

# AZURE OpenShift UPI(User Provisioned Infrastructure) ARM Template Overview

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# Overview

- Consists of:
  - Main arm template: azdeploy.json
  - sub templates:
    - master.json - for bootstrap and masters
    - node.json – for workers
  - Setup Script: setup\_azarm.sh
  - Deploy Script: deploy\_azarm.sh

# What it does:

- Deploys a UPI Azure OCP 4.x (4.2 at the moment)
  - 3 Masters
  - N Workers – parameter – 3 for test
  - Availability Group for Masters
  - Availability Group for Nodes
  - Public Load Balancer for API
  - Public Load Balancer for Apps
  - Internal Load Balancer for Internal API
  - Uploads the vhd RHCOS image into resource group
  - Uploads bootstrap ignition into resource group
    - Creates a ignition pointer to bootstrap ignition

# ARM Parameters

```
{
  "$schema" : "https://schema.management.azure.com/schemas/2015-01-01/deploymentParameters.json#",
  "contentVersion" : "1.0.0.0",
  "parameters" : {
    "image" : {
      "value" : "https://sagswx1.blob.core.windows.net/vhd/rhcos-410.8.20190504.0-azure.vhd"
    },
    "BootstrapIgnition" : {
      "value" : ""
    },
    "MasterIgnition" : {
      "value" : ""
    },
    "WorkerIgnition" : {
      "value" : ""
    },
    "WildcardZone" : {
      "value" : "wildcardzone"
    },
    "numberOfNodes" : {
      "value" : 3
    },
    "sshKeyData" : {
      "value" : ""
    }
  }
}
```

# Azuredeploy.json

▼ Content	Object	Object
\$schema	String	<a href="https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#">https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#</a>
contentVersion	String	1.0.0.0
▼ parameters	Object	Object
▶ image	Object	Object
▶ BootstrapIgnition	Object	Object
▶ MasterIgnition	Object	Object
▶ WorkerIgnition	Object	Object
▶ WildcardZone	Object	Object
▶ numberOfNodes	Object	Object
▶ sshKeyData	Object	Object
▶ masterVMSize	Object	Object
▶ nodeVMSize	Object	Object



# Variables

▼ variables	Object	Object
gituser	String	glennswest
branch	String	master
version	String	4.1
baseTemplateUri	String	[concat('https://raw.githubusercontent.com/', variables('gituser'), '/ocpupi4azure/', variables('branch'))]
baseVMachineTemplateUriNode	String	[concat(variables('baseTemplateUri'), 'node.json')]
baseVMachineTemplateUriMaster	String	[concat(variables('baseTemplateUri'), 'master.json')]
location	String	[resourceGroup().location]
virtualNetworkName	String	openshiftVnet
addressPrefix	String	10.0.0.0/16
nodesubnetName	String	nodeSubnet
nodesubnetPrefix	String	10.0.1.0/24
mastersubnetName	String	masterSubnet
mastersubnetPrefix	String	10.0.0.0/24
nodeStorageName	String	[concat('sa', resourceGroup().name)]
vhdStorageType	String	Premium_LRS
vnetId	String	[resourceId('Microsoft.Network/virtualNetworks', variables('virtualNetworkName'))]
nodeSubnetRef	String	[concat(variables('vnetId'), '/subnets/', variables('nodesubnetName'))]
masterSubnetRef	String	[concat(variables('vnetId'), '/subnets/', variables('mastersubnetName'))]
▶ rhel	Object	Object
baseVMachineTemplateUriBastion	String	[concat(variables('baseTemplateUri'), 'bastion.json')]
▶ vmSizesMap	Object	Object
tenantId	String	[subscription().tenantId]
bastionVMSize	String	Standard_DS1_v2
masterLoadBalancerName	String	[concat('MasterLb', resourceGroup().name)]

# Resources

▼ resources	Array	↕	Array
▶ Item[0]	Object	↕	Object
▶ Item[1]	Object	↕	Object
▶ Item[2]	Object	↕	Object
▶ Item[3]	Object	↕	Object
▶ Item[4]	Object	↕	Object
▶ Item[5]	Object	↕	Object
▶ Item[6]	Object	↕	Object
▶ Item[7]	Object	↕	Object
▶ Item[8]	Object	↕	Object
▶ Item[9]	Object	↕	Object
▶ Item[10]	Object	↕	Object
▶ Item[11]	Object	↕	Object
▶ Item[12]	Object	↕	Object
▶ Item[13]	Object	↕	Object

# Bootstrap VM











▼ Item[2]	Object	Object
name	String	bootstrap
type	String	Microsoft.Resources/deployments
apiVersion	String	2015-01-01
dependsOn	Array	Array
properties	Object	Object
mode	String	Incremental
templateLink	Object	Object
parameters	Object	Object
vmName	Object	Object
dnsName	Object	Object
sa	Object	Object
subnetRef	Object	Object
vmSize	Object	Object
ignition	Object	Object
baseTemplateUrl	Object	Object
imageReference	Object	Object
masterLoadBalancerName	Object	Object
availabilitySet	Object	Object
sshKeyData	Object	Object



# Master1

▼ Item[4]	Object	Object
name	String	master1
type	String	Microsoft.Resources/deployments
apiVersion	String	2015-01-01
▶ dependsOn	Array	Array
▼ properties	Object	Object
mode	String	Incremental
▶ templateLink	Object	Object
▼ parameters	Object	Object
▶ vmName	Object	Object
▶ dnsName	Object	Object
▶ sa	Object	Object
▶ subnetRef	Object	Object
▶ vmSize	Object	Object
▶ ignition	Object	Object
▶ baseTemplateUrl	Object	Object
▶ imageReference	Object	Object
▶ masterLoadBalancerName	Object	Object
▶ availabilitySet	Object	Object
▶ sshKeyData	Object	Object

# Workers

▼  Item[3]	Object	↕	Object
 name	String	↕	[concat('node', copyindex())]
 type	String	↕	Microsoft.Resources/deployments
 apiVersion	String	↕	2015-01-01
▶  copy	Object	↕	Object
▶  dependsOn	Array	↕	Array
▼  properties	Object	↕	Object
 mode	String	↕	Incremental
▶  templateLink	Object	↕	Object
▶  parameters	Object	↕	Object

# Steps By Step

- How to run:
  - Clone repo
  - setup\_azarm.sh
  - Setup your external dns
  - deploy\_azarm.sh

# Setup-azarm.sh

- What it does:
  - Run the installer for ignition files
  - Create resource group
  - Copy RHCOS image into resource group
  - Copy bootstrap ignition file into resource group (Too big for direct usage)
  - Build an indirect ignition file to point to bootstrap
  - Copy and encode ignitions into `runit.deploy.json`

```
[Glenns-MacBook-Pro-2:4.1 gwest$ ./setup_azarm.sh
INFO Consuming "Install Config" from target directory
Delete old resource group
Create new resource group
{
  "id": "/subscriptions/27523af7-7c6e-4e06-9d6e-070881f968e8/resourceGroups/gswx1",
  "location": "eastus",
  "managedBy": null,
  "name": "gswx1",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
Copy RHCOS to resource group
The default kind for created storage account will change to 'StorageV2' from 'Storage' in future
{
  "accessTier": null,
  "azureFilesIdentityBasedAuthentication": null,
  "creationTime": "2019-10-11T13:28:59.117484+00:00",
  "customDomain": null,
  "enableHttpsTrafficOnly": true,
  "encryption": {
    "keySource": "Microsoft.Storage",
    "keyVaultProperties": null,
    "services": {
      "blob": {
        "enabled": true,
        "lastEnabledTime": "2019-10-11T13:28:59.211236+00:00"
      },
      "file": {
        "enabled": true,
```

```
    "enabled": true,  
    "lastEnabledTime": "2019-10-11T13:28:59.211236+00:00"  
  },  
  "queue": null,  
  "table": null  
}  
,  
"failoverInProgress": null,  
"geoReplicationStats": null,  
"id": "/subscriptions/27523af7-7c6e-4e06-9d6e-070881f968e8/resourceGroups/gswx1/providers/Microsoft.Storage/storageAccounts/sagswx1",  
"identity": null,  
"isHnsEnabled": null,  
"kind": "Storage",  
"lastGeoFailoverTime": null,  
"location": "eastus",  
"name": "sagswx1",  
"networkRuleSet": {  
  "bypass": "AzureServices",  
  "defaultAction": "Allow",  
  "ipRules": [],  
  "virtualNetworkRules": []  
},  
"primaryEndpoints": {  
  "blob": "https://sagswx1.blob.core.windows.net/",  
  "dfs": null,  
  "file": "https://sagswx1.file.core.windows.net/",  
  "queue": "https://sagswx1.queue.core.windows.net/",  
  "table": "https://sagswx1.table.core.windows.net/",  
  "web": null  
},  
"primaryLocation": "eastus",  
"provisioningState": "Succeeded",  
"resourceGroup": "gswx1",
```



```
"secondaryEndpoints": null,
"secondaryLocation": null,
"sku": {
  "capabilities": null,
  "kind": null,
  "locations": null,
  "name": "Standard_LRS",
  "resourceType": null,
  "restrictions": null,
  "tier": "Standard"
},
"statusOfPrimary": "available",
"statusOfSecondary": null,
"tags": {},
"type": "Microsoft.Storage/storageAccounts"
}
{
  "created": true
}
{
  "completionTime": null,
  "id": "948dc086-b73c-4923-9334-354c9af2bf17",
  "progress": null,
  "source": null,
  "status": "pending",
  "statusDescription": null
}
Waiting on copy of vhd
unknown
Copy of vhd complete
Configure template with ignition files
{
  "created": true
```

```

{
  "etag": "\"0x8D74E4FC006FB75\"",
  "lastModified": "2019-10-11T13:34:32+00:00"
}
Url: https://sagswx1.blob.core.windows.net/files/bootstrap.ign
{
  "publicIp": {
    "ddosSettings": null,
    "dnsSettings": null,
    "etag": "W/\"bb653cb2-1465-4440-8fe3-7843e1432aff\"",
    "id": "/subscriptions/27523af7-7c6e-4e06-9d6e-070881f968e8/resourceGroups/gswx1/providers/Microsoft.Network/publicIPAddresses/gswx1",
    "idleTimeoutInMinutes": 4,
    "ipAddress": "52.168.85.165",
    "ipConfiguration": null,
    "ipTags": [],
    "location": "eastus",
    "name": "gswx1",
    "provisioningState": "Succeeded",
    "publicIpAddressVersion": "IPv4",
    "publicIpAllocationMethod": "Static",
    "publicIpPrefix": null,
    "resourceGroup": "gswx1",
    "resourceGuid": "7cf474ce-9033-4920-b3a4-269654c36eb0",
    "sku": {
      "name": "Basic",
      "tier": "Regional"
    },
    "tags": null,
    "type": "Microsoft.Network/publicIPAddresses",
    "zones": null
  }
}

```

Glenns-MacBook-Pro-2:4.1 gwest\$ ./setup\_azarm.sh

# DNS Setup

Warning - every name in this file is ABSOLUTE!

\$ORIGIN .

```
gw.ncc9.com      3600    IN      SOA     ns1.ncc9.com hostmaster.gw.ncc9.com 1 10800 3600 604800 3600
gw.ncc9.com      3600    IN      NS      ns1.ncc9.com
_etcd-server-ssl._tcp.gw.ncc9.com 86400  IN      SRV     1 1 2380 bootstrap-0.gw.ncc9.com
_etcd-server-ssl._tcp.gw.ncc9.com 86400  IN      SRV     1 1 2380 control-plane-0.gw.ncc9.com
_etcd-server-ssl._tcp.gw.ncc9.com 86400  IN      SRV     1 1 2380 control-plane-1.gw.ncc9.com
_etcd-server-ssl._tcp.gw.ncc9.com 86400  IN      SRV     1 1 2380 control-plane-2.gw.ncc9.com
api.gw.ncc9.com  3600    IN      A       40.122.27.3
api-int.gw.ncc9.com 3600    IN      A       10.0.0.63
*.apps.gw.ncc9.com 100     IN      A       40.122.34.157
bootstrap-0.gw.ncc9.com 86400  IN      A       10.0.0.4
control-plane-0.gw.ncc9.com 86400  IN      A       10.0.0.5
control-plane-1.gw.ncc9.com 86400  IN      A       10.0.0.6
control-plane-2.gw.ncc9.com 86400  IN      A       10.0.0.7
etcd-0.gw.ncc9.com 3600    IN      A       10.0.0.5
etcd-1.gw.ncc9.com 3600    IN      A       10.0.0.6
etcd-2.gw.ncc9.com 3600    IN      A       10.0.0.7
ns1.gw.ncc9.com  3600    IN      A       147.75.111.55
```

# Resource Group – At This Point

The screenshot shows the Microsoft Azure portal interface for a resource group named 'gswx1'. The top navigation bar includes the Microsoft Azure (Preview) logo, a search bar, and user information for 'gwest@redhat.com'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Events, Settings, Quickstart, Deployments, Policies, Properties, Locks, and Export template. The main content area displays the 'gswx1' resource group details, including the subscription 'BorisB-External-Partner' and the subscription ID '27523af7-7c6e-4e06-9d6e-070881f968e8'. Below this, there are filters for 'Filter by name...', 'All types', 'All locations', and 'No grouping'. A table lists 2 items:

Name	Type	Location
gswx1	Public IP address	East US
sagswx1	Storage account	East US

# Storage Account

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure (Preview) logo, a search bar, and user information (gwest@redhat.com). The breadcrumb trail indicates the current location: Home > gswx1 > sagswx1 - Containers.

The main content area is titled 'sagswx1 - Containers' and shows a storage account. A search bar is present with the placeholder text 'Search (Cmd+/)'. Below the search bar, there is a list of containers:

Name	Last modified	Public access ...	Lease state
<input type="checkbox"/> files	10/11/2019, 8:34:28 AM	Blob	Available ...
<input type="checkbox"/> vhd	10/11/2019, 8:29:52 AM	Private	Available ...

The left sidebar contains a navigation menu with the following items:

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Data transfer
- Storage Explorer (preview)

# Bootstrap Ignition

The screenshot shows the Microsoft Azure portal interface. The breadcrumb navigation indicates the path: Home > gswx1 > sagswx1 - Containers > files. The left sidebar contains a search bar and a navigation menu with 'Overview' (selected), 'Access Control (IAM)', and 'Settings' (which includes 'Access policy', 'Properties', and 'Metadata'). The main content area shows the 'files' container details, including the authentication method (Access key), location (files), and a search bar for blobs. A table lists the files in the container, showing one file named 'bootstrap.ign'.

Microsoft Azure (Preview) Search resources, services, and docs (G+)

Home > gswx1 > sagswx1 - Containers > files

**files**  
Container

Search (Cmd+/)

Overview

Access Control (IAM)

Settings

- Access policy
- Properties
- Metadata

Authentication method: Access key [Switch to Azure AD User Account](#)

Location: files

Search blobs by prefix (case-sensitive) ☐ Show deleted blobs

Name	Modified	Access tier	Blob type	Size	Lease sta...
<input type="checkbox"/> bootstrap.ign	10/11/2019, 8:34:32 AM		Block blob	269.97 KiB	Available ...



# deploy-azarm.sh

- What it does:
  - Starts the deployment using the arm template
  - Creates and setups all resources (vms,load balancers, etc)
  - Wait for bootstrap complete
  - Delete the bootstrap ignition file
  - Wait for installation complete

# Start Deploy

```
[Glenns-MacBook-Pro-2:4.1 gwest$ ./deploy_azarm.sh  
Start Deployment  
■- Running ..
```

Essentials

Filter by name... All types All locations

1 of 27 items selected Show hidden types

<input type="checkbox"/>	Name	Type	Location
<input type="checkbox"/>	masteravailabilityset	Availability set	East US
<input type="checkbox"/>	nodeavailabilityset	Availability set	East US
<input checked="" type="checkbox"/>	gswx1intlb	Load balancer	East US
<input type="checkbox"/>	MasterLbgswx1	Load balancer	East US
<input type="checkbox"/>	wildcardzonelb	Load balancer	East US
<input type="checkbox"/>	bootstrap-0nic	Network interface	East US
<input type="checkbox"/>	master1nic	Network interface	East US
<input type="checkbox"/>	master2nic	Network interface	East US
<input type="checkbox"/>	master3nic	Network interface	East US
<input type="checkbox"/>	node01nic	Network interface	East US
<input type="checkbox"/>	node02nic	Network interface	East US
<input type="checkbox"/>	node03nic	Network interface	East US
<input type="checkbox"/>	bootstrap-0nsg	Network security group	East US
<input type="checkbox"/>	master1nsg	Network security group	East US
<input type="checkbox"/>	master2nsg	Network security group	East US
<input type="checkbox"/>	master3nsg	Network security group	East US
<input type="checkbox"/>	gswx1	Public IP address	East US
<input type="checkbox"/>	wildcardzone	Public IP address	East US
<input type="checkbox"/>	sagswx1	Storage account	East US

Essentials

Filter by name... All types All locations No grouping

1 of 27 items selected Show hidden types

<input type="checkbox"/> Name	Type	Location	
<input type="checkbox"/> master3nic	Network interface	East US	...
<input type="checkbox"/> node01nic	Network interface	East US	...
<input type="checkbox"/> node02nic	Network interface	East US	...
<input type="checkbox"/> node03nic	Network interface	East US	...
<input type="checkbox"/> bootstrap-0nsg	Network security group	East US	...
<input type="checkbox"/> master1nsg	Network security group	East US	...
<input type="checkbox"/> master2nsg	Network security group	East US	...
<input type="checkbox"/> master3nsg	Network security group	East US	...
<input type="checkbox"/> gswx1	Public IP address	East US	...
<input type="checkbox"/> wildcardzone	Public IP address	East US	...
<input type="checkbox"/> sagswx1	Storage account	East US	...
<input type="checkbox"/> bootstrap-0	Virtual machine	East US	...
<input type="checkbox"/> master1	Virtual machine	East US	...
<input type="checkbox"/> master2	Virtual machine	East US	...
<input type="checkbox"/> master3	Virtual machine	East US	...
<input type="checkbox"/> node01	Virtual machine	East US	...
<input type="checkbox"/> node02	Virtual machine	East US	...
<input type="checkbox"/> node03	Virtual machine	East US	...
<input type="checkbox"/> openshiftVnet	Virtual network	East US	...

```
-- Logs begin at Fri 2019-10-11 14:26:01 UTC, end at Fri 2019-10-11 14:55:28 UTC. --
Oct 11 14:27:17 bootstrap-0 systemd[1]: Started Bootstrap a Kubernetes cluster.
Oct 11 14:27:20 bootstrap-0 bootkube.sh[1573]: Pulling release image...
Oct 11 14:27:30 bootstrap-0 bootkube.sh[1573]: 9e928444323ac8efafc26ecc9b42be1afcf46706ee351826098db7f33b6e7b4
Oct 11 14:28:08 bootstrap-0 bootkube.sh[1573]: Rendering Cluster Version Operator Manifests...
Oct 11 14:28:10 bootstrap-0 bootkube.sh[1573]: Rendering cluster config manifests...
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_project.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_03_quota-openshift_01_clusterresourcequota.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_apiserver.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_build.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_dns.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_ingress.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_network.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_03_authorization-openshift_01_rolebindingrestriction.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_authentication.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_console.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_02_config.clusterrole.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_featuregate.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_image.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_openshift-config-managed-ns.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_03_security-openshift_01_scc.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_infrastructure.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_oauth.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_openshift-config-ns.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_config-operator_01_scheduler.crd.yaml
Oct 11 14:28:13 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/config-bootstrap/manifests/0000_10_quota-openshift_01_clusterresourcequota.crd.yaml
Oct 11 14:28:14 bootstrap-0 bootkube.sh[1573]: Rendering Kubernetes API server core manifests...
```

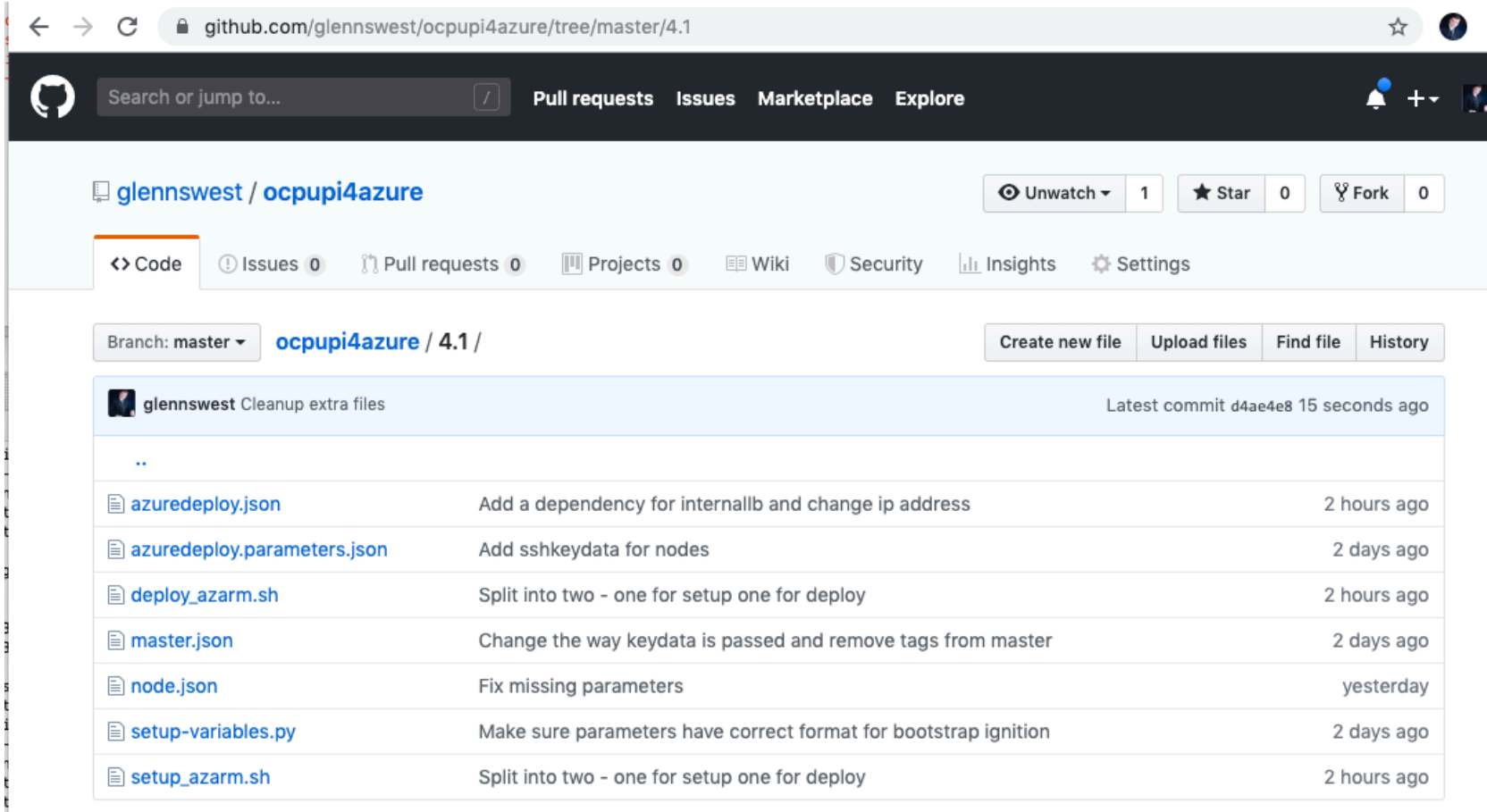
```
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/bootstrap-manifests/kube-apiserver-pod.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-kube-apiserver-to-kubelet-signer.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-loadbalancer-serving-signer.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/00_openshift-kube-apiserver-ns.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/cluster-role-kube-apiserver.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/configmap-admin-kubeconfig-client-ca.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/configmap-csr-controller-ca.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/configmap-sa-token-signing-certs.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-control-plane-client-signer.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-service-network-serving-signer.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/00_openshift-kube-apiserver-operator-ns.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/cluster-role-binding-kube-apiserver.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-aggregator-client-signer.yaml
Oct 11 14:28:17 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-apiserver-bootstrap/manifests/secret-localhost-serving-signer.yaml
Oct 11 14:28:21 bootstrap-0 bootkube.sh[1573]: Rendering Kubernetes Controller Manager core manifests...
Oct 11 14:28:24 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-controller-manager-bootstrap/bootstrap-manifests/kube-controller-manager-pod.yaml
Oct 11 14:28:24 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-controller-manager-bootstrap/manifests/secret-initial-kube-controller-manager-service-account-p
Oct 11 14:28:24 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-controller-manager-bootstrap/manifests/00_openshift-kube-controller-manager-ns.yaml
Oct 11 14:28:24 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-controller-manager-bootstrap/manifests/00_openshift-kube-controller-manager-operator-ns.yaml
Oct 11 14:28:24 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-controller-manager-bootstrap/manifests/secret-csr-signer-signer.yaml
Oct 11 14:28:27 bootstrap-0 bootkube.sh[1573]: Rendering Kubernetes Scheduler core manifests...
Oct 11 14:28:30 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-scheduler-bootstrap/bootstrap-manifests/kube-scheduler-pod.yaml
Oct 11 14:28:30 bootstrap-0 bootkube.sh[1573]: Writing asset: /assets/kube-scheduler-bootstrap/manifests/00_openshift-kube-scheduler-ns.yaml
Oct 11 14:28:34 bootstrap-0 bootkube.sh[1573]: Rendering MCO manifests...
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.979114      1 bootstrap.go:86] Version: 4.1.18-201909201915-dirty (a2175e587b007272f26305fe7d8b603c49e8f1fc)
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.982488      1 bootstrap.go:142] manifests/machineconfigcontroller/controllerconfig.yaml
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.985314      1 bootstrap.go:142] manifests/master.machineconfigpool.yaml
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.985578      1 bootstrap.go:142] manifests/worker.machineconfigpool.yaml
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.985814      1 bootstrap.go:142] manifests/bootstrap-pod-v2.yaml
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.986119      1 bootstrap.go:142] manifests/machineconfigserver/csr-bootstrap-role-binding.yaml
Oct 11 14:28:37 bootstrap-0 bootkube.sh[1573]: I1011 14:28:36.986404      1 bootstrap.go:142] manifests/machineconfigserver/kube-apiserver-serving-ca-configmap.yaml
Oct 11 14:28:38 bootstrap-0 bootkube.sh[1573]: Starting etcd certificate signer...
Oct 11 14:28:41 bootstrap-0 bootkube.sh[1573]: d853c62d2f625dce282c0897a04841819b38a765ee230ab3b82478df87746fd7
```



# Change Versions

- Installer – Pull down the installer that you want to use to the directory for azocpupi as the scripts all use ./openshift-install
- Two file modifications are needed
  - Image for RHCOS

# Where's it at:



The screenshot shows the GitHub interface for the repository `glennswest / ocpupi4azure`. The browser address bar displays `github.com/glennswest/ocpupi4azure/tree/master/4.1`. The repository page includes a search bar, navigation links for Pull requests, Issues, Marketplace, and Explore, and a header showing 1 Unwatch, 0 Stars, and 0 Forks. Below the header, a tab bar allows switching between Code, Issues (0), Pull requests (0), Projects (0), Wiki, Security, Insights, and Settings. The main content area shows the file list for the `master` branch at commit `4.1`. A commit by `glennswest` titled "Cleanup extra files" is shown at the top, with the latest commit hash `d4ae4e8` and a timestamp of 15 seconds ago. The file list includes:

File	Description	Time
..		
<code>azuredeploy.json</code>	Add a dependency for internallb and change ip address	2 hours ago
<code>azuredeploy.parameters.json</code>	Add sshkeydata for nodes	2 days ago
<code>deploy_azarm.sh</code>	Split into two - one for setup one for deploy	2 hours ago
<code>master.json</code>	Change the way keydata is passed and remove tags from master	2 days ago
<code>node.json</code>	Fix missing parameters	yesterday
<code>setup-variables.py</code>	Make sure parameters have correct format for bootstrap ignition	2 days ago
<code>setup_azarm.sh</code>	Split into two - one for setup one for deploy	2 hours ago

<https://github.com/glennswest/ocpupi4azure/tree/master/4.1>