

Upgrade an Azure Kubernetes Service (AKS) cluster-Using Terraform Blueprint-BPAZR018

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Overview

Platform	Azure
Owner of this SOP:	Fully Managed POD-B
Cloud Services	AKS

Tester	Reviewer
@ Sandeep Naidu Pinnenti	@ Irene Bogosi

Before you begin

- You must have an existing cluster. This page is about upgrading from Kubernetes 1.23.12 to Kubernetes 1.24.6
- Spin up a cluster using blueprint-[bhp-cloudfactory](#) / [azure-blueprints](#) / [azr-aks-blueprint](#) · [GitLab](#)
- Follow the prerequisites mentioned in README file for policy exemptions and other important things before creation.
- Define the below variables in the terraform module

```
kubernetes_version      = var.kubernetes_version(To specify
control plane version)
orchestrator_version     = var.orchestrator_version(To specify
Node Pool version)
```

Problem

AKS cluster lifecycle involves performing periodic upgrades to the latest Kubernetes version. It's important you apply the latest security releases, or upgrade to get the latest features. This article shows you how to check for, configure, and apply upgrades to your AKS cluster.



When you upgrade a supported AKS cluster, Kubernetes minor versions can't be skipped. All upgrades must be performed sequentially by major version number. For example, upgrades between 1.14.x -> 1.15.x or 1.15.x -> 1.16.x are allowed, however 1.14.x -> 1.16.x is not allowed.

Skipping multiple versions can only be done when upgrading from an *unsupported version* back to a *supported version*. For example, an upgrade from an unsupported 1.10.x -> a supported 1.15.x can be completed if available.

Solution

Step 1: Check for available AKS cluster upgrades

To check which Kubernetes releases are available for your cluster, please refer to [Check for available AKS cluster upgrades](#)

The following example output shows that the cluster can be upgraded to versions 1.24.3 and 1.24.6:

```
C:\Users\podbadmin>az aks get-upgrades --name it-it-it-arg-podb-aks --resource-group it-it-it-arg-podb-aks -o table
-----
Name      ResourceGroup      MasterVersion      Upgrades
-----
default   it-it-it-arg-podb-aks  1.23.12            1.24.3, 1.24.6
C:\Users\podbadmin>
```

Step 2: Customize node surge upgrade

By default, AKS configures upgrades to surge with one extra node. A default value of one for the max surge settings will enable AKS to minimize workload disruption by creating an extra node before the cordon/drain of existing applications to replace an older versioned node.

To know more about node surge configuration, refer to [AKS Surge Node Recommendations](#) . In this example, we are going with default value that is one.

Step 3: Check PodDisruptionBudget Configuration

Ensure that any `PodDisruptionBudgets` (PDBs) allow for at least 1 pod replica to be moved at a time otherwise the drain/evict operation will fail. If the drain operation fails, the upgrade operation will fail by design to ensure that the applications are not disrupted.

Step 4: Upgrade an AKS cluster

During the upgrade process, AKS will:

- Add a new buffer node (or as many nodes as configured in max surge) to the cluster that runs the specified Kubernetes version.
- Cordon and drain one of the old nodes to minimize disruption to running applications. If you're using max surge, it will cordon and drain as many nodes at the same time as the number of buffer nodes specified.
- When the old node is fully drained, it will be reimaged to receive the new version, and it will become the buffer node for the following node to be upgraded.
- This process repeats until all nodes in the cluster have been upgraded.
- At the end of the process, the last buffer node will be deleted.

As we are performing the upgrade from terraform, define the parameters `orchestrator_version`, `kubernetes_version` in terraform module.

Kubernetes_version: Version of Kubernetes specified when creating the AKS managed cluster.

Orchestrator_version: Version of Kubernetes used for the Agents. This version must be supported by the Kubernetes Cluster - as such the version of Kubernetes used on the Cluster/Control Plane may need to be upgraded first.

In this example, we have first defined `kubernetes_version` paramater to 1.24.6 and then ran terraform plan with subsequent apply which upgrades the control plane to 1.24.6 version.

GitLab Code:

9	- kubernetes_version = "1.23.12" # Version of Kubernetes specified when creating the AKS managed cluster. If not specified, the latest recommended version will be used at provisioning time	9	+ kubernetes_version = "1.24.6" # Version of Kubernetes specified when creating the AKS managed cluster. If not specified, the latest recommended version will be used at provisioning time
---	--	---	---

Terraform Plan:

```
~ module.aks.azure_rm_kubernetes_cluster.this
  id : "/subscriptions/02edd368-8c77-4446-9165-f6e8ea5cbd86/resourceGroups/it-it-it-arg-podb-aks/providers/Microsoft.ContainerService/managedClusters/it-arg-podb-aks"
  ~ kubernetes_version : "1.23.12" -> "1.24.6"
```

Once applied, control plane will be upgraded to version 1.24.6. Check the version in terraform state file or in the Azure portal.

Resource group
[it-it-it-arg-podb-aks](#)

Kubernetes version
1.24.6

Post upgrading control plane, set orchestrator_version parameter to desired version (1.24.6) to upgrade nodes in the node pools to the desired version.

GitLab Code:

```
env_vars/npe.auto.tfvars
+1 -0
View file @bfb9e65

... @@ -70,6 +70,7 @@ app_service_endpoint_subnet = {
70
71 ##### Log analytics workspace Values
72 #####
72 log_analytics_name = "default"
73 + orchestrator_version = "1.24.6"
73
74 ### Tags ###
74
75 ##### Log analytics workspace Values
75 #####
75 log_analytics_name = "default"
76
77 ### Tags ###
```

Terraform Plan:

```
~ orchestrator_version :      "1.23.12" → "1.24.6"
tags :
{
... 18 unchanged attributes hidden
```

Once terraform apply is successful, nodes in the node pool will be upgraded to 1.24.6. Check the version in terraform state file or in the Azure portal.

Node pool	Provisioning state	Power state	Node count	Mode	Kubernetes version	Node size
default	Succeeded	Running	✓ 1/1 ready	System	1.24.6	Standard_D4s_v3
podbtesting	Succeeded	Running	✓ 2/2 ready	User	1.24.6	Standard_D4s_v3

View the upgrade events

When you upgrade your cluster, the following Kubernetes events may occur on each node:

- Surge – Create surge node.
- Drain – Pods are being evicted from the node. Each pod has a 30-minute timeout to complete the eviction.
- Update – Update of a node has succeeded or failed.
- Delete – Deleted a surge node.

Refer to below screenshots for the events:

```
Administrator: C:\Windows\system32\cmd.exe - kubectll get nodes -w

C:\Users\podbadmin>kubectll get nodes -w
NAME                                STATUS    ROLES    AGE    VERSION
aks-default-25191975-vmss000000a    Ready    agent    10h    v1.23.12
aks-podbtesting-20505491-vmss0000002 Ready    agent    161m   v1.23.12
aks-podbtesting-20505491-vmss0000004 Ready    agent    96m    v1.23.12

Administrator: Command Prompt - kubectll get pods -o wide -w

C:\Users\podbadmin>kubectll get pods -o wide -w
NAME                                READY    STATUS    RESTARTS   AGE    IP            NODE                                NOMINATED NODE    READINESS GATES
nginx-deploy-7564957d4b-7ztmv        1/1      Running   0           40m    10.244.5.20   aks-podbtesting-20505491-vmss0000002 <none>             <none>
nginx-deploy-7564957d4b-csuvv        1/1      Running   0           40m    10.244.7.13   aks-podbtesting-20505491-vmss0000004 <none>             <none>
nginx-deploy-7564957d4b-m8qmw        1/1      Running   0           40m    10.244.7.12   aks-podbtesting-20505491-vmss0000004 <none>             <none>
nginx-deploy-7564957d4b-nbrkw        1/1      Running   0           40m    10.244.7.11   aks-podbtesting-20505491-vmss0000004 <none>             <none>
nginx-deploy-7564957d4b-sc7mq        1/1      Running   0           40m    10.244.5.22   aks-podbtesting-20505491-vmss0000002 <none>             <none>
nginx-deploy-7564957d4b-wlhnw        1/1      Running   0           40m    10.244.5.21   aks-podbtesting-20505491-vmss0000002 <none>             <none>
```

At this point, node pool upgrade run has been triggered from terraform. We can see a new buffer node has been added as aks will add one buffer node by default during upgrade.

Home > it-it-aue1-npe-arg-podb-aks > it-aue1-npe-podb-aks | Node pools > default

default | Nodes Node pool

Search Refresh

Overview Nodes Configuration

Filter by node name
Enter the full node name

Node	Status	Kubernetes version	Node image version	Container runtime
aks-default-25191975-vmss000000a	Ready	1.23.12	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//
aks-default-25191975-vmss000000b	Ready	1.24.6	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//

Now, the old node with version 1.23.12 will be drained and node version upgrade process start. Before that Kubernetes will ensure that all pods in the old node are evicted and are placed in the new node and are in running state.

```
Administrator: C:\Windows\system32\cmd.exe - kubectll get nodes -w

C:\Users\podbadmin>kubectll get nodes -w
NAME                                STATUS    ROLES    AGE    VERSION
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-podtesting-20505491-vmss0000002 Ready     agent    161m   v1.23.12
aks-podtesting-20505491-vmss0000004 Ready     agent    96m    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-podtesting-20505491-vmss0000004 Ready     agent    97m    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-podtesting-20505491-vmss0000002 Ready     agent    162m   v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-podtesting-20505491-vmss0000004 Ready     agent    102m   v1.23.12
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-podtesting-20505491-vmss0000002 Ready     agent    167m   v1.23.12
aks-default-25191975-vmss000000b    NotReady  <none>    0s     v1.24.6
aks-default-25191975-vmss000000b    NotReady  <none>    0s     v1.24.6
aks-default-25191975-vmss000000b    NotReady  <none>    0s     v1.24.6
aks-default-25191975-vmss000000b    NotReady  <none>    0s     v1.24.6
aks-default-25191975-vmss000000b    NotReady  <none>    2s     v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    9s     v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    9s     v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    12s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    18s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    18s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    18s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    20s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    21s    v1.24.6
aks-default-25191975-vmss000000b    Ready     <none>    22s    v1.24.6
aks-default-25191975-vmss000000b    Ready     agent    23s    v1.24.6
aks-default-25191975-vmss000000a    Ready     agent    10h    v1.23.12
aks-default-25191975-vmss000000b    Ready     agent    30s    v1.24.6
aks-default-25191975-vmss000000b    Ready     agent    30s    v1.24.6
aks-default-25191975-vmss000000a    Ready,SchedulingDisabled agent    10h    v1.23.12
aks-default-25191975-vmss000000a    Ready,SchedulingDisabled agent    10h    v1.23.12
aks-default-25191975-vmss000000b    Ready     agent    51s    v1.24.6
aks-default-25191975-vmss000000b    Ready     agent    64s    v1.24.6
```

Once the old node has been upgraded to new version 1.24.6, the buffer node will be drained and removed.

```
Administrator: C:\Windows\system32\cmd.exe - kubectl get nodes -w
aks-default-25191975-vmss000000b Ready agent 30s v1.24.6
aks-default-25191975-vmss000000a Ready,SchedulingDisabled agent 10h v1.23.12
aks-default-25191975-vmss000000a Ready,SchedulingDisabled agent 10h v1.23.12
aks-default-25191975-vmss000000b Ready agent 51s v1.24.6
aks-default-25191975-vmss000000b Ready agent 64s v1.24.6
aks-default-25191975-vmss000000b Ready agent 64s v1.24.6
aks-podtesting-20505491-vmss0000004 Ready agent 104m v1.23.12
aks-podtesting-20505491-vmss0000002 Ready agent 169m v1.23.12
aks-default-25191975-vmss000000a Ready,SchedulingDisabled agent 10h v1.23.12
aks-default-25191975-vmss000000b Ready agent 82s v1.24.6
aks-default-25191975-vmss000000b Ready agent 113s v1.24.6
aks-default-25191975-vmss000000a NotReady <none> 0s v1.24.6
aks-default-25191975-vmss000000a NotReady <none> 0s v1.24.6
aks-default-25191975-vmss000000a NotReady <none> 0s v1.24.6
aks-default-25191975-vmss000000a NotReady <none> 4s v1.24.6
aks-default-25191975-vmss000000a Ready <none> 9s v1.24.6
aks-default-25191975-vmss000000a Ready <none> 9s v1.24.6
aks-default-25191975-vmss000000a Ready agent 9s v1.24.6
aks-default-25191975-vmss000000a Ready agent 19s v1.24.6
aks-default-25191975-vmss000000a Ready agent 19s v1.24.6
aks-default-25191975-vmss000000a Ready agent 19s v1.24.6
aks-default-25191975-vmss000000a Ready agent 19s v1.24.6
aks-default-25191975-vmss000000a Ready agent 20s v1.24.6
aks-default-25191975-vmss000000a Ready agent 21s v1.24.6
aks-default-25191975-vmss000000a Ready agent 29s v1.24.6
aks-default-25191975-vmss000000a Ready agent 31s v1.24.6
aks-default-25191975-vmss000000a Ready agent 31s v1.24.6
aks-default-25191975-vmss000000b Ready,SchedulingDisabled agent 3m15s v1.24.6
aks-default-25191975-vmss000000b Ready,SchedulingDisabled agent 3m15s v1.24.6
aks-default-25191975-vmss000000b Ready,SchedulingDisabled agent 3m16s v1.24.6
aks-default-25191975-vmss000000a Ready agent 39s v1.24.6
aks-default-25191975-vmss000000a Ready agent 51s v1.24.6
aks-default-25191975-vmss000000a Ready agent 63s v1.24.6
aks-default-25191975-vmss000000a Ready agent 69s v1.24.6
aks-default-25191975-vmss000000a Ready agent 81s v1.24.6
```

default Nodes				
Node pool				
<input type="text" value="Search"/> Refresh				
Overview				
Nodes				
Configuration				
Filter by node name				
<input type="text" value="Enter the full node name"/>				
Node	Status	Kubernetes version	Node image version	Container runtime
aks-default-25191975-vmss000000a	Ready	1.24.6	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//

Upgrade nodes in User node pool:

podtesting Nodes				
Node pool				
<input type="text" value="Search"/> Refresh				
Overview				
Nodes				
Configuration				
Filter by node name				
<input type="text" value="Enter the full node name"/>				
Node	Status	Kubernetes version	Node image version	Container runtime
aks-podtesting-20505491-vmss0000002	Ready	1.23.12	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//
aks-podtesting-20505491-vmss0000004	Ready	1.23.12	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//

At this point, node pool upgrade run has been triggered from terraform. We can see a new buffer node has been added as aks will add one buffer node by default during upgrade.

aks-default-25191975-vms000000a	Ready	agent	19s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	19s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	19s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	20s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	21s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	29s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	31s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	31s	v1.24.6
aks-default-25191975-vms000000b	Ready,SchedulingDisabled	agent	3m15s	v1.24.6
aks-default-25191975-vms000000b	Ready,SchedulingDisabled	agent	3m15s	v1.24.6
aks-default-25191975-vms000000b	Ready,SchedulingDisabled	agent	3m16s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	39s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	51s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	63s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	69s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	81s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	112s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	0s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	0s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	0s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	0s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	0s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	<none>	2s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	agent	8s	v1.24.6
aks-podtesting-20505491-vms0000002	Ready	agent	173m	v1.23.12
aks-podtesting-20505491-vms0000004	Ready	agent	108m	v1.23.12
aks-podtesting-20505491-vms0000005	NotReady	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	NotReady	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	Ready	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	Ready	agent	10s	v1.24.6
aks-podtesting-20505491-vms0000005	Ready	agent	12s	v1.24.6
aks-podtesting-20505491-vms0000005	Ready	agent	12s	v1.24.6
aks-podtesting-20505491-vms0000005	Ready	agent	12s	v1.24.6
aks-podtesting-20505491-vms0000004	Ready,SchedulingDisabled	agent	108m	v1.23.12
aks-podtesting-20505491-vms0000004	Ready,SchedulingDisabled	agent	108m	v1.23.12
aks-default-25191975-vms000000a	Ready	agent	3m18s	v1.24.6
aks-default-25191975-vms000000a	Ready	agent	3m18s	v1.24.6

Overview

Nodes

Configuration

Filter by node name

Enter the full node name

Node	Status	Kubernetes version	Node image version	Container runtime
aks-podtesting-20505491-vms0000002	Ready	1.23.12	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//
aks-podtesting-20505491-vms0000004	Ready	1.23.12	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//
aks-podtesting-20505491-vms0000005	Ready	1.24.6	AKSUbuntu-1804gen2containerd-2022.11.02	containerd//

Now, the old nodes with version 1.23.12 will be drained and node version upgrade process starts. Before that Kubernetes will ensure that all pods in the old nodes are evicted from the old nodes and are placed in the new node and are in running state.


```
Administrator: Command Prompt - kubectl get pods -o wide -w
nginx-deploy-7564957d4b-9hvxz 0/1 Pending 0 0s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-lj3z2 0/1 Terminating 0 3m25s 10.244.2.18 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-lj3z2 0/1 Terminating 0 3m25s 10.244.2.18 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-lj3z2 0/1 Terminating 0 3m25s 10.244.2.18 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-p2p38 0/1 Terminating 0 3m27s 10.244.2.22 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-p2p38 0/1 Terminating 0 3m27s 10.244.2.22 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-p2p38 0/1 Terminating 0 3m27s 10.244.2.22 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-tr582 0/1 Terminating 0 3m28s 10.244.2.25 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-tr582 0/1 Terminating 0 3m28s 10.244.2.25 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-tr582 0/1 Terminating 0 3m28s 10.244.2.25 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-9hvxz 0/1 ContainerCreating 0 6s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-c8xt7 0/1 ContainerCreating 0 9s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-xuhfd 0/1 ContainerCreating 0 11s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-xuhfd 1/1 Running 0 21s 10.244.3.13 aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-nbwip 1/1 Terminating 0 2m <none> aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-zks9n 0/1 Pending 0 0s <none> <none> <none> <none>
nginx-deploy-7564957d4b-zks9n 0/1 Pending 0 0s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-nbwip 0/1 Terminating 0 2m1s 10.244.2.32 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-nbwip 0/1 Terminating 0 2m1s 10.244.2.32 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-nbwip 0/1 Terminating 0 2m1s 10.244.2.32 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-zks9n 0/1 ContainerCreating 0 1s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-9hvxz 1/1 Running 0 28s 10.244.3.18 aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-c8xt7 1/1 Running 0 31s 10.244.3.16 aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-wrt5m 1/1 Terminating 0 2m16s 10.244.2.30 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-bnch7 0/1 Pending 0 0s <none> <none> <none> <none>
nginx-deploy-7564957d4b-bnch7 0/1 ContainerCreating 0 0s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-wrt5m 0/1 Terminating 0 2m17s 10.244.2.30 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-wrt5m 0/1 Terminating 0 2m17s 10.244.2.30 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-wrt5m 0/1 Terminating 0 2m17s 10.244.2.30 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-cvqgt 1/1 Terminating 0 2m23s 10.244.2.28 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-sxc4r 0/1 Pending 0 0s <none> <none> <none> <none>
nginx-deploy-7564957d4b-sxc4r 0/1 Pending 0 0s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-sxc4r 0/1 ContainerCreating 0 0s <none> aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-cvqgt 0/1 Terminating 0 2m25s 10.244.2.28 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-cvqgt 0/1 Terminating 0 2m25s 10.244.2.28 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-cvqgt 0/1 Terminating 0 2m25s 10.244.2.28 aks-podtesting-20505491-vms0000005 <none> <none>
nginx-deploy-7564957d4b-zks9n 1/1 Running 0 21s 10.244.3.28 aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-bnch7 1/1 Running 0 12s 10.244.3.29 aks-podtesting-20505491-vms0000004 <none> <none>
nginx-deploy-7564957d4b-sxc4r 1/1 Running 0 12s 10.244.3.30 aks-podtesting-20505491-vms0000004 <none> <none>
```

```
Administrator: C:\Windows\system32\cmd.exe - kubectl get nodes -w
aks-podtesting-20505491-vms0000004 agent 28s v1.24.6
aks-podtesting-20505491-vms0000004 agent 28s v1.24.6
aks-podtesting-20505491-vms0000005 agent 2m46s v1.24.6
aks-podtesting-20505491-vms0000005 agent 2m46s v1.24.6
aks-podtesting-20505491-vms0000004 agent 29s v1.24.6
aks-podtesting-20505491-vms0000004 agent 51s v1.24.6
aks-podtesting-20505491-vms0000005 agent 3m34s v1.24.6
aks-podtesting-20505491-vms0000004 agent 82s v1.24.6
aks-default-2519197s-vms000000a agent 6m58s v1.24.6
aks-podtesting-20505491-vms0000005 agent 4m5s v1.24.6
aks-podtesting-20505491-vms0000002 Ready,SchedulingDisabled agent 177m v1.23.12
aks-podtesting-20505491-vms0000004 agent 113s v1.24.6
aks-podtesting-20505491-vms0000004 agent 2m31s v1.24.6
aks-podtesting-20505491-vms0000004 agent 2m31s v1.24.6
aks-podtesting-20505491-vms0000004 agent 2m54s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 0s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 0s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 0s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 0s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 0s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 3s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady <none> 5s v1.24.6
aks-podtesting-20505491-vms0000005 Ready,SchedulingDisabled agent 5m41s v1.24.6
aks-podtesting-20505491-vms0000005 Ready,SchedulingDisabled agent 5m41s v1.24.6
aks-podtesting-20505491-vms0000002 NotReady agent 10s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 10s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 10s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 13s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 26s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 26s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 26s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 27s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 28s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 51s v1.24.6
aks-podtesting-20505491-vms0000004 Ready agent 4m27s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 81s v1.24.6
aks-podtesting-20505491-vms0000005 Ready,SchedulingDisabled agent 7m2s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 102s v1.24.6
aks-podtesting-20505491-vms0000002 Ready agent 102s v1.24.6
aks-default-2519197s-vms000000a Ready agent 10m v1.24.6
```

Both the nodes in the node pool have been upgraded to version 1.24.6.

<<
Refresh

Overview

Nodes

Configuration

Filter by node name

Node	Status ⓘ	Kubernetes version	Node image version	Container run
aks-podtesting-20505491-vmss000002	Ready	1.24.6	AKSUbuntu-1804gen2containerd-2022.11.02	containerd://
aks-podtesting-20505491-vmss000004	Ready	1.24.6	AKSUbuntu-1804gen2containerd-2022.11.02	containerd://

4

Related articles

- [Patch/Upgrade nodes](#)
- [Automatically upgrade the node image](#)
- [Upgrade an Azure Kubernetes Service \(AKS\) cluster](#)
- [Patch/Upgrade nodes](#)
- [Check for available AKS cluster upgrades](#)