

# Ansible Built-in Variables Reference Guide

**Note:** This document covers Ansible's magic variables and special variables that are automatically available in playbooks and templates. These variables are set by Ansible and provide information about the execution environment, hosts, and tasks.

## Quick Reference Table

A comprehensive list of all Ansible built-in variables for quick lookup:

Variable	Category	Description
inventory_hostname	Host	Name of current host as defined in inventory
inventory_hostname_short	Host	Short hostname (up to first period)
ansible_host	Host	Actual hostname/IP to connect to
ansible_hostname	Fact	Hostname as reported by system
ansible_fqdn	Fact	Fully qualified domain name
groups	Group	Dictionary of all inventory groups and members
group_names	Group	List of groups current host belongs to
hostvars	Group	Variables for all hosts in inventory
playbook_dir	Playbook	Directory where playbook is located
ansible_play_batch	Playbook	Hosts in current play batch
ansible_play_hosts	Playbook	Active hosts in current play
ansible_play_hosts_all	Playbook	All hosts in play (including failed)
role_path	Playbook	Path to current role
ansible_check_mode	Playbook	Boolean if running in check mode
ansible_diff_mode	Playbook	Boolean if diff mode enabled
ansible_version	Playbook	Ansible version information
ansible_connection	Connection	Connection plugin (ssh, local, etc.)
ansible_user	Connection	User to connect as
ansible_become	Connection	Enable privilege escalation

ansible_become_user	Connection	User to become (default: root)
ansible_become_method	Connection	Escalation method (sudo, su, etc.)
ansible_port	Connection	SSH port to connect to
ansible_ssh_private_key_file	Connection	Path to SSH private key
ansible_distribution	Fact	OS distribution name
ansible_distribution_version	Fact	OS distribution version
ansible_os_family	Fact	OS family (Debian, RedHat, etc.)
ansible_architecture	Fact	System architecture
ansible_processor_cores	Fact	Number of CPU cores
ansible_memtotal_mb	Fact	Total memory in MB
ansible_memfree_mb	Fact	Free memory in MB
ansible_default_ipv4.address	Fact	Default IPv4 address
ansible_all_ipv4_addresses	Fact	List of all IPv4 addresses
ansible_interfaces	Fact	List of network interfaces
ansible_mounts	Fact	List of mounted filesystems
ansible_devices	Fact	Dictionary of block devices
ansible_env	Fact	Environment variables
ansible_date_time	Fact	Various date/time formats
ansible_facts	Special	Dictionary of all gathered facts
ansible_local	Special	Custom facts from /etc/ansible/facts.d/
inventory_dir	Special	Directory containing inventory file
inventory_file	Special	Name of inventory file
omit	Special	Omit module parameters conditionally
item	Loop	Current item in loop
ansible_loop.index	Loop	Current iteration (1-indexed)
ansible_loop.index0	Loop	Current iteration (0-indexed)
ansible_loop.first	Loop	Boolean for first iteration

<code>ansible_loop.last</code>	Loop	Boolean for last iteration
<code>ansible_loop.length</code>	Loop	Total items in loop
<code>ansible_delegated_vars</code>	Delegation	Variables of delegated host
<code>delegate_to</code>	Delegation	Host to delegate task to

## 1. Magic Variables

Magic variables are automatically set by Ansible and provide information about the current execution context.

### Inventory and Host Variables

#### `inventory_hostname`

The name of the current host as defined in the inventory file.

```
{% inventory_hostname %}
```

#### `inventory_hostname_short`

The short version of `inventory_hostname` (up to the first period).

```
{% inventory_hostname_short %}
```

#### `ansible_host`

The actual hostname or IP address to connect to (may differ from `inventory_hostname`).

```
{% ansible_host %}
```

#### `ansible_hostname`

The hostname as reported by the system (gathered fact).

```
{% ansible_hostname %}
```

#### `ansible_fqdn`

The fully qualified domain name of the managed host.

```
{% ansible_fqdn %}
```

## Group Variables

### groups

A dictionary containing all groups in the inventory and their members.

```
{{ groups['webservers'] }}  
{{ groups.keys() }}
```

### group\_names

A list of all groups the current host is part of.

```
{{ group_names }}
```

### hostvars

A dictionary containing variables for all hosts in the inventory.

```
{{ hostvars['hostname']['ansible_os_family'] }}
```

## Playbook and Task Variables

### playbook\_dir

The directory where the playbook is located.

```
{{ playbook_dir }}
```

### ansible\_play\_batch

List of hostnames that are in the current play batch.

```
{{ ansible_play_batch }}
```

### ansible\_play\_hosts

List of all hosts still active in the current play.

```
{{ ansible_play_hosts }}
```

### ansible\_play\_hosts\_all

List of all hosts in the current play, including failed/unreachable ones.

```
{{ ansible_play_hosts_all }}
```

### role\_path

The path to the current role being executed.

```
{{ role_path }}
```

### ansible\_check\_mode

Boolean indicating if Ansible is running in check mode (--check).

```
{{ ansible_check_mode }}
```

### ansible\_diff\_mode

Boolean indicating if diff mode is enabled (--diff).

```
{{ ansible_diff_mode }}
```

### ansible\_version

Dictionary containing information about the Ansible version.

```
{{ ansible_version.full }}
```

## 2. Connection Variables

Variables that control how Ansible connects to managed hosts.

### ansible\_connection

The connection plugin to use (ssh, local, docker, etc.).

```
ansible_connection: ssh
```

### ansible\_user

The user to connect as on the remote host.

```
ansible_user: admin
```

### ansible\_become

Boolean to enable privilege escalation.

```
ansible_become: yes
```

### ansible\_become\_user

The user to become via privilege escalation (default: root).

```
ansible_become_user: root
```

### ansible\_become\_method

The privilege escalation method to use (sudo, su, etc.).

```
ansible_become_method: sudo
```

### ansible\_port

The SSH port to connect to.

```
ansible_port: 22
```

### ansible\_ssh\_private\_key\_file

Path to the SSH private key file.

```
ansible_ssh_private_key_file: ~/.ssh/id_rsa
```

## 3. Common Ansible Facts

Facts are automatically gathered information about managed hosts. Here are the most commonly used ones:

Variable	Description
ansible_distribution	OS distribution (Ubuntu, CentOS, RedHat, etc.)
ansible_distribution_version	Version of the OS distribution
ansible_os_family	OS family (Debian, RedHat, Windows, etc.)
ansible_architecture	System architecture (x86_64, armv7l, etc.)
ansible_processor_cores	Number of CPU cores
ansible_memtotal_mb	Total memory in MB
ansible_memfree_mb	Free memory in MB
ansible_default_ipv4.address	Default IPv4 address
ansible_all_ipv4_addresses	List of all IPv4 addresses
ansible_interfaces	List of network interfaces
ansible_mounts	List of mounted filesystems
ansible_devices	Dictionary of block devices
ansible_env	Environment variables
ansible_date_time	Dictionary with various date/time formats

## 4. Special Variables

### `ansible_facts`

Dictionary containing all gathered facts about the host.

```
{% ansible_facts['os_family'] %}
```

### `ansible_local`

Custom facts defined in /etc/ansible/facts.d/

```
{% ansible_local['custom']['key'] %}
```

### `inventory_dir`

Directory containing the inventory file.

```
{% inventory_dir %}
```

### `inventory_file`

Name of the inventory file being used.

```
{% inventory_file %}
```

### `omit`

Special variable to omit module parameters conditionally.

```
mode: "{{ item.mode | default(omit) }}"
```

## 5. Loop Variables

## item

The current item in a loop.

```
- debug: msg="{{ item }}"
loop: [1, 2, 3]
```

## ansible\_loop.index

Current iteration of the loop (1-indexed).

```
{{ ansible_loop.index }}
```

## ansible\_loop.index0

Current iteration of the loop (0-indexed).

```
{{ ansible_loop.index0 }}
```

## ansible\_loop.first

Boolean indicating if this is the first iteration.

```
{{ ansible_loop.first }}
```

## ansible\_loop.last

Boolean indicating if this is the last iteration.

```
{{ ansible_loop.last }}
```

## ansible\_loop.length

Total number of items in the loop.

```
{{ ansible_loop.length }}
```

# 6. Delegation Variables

## **ansible\_delegated\_vars**

Variables of the host being delegated to.

```
 {{ ansible_delegated_vars }}
```

## **delegate\_to**

Specifies which host to delegate task execution to.

```
delegate_to: localhost
```

### **Tips for Using Variables:**

- Use `ansible -m setup hostname` to see all facts for a specific host
- Disable fact gathering with `gather_facts: no` if not needed to speed up playbooks
- Access nested variables using dot notation or bracket notation
- Use the `default` filter to provide fallback values:  `{{ variable | default('default_value') }}`

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For more information, visit: [Ansible Official Documentation](#)