

1. What is Ansible?

Answer: Ansible is an open-source automation tool used for configuration management, application deployment, and task automation. It allows you to define and manage your infrastructure as code, making it easy to automate repetitive tasks and manage complex systems.

2. How does Ansible work?

Answer: Ansible works by connecting to your remote systems via SSH (or WinRM for Windows) and executing tasks defined in playbooks. Playbooks are YAML files that describe the desired state of your systems. Ansible uses a push model, where the Ansible control node pushes configurations to managed nodes.

3. What is a playbook in Ansible?

Answer: A playbook in Ansible is a YAML file that contains a set of instructions or tasks to be executed on remote hosts. It defines the configuration and automation steps needed to achieve a desired state on the managed systems. Playbooks are used to orchestrate and automate tasks.

4. What is an inventory file in Ansible?

Answer: The inventory file in Ansible is a configuration file that lists the hosts or groups of hosts where Ansible will execute tasks. It defines the IP addresses or hostnames of the managed nodes and can also include variables specific to those hosts or groups.

5. What is the role of a task in an Ansible playbook?

Answer: A task in an Ansible playbook represents a single unit of work or action that Ansible will perform on a target host. Tasks are defined using modules and include actions like installing packages, copying files, or starting services.

6. What are Ansible modules?

Answer: Ansible modules are standalone scripts or programs that perform specific tasks, such as managing files, installing packages, or configuring services. Modules are used within tasks in playbooks to define the actions that need to be executed.

7. What is a role in Ansible?

Answer: A role in Ansible is a way to organize playbooks and other files into reusable components. Roles help in structuring playbooks by separating configuration, tasks, handlers, and variables into distinct directories, making them modular and easier to manage.

8. What is a handler in Ansible?

Answer: A handler in Ansible is a special type of task that is triggered only when notified by other tasks. Handlers are typically used to perform actions that need to occur only if a change is made, such as restarting a service after a configuration change.

9. What are variables in Ansible, and how are they used?

Answer: Variables in Ansible are used to store and manage values that can be used across playbooks and tasks. Variables allow for dynamic and reusable playbooks by defining values such as configuration settings, file paths, or host-specific information. Variables can be defined in playbooks, inventory files, or external variable files.

10. What is the difference between a "play" and a "task" in Ansible?

Answer:

- **Play:** A play is a set of tasks that are executed on a group of hosts. It defines the group of hosts, the tasks to be executed, and the order of execution. Each play in a playbook targets a specific group of hosts and applies a series of tasks to them.
- **Task:** A task is a single action or command executed on the managed hosts, such as installing a package or starting a service. Tasks are defined within plays and are executed in sequence.

11. How do you use Ansible to ensure idempotency?

Answer: Ansible ensures idempotency by designing tasks in a way that applying them multiple times will have the same effect as applying them once. This means that running a playbook multiple times will not alter the system beyond the intended state. Modules are designed to check the current state and make changes only if necessary.

12. What is the purpose of the ansible-playbook command?

Answer: The ansible-playbook command is used to execute Ansible playbooks. It reads the playbook file, processes the defined tasks, and applies the specified configuration to the managed nodes.

13. What are some common Ansible modules you have used?

Answer: Common Ansible modules include:

- **apt:** Manages packages on Debian-based systems.
- **yum:** Manages packages on Red Hat-based systems.
- **file:** Manages file and directory properties.
- **copy:** Copies files from the control node to the remote host.
- **service:** Manages services on the remote host.

14. What is an Ansible role and how do you use it?

Answer: An Ansible role is a structured way to organize tasks, handlers, variables, and other files into reusable components. Roles are used to modularize playbooks and facilitate reuse across multiple playbooks. You use a role by including it in a playbook using the roles directive.

15. What is the difference between ansible and ansible-playbook?

Answer:

- **ansible:** This command is used to execute ad-hoc commands on remote hosts. It is useful for performing simple, one-off tasks or commands.
- **ansible-playbook:** This command is used to execute playbooks, which are YAML files containing a series of tasks and configurations to be applied to one or more hosts.

16. How do you handle sensitive data in Ansible?

Answer: Sensitive data in Ansible, such as passwords or API keys, can be managed using Ansible Vault. Ansible Vault allows you to encrypt sensitive information within variable files or other files, ensuring that the data is securely handled and protected.

17. What is the purpose of the ansible-galaxy command?

Answer: The ansible-galaxy command is used to manage roles and collections from the Ansible Galaxy repository. It allows you to install, create, and manage roles and collections, which are reusable sets of playbooks, tasks, and variables.

18. How can you debug an Ansible playbook?

Answer: To debug an Ansible playbook, you can use the -v (verbose) option with the ansible-playbook command to get more detailed output. Using -vv or -vvv increases verbosity for deeper debugging. You can also use the debug module within playbooks to print variable values or custom messages.

19. What are Ansible facts?

Answer: Ansible facts are system information collected from managed nodes by Ansible. Facts provide details about the system's hardware, software, network configuration, and other attributes. Facts are automatically gathered and can be used in playbooks to make decisions based on system characteristics.

20. What is the ansible.cfg file?

Answer: The ansible.cfg file is the configuration file for Ansible. It allows you to define settings for Ansible, such as the location of the inventory file, default module paths, and various options for controlling behavior. It can be placed in several locations, including the project directory, user home directory, or system-wide.