Prerequisites for participants

Install VS Code

1. Download and install VSCode from https://code.visualstudio.com/)
2. Install following plugins:
    a. C# for Visual Studio Code (powered by OmniSharp).
    b. ms-kubernetes-tools.vscode-kubernetes-tools

Create Azure subscription for the user account

1. Login to https://my.visualstudio.com with your private email address, enter domain username and password
2. Find "Azure Free account + $200 credit" feature and click "Activate"
3. Enter personal details
4. Enter credit card info to let MS know you are not a robot and collect some personal details about you.

> Note! If your postal code is not accepted, enter the suggested one (it is displayed, when you clean the input field). Apparently, Microsoft automatically detects your location by IP address, and our BGroup proxy is not forwarding our original IPs.

Install Azure CLI

1. Download CLI from https://docs.microsoft.com/en-us/cli/azure/install-azure-cli?view=azure-cli-latest
2. Open command prompt and type "az login"
3. Login to your Azure account

Sample output:

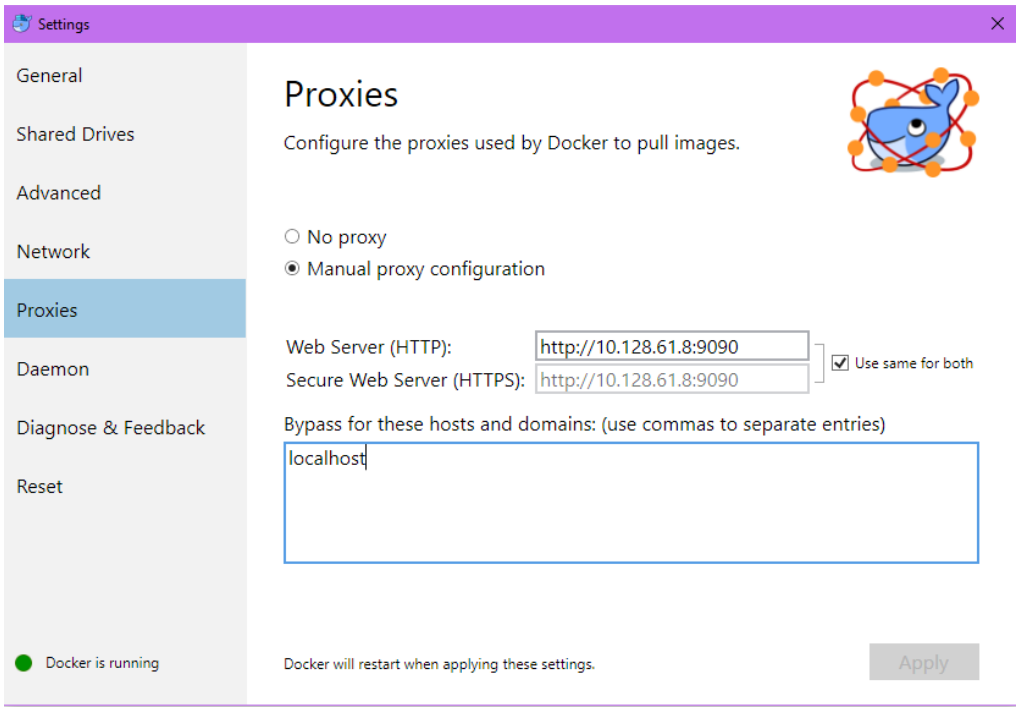
```
C:\Users\gurb011>az login
Note, we have launched a browser for you to login. For old
experience with device code, use "az login --use-device-code"
You have logged in. Now let us find all subscriptions you have
access to...
[
  {
    "cloudName": "AzureCloud",
    "id": "95ef67ab-0dbf-499c-811c-82d9547dc0d6",
    "isDefault": true,
    "name": "Pay-As-You-Go",
    "state": "Disabled",
    "tenantId": "HIDDEN",
    "user": {
      "name": "aleksei.gurba@gmail.com",
      "type": "user"
    }
  },
  {
    "cloudName": "AzureCloud",
    "id": "dcf24dc2-7e37-4a24-9bc2-f9ef5de191a8",
    "isDefault": false,
    "name": "Free Trial",
    "state": "Enabled",
    "tenantId": "HIDDEN",
    "user": {
      "name": "aleksei.gurba@gmail.com",
      "type": "user"
    }
  }
]
```

If you have multiple subscriptions available, like in this example, ensure that "isDefault": true parameter is set for your trial subscription:

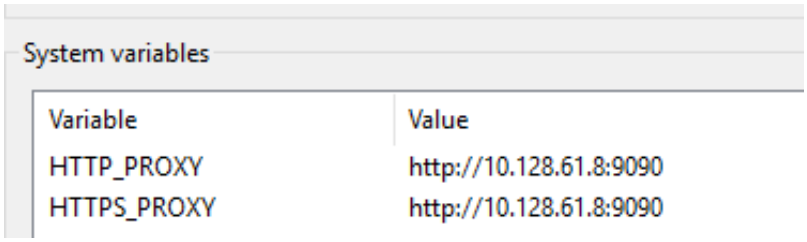
```
az account set --subscription
dcf24dc2-7e37-4a24-9bc2-f9ef5de191a8
```

Install docker

1. Download docker CE from https://www.docker.com/community-edition
2. Enable Hyper-V in Windows features, if not aready
3. Configure docker proxy for BGroup accounts (Windows)
    a. Setup proxy in docker client UI:



b. Set environment variables:

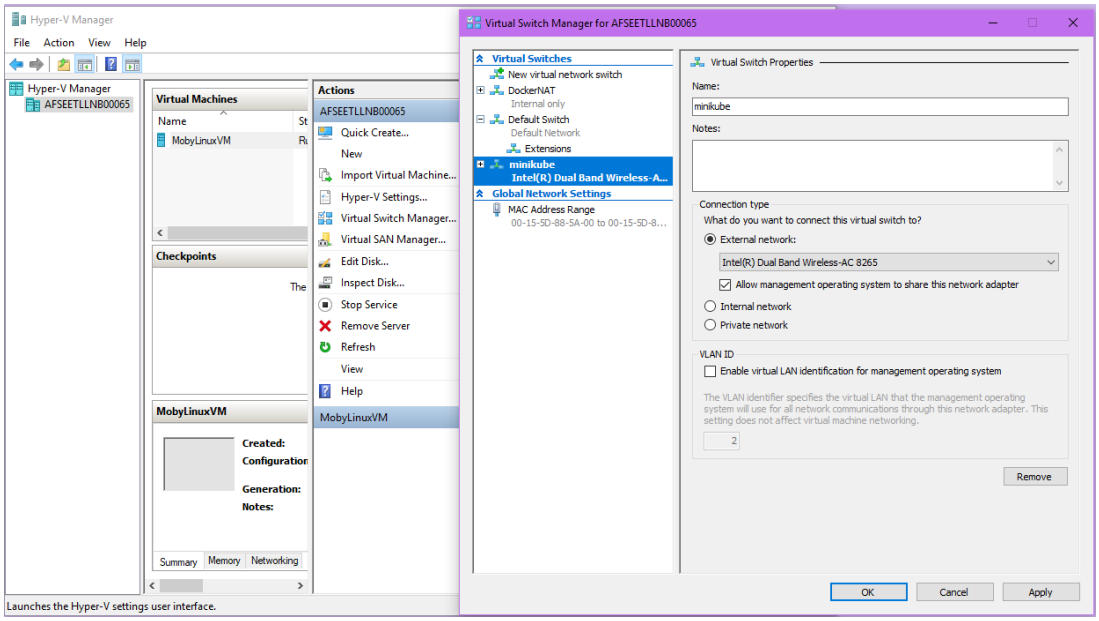


c. Restart docker client

Install Kubernetes CLI

Create Virtual network switch for minikube:

1. Open Hyper-V Manager and select "Virtual Switch Manager" action
2. Create new virtual network switch and name it "minikube"



> Note! Be sure to select a **Wireless adapter!** It will allow minikube VM to acquire a IPv4 address from the DHCP server.

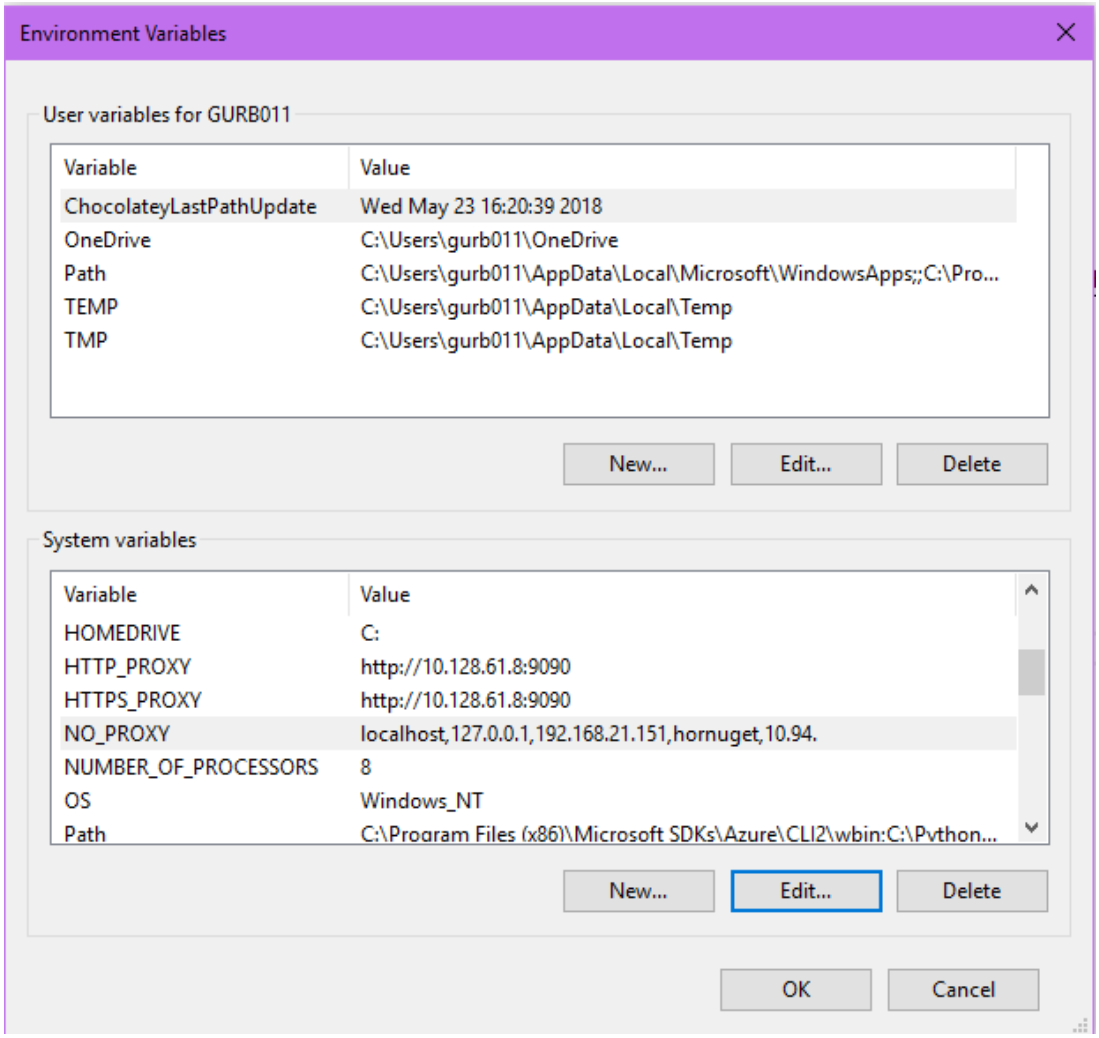
Edit NO_PROXY environment variable on your host system. This will allow your host OS to make web request to the newly created VM from behind the proxy.

1. First, locate the IP address of the minikube adapter using the "ipconfig /all" command. Locate the IP address in minikube adapter details, similar to this:

```
Ethernet adapter vEthernet (minikube):
   Connection-specific DNS Suffix  . :
int.arvato-services.org
   Description . . . . . . . . . . . : Hyper-V Virtual
Ethernet Adapter #3
   Physical Address. . . . . . . . . : E4-70-B8-51-2B-10
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
   IPv4 Address. . . . . . . . . . . :
10.94.136.91(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Lease Obtained. . . . . . . . . . : Thursday, July 12,
2018 10:50:08 AM
   Lease Expires . . . . . . . . . . : Friday, July 13,
2018 10:50:08 AM
   Default Gateway . . . . . . . . . : 10.94.136.1
   DHCP Server . . . . . . . . . . . : 10.128.35.10
   DNS Servers . . . . . . . . . . . : 10.128.61.27
                                       10.128.61.28
   Primary WINS Server . . . . . . . : 145.228.47.16
   Secondary WINS Server . . . . . . : 145.228.47.19
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

2. Add IP address mask to the end of NO_PROXY environment variable (a comma separated list)

   For example "localhost,127.0.0.1,192.168.21.151,hornuget,**10.94.**", as on the screenshot below



Note! we don't know the exact IP address of the newly created VM upfront, thus we use a mask "10.94.".

Open elevated powershell window and execute following commands:

```
// Install chocolatey package manager (see
https://chocolatey.org/install for details):
Execute "Set-ExecutionPolicy Bypass -Scope Process -Force; iex
((New-Object
System.Net.WebClient).DownloadString('https://chocolatey.org/i
nstall.ps1'))" command

// Set chocolatey proxy settings
choco config set proxy http://10.128.61.8:9090

// Install minikube and kubernetes-cli
choco install minikube
choco install kubernetes-cli

// Start minikube (give it up to 10 minutes of time)
minikube start --vm-driver="hyperv" --memory=4096
--hyperv-virtual-switch="minikube" --v=10 --alsologtostderr
--docker-env http_proxy=http://10.128.61.8:9090 --docker-env
https_proxy=http://10.128.61.8:9090

// Check that minikube is up and running
kubectl get pods -n kube-system
```

Sample output of the last command:

```
C:\WINDOWS\system32>kubectl get pods -n kube-system
NAME                                    READY     STATUS
RESTARTS   AGE
etcd-minikube                           1/1       Running   0
1h
kube-addon-manager-minikube             1/1       Running   0
1h
kube-apiserver-minikube                 1/1       Running   0
1h
kube-controller-manager-minikube        1/1       Running   0
1h
kube-dns-86f4d74b45-f8z8t               3/3       Running   0
1h
kube-proxy-sd9jc                        1/1       Running   0
1h
kube-scheduler-minikube                 1/1       Running   0
1h
kubernetes-dashboard-5498ccf677-wtlcv   1/1       Running   0
1h
storage-provisioner                     1/1       Running   0
1h
```

Set proxy settings in the minikube VM to allow it to talk to public internet resources behind the corporate proxy:

```
// Open SSH terminal to minikube VM
minikube ssh

// Edit /etc/profile
sudo vi /etc/profile

// Enter following two lines to the end of the file
//   see https://www.washington.edu/computing/unix/vi.html for details how to use the vi editor
export http_proxy=http://10.128.61.8:9090
export https_proxy=http://10.128.61.8:9090

// Try if it works
curl google.com
```

> It is important to pass "`--docker-env http_proxy=http://10.128.61.8:9090 --docker-env https_proxy=http://10.128.61.8:9090`" arguments to the 'minikube start' command, as it will allow docker engine inside the created VM to pull docker images from the internet.
>
> Note! in case internet connectivity is required from within the VM

Install terraform

1. Download terraform from https://www.terraform.io/downloads.html
2. Extract it to any directory, such as c:/Tools
3. Optionally, add extracted path to environment variables

Install netcore

1. Download and install netcore 2.1 SDK from https://www.microsoft.com/net/download/windows
2. Execute "dotnet --version" command to ensure that SDK and runtime are isntalled

Install node

1. Install node.js from https://nodejs.org/en/

Install mongo CE

1. Download mongo CE from https://www.mongodb.com/download-center?jmp=docs&_ga=2.38154474.895487122.1531721201-1512868735.1531490708#production
2. Follow instructions on https://docs.mongodb.com/manual/tutorial/install-mongodb-on-windows/
3. Confirm to install MongoDB Community Edition as a Windows Service
4. When asked, confirm to install Compass

Note! onprem mongo installation is used for local development prior to deployment to a k8s cluster.

Get sample apps from git and compile them in VS code

Execute following commands:

```
git clone https://github.com/alekseigurba/afs-demo-apps.git
git clone https://github.com/alekseigurba/afs-demo-infra.git
```

Follow instructions from https://github.com/alekseigurba/afs-demo-apps readme file.

If you installed mongo db as a windows service, open Compass and select "Import JSON collection". Navigate to /afs-demo-apps/api/mongo-seed/ and locate the init_compass.json file.

If you run mongo as part of the docker-compose solution, collection will be seeded automatically (see notes in the git repo).

Watch intro videos

Watch at least first one

Kubernetes in 5 mins

Kubernetes The Easy Way! (For Developers In 2018)

Kubernetes Webinar Series - Kubernetes Architecture 101