 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 177 86_64'. 178 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 179 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 180 _64'. 181 Loading repository data... 182 Reading installed packages... 183 Information for package ansible: 184 ---------- 185 Repository : SUSE-PackageHub-15-SP3-Backports-Pool 186 Name : ansible 187 Version : 2.9.6-bp153.1.20 188 Arch : noarch 189 Vendor : openSUSE 190 Support Level : unknown 191 Installed Size : 96.0 MiB 192 Installed : No 193 Status : not installed 194 Source package : ansible-2.9.6-bp153.1.20.src 195 Summary : SSH-based configuration management, depl\ 196 oyment, and task execution system 197 Description : 198 Ansible is a radically simple model-driven configurat\ 199 ion management, multi-node 200 deployment, and remote task execution system. Ansible\ 201 works over SSH and does 202 not require any

software or daemons to be installed o\ 203 n remote nodes. Extension 204 modules can be written in any language and are transf\ 205 erred to managed machines 206 automatically. 207 sles:/home/devops # zypper install ansible 208 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 209 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 210 86_64'. 211 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 212 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 213 _64'. 214 Loading repository data... 215 Reading installed packages... 216 Resolving package dependencies... 217 Problem: nothing provides python3-coverage needed by ansi\ 218 ble-2.9.6-bp153.1.20.noarch 219 Solution 1: do not install ansible-2.9.6-bp153.1.20.noar\ 220 ch 221 Solution 2: break ansible-2.9.6-bp153.1.20.noarch by ign\ 222 oring some of its dependencies 223 Choose from above solutions by number or cancel [1/2/c/d/\ 224 ?] (c): 2 225 Resolving dependencies... 226 Resolving package dependencies... 227 The following 25 NEW packages are going to be installed: 228 ansible libsodium23 python3-Babel python3-Jinja2 python\ 229 3-MarkupSafe python3-PyNaCl python3-PyYAML 230 python3-appdirs python3-asn1crypto python3-bcrypt pytho\ 231 n3-cffi python3-cryptography 232 python3-jmespath python3-packaging python3-paramiko pyt\ 233 hon3-passlib python3-ply python3-pyasn1 234 python3-pycparser python3-pycryptodome python3-pyparsin\ 235 g python3-pytz python3-setuptools 236 python3-simplejson python3-six 237 The following package has no support information from its\ 238 vendor: 239 ansible 240 25 new packages to install. 241 Overall download size: 28.3 MiB. Already cached: 0 B. Aft\ 242 er the operation, additional 168.8 MiB 243 will be used. 244 Continue? [y/n/v/...? shows all options] (y): y 245 Retrieving package libsodium23-1.0.16-4.3.18.x86_64 \ 246 (1/25), 153.5 KiB (335.6 KiB

unpacked) 247 Retrieving: libsodium23-1.0.16-4.3.18.x86_64.rpm ........\ 248 .....[done] 249 Retrieving package python3-MarkupSafe-1.0-1.29.x86_64 \ 250 (2/25), 29.1 KiB ( 72.6 KiB unpacked) 251 Retrieving: python3-MarkupSafe-1.0-1.29.x86_64.rpm .....\ 252 .....[done] 253 Retrieving package python3-PyYAML-5.4.1-1.1.x86_64 \ 254 (3/25), 106.6 KiB (555.8 KiB unpacked) 255 Retrieving: python3-PyYAML-5.4.1-1.1.x86_64.rpm .....\ 256 .....[done] 257 Retrieving package python3-appdirs-1.4.3-1.21.noarch \ 258 (4/25), 22.5 KiB ( 83.5 KiB unpacked) 259 Retrieving: python3-appdirs-1.4.3-1.21.noarch.rpm .....\ 260 ..... [done] 261 Retrieving package python3-ply-3.10-1.27.noarch \ 262 (5/25), 100.6 KiB (456.2 KiB unpacked) 263 Retrieving: python3-ply-3.10-1.27.noarch.rpm .....\ 264 .....[done] 265 Retrieving package python3-pyparsing-2.4.7-1.24.noarch \ 266 (6/25), 187.4 KiB (877.1 KiB unpacked) 267 Retrieving: python3-pyparsing-2.4.7-1.24.noarch.rpm .....\ 268 .....[done] 269 Retrieving package python3-simplejson-3.17.2-1.10.x86_64 \ 270 (7/25), 73.1 KiB (274.3 KiB unpacked) 271 Retrieving: python3-simplejson-3.17.2-1.10.x86_64.rpm ...\ 272 .....[done] 273 Retrieving package python3-jmespath-0.9.3-1.21.noarch \ 274 (8/25), 48.3 KiB (177.5 KiB unpacked) 275 Retrieving: python3-jmespath-0.9.3-1.21.noarch.rpm .....\ 276 ..... [done] 277 Retrieving package python3-asn1crypto-0.24.0-3.2.1.noarch\ 278 (9/25), 176.2 KiB ( 1.2 MiB unpacked) 279 Retrieving: python3-asn1crypto-0.24.0-3.2.1.noarch.rpm ..\ 280 .....[done] 281 Retrieving package python3-pyasn1-0.4.2-3.2.1.noarch \ 282 (10/25), 150.2 KiB (823.2 KiB unpacked) 283 Retrieving: python3-pyasn1-0.4.2-3.2.1.noarch.rpm .....\ 284 .....[done] 285 Retrieving package

python3-pycparser-2.17-3.2.1.noarch \ 286 (11/25), 189.9 KiB ( 1.1 MiB unpacked) 287 Retrieving: python3-pycparser-2.17-3.2.1.noarch.rpm .....\ 288 ..... [done] 289 Retrieving package python3-pytz-2021.1-3.3.1.noarch \ 290 (12/25), 56.6 KiB (244.6 KiB unpacked) 291 Retrieving: python3-pytz-2021.1-3.3.1.noarch.rpm .....\ 292 .....[done] 293 Retrieving package python3-six-1.14.0-10.1.noarch \ 294 (13/25), 34.9 KiB ( 99.2 KiB unpacked) 295 Retrieving: python3-six-1.14.0-10.1.noarch.rpm .....\ 296 .....[done] 297 Retrieving package python3-cffi-1.13.2-3.2.5.x86_64 \ 298 (14/25), 307.1 KiB ( 1.2 MiB unpacked) 299 Retrieving: python3-cffi-1.13.2-3.2.5.x86_64.rpm .....\ 300 .....[done (80.0 KiB/s)] 301 Retrieving package python3-Babel-2.8.0-3.3.1.noarch \ 302 (15/25), 5.0 MiB ( 26.4 MiB unpacked) 303 Retrieving: python3-Babel-2.8.0-3.3.1.noarch.rpm .....\ 304 .....[done (3.3 MiB/s)] 305 Retrieving package python3-pycryptodome-3.9.0-6.1.x86_64 \ 306 (16/25), 7.1 MiB ( 25.3 MiB unpacked) 307 Retrieving: python3-pycryptodome-3.9.0-6.1.x86_64.rpm ...\ 308 .....[done (2.9 MiB/s)] 309 Retrieving package python3-packaging-20.3-1.9.noarch \ 310 (17/25), 67.5 KiB (263.1 KiB unpacked) 311 Retrieving: python3-packaging-20.3-1.9.noarch.rpm .....\ 312 .....[done] 313 Retrieving package python3-bcrypt-3.2.0-1.10.x86_64 \ 314 (18/25), 41.4 KiB ( 79.8 KiB unpacked) 315 Retrieving: python3-bcrypt-3.2.0-1.10.x86_64.rpm .....\ 316 ..... [done] 317 Retrieving package python3-PyNaCl-1.2.1-3.3.1.x86_64 \ 318 (19/25), 75.6 KiB (423.4 KiB unpacked) 319 Retrieving: python3-PyNaCl-1.2.1-3.3.1.x86_64.rpm .....\ 320 .....[done] 321 Retrieving package python3-Jinja2-2.10.1-3.10.2.noarch \ 322 (20/25), 237.4 KiB ( 1.2 MiB unpacked) 323 Retrieving: python3-Jinja2-2.10.1-

3.10.2.noarch.rpm ....\ 324 .....[done] 325 Retrieving package python3-setuptools-40.5.0-6.3.1.noarch\ 326   (21/25), 616.0 KiB (  3.3 MiB unpacked) 327 Retrieving: python3-setuptools-40.5.0-6.3.1.noarch.rpm ..\ 328 .....[done] 329 Retrieving package python3-cryptography-2.8-10.1.x86_64  \ 330   (22/25), 426.4 KiB (  2.5 MiB unpacked) 331 Retrieving: python3-cryptography-2.8-10.1.x86_64.rpm ....\ 332 .....[done] 333 Retrieving package python3-paramiko-2.4.2-6.9.1.noarch  \ 334   (23/25), 278.9 KiB (  1.6 MiB unpacked) 335 Retrieving: python3-paramiko-2.4.2-6.9.1.noarch.rpm .....\ 336 ..... [done] 337 Retrieving package python3-passlib-1.7.4-1.10.noarch    \ 338   (24/25), 696.2 KiB (  4.2 MiB unpacked) 339 Retrieving: python3-passlib-1.7.4-1.10.noarch.rpm .....\ 340 .....[done (80.0 KiB/s)] 341 Retrieving package ansible-2.9.6-bp153.1.20.noarch      \ 342 (25/25),  12.2 MiB ( 96.0 MiB unpacked) 343 Retrieving: ansible-2.9.6-bp153.1.20.noarch.rpm .....\ 344 .....[done (3.3 MiB/s)] 345 Checking for file conflicts: .....\ 346 ..... [done] 347 ( 1/25) Installing: libsodium23-1.0.16-4.3.18.x86_64 ....\ 348 .....[done] 349 ( 2/25) Installing: python3-MarkupSafe-1.0-1.29.x86_64 ..\ 350 .....[done] 351 ( 3/25) Installing: python3-PyYAML-5.4.1-1.1.x86_64 .....\ 352 .....[done] 353 ( 4/25) Installing: python3-appdirs-1.4.3-1.21.noarch ...\ 354 .....[done] 355 ( 5/25) Installing: python3-ply-3.10-1.27.noarch .....\ 356 .....[done] 357 ( 6/25) Installing: python3-pyparsing-2.4.7-1.24.noarch .\ 358 .....[done] 359 ( 7/25) Installing: python3-simplejson-3.17.2-1.10.x86_64\ 360 .....[done] 361 ( 8/25) Installing: python3-jmespath-0.9.3-1.21.noarch ..\ 362 .....

[done] 363 Additional rpm output: 364 update-alternatives: using /usr/bin/jp-3.6 to provide /us\ 365 r/bin/jp (jp) in auto mode 366 ( 9/25) Installing: python3-asn1crypto-0.24.0-3.2.1.noarc\ 367 h .....[done] 368 (10/25) Installing: python3-pyasn1-0.4.2-3.2.1.noarch ...\ 369 .....[done] 370 (11/25) Installing: python3-pycparser-2.17-3.2.1.noarch .\ 371 .....[done] 372 (12/25) Installing: python3-pytz-2021.1-3.3.1.noarch ....\ 373 .....[done] 374 (13/25) Installing: python3-six-1.14.0-10.1.noarch ......\ 375 .....[done] 376 (14/25) Installing: python3-cffi-1.13.2-3.2.5.x86_64 ....\ 377 .....[done] 378 (15/25) Installing: python3-Babel-2.8.0-3.3.1.noarch ....\ 379 .....[done] 380 Additional rpm output: 381 update-alternatives: using /usr/bin/pybabel-3.6 to provid\ 382 e /usr/bin/pybabel (pybabel) in auto mode 383 (16/25) Installing: python3-pycryptodome-3.9.0-6.1.x86_64\ 384 .....[done] 385 (17/25) Installing: python3-packaging-20.3-1.9.noarch ...\ 386 .....[done] 387 (18/25) Installing: python3-bcrypt-3.2.0-1.10.x86_64 ....\ 388 .....[done] 389 (19/25) Installing: python3-PyNaCl-1.2.1-3.3.1.x86_64 ...\ 390 .....[done] 391 (20/25) Installing: python3-Jinja2-2.10.1-3.10.2.noarch .\ 392 .....[done] 393 (21/25) Installing: python3-setuptools-40.5.0-6.3.1.noarc\ 394 h .....[done] 395 Additional rpm output: 396 update-alternatives: using /usr/bin/easy_install-3.6 to p\ 397 rovide /usr/bin/easy_install (easy_install) in auto mode 398 (22/25) Installing: python3-cryptography-2.8-10.1.x86_64 \ 399 .....[done] 400 (23/25) Installing: python3-paramiko-2.4.2-6.9.1.noarch .\ 401 .....[done] 402 (24/25) Installing:

python3-passlib-1.7.4-1.10.noarch ...\ 403 .....[done] 404 (25/25) Installing: ansible-2.9.6-bp153.1.20.noarch .....\ 405 ..... [done] 406 sles:/home/devops # ansible --version 407 ansible 2.9.6 408   config file = /etc/ansible/ansible.cfg 409 configured module search path = ['/root/.ansible/plugin\ 410 s/modules', '/usr/share/ansible/plugins/modules'] 411 ansible python module location = /usr/lib/python3.6/sit\ 412 e-packages/ansible 413   executable location = /usr/bin/ansible 414   python version = 3.6.13 (default, Mar 10 2021, 18:30:35\ 415 ) [GCC] 416 sles:/home/devops # zypper info ansible 417 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 418 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 419 86_64'. 420 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 421 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 422 _64'. 423 Loading repository data... 424 Reading installed packages... 425 Information for package ansible: 426 ---------- ---------- 427 Repository    : SUSE-PackageHub-15-SP3-Backports-Pool 428 Name          : ansible 429 Version       : 2.9.6-bp153.1.20 430 Arch          : noarch 431 Vendor        : openSUSE 432 Support Level  : unknown 433 Installed Size : 96.0 MiB 434 Installed      : Yes 435 Status         : up-to-date 436 Source package : ansible-2.9.6-bp153.1.20.src 437 Summary        : SSH-based configuration management, depl\ 438 oyment, and task execution system 439 Description    : 440     Ansible is a radically simple model-driven configurat\ 441 ion management, multi-node 442     deployment, and remote task execution system. Ansible\ 443 works over SSH and does 444     not require any software or daemons to be installed o\ 445 n remote nodes. Extension 446     modules can be written in any language and are transf\ 447 erred to managed machines 448     automatically. 449 sles:/home/devops # 450 before execution 451 sles:/home/devops # zypper search ansible 452 Refreshing

service 'Basesystem_Module_15_SP3_x86_64'. 453 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 454 86_64'. 455 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 456 _64'. 457 Loading repository data... 458 Reading installed packages... 459 No matching items found. 460 sles:/home/devops # zypper install ansible 461 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 462 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 463 86_64'. 464 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 465 _64'. 466 Loading repository data... 467 Reading installed packages... 468 'ansible' not found in package names. Trying capabilities. 469 No provider of 'ansible' found. 470 Resolving package dependencies... 471 Nothing to do. 472 sles:/home/devops # zypper info ansible 473 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 474 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 475 86_64'. 476 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 477 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 478 _64'. 479 Loading repository data... 480 Reading installed packages... 481 Information for package ansible: 482 ---------------------------- 483 Repository : SUSE-PackageHub-15-SP3-Backports-Pool 484 Name : ansible 485 Version : 2.9.6-bp153.1.20 486 Arch : noarch 487 Vendor : openSUSE 488 Support Level : unknown 489 Installed Size : 96.0 MiB 490 Installed : No 491 Status : not installed 492 Source package : ansible-2.9.6-bp153.1.20.src 493 Summary : SSH-based configuration management, depl\ 494 oyment, and task execution system 495 Description : 496 Ansible is a radically simple model-driven configurat\ 497 ion management, multi-node 498 deployment, and remote task execution system. Ansible\ 499 works over SSH

and does 500 not require any software or daemons to be installed o\ 501 n remote nodes. Extension 502 modules can be written in any language and are transf\ 503 erred to managed machines 504 automatically.

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## before execution

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1 # zypper search ansible 2 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 3 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 4 86_64'. 5 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 6 _64'. 7 Loading repository data... 8 Reading installed packages... 9 No matching items found. 10 sles:/home/devops # zypper install ansible 11 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 12 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 13 86_64'. 14 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 15 _64'. 16 Loading repository data... 17 Reading installed packages... 18 'ansible' not found in package names. Trying capabilities. 19 No provider of 'ansible' found. 20 Resolving package dependencies... 21 Nothing to do. 22 sles:/home/devops #

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# after execution

---

1 # zypper info ansible 2 Refreshing service 'Basesystem_Module_15_SP3_x86_64'. 3 Refreshing service 'SUSE_Linux_Enterprise_Server_15_SP3_x\ 4 86_64'. 5 Refreshing service 'SUSE_Package_Hub_15_SP3_x86_64'. 6 Refreshing service 'Server_Applications_Module_15_SP3_x86\ 7 _64'. 8 Loading repository data... 9 Reading installed packages... 10 Information for package ansible: 11 ------------------------------ 12 Repository : SUSE-PackageHub-15-SP3-Backports-Pool 13 Name : ansible 14 Version : 2.9.6-bp153.1.20 15 Arch : noarch 16 Vendor : openSUSE 17 Support Level : unknown 18 Installed Size : 96.0 MiB 19 Installed : Yes 20 Status : up-to-date 21 Source package : ansible-2.9.6-bp153.1.20.src 22 Summary : SSH-based configuration management, depl\ 23 oyment, and task execution system 24 Description : 25 Ansible is a radically simple model-driven configurat\ 26 ion management, multi-node 27 deployment, and remote task execution system. Ansible\ 28 works over SSH and does 29 not require any software or daemons to be installed o\ 30 n remote nodes. Extension 31 modules can be written in any language and are transf\ 32 erred to managed machines 33 automatically. 34 sles:/home/devops #

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# How to install Ansible with PIP

How to install Ansible with PIP, the Python package manager?

PIP is the Python package manager and is going to take care of all the processes and manage the necessary dependency. It takes care of the download and installs process of packages directly from PyPI. PIP is designed to be OS-independent.

It could be a solution for developers that always want the latest up-to-date release.

The alternative approach is to use the Operating System specific Package Manager.

For example for Linux yum, DNF, and apt and for macOS Homebrew.

This second approach put more emphasis on stability so the latest release could be not available.

So if you really need the latest release of Ansible I’d suggest you use PIP.

# Demo install Ansible with PIP

How to install the latest of Ansible with PIP, the Python package manager.

## code PIP user

install-pip-user.sh

---

1 #!/bin/bash 2 python3 -m pip install --upgrade -user pip 3 python3 -m pip install --user ansible 4 install-pip-global.sh

---

## code PIP global

install-pip-global.sh

---

1 #!/bin/bash 2 python3 -m pip install --upgrade pip 3 python3 -m pip install ansible

# How to install Ansible in RedHat Enterprise Linux 9 Beta

## How to install Ansible Core (ansible-core) in RedHat Enterprise Linux 9 Beta included in the RHEL 9 AppStream repository.

## How to install Ansible in RHEL 9 Beta

## The Ansible Core package (ansible-core) included in the RHEL 9 AppStream repository

## The good news is that the Ansible Core package (ansible-core) is included out-of-the-box in the RHEL 9 AppStream repository.

**No more additional repository (Ansible Engine or EPEL) like previous versions for basic automation.**

**However, for additional support for the underlying platform and Core-maintained modules is required the Ansible Automation Platform subscription.**

## Link

Scope of support for the Ansible Core package included in the RHEL 9 AppStream

Using Ansible in RHEL 9

## demo

## How to install the latest version of Ansible-Core in Red Hat Enterprise

## Linux (RHEL) 9.

## code

## Install-Ansible-RHEL9.sh

---

1 #!/bin/bash 2 sudo dnf install ansible-core

---

## execution

---

1 $ ssh devops@rhel9.example.com 2 Last login: Fri Jan 21 17:32:05 2022 from 192.168.0.101 3 [devops@localhost ~]$ sudo su 4 [root@localhost devops]# cat /etc/redhat-release 5 Red Hat Enterprise Linux release 9.0 Beta (Plow) 6 [root@localhost devops]# cat /etc/os-release 7 NAME="Red Hat Enterprise Linux" 8

VERSION="9.0 (Plow)"  9 ID="rhel" 10 ID_LIKE="fedora" 11 VERSION_ID="9.0" 12 PLATFORM_ID="platform:el9" 13 PRETTY_NAME="Red Hat Enterprise Linux 9.0 Beta (Plow)" 14 ANSI_COLOR="0;31" 15 CPE_NAME="cpe:/o:redhat:enterprise_linux:9::baseos" 16 HOME_URL="https://www.redhat.com/" 17 DOCUMENTATION_URL="https://access.redhat.com/documentatio\ 18 n/red_hat_enterprise_linux/9/" 19 BUG_REPORT_URL="https://bugzilla.redhat.com/" 20 REDHAT_BUGZILLA_PRODUCT="Red Hat Enterprise Linux 9" 21 REDHAT_BUGZILLA_PRODUCT_VERSION=9.0 22 REDHAT_SUPPORT_PRODUCT="Red Hat Enterprise Linux" 23 REDHAT_SUPPORT_PRODUCT_VERSION="9.0 Beta" 24 [root@localhost devops]# hostnamectl 25  Static hostname: n/a \ 26  27 Transient hostname: localhost 28  Icon name: computer-vm 29  Chassis: vm 30  Machine ID: e095682a704549189f7f89473724bc21 31  Boot ID: ab4c4523b571418fad3bd0c754e6063d 32  Virtualization: oracle 33  Operating System: Red Hat Enterprise Linux 9.0 Beta (Pl\ 34 ow) 35  CPE OS Name: cpe:/o:redhat:enterprise_linux:9::bas\ 36 eos 37 Kernel: Linux 5.14.0-39.el9.x86_64 38  Architecture: x86-64 39  Hardware Vendor: innotek GmbH 40  Hardware Model: VirtualBox 41 [root@localhost devops]# uname -a 42 Linux localhost.localdomain 5.14.0-39.el9.x86_64 #1 SMP P\ 43 REEMPT Fri Dec 24 00:07:58 EST 2021 x86_64 x86_64 x86_64 \ 44 GNU/Linux 45 [root@localhost devops]# dnf search ansible 46 Updating Subscription Management repositories. 47 Last metadata expiration check: 1:40:46 ago on Fri 21 Jan\ 48 2022 04:15:49 PM CET. 49 ================================== Name & Summary Matched:\ 50 ansible ================================== 51 ansible-collection-microsoft-sql.noarch : The Ansible col\ 52 lection for Microsoft SQL Server 53

: management 54 ansible-freeipa-tests.noarch : ansible-freeipa tests 55 ansible-pcp.noarch : Ansible Metric collection for Perfor\ 56 mance Co-Pilot 57 ansible-test.x86_64 : Tool for testing ansible plugin and\ 58 module code 59
==========
== Name Matched: ansi\ 60 ble
==========
== 61 ansible-core.x86_64 : SSH-based configuration management,\ 62 deployment, and task execution system 63 ansible-freeipa.noarch : Roles and playbooks to deploy Fr\ 64 eeIPA servers, replicas and clients 65
==========
Summary Matched: ans\ 66 ible
==========
= 67 rhc-worker-playbook.x86_64 : Python worker for Red Hat co\ 68 nnector that launches Ansible Runner 69 [root@localhost devops]# dnf info ansible-core 70 Updating Subscription Management repositories. 71 Last metadata expiration check: 1:41:06 ago on Fri 21 Jan\ 72 2022 04:15:49 PM CET. 73 Available Packages 74 Name : ansible-core 75 Version : 2.12.1 76 Release : 1.el9 77 Architecture : x86_64 78 Size : 2.4 M 79 Source : ansible-core-2.12.1-1.el9.src.rpm 80 Repository : rhel-9-for-x86_64-appstream-beta-rpms 81 Summary : SSH-based configuration management, deploy\ 82 ment, and task execution system 83 URL : http://ansible.com 84 License : GPLv3+ 85 Description : Ansible is a radically simple model-driven\ 86 configuration management, 87 : multi-node deployment, and remote task exe\ 88 cution system. Ansible works 89 : over SSH and does not require any software\ 90 or daemons to be installed 91 : on remote nodes. Extension modules can be \ 92 written in any language and 93 : are transferred to managed machines automa\ 94 tically. 95 [root@localhost devops]# dnf install ansible-core 96 Updating Subscription

Management repositories. 97 Last metadata expiration check: 1:41:25 ago on Fri 21 Jan\ 98 2022 04:15:49 PM CET. 99 Dependencies resolved. 100 ================================================================================\ 101 ================================================================================ 102 Package Arch Version Rep\ 103 ository Size 104 ================================================================================\ 105 ================================================================================ 106 Installing: 107 ansible-core x86_64 2.12.1-1.el9 rhe\ 108 l-9-for-x86_64-appstream-beta-rpms 2.4 M 109 Installing dependencies: 110 git x86_64 2.31.1-2.el9.2 rhe\ 111 l-9-for-x86_64-appstream-beta-rpms 128 k 112 git-core x86_64 2.31.1-2.el9.2 rhe\ 113 l-9-for-x86_64-appstream-beta-rpms 3.6 M 114 git-core-doc noarch 2.31.1-2.el9.2 rhe\ 115 l-9-for-x86_64-appstream-beta-rpms 2.5 M 116 perl-AutoLoader noarch 5.74-479.el9 rhe\ 117 l-9-for-x86_64-appstream-beta-rpms 31 k 118 perl-B x86_64 1.80-479.el9 rhe\ 119 l-9-for-x86_64-appstream-beta-rpms 193 k 120 perl-Carp noarch 1.50-460.el9 rhe\ 121 l-9-for-x86_64-appstream-beta-rpms 31 k 122 perl-Class-Struct noarch 0.66-479.el9 rhe\ 123 l-9-for-x86_64-appstream-beta-rpms 32 k 124 perl-Data-Dumper x86_64 2.174-462.el9 rhe\ 125 l-9-for-x86_64-appstream-beta-rpms 58 k 126 perl-Digest noarch 1.19-4.el9 rhe\ 127 l-9-for-x86_64-appstream-beta-rpms 28 k 128 perl-Digest-MD5 x86_64 2.58-4.el9 rhe\ 129 l-9-for-x86_64-appstream-beta-rpms 39 k 130 perl-DynaLoader x86_64 1.47-479.el9 rhe\ 131 l-9-for-x86_64-appstream-beta-rpms 35 k 132 perl-Encode x86_64 4:3.08-462.el9 rhe\ 133 l-9-for-x86_64-appstream-beta-rpms 1.7 M 134 perl-Errno x86_64 1.30-479.el9 rhe\ 135 l-9-for-

x86_64-appstream-beta-rpms  24 k 136 perl-Error noarch  1:0.17029-7.el9  rhe\ 137 l-9-for-x86_64-appstream-beta-rpms  46 k 138 perl-Exporter  noarch  5.74-461.el9  rhe\ 139 l-9-for-x86_64-appstream-beta-rpms  33 k 140 perl-Fcntl  x86_64  1.13-479.el9  rhe\ 141 l-9-for-x86_64-appstream-beta-rpms  31 k 142 perl-File-Basename  noarch  2.85-479.el9  rhe\ 143 l-9-for-x86_64-appstream-beta-rpms  27 k 144 perl-File-Find noarch  1.37-479.el9  rhe\ 145 l-9-for-x86_64-appstream-beta-rpms  35 k 146 perl-File-Path  noarch  2.18-4.el9  rhe\ 147 l-9-for-x86_64-appstream-beta-rpms  37 k 148 perl-File-Temp  noarch  1:0.231.100-4.el9  rhe\ 149 l-9-for-x86_64-appstream-beta-rpms  62 k 150 perl-File-stat  noarch  1.09-479.el9  rhe\ 151 l-9-for-x86_64-appstream-beta-rpms  27 k 152 perl-FileHandle  noarch  2.03-479.el9  rhe\ 153 l-9-for-x86_64-appstream-beta-rpms  25 k 154 perl-Getopt-Long  noarch  1:2.52-4.el9  rhe\ 155 l-9-for-x86_64-appstream-beta-rpms  63 k 156 perl-Getopt-Std  noarch  1.12-479.el9  rhe\ 157 l-9-for-x86_64-appstream-beta-rpms  25 k 158 perl-Git noarch  2.31.1-2.el9.2  rhe\ 159 l-9-for-x86_64-appstream-beta-rpms  44 k 160 perl-HTTP-Tiny  noarch  0.076-460.el9  rhe\ 161 l-9-for-x86_64-appstream-beta-rpms  57 k 162 perl-IO  x86_64  1.43-479.el9  rhe\ 163 l-9-for-x86_64-appstream-beta-rpms  102 k 164 perl-IPC-Open3  noarch  1.21-479.el9  rhe\ 165 l-9-for-x86_64-appstream-beta-rpms  33 k 166 perl-MIME-Base64  x86_64  3.16-4.el9  rhe\ 167 l-9-for-x86_64-appstream-beta-rpms  34 k 168 perl-Net-SSLeay x86_64  1.90-8.el9  rhe\ 169 l-9-for-x86_64-appstream-beta-rpms  377 k 170 perl-POSIX  x86_64  1.94-479.el9  rhe\ 171 l-9-for-x86_64-appstream-beta-rpms  107 k 172 perl-PathTools  x86_64  3.78-461.el9  rhe\ 173 l-9-for-x86_64-appstream-beta-rpms  92 k 174 perl-Pod-Escapes  noarch  1:1.07-460.el9  rhe\ 175 l-9-for-x86_64-appstream-beta-rpms  21 k 176 perl-Pod-Perldoc

noarch 3.28.01-461.el9 rhe\ 177 l-9-for-x86_64-appstream-beta-rpms 91 k 178 perl-Pod-Simple noarch 1:3.42-4.el9 rhe\ 179 l-9-for-x86_64-appstream-beta-rpms 228 k 180 perl-Pod-Usage noarch 4:2.01-4.el9 rhe\ 181 l-9-for-x86_64-appstream-beta-rpms 43 k 182 perl-Scalar-List-Utils x86_64 4:1.56-461.el9 rhe\ 183 l-9-for-x86_64-appstream-beta-rpms 76 k 184 perl-SelectSaver noarch 1.02-479.el9 rhe\ 185 l-9-for-x86_64-appstream-beta-rpms 21 k 186 perl-Socket x86_64 4:2.031-4.el9 rhe\ 187 l-9-for-x86_64-appstream-beta-rpms 58 k 188 perl-Storable x86_64 1:3.21-460.el9 rhe\ 189 l-9-for-x86_64-appstream-beta-rpms 97 k 190 perl-Symbol noarch 1.08-479.el9 rhe\ 191 l-9-for-x86_64-appstream-beta-rpms 24 k 192 perl-Term-ANSIColor noarch 5.01-461.el9 rhe\ 193 l-9-for-x86_64-appstream-beta-rpms 50 k 194 perl-Term-Cap noarch 1.17-460.el9 rhe\ 195 l-9-for-x86_64-appstream-beta-rpms 24 k 196 perl-TermReadKey x86_64 2.38-11.el9 rhe\ 197 l-9-for-x86_64-appstream-beta-rpms 40 k 198 perl-Text-ParseWords noarch 3.30-460.el9 rhe\ 199 l-9-for-x86_64-appstream-beta-rpms 18 k 200 perl-Text-Tabs+Wrap noarch 2013.0523-460.el9 rhe\ 201 l-9-for-x86_64-appstream-beta-rpms 25 k 202 perl-Time-Local noarch 2:1.300-7.el9 rhe\ 203 l-9-for-x86_64-appstream-beta-rpms 36 k 204 perl-URI noarch 5.09-3.el9 rhe\ 205 l-9-for-x86_64-appstream-beta-rpms 125 k 206 perl-base noarch 2.27-479.el9 rhe\ 207 l-9-for-x86_64-appstream-beta-rpms 26 k 208 perl-constant noarch 1.33-461.el9 rhe\ 209 l-9-for-x86_64-appstream-beta-rpms 25 k 210 perl-if noarch 0.60.800-479.el9 rhe\ 211 l-9-for-x86_64-appstream-beta-rpms 23 k 212 perl-interpreter x86_64 4:5.32.1-479.el9 rhe\ 213 l-9-for-x86_64-appstream-beta-rpms 83 k 214 perl-lib x86_64 0.65-479.el9 rhe\ 215 l-9-for-x86_64-appstream-beta-rpms 24 k 216 perl-libnet noarch 3.13-4.el9 rhe\ 217 l-9-for-

x86_64-appstream-beta-rpms  134 k 218 perl-libs
x86_64  4:5.32.1-479.el9    rhe\ 219 l-9-for-x86_64-
appstream-beta-rpms  2.2 M 220 perl-mro               x86_64
1.23-479.el9        rhe\ 221 l-9-for-x86_64-appstream-beta-
rpms  39 k 222 perl-overload          noarch  1.31-479.el9
rhe\ 223 l-9-for-x86_64-appstream-beta-rpms  55 k 224 perl-
overloading        noarch  0.02-479.el9        rhe\ 225 l-9-for-
x86_64-appstream-beta-rpms  23 k 226 perl-parent
noarch  1:0.238-460.el9      rhe\ 227 l-9-for-x86_64-
appstream-beta-rpms  15 k 228 perl-podlators          noarch
1:4.14-460.el9      rhe\ 229 l-9-for-x86_64-appstream-beta-
rpms  118 k 230 perl-subs             noarch  1.03-479.el9
rhe\ 231 l-9-for-x86_64-appstream-beta-rpms  21 k 232 perl-
vars              noarch  1.05-479.el9        rhe\ 233 l-9-for-
x86_64-appstream-beta-rpms  22 k 234 python3-babel
noarch  2.9.1-2.el9          rhe\ 235 l-9-for-x86_64-appstream-
beta-rpms  6.0 M 236 python3-cffi           x86_64  1.14.5-
4.el9        rhe\ 237 l-9-for-x86_64-appstream-beta-rpms  257
k 238 python3-cryptography    x86_64  3.4.7-5.el9          rhe\
239 l-9-for-x86_64-appstream-beta-rpms  784 k 240
python3-jinja2          noarch  2.11.3-4.el9        rhe\ 241 l-9-
for-x86_64-appstream-beta-rpms  253 k 242 python3-
markupsafe      x86_64  1.1.1-12.el9        rhe\ 243 l-9-for-
x86_64-appstream-beta-rpms  38 k 244 python3-packaging
    noarch  20.9-4.el9          rhe\ 245 l-9-for-x86_64-
appstream-beta-rpms  81 k 246 python3-ply           noarch
3.11-13.el9          rhe\ 247 l-9-for-x86_64-appstream-beta-
rpms  110 k 248 python3-pycparser      noarch  2.20-5.el9
     rhe\ 249 l-9-for-x86_64-appstream-beta-rpms  139 k 250
python3-pyparsing      noarch  2.4.7-7.1.el9        rhe\ 251 l-9-
for-x86_64-baseos-beta-rpms    154 k 252 python3-pytz
    noarch  2021.1-4.el9        rhe\ 253 l-9-for-x86_64-
appstream-beta-rpms  56 k 254 python3-resolvelib
noarch  0.5.4-5.el9          rhe\ 255 l-9-for-x86_64-appstream-
beta-rpms  38 k 256 sshpass               x86_64  1.09-4.el9
    rhe\ 257 l-9-for-x86_64-appstream-beta-rpms  29 k 258

Installing weak dependencies: 259 perl-IO-Socket-IP noarch 0.41-5.el9 rhe\ 260 l-9-for-x86_64-appstream-beta-rpms 45 k 261 perl-IO-Socket-SSL noarch 2.070-6.el9 rhe\ 262 l-9-for-x86_64-appstream-beta-rpms 217 k 263 perl-Mozilla-CA noarch 20200520-6.el9 rhe\ 264 l-9-for-x86_64-appstream-beta-rpms 14 k 265 perl-NDBM_File x86_64 1.15-479.el9 rhe\ 266 l-9-for-x86_64-appstream-beta-rpms 33 k 267 Transaction Summary 268 ================================================================================\ 269 ================================================================================ 270 Install 79 Packages 271 Total download size: 24 M 272 Installed size: 101 M 273 Is this ok [y/N]: y 274 Downloading Packages: 275 (1/79): perl-IPC-Open3-1.21-479.el9.noarch.rpm \ 276 51 kB/s | 33 kB 00:00 277 (2/79): perl-libnet-3.13-4.el9.noarch.rpm \ 278 193 kB/s | 134 kB 00:00 279 (3/79): python3-pyparsing-2.4.7-7.1.el9.noarch.rpm \ 280 221 kB/s | 154 kB 00:00 281 (4/79): perl-File-Basename-2.85-479.el9.noarch.rpm \ 282 160 kB/s | 27 kB 00:00 283 (5/79): perl-Text-ParseWords-3.30-460.el9.noarch.rpm \ 284 113 kB/s | 18 kB 00:00 285 (6/79): perl-Pod-Perldoc-3.28.01-461.el9.noarch.rpm \ 286 516 kB/s | 91 kB 00:00 287 (7/79): python3-pytz-2021.1-4.el9.noarch.rpm \ 288 283 kB/s | 56 kB 00:00 289 (8/79): perl-Getopt-Long-2.52-4.el9.noarch.rpm \ 290 368 kB/s | 63 kB 00:00 291 (9/79): perl-IO-Socket-SSL-2.070-6.el9.noarch.rpm \ 292 918 kB/s | 217 kB 00:00 293 (10/79): perl-Class-Struct-0.66-479.el9.noarch.rpm \ 294 173 kB/s | 32 kB 00:00 295 (11/79): perl-File-Find-1.37-479.el9.noarch.rpm \ 296 214 kB/s | 35 kB 00:00 297 (12/79): perl-Digest-1.19-4.el9.noarch.rpm \ 298 137 kB/s | 28 kB 00:00 299 (13/79): perl-Mozilla-CA-20200520-

6.el9.noarch.rpm \ 300 77 kB/s | 14 kB 00:00 301 (14/79): perl-overload-1.31-479.el9.noarch.rpm \ 302 309 kB/s | 55 kB 00:00 303 (15/79): perl-Term-Cap-1.17-460.el9.noarch.rpm \ 304 80 kB/s | 24 kB 00:00 305 (16/79): perl-if-0.60.800-479.el9.noarch.rpm \ 306 101 kB/s | 23 kB 00:00 307 (17/79): perl-parent-0.238-460.el9.noarch.rpm \ 308 28 kB/s | 15 kB 00:00 309 (18/79): git-core-doc-2.31.1-2.el9.2.noarch.rpm \ 310 3.8 MB/s | 2.5 MB 00:00 311 (19/79): perl-File-stat-1.09-479.el9.noarch.rpm \ 312 145 kB/s | 27 kB 00:00 313 (20/79): perl-Term-ANSIColor-5.01-461.el9.noarch.rpm \ 314 294 kB/s | 50 kB 00:00 315 (21/79): perl-subs-1.03-479.el9.noarch.rpm \ 316 117 kB/s | 21 kB 00:00 317 (22/79): perl-HTTP-Tiny-0.076-460.el9.noarch.rpm \ 318 327 kB/s | 57 kB 00:00 319 (23/79): perl-SelectSaver-1.02-479.el9.noarch.rpm \ 320 109 kB/s | 21 kB 00:00 321 (24/79): perl-Error-0.17029-7.el9.noarch.rpm \ 322 152 kB/s | 46 kB 00:00 323 (25/79): perl-Exporter-5.74-461.el9.noarch.rpm \ 324 168 kB/s | 33 kB 00:00 325 (26/79): perl-Symbol-1.08-479.el9.noarch.rpm \ 326 61 kB/s | 24 kB 00:00 327 (27/79): perl-overloading-0.02-479.el9.noarch.rpm \ 328 134 kB/s | 23 kB 00:00 329 (28/79): perl-vars-1.05-479.el9.noarch.rpm \ 330 26 kB/s | 22 kB 00:00 331 (29/79): perl-Carp-1.50-460.el9.noarch.rpm \ 332 38 kB/s | 31 kB 00:00 333 (30/79): perl-Fcntl-1.13-479.el9.x86_64.rpm \ 334 181 kB/s | 31 kB 00:00 335 (31/79): perl-File-Temp-0.231.100-4.el9.noarch.rpm \ 336 348 kB/s | 62 kB 00:00 337 (32/79): perl-File-Path-2.18-4.el9.noarch.rpm \ 338 140 kB/s | 37 kB 00:00 339 (33/79): perl-AutoLoader-5.74-479.el9.noarch.rpm \ 340 109 kB/s | 31 kB 00:00 341 (34/79): perl-Pod-Simple-3.42-

4.el9.noarch.rpm \ 342 774 kB/s | 228 kB 00:00 343 (35/79): perl-Git-2.31.1-2.el9.2.noarch.rpm \ 344 164 kB/s | 44 kB 00:00 345 (36/79): perl-Pod-Escapes-1.07-460.el9.noarch.rpm \ 346 33 kB/s | 21 kB 00:00 347 (37/79): python3-ply-3.11-13.el9.noarch.rpm \ 348 160 kB/s | 110 kB 00:00 349 (38/79): perl-IO-Socket-IP-0.41-5.el9.noarch.rpm \ 350 206 kB/s | 45 kB 00:00 351 (39/79): perl-FileHandle-2.03-479.el9.noarch.rpm \ 352 120 kB/s | 25 kB 00:00 353 (40/79): perl-Text-Tabs+Wrap-2013.0523-460.el9.noarch.rpm\ 354 137 kB/s | 25 kB 00:00 355 (41/79): python3-pycparser-2.20-5.el9.noarch.rpm \ 356 778 kB/s | 139 kB 00:00 357 (42/79): perl-constant-1.33-461.el9.noarch.rpm \ 358 105 kB/s | 25 kB 00:00 359 (43/79): perl-URI-5.09-3.el9.noarch.rpm \ 360 445 kB/s | 125 kB 00:00 361 (44/79): python3-jinja2-2.11.3-4.el9.noarch.rpm \ 362 990 kB/s | 253 kB 00:00 363 (45/79): perl-Time-Local-1.300-7.el9.noarch.rpm \ 364 204 kB/s | 36 kB 00:00 365 (46/79): perl-Pod-Usage-2.01-4.el9.noarch.rpm \ 366 103 kB/s | 43 kB 00:00 367 (47/79): python3-resolvelib-0.5.4-5.el9.noarch.rpm \ 368 22 kB/s | 38 kB 00:01 369 (48/79): perl-base-2.27-479.el9.noarch.rpm \ 370 41 kB/s | 26 kB 00:00 371 (49/79): perl-podlators-4.14-460.el9.noarch.rpm \ 372 407 kB/s | 118 kB 00:00 373 (50/79): perl-Getopt-Std-1.12-479.el9.noarch.rpm \ 374 142 kB/s | 25 kB 00:00 375 (51/79): perl-mro-1.23-479.el9.x86_64.rpm \ 376 158 kB/s | 39 kB 00:00 377 (52/79): perl-Storable-3.21-460.el9.x86_64.rpm \ 378 525 kB/s | 97 kB 00:00 379 (53/79): python3-babel-2.9.1-2.el9.noarch.rpm \ 380 4.3 MB/s | 6.0 MB 00:01 381 (54/79): perl-IO-1.43-479.el9.x86_64.rpm \ 382 623 kB/s | 102 kB 00:00 383 (55/79):

perl-Scalar-List-Utils-1.56-461.el9.x86_64.rpm  \ 384 423 kB/s |  76 kB    00:00    385 (56/79): perl-Net-SSLeay-1.90-8.el9.x86_64.rpm          \ 386          1.7 MB/s | 377 kB 00:00    387 (57/79): perl-interpreter-5.32.1-479.el9.x86_64.rpm      \ 388          376 kB/s |  83 kB 00:00    389 (58/79): python3-markupsafe-1.1.1-12.el9.x86_64.rpm      \ 390          220 kB/s |  38 kB    00:00  391 (59/79): perl-Errno-1.30-479.el9.x86_64.rpm             \ 392          129 kB/s |  24 kB    00:00    393 (60/79): perl-Digest-MD5-2.58-4.el9.x86_64.rpm          \ 394          238 kB/s |  39 kB    00:00    395 (61/79): perl-lib-0.65-479.el9.x86_64.rpm               \ 396          69 kB/s |  24 kB 00:00    397 (62/79): python3-packaging-20.9-4.el9.noarch.rpm        \ 398          46 kB/s |  81 kB    00:01 399 (63/79): perl-TermReadKey-2.38-11.el9.x86_64.rpm \ 400          203 kB/s |  40 kB    00:00    401 (64/79): perl-Socket-2.031-4.el9.x86_64.rpm             \ 402          312 kB/s |  58 kB    00:00    403 (65/79): perl-NDBM_File-1.15-479.el9.x86_64.rpm          \ 404          81 kB/s |  33 kB 00:00    405 (66/79): perl-Encode-3.08-462.el9.x86_64.rpm         \ 406          2.5 MB/s | 1.7 MB    00:00    407 (67/79): sshpass-1.09-4.el9.x86_64.rpm                  \ 408          19 kB/s |  29 kB    00:01    409 (68/79): perl-libs-5.32.1-479.el9.x86_64.rpm           \ 410          3.0 MB/s | 2.2 MB 00:00    411 (69/79): perl-B-1.80-479.el9.x86_64.rpm      \ 412          768 kB/s | 193 kB    00:00    413 (70/79): perl-PathTools-3.78-461.el9.x86_64.rpm          \ 414 504 kB/s |  92 kB    00:00    415 (71/79): perl-POSIX-1.94-479.el9.x86_64.rpm             \ 416          158 kB/s | 107 kB 00:00    417 (72/79): perl-MIME-Base64-3.16-4.el9.x86_64.rpm          \ 418          90 kB/s |  34 kB    00:00  419 (73/79): perl-Data-Dumper-2.174-462.el9.x86_64.rpm    \ 420          222 kB/s |  58 kB    00:00    421 (74/79): git-core-2.31.1-2.el9.2.x86_64.rpm             \ 422          3.3 MB/s | 3.6 MB    00:01    423 (75/79): git-2.31.1-2.el9.2.x86_64.rpm                  \ 424          656 kB/s | 128

kB 00:00 425 (76/79): perl-DynaLoader-1.47-479.el9.x86_64.rpm \ 426 213 kB/s | 35 kB 00:00 427 (77/79): ansible-core-2.12.1-1.el9.x86_64.rpm \ 428 3.7 MB/s | 2.4 MB 00:00 429 (78/79): python3-cffi-1.14.5-4.el9.x86_64.rpm \ 430 127 kB/s | 257 kB 00:02 431 (79/79): python3-cryptography-3.4.7-5.el9.x86_64.rpm \ 432 367 kB/s | 784 kB 00:02 433 ----------\ 434 ---------- 435 Total \ 436 2.0 MB/s | 24 MB 00:12 437 Red Hat Enterprise Linux 9 for x86_64 - BaseOS Beta (RPMs\ 438 ) 1.3 MB/s | 1.6 kB 00:00 439 Importing GPG key 0xF21541EB: 440 Userid : "Red Hat, Inc. (beta key 2) <security@redha\ 441 t.com>" 442 Fingerprint: B08B 659E E86A F623 BC90 E8DB 938A 80CA F21\ 443 5 41EB 444 From : /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-beta 445 Is this ok [y/N]: y 446 Key imported successfully 447 Red Hat Enterprise Linux 9 for x86_64 - BaseOS Beta (RPMs\ 448 ) 4.9 MB/s | 5.0 kB 00:00 449 Importing GPG key 0xFD431D51: 450 Userid : "Red Hat, Inc. (release key 2) <security@re\ 451 dhat.com>" 452 Fingerprint: 567E 347A D004 4ADE 55BA 8A5F 199E 2F91 FD4\ 453 3 1D51 454 From : /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release 455 Is this ok [y/N]: y 456 Key imported successfully 457 Importing GPG key 0xD4082792: 458 Userid : "Red Hat, Inc. (auxiliary key) <security@re\ 459 dhat.com>" 460 Fingerprint: 6A6A A7C9 7C88 90AE C6AE BFE2 F76F 66C3 D40\ 461 8 2792 462 From : /etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release 463 Is this ok [y/N]: y 464 Key imported successfully 465 Running transaction check 466 Transaction check succeeded. 467 Running transaction test 468 Transaction test succeeded. 469 Running transaction 470 Preparing : \ 471 1/1 472 Installing : git-core-2.31.1-2.el9.2.x86_64 \ 473 1/79 474 Installing : git-core-doc-2.31.1-2.el9.2.noarch \ 475

2/79 476 Installing : perl-Digest-1.19-4.el9.noarch \ 477 3/79 478 Installing : perl-FileHandle-2.03-479.el9.noarch \ 479 4/79 480 Installing : perl-Digest-MD5-2.58-4.el9.x86_64 \ 481 5/79 482 Installing : perl-B-1.80-479.el9.x86_64 \ 483 6/79 484 Installing : perl-AutoLoader-5.74-479.el9.noarch \ 485 7/79 486 Installing : perl-Data-Dumper-2.174-462.el9.x86_6\ 487 4 8/79 488 Installing : perl-libnet-3.13-4.el9.noarch \ 489 9/79 490 Installing : perl-base-2.27-479.el9.noarch \ 491 10/79 492 Installing : perl-Net-SSLeay-1.90-8.el9.x86_64 \ 493 11/79 494 Installing : perl-URI-5.09-3.el9.noarch \ 495 12/79 496 Installing : perl-if-0.60.800-479.el9.noarch \ 497 13/79 498 Installing : perl-Pod-Escapes-1:1.07-460.el9.noar\ 499 ch 14/79 500 Installing : perl-Text-Tabs+Wrap-2013.0523-460.el\ 501 9.noarch 15/79 502 Installing : perl-Time-Local-2:1.300-7.el9.noarch\ 503 16/79 504 Installing : perl-Mozilla-CA-20200520-6.el9.noarc\ 505 h 17/79 506 Installing : perl-File-Path-2.18-4.el9.noarch \ 507 18/79 508 Installing : perl-IO-Socket-IP-0.41-5.el9.noarch \ 509 19/79 510 Installing : perl-IO-Socket-SSL-2.070-6.el9.noarc\ 511 h 20/79 512 Installing : perl-subs-1.03-479.el9.noarch \ 513 21/79 514 Installing : perl-Class-Struct-0.66-479.el9.noarc\ 515 h 22/79 516 Installing : perl-Term-ANSIColor-5.01-461.el9.noa\ 517 rch 23/79 518 Installing : perl-Term-Cap-1.17-460.el9.noarch \ 519 24/79 520 Installing : perl-POSIX-1.94-479.el9.x86_64 \ 521 25/79 522 Installing : perl-Pod-

Simple-1:3.42-4.el9.noarch \ 523
26/79 524 Installing : perl-IPC-Open3-1.21-
479.el9.noarch \ 525 27/79 526
Installing : perl-File-Temp-1:0.231.100-4.el9.noa\ 527 rch
28/79 528 Installing : perl-HTTP-Tiny-
0.076-460.el9.noarch \ 529 29/79 530
Installing : perl-SelectSaver-1.02-479.el9.noarch\ 531
30/79 532 Installing : perl-Symbol-
1.08-479.el9.noarch \ 533 31/79
534 Installing : perl-File-stat-1.09-479.el9.noarch \ 535
32/79 536 Installing : perl-Socket-
4:2.031-4.el9.x86_64 \ 537 33/79
538 Installing : perl-podlators-1:4.14-460.el9.noarch\
539 34/79 540 Installing : perl-
Pod-Perldoc-3.28.01-461.el9.noa\ 541 rch
35/79 542 Installing : perl-Text-ParseWords-3.30-
460.el9.no\ 543 arch 36/79 544
Installing : perl-overloading-0.02-479.el9.noarch\ 545
37/79 546 Installing : perl-Fcntl-1.13-
479.el9.x86_64 \ 547 38/79 548
Installing : perl-mro-1.23-479.el9.x86_64 \ 549
39/79 550 Installing : perl-IO-1.43-
479.el9.x86_64 \ 551 40/79 552
Installing : perl-Pod-Usage-4:2.01-4.el9.noarch \ 553
41/79 554 Installing : perl-parent-
1:0.238-460.el9.noarch \ 555 42/79
556 Installing : perl-File-Basename-2.85-479.el9.noar\
557 ch 43/79 558 Installing : perl-
vars-1.05-479.el9.noarch \ 559
44/79 560 Installing : perl-constant-1.33-
461.el9.noarch \ 561 45/79 562
Installing : perl-Getopt-Std-1.12-479.el9.noarch \ 563
46/79 564 Installing : perl-overload-
1.31-479.el9.noarch \ 565 47/79 566
Installing : perl-Scalar-List-Utils-4:1.56-461.el\ 567
9.x86_64 48/79 568 Installing : perl-

Errno-1.30-479.el9.x86_64 \ 569
49/79 570 Installing : perl-Storable-1:3.21-
460.el9.x86_64 \ 571 50/79 572
Installing : perl-MIME-Base64-3.16-4.el9.x86_64 \ 573
51/79 574 Installing : perl-Getopt-
Long-1:2.52-4.el9.noarch\ 575 52/79
576 Installing : perl-Exporter-5.74-461.el9.noarch \ 577
53/79 578 Installing : perl-Carp-
1.50-460.el9.noarch \ 579 54/79
580 Installing : perl-NDBM_File-1.15-479.el9.x86_64 \
581 55/79 582 Installing : perl-
PathTools-3.78-461.el9.x86_64 \ 583
56/79 584 Installing : perl-Encode-4:3.08-
462.el9.x86_64 \ 585 57/79 586
Installing : perl-libs-4:5.32.1-479.el9.x86_64 \ 587
58/79 588 Installing : perl-interpreter-
4:5.32.1-479.el9.x8\ 589 6_64 59/79 590
Installing : perl-File-Find-1.37-479.el9.noarch \ 591
60/79 592 Installing : perl-Error-
1:0.17029-7.el9.noarch \ 593 61/79
594 Installing : perl-lib-0.65-479.el9.x86_64 \ 595
62/79 596 Installing : perl-
DynaLoader-1.47-479.el9.x86_64 \ 597
63/79 598 Installing : perl-TermReadKey-2.38-
11.el9.x86_64 \ 599 64/79 600
Installing : perl-Git-2.31.1-2.el9.2.noarch \ 601
65/79 602 Installing : git-2.31.1-
2.el9.2.x86_64 \ 603 66/79 604
Installing : sshpass-1.09-4.el9.x86_64 \ 605
67/79 606 Installing : python3-
markupsafe-1.1.1-12.el9.x86_\ 607 64
68/79 608 Installing : python3-resolvelib-0.5.4-
5.el9.noarc\ 609 h 69/79 610
Installing : python3-ply-3.11-13.el9.noarch \ 611
70/79 612 Installing : python3-
pycparser-2.20-5.el9.noarch \ 613

71/79 614  Installing      : python3-cffi-1.14.5-4.el9.x86_64
\ 615                                  72/79 616  Installing      :
python3-cryptography-3.4.7-5.el9.x86\ 617 _64
        73/79 618  Installing      : python3-pytz-2021.1-
4.el9.noarch    \ 619                                  74/79 620
Installing      : python3-babel-2.9.1-2.el9.noarch    \ 621
                      75/79 622  Installing      : python3-jinja2-
2.11.3-4.el9.noarch  \ 623                                  76/79 624
Installing      : python3-pyparsing-2.4.7-7.1.el9.noar\ 625 ch
                      77/79 626  Installing      : python3-
packaging-20.9-4.el9.noarch \ 627
78/79 628  Installing      : ansible-core-2.12.1-1.el9.x86_64
  \ 629                                  79/79 630  Running scriptlet:
ansible-core-2.12.1-1.el9.x86_64    \ 631
   79/79 632  Verifying       : python3-pyparsing-2.4.7-
7.1.el9.noar\ 633 ch                                  1/79 634
Verifying       : perl-libnet-3.13-4.el9.noarch      \ 635
                    2/79 636  Verifying       : perl-IPC-Open3-
1.21-479.el9.noarch  \ 637                                  3/79 638
Verifying       : perl-File-Basename-2.85-479.el9.noar\ 639
ch                                4/79 640  Verifying       : perl-Text-
ParseWords-3.30-460.el9.no\ 641 arch
5/79 642  Verifying       : perl-Pod-Perldoc-3.28.01-
461.el9.noa\ 643 rch                                  6/79 644
Verifying       : python3-pytz-2021.1-4.el9.noarch    \ 645
                      7/79 646  Verifying       : perl-IO-Socket-
SSL-2.070-6.el9.noarc\ 647 h                                  8/79 648
  Verifying       : perl-Getopt-Long-1:2.52-4.el9.noarch\ 649
                      9/79 650  Verifying       : perl-Class-
Struct-0.66-479.el9.noarc\ 651 h                                  10/79
652  Verifying       : perl-File-Find-1.37-479.el9.noarch  \ 653
                      11/79 654  Verifying       : perl-
Digest-1.19-4.el9.noarch      \ 655
12/79 656  Verifying       : perl-Mozilla-CA-20200520-
6.el9.noarc\ 657 h                                  13/79 658
Verifying       : perl-overload-1.31-479.el9.noarch  \ 659

14/79 660 Verifying : git-core-doc-2.31.1-2.el9.2.noarch \ 661 15/79 662 Verifying : perl-Term-Cap-1.17-460.el9.noarch \ 663 16/79 664 Verifying : perl-parent-1:0.238-460.el9.noarch \ 665 17/79 666 Verifying : perl-if-0.60.800-479.el9.noarch \ 667 18/79 668 Verifying : perl-File-stat-1.09-479.el9.noarch \ 669 19/79 670 Verifying : perl-Term-ANSIColor-5.01-461.el9.noa\ 671 rch 20/79 672 Verifying : perl-subs-1.03-479.el9.noarch \ 673 21/79 674 Verifying : perl-Error-1:0.17029-7.el9.noarch \ 675 22/79 676 Verifying : perl-HTTP-Tiny-0.076-460.el9.noarch \ 677 23/79 678 Verifying : perl-SelectSaver-1.02-479.el9.noarch\ 679 24/79 680 Verifying : perl-Exporter-5.74-461.el9.noarch \ 681 25/79 682 Verifying : perl-vars-1.05-479.el9.noarch \ 683 26/79 684 Verifying : perl-Carp-1.50-460.el9.noarch \ 685 27/79 686 Verifying : perl-Symbol-1.08-479.el9.noarch \ 687 28/79 688 Verifying : perl-overloading-0.02-479.el9.noarch\ 689 29/79 690 Verifying : perl-Fcntl-1.13-479.el9.x86_64 \ 691 30/79 692 Verifying : perl-AutoLoader-5.74-479.el9.noarch \ 693 31/79 694 Verifying : perl-File-Temp-1:0.231.100-4.el9.noa\ 695 rch 32/79 696 Verifying : perl-File-Path-2.18-4.el9.noarch \ 697 33/79 698 Verifying : perl-Pod-Simple-1:3.42-4.el9.noarch \ 699 34/79 700 Verifying : perl-Pod-Escapes-1:1.07-460.el9.noar\ 701 ch 35/79 702 Verifying : python3-ply-3.11-13.el9.noarch \ 703 36/79 704 Verifying : perl-Git-2.31.1-2.el9.2.noarch \ 705

37/79 706 Verifying : python3-resolvelib-0.5.4-5.el9.noarc\ 707 h
38/79 708 Verifying : perl-IO-Socket-IP-0.41-5.el9.noarch \ 709 39/79 710
Verifying : perl-FileHandle-2.03-479.el9.noarch \ 711
40/79 712 Verifying : perl-Text-Tabs+Wrap-2013.0523-460.el\ 713 9.noarch
41/79 714 Verifying : python3-pycparser-2.20-5.el9.noarch \ 715 42/79 716
Verifying : perl-constant-1.33-461.el9.noarch \ 717
43/79 718 Verifying : perl-URI-5.09-3.el9.noarch \ 719 44/79 720
Verifying : python3-jinja2-2.11.3-4.el9.noarch \ 721
45/79 722 Verifying : perl-Pod-Usage-4:2.01-4.el9.noarch \ 723
46/79 724 Verifying : perl-Time-Local-2:1.300-7.el9.noarch\ 725 47/79 726
Verifying : python3-babel-2.9.1-2.el9.noarch \ 727
48/79 728 Verifying : perl-base-2.27-479.el9.noarch \ 729 49/79
730 Verifying : perl-podlators-1:4.14-460.el9.noarch\
731 50/79 732 Verifying : perl-Getopt-Std-1.12-479.el9.noarch \ 733
51/79 734 Verifying : python3-packaging-20.9-4.el9.noarch \ 735 52/79 736
Verifying : perl-mro-1.23-479.el9.x86_64 \ 737
53/79 738 Verifying : perl-Storable-1:3.21-460.el9.x86_64 \ 739 54/79
740 Verifying : perl-IO-1.43-479.el9.x86_64 \ 741
55/79 742 Verifying : perl-Scalar-List-Utils-4:1.56-461.el\ 743 9.x86_64
56/79 744 Verifying : perl-Net-SSLeay-1.90-8.el9.x86_64 \ 745 57/79 746
Verifying : perl-interpreter-4:5.32.1-479.el9.x8\ 747
6_64 58/79 748 Verifying :
python3-markupsafe-1.1.1-12.el9.x86_\ 749 64

59/79 750 Verifying : perl-Errno-1.30-479.el9.x86_64 \ 751 60/79 752 Verifying : perl-Digest-MD5-2.58-4.el9.x86_64 \ 753 61/79 754 Verifying : sshpass-1.09-4.el9.x86_64 \ 755 62/79 756 Verifying : perl-lib-0.65-479.el9.x86_64 \ 757 63/79 758 Verifying : perl-TermReadKey-2.38-11.el9.x86_64 \ 759 64/79 760 Verifying : perl-Socket-4:2.031-4.el9.x86_64 \ 761 65/79 762 Verifying : perl-NDBM_File-1.15-479.el9.x86_64 \ 763 66/79 764 Verifying : perl-Encode-4:3.08-462.el9.x86_64 \ 765 67/79 766 Verifying : perl-libs-4:5.32.1-479.el9.x86_64 \ 767 68/79 768 Verifying : perl-POSIX-1.94-479.el9.x86_64 \ 769 69/79 770 Verifying : perl-B-1.80-479.el9.x86_64 \ 771 70/79 772 Verifying : git-core-2.31.1-2.el9.2.x86_64 \ 773 71/79 774 Verifying : perl-PathTools-3.78-461.el9.x86_64 \ 775 72/79 776 Verifying : perl-MIME-Base64-3.16-4.el9.x86_64 \ 777 73/79 778 Verifying : python3-cffi-1.14.5-4.el9.x86_64 \ 779 74/79 780 Verifying : perl-Data-Dumper-2.174-462.el9.x86_6\ 781 4 75/79 782 Verifying : git-2.31.1-2.el9.2.x86_64 \ 783 76/79 784 Verifying : python3-cryptography-3.4.7-5.el9.x86\ 785 _64 77/79 786 Verifying : perl-DynaLoader-1.47-479.el9.x86_64 \ 787 78/79 788 Verifying : ansible-core-2.12.1-1.el9.x86_64 \ 789 79/79 790 Installed products updated. 791 Installed: 792 ansible-core-2.12.1-1.el9.x86_64 git-2.\ 793 31.1-2.el9.2.x86_64 794 git-core-2.31.1-2.el9.2.x86_64 git-co\ 795 re-doc-2.31.1-

2.el9.2.noarch 796 perl-AutoLoader-5.74-479.el9.noarch perl-B\ 797 -1.80-479.el9.x86_64 798 perl-Carp-1.50-460.el9.noarch perl-C\ 799 lass-Struct-0.66-479.el9.noarch 800 perl-Data-Dumper-2.174-462.el9.x86_64 perl-D\ 801 igest-1.19-4.el9.noarch 802 perl-Digest-MD5-2.58-4.el9.x86_64 perl-D\ 803 ynaLoader-1.47-479.el9.x86_64 804 perl-Encode-4:3.08-462.el9.x86_64 perl-E\ 805 rrno-1.30-479.el9.x86_64 806 perl-Error-1:0.17029-7.el9.noarch perl-E\ 807 xporter-5.74-461.el9.noarch 808 perl-Fcntl-1.13-479.el9.x86_64 perl-F\ 809 ile-Basename-2.85-479.el9.noarch 810 perl-File-Find-1.37-479.el9.noarch perl-F\ 811 ile-Path-2.18-4.el9.noarch 812 perl-File-Temp-1:0.231.100-4.el9.noarch perl-F\ 813 ile-stat-1.09-479.el9.noarch 814 perl-FileHandle-2.03-479.el9.noarch perl-G\ 815 etopt-Long-1:2.52-4.el9.noarch 816 perl-Getopt-Std-1.12-479.el9.noarch perl-G\ 817 it-2.31.1-2.el9.2.noarch 818 perl-HTTP-Tiny-0.076-460.el9.noarch perl-I\ 819 O-1.43-479.el9.x86_64 820 perl-IO-Socket-IP-0.41-5.el9.noarch perl-I\ 821 O-Socket-SSL-2.070-6.el9.noarch 822 perl-IPC-Open3-1.21-479.el9.noarch perl-M\ 823 IME-Base64-3.16-4.el9.x86_64 824 perl-Mozilla-CA-20200520-6.el9.noarch perl-N\ 825 DBM_File-1.15-479.el9.x86_64 826 perl-Net-SSLeay-1.90-8.el9.x86_64 perl-P\ 827 OSIX-1.94-479.el9.x86_64 828 perl-PathTools-3.78-461.el9.x86_64 perl-P\ 829 od-Escapes-1:1.07-460.el9.noarch 830 perl-Pod-Perldoc-3.28.01-461.el9.noarch perl-P\ 831 od-Simple-1:3.42-4.el9.noarch 832 perl-Pod-Usage-4:2.01-4.el9.noarch perl-S\ 833 calar-List-Utils-4:1.56-461.el9.x86_64 834 perl-SelectSaver-1.02-

479.el9.noarch perl-S\ 835 ocket-4:2.031-
4.el9.x86_64 836 perl-Storable-1:3.21-
460.el9.x86_64 perl-S\ 837 ymbol-1.08-
479.el9.noarch 838 perl-Term-ANSIColor-5.01-
461.el9.noarch perl-T\ 839 erm-Cap-1.17-
460.el9.noarch 840 perl-TermReadKey-2.38-
11.el9.x86_64 perl-T\ 841 ext-ParseWords-3.30-
460.el9.noarch 842 perl-Text-Tabs+Wrap-2013.0523-
460.el9.noarch perl-T\ 843 ime-Local-2:1.300-7.el9.noarch
844 perl-URI-5.09-3.el9.noarch perl-b\
845 ase-2.27-479.el9.noarch 846 perl-constant-
1.33-461.el9.noarch perl-i\ 847 f-0.60.800-
479.el9.noarch 848 perl-interpreter-4:5.32.1-
479.el9.x86_64 perl-l\ 849 ib-0.65-479.el9.x86_64
850 perl-libnet-3.13-4.el9.noarch perl-l\
851 ibs-4:5.32.1-479.el9.x86_64 852 perl-mro-
1.23-479.el9.x86_64 perl-o\ 853 verload-1.31-
479.el9.noarch 854 perl-overloading-0.02-
479.el9.noarch perl-p\ 855 arent-1:0.238-
460.el9.noarch 856 perl-podlators-1:4.14-
460.el9.noarch perl-s\ 857 ubs-1.03-479.el9.noarch
858 perl-vars-1.05-479.el9.noarch
python\ 859 3-babel-2.9.1-2.el9.noarch 860
python3-cffi-1.14.5-4.el9.x86_64 python\ 861 3-
cryptography-3.4.7-5.el9.x86_64 862 python3-jinja2-
2.11.3-4.el9.noarch python\ 863 3-markupsafe-
1.1.1-12.el9.x86_64 864 python3-packaging-20.9-
4.el9.noarch python\ 865 3-ply-3.11-13.el9.noarch
866 python3-pycparser-2.20-5.el9.noarch
python\ 867 3-pyparsing-2.4.7-7.1.el9.noarch 868
python3-pytz-2021.1-4.el9.noarch python\ 869 3-
resolvelib-0.5.4-5.el9.noarch 870 sshpass-1.09-
4.el9.x86_64 871 Complete! 872 [root@localhost devops]#
ansible --version 873 ansible [core 2.12.1] 874 config file =
/etc/ansible/ansible.cfg 875 configured module search path
= ['/root/.ansible/plugin\ 876 s/modules',

'/usr/share/ansible/plugins/modules'] 877 ansible python module location = /usr/lib/python3.9/sit\ 878 e-packages/ansible 879 ansible collection location = /root/.ansible/collection\ 880 s:/usr/share/ansible/collections 881 executable location = /bin/ansible 882 python version = 3.9.9 (main, Nov 22 2021, 00:00:00) [G\ 883 CC 11.2.1 20211019 (Red Hat 11.2.1-6)] 884 jinja version = 2.11.3 885 libyaml = True 886 [root@localhost devops]# dnf info ansible-core 887 Updating Subscription Management repositories. 888 Last metadata expiration check: 1:42:32 ago on Fri 21 Jan\ 889 2022 04:15:49 PM CET. 890 Installed Packages 891 Name : ansible-core 892 Version : 2.12.1 893 Release : 1.el9 894 Architecture : x86_64 895 Size : 9.3 M 896 Source : ansible-core-2.12.1-1.el9.src.rpm 897 Repository : @System 898 From repo : rhel-9-for-x86_64-appstream-beta-rpms 899 Summary : SSH-based configuration management, deploy\ 900 ment, and task execution system 901 URL : http://ansible.com 902 License : GPLv3+ 903 Description : Ansible is a radically simple model-driven\ 904 configuration management, 905 : multi-node deployment, and remote task exe\ 906 cution system. Ansible works 907 : over SSH and does not require any software\ 908 or daemons to be installed 909 : on remote nodes. Extension modules can be \ 910 written in any language and 911 : are transferred to managed machines automa\ 912 tically. 913 [root@localhost devops]#

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## before execution

1 # dnf info ansible-core 2 Updating Subscription Management repositories. 3 Last metadata expiration check: 1:41:06 ago on Fri 21 Jan\ 4 2022 04:15:49 PM CET. 5 Available Packages 6 Name : ansible-core 7 Version : 2.12.1 8 Release : 1.el9 9 Architecture : x86_64 10 Size : 2.4 M 11 Source : ansible-core-2.12.1-1.el9.src.rpm 12 Repository : rhel-9-for-x86_64-appstream-beta-rpms 13 Summary : SSH-based configuration management, deploy\ 14 ment, and task execution system 15 URL : http://ansible.com 16 License : GPLv3+ 17 Description : Ansible is a radically simple model-driven\ 18 configuration management, 19 : multi-node deployment, and remote task exe\ 20 cution system. Ansible works 21 : over SSH and does not require any software\ 22 or daemons to be installed 23 : on remote nodes. Extension modules can be \ 24 written in any language and 25 : are transferred to managed machines automa\ 26 tically. 27 [root@localhost devops]#

## after execution

1 # dnf info ansible-core 2 Updating Subscription Management repositories. 3 Last metadata expiration

check: 1:42:32 ago on Fri 21 Jan\ 4 2022 04:15:49 PM CET. 5 Installed Packages 6 Name : ansible-core 7 Version : 2.12.1 8 Release : 1.el9 9 Architecture : x86_64 10 Size : 9.3 M 11 Source : ansible-core-2.12.1-1.el9.src.rpm 12 Repository : @System 13 From repo : rhel-9-for-x86_64-appstream-beta-rpms 14 Summary : SSH-based configuration management, deploy\ 15 ment, and task execution system 16 URL : http://ansible.com 17 License : GPLv3+ 18 Description : Ansible is a radically simple model-driven\ 19 configuration management, 20 : multi-node deployment, and remote task exe\ 21 cution system. Ansible works 22 : over SSH and does not require any software\ 23 or daemons to be installed 24 : on remote nodes. Extension modules can be \ 25 written in any language and 26 : are transferred to managed machines automa\ 27 tically. 28 [root@localhost devops]#

# How to install Ansible in Amazon Linux 2 (AWS EC2)

**How to install Ansible in Amazon Linux 2 using the Amazon Extras Library “amazon-linux-extras” and the EPEL (Extra Packages for Enterprise Linux) repositories.**

**The easier way to install and maintain Ansible inside Amazon Linux 2 are using the Amazon Extras Library and EPEL repositories.**

## How to install Ansible in Amazon Linux 2

**ansible2 topic in Extras Library repository**

**ansible in Extra Packages for Enterprise Linux (EPEL) additional packages for Enterprise Linux: Red Hat Enterprise Linux (RHEL), Rocky Linux and Scientific Linux (SL), Oracle Linux (OL), and Amazon Linux**

**The good news is that Ansible is included in the Extras Library included in Amazon Linux 2 repository using the “amazon-linux-extras” command.**

**Another option is to install and maintain Ansible inside Amazon Linux 2 using the Extra Packages for Enterprise Linux (EPEL) additional repository.**

**This repository is maintained by the Fedora Special Interest Group and manages a high-quality set of**

# additional packages for Enterprise Linux: Red Hat Enterprise Linux (RHEL), Rocky Linux and Scientific Linux (SL), Oracle Linux (OL), and Amazon Linux.

## Links

Amazon Linux 2

How do I enable the EPEL repository for my Amazon EC2 instance running CentOS, RHEL, or Amazon Linux?

Extras library (Amazon Linux 2)

Extra Packages for Enterprise Linux (EPEL)

## demo

# How to install Ansible in Amazon Linux (EC2) 2 using the Amazon Extras Library and EPEL repositories.

# Amazon Extras Library code

## Install-Ansible-Amazon Linux2-Amazon Extras Library.sh

---

1 #!/bin/bash 2 $ sudo yum update -y 3 $ sudo amazon-linux-extras install ansible2 -y 4 $ ansible --version

---

# Amazon Extras Library execution

---

1 $ ssh -i key.pem ec2-user@34.241.249.206 2 3 __| __|_ ) 4 _| ( / Amazon Linux 2 AMI 5 ___|___|___| 6 7 https://aws.amazon.com/amazon-linux-2/ 8 -bash: warning: setlocale: LC_CTYPE: cannot change locale\ 9 (UTF-8): No such file or directory 10 [ec2-user@ip-172-31-36-49 ~]$ sudo su 11 [root@ip-172-31-36-49 ec2-

user]# cat /etc/image-id 12 image_name="amzn2-ami-kernel-5.10-hvm" 13 image_version="2" 14 image_arch="x86_64" 15 image_file="amzn2-ami-kernel-5.10-hvm-2.0.20211201.0-x86_\ 16 64.xfs.gpt" 17 image_stamp="7143-c998" 18 image_date="20211201182203" 19 recipe_name="amzn2 ami" 20 recipe_id="d46c60d3-613d-8f76-a3cd-4476-405e-a3e2-088c722\ 21 9" 22 [root@ip-172-31-36-49 ec2-user]# cat /etc/os-release 23 NAME="Amazon Linux" 24 VERSION="2" 25 ID="amzn" 26 ID_LIKE="centos rhel fedora" 27 VERSION_ID="2" 28 PRETTY_NAME="Amazon Linux 2" 29 ANSI_COLOR="0;33" 30 CPE_NAME="cpe:2.3:o:amazon:amazon_linux:2" 31 HOME_URL="https://amazonlinux.com/" 32 [root@ip-172-31-36-49 ec2-user]# cat /etc/os-release 33 NAME="Amazon Linux" 34 VERSION="2" 35 ID="amzn" 36 ID_LIKE="centos rhel fedora" 37 VERSION_ID="2" 38 PRETTY_NAME="Amazon Linux 2" 39 ANSI_COLOR="0;33" 40 CPE_NAME="cpe:2.3:o:amazon:amazon_linux:2" 41 HOME_URL="https://amazonlinux.com/" 42 [root@ip-172-31-36-49 ec2-user]# yum update 43 Failed to set locale, defaulting to C 44 Loaded plugins: extras_suggestions, langpacks, priorities\ 45 , update-motd 46 amzn2-core \ 47 | 3.7 kB 00:00:00 48 amzn2extra-docker \ 49 | 3.0 kB 00:00:00 50 amzn2extra-kernel-5.10 \ 51 | 3.0 kB 00:00:00 52 No packages marked for update 53 [root@ip-172-31-36-49 ec2-user]# amazon-linux-extras inst\ 54 all ansible2 55 Installing ansible 56 Failed to set locale, defaulting to C 57 Loaded plugins: extras_suggestions, langpacks, priorities\ 58 , update-motd 59 Cleaning repos: amzn2-core amzn2extra-ansible2 amzn2extra\ 60 -docker amzn2extra-kernel-5.10 61 17 metadata files removed 62 6 sqlite files removed 63 0 metadata files removed 64 Failed to set locale, defaulting to C 65 Loaded plugins: extras_suggestions, langpacks,

priorities\ 66 , update-motd 67 amzn2-core
\ 68 | 3.7 kB 00:00:00 69
amzn2extra-ansible2 \ 70
| 3.0 kB 00:00:00 71 amzn2extra-docker
\ 72 | 3.0 kB 00:00:00 73 amzn2extra-
kernel-5.10 \ 74 | 3.0 kB
00:00:00 75 (1/9): amzn2-core/2/x86_64/group_gz
\ 76 | 2.5 kB 00:00:00 77 (2/9): amzn2-
core/2/x86_64/updateinfo \ 78 | 424
kB 00:00:00 79 (3/9): amzn2extra-
docker/2/x86_64/primary_db \ 80 | 86 kB
00:00:00 81 (4/9): amzn2extra-kernel-
5.10/2/x86_64/updateinfo \ 82 | 76 B
00:00:00 83 (5/9): amzn2extra-kernel-
5.10/2/x86_64/primary_db \ 84 | 5.3 MB
00:00:00 85 (6/9): amzn2extra-
ansible2/2/x86_64/primary_db \ 86 | 39 kB
00:00:00 87 (7/9): amzn2extra-
docker/2/x86_64/updateinfo \ 88 | 4.7 kB
00:00:00 89 (8/9): amzn2extra-
ansible2/2/x86_64/updateinfo \ 90 | 76 B
00:00:00 91 (9/9): amzn2-core/2/x86_64/primary_db
\ 92 | 58 MB 00:00:00 93 Resolving
Dependencies 94 --> Running transaction check 95 --->
Package ansible.noarch 0:2.9.23-1.amzn2 will be inst\ 96
alled 97 --> Processing Dependency: sshpass for package:
ansible-2\ 98 .9.23-1.amzn2.noarch 99 --> Processing
Dependency: python-paramiko for package: a\ 100 nsible-
2.9.23-1.amzn2.noarch 101 --> Processing Dependency:
python-keyczar for package: an\ 102 sible-2.9.23-
1.amzn2.noarch 103 --> Processing Dependency: python-
httplib2 for package: a\ 104 nsible-2.9.23-1.amzn2.noarch
105 --> Processing Dependency: python-crypto for package:
ans\ 106 ible-2.9.23-1.amzn2.noarch 107 --> Running
transaction check 108 ---> Package python-keyczar.noarch
0:0.71c-2.amzn2 will b\ 109 e installed 110 ---> Package

python2-crypto.x86_64 0:2.6.1-13.amzn2.0.3 w\ 111 ill be installed 112 --> Processing Dependency: libtomcrypt.so.1()(64bit) for \ 113 package: python2-crypto-2.6.1-13.amzn2.0.3.x86_64 114 ---> Package python2-httplib2.noarch 0:0.18.1-3.amzn2 wil\ 115 l be installed 116 ---> Package python2-paramiko.noarch 0:1.16.1-3.amzn2.0.2\ 117 will be installed 118 --> Processing Dependency: python2-ecdsa for package: pyt\ 119 hon2-paramiko-1.16.1-3.amzn2.0.2.noarch 120 ---> Package sshpass.x86_64 0:1.06-1.amzn2.0.1 will be in\ 121 stalled 122 --> Running transaction check 123 ---> Package libtomcrypt.x86_64 0:1.18.2-1.amzn2.0.1 will\ 124 be installed 125 --> Processing Dependency: libtommath >= 1.0 for package:\ 126 libtomcrypt-1.18.2-1.amzn2.0.1.x86_64 127 --> Processing Dependency: libtommath.so.1()(64bit) for p\ 128 ackage: libtomcrypt-1.18.2-1.amzn2.0.1.x86_64 129 ---> Package python2-ecdsa.noarch 0:0.13.3-1.amzn2.0.1 wi\ 130 ll be installed 131 --> Running transaction check 132 ---> Package libtommath.x86_64 0:1.0.1-4.amzn2.0.1 will b\ 133 e installed 134 --> Finished Dependency Resolution 135 Dependencies Resolved 136 ================================================================================\ 137 ================================================================================ 138 Package Arch Version \ 139 Repository Size 140 ================================================================================\ 141 ================================================================================ 142 Installing: 143 ansible noarch 2.9.23-1.amzn2 \ 144 amzn2extra-ansible2 17 M 145 Installing for dependencies: 146 libtomcrypt x86_64 1.18.2-1.amzn2.0.1\ 147 amzn2extra-ansible2 409 k 148 libtommath x86_64 1.0.1-4.amzn2.0.1 \ 149 amzn2extra-ansible2 36 k

150 python-keyczar noarch 0.71c-2.amzn2 \ 151 amzn2extra-ansible2 218 k 152 python2-crypto x86_64 2.6.1-13.amzn2.0.3\ 153 amzn2extra-ansible2 476 k 154 python2-ecdsa noarch 0.13.3-1.amzn2.0.1\ 155 amzn2extra-ansible2 94 k 156 python2-httplib2 noarch 0.18.1-3.amzn2 \ 157 amzn2extra-ansible2 125 k 158 python2-paramiko noarch 1.16.1-3.amzn2.0.2\ 159 amzn2extra-ansible2 259 k 160 sshpass x86_64 1.06-1.amzn2.0.1 \ 161 amzn2extra-ansible2 22 k 162 Transaction Summary 163 ================================================================================\ 164 ================================================================================ 165 Install 1 Package (+8 Dependent packages) 166 Total download size: 19 M 167 Installed size: 110 M 168 Is this ok [y/d/N]: y 169 Downloading packages: 170 (1/9): libtomcrypt-1.18.2-1.amzn2.0.1.x86_64.rpm \ 171 | 409 kB 00:00:00 172 (2/9): libtommath-1.0.1-4.amzn2.0.1.x86_64.rpm \ 173 | 36 kB 00:00:00 174 (3/9): python-keyczar-0.71c-2.amzn2.noarch.rpm \ 175 | 218 kB 00:00:00 176 (4/9): python2-crypto-2.6.1-13.amzn2.0.3.x86_64.rpm \ 177 | 476 kB 00:00:00 178 (5/9): ansible-2.9.23-1.amzn2.noarch.rpm \ 179 | 17 MB 00:00:00 180 (6/9): python2-ecdsa-0.13.3-1.amzn2.0.1.noarch.rpm \ 181 | 94 kB 00:00:00 182 (7/9): python2-httplib2-0.18.1-3.amzn2.noarch.rpm \ 183 | 125 kB 00:00:00 184 (8/9): sshpass-1.06-1.amzn2.0.1.x86_64.rpm \ 185 | 22 kB 00:00:00 186 (9/9): python2-paramiko-1.16.1-3.amzn2.0.2.noarch.rpm \ 187 | 259 kB 00:00:00 188 ----------\ 189 ---------- 190 Total \ 191 44 MB/s | 19 MB 00:00:00

192 Running transaction check 193 Running transaction test 194 Transaction test succeeded 195 Running transaction 196 Installing : sshpass-1.06-1.amzn2.0.1.x86_64 \ 197 1/9 198 Installing : python2-httplib2-0.18.1-3.amzn2.noarch \ 199 2/9 200 Installing : libtommath-1.0.1-4.amzn2.0.1.x86_64 \ 201 3/9 202 Installing : libtomcrypt-1.18.2-1.amzn2.0.1.x86_64 \ 203 4/9 204 Installing : python2-crypto-2.6.1-13.amzn2.0.3.x86_64 \ 205 5/9 206 Installing : python-keyczar-0.71c-2.amzn2.noarch \ 207 6/9 208 Installing : python2-ecdsa-0.13.3-1.amzn2.0.1.noarch \ 209 7/9 210 Installing : python2-paramiko-1.16.1-3.amzn2.0.2.noarch\ 211 8/9 212 Installing : ansible-2.9.23-1.amzn2.noarch \ 213 9/9 214 Verifying : python2-ecdsa-0.13.3-1.amzn2.0.1.noarch \ 215 1/9 216 Verifying : libtommath-1.0.1-4.amzn2.0.1.x86_64 \ 217 2/9 218 Verifying : python2-crypto-2.6.1-13.amzn2.0.3.x86_64 \ 219 3/9 220 Verifying : ansible-2.9.23-1.amzn2.noarch \ 221 4/9 222 Verifying : python-keyczar-0.71c-2.amzn2.noarch \ 223 5/9 224 Verifying : libtomcrypt-1.18.2-1.amzn2.0.1.x86_64 \ 225 6/9 226 Verifying : python2-paramiko-1.16.1-3.amzn2.0.2.noarch\ 227 7/9 228 Verifying : python2-httplib2-0.18.1-3.amzn2.noarch \ 229 8/9 230 Verifying : sshpass-1.06-1.amzn2.0.1.x86_64 \ 231 9/9 232 Installed: 233 ansible.noarch 0:2.9.23-1.amzn2 234 Dependency Installed: 235 libtomcrypt.x86_64 0:1.18.2-1.amzn2.0.1 libto\ 236 mmath.x86_64 0:1.0.1-4.amzn2.0.1 237 python-keyczar.noarch 0:0.71c-2.amzn2 pytho\ 238 n2-

crypto.x86_64 0:2.6.1-13.amzn2.0.3 239 python2-
ecdsa.noarch 0:0.13.3-1.amzn2.0.1 pytho\ 240 n2-
httplib2.noarch 0:0.18.1-3.amzn2 241 python2-
paramiko.noarch 0:1.16.1-3.amzn2.0.2 sshpa\ 242
ss.x86_64 0:1.06-1.amzn2.0.1 243 Complete! 244 0
ansible2=latest enabled \ 245 [ =2.4.2
=2.4.6 =2.8 =stable ] 246 2 httpd_modules
available [ =1.0 =stabl\ 247 e ] 248 3 memcached1.5
available \ 249 [ =1.5.1 =1.5.16 =1.5.17 ] 250
5 postgresql9.6 available \ 251 [ =9.6.6
=9.6.8 =stable ] 252 6 postgresql10 available [
=10 =stable\ 253 ] 254 9 R3.4 available [
=3.4.3 =sta\ 255 ble ] 256 10 rust1 available
\ 257 [ =1.22.1 =1.26.0 =1.26.1 =1.27.2 =1.31.0
=1\ 258 .38.0 259 =stable ] 260 11 vim
available [ =8.0 =stabl\ 261 e ] 262 15 php7.2
available \ 263 [ =7.2.0 =7.2.4 =7.2.5 =7.2.8
=7.2.11 =7.2.1\ 264 3 =7.2.14 265 =7.2.16
=7.2.17 =7.2.19 =7.2.21 =7.2.22 =7\ 266 .2.23 267
=7.2.24 =7.2.26 =stable ] 268 17 lamp-mariadb10.2-
php7.2 available \ 269 [ =10.2.10_7.2.0
=10.2.10_7.2.4 =10.2.10_7.2.5 270 =10.2.10_7.2.8
=10.2.10_7.2.11 =10.2.10_7.2.13 271
=10.2.10_7.2.14 =10.2.10_7.2.16 =10.2.10_7.2.\ 272 17
273 =10.2.10_7.2.19 =10.2.10_7.2.22
=10.2.10_7.2.\ 274 23 275 =10.2.10_7.2.24 =stable ]
276 18 libreoffice available \ 277 [
=5.0.6.2_15 =5.3.6.1 =stable ] 278 19 gimp
available [ =2.8.22 ] 279 20 docker=latest
enabled \ 280 [ =17.12.1 =18.03.1 =18.06.1
=18.09.9 =stable\ 281 ] 282 21 mate-desktop1.x
available \ 283 [ =1.19.0 =1.20.0 =stable ] 284 22
GraphicsMagick1.3 available \ 285 [ =1.3.29
=1.3.32 =1.3.34 =stable ] 286 23 tomcat8.5
available \ 287 [ =8.5.31 =8.5.32 =8.5.38 =8.5.40
=8.5.42 =8\ 288 .5.50 289 =stable ] 290 24 epel

available [ =7.11 =stab\ 291 le ] 292 25 testing available [ =1.0 =stabl\ 293 e ] 294 26 ecs available [ =stable ] 295 27 corretto8 available \ 296 [ =1.8.0_192 =1.8.0_202 =1.8.0_212 =1.8.0_222 \ 297 =1.8.0_232 298 =1.8.0_242 =stable ] 299 28 firecracker available [ =0.11 =stab\ 300 le ] 301 29 golang1.11 available \ 302 [ =1.11.3 =1.11.11 =1.11.13 =stable ] 303 30 squid4 available [ =4 =stable ] 304 31 php7.3 available \ 305 [ =7.3.2 =7.3.3 =7.3.4 =7.3.6 =7.3.8 =7.3.9 \ 306 =7.3.10 307 =7.3.11 =7.3.13 =stable ] 308 32 lustre2.10 available \ 309 [ =2.10.5 =2.10.8 =stable ] 310 33 java-openjdk11 available [ =11 =stable\ 311 ] 312 34 lynis available [ =stable ] 313 35 kernel-ng available [ =stable ] 314 36 BCC available [ =0.x =stabl\ 315 e ] 316 37 mono available [ =5.x =stabl\ 317 e ] 318 38 nginx1 available [ =stable ] 319 39 ruby2.6 available [ =2.6 =stabl\ 320 e ] 321 40 mock available [ =stable ] 322 41 postgresql11 available [ =11 =stable\ 323 ] 324 42 php7.4 available [ =stable ] 325 43 livepatch available [ =stable ] 326 44 python3.8 available [ =stable ] 327 45 haproxy2 available [ =stable ] 328 46 collectd available [ =stable ] 329 47 aws-nitro-enclaves-cli available [ =stable ] 330 48 R4 available [ =stable ] 331 _ kernel-5.4 available [ =stable ] 332 50 selinux-ng available [ =stable ] 333 51 php8.0 available [ =stable ] 334 52 tomcat9 available [ =stable ] 335 53 unbound1.13 available [ =stable ] 336 54 mariadb10.5 available [ =stable ] 337 55 kernel-5.10=latest enabled [ =stable ] 338 56 redis6 available [ =stable ] 339 57 ruby3.0 available [ =stable ]

340 58  postgresql12  available  [ =stable ] 341 59  postgresql13  available  [ =stable ] 342 60  mock2  available  [ =stable ] 343 61  dnsmasq2.85  available  [ =stable ] 344 [root@ip-172-31-36-49 ec2-user]# ansible --version 345 ansible 2.9.23 346  config file = /etc/ansible/ansible.cfg 347  configured module search path = [u'/root/.ansible/plugi\ 348 ns/modules', u'/usr/share/ansible/plugins/modules'] 349  ansible python module location = /usr/lib/python2.7/sit\ 350 e-packages/ansible 351  executable location = /bin/ansible 352  python version = 2.7.18 (default, Jun 10 2021, 00:11:02\ 353 ) [GCC 7.3.1 20180712 (Red Hat 7.3.1-13)] 354 [root@ip-172-31-36-49 ec2-user]# rpm -qa | grep ansible 355 ansible-2.9.23-1.amzn2.noarch 356 [root@ip-172-31-36-49 ec2-user]#

---

## Amazon Extras Library after execution

---

1 # rpm -qa | grep ansible 2 ansible-2.9.23-1.amzn2.noarch

---

## EPEL code

# Install-Ansible-Amazon Linux2-EPEL.sh

---

1 #!/bin/bash 2 $ sudo amazon-linux-extras install epel -y 3 $ sudo yum repolist 4 $ sudo yum-config-manager --enable epel 5 $ sudo amazon-linux-extras disable ansible2 6 $ sudo yum --enablerepo epel install ansible 7 $ ansible --version

---

## EPEL execution

---

1 # yum remove ansible 2 Failed to set locale, defaulting to C 3 Loaded plugins: extras_suggestions, langpacks, priorities\ 4 , update-motd 5 Resolving Dependencies 6 --> Running transaction check 7 ---> Package ansible.noarch 0:2.9.23-1.amzn2 will be eras\ 8 ed 9 --> Finished Dependency Resolution 10 Dependencies Resolved 11 ================================================================================\ 12

```
================================================================================ 13 Package         Arch           Version              \ 14    Repository                    Size 15 ================================================================================\ 16 ================================================================================ 17 Removing: 18 ansible         noarch         2.9.23-1.amzn2      \ 19     @amzn2extra-ansible2         105 M 20 Transaction Summary 21 ================================================================================\ 22 ================================================================================ 23 Remove  1 Package 24 Installed size: 105 M 25 Is this ok [y/N]: y 26 Downloading packages: 27 Running transaction check 28 Running transaction test 29 Transaction test succeeded 30 Running transaction 31 Erasing    : ansible-2.9.23-1.amzn2.noarch           \ 32                                1/1 33   Verifying  : ansible-2.9.23-1.amzn2.noarch           \ 34                                1/1 35 Removed: 36   ansible.noarch 0:2.9.23-1.amzn2 37 Complete! 38 [root@ip-172-31-36-49 ec2-user]# amazon-linux-extras inst\ 39 all epel 40 Installing epel-release 41 Failed to set locale, defaulting to C 42 Loaded plugins: extras_suggestions, langpacks, priorities\ 43 , update-motd 44 Cleaning repos: amzn2-core amzn2extra-ansible2 amzn2extra\ 45 -docker amzn2extra-epel 46              : amzn2extra-kernel-5.10 47 22 metadata files removed 48 8 sqlite files removed 49 0 metadata files removed 50 Failed to set locale, defaulting to C 51 Loaded plugins: extras_suggestions, langpacks, priorities\ 52 , update-motd 53 amzn2-core                                          \ 54                 | 3.7 kB  00:00:00    55 amzn2extra-ansible2                \ 56                 | 3.0 kB  00:00:00    57 amzn2extra-docker                                \ 58                 | 3.0 kB  00:00:00    59 amzn2extra-epel                                  \ 60                 | 3.0 kB  00:00:00    61 amzn2extra-kernel-
```

5.10 \ 62 | 3.0 kB 00:00:00 63 (1/11): amzn2-core/2/x86_64/group_gz \ 64 | 2.5 kB 00:00:00 65 (2/11): amzn2-core/2/x86_64/updateinfo \ 66 | 424 kB 00:00:00 67 (3/11): amzn2extra-docker/2/x86_64/primary_db \ 68 | 86 kB 00:00:00 69 (4/11): amzn2extra-epel/2/x86_64/updateinfo \ 70 | 76 B 00:00:00 71 (5/11): amzn2extra-epel/2/x86_64/primary_db \ 72 | 1.8 kB 00:00:00 73 (6/11): amzn2extra-kernel-5.10/2/x86_64/updateinfo \ 74 | 76 B 00:00:00 75 (7/11): amzn2extra-kernel-5.10/2/x86_64/primary_db \ 76 | 5.3 MB 00:00:00 77 (8/11): amzn2extra-ansible2/2/x86_64/updateinfo \ 78 | 76 B 00:00:00 79 (9/11): amzn2extra-docker/2/x86_64/updateinfo \ 80 | 4.7 kB 00:00:00 81 (10/11): amzn2extra-ansible2/2/x86_64/primary_db \ 82 | 39 kB 00:00:00 83 (11/11): amzn2-core/2/x86_64/primary_db \ 84 | 58 MB 00:00:00 85 Resolving Dependencies 86 --> Running transaction check 87 ---> Package epel-release.noarch 0:7-11 will be installed 88 --> Finished Dependency Resolution 89 Dependencies Resolved 90
==========\ 91
====== 92 Package Arch Version \ 93 Repository Size 94
==========\ 95
====== 96 Installing: 97 epel-release noarch 7-11 \ 98 amzn2extra-epel 15 k 99 Transaction Summary 100

================================================================================\ 101
================================================================================ 102 Install  1 Package 103 Total download size: 15 k 104 Installed size: 24 k 105 Is this ok [y/d/N]: y 106 Downloading packages: 107 epel-release-7-11.noarch.rpm \ 108 |  15 kB  00:00:00    109 Running transaction check 110 Running transaction test 111 Transaction test succeeded 112 Running transaction 113 Installing : epel-release-7-11.noarch \ 114 1/1 115   Verifying  : epel-release-7-11.noarch \ 116 1/1 117 Installed: 118   epel-release.noarch 0:7-11 119 Complete! 120   0  ansible2=latest  enabled  \ 121  [ =2.4.2  =2.4.6  =2.8  =stable ] 122   2  httpd_modules  available  [ =1.0  =stabl\ 123 e ] 124   3  memcached1.5  available  \ 125  [ =1.5.1  =1.5.16  =1.5.17 ] 126   5  postgresql9.6  available  \ 127  [ =9.6.6 =9.6.8  =stable ] 128   6  postgresql10  available  [ =10  =stable\ 129 ] 130   9  R3.4  available  [ =3.4.3  =sta\ 131 ble ] 132 10  rust1  available \ 133  [ =1.22.1  =1.26.0  =1.26.1  =1.27.2  =1.31.0 =1\ 134 .38.0 135  =stable ] 136 11  vim  available  [ =8.0  =stabl\ 137 e ] 138 15  php7.2  available  \ 139  [ =7.2.0  =7.2.4  =7.2.5  =7.2.8 =7.2.11  =7.2.1\ 140 3  =7.2.14 141  =7.2.16 =7.2.17  =7.2.19  =7.2.21  =7.2.22  =7\ 142 .2.23 143  =7.2.24  =7.2.26  =stable ] 144 17  lamp-mariadb10.2-php7.2  available  \ 145  [ =10.2.10_7.2.0 =10.2.10_7.2.4  =10.2.10_7.2.5 146  =10.2.10_7.2.8 =10.2.10_7.2.11  =10.2.10_7.2.13 147 =10.2.10_7.2.14  =10.2.10_7.2.16  =10.2.10_7.2.\ 148 17 149  =10.2.10_7.2.19  =10.2.10_7.2.22 =10.2.10_7.2.\ 150 23 151  =10.2.10_7.2.24  =stable ] 152 18  libreoffice  available  \ 153  [ =5.0.6.2_15  =5.3.6.1  =stable ] 154 19  gimp

available [ =2.8.22 ] 155 20 docker=latest enabled \ 156 [ =17.12.1 =18.03.1 =18.06.1 =18.09.9 =stable\ 157 ] 158 21 mate-desktop1.x available \ 159 [ =1.19.0 =1.20.0 =stable ] 160 22 GraphicsMagick1.3 available \ 161 [ =1.3.29 =1.3.32 =1.3.34 =stable ] 162 23 tomcat8.5 available \ 163 [ =8.5.31 =8.5.32 =8.5.38 =8.5.40 =8.5.42 =8\ 164 .5.50 165 =stable ] 166 24 epel=latest enabled [ =7.11 =stab\ 167 le ] 168 25 testing available [ =1.0 =stabl\ 169 e ] 170 26 ecs available [ =stable ] 171 27 corretto8 available \ 172 [ =1.8.0_192 =1.8.0_202 =1.8.0_212 =1.8.0_222 \ 173 =1.8.0_232 174 =1.8.0_242 =stable ] 175 28 firecracker available [ =0.11 =stab\ 176 le ] 177 29 golang1.11 available \ 178 [ =1.11.3 =1.11.11 =1.11.13 =stable ] 179 30 squid4 available [ =4 =stable ] 180 31 php7.3 available \ 181 [ =7.3.2 =7.3.3 =7.3.4 =7.3.6 =7.3.8 =7.3.9 \ 182 =7.3.10 183 =7.3.11 =7.3.13 =stable ] 184 32 lustre2.10 available \ 185 [ =2.10.5 =2.10.8 =stable ] 186 33 java-openjdk11 available [ =11 =stable\ 187 ] 188 34 lynis available [ =stable ] 189 35 kernel-ng available [ =stable ] 190 36 BCC available [ =0.x =stabl\ 191 e ] 192 37 mono available [ =5.x =stabl\ 193 e ] 194 38 nginx1 available [ =stable ] 195 39 ruby2.6 available [ =2.6 =stabl\ 196 e ] 197 40 mock available [ =stable ] 198 41 postgresql11 available [ =11 =stable\ 199 ] 200 42 php7.4 available [ =stable ] 201 43 livepatch available [ =stable ] 202 44 python3.8 available [ =stable ] 203 45 haproxy2 available [ =stable ] 204 46 collectd available [ =stable ] 205 47 aws-nitro-enclaves-cli available [ =stable ] 206 48 R4 available

[ =stable ] 207 _ kernel-5.4 available [ =stable ] 208 50 selinux-ng available [ =stable ] 209 51 php8.0 available [ =stable ] 210 52 tomcat9 available [ =stable ] 211 53 unbound1.13 available [ =stable ] 212 54 mariadb10.5 available [ =stable ] 213 55 kernel-5.10=latest enabled [ =stable ] 214 56 redis6 available [ =stable ] 215 57 ruby3.0 available [ =stable ] 216 58 postgresql12 available [ =stable ] 217 59 postgresql13 available [ =stable ] 218 60 mock2 available [ =stable ] 219 61 dnsmasq2.85 available [ =stable ] 220 [root@ip-172-31-36-49 ec2-user]# yum repolist 221 Failed to set locale, defaulting to C 222 Loaded plugins: extras_suggestions, langpacks, priorities\ 223 , update-motd 224 Existing lock /var/run/yum.pid: another copy is running a\ 225 s pid 4695. 226 Another app is currently holding the yum lock; waiting fo\ 227 r it to exit... 228 The other application is: yum 229 Memory : 110 M RSS (402 MB VSZ) 230 Started: Sun Dec 5 10:04:44 2021 - 00:09 ago 231 State : Running, pid: 4695 232 Another app is currently holding the yum lock; waiting fo\ 233 r it to exit... 234 The other application is: yum 235 Memory : 273 M RSS (565 MB VSZ) 236 Started: Sun Dec 5 10:04:44 2021 - 00:11 ago 237 State : Running, pid: 4695 238 Another app is currently holding the yum lock; waiting fo\ 239 r it to exit... 240 The other application is: yum 241 Memory : 318 M RSS (610 MB VSZ) 242 Started: Sun Dec 5 10:04:44 2021 - 00:13 ago 243 State : Running, pid: 4695 244 Another app is currently holding the yum lock; waiting fo\ 245 r it to exit... 246 The other application is: yum 247 Memory : 322 M RSS (614 MB VSZ) 248 Started: Sun Dec 5 10:04:44 2021 - 00:15 ago 249 State : Running, pid: 4695 250 225 packages excluded due to repository priority protecti\ 251 ons 252 repo id repo name \ 253 status 254 amzn2-core/2/x86_64

Amazon Linux 2 core \ 255 repository 26819 256 amzn2extra-ansible2/2/x86_64 Amazon Extras repo f\ 257 or ansible2 63 258 amzn2extra-docker/2/x86_64 Amazon Extras repo f\ 259 or docker 55 260 amzn2extra-epel/2/x86_64 Amazon Extras repo f\ 261 or epel 1 262 amzn2extra-kernel-5.10/2/x86_64 Amazon Extras repo f\ 263 or kernel-5.10 86 264 epel/x86_64 Extra Packages for E\ 265 nterprise Linux 7 - x86_64 13464+225 266 repolist: 40488 267 [root@ip-172-31-36-49 ec2-user]# amazon-linux-extras disa\ 268 ble ansible2 269 Beware that disabling topics is not supported after they \ 270 are installed. 271 0 ansible2 available \ 272 [ =2.4.2 =2.4.6 =2.8 =stable ] 273 2 httpd_modules available [ =1.0 =stabl\ 274 e ] 275 3 memcached1.5 available \ 276 [ =1.5.1 =1.5.16 =1.5.17 ] 277 5 postgresql9.6 available \ 278 [ =9.6.6 =9.6.8 =stable ] 279 6 postgresql10 available [ =10 =stable\ 280 ] 281 9 R3.4 available [ =3.4.3 =sta\ 282 ble ] 283 10 rust1 available \ 284 [ =1.22.1 =1.26.0 =1.26.1 =1.27.2 =1.31.0 =1\ 285 .38.0 286 =stable ] 287 11 vim available [ =8.0 =stabl\ 288 e ] 289 15 php7.2 available \ 290 [ =7.2.0 =7.2.4 =7.2.5 =7.2.8 =7.2.11 =7.2.1\ 291 3 =7.2.14 292 =7.2.16 =7.2.17 =7.2.19 =7.2.21 =7.2.22 =7\ 293 .2.23 294 =7.2.24 =7.2.26 =stable ] 295 17 lamp-mariadb10.2-php7.2 available \ 296 [ =10.2.10_7.2.0 =10.2.10_7.2.4 =10.2.10_7.2.5 297 =10.2.10_7.2.8 =10.2.10_7.2.11 =10.2.10_7.2.13 298 =10.2.10_7.2.14 =10.2.10_7.2.16 =10.2.10_7.2.\ 299 17 300 =10.2.10_7.2.19 =10.2.10_7.2.22 =10.2.10_7.2.\ 301 23 302 =10.2.10_7.2.24 =stable ] 303 18 libreoffice available \ 304 [ =5.0.6.2_15 =5.3.6.1 =stable ] 305 19 gimp

available [ =2.8.22 ] 306 20 docker=latest enabled \ 307 [ =17.12.1 =18.03.1 =18.06.1 =18.09.9 =stable\ 308 ] 309 21 mate-desktop1.x available \ 310 [ =1.19.0 =1.20.0 =stable ] 311 22 GraphicsMagick1.3 available \ 312 [ =1.3.29 =1.3.32 =1.3.34 =stable ] 313 23 tomcat8.5 available \ 314 [ =8.5.31 =8.5.32 =8.5.38 =8.5.40 =8.5.42 =8\ 315 .5.50 316 =stable ] 317 24 epel=latest enabled [ =7.11 =stab\ 318 le ] 319 25 testing available [ =1.0 =stabl\ 320 e ] 321 26 ecs available [ =stable ] 322 27 corretto8 available \ 323 [ =1.8.0_192 =1.8.0_202 =1.8.0_212 =1.8.0_222 \ 324 =1.8.0_232 325 =1.8.0_242 =stable ] 326 28 firecracker available [ =0.11 =stab\ 327 le ] 328 29 golang1.11 available \ 329 [ =1.11.3 =1.11.11 =1.11.13 =stable ] 330 30 squid4 available [ =4 =stable ] 331 31 php7.3 available \ 332 [ =7.3.2 =7.3.3 =7.3.4 =7.3.6 =7.3.8 =7.3.9 \ 333 =7.3.10 334 =7.3.11 =7.3.13 =stable ] 335 32 lustre2.10 available \ 336 [ =2.10.5 =2.10.8 =stable ] 337 33 java-openjdk11 available [ =11 =stable\ 338 ] 339 34 lynis available [ =stable ] 340 35 kernel-ng available [ =stable ] 341 36 BCC available [ =0.x =stabl\ 342 e ] 343 37 mono available [ =5.x =stabl\ 344 e ] 345 38 nginx1 available [ =stable ] 346 39 ruby2.6 available [ =2.6 =stabl\ 347 e ] 348 40 mock available [ =stable ] 349 41 postgresql11 available [ =11 =stable\ 350 ] 351 42 php7.4 available [ =stable ] 352 43 livepatch available [ =stable ] 353 44 python3.8 available [ =stable ] 354 45 haproxy2 available [ =stable ] 355 46 collectd available [ =stable ] 356 47 aws-nitro-enclaves-cli available [ =stable ] 357 48 R4 available

[ =stable ] 358 _ kernel-5.4 available [ =stable ] 359 50 selinux-ng available [ =stable ] 360 51 php8.0 available [ =stable ] 361 52 tomcat9 available [ =stable ] 362 53 unbound1.13 available [ =stable ] 363 54 mariadb10.5 available [ =stable ] 364 55 kernel-5.10=latest enabled [ =stable ] 365 56 redis6 available [ =stable ] 366 57 ruby3.0 available [ =stable ] 367 58 postgresql12 available [ =stable ] 368 59 postgresql13 available [ =stable ] 369 60 mock2 available [ =stable ] 370 61 dnsmasq2.85 available [ =stable ] 371 [root@ip-172-31-36-49 ec2-user]# yum-config-manager --ena\ 372 ble epel 373 Failed to set locale, defaulting to C 374 Loaded plugins: extras_suggestions, langpacks, priorities\ 375 , update-motd 376
==========
======= repo: epel ==\ 377
==========
====== 378 [epel] 379 async = True 380 bandwidth = 0 381 base_persistdir = /var/lib/yum/repos/x86_64/2 382 baseurl = 383 cache = 0 384 cachedir = /var/cache/yum/x86_64/2/epel 385 check_config_file_age = True 386 compare_providers_priority = 80 387 cost = 1000 388 deltarpm_metadata_percentage = 100 389 deltarpm_percentage = 390 enabled = True 391 enablegroups = True 392 exclude = 393 failovermethod = priority 394 ftp_disable_epsv = False 395 gpgcadir = /var/lib/yum/repos/x86_64/2/epel/gpgcadir 396 gpgcakey = 397 gpgcheck = True 398 gpgdir = /var/lib/yum/repos/x86_64/2/epel/gpgdir 399 gpgkey = file:///etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7 400 hdrdir = /var/cache/yum/x86_64/2/epel/headers 401 http_caching = all 402 includepkgs = 403 ip_resolve = 404 keepalive = True 405 keepcache = False 406 mddownloadpolicy = sqlite 407 mdpolicy = group:small 408 mediaid = 409

metadata_expire = 21600 410 metadata_expire_filter = read-only:present 411 metalink = https://mirrors.fedoraproject.org/metalink?rep\ 412 o=epel-7&arch=x86_64 413 minrate = 0 414 mirrorlist = 415 mirrorlist_expire = 86400 416 name = Extra Packages for Enterprise Linux 7 - x86_64 417 old_base_cache_dir = 418 password = 419 persistdir = /var/lib/yum/repos/x86_64/2/epel 420 pkgdir = /var/cache/yum/x86_64/2/epel/packages 421 priority = 99 422 proxy = False 423 proxy_dict = 424 proxy_password = 425 proxy_username = 426 repo_gpgcheck = False 427 report_instanceid = False 428 retries = 7 429 skip_if_unavailable = False 430 ssl_check_cert_permissions = True 431 sslcacert = 432 sslclientcert = 433 sslclientkey = 434 sslverify = True 435 throttle = 0 436 timeout = 5.0 437 ui_id = epel/x86_64 438 ui_repoid_vars = releasever, 439   basearch 440 username = 441 [root@ip-172-31-36-49 ec2-user]# yum --enablerepo epel in\ 442 stall ansible 443 Failed to set locale, defaulting to C 444 Loaded plugins: extras_suggestions, langpacks, priorities\ 445 , update-motd 446 amzn2-core                                                \ 447
  | 3.7 kB  00:00:00    448 amzn2extra-docker
                \ 449                  | 3.0 kB  00:00:00    450 amzn2extra-epel                                          \ 451
| 3.0 kB  00:00:00    452 amzn2extra-kernel-5.10
              \ 453                  | 3.0 kB  00:00:00    454 epel/x86_64/metalink                                      \ 455
  |  21 kB  00:00:00    456 209 packages excluded due to repository priority protecti\ 457 ons 458 Resolving Dependencies 459 --> Running transaction check 460 ---> Package ansible.noarch 0:2.9.25-1.el7 will be instal\ 461 led 462 --> Finished Dependency Resolution 463 Dependencies Resolved 464
================================================================================\ 465
================================================================================

====== 466 Package Arch Version \
467 Repository Size 468
==========
==========\ 469
==========
====== 470 Installing: 471 ansible noarch
2.9.25-1.el7 \ 472 epel 17 M 473
Transaction Summary 474
==========
==========\ 475
==========
====== 476 Install 1 Package 477 Total download size: 17
M 478 Installed size: 103 M 479 Is this ok [y/d/N]: y 480
Downloading packages: 481 warning:
/var/cache/yum/x86_64/2/epel/packages/ansible-2.\ 482
9.25-1.el7.noarch.rpm: Header V4 RSA/SHA256 Signature,
ke\ 483 y ID 352c64e5: NOKEY 484 Public key for ansible-
2.9.25-1.el7.noarch.rpm is not ins\ 485 talled 486 ansible-
2.9.25-1.el7.noarch.rpm \ 487 |
17 MB 00:00:03 488 Retrieving key from
file:///etc/pki/rpm-gpg/RPM-GPG-KEY-E\ 489 PEL-7 490
Importing GPG key 0x352C64E5: 491 Userid : "Fedora
EPEL (7) <epel@fedoraproject.org>" 492 Fingerprint: 91e9
7d7c 4a5e 96f1 7f3e 888f 6a2f aea2 352\ 493 c 64e5 494
Package : epel-release-7-11.noarch (@amzn2extra-epel)
495 From : /etc/pki/rpm-gpg/RPM-GPG-KEY-EPEL-7 496 Is
this ok [y/N]: y 497 Running transaction check 498 Running
transaction test 499 Transaction test succeeded 500
Running transaction 501 Installing : ansible-2.9.25-
1.el7.noarch \ 502 1/1 503
Verifying : ansible-2.9.25-1.el7.noarch \ 504
1/1 505 Installed: 506 ansible.noarch
0:2.9.25-1.el7 507 Complete! 508 [root@ip-172-31-36-49
ec2-user]# ansible --version 509 ansible 2.9.25 510 config
file = /etc/ansible/ansible.cfg 511 configured module
search path = [u'/root/.ansible/plugi\ 512 ns/modules',

u'/usr/share/ansible/plugins/modules'] 513  ansible python module location = /usr/lib/python2.7/sit\ 514 e-packages/ansible 515  executable location = /bin/ansible 516  python version = 2.7.18 (default, Jun 10 2021, 00:11:02\ 517 ) [GCC 7.3.1 20180712 (Red Hat 7.3.1-13)] 518 [root@ip-172-31-36-49 ec2-user]# rpm -qa | grep ansible 519 ansible-2.9.25-1.el7.noarch 520 [root@ip-172-31-36-49 ec2-user]#

---

## EPEL after execution

---

1 # rpm -qa | grep ansible 2 ansible-2.9.25-1.el7.noarch

---

## Recap

## Now you know how to install the latest version of Ansible in Amazon Linux using the Amazon Extras Library and EPEL repositories.

# How to install Ansible in Debian 11

**The easier way to install the latest version of Ansible and maintain up-to-date in Debian 11 using APT and the “main” default repository.**

## How to install Ansible in Debian

**Included in the “main” default repository**

**The good news is that Ansible is included in the default repository so you could install it simply with your usual package manager “apt”.**

**You could expect the latest version of Ansible in the “main” repository.**

**demo**

**How to install Ansible in Debian using the apt package manager and the “main” default repository.**

**code**

**install-ansible-debian.sh**

---

1 #!/bin/bash 2 $ sudo apt-get update 3 $ sudo apt-get install ansible 4 $ sudo apt list –installed ansible

---

# execution

---

```
  1 ansible-pilot $ ssh devops@debian.example.com   2
Linux debian 5.10.0-9-amd64 #1 SMP Debian 5.10.70-1
(2021\   3 -09-30) x86_64   4 The programs included with
the Debian GNU/Linux system ar\   5 e free software;   6 the
exact distribution terms for each program are describ\   7 ed
in the   8 individual files in /usr/share/doc/*/copyright.   9
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY,
to th\ 10 e extent 11 permitted by applicable law. 12 $ sudo
su 13 root@debian:/home/devops# cat /etc/os-release 14
PRETTY_NAME="Debian GNU/Linux 11 (bullseye)" 15
NAME="Debian GNU/Linux" 16 VERSION_ID="11" 17
VERSION="11 (bullseye)" 18 VERSION_CODENAME=bullseye
19 ID=debian 20 HOME_URL="https://www.debian.org/" 21
SUPPORT_URL="https://www.debian.org/support" 22
BUG_REPORT_URL="https://bugs.debian.org/" 23
root@debian:/home/devops# cat /etc/deb 24 debconf.conf
debian_version  25 root@debian:/home/devops# cat
/etc/debian_version 26 11.1 27
root@debian:/home/devops# apt-get update 28 Get:1
http://security.debian.org/debian-security bullseye\ 29 -
security InRelease [44.1 kB] 30 Hit:2
http://deb.debian.org/debian bullseye InRelease  31 Get:3
http://deb.debian.org/debian bullseye-updates InRel\ 32
ease [39.4 kB] 33 Get:4 http://deb.debian.org/debian
bullseye-backports InR\ 34 elease [43.7 kB] 35 Get:5
http://deb.debian.org/debian bullseye-backports/mai\ 36 n
```

Sources.diff/Index [63.3 kB] 37 Get:6 http://deb.debian.org/debian bullseye-backports/mai\ 38 n amd64 Packages.diff/Index [63.3 kB] 39 Get:7 http://deb.debian.org/debian bullseye-backports/mai\ 40 n Sources T-2021-12-02-0202.04-F-2021-12-02-0202.04.pdiff\ 41 [29 B] 42 Get:7 http://deb.debian.org/debian bullseye-backports/mai\ 43 n Sources T-2021-12-02-0202.04-F-2021-12-02-0202.04.pdiff\ 44 [29 B] 45 Get:8 http://deb.debian.org/debian bullseye-backports/mai\ 46 n amd64 Packages T-2021-12-02-0202.04-F-2021-12-02-0202.0\ 47 4.pdiff [257 B] 48 Get:8 http://deb.debian.org/debian bullseye-backports/mai\ 49 n amd64 Packages T-2021-12-02-0202.04-F-2021-12-02-0202.0\ 50 4.pdiff [257 B] 51 Fetched 254 kB in 1s (488 kB/s) 52 Reading package lists... Done 53 root@debian:/home/devops# apt-cache search ansible 54 ansible - Configuration management, deployment, and task \ 55 execution system 56 ansible-lint - lint tool for Ansible playbooks 57 ansible-mitogen - Fast connection strategy for Ansible 58 shade-inventory - Ansible inventory script for OpenStack \ 59 clouds 60 python3-reclass - hierarchical inventory backend for conf\ 61 iguration management systems 62 reclass - hierarchical inventory backend for configuratio\ 63 n management systems 64 reclass-doc - reclass documentation 65 vim-syntastic - Syntax checking hacks for vim 66 root@debian:/home/devops# apt-cache show ansible 67 Package: ansible 68 Version: 2.10.7+merged+base+2.10.8+dfsg-1 69 Installed-Size: 198790 70 Maintainer: Lee Garrett <debian@rocketjump.eu> 71 Architecture: all 72 Replaces: ansible-base (<= 2.10.5+dfsg-2) 73 Depends: python3-cryptography, python3-jinja2, python3-pa\ 74 ckaging, python3-yaml, python3:any, openssh-client | pyth\ 75 on3-paramiko (>= 2.6.0), python3-pycryptodome, python3-di\ 76 stutils, python3-dnspython, python3-httplib2, python3-net\ 77 addr 78 Recommends: python3-argcomplete,

python3-jmespath, python\ 79 3-kerberos, python3-libcloud, python3-selinux, python3-wi\ 80 nrm, python3-xmltodict 81 Suggests: cowsay, sshpass 82 Breaks: ansible-base (<= 2.10.5+dfsg-2) 83 Description-en: Configuration management, deployment, and\ 84 task execution system 85 Ansible is a radically simple model-driven configuration\ 86 management, 87 multi-node deployment, and remote task execution system.\ 88 Ansible works 89 over SSH and does not require any software or daemons to\ 90 be installed 91 on remote nodes. Extension modules can be written in any\ 92 language and 93 are transferred to managed machines automatically. 94 . 95 This package contains ansible-base 2.10.x and ansible-co\ 96 llections 2.10.x merged 97 into one package. 98 Description-md5: de0a87781a6b6efa86ca20d1d1c64ce8 99 Homepage: https://www.ansible.com 100 Tag: admin::automation, admin::configuring, admin::file-d\ 101 istribution, 102 admin::package-management, implemented-in::python, 103 interface::commandline, role::program, use::configuring, 104 works-with::software:running 105 Section: admin 106 Priority: optional 107 Filename: pool/main/a/ansible/ansible_2.10.7+merged+base+\ 108 2.10.8+dfsg-1_all.deb 109 Size: 17685468 110 MD5sum: 159657e0be3d3f212fde43db1ac986cd 111 SHA256: 66474117b31f9b0bc816331c7b5f7424c77a496db5063da0d\ 112 761cdbc814ef644 113 root@debian:/home/devops# apt-get install ansible 114 Reading package lists... Done 115 Building dependency tree... Done 116 Reading state information... Done 117 The following additional packages will be installed: 118 ieee-data libyaml-0-2 python3-argcomplete python3-cffi-\ 119 backend python3-cryptography 120 python3-distutils python3-dnspython python3-jinja2 pyth\ 121 on3-jmespath python3-kerberos 122 python3-lib2to3 python3-libcloud python3-lockfile pytho\ 123 n3-markupsafe python3-netaddr 124 python3-ntlm-auth python3-packaging python3-pycryptodom\ 125 e

python3-pyparsing 126  python3-requests-kerberos python3-requests-ntlm python3\ 127 -requests-toolbelt python3-selinux 128  python3-simplejson python3-winrm python3-xmltodict pyth\ 129 on3-yaml 130 Suggested packages: 131  cowsay sshpass python-cryptography-doc python3-cryptogr\ 132 aphy-vectors python3-sniffio 133 python3-trio python-jinja2-doc python-lockfile-doc ipyt\ 134 hon3 python-netaddr-docs 135  python-pyparsing-doc 136 The following NEW packages will be installed: 137  ansible ieee-data libyaml-0-2 python3-argcomplete pytho\ 138 n3-cffi-backend python3-cryptography 139  python3-distutils python3-dnspython python3-jinja2 pyth\ 140 on3-jmespath python3-kerberos 141  python3-lib2to3 python3-libcloud python3-lockfile pytho\ 142 n3-markupsafe python3-netaddr 143  python3-ntlm-auth python3-packaging python3-pycryptodom\ 144 e python3-pyparsing 145  python3-requests-kerberos python3-requests-ntlm python3\ 146 -requests-toolbelt python3-selinux 147  python3-simplejson python3-winrm python3-xmltodict pyth\ 148 on3-yaml 149 0 upgraded, 28 newly installed, 0 to remove and 1 not upg\ 150 raded. 151 Need to get 32.9 MB of archives. 152 After this operation, 280 MB of additional disk space wil\ 153 l be used. 154 Do you want to continue? [Y/n] y 155 Get:1 http://deb.debian.org/debian bullseye/main amd64 py\ 156 thon3-cffi-backend amd64 1.14.5-1 [85.8 kB] 157 Get:2 http://deb.debian.org/debian bullseye/main amd64 py\ 158 thon3-cryptography amd64 3.3.2-1 [223 kB] 159 Get:3 http://deb.debian.org/debian bullseye/main amd64 py\ 160 thon3-markupsafe amd64 1.1.1-1+b3 [15.2 kB] 161 Get:4 http://deb.debian.org/debian bullseye/main amd64 py\ 162 thon3-jinja2 all 2.11.3-1 [114 kB] 163 Get:5 http://deb.debian.org/debian bullseye/main amd64 py\ 164 thon3-pyparsing all 2.4.7-1 [109 kB] 165 Get:6 http://deb.debian.org/debian bullseye/main amd64 py\ 166 thon3-packaging all 20.9-2 [33.5 kB] 167 Get:7 http://deb.debian.org/debian bullseye/main amd64 li\ 168

byaml-0-2 amd64 0.2.2-1 [49.6 kB] 169 Get:8 http://deb.debian.org/debian bullseye/main amd64 py\ 170 thon3-yaml amd64 5.3.1-5 [138 kB] 171 Get:9 http://deb.debian.org/debian bullseye/main amd64 py\ 172 thon3-pycryptodome amd64 3.9.7+dfsg1-1+b2 [9910 kB] 173 Get:10 http://deb.debian.org/debian bullseye/main amd64 p\ 174 ython3-lib2to3 all 3.9.2-1 [77.8 kB] 175 Get:11 http://deb.debian.org/debian bullseye/main amd64 p\ 176 ython3-distutils all 3.9.2-1 [143 kB] 177 Get:12 http://deb.debian.org/debian bullseye/main amd64 p\ 178 ython3-dnspython all 2.0.0-1 [103 kB] 179 Get:13 http://deb.debian.org/debian bullseye/main amd64 i\ 180 eee-data all 20210605.1 [1889 kB] 181 Get:14 http://deb.debian.org/debian bullseye/main amd64 p\ 182 ython3-netaddr all 0.7.19-5 [253 kB] 183 Get:15 http://deb.debian.org/debian bullseye/main amd64 a\ 184 nsible all 2.10.7+merged+base+2.10.8+dfsg-1 [17.7 MB] 185 Get:16 http://deb.debian.org/debian bullseye/main amd64 p\ 186 ython3-argcomplete all 1.8.1-1.5 [29.7 kB] 187 Get:17 http://deb.debian.org/debian bullseye/main amd64 p\ 188 ython3-jmespath all 0.10.0-1 [21.7 kB] 189 Get:18 http://deb.debian.org/debian bullseye/main amd64 p\ 190 ython3-kerberos amd64 1.1.14-3.1+b3 [24.1 kB] 191 Get:19 http://deb.debian.org/debian bullseye/main amd64 p\ 192 ython3-lockfile all 1:0.12.2-2.2 [17.3 kB] 193 Get:20 http://deb.debian.org/debian bullseye/main amd64 p\ 194 ython3-simplejson amd64 3.17.2-1 [61.7 kB] 195 Get:21 http://deb.debian.org/debian bullseye/main amd64 p\ 196 ython3-libcloud all 3.2.0-2 [1615 kB] 197 Get:22 http://deb.debian.org/debian bullseye/main amd64 p\ 198 ython3-ntlm-auth all 1.4.0-1 [21.6 kB] 199 Get:23 http://deb.debian.org/debian bullseye/main amd64 p\ 200 ython3-requests-kerberos all 0.12.0-2 [13.0 kB] 201 Get:24 http://deb.debian.org/debian bullseye/main amd64 p\ 202 ython3-requests-ntlm all 1.1.0-1.1 [6120 B] 203 Get:25 http://deb.debian.org/debian bullseye/main amd64 p\ 204

ython3-requests-toolbelt all 0.9.1-1 [41.7 kB] 205 Get:26 http://deb.debian.org/debian bullseye/main amd64 p\ 206 ython3-selinux amd64 3.1-3 [160 kB] 207 Get:27 http://deb.debian.org/debian bullseye/main amd64 p\ 208 ython3-xmltodict all 0.12.0-2 [15.2 kB] 209 Get:28 http://deb.debian.org/debian bullseye/main amd64 p\ 210 ython3-winrm all 0.3.0-2 [21.6 kB] 211 Fetched 32.9 MB in 6s (5494 kB/s)  212 perl: warning: Setting locale failed. 213 perl: warning: Please check that your locale settings: 214 LANGUAGE = (unset), 215 LC_ALL = (unset), 216 LC_CTYPE = "UTF-8", 217 LANG = "C.UTF-8" 218  are supported and installed on your system. 219 perl: warning: Falling back to a fallback locale ("C.UTF-\ 220 8"). 221 locale: Cannot set LC_CTYPE to default locale: No such fi\ 222 le or directory 223 locale: Cannot set LC_ALL to default locale: No such file\ 224 or directory 225 Selecting previously unselected package python3-cffi-back\ 226 end:amd64. 227 (Reading database ... 25133 files and directories current\ 228 ly installed.) 229 Preparing to unpack .../00-python3-cffi-backend_1.14.5-1_\ 230 amd64.deb ... 231 Unpacking python3-cffi-backend:amd64 (1.14.5-1) ... 232 Selecting previously unselected package python3-cryptogra\ 233 phy. 234 Preparing to unpack .../01-python3-cryptography_3.3.2-1_a\ 235 md64.deb ... 236 Unpacking python3-cryptography (3.3.2-1) ... 237 Selecting previously unselected package python3-markupsaf\ 238 e. 239 Preparing to unpack .../02-python3-markupsafe_1.1.1-1+b3_\ 240 amd64.deb ... 241 Unpacking python3-markupsafe (1.1.1-1+b3) ... 242 Selecting previously unselected package python3-jinja2. 243 Preparing to unpack .../03-python3-jinja2_2.11.3-1_all.de\ 244 b ... 245 Unpacking python3-jinja2 (2.11.3-1) ... 246 Selecting previously unselected package python3-pyparsing. 247 Preparing to unpack .../04-python3-pyparsing_2.4.7-1_all.\ 248 deb ... 249 Unpacking python3-pyparsing (2.4.7-1) ... 250 Selecting previously unselected package python3-packaging. 251 Preparing to unpack .../05-python3-

packaging_20.9-2_all.d\ 252 eb ... 253 Unpacking python3-packaging (20.9-2) ... 254 Selecting previously unselected package libyaml-0-2:amd64. 255 Preparing to unpack .../06-libyaml-0-2_0.2.2-1_amd64.deb \ 256 ... 257 Unpacking libyaml-0-2:amd64 (0.2.2-1) ... 258 Selecting previously unselected package python3-yaml. 259 Preparing to unpack .../07-python3-yaml_5.3.1-5_amd64.deb\ 260 ... 261 Unpacking python3-yaml (5.3.1-5) ... 262 Selecting previously unselected package python3-pycryptod\ 263 ome. 264 Preparing to unpack .../08-python3-pycryptodome_3.9.7+dfs\ 265 g1-1+b2_amd64.deb ... 266 Unpacking python3-pycryptodome (3.9.7+dfsg1-1+b2) ... 267 Selecting previously unselected package python3-lib2to3. 268 Preparing to unpack .../09-python3-lib2to3_3.9.2-1_all.de\ 269 b ... 270 Unpacking python3-lib2to3 (3.9.2-1) ... 271 Selecting previously unselected package python3-distutils. 272 Preparing to unpack .../10-python3-distutils_3.9.2-1_all.\ 273 deb ... 274 Unpacking python3-distutils (3.9.2-1) ... 275 Selecting previously unselected package python3-dnspython. 276 Preparing to unpack .../11-python3-dnspython_2.0.0-1_all.\ 277 deb ... 278 Unpacking python3-dnspython (2.0.0-1) ... 279 Selecting previously unselected package ieee-data. 280 Preparing to unpack .../12-ieee-data_20210605.1_all.deb .\ 281 .. 282 Unpacking ieee-data (20210605.1) ... 283 Selecting previously unselected package python3-netaddr. 284 Preparing to unpack .../13-python3-netaddr_0.7.19-5_all.d\ 285 eb ... 286 Unpacking python3-netaddr (0.7.19-5) ... 287 Selecting previously unselected package ansible. 288 Preparing to unpack .../14-ansible_2.10.7+merged+base+2.1\ 289 0.8+dfsg-1_all.deb ... 290 Unpacking ansible (2.10.7+merged+base+2.10.8+dfsg-1) ... 291 Selecting previously unselected package python3-argcomple\ 292 te. 293 Preparing to unpack .../15-python3-argcomplete_1.8.1-1.5_\ 294 all.deb ... 295 Unpacking python3-argcomplete

(1.8.1-1.5) ... 296 Selecting previously unselected package python3-jmespath. 297 Preparing to unpack .../16-python3-jmespath_0.10.0-1_all.\ 298 deb ... 299 Unpacking python3-jmespath (0.10.0-1) ... 300 Selecting previously unselected package python3-kerberos. 301 Preparing to unpack .../17-python3-kerberos_1.1.14-3.1+b3\ 302 _amd64.deb ... 303 Unpacking python3-kerberos (1.1.14-3.1+b3) ... 304 Selecting previously unselected package python3-lockfile. 305 Preparing to unpack .../18-python3-lockfile_1%3a0.12.2-2.\ 306 2_all.deb ... 307 Unpacking python3-lockfile (1:0.12.2-2.2) ... 308 Selecting previously unselected package python3-simplejso\ 309 n. 310 Preparing to unpack .../19-python3-simplejson_3.17.2-1_am\ 311 d64.deb ... 312 Unpacking python3-simplejson (3.17.2-1) ... 313 Selecting previously unselected package python3-libcloud. 314 Preparing to unpack .../20-python3-libcloud_3.2.0-2_all.d\ 315 eb ... 316 Unpacking python3-libcloud (3.2.0-2) ... 317 Selecting previously unselected package python3-ntlm-auth. 318 Preparing to unpack .../21-python3-ntlm-auth_1.4.0-1_all.\ 319 deb ... 320 Unpacking python3-ntlm-auth (1.4.0-1) ... 321 Selecting previously unselected package python3-requests-\ 322 kerberos. 323 Preparing to unpack .../22-python3-requests-kerberos_0.12\ 324 .0-2_all.deb ... 325 Unpacking python3-requests-kerberos (0.12.0-2) ... 326 Selecting previously unselected package python3-requests-\ 327 ntlm. 328 Preparing to unpack .../23-python3-requests-ntlm_1.1.0-1.\ 329 1_all.deb ... 330 Unpacking python3-requests-ntlm (1.1.0-1.1) ... 331 Selecting previously unselected package python3-requests-\ 332 toolbelt. 333 Preparing to unpack .../24-python3-requests-toolbelt_0.9.\ 334 1-1_all.deb ... 335 Unpacking python3-requests-toolbelt (0.9.1-1) ... 336 Selecting previously unselected package python3-selinux. 337 Preparing to unpack .../25-python3-selinux_3.1-3_amd64.de\ 338 b ... 339 Unpacking python3-selinux (3.1-3) ... 340 Selecting previously unselected package python3-xmltodict. 341 Preparing to unpack .../26-

python3-xmltodict_0.12.0-2_all\ 342 .deb ... 343 Unpacking python3-xmltodict (0.12.0-2) ... 344 Selecting previously unselected package python3-winrm. 345 Preparing to unpack .../27-python3-winrm_0.3.0-2_all.deb \ 346 ... 347 Unpacking python3-winrm (0.3.0-2) ... 348 Setting up python3-lockfile (1:0.12.2-2.2) ... 349 Setting up python3-requests-toolbelt (0.9.1-1) ... 350 Setting up libyaml-0-2:amd64 (0.2.2-1) ... 351 Setting up python3-ntlm-auth (1.4.0-1) ... 352 Setting up python3-pycryptodome (3.9.7+dfsg1-1+b2) ... 353 Setting up python3-kerberos (1.1.14-3.1+b3) ... 354 Setting up python3-yaml (5.3.1-5) ... 355 Setting up python3-markupsafe (1.1.1-1+b3) ... 356 Setting up python3-simplejson (3.17.2-1) ... 357 Setting up python3-xmltodict (0.12.0-2) ... 358 Setting up python3-jinja2 (2.11.3-1) ... 359 Setting up python3-pyparsing (2.4.7-1) ... 360 Setting up python3-jmespath (0.10.0-1) ... 361 Setting up ieee-data (20210605.1) ... 362 Setting up python3-dnspython (2.0.0-1) ... 363 Setting up python3-selinux (3.1-3) ... 364 Setting up python3-argcomplete (1.8.1-1.5) ... 365 Setting up python3-lib2to3 (3.9.2-1) ... 366 Setting up python3-cffi-backend:amd64 (1.14.5-1) ... 367 Setting up python3-distutils (3.9.2-1) ... 368 Setting up python3-packaging (20.9-2) ... 369 Setting up python3-cryptography (3.3.2-1) ... 370 Setting up python3-requests-kerberos (0.12.0-2) ... 371 Setting up python3-netaddr (0.7.19-5) ... 372 Setting up ansible (2.10.7+merged+base+2.10.8+dfsg-1) ... 373 Setting up python3-requests-ntlm (1.1.0-1.1) ... 374 Setting up python3-libcloud (3.2.0-2) ... 375 Setting up python3-winrm (0.3.0-2) ... 376 Processing triggers for man-db (2.9.4-2) ... 377 Processing triggers for libc-bin (2.31-13+deb11u2) ... 378 root@debian:/home/devops# ansible --version 379 ansible 2.10.8 380  config file = None 381  configured module search path = ['/root/.ansible/plugin\ 382 s/modules', '/usr/share/ansible/plugins/modules'] 383 ansible python module location = /usr/lib/python3/dist-\ 384

packages/ansible 385  executable location = /usr/bin/ansible 386  python version = 3.9.2 (default, Feb 28 2021, 17:03:44)\ 387 [GCC 10.2.1 20210110] 388 root@debian:/home/devops# apt list | grep ansible 389 WARNING: apt does not have a stable CLI interface. Use wi\ 390 th caution in scripts. 391 ansible-lint/stable 4.3.7-1 all 392 ansible-mitogen/stable 0.3.0~rc1-4 all 393 ansible/stable,now 2.10.7+merged+base+2.10.8+dfsg-1 all [\ 394 installed] 395 root@debian:/home/devops# dpkg -l | grep ansible 396 ii  ansible 2.10.7+merged+base+2.10\ 397 .8+dfsg-1 all Configuration management, deployme\ 398 nt, and task execution system 399 root@debian:/home/devops#

---

# before execution

---

1 $ ssh devops@debian.example.com 2 Linux debian 5.10.0-9-amd64 #1 SMP Debian 5.10.70-1 (2021\ 3 -09-30) x86_64 4 The programs included with the Debian GNU/Linux system ar\ 5 e free software; 6 the exact distribution terms for each program are describ\ 7 ed in the 8 individual files in /usr/share/doc/*/copyright. 9 Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to th\ 10 e extent 11 permitted by applicable law. 12 $ sudo su 13 root@debian:/home/devops# cat /etc/os-release 14 PRETTY_NAME="Debian GNU/Linux 11 (bullseye)" 15 NAME="Debian GNU/Linux" 16 VERSION_ID="11" 17

VERSION="11 (bullseye)" 18 VERSION_CODENAME=bullseye 19 ID=debian 20 HOME_URL="https://www.debian.org/" 21 SUPPORT_URL="https://www.debian.org/support" 22 BUG_REPORT_URL="https://bugs.debian.org/" 23 root@debian:/home/devops# cat /etc/deb 24 debconf.conf debian_version  25 root@debian:/home/devops# cat /etc/debian_version 26 11.1 27 root@debian:/home/devops# apt list ansible --installed 28 Listing... Done 29 root@debian:/home/devops#

---

## after execution

---

1 root@debian:/home/devops# apt list ansible --installed 2 Listing... Done 3 ansible/stable,now 2.10.7+merged+base+2.10.8+dfsg-1 all [\ 4 installed] 5 root@debian:/home/devops# dpkg -l | grep ansible 6 ii ansible 2.10.7+merged+base+2.10\ 7 .8+dfsg-1 all Configuration management, deployme\ 8 nt, and task execution system 9 root@debian:/home/devops#

---

# Ansible For Amazon Web Services AWS

Ansible Modules To Automate the AWS infrastructure: EC2, VPC, Security Group, etc.

# Configure Ansible for AWS - ansible collection amazon.aws

How to configure Ansible to interact with AWS infrastructure — EC2, VPC, Security Group, etc. — python boto3, and collection amazon.aws and ec2_ami_info Search for AMI id demo.

# How to configure Ansible for AWS?

Ansible provides various modules to manage AWS infrastructure, which includes EC2, VPC, Security Groups, etc.

I’ll show you step by step how to prepare your Ansible controller to interact with the AWS infrastructure.

This initial configuration sometimes is a roadblock for some AWS users to start using Ansible.

I’m Luca Berton and welcome to today’s episode of Ansible Pilot.

# Configure Ansible for AWS

Amazon Identity and Access Management (IAM) Access Key

Python boto3 SDK requires 3.6+

Ansible collection amazon.aws

The Ansible modules and plugins support the AWS infrastructure interactions.

First of all, you need to authenticate using AWS Access Key credentials: Access Key ID and Secret Access Key from Identity and Access Management (IAM) dashboard.

Ansible AWS modules are written on top of boto3. boto3 is the Python SDK for the AWS that allows users to interact with AWS infrastructure via API.

This library interacts with the AWS API via the Ansible modules and plugins.

The boto3 Python library requires Python 3.6+.

The Ansible collection amazon.aws of modules and plugins manages various operations related to EC2, VPC, Security Groups, etc.

As the name suggests, this resource is provided by the Ansible Engineer Team.

# Links

Ansible collection amazon.aws

Python boto3

# demo

Configure Ansible for AWS

Amazon IAM Access Key

Install Python boto3 SDK

Install Ansible amazon.aws collection

Ansible Playbook

How to Configure Ansible for AWS.

First of all, you need to install boto3 - the AWS API Python SDK.

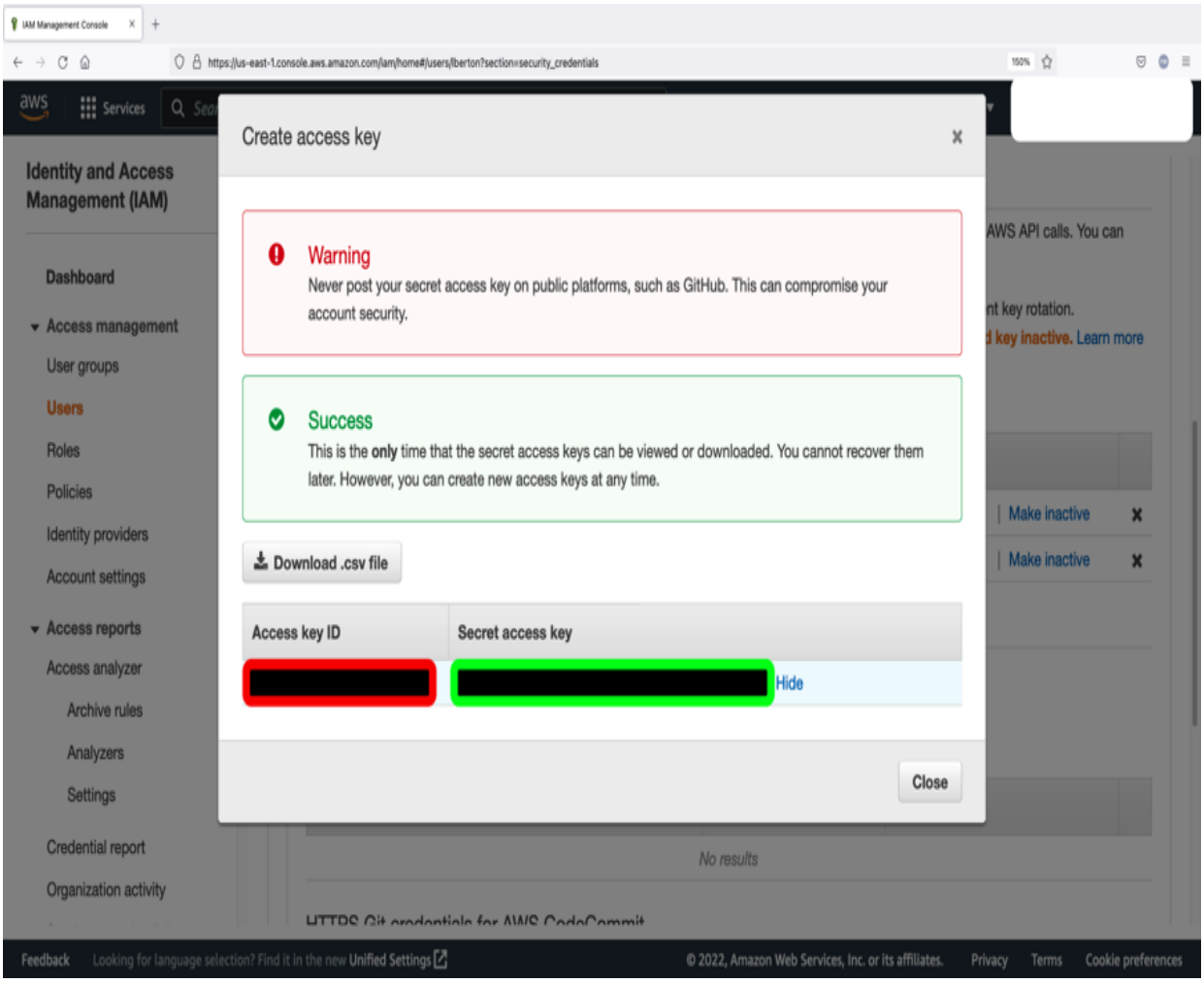
Second, you need to install the Ansible amazon.aws collection.

Once everything is done on the node you could configure the Ansible Controller machine and run your first Ansible Playbook with the ec2_ami_info module to search for AMI in EC2 and verify the successful configuration.

## Amazon Identity and Access Management (IAM) Access Key

Generate new “Access keys” credential in your Identity and Access Management (IAM) dashboard in your AWS infrastructure account.

You should copy the Access key ID (red below) and Secret access key (green below) for the env.sh shell script.




**Amazon Identity and Access Management (IAM) Access Key**

env.sh

Please substitute with your Access key ID (red below) and Secret access key (green below) from Amazon Identity and Access Management (IAM) Access Key.

```
1 #!/bin/bash 2 export AWS_ACCESS_KEY_ID="RED-CODE" 3
export AWS_SECRET_ACCESS_KEY="GREEN-CODE" 4 export
AWS_DEFAULT_REGION="us-east-1"
```

## Install Python boto3 SDK

This example uses Python 3.8 so pip3.8 tool, adapt to your current configuration.

```
1 [devops@demo aws]$ ansible --version 2 ansible [core
2.12.2] 3   config file = /etc/ansible/ansible.cfg 4   configured
module search path = ['/home/devops/.ansible\ 5
/plugins/modules', '/usr/share/ansible/plugins/modules'] 6
ansible python module location = /usr/lib/python3.8/sit\ 7 e-
packages/ansible 8   ansible collection location =
/home/devops/.ansible/col\ 9
lections:/usr/share/ansible/collections 10   executable
location = /usr/bin/ansible 11   python version = 3.8.12
(default, Sep 16 2021, 10:46:05\ 12 ) [GCC 8.5.0 20210514
(Red Hat 8.5.0-3)] 13   jinja version = 2.10.3 14   libyaml =
True 15 [devops@demo aws]$ sudo su 16 [root@demo
aws]# pip3.8 install boto3 17 WARNING: Running pip install
with root privileges is gene\ 18 rally not a good idea. Try
`pip3.8 install --user` instea\ 19 d. 20 Collecting boto3 21
```

```
Using cached https://files.pythonhosted.org/packages/21\ 22
/b1/fafeff38043e4d4c18948109b96df295a7a11350fad32744
aaa4e\ 23 4917004/boto3-1.24.28-py3-none-any.whl 24
Collecting botocore<1.28.0,>=1.27.28 25   Using cached
https://files.pythonhosted.org/packages/fa\ 26
/9e/f7662cd2c326b74eee8bb91e2bf3ea61f2b2d62738863d5
3fe801\ 27 dcfdeca/botocore-1.27.28-py3-none-any.whl 28
Requirement already satisfied: s3transfer<0.7.0,>=0.6.0 i\
29 n /usr/local/lib/python3.8/site-packages (from boto3) (0.\
30 6.0) 31 Requirement already satisfied:
jmespath<2.0.0,>=0.7.1 in \ 32 /usr/local/lib/python3.8/site-
packages (from boto3) (1.0.\ 33 1) 34 Requirement already
satisfied: urllib3<1.27,>=1.25.4 in /\ 35
usr/local/lib/python3.8/site-packages (from botocore<1.28\
36 .0,>=1.27.28->boto3) (1.26.9) 37 Requirement already
satisfied: python-dateutil<3.0.0,>=2.\ 38 1 in
/usr/local/lib/python3.8/site-packages (from botocor\ 39
e<1.28.0,>=1.27.28->boto3) (2.8.2) 40 Requirement
already satisfied: six>=1.5 in /usr/lib/pytho\ 41 n3.8/site-
packages (from python-dateutil<3.0.0,>=2.1->bot\ 42
ocore<1.28.0,>=1.27.28->boto3) (1.12.0) 43 Installing
collected packages: botocore, boto3 44 Successfully installed
boto3-1.24.28 botocore-1.27.28 45 [root@demo aws]#
pip3.8 list | grep boto 46 boto3             1.24.28  47 botocore
       1.27.28  48 [root@demo aws]#
```

---

**Install Ansible amazon.aws collection**

---

```
1 [devops@demo aws]$ ansible-galaxy collection install --fo\
2 rce amazon.aws 3 Starting galaxy collection install process
4 Process install dependency map 5 Starting collection install
process 6 Downloading
https://galaxy.ansible.com/download/amazon-aw\ 7 s-
4.0.0.tar.gz to /home/devops/.ansible/tmp/ansible-local\ 8
-62851lkitk3p/tmpapjfnzjm/amazon-aws-4.0.0-b69_h8xk 9
Installing 'amazon.aws:4.0.0' to '/home/devops/.ansible/c\ 10
ollections/ansible_collections/amazon/aws' 11
amazon.aws:4.0.0 was installed successfully 12
[devops@demo aws]$ ansible-galaxy collection list amazon.\
13 aws 14 # /usr/lib/python3.8/site-
packages/ansible_collections 15 Collection Version 16 ----------
------- 17 amazon.aws 2.1.0 18 #
/home/devops/.ansible/collections/ansible_collections 19
Collection Version 20 ---------- ------- 21 amazon.aws 4.0.0  22
[devops@demo aws]$
```

---

**run Ansible Playbook**

---

```
1 [devops@demo aws]$ source env.sh 2 [devops@demo
aws]$ ansible-playbook ami_search.yml 3 [WARNING]:
provided hosts list is empty, only localhost i\ 4 s available.
Note that the implicit 5 localhost does not match 'all' 6
[WARNING]: Found variable using reserved name: name 7
PLAY [AMI search] **********************************\ 8
********************************** 9 TASK [search for
existing AMI] ************************\ 10
```

********************************************* 11 ok: [localhost]
12 TASK [debug]
*********************************************\ 13
********************************************* 14 ok: [localhost]
=> { 15     "ami_found": { 16         "changed": false, 17
"failed": false, 18         "images": [ 19             { 20
"architecture": "x86_64", 21
"block_device_mappings": [ 22                 { 23
   "device_name": "/dev/sda1", 24                     "ebs": { 25
                    "delete_on_termination": true, 26
          "encrypted": false, 27
"snapshot_id": "snap-03f2e24f\ 28 30f580353", 29
          "volume_size": 10, 30
"volume_type": "gp2" 31                     } 32                 }
33                 ], 34                 "creation_date": "2020-11-
02T11:01:38.000\ 35 Z", 36                 "deprecation_time":
"2022-11-02T11:01:38.\ 37 000Z", 38
"description": "Provided by Red Hat, Inc.\ 39 ", 40
"ena_support": true, 41                 "hypervisor": "xen", 42
        "image_id": "ami-096fda3c22c1c990a", 43
"image_location": "309956199498/RHEL-8.3.\ 44 0_HVM-
20201031-x86_64-0-Hourly2-GP2", 45
"image_type": "machine", 46                 "name": "RHEL-
8.3.0_HVM-20201031-x86_64-0\ 47 -Hourly2-GP2", 48
   "owner_id": "309956199498", 49
"platform_details": "Red Hat Enterprise L\ 50 inux", 51
     "public": true, 52                 "root_device_name":
"/dev/sda1", 53                 "root_device_type": "ebs", 54
      "sriov_net_support": "simple", 55                 "state":
"available", 56                 "tags": {}, 57
"usage_operation": "RunInstances:0010", 58
"virtualization_type": "hvm" 59             } 60         ] 61     } 62
} 63 PLAY RECAP
*********************************************\ 64
********************************************* 65 localhost
       : ok=2    changed=0    unreach\ 66 able=0    failed=0

skipped=0 rescued=0 ignored=0 67 [devops@demo aws]$

# Configure a Python Virtual Environment for Ansible AWS - ansible collection amazon.aws

How to configure a Python Virtual Environment for Ansible AWS amazon.aws Ansible collection to use the latest releases of Python 3.8, boto3 for Python libraries.

## How to configure a Python Virtual Environment for Ansible AWS?

Using a Python Virtual Environment is a convenient way to maintain up-to-date Python dependency of the Ansible collection amazon.aws without interfering with your Linux system.

This initial configuration sometimes is a roadblock for some AWS users to start using Ansible.

I’m Luca Berton and welcome to today’s episode of Ansible Pilot.

# Links

Ansible collection amazon.aws

Python boto3

# demo

Configure a Python Virtual Environment for Ansible AWS:

boto3

How to Python Virtual Environment for Ansible AWS.

I’m going to show you how to configure a Python Virtual Environment for Ansible AWS to successfully use the Ansible collection amazon.aws of modules and plugins to manage various operations related to AWS infrastructure such as EC2, VPC, Security Groups, etc.

Ansible AWS modules are written on top of boto3. Boto3 is the Python SDK for the AWS that allows users to manage AWS infrastructure: EC2, VPC, Security Groups, etc.

**code**

---

1 $ python3.8 -m venv venv 2 $ source venv/bin/activate 3 (venv) $ pip3.8 install --upgrade pip 4 (venv) $ pip3.8 install boto3 5 (venv) $ ansible-galaxy collection install amazon.aws

---

**execution**

---

1 $ ansible --version 2 ansible [core 2.12.2] 3 config file = /etc/ansible/ansible.cfg 4 configured module search path = ['/home/devops/.ansible\ 5 /plugins/modules', '/usr/share/ansible/plugins/modules'] 6 ansible python module location = /usr/lib/python3.8/sit\ 7 e-packages/ansible 8 ansible collection location =

/home/devops/.ansible/col\ 9
lections:/usr/share/ansible/collections 10 executable
location = /usr/bin/ansible 11 python version = 3.8.12
(default, Sep 16 2021, 10:46:05\ 12 ) [GCC 8.5.0 20210514
(Red Hat 8.5.0-3)] 13 jinja version = 2.10.3 14 libyaml =
True 15 [devops@demo ~]$ whereis python 16 python:
/usr/bin/python3.6 /usr/bin/python3.6m /usr/bin/p\ 17
ython3.8 /usr/lib/python3.6 /usr/lib/python3.8 /usr/lib64\ 18
/python3.6 /usr/lib64/python3.8 /usr/local/lib/python3.8 \ 19
/usr/include/python3.6m /usr/include/python3.8 /usr/share\
20 /man/man1/python.1.gz 21 [devops@demo ~]$
python3.8 -m venv venv 22 [devops@demo ~]$ source
venv/bin/activate 23 (venv) [devops@demo ~]$ pip3.8
install --upgrade pip 24 Collecting pip 25 Using cached
https://files.pythonhosted.org/packages/96\ 26
/2f/caec18213f6a67852f6997fb0673ae08d2e93d1b81573ed
b93ba4\ 27 ef06970/pip-22.1.2-py3-none-any.whl 28
Installing collected packages: pip 29 Found existing
installation: pip 19.3.1 30 Uninstalling pip-19.3.1: 31
Successfully uninstalled pip-19.3.1 32 Successfully installed
pip-22.1.2 33 (venv) [devops@demo ~]$ pip3.8 install boto3
34 Collecting boto3 35 Downloading boto3-1.24.27-py3-
none-any.whl (132 kB) 36
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━
132.5/132.5\ 37 kB 392.0 kB/s eta 0:00:00 38 Collecting
botocore<1.28.0,>=1.27.27 39 Downloading botocore-
1.27.27-py3-none-any.whl (9.0 MB) 40
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 9.0/9.0 MB \
41 2.7 MB/s eta 0:00:00 42 Collecting
jmespath<2.0.0,>=0.7.1 43 Downloading jmespath-1.0.1-
py3-none-any.whl (20 kB) 44 Collecting
s3transfer<0.7.0,>=0.6.0 45 Downloading s3transfer-
0.6.0-py3-none-any.whl (79 kB) 46
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 79.6/79.6 k\
47 B 3.3 MB/s eta 0:00:00 48 Collecting python-
dateutil<3.0.0,>=2.1 49 Downloading python_dateutil-

2.8.2-py2.py3-none-any.whl \ 50 (247 kB) 51

247.7/247.7\ 52 kB 4.0 MB/s eta 0:00:00 53 Collecting urllib3<1.27,>=1.25.4 54  Downloading urllib3-1.26.10-py2.py3-none-any.whl (139 k\ 55 B) 56

139.2/139.2\ 57 kB 3.8 MB/s eta 0:00:00 58 Collecting six>=1.5 59  Using cached six-1.16.0-py2.py3-none-any.whl (11 kB) 60 Installing collected packages: urllib3, six, jmespath, py\ 61 thon-dateutil, botocore, s3transfer, boto3 62 Successfully installed boto3-1.24.27 botocore-1.27.27 jme\ 63 spath-1.0.1 python-dateutil-2.8.2 s3transfer-0.6.0 six-1.\ 64 16.0 urllib3-1.26.10 65 (venv) [devops@demo ~]$ pip3.8 list | grep boto 66 boto3  1.24.27 67 botocore  1.27.27 68 (venv) [devops@demo ~]$ pip3.8 freeze > requirements.txt 69 (venv) [devops@demo ~]$ deactivate 70 [devops@demo ~]$ source venv/bin/activate 71 (venv) [devops@demo ~]$ pip list 72 Package  Version 73 ---------- ------- 74 boto3  1.24.27 75 botocore  1.27.27 76 jmespath  1.0.1 77 pip  22.1.2 78 python-dateutil 2.8.2 79 s3transfer  0.6.0 80 setuptools  41.6.0 81 six  1.16.0 82 urllib3  1.26.10 83 (venv) [devops@demo ~]$ ansible-galaxy collection install\ 84 amazon.aws 85 Starting galaxy collection install process 86 Process install dependency map 87 Starting collection install process 88 Downloading https://galaxy.ansible.com/download/amazon-aw\ 89 s-4.0.0.tar.gz to /home/devops/.ansible/tmp/ansible-local\ 90 -5083_hekoyln/tmpawwwduwa/amazon-aws-4.0.0-_wa4znqr 91 Installing 'amazon.aws:4.0.0' to '/home/devops/.ansible/c\ 92 ollections/ansible_collections/amazon/aws' 93 amazon.aws:4.0.0 was installed successfully 94 (venv) [devops@demo ~]$ ansible-galaxy collection list am\ 95 azon.aws 96 # /usr/lib/python3.8/site-packages/ansible_collections 97 Collection Version 98 ---------

- ------- 99 amazon.aws 2.1.0 100 # /home/devops/.ansible/collections/ansible_collections 101 Collection Version 102 ---------- ------- 103 amazon.aws 4.0.0 104 (venv) [devops@demo ~]$

---

requirements.txt

---

1 boto3==1.24.27 2 botocore==1.27.27 3 jmespath==1.0.1 4 python-dateutil==2.8.2 5 s3transfer==0.6.0 6 six==1.16.0 7 urllib3==1.26.10

---

# Search for AWS EC2 AMI ID by Region - Ansible module ec2_ami_info

# How to automate the search of an AWS EC2 machine AMI ID running the operating system RHEL-8.3.0 in the region “us-east-1” using Ansible Playbook and ec2_ami_info module.

## Ansible Search for EC2 AMI ID by AWS Region

## amazon.aws.ec2_ami_info

## Gather information about ec2 AMIs

## Let’s talk about the Ansible module ec2_ami_info.

**The full name is amazon.aws.ec2_ami_info, which means that is part of the collection of modules to interact with AWS.**

**The module’s purpose is to gather information about ec2 AMIs.**

## Parameters

**filters dictionary - filter terms**

**Example:**

---

1 name: "RHEL-8.3.0_HVM-*-x86_64-*Hourly*" 2 region: "us-east-1"

---

**The following parameters are useful in order to Search for EC2 AMI ID by AWS Region using the module ec2_ami_info.**

**The only parameter needed is the filters and specify the filters keys and values.**

**For example, let’s search for Red Hat Enterprise Linux machines version 8.3.0 running on HVM infrastructure, architecture x86_64 Hourly paid.**

## Links

amazon.aws.ec2_ami_info

## demo

# How to Search for EC2 AMI ID by AWS Region with Ansible.

# I’m going to show you how to Gather Information on a specific “RHEL-8.3.0_HVM” AWS EC2 Hourly Machine for the region “us-east-1” and select the EC2 AMI ID using Ansible Playbook.

## code

---

```
1 --- 2 - name: AMI search 3   hosts: localhost 4   become: false 5   gather_facts: false 6   vars: 7     aws_region: "us-east-1" 8     aws_name: "RHEL-8.3.0_HVM-*-x86_64-*Hourly*" 9   tasks: 10     - name: search for AMI 11 amazon.aws.ec2_ami_info: 12         filters: 13           name: "{{ aws_name }}" 14           region: "{{ aws_region }}" 15   register: ami_found 16     - name: print AMI 17 ansible.builtin.debug: 18         var: ami_found
```

---

# execution

---

1 $ ansible-playbook ami_search.yml 2 [WARNING]: provided hosts list is empty, only localhost i\ 3 s available. Note that the implicit 4 localhost does not match 'all' 5 PLAY [AMI search] ********************************************\ 6 ********************************************** 7 TASK [search for existing AMI] ***************************\ 8 ********************************************** 9 ok: [localhost] 10 TASK [debug] ***********************************************\ 11 ********************************************** 12 ok: [localhost] => { 13 "ami_found": { 14 "changed": false, 15 "failed": false, 16 "images": [ 17 { 18 "architecture": "x86_64", 19 "block_device_mappings": [ 20 { 21 "device_name": "/dev/sda1", 22 "ebs": { 23 "delete_on_termination": true, 24 "encrypted": false, 25 "snapshot_id": "snap-03f2e24f\ 26 30f580353", 27 "volume_size": 10, 28 "volume_type": "gp2" 29 } 30 } 31 ], 32 "creation_date": "2020-11-02T11:01:38.000\ 33 Z", 34 "deprecation_time": "2022-11-02T11:01:38.\ 35 000Z", 36 "description": "Provided by Red Hat, Inc.\ 37 ", 38 "ena_support": true, 39 "hypervisor": "xen", 40 "image_id": "ami-096fda3c22c1c990a", 41 "image_location": "309956199498/RHEL-8.3.\ 42 0_HVM-20201031-x86_64-0-Hourly2-GP2", 43 "image_type": "machine", 44 "name": "RHEL-

8.3.0_HVM-20201031-x86_64-0\ 45 -Hourly2-GP2", 46
"owner_id": "309956199498", 47
"platform_details": "Red Hat Enterprise L\ 48 inux", 49
"public": true, 50 "root_device_name":
"/dev/sda1", 51 "root_device_type": "ebs", 52
"sriov_net_support": "simple", 53 "state":
"available", 54 "tags": {}, 55
"usage_operation": "RunInstances:0010", 56
"virtualization_type": "hvm" 57 } 58 ] 59 }
60 } 61 PLAY RECAP
**********\ 62
********** 63 localhost
: ok=2 changed=0 unreach\ 64 able=0 failed=0
skipped=0 rescued=0 ignored=0 65 [devops@demo
aws]$

---

# idempotency

---

1 $ ansible-playbook ami_search.yml 2 [WARNING]:
provided hosts list is empty, only localhost i\ 3 s available.
Note that the implicit 4 localhost does not match 'all' 5 PLAY
[AMI search] **********\ 6
********** 7 TASK [search for
existing AMI] **********\ 8
********** 9 ok: [localhost]
10 TASK [debug]
**********\ 11

```
********************************************** 12 ok: [localhost]
=> { 13     "ami_found": { 14         "changed": false, 15
"failed": false, 16         "images": [ 17             { 18
"architecture": "x86_64", 19
"block_device_mappings": [ 20                 { 21
     "device_name": "/dev/sda1", 22                     "ebs": {
23                         "delete_on_termination": true, 24
               "encrypted": false, 25
"snapshot_id": "snap-03f2e24f\ 26 30f580353", 27
          "volume_size": 10, 28
"volume_type": "gp2" 29                     } 30                 }
31                 ], 32                 "creation_date": "2020-11-
02T11:01:38.000\ 33 Z", 34                 "deprecation_time":
"2022-11-02T11:01:38.\ 35 000Z", 36
"description": "Provided by Red Hat, Inc.\ 37 ", 38
"ena_support": true, 39                 "hypervisor": "xen", 40
          "image_id": "ami-096fda3c22c1c990a", 41
"image_location": "309956199498/RHEL-8.3.\ 42 0_HVM-
20201031-x86_64-0-Hourly2-GP2", 43
"image_type": "machine", 44                 "name": "RHEL-
8.3.0_HVM-20201031-x86_64-0\ 45 -Hourly2-GP2", 46
     "owner_id": "309956199498", 47
"platform_details": "Red Hat Enterprise L\ 48 inux", 49
     "public": true, 50                 "root_device_name":
"/dev/sda1", 51                 "root_device_type": "ebs", 52
       "sriov_net_support": "simple", 53                 "state":
"available", 54                 "tags": {}, 55
"usage_operation": "RunInstances:0010", 56
"virtualization_type": "hvm" 57             } 58         ] 59     }
60 } 61 PLAY RECAP
*********************************************\ 62
********************************************** 63 localhost
       : ok=2    changed=0    unreach\ 64 able=0    failed=0
  skipped=0    rescued=0    ignored=0 65 [devops@demo
aws]$
```

# Ansible troubleshooting - AWS Failed to import the required Python library (botocore or boto3)

Let’s troubleshoot together the Ansible fatal error “Failed to import the required Python library (botocore or boto3)” to find the root cause, install the required library using PIP, and successfully run our Ansible For AWS Playbook code.

# Ansible troubleshooting - AWS Failed to import the required Python library (botocore or boto3)

Today we’re going to talk about Ansible troubleshooting, specifically about the “Failed to import the required Python library (botocore or boto3)” message and enable Ansible For AWS.

This fatal error message happens when we are trying to execute some code against your AWS EC2 Infrastructure without the necessary Python libraries for the AWS.

These circumstances are usually related to the configuration of your Ansible Controller node and usually are not related to Ansible Playbook.

# demo

The best way of talking about Ansible troubleshooting is to jump in a live demo to show you practically the “Failed to import the required Python library (botocore or boto3)” and how to solve it!

In this demo, I’m going to reproduce the error and fix using the PIP, the Python Package Manager on a demo machine.

### error execution

---

1 $ ansible-playbook ami_search.yml 2 [WARNING]: provided hosts list is empty, only localhost i\ 3 s available. Note that the implicit 4 localhost does not match 'all' 5 PLAY [AMI search] **********\ 6 ********** 7 TASK [search for AMI] **********\ 8

********** 9 fatal: [localhost]: FAILED! => {"changed": false, "msg": \ 10 "Failed to import the required Python library (botocore o\ 11 r boto3) on demo.example.com's Python /usr/bin/python3.8.\ 12 Please read the module documentation and install it in t\ 13 he appropriate location. If the required library is insta\ 14 lled, but Ansible is using the wrong Python interpreter, \ 15 please consult the documentation on ansible_python_interp\ 16 reter"} 17 PLAY RECAP **********\ 18 ********** 19 localhost : ok=0 changed=0 unreach\ 20 able=0 failed=1 skipped=0 rescued=0 ignored=0

---

**fix code**

python version

The first step is to determine your Python version (3.8 in this example):

---

1 $ ansible --version 2 ansible [core 2.12.2] 3 config file = /etc/ansible/ansible.cfg 4 configured module search path =

['/home/devops/.ansible\ 5 /plugins/modules', '/usr/share/ansible/plugins/modules'] 6   ansible python module location = /usr/lib/python3.8/sit\ 7 e-packages/ansible 8   ansible collection location = /home/devops/.ansible/col\ 9 lections:/usr/share/ansible/collections 10   executable location = /usr/bin/ansible 11   python version = 3.8.12 (default, Sep 16 2021, 10:46:05\ 12 ) [GCC 8.5.0 20210514 (Red Hat 8.5.0-3)] 13   jinja version = 2.10.3 14   libyaml = True 15 [devops@demo aws]$ python --version 16 -bash: python: command not found 17 [devops@demo aws]$ python3 --version 18 Python 3.6.8 19 [devops@demo aws]$ python3.8 --version 20 Python 3.8.12 21 [devops@demo aws]$ whereis python3.8 22 python3: /usr/bin/python3.6 /usr/bin/python3.6m /usr/bin/\ 23 python3 /usr/bin/python3.8 /usr/lib/python3.6 /usr/lib/py\ 24 thon3.8 /usr/lib64/python3.6 /usr/lib64/python3.8 /usr/lo\ 25 cal/lib/python3.8 /usr/include/python3.6m /usr/include/py\ 26 thon3.8 /usr/share/man/man1/python3.1.gz

---

before

Let’s use the pip3.8 command because we are running python 3.8. In other Linux distributions, you might need to specify different Python versions. For example Python 3.9 using pip3.9, pip3 or just pip.

---

1 [root@demo aws]# pip3.8 list | grep boto

---

fixed with PIP

---

1 [root@demo aws]# pip3.8 install boto3 2 WARNING: Running pip install with root privileges is gene\ 3 rally not a good idea. Try `pip3.8 install --user` instea\ 4 d. 5 Collecting boto3 6 Downloading https://files.pythonhosted.org/packages/d4/\ 7 c0/59513bab408fe6dd366f55c5e6ea4128daffe501fa898674993221\ 8 9bdd59/boto3-1.24.27-py3-none-any.whl (132kB) 9 |████████████████████████████████| 133kB 616kB/s 10 Collecting jmespath<2.0.0,>=0.7.1 11 Downloading https://files.pythonhosted.org/packages/31/\ 12 b4/b9b800c45527aadd64d5b442f9b932b00648617eb5d63d2c7a6587\ 13 b7cafc/jmespath-1.0.1-py3-none-any.whl 14 Collecting botocore<1.28.0,>=1.27.27 15 Downloading https://files.pythonhosted.org/packages/20/\ 16 7a/06940ad3f89e19ef065dd2600b14148673efe775da4fa61f39b7c6\ 17 3724a8/botocore-1.27.27-py3-none-any.whl (9.0MB) 18 |████████████████████████████████| 9.0MB 2.5MB/s 19 Collecting s3transfer<0.7.0,>=0.6.0 20 Downloading https://files.pythonhosted.org/packages/5e/\ 21 c6/af903b5fab3f9b5b1e883f49a770066314c6dcceb589cf938d48c8\ 22 9556c1/s3transfer-0.6.0-py3-none-any.whl

(79kB) 23 |

| 81kB 3.2MB/s 24 Collecting python-dateutil<3.0.0,>=2.1 25 Downloading https://files.pythonhosted.org/packages/36/\ 26 7a/87837f39d0296e723bb9b62bbb257d0355c7f6128853c78955f573\ 27 42a56d/python_dateutil-2.8.2-py2.py3-none-any.whl (247kB) 28 |

| 256kB 4.9MB/s 29 Requirement already satisfied: urllib3<1.27,>=1.25.4 in /\ 30 usr/local/lib/python3.8/site-packages (from botocore<1.28\ 31 .0,>=1.27.27->boto3) (1.26.9) 32 Requirement already satisfied: six>=1.5 in /usr/lib/pytho\ 33 n3.8/site-packages (from python-dateutil<3.0.0,>=2.1->bot\ 34 ocore<1.28.0,>=1.27.27->boto3) (1.12.0) 35 Installing collected packages: jmespath, python-dateutil,\ 36 botocore, s3transfer, boto3 37 Successfully installed boto3-1.24.27 botocore-1.27.27 jme\ 38 spath-1.0.1 python-dateutil-2.8.2 s3transfer-0.6.0

---

after

---

1 [root@demo aws]# pip3.8 list | grep boto 2 boto3 1.24.27 3 botocore 1.27.27 4 [root@demo aws]#

---

**fix execution**

---

1 $ ansible-playbook ami_search.yml 2 [WARNING]: provided hosts list is empty, only localhost i\ 3 s available. Note that the implicit 4 localhost does not match 'all' 5 PLAY [AMI search] **********\ 6 ********** 7 TASK [search for existing AMI] **********\ 8 ********** 9 ok: [localhost] 10 TASK [debug] **********\ 11 ********** 12 ok: [localhost] => { 13 "ami_found": { 14 "changed": false, 15 "failed": false, 16 "images": [ 17 { 18 "architecture": "x86_64", 19 "block_device_mappings": [ 20 { 21 "device_name": "/dev/sda1", 22 "ebs": { 23 "delete_on_termination": true, 24 "encrypted": false, 25 "snapshot_id": "snap-03f2e24f\ 26 30f580353", 27 "volume_size": 10, 28 "volume_type": "gp2" 29 } 30 } 31 ], 32 "creation_date": "2020-11-02T11:01:38.000\ 33 Z", 34 "deprecation_time": "2022-11-02T11:01:38.\ 35 000Z", 36 "description": "Provided by Red Hat, Inc.\ 37 ", 38 "ena_support": true, 39 "hypervisor": "xen", 40 "image_id": "ami-096fda3c22c1c990a", 41 "image_location": "309956199498/RHEL-8.3.\ 42 0_HVM-20201031-x86_64-0-Hourly2-GP2", 43 "image_type": "machine", 44 "name": "RHEL-8.3.0_HVM-20201031-x86_64-0\ 45 -Hourly2-GP2", 46

```
      "owner_id": "309956199498", 47
"platform_details": "Red Hat Enterprise L\ 48 inux", 49
      "public": true, 50                "root_device_name":
"/dev/sda1", 51                "root_device_type": "ebs", 52
       "sriov_net_support": "simple", 53                "state":
"available", 54                "tags": {}, 55
"usage_operation": "RunInstances:0010", 56
"virtualization_type": "hvm" 57            } 58        ] 59     }
60 } 61 PLAY RECAP
*********************************************\ 62
********************************************* 63 localhost
       : ok=2    changed=0    unreach\ 64 able=0    failed=0
  skipped=0    rescued=0    ignored=0
```

# Thank you

Let me remind yourself that Ansible is an Open Source evolving product.

In this book we covered the most useful day-to-day code and activities in the most used Operating Systems.

Use this book as a guidance in your day-to-day life but feel free to use your creativity to invent new automation workflows.

This is where the Ansible starts becoming truly fun, but this is also where this book’s story ends and others’ begin.

For pointers on where to turn after this book, see the list of recommended follow-up text in the Preface.

Good luck with your journey.

And of course, “Always look on the bright side of Life!”