
OpenStack-Ansible Documentation: rabbitmq_server role

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This Ansible role deploys RabbitMQ. When multiple hosts are present in the `rabbitmq_all` inventory group, a cluster is created.

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1.1 Scenario - Configuring RabbitMQ

RabbitMQ provides the messaging broker for various OpenStack services. The OpenStack-Ansible project configures a plain text listener on port 5672 and a SSL/TLS encrypted listener on port 5671.

Customize your RabbitMQ deployment in `/etc/openstack_deploy/user_variables.yml`.

1.1.1 Add a TLS encrypted listener to RabbitMQ

The OpenStack-Ansible project provides the ability to secure RabbitMQ communications with self-signed or user-provided SSL certificates. Refer to Securing services with SSL certificates in the OSA Install Guide for available configuration options.

1.1.2 Enable encrypted connections to RabbitMQ

The control of SSL communication between various OpenStack services and RabbitMQ is via the Ansible variable `rabbitmq_use_ssl`:

```
rabbitmq_use_ssl: true
```

Setting this variable to `true` adjusts the RabbitMQ port to 5671 (the default SSL/TLS listener port) and enables SSL connectivity between each OpenStack service and RabbitMQ.

Setting this variable to `false` disables SSL encryption between OpenStack services and RabbitMQ and configures all services to use the plain text port, 5672.

To clone or view the source code for this repository, visit the role repository for `rabbitmq_server`.

DEFAULT VARIABLES

```
## APT Cache Options
cache_timeout: 600

# Set the package install state for distribution packages
# Options are 'present' and 'latest'
rabbitmq_package_state: "latest"

# Inventory group containing the hosts for the cluster
rabbitmq_host_group: "rabbitmq_all"

# The local address used for the rabbitmq cluster node
rabbitmq_node_address: "{{ ansible_host }}"

rabbit_system_user_name: rabbitmq
rabbit_system_group_name: rabbitmq

# Allow role to adjust /etc/hosts file
rabbitmq_manage_hosts_entries: True

# Hosts file entries
rabbitmq_hosts_entries: >-
  {{ groups[rabbitmq_host_group] | map('extract', hostvars) | list |
    json_query(
      "[].{address: rabbitmq_node_address || ansible_host , hostnames:
→[ansible_facts.hostname, ansible_facts.fqdn] }"
    )
  }}

rabbitmq_primary_cluster_node: "{{ hostvars[groups[rabbitmq_host_
→group][0]][ 'ansible_facts' ][ 'hostname' ] }}"

# Upgrading the RabbitMQ package requires shutting down the cluster. This
→variable makes upgrading
# the version an explicit action.
rabbitmq_upgrade: false

# If the user does not want to upgrade but needs to rerun the playbooks
→for any reason the
# upgrade/version state can be ignored by setting `rabbitmq_ignore_
→version_state=true`
rabbitmq_ignore_version_state: false

rabbitmq_package_url: ""
```

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```

rabbitmq_package_version: "{{ _rabbitmq_package_version }}"
rabbitmq_package_sha256: ""
rabbitmq_package_path: ""

# Set the gpg keys needed to be imported
# This should be a list of dicts, with each dict
# giving a set of arguments to the applicable
# package module. The following is an example for
# systems using the apt package manager.
# rabbitmq_gpg_keys:
#   - id: '0xC2E73424D59097AB'
#     keyserver: 'hkp://keyserver.ubuntu.com:80'
#     validate_certs: no
rabbitmq_gpg_keys: "{{ _rabbitmq_gpg_keys | default([]) }}"

# Set the URL for the RabbitMQ repository
rabbitmq_repo_url: "{{ _rabbitmq_repo_url | default(null) }}"

# Set the repo information for the RabbitMQ repository
rabbitmq_repo: "{{ _rabbitmq_repo | default({}) }}"

# Set the URL for the Erlang repository
rabbitmq_erlang_repo_url: "{{ _rabbitmq_erlang_repo_url | default(null) }}"

# Set the repo information for the Erlang repository
rabbitmq_erlang_repo: "{{ _rabbitmq_erlang_repo | default({}) }}"

# Set the elang version used on the deployment
rabbitmq_erlang_version_spec: "{{ _rabbitmq_erlang_version_spec |
  ↳default(null) }}"

# Choose file, distro, external_repo for rabbitmq_install_method.
rabbitmq_install_method: "{{ _rabbitmq_install_method }}"

# Name of the rabbitmq cluster
rabbitmq_cluster_name: rabbitmq_cluster1

# Specify a partition recovery strategy (autoheal | pause_minority |
  ↳ignore)
rabbitmq_cluster_partition_handling: pause_minority

# Rabbitmq open file limits
rabbitmq_ulimit: 65536

# Configure rabbitmq plugins
# This should be a comma-separated list of plugin names.
# Any plugin not listed will be disabled automatically.
# rabbitmq_plugins:
#   - name: rabbitmq_management,rabbitmq_prometheus
#     state: enabled
rabbitmq_plugins:
  - name: rabbitmq_management
    state: enabled

# Storage location for SSL certificate authority
rabbitmq_pki_dir: "{{ openstack_pki_dir | default('/etc/pki/rabbitmq-ca') }
  ↳}"

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# Delegated host for operating the certificate authority
rabbitmq_pki_setup_host: "{{ openstack_pki_setup_host | default('localhost
→') }}"

# Create a certificate authority if one does not already exist
rabbitmq_pki_create_ca: "{{ openstack_pki_authorities is not defined |_
→bool }}"
rabbitmq_pki_regen_ca: ''
rabbitmq_pki_authorities:
  - name: "RabbitMQRoot"
    country: "GB"
    state_or_province_name: "England"
    organization_name: "Example Corporation"
    organizational_unit_name: "IT Security"
    cn: "RabbitMQ Root CA"
    provider: selfsigned
    basic_constraints: "CA:TRUE"
    key_usage:
      - digitalSignature
      - cRLSign
      - keyCertSign
    not_after: "+3650d"
  - name: "RabbitMQIntermediate"
    country: "GB"
    state_or_province_name: "England"
    organization_name: "Example Corporation"
    organizational_unit_name: "IT Security"
    cn: "RabbitMQ Intermediate CA"
    provider: ownca
    basic_constraints: "CA:TRUE,pathlen:0"
    key_usage:
      - digitalSignature
      - cRLSign
      - keyCertSign
    not_after: "+3650d"
    signed_by: "RabbitMQRoot"

# Installation details for certificate authorities
rabbitmq_pki_install_ca:
  - name: "RabbitMQRoot"
    condition: "{{ rabbitmq_pki_create_ca }}"

# Rabbitmq server certificate
rabbitmq_pki_keys_path: "{{ rabbitmq_pki_dir ~ '/certs/private/' }}"
rabbitmq_pki_certs_path: "{{ rabbitmq_pki_dir ~ '/certs/certs/' }}"
rabbitmq_pki_intermediate_cert_name: "{{ openstack_pki_service_
→intermediate_cert_name | default('RabbitMQIntermediate') }}"
rabbitmq_pki_intermediate_cert_path: "{{ rabbitmq_pki_dir ~ '/roots/' ~_
→rabbitmq_pki_intermediate_cert_name ~ '/certs/' ~ rabbitmq_pki_
→intermediate_cert_name ~ '.crt' }}"
rabbitmq_pki_regen_cert: ''
rabbitmq_pki_certificates:
  - name: "rabbitmq_{{ ansible_facts['hostname'] }}"
    provider: ownca
    cn: "{{ ansible_facts['hostname'] }}"

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```

    san: "{{ 'DNS:' ~ ansible_facts['hostname'] ~ ',IP:' ~ rabbitmq_node_
↪address }}"
    signed_by: "{{ rabbitmq_pki_intermediate_cert_name }}"

# RabbitMQ destination files for SSL certificates
rabbitmq_ssl_cert: /etc/rabbitmq/rabbitmq.pem
rabbitmq_ssl_key: /etc/rabbitmq/rabbitmq.key
rabbitmq_ssl_ca_cert: /etc/rabbitmq/rabbitmq-ca.pem

# Installation details for SSL certificates
rabbitmq_pki_install_certificates:
- src: "{{ rabbitmq_user_ssl_cert | default(rabbitmq_pki_certs_path ~
↪'rabbitmq_' ~ ansible_facts['hostname'] ~ '-chain.crt') }}"
  dest: "{{ rabbitmq_ssl_cert }}"
  owner: "rabbitmq"
  group: "rabbitmq"
  mode: "0644"
- src: "{{ rabbitmq_user_ssl_key | default(rabbitmq_pki_keys_path ~
↪'rabbitmq_' ~ ansible_facts['hostname'] ~ '.key.pem') }}"
  dest: "{{ rabbitmq_ssl_key }}"
  owner: "rabbitmq"
  group: "rabbitmq"
  mode: "0600"
- src: "{{ rabbitmq_user_ssl_ca_cert | default(rabbitmq_pki_intermediate_
↪cert_path) }}"
  dest: "{{ rabbitmq_ssl_ca_cert }}"
  owner: "rabbitmq"
  group: "rabbitmq"
  mode: "0644"

# Define user-provided SSL certificates in:
# /etc/openstack_deploy/user_variables.yml
#rabbitmq_user_ssl_cert: <path to cert on ansible deployment host>
#rabbitmq_user_ssl_key: <path to cert on ansible deployment host>
#rabbitmq_user_ssl_ca_cert: <path to cert on ansible deployment host>

# These are highly recommended for TLSv1.2 but cannot be used
# with TLSv1.3. If TLSv1.3 is enabled, these lines will not be
# inserted into the config
rabbitmq_ssl_client_renegotiation: false
rabbitmq_ssl_secure_renegotiate: true

# Supported TLS protocol versions
rabbitmq_ssl_tls_versions:
- "tlsv1.2"

# Mutual TLS control
rabbitmq_ssl_verify: "verify_none"
rabbitmq_ssl_fail_if_no_peer_cert: False

# Recommended ciphers taken from https://www.rabbitmq.com/ssl.html
rabbitmq_ssl_ciphers:
- "ECDHE-ECDSA-AES256-GCM-SHA384"
- "ECDHE-RSA-AES256-GCM-SHA384"
- "ECDH-ECDSA-AES256-GCM-SHA384"
- "ECDH-RSA-AES256-GCM-SHA384"

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```
- "DHE-RSA-AES256-GCM-SHA384"
- "DHE-DSS-AES256-GCM-SHA384"
- "ECDHE-ECDSA-AES128-GCM-SHA256"
- "ECDHE-RSA-AES128-GCM-SHA256"
- "ECDH-ECDSA-AES128-GCM-SHA256"
- "ECDH-RSA-AES128-GCM-SHA256"
- "DHE-RSA-AES128-GCM-SHA256"
- "DHE-DSS-AES128-GCM-SHA256"

# RabbitMQ erlang VM parameters
rabbitmq_async_threads: 128
rabbitmq_process_limit: 1048576

# Limit memory consumption of the erlang VM
rabbitmq_memory_high_watermark: 0.2

# RabbitMQ collect statistics interval
rabbitmq_collect_statistics_interval: 5000

# RabbitMQ Management service bind address
rabbitmq_management_bind_address: 0.0.0.0

# RabbitMQ Management rates mode
rabbitmq_management_rates_mode: basic

# Precompile RabbitMQ with HiPE
rabbitmq_hipe_compile: False

# Disable non-TLS listeners
rabbitmq_disable_non_tls_listeners: False

# RabbitMQ policies
# Used to tune performance characteristics of OpenStack messaging
#
# Example override that uses HA queues only for telemetry and sets message
# expiry for RPC messages
#
# rabbitmq_policies:
#   - name: "heat_rpc_expire"
#     pattern: '^heat-engine-listener\|\.\'
#     tags: "expires=3600000"
#     priority: 1
#   - name: "results_expire"
#     pattern: '^results\|\.\'
#     tags: "expires=3600000"
#     priority: 1
#   - name: "tasks_expire"
#     pattern: '^results\|\.\'
#     tags: "expires=3600000"
#     priority: 1
#   - name: "ha-notif"
#     pattern: '^(event|metering|notifications)\|\.\'
#     tags: "ha-sync-mode=automatic"
#     priority: 0
#
```

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```
rabbitmq_policies: []
rabbitmq_apply_openstack_policies: False
rabbitmq_openstack_policies:
  - name: "HA"
    pattern: '^(!amq\.|(\.*_fanout_)|(reply_))\.*'
    tags: "ha-mode=all"

rabbitmq_port_bindings:
  ssl_listeners:
    "0.0.0.0": 5671
  tcp_listeners:
    "0.0.0.0": 5672

# Mnesia configuration
# The Mnesia dump_log_write_threshold option controls
# how often the dumping occurs
# Increase this value can increase the performances,
# reducing the IO.
# Increase it in case of:
# Mnesia is overloaded: {dump_log,write_threshold}.
# The default value is 100
mnesia_dump_log_write_threshold: 300
```

DEPENDENCIES

This role needs `pip >= 7.1` installed on the target host.

To use this role, define the following variables:

```
# RabbitMQ cluster shared secret  
rabbitmq_cookie_token: secrete
```


EXAMPLE PLAYBOOK

```
- name: Install RabbitMQ server
  hosts: rabbitmq_all
  user: root
  roles:
    - { role: "rabbitmq_server", tags: [ "rabbitmq-server" ] }
  vars:
    rabbitmq_cookie_token: secrete
```