Making a Pipeline

Assuming you have the container running, you should be able to set up a playbook. Before this, you should set up the link with Github. I don't remember exactly how I did that either, so I found a guide. Turns out it's easy to checkout, it was the part about the Repo needing credentials that was hard. I remember it took a little while to get the Github SSH keys all set up, but now that I have them it's trivial. Here is an old playbook I wrote before learning how to use Ansible to set up my first PXE server. Since this was before I figured out Ansible, I was just using Jenkins to automate my shell commands. Once I learned how to use Ansible, I abandoned this way of using Jenkins. I haven't ran this pipeline in a long time, but I believe it did work in the end.

Jenkinsfile.old_pxe

```
pipeline {
    agent any



    environment {
        DEBIAN_IP = 'debian_machine_ip'
        SSH_CREDENTIALS_ID = 'jenkins-ssh-key'
        PXE_AUTH = 'PXE_AUTH'
    }



    stages {



        stage('Install Packages') {
            steps {
                script {
                    sshagent([env.SSH_CREDENTIALS_ID]) {
                        sh """
                        ssh-keygen -f "/root/.ssh/known_hosts" -R "${params.host_ip}"
                        ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
                            echo "samba-common samba-common/workgroup string  WORKGROUP" | debconf-set-
selections
```

```
                    echo "samba-common samba-common/dhcp boolean true" | debconf-set-selections
                    echo "samba-common samba-common/do_debconf boolean true" | debconf-set-selections
                    apt update --yes
                    apt upgrade --yes
                    apt install --yes isc-dhcp-server curl jq tftpd-hpa apache2 syslinux-common net-tools
samba pwgen cifs-utils unzip

                """
            }
        }
    }
}


    stage('Configure DHCP Server') {
        steps {
            withCredentials([string(credentialsId: env.PXE_AUTH, variable: 'PXE_AUTH')]) {
                sshagent([env.SSH_CREDENTIALS_ID]) {
                    sh """
                    ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
                        systemctl stop isc-dhcp-server
                        curl -o /etc/dhcp/dhcpd.conf -L https://$PXE_AUTH@mattifactory.com/dhcp/dhcpd.conf
                        curl -o /etc/default/isc-dhcp-server -L https://$PXE_AUTH@mattifactory.com/dhcp/isc-dhcp-
server
                        systemctl start isc-dhcp-server
                    """
                }
            }
        }
    }


    stage('Configure TFTP Server') {
        steps {
            withCredentials([string(credentialsId: env.PXE_AUTH, variable: 'PXE_AUTH')]) {
                sshagent([env.SSH_CREDENTIALS_ID]) {
                    sh """
                    ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
                        systemctl stop tftpd-hpa
```

```
                mkdir -p /srv/tftp
                chown -R tftp:tftp /srv/tftp
                chmod -R 777 /srv/tftp
                curl -o /etc/default/tftpd-hpa -L https://$PXE_AUTH@mattifactory.com/dhcp/tftpd-hpa
                systemctl start tftpd-hpa
            """
        }
    }
  }
}


stage('Configure HTTP Server') {
  steps {
    withCredentials([string(credentialsId: env.PXE_AUTH, variable: 'PXE_AUTH')]) {
      sshagent([env.SSH_CREDENTIALS_ID]) {
        sh """
        ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
          systemctl stop apache2
          mkdir -p /var/www/html/debian-installer/amd64
          cd /var/www/html/debian-installer/amd64
          wget -q https://$PXE_AUTH@mattifactory.com/dhcp/netboot.tar.gz
          tar -xzf netboot.tar.gz
          systemctl start apache2
        """
      }
    }
  }
}


stage('Configure PXE Boot Configuration') {
  steps {
    withCredentials([string(credentialsId: env.PXE_AUTH, variable: 'PXE_AUTH')]) {
      sshagent([env.SSH_CREDENTIALS_ID]) {
        sh """
        ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
          cp /var/www/html/debian-installer/amd64/pxelinux.0 /srv/tftp/
          cp /usr/lib/syslinux/modules/bios/* /srv/tftp/
```

```
                    cp -R /var/www/html/debian-installer/amd64/debian-installer /srv/tftp/
                    mkdir -p /srv/tftp/pxelinux.cfg
                    curl -o /srv/tftp/debian-installer/amd64/linux -L
https://$PXE_AUTH@mattifactory.com/dhcp/linux
                    curl -o /srv/tftp/debian-installer/amd64/initrd.gz -L
https://$PXE_AUTH@mattifactory.com/dhcp/initrd.gz
                    curl -o /srv/tftp/debian-installer/amd64/pxelinux.cfg/default -L
https://$PXE_AUTH@mattifactory.com/dhcp/default
                    curl -o /srv/tftp/pxelinux.cfg/default -L https://$PXE_AUTH@mattifactory.com/dhcp/default
                    curl -o /srv/tftp/debian-installer/amd64/pxelinux.cfg/default -L
https://$PXE_AUTH@mattifactory.com/dhcp/default
                    curl -o /srv/tftp/debian-installer/amd64/grub/grub.cfg -L
https://$PXE_AUTH@mattifactory.com/dhcp/grub.cfg
                    curl -o /var/www/html/preseed.cfg -L
https://$PXE_AUTH@mattifactory.com/dhcp/preseed.cfg
                    curl -o /srv/tftp/preseed.cfg -L https://$PXE_AUTH@mattifactory.com/dhcp/preseed.cfg
                """
            }
        }
    }
}


    stage('Configure SMB & Hostname & Reboot') {
        steps {
            withCredentials([string(credentialsId: env.PXE_AUTH, variable: 'PXE_AUTH')]) {
                sshagent([env.SSH_CREDENTIALS_ID]) {
                    sh """
                    ssh -o StrictHostKeyChecking=no root@${params.host_ip} << EOF
                        mkdir -p /media/share
                        chmod 777 /media/share
                        systemctl stop smbd.service
                        curl -o /etc/samba/smb.conf -L https://$PXE_AUTH@mattifactory.com/smb/smb.conf
                        systemctl start smbd.service
                        echo cosmos-pxe > /etc/hostname
                        echo 127.0.0.1 cosmos-pxe >> /etc/hosts
                        sleep 2
                        reboot now
```

```
                """
            }
          }
        }
      }
    }
}
```

With that old example of how to use Jenkins without Ansible behind us, here is a simple Jenkisfile that first injects the Ansible SSH key into a new NanoPi Device and runs a super simple playbook. Ansible requires an inventory file; assuming you're not actually keeping an Ansible inventory file, then you need to generate an inventory file. This is usually done by script ran in the Jenkinsfile. This **inventory.sh** script takes a list of IPs and creates an inventory file that **ansible-playbook** can read among other things. This is less important than what the Jenkinsfile shows; specifically this shows how to run commands with variables, how the SSH key works, and how to run a very simply Ansible playbook.

I recently updated the dynamic inventory generation script to have a few more options for passing user and group, as well as prohibiting lists of endpoints. This is because I want to open my Jenkins up a bit, and I don't want people running pipelines on my servers. It did make the script a lot more complicated.

Jenkinsfile

```
pipeline {
    agent any

    // Define parameters
    parameters {
        string(name: 'host_ip', description: 'Target System Address')
    }

    environment {
        ANSIBLE_FORCE_COLOR = '1'
        jenkins_public_key = credentials('jenkins_public_key')
    }

    options {
```

```
        ansiColor('xterm')
    }

    stages {

        stage('Inject Auth Key') {
            steps {
                script{
                    // clear ssh keys
                    echo "Target IP: ${params.host_ip}"

                    sh """
                    ssh-keygen -f "/root/.ssh/known_hosts" -R "${params.host_ip}"
                    """

                    sh """
                    echo Copy public key to pi home dir
                    sshpass -p 'pi' ssh -o StrictHostKeyChecking=no pi@${params.host_ip} "echo
${env.jenkins_public_key} > /home/pi/authorized_keys"
                    """

                    sh """
                    echo Make sure /root/.ssh exists
                    sshpass -p 'pi' ssh -o StrictHostKeyChecking=no pi@${params.host_ip} "echo pi | sudo -S mkdir
-p /root/.ssh/"
                    """

                    sh """
                    echo Move public key to root
                    sshpass -p 'pi' ssh -o StrictHostKeyChecking=no pi@${params.host_ip} "echo pi | sudo -S mv
/home/pi/authorized_keys /root/.ssh/authorized_keys"
                    """

                    sh """
                    echo Restrict permissions on file
                    sshpass -p 'pi' ssh -o StrictHostKeyChecking=no pi@${params.host_ip} "echo pi | sudo -S
chmod -R 600 /root/.ssh/"
                    """
```

```
                sh """
                echo Set owner to root
                sshpass -p 'pi' ssh -o StrictHostKeyChecking=no pi@${params.host_ip} "echo pi | sudo -S
chown -R root:root /root/.ssh/"
                """
            }
        }
    }

    stage('Generate Inventory File') {
        steps {
            // Generate the dynamic inventory file
            sh """
            jenkins_group=\$(echo ${env.BUILD_USER_GROUPS} |  sed 's/,/\\n/g' | grep Jenkins | head -n 1)
            jenkins_user=\$(echo ${env.BUILD_USER})
            cd /var/jenkins_home/ansible
            chmod +x /var/jenkins_home/ansible/inventory/inventory.sh
            /var/jenkins_home/ansible/inventory/inventory.sh -s -g \$jenkins_group -u \$jenkins_user -i
${params.host_ip}

            """
        }
    }

    stage('Ansible Check') {
        steps {
            sh """
            echo ${params.host_ip}
            hash=\$(echo -n ${params.host_ip} | md5sum | cut -c 1-8)
            inventory_file="/var/jenkins_home/ansible/.inv/inventory-\$hash.yml"

            cd /var/jenkins_home/ansible

            ansible-playbook -i \$inventory_file \
                /var/jenkins_home/ansible/playbooks/pi-init.yaml --ssh-common-args='-o
StrictHostKeyChecking=no'

            """
        }
```

```
        }

    }



    post {
        always {
            // Remove dynamic Inventory file
            sh """
            hash=\$(echo -n "${params.host_ip}" | md5sum | cut -c 1-8)
            inventory_file="/var/jenkins_home/ansible/.inv/inventory-\$hash.yml"
            rm \$inventory_file

            """
        }
    }

}
```

pi-init.yaml

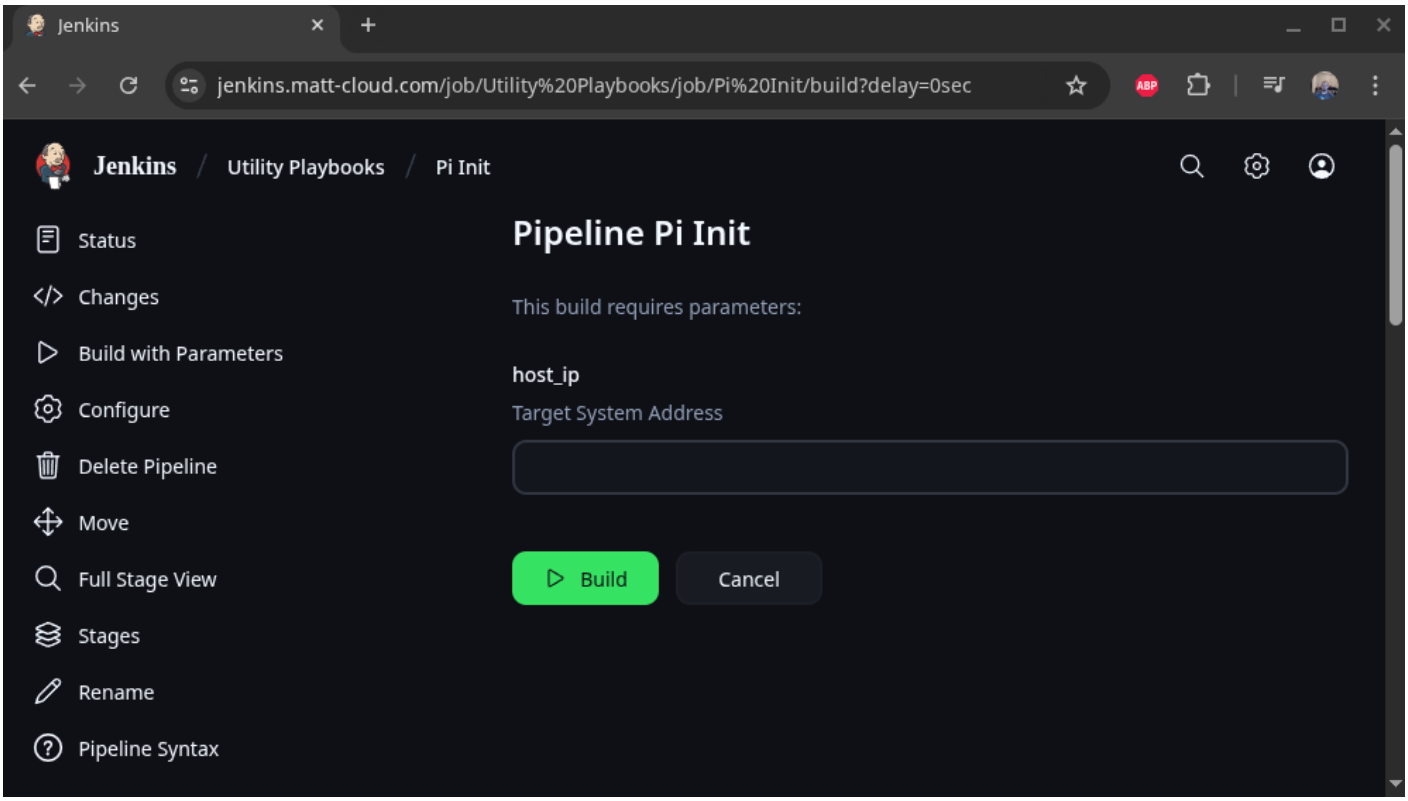
```
---
- name: Ansible Test
  hosts: all
  become: yes

  # this is meant just as a tiny playbook to run after the public key is injected with jenkins
  tasks:
  # Check System Architecture
  - name: Check CPU Arch
    shell: "dpkg --print-architecture"
    register: cpu_architecture_output

  - name: Display cpu_architecture_output variable
    debug:
      msg: "{{ cpu_architecture_output.stdout_lines[0] }}"

...
```

inventory.sh

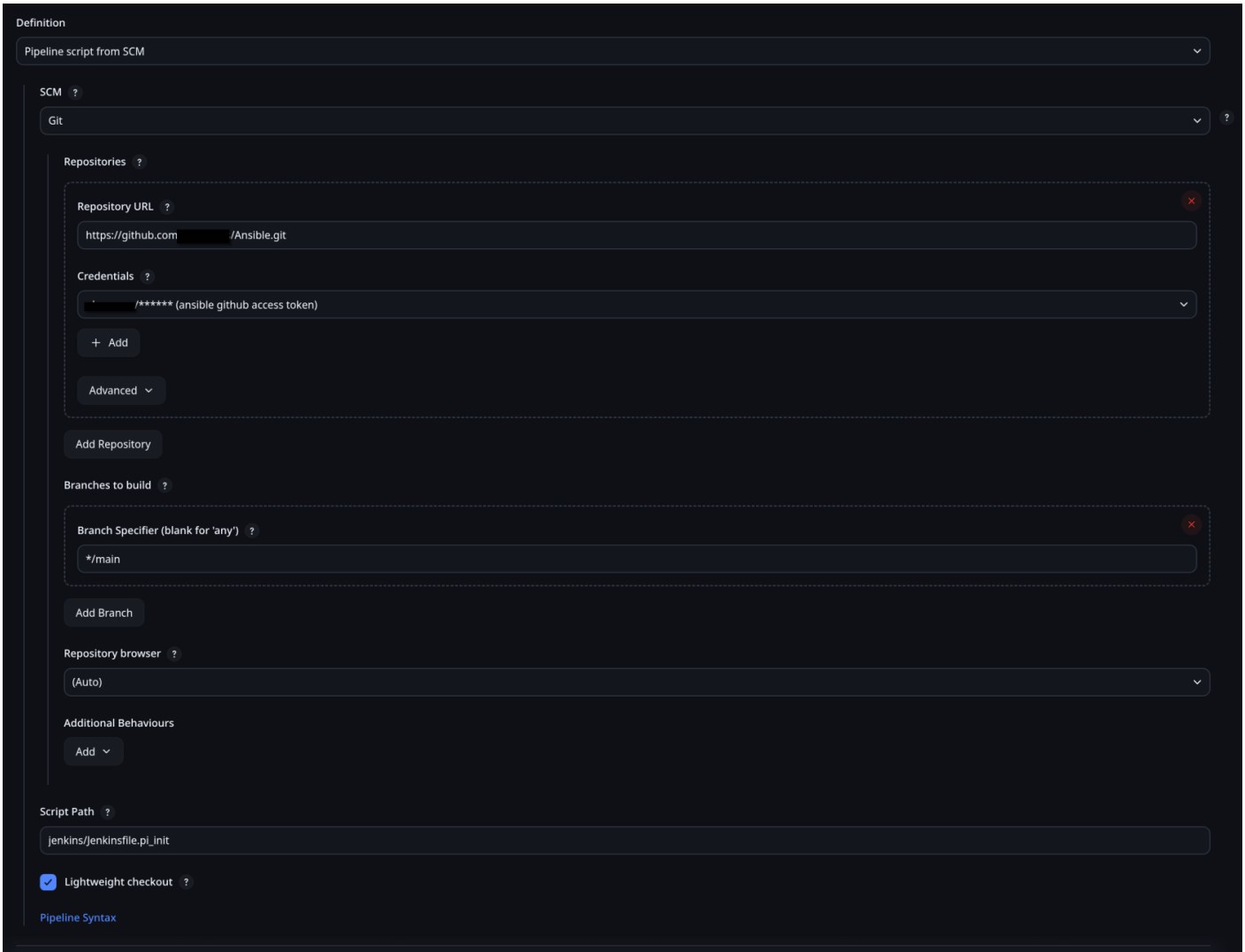
```
#!/bin/bash

# Dynamic inventory generation script ansible

# Function to display usage
usage() {
    echo "Usage: $0 -i IP_LIST -u JENKINS_USER -g JENKINS_GROUP [-s] [-v]"
    echo "Options:"
    echo "  -i IP_LIST       Comma-separated list of IPs"
    echo "  -u JENKINS_USER  Jenkins user for SSH access"
    echo "  -g JENKINS_GROUP Jenkins group for SSH access"
    echo "  -s               Set variable to true if more than one IP is passed"
    echo "  -v               Display Ansible Version"
    exit 1
}

# Initialize variables with default values
skip=false
more_than_one=false
display_version=false

# Parse command line options
while getopts ":i:u:g:sv" opt; do
  case ${opt} in
    i ) # process option i
        IP_LIST=$OPTARG
        ;;
    u ) # process option u
        JENKINS_USER=$OPTARG
        ;;
    g ) # process option g
        JENKINS_GROUP=$OPTARG
        ;;
    s ) # process option s
        skip=true
        ;;
    v ) # process option v
```

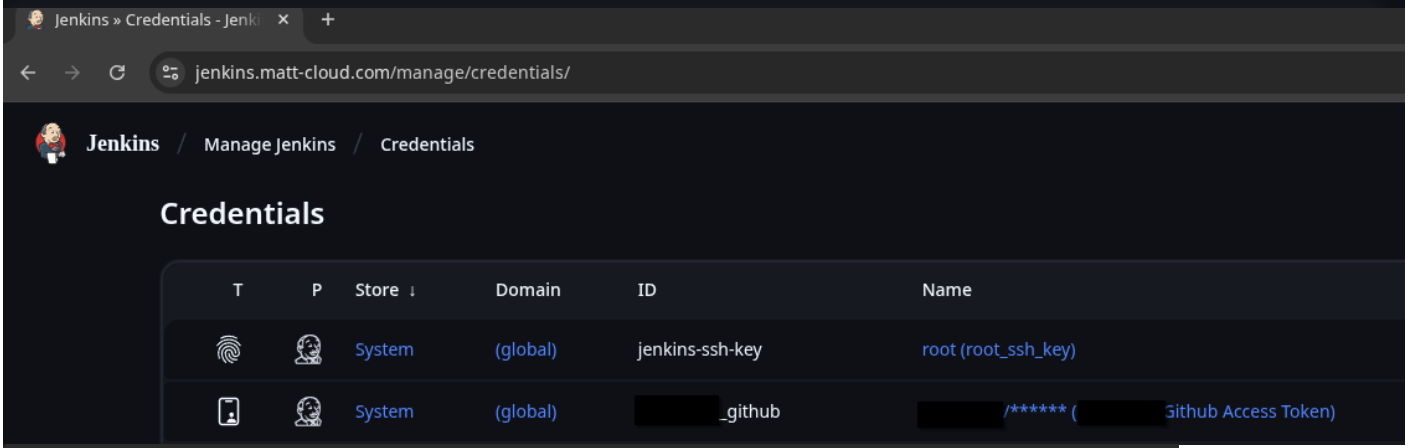
```
        display_version=true
        ;;
    \? ) usage
        ;;
  esac
done
shift $((OPTIND -1))
# Check if all required options are provided
if [ -z "$IP_LIST" ] || [ -z "$JENKINS_USER" ] || [ -z "$JENKINS_GROUP" ]; then
    usage
fi

if $display_version; then
    echo "Showing ansible version"
    ansible --version
fi

# Generate an 8-character hash from the IP list
hash=$(echo -n "$IP_LIST" | md5sum | cut -c 1-8)
echo "IP List:"
echo $IP_LIST
echo $hash

# Define the inventory file path with the hash
inventory_file="/var/jenkins_home/ansible/.inv/inventory-$hash.yml"

if $skip; then
    IFS=',' read -ra IPS <<< "$IP_LIST"
    if [ ${#IPS[@]} -gt 1 ]; then
        more_than_one=true
    fi
fi

if $skip; then
    echo "Single host option set"
    if $more_than_one; then
        echo "IP list provided, inventory will be emptied"
        IP_LIST=""
    fi
```

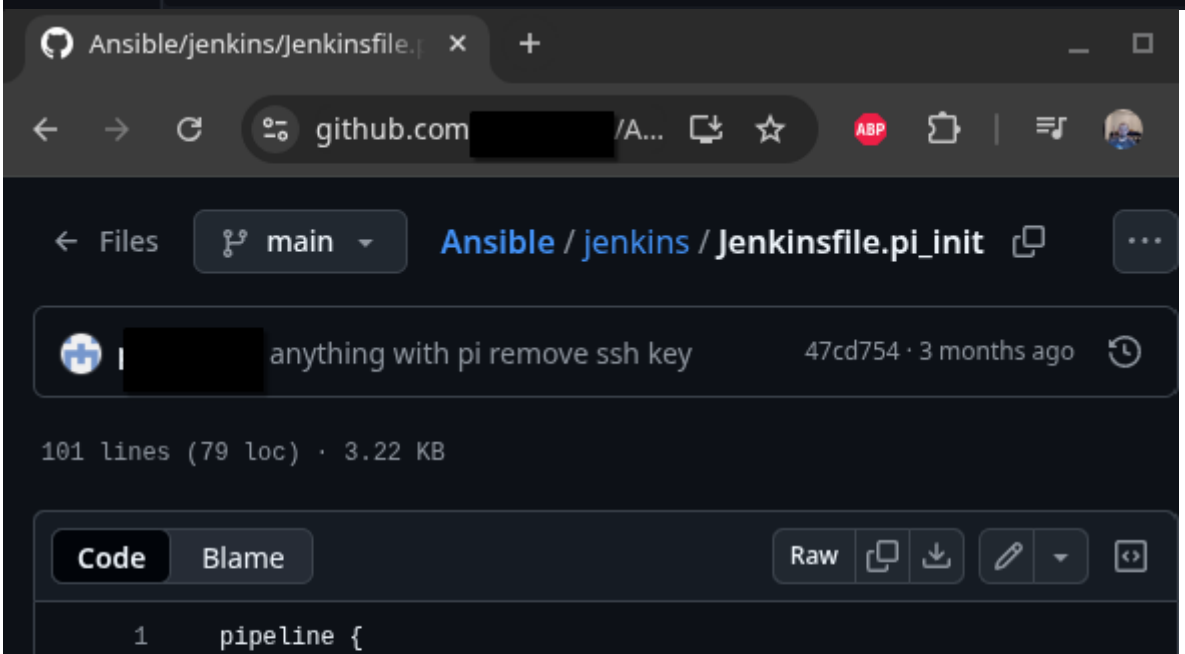
```
fi

# Initialize the YAML inventory content
inventory_content="---
all:
  hosts:
"

# Loop through each IP in the comma-separated list
IFS=',' read -ra IPS <<< "$IP_LIST"
for IP in "${IPS[@]}"; do
    inventory_content+="    ${IP}:
      ansible_user: root
"
done

inventory_content+="  vars:
    ansible_connection: ssh
    ansible_ssh_private_key_file: /var/jenkins_home/jenkins_key
    ansible_python_interpreter: /usr/bin/python3
    jenkins_user: '${JENKINS_USER}'
    jenkins_group: '${JENKINS_GROUP}'
"

# Write the inventory content to the file
echo "$inventory_content" > $inventory_file

echo "Inventory file created at $inventory_file with the following content:"
cat $inventory_file
```



This is how to configure this to pull from Github:


Definition
Pipeline script from SCM
SCM
Git
Repositories
Repository URL
https://github.com /Ansible.git
Credentials
/****** (ansible github access token)
+ Add
Advanced
Add Repository
Branches to build
Branch Specifier (blank for 'any')
*/main
Add Branch
Repository browser
(Auto)
Additional Behaviours
Add
Script Path
jenkins/Jenkinsfile.pi_init
Lightweight checkout
Pipeline Syntax


Jenkins » Credentials - Jenki
jenkins.matt-cloud.com/manage/credentials/
Jenkins / Manage Jenkins / Credentials
Credentials
T P Store ↓ Domain ID Name
System (global) jenkins-ssh-key root (root_ssh_key)
System (global) _github /****** (Github Access Token)


Ansible/jenkins/Jenkinsfile.
github.com /A...
Files
main
Ansible / jenkins / Jenkinsfile.pi_init
anything with pi remove ssh key
47cd754 · 3 months ago
101 lines (79 loc) · 3.22 KB
Code
Blame
Raw
1 pipeline {

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