

## Move Munge key's from controller node to worker nodes

- Note: since we are dealing with root access, always in a command use `sudo` or it will not execute
  - Note: you should be in your login/controller node before starting. Make sure of that
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1. `sudo scp /etc/munge/munge.key /tmp/munge.key`
    1. From login node secure copy to local machine. This is temporary.
  2. `stat /tmp/munge.key`
    1. Verify munge key is installed within login and you can see permissions for the key and who is the root user
  3. `sudo chmod 777 /tmp/munge.key`
    1. 777 - makes every single file on the system under / (root) have `rw-rw-rw-` permissions
    1. `rw-rw-rw-` : everyone can read, write and execute permissions
  4. `rsync --progress`
    1. You are able to see if rsync is installed, if not
    2. Install rsync
      1. `yum install rsync`
  5. `rsync /tmp/munge.key rocky@<YOUR IP TO YOUR DESIRED NODE>:/tmp/munge.key`
    1. Now that we have access to the munge key file, we can move from one node to the other using `rsync` by being in the login node, we sync with the other node. In this case `cpu0` and move our temp key to the correct file space in `cpu0`. We execute and it should just print out nothing
  6. `ssh rocky@<YOUR IP TO YOUR DESIRED NODE>`
    1. Ssh onto the desired node
  7. `sudo mv /tmp/munge.key /etc/munge/munge.key`
    1. With the sync already executed, we can move from our local machine to the temp space in `cpu0`
  8. `sudo stat /etc/munge/munge.key`
    1. If executed correctly we can see information about our key and who has access to it. Right now it should be in `rocky` but we want it to be `root`. if you are `root` user and have access to `root`, you should then be the only one to read it.
  9. `sudo chmod 400 /etc/munge/munge.key`
    1. grants only the owner or user of the file read permission while restricting everyone else entirely

10. `sudo chown root:root /etc/munge/munge.key`
  1. The command `chown root:root` changes the user and group of the specified file or directory to user root and group root
11. `sudo stat /etc/munge/munge.key`
  1. We can then see `Uid = 0`, 0 means root user
  2. `Gid: ( 0/ root)` is group id is root as well
12. Great now it should be moved and set correct permissions for users
13. To verify we installed it correctly
  1. While still in the desired node run:
    1. `sudo md5sum /etc/munge/munge.key`
    2. This is to see our hash of our key. If all went correct we should see the same hash for login.
  2. Then exit and ssh into the login node
    1. `sudo md5sum /etc/munge/munge.key`
    2. Run the same command
  3. If all went correct we should see the same key:
    1. For example we got: `a2664aac630880862f6f06d4c1bb35b9 /etc/munge/munge.key`