

# Ставим воркер руками

У меня есть кластер на k0s например, я хочу подцепить к нему какой-нибудь воркер, где угодно. Наброски команд.

По мотивам <https://github.com/kelseyhightower/kubernetes-the-hard-way>

```
###

root@kube-ctrl:~/add-manually-worker# cat ca.conf
[req]
distinguished_name = req_distinguished_name
prompt              = no
x509_extensions     = ca_x509_extensions

[ca_x509_extensions]
basicConstraints = CA:TRUE
keyUsage        = cRLSign, keyCertSign

[req_distinguished_name]
C   = US
ST  = Washington
L   = Seattle
CN  = CA

# Worker Nodes
#
# Kubernetes uses a [special-purpose authorization
mode](https://kubernetes.io/docs/admin/authorization/node/)
# called Node Authorizer, that specifically authorizes API requests made
# by [Kubelets](https://kubernetes.io/docs/concepts/overview/components/#kubelet).
# In order to be authorized by the Node Authorizer, Kubelets must use a credential
# that identifies them as being in the `system:nodes` group, with a username
# of `system:node:<nodeName>`.

[kube-work-4]
distinguished_name = kube-work-4_distinguished_name
```

```
prompt          = no
req_extensions   = kube-work-4_req_extensions

[kube-work-4_req_extensions]
basicConstraints = CA:FALSE
extendedKeyUsage = clientAuth, serverAuth
keyUsage        = critical, digitalSignature, keyEncipherment
nsCertType      = client
nsComment       = "kube-work-4 Certificate"
subjectAltName   = DNS:kube-work-4, IP:10.138.117.7 # IP воркера
subjectKeyIdentifier = hash
```

```
[kube-work-4_distinguished_name]
CN = system:node:kube-work-4
O  = system:nodes
C  = US
ST = Washington
L  = Seattle
```

```
[default_req_extensions]
basicConstraints = CA:FALSE
extendedKeyUsage = clientAuth
keyUsage        = critical, digitalSignature, keyEncipherment
nsCertType      = client
nsComment       = "Admin Client Certificate"
subjectKeyIdentifier = hash
```

```
###
```

```
for host in kube-work-4; do
    openssl genrsa -out "${host}.key" 4096

    openssl req -new -key "${host}.key" -sha256 \
        -config "ca.conf" -section ${host} \
        -out "${host}.csr"

    openssl x509 -req -days 3653 -in "${host}.csr" \
        -copy_extensions copyall \
        -sha256 -CA "ca.crt" \
```

```
-CAkey "ca.key" \  
-CAcreateserial \  
-out "${host}.crt"
```

```
kubectcl config set-cluster kubernetes-the-hard-way \  
--certificate-authority=ca.crt \  
--embed-certs=true \  
--server=https://10.138.117.204:6443 \  
--kubeconfig=${host}.kubeconfig  
done
```

###

```
root@kube-ctrl:~/add-manually-worker# cat kube-work-4.kubeconfig
```

```
apiVersion: v1
```

```
clusters:
```

```
- cluster:
```

```
  certificate-authority-data: `cat ca.crt | base64 -w0`
```

```
  server: https://10.138.117.204:6443
```

```
  name: kubernetes-the-hard-way
```

```
contexts:
```

```
- context:
```

```
  cluster: kubernetes-the-hard-way
```

```
  namespace: default
```

```
  user: system:node:kube-work-4
```

```
  name: default-context
```

```
current-context: default-context
```

```
kind: Config
```

```
preferences: {}
```

```
users:
```

```
- name: system:node:kube-work-4
```

```
  user:
```

```
    client-certificate-data: `cat crt | base64 -w0`
```

```
    client-key-data: `cat key | base64 -w0`
```

###

```
root@kube-ctrl:~/add-manually-worker# kubectl --kubeconfig kube-work-4.kubeconfig get no
```

NAME	STATUS	ROLES	AGE	VERSION
kube-work-1	Ready	<none>	85d	v1.30.3+k0s

```
kube-work-2 Ready shifts 15h v1.30.6+k0s
kube-work-3 Ready <none> 14h v1.30.5+k0s
```

```
###
```

```
root@kube-work-4:~# cat down
```

```
https://github.com/containernetworking/plugins/releases/download/v1.3.0/cni-plugins-linux-amd64-v1.3.0.tgz
```

```
https://storage.googleapis.com/kubernetes-release/release/v1.30.1/bin/linux/amd64/kube-proxy
```

```
https://storage.googleapis.com/kubernetes-release/release/v1.30.1/bin/linux/amd64/kubelet
```

```
root@kube-work-4:~# wget -q --show-progress --https-only --timestamping -P downloads -i down
```

```
cni-plugins-linux-amd64-v1.3.0.tgz
```

```
100%[=====
=====>] 43.24M 21.5MB/s in 2.0s
```

```
kube-proxy
```

```
100%[=====
=====>] 54.91M 17.3MB/s in 3.2s
```

```
kubelet
```

```
100%[=====
=====>] 95.46M 22.5MB/s in 5.0s
```

```
apt install containerd -y
```

```
###
```

```
root@kube-work-4:~# systemctl cat kube.service
```

```
# /etc/systemd/system/kube.service
```

```
[Unit]
```

```
Description=Kubernetes Kubelet
```

```
Documentation=https://github.com/kubernetes/kubernetes
```

```
After=containerd.service
```

```
Requires=containerd.service
```

```
[Service]
```

```
ExecStart=/usr/local/bin/kubelet \
```

```
--config=/var/lib/kubelet/kubelet-config.yaml \
```

```
--kubeconfig=/var/lib/kubelet/kubeconfig \
```

```
--register-node=true \
```

```
--v=2
```

```
Restart=on-failure
```

```
RestartSec=5
```

[Install]

WantedBy=multi-user.target

###

```
root@kube-work-4:~# cat /var/lib/kubelet/kubelet-config.yaml
```

```
kind: KubeletConfiguration
```

```
apiVersion: kubelet.config.k8s.io/v1beta1
```

```
authentication:
```

```
  anonymous:
```

```
    enabled: false
```

```
  webhook:
```

```
    enabled: true
```

```
x509:
```

```
  clientCAFile: "/var/lib/kubelet/ca.crt"
```

```
authorization:
```

```
  mode: Webhook
```

```
clusterDomain: "cluster.local"
```

```
clusterDNS:
```

```
  - "10.32.0.10"
```

```
cgroupDriver: systemd
```

```
containerRuntimeEndpoint: "unix:///var/run/containerd/containerd.sock"
```

```
podCIDR: "100.64.32.0/24"
```

```
resolvConf: "/etc/resolv.conf"
```

```
runtimeRequestTimeout: "15m"
```

```
tlsCertFile: "/var/lib/kubelet/kubelet.crt"
```

```
tlsPrivateKeyFile: "/var/lib/kubelet/kubelet.key"
```

###

```
kube-worker-4.{crt,key}->/var/lib/kubelet/kubelet.{crt,key}
```

###

```
root@kube-work-4:~# cat /var/lib/kubelet/kubeconfig
```

```
apiVersion: v1
```

```
clusters:
```

```
- cluster:
```

```
  certificate-authority-data: # ca base64
```

```
  server: https://10.138.117.204:6443
```

```
name: kubernetes-the-hard-way
contexts:
- context:
    cluster: kubernetes-the-hard-way
    namespace: default
    user: system:node:kube-work-4
  name: default-context
current-context: default-context
kind: Config
preferences: {}
users:
- name: system:node:kube-work-4
  user:
    client-certificate-data: # base64
    client-key-data: # base64
```

###

```
systemctl start kube.service
```

```
root@kube-ctrl:~# kubectl get no -o wide
```

NAME	STATUS	ROLES	AGE	VERSION	INTERNAL-IP	EXTERNAL-IP	OS-IMAGE
kube-work-1	Ready	<none>	85d	v1.30.3+k0s	10.138.117.150	<none>	Debian GNU/Linux 12
(bookworm)	6.1.0-23-amd64			containerd://1.7.20			
kube-work-2	Ready	shits	16h	v1.30.6+k0s	10.13.37.3	<none>	Rocky Linux 9.4 (Blue Onyx)
	5.14.0-427.42.1.el9_4.x86_64			containerd://1.7.22			
kube-work-3	Ready	<none>	14h	v1.30.5+k0s	10.138.117.79	<none>	AlmaLinux 9.4 (Seafoam
Ocelot)	5.14.0-427.42.1.el9_4.x86_64			containerd://1.7.22			
kube-work-4	Ready	<none>	35s	v1.30.1	10.138.117.7	<none>	Ubuntu 20.04.6 LTS
	5.4.0-200-generic			containerd://1.7.12			

Revision #2

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