

## Secure Communication Between Hosts

The `cephadm` command uses SSH to communicate with storage cluster nodes. The cluster SSH key is created during the cluster bootstrap process. Copy the cluster public key to each host that will be a cluster member.

Use the following command to copy the cluster key to a cluster node:

```
[root@node ~]# cephadm shell
[ceph: root@node /]# ceph cephadm get-pub-key > ~/ceph.pub
[ceph: root@node /]# ssh-copy-id -f -i ~/ceph.pub root@node.example.com
```

## Deploying a New Cluster

The steps to deploy a new cluster are:

- Install the `cephadm-ansible` package on the host you have chosen as the bootstrap node, which is the first node in the cluster.
- Run the `cephadm` preflight playbook. This playbook verifies that the host has the required prerequisites.
- Use `cephadm` to bootstrap the cluster. The bootstrap process accomplishes the following tasks:
  - Installs and starts a Ceph Monitor and a Ceph Manager daemon on the bootstrap node.
  - Creates the `/etc/ceph` directory.
  - Writes a copy of the cluster public SSH key to `/etc/ceph/ceph.pub` and adds the key to the `/root/.ssh/authorized_keys` file.
  - Writes a minimal configuration file needed to communicate with the new cluster to the `/etc/ceph/ceph.conf` file.
  - Writes a copy of the `client.admin` administrative secret key to the `/etc/ceph/ceph.client.admin.keyring` file.
  - Deploys a basic monitoring stack with `prometheus` and `grafana` services, as well as other tools such as `node-exporter` and `alert-manager`.

## Installing Prerequisites

Install `cephadm-ansible` on the bootstrap node:

```
[root@node ~]# yum install cephadm-ansible
```

Run the `cephadm-preflight.yaml` playbook. This playbook configures the Ceph repository and prepares the storage cluster for bootstrapping. It also installs prerequisite packages, such as `podman`, `lvm2`, `chrony`, and `cephadm`.

The preflight playbook uses the `cephadm-ansible` inventory file to identify the admin and client nodes in the storage cluster.

The default location for the inventory file is `/usr/share/cephadm-ansible/hosts`. The following example shows the structure of a typical inventory file: