

# **NewgenONE OmniDocs RMS**

# **Configuration and Deployment Guide for Azure**

Version: 4.0 SP1

## Newgen Software Technologies Ltd.

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# 1 Preface

This guide describes the deployment and configuration of NewgenONE OmniDocs Record Management System (RMS) 4.0 SP1. It includes deliverables like OmniDocs and RMS Docker containers and its required configuration files on the Azure Kubernetes Service (AKS).

## **1.1 Revision history**

Revision Date	Description
April 2024	Initial publication

## **1.2 Intended audience**

This guide is intended for System Administrators, developers, and any other users seeking information about the deployment of OmniDocs and RMS containers on Azure Kubernetes Services. The reader must be comfortable to understand the computer terminology.

### **1.3 Documentation feedback**

To provide feedback or any improvement suggestions on technical documentation, you can write an email to <u>docs.feedback@newgensoft.com</u>.

To help capture your feedback effectively, requesting you to share the following information in your email.

- Document Name:
- Version:
- Chapter, Topic, or Section:
- Feedback or Suggestions:

# **2** Configuring Azure kubernetes cluster

This section contains the steps to configure the Kubernetes Cluster on Azure.

### 2.1 Creating an Azure kubernetes cluster

This section explains how to create an Azure Kubernetes Cluster:

#### **Pre-requisites:**

Following are the prerequisites for Azure Kubernetes Cluster creation:

- Signed in user must have below roles:
  - > At Subscription: Contributor Role
  - > At Subscription: User Access Administrator
- Virtual network and subnet must be created for the Kubernetes cluster.

Before creating the Azure Kubernetes Cluster also known as AKS, you must sign in to the Azure portal at <u>https://portal.azure.com</u>.

Perform the below steps to create an Azure Kubernetes Cluster:

- 1. On the Azure portal menu or from the Home page, select Create a resource.
- 2. Select Containers and Kubernetes Service.

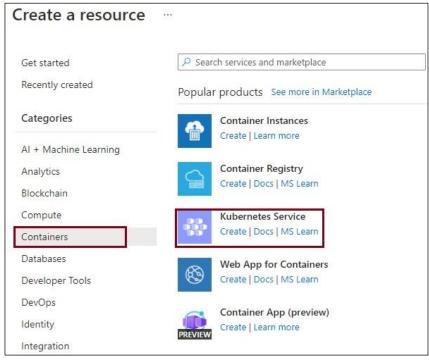


Figure 2.1

- 3. In the **Basics** tab, specify the following details on the Create Kubernetes cluster:
  - **Subscription**: Select a valid Azure subscription.
  - **Resource group**: Select or create an Azure Resource group, such as **AzureKubernetes**.
  - Kubernetes cluster name: Enter a Kubernetes cluster name such as BPMSuite-AKSCluster.
  - **Region**: Select a region into which you want to create an AKS cluster.
  - Availability zones: Usually there are three availability zones per region that allows you to spread the nodes across different physical locations for high availability. Select the availability zones as per your business requirement. [By default, select all the availability zones].
  - Kubernetes version: Select the default one that is, 1.20.9 (default).
  - **Primary node pool**: Select a VM Node size for the AKS nodes and select the number of nodes to be deployed into the AKS cluster.

#### NOTE:

The VM size can't be changed after the AKS cluster deployment. However, node count is adjustable.

- **Scale method**: Select the scale method as **Autoscale**. Autoscaling helps to ensure that your cluster is running efficiently with the right number of nodes for the workloads present.
- Click Next: Node Pools.

Create Kubernetes cluster						
Basics Node pools Authentication	n Networking Integration	s Tags Review + create				
Azure Kubernetes Service (AKS) manages manage containerized applications withou operations and maintenance by provision offline. Learn more about Azure Kuberne	t container orchestration expertise. ng, upgrading, and scaling resource					
Project details						
Select a subscription to manage deployed your resources.	resources and costs. Use resource <u>c</u>	groups like folders to organize and manage all				
Subscription * 🕢	Visual Studio Enterprise	$\checkmark$				
Resource group * ()	(New) AzureKubernetes Create new	~				
Cluster details						
Cluster preset configuration	to your scenario. Depending on	y choosing the preset configuration applicable the selection, values of certain fields might modify these values at any time.				
Kubernetes cluster name * 🥡	BPMSuite-AKSCluster	$\checkmark$				
Region * 🛈	(Middle East) UAE North	$\checkmark$				
Availability zones 🕕	None	$\checkmark$				
	No availability zones are available View locations that support avail	e for the location you have selected. ability zones ⊠				
Kubernetes version * 🔅	1.20.9 (default)	$\checkmark$				
Primary node pool						
-	nt or test workloads, only one node nfiguration options for this node p					
Node size * (i)	Standard D8ds v4					
	8 vcpus, 32 GiB memory Standard DS2_v2 is recommend Change size	led for standard configuration.				
Scale method * 🕡	Manual					
	<ul> <li>Autoscale</li> <li>Autoscaling is recommended f</li> </ul>	for standard configuration.				
Node count range * 🛈		2				
		2				
Review + create < Pre-	ious Next : Node pools >					

Figure 2.2

4. On the Node pools page, keep the default options and click on the Next: Authentication>.

reate	Kubern	etes c <mark>l</mark> uste	r				
Basics	Node pools	Authentication	Networking	Integrations	Tags	Review + create	
Node poo	ols						
variety of w		primary node pool more about node p Delete		e Basics tab, you o	an also ado	l optional node pools to har	ndle a
Name	e	Mode	OS typ	0e	Node co	unt Node size	
agent	tpool	System	Linux		2	Standard_D	8ds_v
4							•
/irtual nod	tual nodes les allow burstal ual nodes ①	ble scaling backed b	y serverless Azure	e Container Instan	ices. Learn	more about virtual nodes 앱	
Enable vir	tual machine s	scale sets					
Review +	+ create	< Previous	Next : Au	ithentication >			

Figure 2.3

5. On the Authentication page, keep the default options and click on the Next: Networking>.

Creat	e Kubern	etes cluster	r				
Basics	Node pools	Authentication	Networking	Integrations	Tags	Review + create	
The clust		authentication specif				nanage cloud resources at r ♂.	tached to
Authenti	cation method	С	) Service principa	I 💿 System-as	signed m	nanaged identity	
Authenti user may Role-bas	cation and autho	ticated. Learn more a	the Kubernetes clu bout Kubernetes			to the cluster as well as w	/hat the
By defau supply y	our own keys usir	are encrypted at res	set backed by an J	Azure Key Vault. T		nal control over encryptior ncryption set will be used	
Encryptic	on type	(1	Default) Encryptio	n at-rest with a p	latform-n	nanaged key	$\sim$
Review	v + create	< Previous	Next : Ne	etworking >			



- 6. Select the Azure CNI as Network configuration and specify the following details:
  - Virtual network: Select the created VNet for this AKS cluster deployment that is, Vnet\_for\_AzureKubernetes.
  - **Cluster subnet:** Select the subnet into which both the nodes and containers in the cluster gets placed that is, subnet\_dev (**10.0.2.0/23**).

#### NOTE:

This IP range 10.0.2.0/23 must be large enough to accommodate the nodes, pods, and all the Kubernetes resources that might be provisioned in your cluster.

- **Kubernetes service address range**: Specify the IP range from which you can assign Ips to the internal Kubernetes services. This range must not be connected to this virtual network, or it must not overlap with any Subnet IP ranges. For example: **10.0.0/25**.
- You can reuse this range across different AKS clusters.

• **Kubernetes DNS service IP address:** An IP address assigned to the Kubernetes DNS service. It must be within the Kubernetes service address range. For example: **10.0.0.10**.

#### NOTE:

Don't use the first IP address in your address range. The first address is used for the *kubernetes.default.svc.cluster.local* address.

- **Docker Bridge address:** Docker bridge is not used by AKS clusters or the pods themselves, you must set this address to continue to support scenarios such as docker build within the AKS cluster. It is required to select a CIDR for the Docker bridge network address. Else, Docker picks a subnet automatically, which can conflict with other CIDRs. You must pick an address space that does not collide with the rest of the CIDRs on your networks, including the cluster's service CIDR and pod CIDR that is, **172.17.0.1/25**.
- You can reuse this range across different AKS clusters.
- Select Azure as Network policy and keep the other settings as default.
- Click Next: Integrations>.

Learn more about networking in Azure Ku	bernetes Service	
Network configuration 🕕	🔘 Kubenet	
	Azure CNI	
	The Azure CNI plugin requires an IP address from pod on a node, which can more quickly exhaust a value is set for pods per node. Consider modifying per node for each node pool on the "Node pools"	vailable IP addresses if a hig g the default values for pods
Virtual network * ①	VNet_for-AzureKubernetes	~
	Create new	
Cluster subnet * 🕕	subnet_dev (10.1.2.0/23)	~
	Manage subnet configuration	
Kubernetes service address range * 🕕	10.0.0/25	~
Kubernetes DNS service IP address * ①	10.0.0.10	~
Docker Bridge address * 🔞	172.17.0.1/25	~
	BPMSuite-AKSCluster-dns	~

Figure 2.5

7. On the Integration page, keep the default options and click the Next: Tags>.

Create Kubernete	es cluster				
Basics Node pools Au	thentication Networking	Integrations	Tags	Review + create	
Connect your AKS cluster with	additional services.				
Azure Container Registry					
	re Container Registry to enable one you already have. Learn m				can
					$\sim$
Container registry	None				*
Azure Monitor In addition to the CPU and me	Create new				
comprehensive data on the ov settings.	Create new	your cluster. Billing is			
Azure Monitor In addition to the CPU and me comprehensive data on the ov settings. Learn more about container pe Learn more about pricing	Create new mory metrics included in AKS by erall performance and health of	your cluster. Billing is			
Azure Monitor In addition to the CPU and me comprehensive data on the ov settings. Learn more about container pe	Create new mory metrics included in AKS by erall performance and health of rformance and health monitorin	your cluster. Billing is	s based o	n data ingestion and retent	
Azure Monitor In addition to the CPU and me comprehensive data on the ov settings. Learn more about container pe Learn more about pricing	Create new mory metrics included in AKS by erall performance and health of rformance and health monitorin	your cluster. Billing is ng Disabled is recommended for	s based o standard	n data ingestion and retent	

Figure 2.6

8. On the Tags page, keep the default options and click Next: Review + create>.

Create Kubernetes cluster						
Basics	Node pools	Authentication	Networking	Integrations	Tags	Review + create
Tags are	name/value pairs		ategorize resourd	ces and view cons		illing by applying the same tag to
			_		r tags will	be automatically updated.
Name	Ð		Va	alue 🛈		
			: [			
Review	v + create	< Previous	Next : Re	eview + create >		

Figure 2.7

9. On the **Review + create** page, click **Create** once validation is passed.

Create Kubernete	es cluster	548) -			
Validation passed					
Basics Node pools Au	thentication Netv	working	Integrations	Tags	Review + create
Basics					
Subscription	Visual Stu	idio Enterpri	se		
Resource group	AzureKub	ernetes			
Region	UAE North	h			
Kubernetes cluster name	BPMSuite	-AKSCluster			
Kubernetes version	1.20.9				
Node pools					
Node pools	1				
Enable virtual nodes	Disabled				
Enable virtual machine scale se	ts Enabled				
Create	< Previous	Next >	Download a te	mplate fo	r automation
		gure 2.8	0.1		

10. Once deployment is complete, click **Go to resource**.

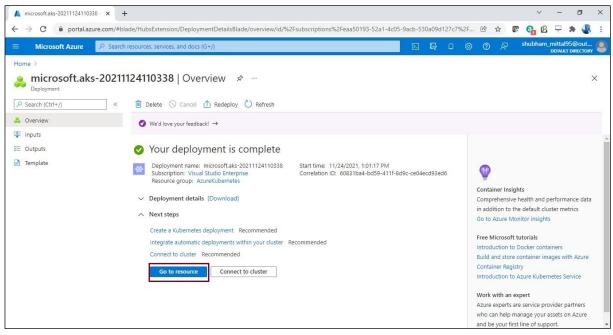


Figure 2.9

The Azure Kubernetes Cluster dashboard appears:

BPMSuite-AKSCluster - Microsoft 🗙	+				~ -	٥
> C 🔒 portal.azure.com/#	@shubhammittal95outlook.onmicro	osoft.com/resource/subscriptions/eaa50193-52a1-4	c05-9acb-530a09d127c7/resourc	egroups 🖻 🕁 🍞 🍘	<u>1</u> 28 🖵 🛪	
Microsoft Azure 🔑 Sear	ch resources, services, and docs (G+/)		de la companya	다 🐵 🕐 🔊 Shu	bham_mittal950 DEFAULT DI	
Home > microsoft.aks-202111241103	38 >					
BPMSuite-AKSClus	iter 🖈 …					>
	🖋 Connect ▷ Start 🔲 S	Stop 📋 Delete 💍 Refresh 🔗 Give feedback				
• Overview	↑ Essentials				JSON	View
Activity log	Resource group : AzureKuberne	ites	Kubernetes version : 1.20	.9		
Access control (IAM)	Status : Succeeded (Ri	unning)	API server address : bpm	nsuite-akscluster-dns-4681c9fb.hc	p.uaenorth.azmk	8
Tags	Location : UAE North		Network type (plugin) : Azu	re CNI		
Diagnose and solve problems	Subscription : Visual Studio	Enterprise	Node pools : 1 no	ode pool		
	Subscription ID : eaa50193-52a	1-4c05-9acb-530a09d127c7				
Security	Tags (Edit) : Click here to a	add tags				
ubernetes resources						
Namespaces	Get started Properties	Monitoring Capabilities Recommendations	Tutorials			
Workloads	Kubernetes services		Setworking			
Services and ingresses	Encryption type	Encryption at-rest with a platform-managed key	API server address	bpmsuite-akscluster-dns-		
Storage	Virtual node pools	Not enabled		4681c9fb.hcp.uaenorth.azmk8s.	io	
	6-3-		Network type (plugin) Pod CIDR	Azure CNI		
Configuration	S Node pools		Pod CIDR Service CIDR			
ettings	Node pools	1 node pool	DNS service IP	10.0.0./25		
Node pools	Kubernetes versions	1.20.9	DINS SERVICE IP	10.0.0.10		

Figure 2.10

## 2.2 Configuring Azure container registry

Perform the below steps to configure Azure Container Registry:

- 1. Sign in to the Azure Portal using the below URL:
  - https://portal.azure.com/



- 2. After a successful sign in, select Create a resource.
- 3. Select Containers and then select Container Registry.

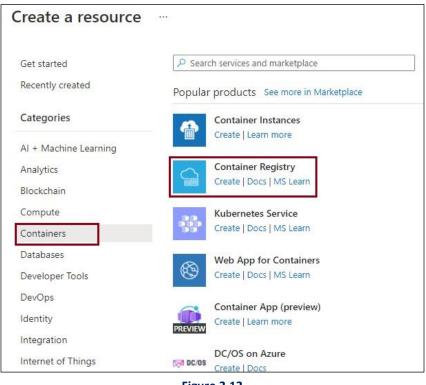


Figure 2.12

- 4. In the **Basic** tab, specify the following details:
  - **Resource group:** Select the existing resource group or create a new resource group that is, **AzureKubernetes**.
  - **Registry name:** Specify the user-defined name that is, **newgencontainerregistry**.
  - Location: Select the location that is, UAE North, and so on.
  - SKU: Select the SKU based on your usage as Basic, Standard, or Premium. Each SKU carry a different storage size.

For example,

SKU	Storage Limit
Basic	10 GiB
Standard	100 GiB
Premium	500 GiB or more

Project details		
Subscription *	Visual Studio Enterprise	$\sim$
Resource group *	AzureKubernetes	~
	Create new	
Instance details		
Registry name *	newgencontainerregistry	~
		.azurecr.ic
Location *	UAE North	$\sim$
Availability zones ①	Enabled	
	Availability zones are enabled on premium registries and support availability zones. Learn more	l in regions that
SKU * 🛈	Standard	~

- 5. Accept default values for the remaining settings. Then select **Review + create**. After reviewing the settings, select **Create**.
- 6. When the **Deployment succeeded** message appears, select the container registry in the portal.

🗏 Microsoft Azure 🚽	P Search resources, services, and docs (G+/)	Die 🖓 🖗 🖉 🖓 shubha	IM_mittal95@out DEFAULT DIRECTORY
tome > newgencontain Container registry P  search (Ctrl+/)	nerregistry & … ] « → Move ∨ î Delete @ Update		×
Overview	Tell us about your experience using Azure Container Registry $\rightarrow$		
<ul> <li>Activity log</li> <li>Access control (IAM)</li> <li>Tags</li> <li>Quick start</li> </ul>	<ul> <li>Essentials</li> <li>Resource group (Move) : AzureKubernetes</li> <li>Location : UAE North</li> <li>Subscription (Move) : Visual Studio Enterprise</li> </ul>	Login server : newgencontainerregistry.azurecr.io Creation date : 11/24/2021, 1:45 PM GMT+5:30 SKU : Standard	JSON View
Events	Subscription ID : eaa50193-52a1-4c05-9acb-530a09d127c7	Provisioning state : Succeeded	
Access keys       Encryption       Identity       Networking       Security	Usage Included in SRU 100 GiB 0.00 GiB 0.00 GiB	ACR Tasks Build, Run, Push and Patch containers in Azure with ACR Tasks. Tasks supports Windows, Linux and ARM with QEMU. Learn more	
Security Locks rvices	Container security integrations		
Repositories	Anuna Casurity Cantan		

Figure 2.14

7. Click Access keys from Settings and enable Admin user.

≡ Microsoft Azure	$\mathcal P$ Search resources, services, and docs (G+/)			∑ (	<b>G</b>	2 @	0	ন্দ	shubham_mittal95@out DEFAULT DIRECTORY
Home > newgencontainerreg	inerregistry   Access keys								×
	« Registry name	newgencontainerregistry			D				
Overview	Login server	newgencontainerregistry.azurecr.io			D				
Activity log	Admin user ①	Enabled							
Access control (IAM)	Username	newgencontainerregistry			D				
📣 Quick start	Name	Password		Regen	erate				
5 Events	password		D	Ö		•			
Settings	password2	TOWNSHIP IN AN AN ARTICLE STREET	D	$\bigcirc$					
📍 Access keys									
Encryption									
🗞 Identity									
😚 Networking									
👽 Security									
A Locks									
Services									
Repositories									

Figure 2.15

#### NOTE:

Kindly keep the **Login server**, **Username**, and **password** (or password2) as these values are required in the following steps to push or pull Docker images.

8. Use the below command to connect to the created container registry from your local machine (Where Docker Engine is already installed):

docker login <Container Registry Login server> -u <Container Registry username> -p <Container Registry password>

For example,



Figure 2.16

9. After a successful sign in to the Container Registry, use the below command to tag and push the Docker images from your local machine to ACR (Azure Container Registry):

```
docker tag <image name>:<image tag> <container registry server>/<image
name>:<image tag>
docker push <container registry server>/<image name>:<image tag>
```

#### For Example,

docker tag ibps5serviceinstanceweb:sp2
newgencontainerregistry.azurecr.io/ibps5serviceinstanceweb:sp2
docker push newgencontainerregistry.azurecr.io/ibps5serviceinstanceweb:sp2

#### Where **newgencontainerregistry.azurecr.io** is the Container Registry Login server name.

#### NOTE:

Pushing any local Docker images to a repository is mandatory to tag that image 1<sup>st</sup>. You can also configure these commands in Jenkins to execute them automatically.

#### 10. Use the below command to pull the Docker images from ACR to your local machine:

```
docker pull <container registry server>/<image name>:<image tag>
```

#### For Example,

```
docker pull
newgencontainerregistry.azurecr.io/ibps5serviceinstanceweb:latest
```

## 2.3 Configuring ACR image scanning

Perform the below steps to configure ACR Image Scanning:

 Microsoft Defender for Cloud perform the ACR image scanning. Once the image scanning is configured and whenever a Docker image is pushed to the Azure Container Repository, Microsoft Defender for Cloud automatically scans that Docker image. Hence, it is mandatory to push that image in ACR to trigger the scan of an image.

#### NOTE:

Ensure that the Defender plan is enabled for the **Container registries**.

- 2. Go to the Microsoft Defender for Cloud page.
- 3. Click Environment settings under Management.
- 4. Click listed subscription.

■ Microsoft Azure  Search res	sources, services, and docs (G+/)		D B	P 👳	<b>ଡ</b> ଼ନ	shubham_mittal95@ DEFAULT DIR	
Home > Microsoft Defender for Cloud							
Microsoft Defender for Showing subscription 'Visual Studio Enterpri	or Cloud   Environment settings … <sup>se'</sup>						×
	$+$ Add environment $\sim$ $\mid$ 🕐 Refresh $\not \! \! R$ Guides & Feedback						
Security alerts     Inventory	△ 1 Azure subscriptions						
Workbooks	() Welcome to the new multi-cloud account management page (preview). To s	witch back to the classic c	loud connecto	ors experience,	click here.		
<ul> <li>Community</li> <li>Diagnose and solve problems</li> <li>Cloud Security</li> </ul>	Search by name     Expand all						1
Secure Score	Name ↑↓	Total resources $\uparrow_{\downarrow}$	Defender o	overage ↑↓	Stand	ards ↑↓	
Regulatory compliance	✓ △ Azure						
Workload protections	🕈 Visual Studio Enterprise	9	11/11 plans		Azure	Security Benchmark,	•••
Firewall Manager							
Management III Environment settings							
Security solutions							
🍪 Workflow automation							

Figure 2.17

5. Enable the **Container registries** defender plan if it is not already enabled.

Microsoft Azure		es, services, and docs (G+/)		D 🗣 🗳 Ø R	shubham_mittal95@out DEFAULT DIRECTORY
Home > Microsoft Defende	r for Cloud >				
Settings   De Visual Studio Enterprise	fender plans	5			×
₽ Search (Ctrl+/)	🗌 « 🔒 s	Save			
Settings		Servers	3 servers	\$15/Server/Month ()	On Off
Defender plans		App Service	0 instances	\$15/Instance/Month ①	On Off
🐸 Auto provisioning		Azure SQL Databases	0 servers	\$15/Server/Month 🕕	On Off
Email notifications		SQL servers on machines	0 servers	\$15/Server/Month () \$0.015/Core/Hour	On Off
Integrations		open-source relational databases	0 servers	\$15/Server/Month 🕕	On Off
🍪 Workflow automation		📰 Storage	1 storage accounts	\$0.02/10k transactions (i)	On Off
Continuous export		🐝 Kubernetes	16 kubernetes cores	\$2/VM core/Month ①	On Off
Policy settings		Gontainer registries	2 container registries	\$0.29/Image	On Off
Security policy		🕐 Key Vault	0 key vaults	\$0.02/10k transactions	On Off
		(iii) Resource Manager		\$4/1M resource management ope 🛈	On Off
		🚳 DNS		\$0.7/1M DNS queries ①	On Off

Figure 2.18

Microsoft Defender for container registries includes a vulnerability scanner to scan the images in your Azure Resource Manager-based Azure Container Registry registries.

 Provide deeper visibility into your images vulnerabilities. The integrated scanner is powered by Qualys, the industry-leading vulnerability scanning vendor.
 When issues are found – by Qualys or Defender for Cloud – you get notified in the workload protection dashboard.

For example,

nhealthy registries	Severity	Total vulnerabilities	Vulnerabilit	es by severity	Registries with most vul	nerabilities	
1/2	High	34	High	5	newgencicdpiepline	34	
-			Medium	29			
			Low	0			
Unhealthy registries (1)		<ol> <li>Not applicable registries (0) Units</li> </ol>	nverified registries				
Name							1
🛖 newgencontainerre	gistry						

Figure 2.19

## 2.4 Creating a storage account

Perform the below to configure a storage account:

### 2.4.1 Creating a BLOB storage

Perform the below steps to create IAM Policy and Role:

- Sign in to the Azure Portal using the below URL: https://portal.azure.com/
- 2. Select **All services** on the Azure portal menu.
- 3. Select Storage Accounts.
- 4. Click **Create** on the Storage Accounts.
- 5. On the **Basics** tab, select an active Azure subscription.
- 6. Under the Resource group field, select your desired resource group, or create a new resource group like **AzureKubernetes.**
- 7. Enter a name for your storage account like **bpmsuitestoage.**
- 8. Select a location or region in which you want to create your storage account that is, UAE North.
- 9. Select a performance tier. The default tier is Standard.
- 10. Specify how you want the storage account to replicate. The default replication option is Georedundant storage (GRS).
- 11. Keep the other settings as default and click Next: Advanced>.

Azure Storagy redundant. A: Tables. The cc storage accou <b>Project deta</b> Select the sub	zure Stora ost of you unts ails bscription r storage a	ige includes Azure r storage account in which to create	e Blobs (objects), Azure depends on the usage	e Data Lake	Review + create hat is highly available, secure, durable, scalable, e Storage Gen2, Azure Files, Azure Queues, and options you choose below. Learn more about A	d Azure Azure		
redundant. A: Tables. The co storage accou <b>Project deta</b> Select the sub	zure Stora ost of you unts ails bscription r storage a	ige includes Azure r storage account in which to create	e Blobs (objects), Azure depends on the usage e the new storage accc	e Data Lake	e Storage Gen2, Azure Files, Azure Queues, anc options you choose below. Learn more about A	d Azure Azure		
Select the sub	bscription storage a			ount. Choo				
	storage a			unt. Choo				
	*				ose a new or existing resource group to organiz	e and		
Subscription			Visual Studio Ente	erprise		$\sim$		
Resou	urce group	*	AzureKubernetes Create new			$\sim$		
Instance deta	ails							
If you need to	create a le	egacy storage acc	ount type, please click	here.				
Storage accour	nt name	© *	bpmsuitestorage					
Region 🛈 *			(Middle East) UAE I	North		$\sim$		
Performance (	i) *		• Standard: Recommended for most scenarios (general-purpose v2 accou					
			O Premium: Reco	mmended	d for scenarios that require low latency.			
Redundancy (	1 *		Geo-redundant sto	-		~		
			Make read acce	ss to data	available in the event of regional unavailability			
Review + cre	eate		< Previous	Next	: Advanced >			

Figure 2.20

12. On the Advanced tab, keep the default options and click Next: Networking>.

Crea	te a stor	age acco	unt …		
Basics	Advanced	Networking	Data protection	Tags	Review + create
			namespace acc	ounts.	
Blob s	torage				
Enable	network file sys	tem v3 🛈		/3 'hierarch	ical namespace' must be enabled. Learn more about NF
Allow c	ross-tenant rep	lication 🕕	v3		
Access	tier 🛈		Hot: Frequent	tly accesse	d data and day-to-day usage scenarios
			Cool: Infreque	ently acces	ssed data and backup scenarios
Revie	ew + create		< Previous	Nex	tt : Networking >
			Figure	2.21	

13. On the Networking tab, keep the default options and click Next: Data protection>.

Crea	te a stor	age accou	unt ···		
Basics	Advanced	Networking	Data protection	Tags	Review + create
Connec	ctivity method *		Public endpoi	nt (all net	vorks)
			O Public endpoi	nt (selecte	d networks)
			O Private endpo	int	
					access this storage account. We recommend using ing this resource privately from your network. Learn
Netwo	ork routing				
	nine how to rout mended for mos		travels from the sourc	e to its Az	ure endpoint. Microsoft network routing is
Routing	g preference  i	*	<ul> <li>Microsoft net</li> </ul>	work routi	ng
Revie	ew + create		< Previous	Nex	t : Data protection >
			Figu	re 2.22	2

14. On the **Data protection** tab, keep the default options and click **Next: Tags>**.

Basics	Advanced	Networking	Data protection	Tags	Review + create	
Reco	very					
Protec	ct your data from	accidental or erro	oneous deletion or m	odification.		
	Enable point-in-t	ime restore for co	ontainers			
			ne or more containers ist also be enabled. <mark>Le</mark>		state. If point-in-time restore is enabled, then v	ersionin
	Enable soft delet	e for blobs				
	Soft delete enable: more	s you to recover blo	obs that were previous	ly marked fo	r deletion, including blobs that were overwritten	. Learn
1	Days to retain de	leted blobs 🛈	7	6		
	Enable soft delet	e for containers				
	Soft delete enable	s you to recover co	ntainers that were pre-	viously mark	ed for deletion. Learn more	
	Days to retain de	leted containers	0 7	2		

15. On the **Tags** tab, keep the default options and click **Next: Review + create**.

		age accou					
Basics	Advanced	Networking	Data protection	Tags	Review	+ create	
			ou to categorize resou Learn more about tag		ew consol	idated billing by applying the s	ame tag t
Note th	nat if you create	tags and then cha	ange resource settings	on other t	tabs, your	tags will be automatically upda	ted.
Nam	e		Value			Resource	
		$\sim$	:		$\sim$	All resources selected	$\sim$
	ew + create		< Previous	May	t . Daviau	+ create >	

Figure 2.24

16. On the **Review + create** tab, click **Create** once validation is passed.

Crea	te a stor	age accou	int		
⊘ Va	lidation passed				
Basics	Advanced	Networking	Data protection	Tags	Review + create
Basics					
Subscrip	tion		Visual Studio Enter	prise	
Resource	e Group		AzureKubernetes		
Location			uaenorth		
Storage	account name		bpmsuitestorage		
Deploym	ient model		Resource manager		
Performa	ance		Standard		
Replicati	on		Read-access geo-r	edundant s	torage (RA-GRS)
Advand	ed				
Secure tr	ansfer		Enabled		
Creat	te	< P	revious	ext >	Download a template for automation
			Figure	2.25	

17. Once deployment is complete, click **Go to resource**.

	🤍 📋 Delete 🛇 Cancel 🏦 Redeploy 💍 Refresh		
👶 Overview Inputs	$\bigcirc$ We'd love your feedback! $\rightarrow$		
🚝 Outputs	🤣 Your deployment is complete		
Template	<ul> <li>Deployment name: bpmsuitestorage_1637752518186 Subscription: Visual Studio Enterprise Resource group: AzureKubernetes</li> <li>Deployment details (Download)</li> <li>Next steps</li> <li>Go to resource</li> </ul>	Start time: 11/24/2021, 4:45:24 PM Correlation ID: fb3059af-570c-49fd-821d-bb4b6ec1d1ee	Control of the service of the servic

Figure 2.26

18. Click Access keys from Settings under Security + Networking.

#### NOTE:

Keep the **Storage account name** and **key1** (or key2) as these values are required in the following steps for the Kubernetes volume mounting.

19. Click **Containers** under the Data storage. The **Containers** screen appears.

20. Click +Container. The New Container dialog appears.

21. Specify the following details:

- Name: Specify the unique blob storage name.
- Public access level: Select default "Private (no anonymous access)".
- 22. Click Create.

😑 Microsoft Azure 🔑 Sea	arch resources, services, and docs (G+/)		N 🖓 Q 🚳	⑦ & shubham_mittal95@out DEFAULT DIRECTORY
Home > bpmsuitestorage				New container ×
	Containers 🛷 …			
Storage account				Name *
	Container Change access level	🤈 Restore containers 🗸 🕐 Refresh   🗎 Delete		bpmsuiteblob 🗸
Overview	Search containers by prefix			Public access level (j)
Activity log	Name	Last modified	Public access level	Private (no anonymous access) V
Tags	\$logs	11/24/2021, 4:45:52 PM	Private	✓ Advanced
Diagnose and solve problems Access Control (IAM)				
<ul> <li>Data migration</li> </ul>				
Events				
📔 Storage browser (preview)				
Data storage				
Containers				
📫 File shares				
Queues				
Tables				
Security + networking				Create Discard
S Networking	*			

Figure 2.27

### 2.4.2 Creating an Azure file share

Perform the below steps to create an Azure File Share:

- 1. Click **Overview** of the created storage account.
- 2. Click File shares under the Data storage. The File shares dialog appears.

≡ Microsoft Azure 🖉 Sea	rch resources, services, and docs (G+/)			🗣 🖉 🐵		mittal95@out DEFAULT DIRECTORY
Home > bpmsuitestorage_16377525	8186 >					
bpmsuitestorage Storage account	\$					>
₽ Search (Ctrl+/) «	🔒 Open in Explorer 볩 Delete 🔶 Mo	ve 💛 💍 Refresh 🔋 Mobile 🖇	Feedback			
Overview Activity log	Microsoft recommends upgrading to the ne platform. <u>Learn more</u>	w alerts platform to ensure no interruptio	ons in your alerts. Classic alerts	will be retired starting in	2021. Upgrade to the new alert	s
Tags						JSON View
Diagnose and solve problems	Resource group (move) : AzureKubernete	25	Performance/Access	ier : Standard/Hot		
Access Control (IAM)	Location : UAE North		Replication	: Read-access geo-	redundant storage (RA-GRS)	
Data migration	Primary/Secondary Location : Primary: UAE N	orth, Secondary: UAE Central	Account kind	: StorageV2 (gener	al purpose v2)	
Events	Subscription (move) : Visual Studio Er	terprise	Provisioning state	: Succeeded		
Storage browser (preview)		-4c05-9acb-530a09d127c7 ile, Secondary: Available	Created	: 11/24/2021, 4:45:	28 PM	
ata storage	Tags (edit) :					
Containers File shares	Properties Monitoring Capabilities	(7) Recommendations Tuto	orials Developer Tools			
Queues	Blob service		🔒 Security			
Tables	Hierarchical namespace	Disabled		ransfer for REST API	Enabled	
ecurity + networking	Default access tier	Hot	operations Storage account	key access	Enabled	

Figure 2.28

- 3. Click +File share. The New File share dialog appears.
- 4. Specify the following details:
  - Name: Specify the unique file share name.
  - **Tiers:** Select the 'Transaction optimized' as tier.
  - Click Create.

🔲 Microsoft Azure 🔎 Sear	ch resources, services, and docs (G+/)	DEFAULT DIRECTORY
Home > bpmsuitestorage bpmsuitestorage   Storage account	File shares 🛷 …	New file share ×
	+ File share 💍 Refresh	bpmsuitefileshare
Cverview	File share settings	Tier 🕜
Activity log	Active Directory: Not configured Soft delete: 7 days Maximum capacity: 5	Transaction optimized
Tags Diagnose and solve problems	Search file shares by prefix (case-sensitive)	Performance Maximum IO/s ① 1000
Access Control (IAM)	Name Modified	Egress Rate ①    60 MiBytes / s
<ul> <li>Data migration</li> <li>Events</li> </ul>	You don't have any file shares yet. Click '+ File share' to get started.	Ingress Rate () 60 MiBytes / s Maximum capacity 5 TiB
Storage browser (preview)		Large file shares Disabled
Data storage		You can improve performance and maximum share capacity by enabling large file shares
Containers		for this storage account. Learn more.
File shares		
🔟 Queues		To use the SMB protocol with this share, check if you can communicate over port 445. These scripts for Windows clients and Linux clients can help. Learn how to circumvent port 445 issues.
Security + networking		Create Cancel
S Networking		

Figure 2.29

## 2.5 Configuring Azure cache for Redis

**Azure Cache for Redis** provides fully managed open-source Redis within Azure that can be used as a distributed data or content cache. In addition, it can be used as a session store and so on along with that it provides an in-memory data store.

Perform the below steps to configure the Azure Cache for Redis:

1. Sign in to the Azure Portal using the below URL:

https://portal.azure.com/

- 2. On the Azure portal menu or from the home page, select **Create a resource**.
- 3. Select Databases.
- 4. Select Azure Cache for Redis.

Create a resource	
Containers	Create   Docs   MS Learn
Databases	Azure Database for PostgreSQL
Developer Tools	Create   Docs   MS Learn
DevOps	Azure Database for MySQL
Identity	Create   Docs   MS Learn
Integration Internet of Things IT & Management Tools	HVR for Microsoft Azure Create   Learn more
Media	SQL Server 2017 Enterprise Windows Server 2016
Migration	Create   Learn more
Mixed Reality	Azure Cache for Redis
Monitoring & Diagnostics	Create   Docs   MS Learn
Networking	FlashGrid Cluster for Oracle RAC
Security	Create   Learn more
Storage Web	

Figure 2.30

- 5. Specify the following details under the Basics tab:
  - **Subscription**: Select a valid Azure subscription.
  - **Resource group**: select or create an Azure Resource group, such as **AzureKubernetes**.
  - **DNS name**: Enter a Redis cache DNS name such as **azrediscache**.

- Location: Select a region into which you want to create an Azure Cache for Redis.
- **Cache type:** Select the Redis cache service tier as per your requirement. You can select from 250 MB to 1455 GB in-memory cache.
- Click Next: Networking.

Basics Networking Advanced	Tags Review + create	
Azure Cache for Redis helps your applic atency, high-throughput capabilities of	ation stay responsive even as user load increases. It does so by the Redis engine. Learn more 🕫	leveraging the low
Project details		
Select the subscription to manage deplo your resources.	oyed resources and costs. Use resource groups like folders to o	rganize and manage all
Subscription *	Visual Studio Enterprise	$\checkmark$
Resource group *	AzureKubernetes	~
-		
5.2	Create new	
instance Details	Create new	
	Create new azrediscache	~
	azrediscache	redis.cache.windows.ne
Instance Details DNS name * Location *	azrediscache	√ redis.cache.windows.ne

Figure 2.31

6. On the **Networking** tab, select the connectivity method as 'Public Endpoint' and click **Next:** Advanced.

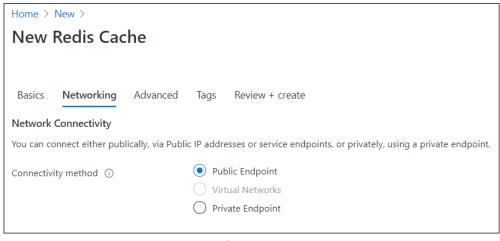


Figure 2.32

7. On the **Advanced** tab, enable the Non-TLS port, select the Redis version as 6 and click **Next:** Tags.

New	Redis Cad	che …		
Basics	Networking	Advanced	Tags	Review + create
Non-TLS	port		🔽 Er	nable
Redis ver	sion		<ul><li>↓ 4</li><li>● 6</li></ul>	



- 8. On the Tags tab, keep the default options and click Next: Review + create>.
- 9. On the **Review + create** tab, click **Create** once validation is passed.

Running final	validations	
asics Netwo	rking Advanced	Tags Review + create
Basics		
DNS name		azrediscache
Subscription		Visual Studio Enterprise
Resource group		AzureKubernetes
Location		UAE North
SKU		C2_Standard
Advanced		
Non-TLS port		Enabled
Redis version		6

Figure 2.34

10. Once deployment is complete, click **Go to resource.** 

	resources, services, and docs (G+/)		0 ©	⑦ ➢ shubham_mittal95@out DEFAULT DIRECTORY
Deployment    Search (Ctrl+/)	ccache-20211124174058   Overview ☆ … Delete ○ Cancel ① Redeploy ○ Refresh ✓ Your deployment is complete Deployment name: CreateRedis-azrediscache-202111241740 Start time: 11/24/2021, 5:41:1	11 PM		×
S Outputs	Depigyment hame: Createreads-arresidscane-20211/241740		5e66	Microsoft Defender for Cloud Secure your apps and infrastructure Go to Azure security center > Free Microsoft tutorials Statt learning today > Work with an expert Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

Figure 2.35

### 2.6 Configuring application gateway ingress controller

This section explains how to configure Application Gateway Ingress Controller.

### 2.6.1 Creating an application gateway

**Prerequisite** - A subnet must be created in the same virtual network in which the Kubernetes cluster exists.

Perform the below steps to create an Application Gateway:

- 1. On the Azure portal menu or from the Home page, select **Create a resource**.
- 2. Select Networking.

Create a resource		
Containers	nb.consult	Create   Learn more
Databases Developer Tools	<	Application Gateway Create   Learn more
DevOps Identity	$\overline{r}$	Forcepoint Next Generation Firewall Create   Learn more
Integration Internet of Things IT & Management Tools	Quest	Foglight Evolve Create   Learn more
Media Migration	1	Virtual WAN Create   Learn more
Mixed Reality Monitoring & Diagnostics	G	F5 Advanced WAF for Azure (PAYG) Create   Learn more
Networking Security Storage	Ċ	HashiCorp Consul Service on Azure Create   Learn more
Web		



- 3. Select Application Gateway. The Create application gateway screen appears.
- 4. Specify the following details under the **Basics** tab:
  - Subscription: Select a valid Azure subscription.
  - **Resource group**: Select or create an Azure Resource group, such as **AzureKubernetes**.
  - Application gateway name: Enter a Kubernetes cluster name such as AppGateway-AKSCluster.
  - **Region**: Select a region into which you want to create an AKS cluster that is, UAE North
  - **Tier**: Select Standard V2.
  - Virtual network: Select the same virtual network in which the Kubernetes cluster exists.
  - **Subnet**: Select the created subnet for the application gateway.
  - Keep the other settings as default and then select the Next: Frontends.

Basics      Frontends	Backends (4) Configuration (5) Tags (6) Review	+ create
An application gateway is a web tra about application gateway	ffic load balancer that enables you to manage traffic to your web	application. Learn more
Project details		
Select the subscription to manage of your resources.	leployed resources and costs. Use resource groups like folders to	organize and manage al
Subscription * 🕢	Visual Studio Enterprise	~
Resource group * (i)	AzureKubernetes	~
	Create new	
Instance details		
Application gateway name *	AppGateway-AKSCluster	$\checkmark$
Region *	UAE North	~
Tier 🕕	Standard V2	~
nable autoscaling	Yes No	
1inimum instance count * 🛈	0	
laximum instance <mark>cou</mark> nt	10	
vailability zone 🕕	None	$\sim$
ITTP2 (j)	Disabled O Enabled	
onfigure virtual network		
irtual network * 🕡	VNet_for-AzureKubernetes	$\sim$
	Create new	
ubnet * 🛈	subnet_appgw (10.1.3.0/24)	~
	Manage subnet configuration	

Figure 2.37

- 5. Set the Frontend IP address type as **Public**.
- 6. Select **Add new** for the **Public IP address** and enter a user-defined name that is, *appgwpublicip* and then click **OK**.

Create application ga	teway	
	ackends ④ Configuration ⑤ Tags ⑥ Review + create	ress,
Frontend IP address type	Public O Private O Both	
Public IP address	Choose public IP address Add new Add a public IP Name * appgwpublicip	~
	SKU     Basic     Standard       Assignment     Dynamic     Static	
·	Availability None zone	
Previous Next : Backends >		

Figure 2.38

- 7. Select Next: Backends. The Backends tab appears.
- 8. Select add a backend pool. The Add a backend pool dialog appears.
- 9. Enter the following details to create an empty backend pool:
  - Name: Enter a user-defined name that is, appgwbackendpool.
  - Add backend pool without targets: Select Yes to create a backend pool with no targets.
  - Select Add to save the backend pool configuration and return to the Backends tab.

■ Microsoft Azure P Search resources, services, and docs (G+/)	DEFAULT DIRECTORY
Home > Create a resource >	Add a backend pool. $\times$
Create application gateway          ✓ Basics       ✓ Frontends <ul> <li>Backends</li> <li>Configuration</li> <li>Tags</li> <li>Review + create</li> </ul> A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machine scale sets, app services, IP addresses, or fully qualified domain names (FQDN).         Add a backend pool       Targets         No results       No results	A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machines scale sets, IP addresses, domain names, or an App Service. Name * Add backend pool without targets
Previous Next : Configuration >	Add Cancel

Figure 2.39

10. On the **Backends** tab, select **Next: Configuration.** The Configuration tab appears.

11. Select Add a routing rule in the Routing rules column. The Add a routing rule dialog appears.

12. Enter the user-defined rule name that is, routingrule1.

13. A routing rule requires a listener. On the Listener tab, enter the following details:

- Listener name: Enter a user-defined listener name that is, appgwlistener.
- Frontend IP: Select Public to select the public IP that you have created in the Frontends tab.
- Keep the other settings as default and switch to the Backend targets tab.

E Microsoft Azure      P Search resources, services, and docs (G+/)	DEFAULT DIRECTORY
Home > Create a resource > Create application gateway	Add a routing rule × Configure a routing rule to send traffic from a given frontend IP address to one or more backend targets. A routing rule must contain a
Basics      Frontends      Backends      Configuration      Tags     Create routing rules that link your frontend(s) and backend(s). You can also add more      Trace	listener and at least one backend target. Rule name * routingrule 1  * Listener "Backend targets A listener "listens" on a specified port and IP address for traffic that uses a specified protocol. If the listener criteria are met, the application gateway will apply this routing rule.
Frontends + Add a frontend IP Public: (new) appgwpublicip 💼 •••	Listener name * () Protectol () Port* () Port* () Additional settings Listener type () Error page url () Yes () No
Previous Next : Tags >	Add Cancel

Figure 2.40

- 14. In the **Backend targets** tab, select the backend pool created in the **Backends** tab for the **Backend target**.
- 15. For the **HTTP settings**, select **Add new** to add a new HTTP setting.

■ Microsoft Azure $P$ Search resources, services, and docs (G+/)	DE 🕞 🖉 🛞 🔗 🖓 🖉 shubham_mital95@out 🧕
Home > Create a resource > Create application gateway	Add a routing rule ×
✓ Basics ✓ Frontends ✓ Backends Oconfiguration ③ Tags Create routing rules that link your frontend(s) and backend(s). You can also add more Frontends + Add a frontend IP Public: (new) appgwpublicip	Configure a routing rule to send traffic from a given frontend IP address to one or more backend targets. A routing rule must contain a listener and at least one backend target. Rule name * routingrule1  * Listener * Backend targets Choose a backend pool to which this routing rule will send traffic. You will also need to specify a set of HTTP settings that define the behavior of the routing rule. Target type Backend target * O Add new HTTP settings * O Add new HTTP settings * O Add new Path-based routing You can route traffic from this rule's listener to different backend targets based on the URL path of the request. You can also apply a different set of HTTP settings based on the URL path.
	Path based rules Path Target name HTTP setting name Backend pool
Previous Next : Tags >	Add Cancel

Figure 2.41

16. In the Add an HTTP setting, enter the user-defined HTTP setting name that is,

#### appgwhttpsetting.

17. Keep the other settings as default and then click **Add** to return to the Add a routing rule.

Microsoft Azure     P Search resources, services, and docs (G+/)	DE 🕼 🖗 🖉 R shubham_mitta195@out 🧕
Home > Create a resource > Create application gateway …	Add a HTTP setting ×
✓ Basics ✓ Frontends ✓ Backends Ocnfiguration ③ Tags Create routing rules that link your frontend(s) and backend(s). You can also add mor Frontends + Add a frontend IP Public: (new) appgwpublicip	← Discard changes and go back to routing rules      HTTP settings name *     appgwhttpsetting     ✓     Backend protocol     Backend protocol     Backend port *     Bo      Additional settings      Cookie-based affinity ①     Enable ③ Disable      Connection draining ①     Enable ④ Disable      Connection draining ①     Enable ④ Disable      Request time-out (seconds) * ①     Z0      Override backend path ①      Host name      By default, Application Gateway does not change the incoming HTTP host header from the client and sends the header unaltered to the
Previous Next : Tags >	backend. Multi-tenant services like App service or API management rely on a specific host header or SNI extension to resolve to the correct endpoint. Change these settings to overwrite the incoming HTTP host header. Override with new host name Pick host name from backend target Host name override e.g. contoso.com

Figure 2.42

- 18. Select Add to save the routing rule in the Add a Routing and return to the Configuration tab.
- 19. Select **Next: Tags** and then click **Next: Review + create**.
- 20. Once validation is passed, select **Create**.

🗏 Microsoft Azure 📝	D Search resources, services, and docs (G+/)	Ŗ	P	0	0	R	shubham_mittal95@out DEFAULT DIRECTORY
Home > Create a resource >							
Create application	gateway						×
create application	gateway						X
Validation passed							
✓ Basics ✓ Frontends	✓ Backends ✓ Configuration ✓ Tags 6 Review + create						
Basics							
Subscription	Visual Studio Enterprise						
Resource group	AzureKubernetes						
Name	AppGateway-AKSCluster						
Region	UAE North						
Tier	Standard_v2						
Enable autoscaling	Enabled						
Minimum instance count	0						
Maximum instance count	10						
Availability zone	None						
HTTP2	Disabled						
Virtual network	VNet_for-AzureKubernetes						
Subnet	subnet annow (10.1.3.0/24)						
Create	vious Next Download a template for automation						
Prev	vious Next Download a template for automation						
		_	_	_	_	_	

Figure 2.43

21. Once the deployment is complete, click **Go to resource**.

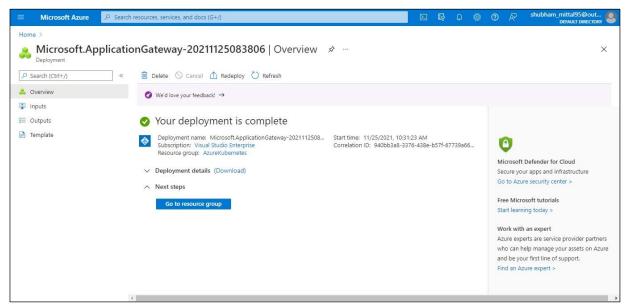


Figure 2.44

### 2.6.2 Installing an application gateway ingress controller

An ingress controller is a piece of software that provides reverse proxy, configurable traffic routing, and TLS termination for Kubernetes services. Kubernetes ingress resources are used to configure the ingress rules and routes for individual Kubernetes services. Using an ingress controller and ingress rules, a single IP address can be used to route traffic to multiple services in a Kubernetes cluster.

### **Prerequisites:**

- Azure Kubernetes Service must be created.
- Application Gateway must be created.

To install an Application Gateway Ingress Controller (AGIC), follow the below steps:

- Install Helm
- Azure Resource Manager Authentication using a Service Principle
- Install Ingress Controller using Helm

### 2.6.2.1 Installing Helm

Perform the below steps to install helm:

- If you use the Azure Cloud Shell<u>https://portal.azure.com/#cloudshell/</u> then the Helm CLI is already installed. To install Helm on other platforms please refer to <u>https://helm.sh/docs/intro/install/</u>.
- 2. Open the Azure Cloud Shell and run the following command to add the **application-gatewaykubernetes-ingress** helm package.

```
helm repo add application-gateway-kubernetes-ingress
https://appgwingress.blob.core.windows.net/ingress-azure-helm-package/
helm repo update
```



### 2.6.2.2 ARM authentication using a service principle

Perform the below steps for ARM Authentication using a service principle:

- 1. Application Gateway Ingress Controller (AGIC) communicates with the Kubernetes API Server and Azure Resource Manager. It requires authentication to access these APIs
- 2. Open the Azure Cloud Shell <u>https://portal.azure.com/#cloudshell/</u> and run the following command to create a service principle and encode with base64. The base64 encoding is required for the JSON blob to be saved to Kubernetes.

```
az ad sp create-for-rbac --role Contributor --sdk-auth --scopes
/subscriptions/<Subscription-id>/resourceGroups/<Resource group> | base64 -
w0
```

### Where,

Subscription-id - Enter your account subscription id

Resource group – Ente the name of resource group associated with kubernetes cluster

#### For Example –

```
az ad sp create-for-rbac --role Contributor --sdk-auth --scopes
/subscriptions/323527f6b-535a1-406d-239b-0972646c8500c3/resourceGroups/
AzureKubernetes | base64 -w0
```

#### NOTE:

Keep the base64 encoded JSON blob as these values are required in the following steps for installing AGIC.

### 2.6.2.3 Adding or updating Kubeconfig file

Perform the below steps to add or update kubeconfig file:

- 1. Open the Azure Cloud Shell <u>https://portal.azure.com/#cloudshell/</u>.
- 2. Delete the .kube/config file (if already exists) using below command:

```
rm .kube/config
```

### 3. Now execute the below command to re-create .kube/config file:

```
az aks get-credentials --resource-group <ResourceGroupName> --name
<AzureEKSClusterName>
```

```
az aks get-credentials --resource-group AzureKubernetes --name BPMSuite-AKSCluster
```

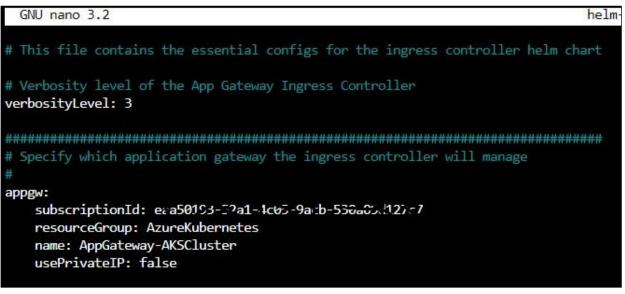
### 2.6.2.4 Installing ingress controller using Helm

Perform the below steps to install ingress controller using Helm:

1. Open the Azure Cloud Shell <u>https://portal.azure.com/#cloudshell/</u> and run the following command to download the *helm-config.yaml* file which configures the Application Gateway Ingress Controller.

wget https://raw.githubusercontent.com/Azure/application-gateway-kubernetesingress/master/docs/examples/sample-helm-config.yaml -0 helm-config.yaml

- Edit the helm-config.yaml file and fill in the values for appgw (Application Gateway) and armAuth (ARM Authentication using Service Principle).
   nano helm-config.yaml
- Update the <subscriptionId>, <resourceGroupName>, and <applicationGatewayName> for appgw.





- 4. Comment the **armAuth** using **AAD-Pod-Identity** and uncomment the **armAuth** using **Service Principle**.
- Update the base64 encoded JSON blob created in the previous step 'ARM Authentication using a Service Principle' for secretJSON.
   For example,

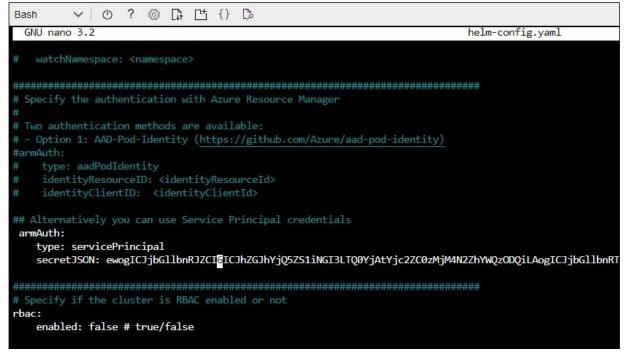


Figure 2.47

6. Specify the rbac enabled as **true** if the cluster is RBAC enabled. For example,





7. Install Helm chart **application-gateway-kubernetes-ingress** with the *helm-config.yaml* configuration from the previous step.

```
helm install ingress-azure \
  -f helm-config.yaml \
  application-gateway-kubernetes-ingress/ingress-azure \
  --version 1.4.0
```

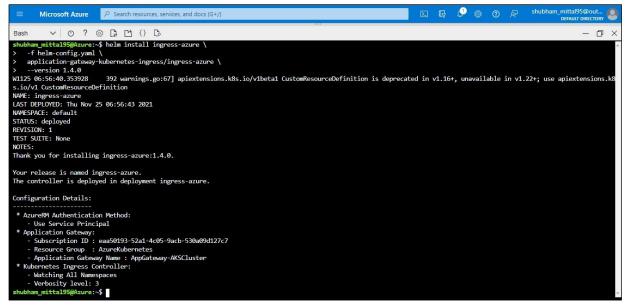


Figure 2.49

#### NOTE:

Use the latest version of ingress-azure. You can get the release information from the below link: <u>https://github.com/Azure/application-gateway-kubernetes-ingress/releases</u>

8. Application Gateway Ingress Controller runs as a pod in the Kubernetes cluster. You can check the running status of the AGIC pod using the below command:

Kubectl get po | grep ingress

For example,

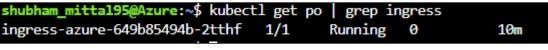


Figure 2.50

# 2.7 Configuring DNS zone

Ingress Controller creates a Load Balancer and routes the incoming requests to the target Kubernetes services according to the host-based routing rules. Host-based routing is a capability of Ingress Controller that redirects the user requests to the right service based on the request-host header.

For example, you can set the rules as below:

• IF URL is 'ibps5serviceinstance.azure.co.in' then redirect to iBPS ServiceInstance Web container.

• IF URL is 'ibps5userinstance.azure.co.in' then redirect to the iBPS UserInstance Web container.

To support the host-based routing, you must register a custom domain and create a new RecordSet in DNS Zone for each host-path.

Perform the below steps to create a DNS Zone:

- 1. Sign in to the Azure Portal using <u>https://portal.azure.com</u>.
- 2. After a successful sign in, click Create a resource and search for the DNS Zone.

Microsoft Azure	℅ Search resources, services	es, and docs (G+/)
«	All services >	
+ Create a resource	New	
A Home		
📶 Dashboard	DNS Zo	×
⊨ All services	DNS zone	^
★ FAVORITES		J
() Resource groups	Private DNS zone	
All resources	BlueCat DNS for Azure Recently created	
( Recent	AI + Machine Learning	Ubuntu Server 18.04 LTS
📀 App Services	Analytics	Q Learn more
🟆 Virtual machines (classic)	Blockchain	Web App
📮 Virtual machines	Compute	Quickstarts + tutorials
🧧 SQL databases	Containers	SQL Database
Cloud services (classic)	Databases	Quickstarts + tutorials
📍 Subscriptions	Developer Tools	
🔶 Azure Active Directory	DevOps	Function App Quickstarts + tutorials
🕑 Monitor	Identity	



### 3. Click Create.

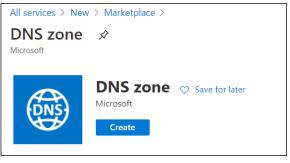


Figure 2.52

- 4. On the Create DNS zone, specify the following details under the Basics tab:
  - a. **Subscription**: Select a valid Azure subscription.

- b. Resource group: Select or create an Azure Resource group, such as AzureKubernetes.
- c. Name: Specify a valid DNS Zone name such as azure.co.in.
- d. Click Next: Tags>.

All services > New > Marketplace >	DNS zone >	
Create DNS zone		
Basics Tags Review + create		
number of DNS records such as 'mail.co	ords for a particular domain. For example, the domain 'contoso.com ntoso.com' (for a mail server) and 'www.contoso.com' (for a web sit nanage your DNS records, and provides name servers that will respo at you create. Learn more.	e). Azure DNS
Project details		
Subscription *	Visual Studio Enterprise with MSDN	$\checkmark$
Resource group *	AzureKubernetes	$\sim$
	Create new	]
Instance details		
This zone is a child of an existing zo	ne already hosted in Azure DNS ①	
Name *	azure.co.in	
Name "	azure.co.n	~
Resource group location ①	Southeast Asia	$\sim$
Review + create Previous	Next : Tags > Download a template for automation	

Figure 2.53

- 5. On the Tags tab, keep the default options and click Next: Review + create>.
- 6. On the **Review + create** tab, click **Create** once validation is passed.

All services > New > Marketplace > DNS zone >	
Create DNS zone	
<b>1</b> Validation passed	
Basics Tags Review + create	
Basics	
Subscription Resource group Resource group location Name	Visual Studio Enterprise with MSDN AzureKubernetes southeastasia azure.co.in
Create Previous Next	Download a template for automation

Figure 2.54

7. Once deployment is complete, click **Go to resource**. The Created DNS Zone's Overview screen appears.

🛕 azure.co.in - Microsoft Azure 🛛 🗙	+					$\sim$	- 0	
- > C 🔒 portal.azure.com	/#@shubhammittal95outle	ook.onmicrosoft.com/resource/subscr	ptions/eaa50193-52a1-	4c05-9acb-530a09d127c7/resour	cegroups 🖻 🕁	e 🔒 12	🕂 🛪 🌾	R
E Microsoft Azure 🔑 Se	arch resources, services, and	docs (G+/)		D G	P @ 0 R		nittal95@ou Default direct	
Home > Microsoft.DnsZone-202111	25072135882 >							
BNS zone     Azure.co.in      A …								×
	Record set +	Child zone $ ightarrow$ Move $\checkmark$ 📋 Delet	e zone  🕐 Refresh					
Overview	Essentials						JSON Vie	ew
Activity log	Resource group (Mo	ve) : azurekubernetes		Name server 1 : ns1-01.azu	ire-dns.com.			
Access control (IAM)	Subscription (Move)	: Visual Studio Enterprise		Name server 2 : ns2-01.azu	ire-dns.net.			
Tags	Subscription ID	: eaa50193-52a1-4c05-9acb-530a09	d127c7	Name server 3 : ns3-01.azu	ire-dns.org.			
				Name server 4 : ns4-01.azu	ire-dns.info.			
Diagnose and solve problems	Tags (Edit)	: Click here to add tags						
Settings	You can search for a	ecord sets that have been loaded on this	nace If you don't see w	nat you're looking for you can try so	rolling to allow more recor	d sets to load		
Properties	Search record sets	ecord sets that have been loaded on this	page. Il you don't see wi	lac you re looking for, you can my so	to allow more recon	a sets to load.		
🔒 Locks	Name	Туре	TTL	Value	Alias resource type	Alias targe	t	
Monitoring	Ø	NS	172800	ns1-01.azure-dns.com. ns2-01.azure-dns.net. ns3-01.azure-dns.org. ns4-01.azure-dns.info.				
Metrics				Email: azuredns-hostma Host: ns1-01.azure-dns. Refresh: 3600				
Tasks (preview)	©	SOA	3600	Retry: 300 Expire: 2419200 Minimum TTL: 300				
🐳 Export template	-			Serial number: 1				



- 8. On the top of the **DNS Zone** tab, select + **Record set**.
- 9. On the Add record set tab, type or select the following values:
  - a. Name: Enter the user-defined name.

- b. Type: Select type as "A IPv4-address"
- c. Alias record set: Select alias as Yes.
- d. Alias type: Select the alias type as Azure resource.
- e. Choose a subscription: Select a valid Azure subscription.
- f. Azure resource: Select the Public IP Address created for the Application Gateway that is, appgwublicip.
- g. **TTL (Time To Live):** Time-to-live of the DNS request specifies how long DNS servers and clients can cache a response.

#### NOTE:

There is no change in the default value.

h. Click OK to save the record set.

😑 Microsoft Azure 🔎 s	earch resources, services, and d	ocs (G+/)				nittal95@out
Home > Microsoft.DnsZone-20211 azure.co.in ☆ … DNS zone P Search (Ctrl+/)		Shild zone $ ightarrow$ Move $ ightarrow$ 🗊 Del	ete zone 💍 Refresh		Add record set ezure.co.in Name ibps5serviceinstance	×
<ul> <li>Overview</li> <li>Activity log</li> <li>Access control (IAM)</li> <li>Tags</li> <li>Diagnose and solve problems</li> <li>Settings</li> </ul>	<ul> <li>Essentials</li> <li>Resource group (Move)</li> <li>Subscription (D</li> <li>Tags (Edit)</li> <li>You can search for rec</li> </ul>	) : azurekubernetes : Visual Studio Enterprise : eaa50193-52a1-4c05-9acb-530a0 : Click here to add tags ord sets that have been loaded on th		Name server 1 : Name server 2 : Name server 3 : Name server 4 : nat you're looking for, you	Type A - Alias record to IPv4 address Alias record set ③ ● Yes ○ No Alias type ● Azure resource ○ Zone record set Choose a subscription *	.azure.co.in
Properties	P Search record sets				Visual Studio Enterprise	~
🔒 Locks	Name	Туре	TTL	Value	Azure resource *	
Monitoring	Ø	NS	172800	ns1-01.azure ns2-01.azure ns3-01.azure ns4-01.azure	appgwpublicip TTL * TTL unit Hours	~
輸 Metrics Automation 最 Tasks (preview) 受 Export template	@ •	SOA	3600	Email: azurec Host: ns1-01. Refresh: 3600 Retry: 300 Expire: 24192 Minimum TT Serial numbe	OK	

Figure 2.56

10. Similarly, you can add other record sets for each host-path defined in *AppGateway-IngressController.yaml* file.

■ Microsoft Azure P Se	earch resources, services, and				l 🖗 🖉 🖓	DEFAULT DIF	RECTORY
Home > Microsoft.DnsZone-202111	125072135882 >						
azure.co.in ☆ …     DNS zone							×
	« + Record set +	Child zone $\rightarrow$ Move $\checkmark$ 📋 Delet	te zone 🕐 Refresh				
	<ul> <li>Subscription ID</li> </ul>	: eaa50193-52a1-4c05-9acb-530a09	d127c7	Name server 3 : ns3-01.azure	e-dns.org.		
Tags				Name server 4 : ns4-01.azur	e-dns.info.		
Diagnose and solve problems	Tags (Edit)	: Click here to add tags					
Settings	You can search for re	cord sets that have been loaded on this	s page. If you don't see wi	hat you're looking for, you can try scro	lling to allow more recor	d sets to load.	
Properties	Search record sets		1984 - 1964 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 - 1975 -	56	2020		
🔒 Locks	Name	Туре	TTL	Value	Alias resource type	Alias target	
Monitoring	ø	NS	172800	ns1-01.azure-dns.com. ns2-01.azure-dns.net. ns3-01.azure-dns.org. ns4-01.azure-dns.info.			
Metrics	œ	SOA	3600	Email: azuredns-hostma Host: ns1-01.azure-dns Refresh: 3600 Retry: 300			
Tasks (preview)				Expire: 2419200 Minimum TTL: 300 Serial number: 1			
<ul> <li>Export template</li> </ul>	ibps5serviceinstance	A	3600	2 <del>5</del>	Public IP Address	appgwpublicip	
contraction of the statement of the	ibps5userinstance	A	3600		Public IP Address	appgwpublicip	
Support + troubleshooting	ippspuserinstance						

Figure 2.57

# 2.8 Running Kubectl from local machine

Before running the kubectl commands from your local machine, you must have the following prerequisites:

- kubectl: https://kubernetes.io/docs/tasks/tools/install-kubectl/
- azure-cli: <u>https://docs.microsoft.com/en-us/cli/azure/install-azure-cli-windows?tabs=azure-cli</u>
- Delete the .kube folder from C:\Users\<Logged-in UserName> folder if exists.
- Now execute the below command to worker node:

```
az aks get-credentials --resource-group <ResourceGroupName> --name
<AzureEKSClusterName>
```

### For example,

```
az aks get-credentials --resource-group AzureKubernetes --name BPMSuite-AKSCluster
```

 Once you have run the above command to connect to the AKS cluster, you can run any kubectl commands. Here are a few examples of useful commands you can try.
 For example,

```
# List all the pods
kubectl get pods
# List all deployments in all namespaces
```

```
kubectl get deployments --all-namespaces=true
# List all deployments in a specific namespace
# Format :kubectl get deployments --namespace <namespace-name>
kubectl get deployments --namespace kube-system
```

# 2.9 Monitoring Kubernetes dashboard

- The Azure portal includes a Kubernetes resource view for easy access to the Kubernetes resources in your Azure Kubernetes Service (AKS) cluster.
- To see the Kubernetes resources, navigate to your AKS cluster in the Azure portal. The navigation pane on the left is used to access your resources. The resources include:
  - Namespaces: Displays the namespaces of your cluster. The filter at the top of the namespace list provides a quick way to filter and display your namespace resources.
  - Workloads: Displays information about deployments, pods, replica sets, stateful sets, daemon sets, jobs, and cron jobs deployed to your cluster.
  - Services and ingresses: Display all of your cluster's service and ingress resources.
  - Storage: Displays your Azure storage classes and persistent volume information.
  - **Configuration:** Displays your cluster's config maps and secrets.

The second se			and the second second		and a back have	m_mittal95@out.	
■ Microsoft Azure P Search reso	ources, services, and docs (G+/)			} _ @ @	R shubhar	DEFAULT DIRECTOR	
Home > Kubernetes services > BPMSuite-A	KSCluster						
Kubernetes services « Default Directory	BPMSuite-AKSClu Kubernetes service	ster   Workloads					×
+ Create 🗸 🕲 Manage view 🗸 …		Add ∨	sh 💴 Show labels 👂	Give feedback			
Filter for any field	💮 💮 Overview	Deployments Pods Replica se	ets Stateful sets	Daemon sets Jobs	Cron jobs		
Name ጎ	Activity log						
BPMSuite-AKSCluster	🕅 Access control (IAM)	Filter by deployment name Enter the full deployment name	Filter by label sele	1222	Filter by names	5.	~
	Tags	Enter the full deployment name	100=bar,key!=va	lue	All namespac	es	
	<ul> <li>Diagnose and solve problems</li> <li>Security</li> </ul>	Name	Namespace	Ready	Up-to-date	Available	
	Kubernetes resources	coredns-autoscaler	kube-system	♥ 1/1	1	1	
	Namespaces	coredns	kube-system	♥ 2/2	2	2	
	Workloads	metrics-server	kube-system	☑ 1/1	1	1	
	Services and ingresses	omsagent-rs	kube-system	♥ 1/1	1	1	
	Storage	konnectivity-agent	kube-system	♥ 2/2	2	2	
	Configuration	azuredefender-collector	kube-system	✓ 1/1	1	1	
	2.5	<[					
	Settings						

Figure 2.58

# 2.10 Azure monitor for container insights

Azure Monitor for containers is a feature designed to monitor the health and performance of container workloads deployed to Azure Kubernetes service. It delivers a comprehensive monitoring experience and gives us performance visibility by collecting memory and processor metrics from controllers, nodes, and containers that are available in Kubernetes through the Metrics API. By default, Azure Monitor is enabled for container monitoring during Azure Kubernetes service creation (Under Integrations tab).

For example,

Basics Node pools Auth	nentication Networking Integrat	tions Tags	Review + create
Connect your AKS cluster with a	dditional services.		
Azure Container Registry			
	Container Registry to enable seamless de one you already have. Learn more about A		
Container registry	None		$\sim$
comprehensive data on the over	Create new Ory metrics included in AKS by default, you all performance and health of your cluster		ontainer Insights for more
Azure Monitor In addition to the CPU and mem comprehensive data on the over settings. Learn more about container perf	Create new ory metrics included in AKS by default, you all performance and health of your cluster		ontainer Insights for more
Azure Monitor In addition to the CPU and mem	Create new ory metrics included in AKS by default, you all performance and health of your cluster		ontainer Insights for more
Azure Monitor In addition to the CPU and mem comprehensive data on the over settings. Learn more about container perf Learn more about pricing	Create new ory metrics included in AKS by default, you all performance and health of your cluster ormance and health monitoring	Billing is based	ontainer Insights for more d on data ingestion and retention
Azure Monitor In addition to the CPU and mem comprehensive data on the over settings. Learn more about container perf Learn more about pricing	Create new ory metrics included in AKS by default, you all performance and health of your cluster ormance and health monitoring	Billing is based	ontainer Insights for more d on data ingestion and retention ard configuration.

Figure 2.59

Perform the below steps to view the container insights:

- 1. Sign in to the Azure portal at <u>https://portal.azure.com</u>.
- 2. On the Azure portal menu or from the Home page, select All resources.
- 3. Click on the created Kubernetes service.
- 4. Click **Monitoring >> Insights**. Here are the series of tabs to monitor your AKS Cluster, Nodes, Containers, Controllers, and so on.

BPMSuite-AKSCluster - Microsoli × +	✓ - ₫ ×
← → C      portal.azure.com/#@shubhammittal95outlook.onmicrosoft.com/resource/subscriptions/eaa50193-52	2a1-4c05-9acb-530a09d127c7/resourceGroups 🖄 🖈 🥐 🚱 🗛 😓 🔅 :
■ Microsoft Azure P Search resources, services, and docs (G+/)	DEFAULT DIRECTORY 🔮 💿 🔊 shubham_mittal95@out 🧶
Home > Kubernetes services > BPMSuite-AKSCluster	
» PMSuite-AKSCluster   Insights … Kubernetes service	×
🔎 Search (Ctrl+/) « 🖒 Refresh 🦓 View All Clusters 🔱 Recommended alerts (Preview)	View Workbooks V ? Help V 🛇 Feedback V
Deployment center (preview)	s duster. Learn more here Enable X
Time range = Last 6 hours     *Y Add Filter     Live:     Off	
Locks     What's new     Cluster     Reports     Nodes     Controllers     Containe	rs
Monitoring Node CPU Utilization % Percentage of ① Total conscitu	Node Memory Utilization %
Insights     Sm granularity     Control of the	5m granularity
Avg Min 50th 90th 95th Max -ta	Percentage of ① Total capacity (memory rss) ✓ Avg Min 50th 90th 95th Max ∹
Metrics 80%	100%
Diagnostic settings	80%
Advisor recommendations 40%	60%
20% 20%	40%
Workbooks	20%
Automation Average BPMSuite=AKSCluster BPMSuite=AKSCluster	07 AM 08 AM 09 AM 10 AM 11 AM 12 PM 01 PM
L90 % 4.47 %	Average Maximum BPMSute-AKSCluster BPMSute-AKSCluster
Export template	3.60% 3.89%

Figure 2.60

# 3 Deploying OmniDocs and RMS containers on Azure kubernetes service

This section describes the deployment of OmniDocs and RMS containers. Refer the below sections for procedural details.

# **3.1 Prerequisites**

Azure Kubernetes Service must be configured, and its Worker nodes must be in Ready state.

NOTE:

Refer to the <u>Configuration of Azure Kubernetes Cluster</u> for the configuration of Azure Elastic Kubernetes Service.

# **3.2** Deliverables

Newgen has isolated the product suite into multiple Docker containers to enable the independent scalability of each Docker container. This separation is done based on the product's usability. At a broad level, Web components and EJB components are isolated for deployment in separate container instances. Web components is deployed on the underlying web server JBoss WebServer 5.7.x. EJB components is deployed on the underlying application server JBoss EAP 7.4.x. Newgen has released multiple Docker images for the different product suites along with some configuration files for data persistence, YAML files for deployment, and some documentation for end-to-end configurations and deployments.

The followings are the list of deliverables:

The Newgen delivers the following:

- Docker Images
- <u>Configuration Files</u>
- YAML Files

### 3.2.1 Docker images

The following Docker images are delivered for the initial product deployment:

- OmniDocs and RMS Web Components
- OmniDocs Web Service Components
- OmniDocs and RMS EJB Components
- OmniDocs Add-on Services (Wrapper, AlarmMailer, Scheduler, ThumbnailManager and LDAP)
- EasySearch (Apache Manifold and ElasticSearch [freeware software])
- Text Extraction Manager or Full-Text Search (TEM/FTS)
- OmniScan Web Components
- RMS SharePoint Adapter

#### NOTE:

These Docker images can be delivered to a private Docker repository like ACR (Azure Container Registry) or in the form of compressed files that can be shared over the FTP or similar kind of media.

# 3.2.2 Configuration files

Configuration files are dynamic in nature and data is written at runtime. Database details in configuration files such as *Server.xml* and *standalone.xml* are written at runtime. These types of files must be kept outside the container to persist the data. Here, Azure FileShare is used to persist configuration files.

The following configuration files are shared for OmniDocs and RMS Docker images:

- OmniDocs11.0Web
- OmniDocs11.0Eib
- TEM11.0OmniscanWeb6.0

OD11.0Services

RMS SharePoint Adapter

• EasySearch11.0

### 3.2.3 YAML files

YAML files stands for "YAML Ain't Markup Language". It is a human-readable object configuration file that is used to deploy and manage the objects on the Kubernetes cluster. In other words, it is a manifest file that contains the deployment descriptor of Kubernetes containers. You can execute YAML files using "kubectl apply –f <YAMLFile>" or use these files in Azure DevOps Release Pipeline to deploy the containers.

The following configuration files has shared for OmniDocs and RMS Docker images:

- OmniDocs11.0Web.yml
- OmniDocs11.0Web\_Services.yml
- OmniDocs11.0EJB.yml
- OmniDocs11.0Services.yml
- EasySearch11.0.yml

- TEM11.0.yml
- OmniScanWeb6.0.yml
- AzureFile\_PV\_PVC.yml
- AppGateway-IngressController.yml
- RMSSharePointAdapter.yml

Here's an example of a YAML file:





AzureFile\_PV\_PVC.yml file is used for Persistent Volume and Persistent Volume Claim. Persistent Volume (PV) is a storage piece in the cluster that is provisioned using Storage Classes. It contains the Azure FileShare **secretName** and **shareName** that is already created during Azure FileShare creation. It is also used to set the access permission on Azure FileShare using **mountOptions** attribute.

A PersistentVolumeClaim (PVC) is a request for storage by a user. It is similar to a Pod. Pods consume node resources and PVCs consume PV resources. Pods can request specific levels of resources (CPU and Memory). Claims can request specific size and access modes (for example, they can be mounted ReadWriteOnce, ReadOnlyMany or ReadWriteMany). *AppGateway-IngressController.yml* is used for the ingress controller. An ingress controller is an object running inside the Kubernetes cluster that is used to manage the host-based routing rules. For example, you can set the host-based routing rules like if the URL is

*omnidocs.newgendocker.com* then the ingress controller redirects the user request to OmniDocs and RMS WEB containers. and if the URL is *omniscan.newgendocker.com* then it redirects the user request to the OmniScan WEB containers.

### NOTE:

You can store the above YAML files in Azure Repo that is used by Azure DevOps Release Pipeline.

# 3.3 Changes in product's YAML files

The changes in the Product's YAML Files are as follows:

• **Namespace**: In the YAML files, default namespace is given as **dev**. You can change this name as per your requirement.

apiVersion: vl					
kind: Namespace					
metadata:					
name: dev					
Figure 3.2					

 Name: In the OmniDocs11.0Web.yml file, od110web is given as the default name of Kubernetes objects - deployment, replicas, container, and service. You can change this name as per your requirement. While changing the name, ensure that this name is not more than 13 letters in length and must contain small letters only. For example,

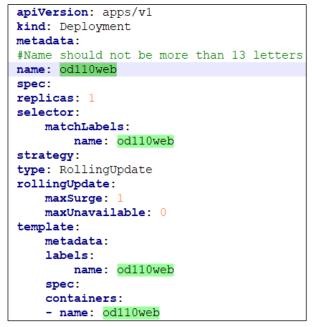


Figure 3.3

- **Replica:** In the *OmniDocs11.0Web.yml* file, the default replica is given as **1**. That means only one container is created after the deployment. You can increase this number as per our choice.
- Image: In the *OmniDocs11.0Web*.yml file, update the **image** location. By default, the below value is given:

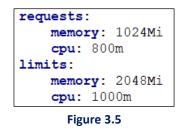
image: newgencontainerregistry.azurecr.io/omnidocsll.0web:#{RELEASE.ARTIFACTS.\_OMNIDOCSll.0WEB.BUILDID}#

Here:

- > **newgencontainerregistry.azurecr.io** It's the name of the Azure Container Registry.
- omnidocs11.0web It's the OmniDocs11.0Web Docker image name.
- #{RELEASE.ARTIFACTS.\_OMNIDOCS11.0WEB.BUILDID}#: It's a Docker image's tag name in the form of a dynamic variable whose value gets updated at runtime using AzureDevOps Release Pipeline. Specify the static tag name like latest, build-number1, and so on.
- SecurityContext: In the OmniDocs11.0Web.yml file, SecurityContext [runAsNonRoot: true] is defined. It means the OmniDocs11.0Web container can never be run with root privileges. If any container tries to run with the root user, then Kubernetes stops its deployments.



Resource Request and limit: In the OmniDocs11.0Web.yml file, resource request and
resource limit parameters are defined. The request parameter specifies the minimum
required resources to run the particular container and the limit parameter specifies the
maximum resource limit that a container can use. In other words, a running container is not
allowed to use more than the resource limit you set.
For Example,



### Here, 1000m CPU = 1 Core CPU

The above-specified limit is the minimum required resource to run a container. If users are increasing, then you must increase the limit range accordingly.

 VolumeMounts and Volume: Volume mounts and volumes are used to persist the data outside the container so that whenever the container terminates due to any reason our data is always persisted. In the OmniDocs11.0Web.yml file, we have persisted configuration files or folders and log files.

```
volumeMounts:
- name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/bin/Newgen/NGConfig
 subPath: OmniDocs11.0SP1/OmniDocs11.0Web/Newgen/NGConfig
 name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/bin/omniscanweb
 subPath: OmniDocs11.0SP1/OmniDocs11.0Web/omniscanweb
- name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/conf/web.xml
 subPath: OmniDocs11.0SP1/OmniDocs11.0Web/web.xml
- name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/conf/redisson.yaml
 subPath: OmniDocs11.0SP1/OmniDocs11.0Web/redisson.yaml
 name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/lib/jboss-ejb-client.properties
 subPath: OmniDocs11.0SP1/OmniDocs11.0Web/jboss-ejb-client.properties
- name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/logs
 subPathExpr: OmniDocs11.0SP1/ProductLogs/od110web-#{RELEASE.RELEASENAME}#/tomcat_logs/$(POD_NAME)
name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/bin/Newgen/NGLogs
 subPathExpr: OmniDocs11.0SP1/ProductLogs/odl10web-#{RELEASE.RELEASENAME}#/NGLogs/$(POD NAME)
 name: azurefile-volume-mount
 mountPath: /Newgen/jws-5.7/tomcat/bin/Newgen/NGTemp
 subPath: OmniDocs11.0SP1/ProductLogs/odl10web-#{RELEASE.RELEASENAME}#/NGTemp
- name: azurefile-volume-mount
 mountPath: /Newgen/jboss-eap-7.4/bin/SystemReports
 subPath: OmniDocs11.0SP1/SystemReports
```

Figure 3.6

In volumeMounts, **mountPath** is a path inside the container that is mounted. Here, mountPath cannot be changed as this structure is predefined in a Docker container. **subPath** works as a relative path that is appended to the attached persistent volume's shareName. **subPathExpr** is used to segregate the product logs container wise. In addition, the **name** is a user-defined name that must be matched with the name specified in volumes.

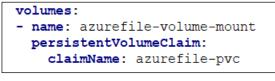
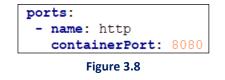


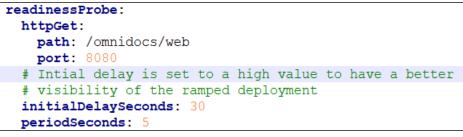
Figure 3.7

In volumes, azurefile-pvc is the persistent volume claim name.

• **Ports:** In the *OmniDocs11.0Web.yml* file, containerPort is specified as **8080**. That means only port 8080 is exposed outside the container and no other port is accessible from outside.



• **ReadinessProbe:** The kubelet uses the readiness probe to know when a container is ready to start accepting traffic. Until unless the readiness probe is not succeeded, the container does not serve the user requests.





Here, until unless *ip:port/omnidocs/web* is not accessible through a browser, the container does not accept the user request.

• LivenessProbe: Docker containers have healing power, if an application running inside the container gets down due to any reason or becomes unresponsive then Kubernetes restarts the application automatically inside the container. This feature is known as LivenessProbe in Kubernetes.

For Example,

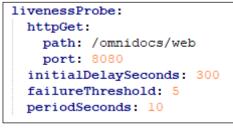


Figure 3.10

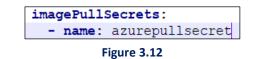
• Environment variable: In the *OmniDocs11.0Web.yml* file, the JAVA\_OPTS parameter is defined that is used to set the heap size in the WEB container dynamically.

```
- name: JAVA_OPTS
value: "-XX:+UseContainerSupport -XX:+DisableExplicitGC -XX:InitialRAMPercentage=75.0"
```

#### Figure 3.11

Ensure '-**XX:MaxRAMPercentage**' is a parameter through which you can provide the available memory to use as a max heap size to JVM. In the above example, 75% of total memory is allocated as heap size.

 ImagePullSecret: ImagePullSecret is a secret value that is used to pull an image from a private container repository like Azure Container Registry.
 For example,



Execute the below command to create an ImagePullSecret: kubectl create secret docker-registry azurepullsecret --docker-server newgencontainerregistry.azurecr.io --docker-username= newgencontainerregistry --docker-password kmPF/ytffu5q6NazqvVYtJ??????

You can also create ImagePullSecret from Azure DevOps Release Pipeline.

#### NOTE:

You can use the above guidelines to update other YAML Files that are as follows:

- OmniDocs11.0Web\_Services.yml
- OmniDocs11.0EJB.yml
- OmniDocs11.0Services.yml
- EasySearch11.0.yml
- TEM11.0.yml
- OmniScanWeb6.0.yml
- RMSSharePointAdapter.yml

# 3.4 Changes in application gateway Ingress YAML files

Along with the product's YAML file, AppGateway Ingress Controller's YAML file **AppGateway**-**IngressController.yaml** is also shared. Using an ingress controller and ingress rules, a single IP address can be used to route traffic to multiple services in a Kubernetes cluster. The AppGateway Ingress Controller creates a Load Balancer with its external IP and routes the incoming requests to the target Kubernetes services according to the host-based routing rules. Host-based routing is a capability of Ingress Controller that redirects the user requests to the right service based on the request-host header.

For example, you can set the rules as below:

- If URL is *omnidocs.newgendocker.com*, then redirect to the OmniDocs and RMS Web container.
- If URL is *omniscan.newgendocker.com*, then redirect to the OmniScanWeb container.

#### NOTE:

To support the host-based routing, register a domain and create a new RecordSet in DNS Zone for each host-path. Refer to the document <u>Configuration of Azure Kubernetes Cluster</u> to see the configuration of Application Gateway Ingress Controller and DNS Zone.

• Once Application Gateway Ingress is configured and RecordSets are created in DNS Zone, then must deploy the Ingress controller along with its ruleset using the YAML file.

```
apiVersion: networking.k8s.io/vl
kind: Ingress
netadata:
 name: appgw-ingress
 namespace: dev
 annotations:
   kubernetes.io/ingress.class: azure/application-gateway
   appgw.ingress.kubernetes.io/ssl-redirect: "true"
   appgw.ingress.kubernetes.io/request-timeout: "300"
   appgw.ingress.kubernetes.io/ssl-policy: "AppGwSS1Policy20170401S"
spec:
 tls:
    - hosts:

    newgendocker.com

    secretName: appgw-cert

 rules:
 - host: omnidocs.newgendocker.com
   http:
     paths:
      - path: /
       pathType: Prefix
       backend:
         service:
           name: odl10web
           port:
             number: 8080

    host: omnidocswebservices.newgendocker.com

   http:
     paths:
      - path: /
       pathType: Prefix
       backend:
          service:
           name: odll0websvc
           port:
             number: 8080
 - host: apachemanifold.newgendocker.com
```

Figure 3.13

- In AppGateway-IngressController.yml file, there are multiple host-based rules defined.
  - > omnidocs.newgendocker.com [Specified as a record set in Route-53]

If the host URL is *omnidocs.newgendocker.com*, then it redirects the user request to the **od110web** container's service which is running on port 8080. Here, od110web is the name of the OmniDocs and RMS Web container.

- omnidocswebservices.newgendocker.com [Specified as a record set in Route-53] If the host URL is omnidocswebservices.newgendocker.com, then it redirects the user request to the od110websvc container's service which is running on port 8080. Here, od110websvc is the name of the OmniDocs Web Service container.
- omnidocsconsole.newgendocker.com [Specified as a record set in Route-53] If the host URL is omnidocsconsole.newgendocker.com, then it redirects the user request to the od110ejb container's service which is running on port 9990. Here, od110ejb is the name of the OmniDocs and RMS EJB container.
- apachemanifold.newgendocker.com [Specified as a record set in Route-53] If the host URL is apachemanifold.newgendocker.com then it redirects the user request to the easysearch11 container's service which is running on port 8345. Here, easysearch11 is the name of the EasySearch container.
- omniscan.newgendocker.com [Specified as a record set in Route-53] If the host URL is omniscan.newgendocker.com, then it redirects the user request to the omniscan web container's service which is running on port 8080. Here, omniscanweb is the name of the OmniScan Web container.
- In this YAML file, change the host URL, ServiceName, ServicePort, and the name **name: appgw-ingress** as required.
- In this YAML file, there is defined SSL or TLS configuration through specifying the **tls** spec along with hosts and secretName.



- You can specify the valid DNS against hosts that is, newgendocker.com.
- Before deploying the ingress controller, create a Kubernetes secret to host the certificate and private key. Execute the below command to create a Kubernetes secret:

```
kubectl create secret tls <secret-name> --key <path-to-key> --cert <path-
to-crt> -n <Namespace>
```

```
kubectl create secret tls appgw-cert --key azure.key --cert azure.crt -n
dev
```

• After making the required changes as required, deploy the Ingress controller by executing this YAML file using below command or can configure it to AzureDevOps Release Pipeline. kubectl apply -f AppGateway-IngressController.yml

#### NOTE:

To execute the above command, kubectl must be configured on your local server. Refer to the <u>Configuration of Azure</u> <u>Kubernetes Cluster</u> to run kubectl from your local machine.

# 3.5 Changes in configuration files

This section describes the changes in configuration files.

### 3.5.1 Prerequisites

The Prerequisites are as follows:

- All the configuration files and folders must be uploaded to the Azure FileShare defined in the YAML file *AzureFile\_PV\_PVC.yml*. You can upload the configuration files and folder using Azure Storage Explorer.
- The Redis Cache server is already configured.
- A valid wildcard certificate and the domain are already configured.
- SSL or TLS must be configured for the Application's URL.

### NOTE:

By default, applications run on HTTPS only. If you want to run with HTTP protocol, then some additional setting is required. For more information, refer to the *Docker Troubleshooting Guide*.

### 3.5.2 OmniDocs and RMS Web changes

The changes in OmniDocs and RMS Web are as follows:

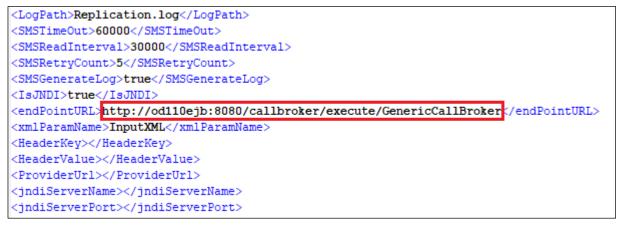
 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xm, RMAppConfig.xml and RMClientData.xml files in between the <endPointURL></endPointURL> tags located inside the OmniDocs11.0Web\Newgen\NGConfig\ngdbini folder at the mapped location on the Worker node.



Figure 3.15

Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini file in between the <endPointURL ></endPointURL > tags located inside the OmniDocs11.0Web\Newgen\NGConfig folder at the mapped location on the Worker node. For example,





• Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in *jboss-ejb-client.properties* file located inside the OmniDocs11.0Web folder kept inside the Azure Fileshare.



Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

- Update the **RMSEnabled=Y** in eworkstyle.ini file located at *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/odwebini* folder at mapped location.
- Update the Azure Redis cache's configuration endpoint in *redisson.yaml* file against the *singleServerConfig* or *clusterServersConfig*. If redis cache is SSL enabled then use *rediss://<endpoint url>:port* and if SSL is not enabled then use *redis://<endpoint url>:port*. This file *redisson.yaml* is located inside the OmniDocs11.0Web folder kept inside the Azure Fileshare.

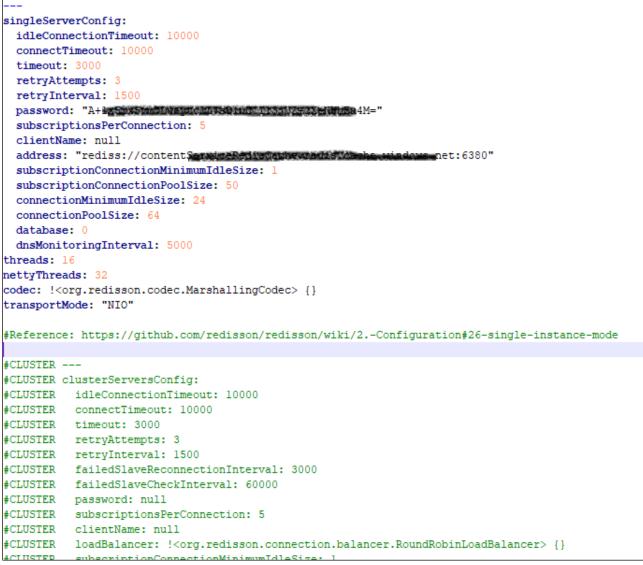


Figure 3.18

- Open the *web.xml* file in edit mode located inside the OmniDocs11.0Web folder kept inside the Azure Fileshare.
- Search for filter httpHeaderSecurity and update the <param-value></param-value> tag's value with OmniDocs URL without context name against <param-name> antiClickJackingUri</param-name>.

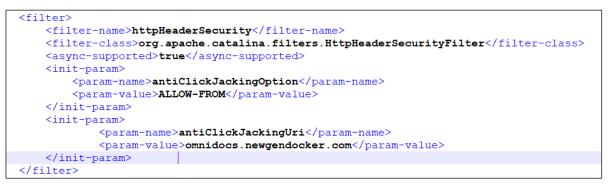


Figure 3.19

- Open the web\_svc.xml file in edit mode located inside the OmniDocs11.0Web folder at the mapped location on the Worker node.
- Search for filter-class "<filter-class>org.apache.catalina.filters.CorsFilter</filter-class>" and update the <param-value></param-value> tag's value with OmniDocs URL with protocol against <param-name> antiClickJackingUri</param-name>.



Figure 3.20

## 3.5.3 Wrapper changes

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xml, RMAppConfig.xml and RMClientData.xml files in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services/Wrapper/ngdbini folder kept inside the Azure Fileshare.

CIARL VEISION- 1.0 12
<clientinfo></clientinfo>
<providerurl></providerurl>
<jndiservername></jndiservername>
<jndiserverport></jndiserverport>
<contextsuffix></contextsuffix>
<wildflyusername></wildflyusername>
<wildflypassword></wildflypassword>
<jndicontextfactory></jndicontextfactory>
<clientlookupname>ejb;omnidocs_ejb/omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHome</clientlookupname> ejb;omnidocs_ejb/omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/Omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHomeejb;omnidocs_ejb/NGOClientServiceHandlerBean!com.newgen.omni.jts.txn.NGOClientServiceHandlerHome
< <u>AdminLookUpName&gt;ejb:omnidocs_ejb/omnidocs_ejb/NGQAdminServiceHandlerBean!com.newgen.omni.jts.txn.NGQAdminServiceHandlerHome</u>
<urlpackageprefix></urlpackageprefix>
<endpointurl callbroker="" endpointurl="" execute="" genericcallbroker="" http:="" od110ejb:8080=""></endpointurl>
<pre><xmlparamname>InputXML</xmlparamname></pre>
<headerkey></headerkey>
<headervalue></headervalue>

Figure 3.21

Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

### 3.5.4 AlarmMailer changes

### **Prerequisite:**

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

Make the changes in AlarmMailer that are as follows:

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services or AlarmMailer folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, od110ejb is the name of the OmniDocs and RMS EJB container.

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xml in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services/AlarmMailer/ngdbini folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

- 3. Update the below settings in the *Alarm.ini* file located inside the *OD11.0Services/AlarmMailer* folder kept inside the Azure Fileshare.
  - Update the OmniDocs URL without context name in between the <webservername></webservername> tag.
     For example, <webservername>omnidocs.newgendocker.com</webservername> Here, omnidocs.newgendocker.com is the host path defined in the AppGateway-IngressController.yml file.
  - ii. Leave the WebServerPort as blank if OmniDocsWEB URL does not contain a port.For example, <webserverport></webserverport>
  - iii. Update the OmniDocs cabinet name in between <cabinetname></cabinetname> tag.
     For example, <cabinetname>ecmsuite</cabinetname>
     Here, ecmsuite is the OmniDocs cabinet name gets created.
  - iv. Update the OmniDocs supervisor group's user in between the <user></user> tag.
     For example, <user>supervisor</user>
  - V. Update the OmniDocs supervisor group's user password in between the
     <password></password> tag. Ensure that this password must be in an encrypted format.

For example, <password>:X-D;U:T-C;P-C;p5-C;b:d:</password>

### 3.5.5 LDAP changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to the <u>Cabinet and Data Source Creation</u> section.

### The changes in LDAP are as follows: (For On\_Prem Active Directory)

- Ensure that the LDAP Domain server is configured, and a private tunnel is created between the Kubernetes worker nodes and the LDAP Domain server.
- Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in *NGOClientData.xml* in between the *<endPointURL></endPointURL>* tags file located inside the *OD11.0Services/ODAuthMgr/ngdbini* folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, od110ejb is the name of the OmniDocs and RMS EJB container.

• Update the cabinet name and domain name in the Idap.ini and Hook.ini file located inside the *OD11.0Services/ODAuthMgr* folder at the mapped location.

```
#
#Tue Nov 26 11:34:40 IST 2013
DISPort=1999
DISIPAddress=127.0.0.1
Log4j_properties_file=jtshook_log4j.properties
Encoding=UTF-8
PROTOCOL=1dap Hook.ini
LOGOUTTIME=15000
DIRECTORYSERVICE=ActiveDS
REACTUI=true
# Default domain name to add user For multidomain LDAP
DEFAULTDOMAIN=eco.com
ecmsuite=eco.com
```





Figure 3.23

Here, **ecmsuite** is the cabinet name and *eco.com* is the domain name.

- Update the same cabinet name and domain name in the *ldap.ini* and *Hook.ini* file located inside the *OmniDocs11.0Web\Newgen\NGConfig* folder at the mapped location.
- Update the OD11.0Services container's service name [Defined in respective YAML file] in *ldap.ini* and *Hook.ini* file located inside the *OmniDocs11.0Web\Newgen\NGConfig* folder at the mapped location.

```
#
#Tue Nov 26 11:34:40 IST 2013
DISPort=1999
DISIPAddress=odl10services
Log4j_properties_file=jtshook_log4j.properties
Encoding=UTF-8
PROTOCOL=1dap Hook.ini
LOGOUTTIME=15000
DIRECTORYSERVICE=ActiveDS
REACTUI=true
# Default domain name to add user For multidomain LDAP
DEFAULTDOMAIN=eco.com
ecmsuite=eco.com
```

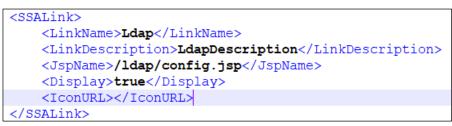






Here, **od110services** is the service name of the OD11.0Services container.

 Set <Display> as true for LDAP in AdminMenuOptions.xml located inside OmniDocs11.0Web/Newgen/NGConfig/ngdbini/Custom/CABINETNAME folder at mapped location.





### The changes in LDAP are as follows: (For Azure Active Directory)

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in *NGOClientData.xml* in between the *<endPointURL></endPointURL>* tags file located inside the *OD11.0Services/ODAuthMgr/ngdbini* folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

• Update the cabinet name, domain name, and directory service as **AzureAD** in the Hook.ini file located inside the *OD11.0Services/ODAuthMgr* folder at the mapped location.

```
DISPort=1999
DISIPAddress=127.0.0.1
Log4j_properties_file=jtshook_log4j.properties
Encoding=UTF-8
PROTOCOL=1dap Hook.ini
LOGOUTTIME=15000
DIRECTORYSERVICE=AzureAD
REACTUI=true
# Default domain name to add user For multidomain LDAP
DEFAULTDOMAIN=eco.com
ecmsuite=eco.com
```

Figure 3.27

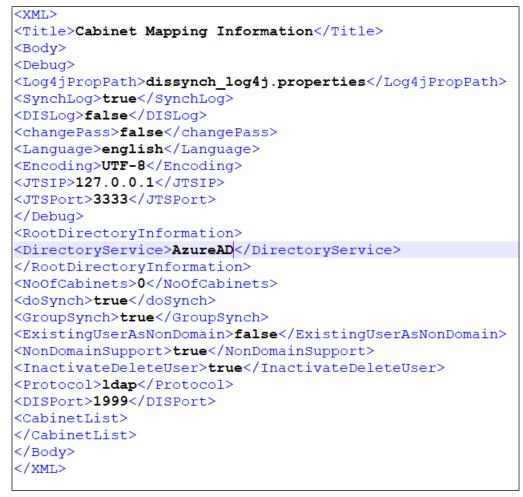
• Update the cabinet name and domain name in the *ldap.ini* file located inside the *OD11.0Services* or *ODAuthMgr* folder at the mapped location.

#Wed Dec 23 10:53:14 GMT+05:30 2009 DISPort=1999
DIGIDIddaear-107 0 0 1
DISIPAddress=127.0.0.1
Encoding=UTF-8 LDAP.ini
setEncoding=true
LogOutTime=15000
IsMakerChecker=N
# Default domain name to add user For multidomain LDAP
ecmsuite=eco.com

Figure 3.28

Here, **ecmsuite** is the cabinet name and *eco.com* is the domain name.

• Update the directory service as **AzureAD** in the DIS.xml file located inside the **OD11.0Services** or **ODAuthMgr** folder at the mapped location.



#### Figure 3.29

- Update the same cabinet name and domain name in the *ldap.ini* and *Hook.ini* file located inside the **OmniDocs11.0Web\Newgen\NGConfig** folder at the mapped location.
- Update the OD11.0Services container's service name [Defined in respective YAML file] in Idap.ini and Hook.ini file located inside the OmniDocs11.0Web\Newgen\NGConfig folder at the mapped location.
- Update the directory service as **AzureAD** in Hook.ini and config.ini located inside the **OmniDocs11.0Web\Newgen\NGConfig** folder at the mapped location.

```
DISPort=1999

DISIPAddress=odll0services

Log4j_properties_file=jtshook_log4j.properties

Encoding=UTF-8

PROTOCOL=1dap

LOGOUTTIME=15000

DIRECTORYSERVICE=AzureAD

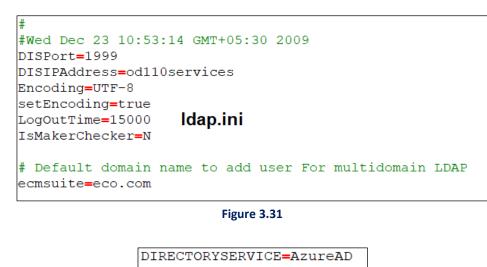
REACTUI=true

# Default domain name to add user For multidomain LDAP

DEFAULTDOMAIN=eco.com

ecmsuite=eco.com
```





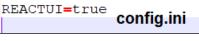


Figure 3.32

Here, **od110services** is the service name of the OD11.0Services container.

 Set <Display> as true for Idap in AdminMenuOptions.xml located inside OmniDocs11.0Web/Newgen/NGConfig/ngdbini/Custom/CABINETNAME folder at mapped location.

```
<SSALink>

<LinkName>Ldap</LinkName>

<LinkDescription>LdapDescription</LinkDescription>

<JspName>/ldap/config.jsp</JspName>

<Display>true</Display>

<IconURL></IconURL>

</SSALink>
```



## 3.5.6 SSO changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

### The changes in SSO are as follows:

- Update the <*Host-Path URL of OmniDocsWeb container>* at the place of *ibps5aurora.newgendocker.com* in *mapping.xml* file located inside the *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/SSOConFig* folder.
- Update the **CabinetName** in *mapping.xml* file located inside the *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/SSOConFig* folder.
- Configure the CabinetName=DomainName in *sso.ini* file located inside the *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/SSOConFig* folder.
- ecmsuite=eco.com

## 3.5.7 Scheduler changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

### The changes in Scheduler are as follows:

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services or Scheduler folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xml, RMAppConfig.xml and RMClientData.xml in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services/Scheduler/ngdbini folder kept inside the Azure Fileshare. For example, <endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL>

Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

• Update the OD11.0Services container's service name [Defined in respective YAML file] in *SchedulerConf.ini* file located at **OD11.0Services** or **Scheduler** folder at the mapped location. For example: **schedulerIpAddress=od110services**   Update the OD11.0Services container's service name [Defined in respective YAML file] in eworkstyle.ini file located at OmniDocs11.0Web/Newgen/NGConfig/ngdbini/Custom/<CABINETNAME> folder at mapped location.

For example: schedularLocation=od110services

## 3.5.8 ThumbnailManager changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

### The changes in ThumbnailManager are as follows:

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services or ThumbnailManager folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, od110ejb is the name of the OmniDocs and RMS EJB container.

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xml in between the <endPointURL></endPointURL> tags file located inside the OD11.0Services/ThumbnailManager/ngdbini folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL> Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.

• Update the cabinet name, supervisor group's user name, and password in *ThumnailConfig.xml* located inside the **OD11.0Services** or **ThumbnailManager** folder at the mapped location on the Worker node.

```
<cabinets><cabinet><cabinetname>ecmsuite</cabinetname><jtsip>127.0.0.1
</jtsip><jtsport>3333</jtsport><user>supervisor</user><password>:X-D;U:T-C;P-C;p5-C;b:
</password><BatchSize>10</BatchSize><priority>1</priority><encoding>UTF-8
</encoding></cabinet></cabinets>
```

Figure 3.34

## 3.5.9 TEM changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

### The changes in TEM are as follows:

 Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini and NGOClientData.xml in between the <endPointURL></endPointURL> tags file located inside the TEM11.0 folder kept inside the Azure Fileshare. For example,

<endPointURL>http://od110ejb:8080/callbroker/execute/GenericCallBroker</endPointURL>

- Here, **od110ejb** is the name of the OmniDocs and RMS EJB container.
- Update the cabinet name in filename FTSServer-CABINETNAME-1.properties. For example: FTSServer-**ecmsuite**-1.properties [ecmsuite is the cabinet name].
- Update the OmniDocs and RMS EJB container name [Defined in OmniDocs11.0EJB.yml file] in FTSServer-ecmsuite-1.properties renamed earlier.
- Update the OmniDocs supervisor group's user name.
- Update the OmniDocs supervisor group's user password. Ensure this password must be in an encrypted format.

```
ServerAddress=od110ejb
SiteId=1
UserName=supervisor
Password=:X-D;U:T-C;P-C;p5-C;b:d:
PollTime=10
OCRPath=tesseract
DocumentCount=1000
Language=eng
SleepTime=15
```



## **3.5.10** EasySearch changes

### Prerequisite:

The cabinet is created and associated with the running containers. If the cabinet is not created, then refer to <u>Cabinet and Data Source Creation</u> section.

### The changes in EasySearch are as follows:

- Update the EasySearch container name [Defined in *EasySearch11.0.yml* file] against the
   ESServerIPAddress key in the *ESconfig.ini* file located inside the
   *EasySearch11.0\ESConfigurator\conf* folder kept inside the Azure Fileshare.
   For example, ESServerIPAddress=easysearch11 [Where easysearch11 is the container name].
- Update the Database details in the *ESconfig.ini* file located inside the *EasySearch11.0*\*ESConfigurator*\*conf* folder kept inside the Azure Fileshare.
  - ESClusterName=CABINETNAME\_cluster
  - OdDBIPAddress=DBIP
  - OdDBPort=DBPORT
  - OdCabinetName=CABINETNAME
  - OdDBUserName=DBUSER
  - OdDBPassword=DBPASSWORD in encrypted format
  - OdDBType=sqlserver | oracle | postgres

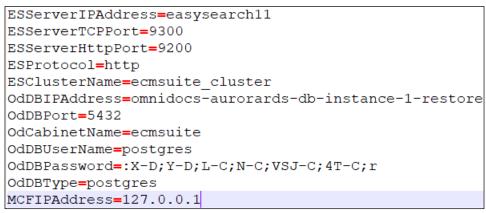


Figure 3.36

- Update the cabinet name in the **CrawlerConfig.xml** file located inside the **EasySearch11.0\apache-manifoldcf-2.19\example** folder kept inside the Azure Fileshare.
- Update the OmniDocs supervisor group's user name.
- Update the OmniDocs supervisor group's user password. Ensure this password must be in an encrypted format.

```
<cabinets>
<cabinets>
<cabinetame>ecmsuite</cabinetname>
<jtsip>127.0.0.1</jtsip>
<jtsport>3333</jtsport>
<user>supervisor</user>
<password>:X-D;U:T-C;P-C;p5-C;b:d</password>
<StopPhraseFlag>N</StopPhraseFlag>
<StopPhrases>
<StopPhrase>Newgen Software Technologies</StopPhrase>
<StopPhrase>omnidocs 11.0</StopPhrase>
</stopPhrases>
<Pages>ALL</Pages>
</cabinets>
```

Figure 3.37

• Update the cabinet name in the *elasticsearch.yml* file located inside the *EasySearch11.0\elasticsearch-7.17.4\config* folder kept inside the Azure Fileshare. For example,

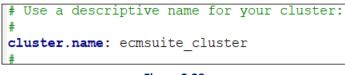


Figure 3.38

Where, ecmsuite is the cabinet name.

• Update the cabinet name and EasySearch container name [Defined in *EasySearch11.0.yml* file] in the *EasySearch.xml* file located inside the *OmniDocs110Ejb\ngdbini* folder kept inside the Azure Fileshare.

```
<ElasticSearch>
  <ElasticSearch>
  <ESIPAddress>easysearch11</ESIPAddress> <!--Adress of ElasticSearch Server -->
   <ESPort>9200</ESPort> <!--Port ElasticSearch Server running on -->
   <ESClusterName>ecmsuite_cluster</ESClusterName> <!-- Name of your cluster -->
   <ESUserName></ESUserName> <!-- Mandatory value for basic authentication -->
   <ESSecret></ESSecret>   <!--Mandatory value for basic authentication -->
   <ESProtocol>http</ESProtocol> <!-- Set https for SSL/TLS configuration -->
   <ESTrustStorePath></ESTrustStorePath>   <!--Value optional for SSL/TLS configuration-->
   <ESTrustStoreSecret></ESTrustStoreSecret> <!--Value optional for SSL/TLS configuration-->
   <ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret> <!--Value optional for SSL/TLS configuration-->
   <ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustSecret></ESTrustStoreSecret></ESTrustStoreSecret></ESTrustSe
```

Figure 3.39

Here, **easysearch11** is the container name and **ecmsuite** is the cabinet name.

 Update the EnableEasySearch=Y and EasySearch container name [Defined in EasySearch11.0.yml file] in the eworkstyle.ini file located inside the OmniDocs11.0Web\Newgen\NGConfig\ngdbini\Custom\CABINET\_NAME folder kept inside the Azure Fileshare.

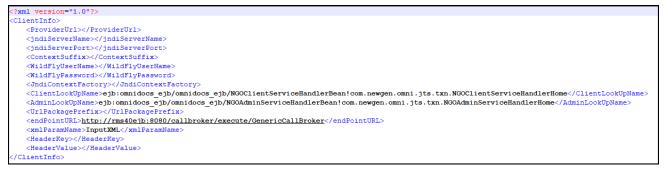
```
#For EasySearch
EnableEasySearch=Y
EnableEasySearchIndexDropDown=N
EasySearchIPAddress=easysearch11
EasySearchHttpPort=9200
```

Figure 3.40

Here, **easysearch11** is the container name.

## 3.5.11 WOPI changes

 Update the OmniDocsEJB container name [Defined in OmniDocs11.0EJB.yml file] in NGOClientData.xml file in between the <endPointURL></endPointURL> tags located inside the OmniDocs\_WOPI\Newgen\NGConfig\ngdbini folder at the mapped location on the Worker node.





Here, **rms40ejb** is the name of the OmniDocsEJB container.

 Update the OmniDocsEJB container name [Defined in OmniDocs11.0EJB.yml file] in IS.ini file in between the <endPointURL ></endPointURL > tags located inside the OmniDocs\_WOPI\Newgen\NGConfig folder at the mapped location on the Worker node. For example,

<encoding>UTF-8</encoding>
<logpath>Replication.log</logpath>
<smstimeout>60000</smstimeout>
<smsreadinterval>30000</smsreadinterval>
<smsretrycount>5</smsretrycount>
<smsgeneratelog>true</smsgeneratelog>
<isjndi>true</isjndi>
<pre><endpointurl>http://rms40ejb:8080/callbroker/execute/GenericCallBroker</endpointurl></pre>
<xmlparamname>InputXML</xmlparamname>
<headerkey></headerkey>
<headervalue></headervalue>
<providerurl></providerurl>

Figure 3.42

 Update the WOPI\_SOURCE, OMNIDOCS\_REDIRECTURL and CABINETNAME in WOPIConfiguration.ini file located inside the OmniDocs\_WOPI\Newgen\NGConfig\AddInsConfig folder at the mapped location on the Worker node.

WOPI_SOURCE=https://wopi.newgendocker.com
<pre>#To enable custom app functionality and breadcrumb URL redirection, should incorporate the app at this location. #OMNIDOCS_REDIRECTURL=<u>https://rms40.newgendocker.com/omnidocs/wopi/redirect.html</u> RMS_REDIRECTURL=<u>https://rms40.newgendocker.com/omnidocs/wopi/redirect.html</u></pre>
#MYAPP_REDIRECTURL= <u>https://wopi.domain.com/Apps/redirect.html</u>
#Cabinet Index If admin wants to configure multiple cabinet then need to add new cabinet with increment index . #ngofficewopi_INDEX=1 This is example for ngofficewopi cabinetname and index 1 <i>rmspostgres27feb_INDEX</i> =1

#### Figure 3.43

Where,

https://wopi.newgendocker.com is host URL of WOPI container. https://rms40.newgendocker.com is Host URL of RMS WEB container. **rmspostgres27feb** is cabinet name.

- Open the *web.xml* file in edit mode located inside the *OmniDocs\_WOPI* folder at the mapped location on the Worker node.
- Search for filter-class <filter-class>org.apache.catalina.filters.CorsFilter</filter-class> and update the <param-value></param-value> tag's value with OmniDocs URL against <paramname> antiClickJackingUri</param-name> and \* against <paramname>cors.allowed.origins</param-name>



Figure 3.44

• Add the CSPHeaderAllowedDomains tag in the *eworkstyle.ini* file located inside the *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/odwebini* folder at the mapped location on the Worker node.

CSPHeaderAllowedDomains=default-src \* data: 'unsafe-inline' 'unsafe-eval';

• Add the WOPIOfficeExtensionSuppport and WOPIOfficeExtensionSuppportURL tag in the *eworkstyle.ini* file located inside the *OmniDocs11.0Web/Newgen/NGConfig/ngdbini/Custom/CABINET\_NAME* folder at the mapped location on the Worker node.

```
WOPIOfficeExtensionSuppport=doc,docx,DOCX,DOC,xls,xlsx,XLSX,XLS,ppt,pptx,PPTX,
PPT,wopitest,WOPITEST,wopitestx,WOPITESTX
WOPIOfficeExtensionSuppportURL=https://wopi.newgendocker.com
```

## 3.5.12 OmniScanWeb changes

The changes in OmniScanWeb are as follows:

1. Update the Azure Redis cache's configuration endpoint and password in *redisson.yaml* file against the *singleServerConfig* or *clusterServersConfig*. If redis cache is SSL enabled then use rediss://<endpoint url>:port and if SSL is not enabled then use redis://<endpoint url>:port. This file *redisson.yaml* is located inside the OmniscanWeb6.0 folder kept inside the Azure FileShare.

```
singleServerConfig:
 idleConnectionTimeout: 10000
 connectTimeout: 10000
 timeout: 3000
 retryAttempts: 3
 retryInterval: 1500
 password: "A+laSixSunDiversionTraDiumIIISINZ#2XENDEB4M="
  subscriptionsPerConnection: 5
 clientName: null
 subscriptionConnectionMinimumIdleSize: 1
 subscriptionConnectionPoolSize: 50
 connectionMinimumIdleSize: 24
 connectionPoolSize: 64
 database: 0
 dnsMonitoringInterval: 5000
threads: 16
nettyThreads: 32
codec: !<org.redisson.codec.MarshallingCodec> {}
transportMode: "NIO"
#Reference: https://github.com/redisson/redisson/wiki/2.-Configuration#26-single-instance-mode
#CLUSTER ---
#CLUSTER clusterServersConfig:
#CLUSTER idleConnectionTimeout: 10000
#CLUSTER connectTimeout: 10000
#CLUSTER timeout: 3000
#CLUSTER retryAttempts: 3
#CLUSTER retryInterval: 1500
#CLUSTER failedSlaveReconnectionInterval: 3000
#CLUSTER failedSlaveCheckInterval: 60000
#CLUSTER password: null
#CLUSTER subscriptionsPerConnection: 5
#CLUSTER clientName: null
#CLUSTER loadBalancer: !<org.redisson.connection.balancer.RoundRobinLoadBalancer> {}
#CIUSTED subscriptionConnectionMinimumIdleSize: 1
```

Figure 3.45

## 3.5.13 RMS SharePoint Adapter changes

### Prerequisite:

The cabinet must be created and associated with the running containers. To create a cabinet, refer to <u>Creating cabinet and data source</u> section.

The changes in SharePoint Adapter are as follows:

 Update the cabinet name in filename RMS-SPServer-CABINETNAME-1.properties. Located inside SharePointAdapter/properties folder kept inside the Azure Fileshare. For example: RMS-SPServer-ecmsuite-1.properties [ecmsuite is the cabinet name].

- 2. Change the required changes in RMS-SPServer-CABINETNAME-1.properties file.
  - Following is the sample of the Properties file:

AutoArchiveActive=Y
OnlineSharePointSite=Y
RMSCabinetName =spcab2
RMSServerAddress=omnidocs.newgendocker.com
RMSServerPort=443
RMSServerProtocols=https
RMSUserName=supervisor2
RMSPassword=:X-D;U:T-C;P-C;p5-C;b:d:u:SJDE
sharePointUserDomain=vwm55.onmicrosoft.com
<pre>sharePointHostIPAddress=vwm55.onmicrosoft.com</pre>
shraePointPort=443
sharePointProtocols=https
<pre>sharePointSiteAbsoluteURL=</pre>
sharePointUser=spadmin@vwm55.onmicrosoft.com
<pre>sharePointSequence=:F:0s-C;6-C;G-C;a:8:y-D;W:Z-C;4P-C;a-C;k:0</pre>
sharePointSite=newSite
SharePointReconciliationReports=Y
SharePointReportsLibrary=/sites/newSite/SharePointRMSReport/
MaxFailerCount=3

### Description of the Properties keys:

Кеуѕ	Description
AutoArchiveActive	Y signifies this properties file is working.
	N signifies this properties file is not working.
OnlineSharePointSite	Y signifies that online method is working
	N signifies that offline method is working
RMSCabinetName	RMS cabinet name
RMSServerAddress	RMS web container host URL
RMSServerPort	RMS web container port that is, 443 = if SSL enabled or 80 = if SSL Disabled
RMSServerProtocols	RMS server protocols that is, https = if SSL enabled or http = if SSL Disabled
RMSUserName	RMS supervisor's group user name
RMSPassword	RMS supervisor's group user encrypt password from alarm mailer
sharePointUserDomain	SharePoint domain name
sharePointHostIPAddress	SharePoint site server address
shraePointPort	SharePoint site server port
sharePointProtocols	SharePoint site server protocols
sharePointSiteAbsoluteURL	SharePoint site absolute URL
sharePointUser	SharePoint admin user name
sharePointSequence	SharePoint encrypt password from alarm mailer
sharePointSite	SharePoint site name
SharePointReconciliationReports	Y or N
SharePointReportsLibrary	SharePoint Reconciliation Reports absolute path

Кеуѕ	Description
MaxFailerCount	Maximum failure count

For Example,



Figure 3.46

3. Update site name, tenantID, ClientID and clientSecret in file SharePointConfig.ini located inside the OmniDocs11.0Web\Newgen\NGConfig\AddInsConfig folder kept inside the Azure Fileshare. For Example,



#### NOTE:

The TenantID, ClientID and clientSecret must be in encrypted format.

# **3.6 Deployment of containers**

Perform the below steps to deploy the containers:

Deploy the containers on Azure Kubernetes Service from your local machine by executing the below command or you can deploy them using Azure DevOps Release Pipeline. However, it recommends deploying the containers using Azure DevOps for better traceability.
 kubectl apply -f <YAML\_File>
 For example,
 kubectl apply -f OmniDocs11.0Web.yml

#### NOTE:

- To execute the above command, kubectl must be configured on your local server. Refer to the <u>Configuration</u> <u>of Azure Kubernetes cluster</u> section to run kubectl from your local machine.
- To deploy the containers using Azure DevOps Release Pipeline, Azure DevOps must be configured. Refer to the <u>Configuration of Azure DevOps Release Pipeline</u> section.
- In Azure DevOps Pipeline, a separate Release pipeline is created for each Docker image like OmniDocs11.0Web, OmniDocs11.0WebService, OmniDocs11.0EJB, OmniDocs11.0Services, EasySearch11.0, TEM11.0, and OmniScanWeb6.0.
   For Example

aws Services 🔻		Q Search for servic	es, features, marketplace products, and do	cs [Alt+S]	[2] 🐥 omnidocs @ ngdev ▼ Mumbai ▼	Support <b>N</b>
Developer Tools X CodePipeline	Develo	per Tools > CodePipe	eline > Pipelines			
Source • CodeCommit	Pip	elines Info	C Q Notify	y ▼ View history Release change	Delete pipeline Create pipeline	L.
Artifacts • CodeArtifact	Q				< 1 > @	r.
<ul> <li>Build • CodeBuild</li> </ul>		Name	Most recent execution	Latest source revisions	Last executed	
<ul> <li>Deploy • CodeDeploy</li> </ul>		OmniDocs101Se rvices-DevStage	⊘ Succeeded	Source – 7fb6f314: ok AWS-ECR-Registry – sha256:1:	9 days ago	
Pipeline • CodePipeline     Getting started		TEM101- DevStage	Succeeded	Source – 7fb6f314: ok AWS-ECR-Registry – sha256:d:	9 days ago	
Pipelines		OmniDocs101EJ B-DevStage	Succeeded	Source – 7fb6f314: ok AWS-ECR-Registry – sha256:5:	9 days ago	
Settings		OmniDocs101W eb-DevStage	Succeeded	AWS-ECR-Registry – sha256:9: Source – 7fb6f314: ok	9 days ago	
Q Go to resource		OmniScanWeb5 0-DevStage	⊘ Succeeded	AWS-ECR-Registry – sha256:8: Source – 7fb6f314: ok	10 days ago	
E Feedback		EasySearch101- DevStage	⊘ Succeeded	AWS-ECR-Registry – sha256:b: Source – 7fb6f314: ok	9 days ago	
		OmniDocs101W eb-ProdStage	⊘ Succeeded	AWS-ECR-Registry – sha256:d: Source – 7fb6f314: ok	14 days ago	
		OmniDocs101W eb-UATStage	⊘ Succeeded	Source - 7fb6f314: ok	9 days ago	

Figure 3.48

• Trigger the Release Pipeline to deploy the required Docker containers.

• Once the deployment is done, deployed containers can be visible from the Kubernetes Dashboard. Refer to the <u>Configuration of Azure Kubernetes cluster</u> to configure the Kubernetes Dashboard.

🛞 kubernetes		Q Se	arch							+	٠	θ
≡ Workloads > Pods												
Cluster Cluster Roles	Pods										Ŧ	•
Namespaces	Name 🕇		Namespace	Labels	Node	Status	Restarts	CPU Usage (cores)	Memory Usage (bytes)	Age		
Nodes Persistent Volumes	easysearch	n101-5d9f8d6458-ns8j9	default	app: easysearch101 pod-template-hash: 5d9f8d6458	ip-10-0-2-168.ap- south- 1.compute.interna	Running	0	-		13.days		:
Storage Classes	ibps5siejb-	551559496-f5rt9	default	app: ibps5siejb pod-template-hash: 55f559496	ip-10-0-2-168.ap- south- 1.compute.interna	Running	0			a.month		:
Namespace default	ibps5siweb	o-698f8dfc96-bcw2d	default	app: ibps5siweb pod-template-hash: 698f8dfc96	ip-10-0-1-186.ap- south- 1.compute.interna	Running	0	-	-	.7.days		:
Overview Workloads	Jibps5siweb	o-698f8dfc96-sltvm	default	app: ibps5siweb pod-template-hash: 698f8dfc96	ip-10-0-2-168.ap- south- 1.compute.interna	Running	0		-	a.month		:
Cron Jobs Daemon Sets	odeserver	r-8d547b845-75ck5	default	app: nodeserver pod-template-hash: 8d547b845	ip-10-0-2-168.ap- south- 1.compute.interna	Running	0			2.days		:
Deployments Jobs	od101ejb-5	58658d484d-nt8fk	default	app: od101ejb pod-template-hash: 58658d484d	ip-10-0-1-186.ap- south- 1.compute.interna	Running	0	-		a.montb		:
Pods Replica Sets	od101servi	ices-648f6bbff6-lgdm7	default	app: od101services pod-template-hash: 648f6bbff6	ip-10-0-2-168.ap- south- 1.compute.interna	Running	0			38.seconds		:
Replication Controllers Stateful Sets	od101web	-65786d4dcc-5fgpn	default	app: od101web pod-template-hash: 65786d4dcc	ip-10-0-1-186.ap- south- 1.compute.interna	Running	0		-	23.days		:
Discovery and Load Balancing	omsejb-55	9555dd8c-nkc9j	default	app: omsejb pod-template-hash: 559555dd8c	ip-10-0-1-186.ap- south- 1.compute interna	Running	0	-	-	19.days		:



- Update the container's replica set from **1** (default value) to any other number in YAML files, then that number of containers is listed in Kubernetes Dashboard.
- In any case to restart the container then there are two options either redeploy the container from Azure DevOps Release Pipeline which launches the new container by following up the rolling update feature of Kubernetes or execute the restart command from Kubernetes' pod's shell.
- The restart command is different for each container. For example,

Container Name	Restart Command		
OmniDocs11.0Web,	restartjws.sh		
OmniDocs11.0WebService			
OmniDocs11.0EJB	restartjboss.sh		
OmniDocs11.0Services	restartalarm.sh, restartauthmgr.sh,		
OffiniDocs11.0Services	restartscheduler.sh, restartthumbnail.sh, restartwrapper.sh		
EasySearch11.0	restarteasysearch.sh		
TEM11.0	restarttem.sh		
OmniScanWeb6.0	restartjws.sh		
RMSSharePointAdapter	restartssharepointadapter.sh		

 Once the EasySearch11 container is deployed, execute the below command in Kubernetes pod's shell for the 1<sup>st</sup> time to configure the Apache Manifold jobs. After that in subsequent deployments, this execution is not required. runESConfigurator.sh

# 3.7 Creating cabinet and data source

### Prerequisites:

- OmniDocs and RMS Web, OmniDocs and RMS EJB, and OmniDocsServices are already deployed.
- ALB Ingress Controller is already configured and deployed using the *AppGateway*-*IngressController.yml* file.
- Azure BLOB Storage is already created to store the PN files. PN files are encrypted files that contain all the added, uploaded, and scanned documents by Newgen products.

Once the above prerequisites are fulfilled, refer the below sections to create the Cabinet and Data Source.

- Getting started with OSA
- <u>Register JTS Server</u>
- <u>Connecting OSA to the JTS Server</u>
- Creating a Cabinet
- <u>Associating the Cabinet</u>
- Creating a Data Source
- <u>Registration of the Cabinet in OmniDocs</u>
- <u>Registration of the Cabinet in RMS</u>
- <u>Creating Site and Volume</u>

## 3.7.1 Getting started with OSA

Perform the below steps to start the OSA:

- Since the container is a CLI-based deployment you can't launch any GUI-based application inside the container. But you must use the OSA to create a cabinet that is a GUI-based application. In such a case, deploy OSA to some GUI-based machine either on a local server or on an EC2 instance. Also, add an inbound rule in the Kubernetes worker node's security group to allow OSA to communicate with the OmniDocs11.0 Services container deployed on that worker node.
- 2. Once OSA is deployed on a machine, navigate to the OSA folder on that machine and double click on RunAdmin.bat (For Windows) or RunAdmin.sh (For Linux) to start OSA.
- 3. When the application is launched. The Login dialog appears.

<u>U</u> ser		System	-
<u>P</u> assword			
	ок	Cancel	

Figure 3.50

- 4. Select the user as **System** and specify the password as **system**.
- 5. Click **OK** to log in. After the successful login, the OSA screen appears displaying the list of registered services.

munn Halm	Administration					
erver <u>H</u> elp	Services					
Servers		-				
	Select Service	<all></all>	-			
		Server		Location		
		Stop	Register	Unregister	Connect	Discon
	Start					
	Start	5002	Register	2,11-3-51-1	2-10-11	Discon

Figure 3.51

## 3.7.2 Registering JTS server

Perform the below steps to register the JTS Server:

1. To register the JTS server, click **Register** button. The **Register New Server** dialog appears.

Enter the details	5		
<u>Server</u> Type	JTS		-
IP Address			
Admin Port		a facet data	
	ок	Cancel	



- 2. Select the JTS and specify the public IP address of the Kubernetes Worker node on which the OmniDocs11.0Services (Wrapper, AlarmMailer, THN, and so on) container is deployed. For example, suppose there are two worker nodes in the Kubernetes cluster and after deploying the OmniDocs11.0Services container, it gets deployed to the 1<sup>st</sup> worker node then specify the IP address of the 1<sup>st</sup> worker node. But in a case, 2 replicas are deployed on the OmniDocs11.0Services container, one on each worker node, in that case, specify the IP address of any worker node.
- 3. Specify the Admin port of Wrapper service running inside the OmniDocs11.0Services container. Since Wrapper is running inside the container with Admin port 9996 but that Admin port cannot be accessed directly. Kubernetes generates a random port (aka NodePort) for each port running inside the container that is exposed outside the container for public use. To get this NodePort either from Kubernetes Dashboard or by executing the below command from your local machine:

```
kubectl get svc <OmniDocs11.0Services container name>
For example,
```

C:\WINDOWS\system	n32\cmd.exe			_		×
C:\Users\vivek NAME od101services	_kumar>kubed TYPE NodePort	ctl get svc od10 CLUSTER-IP 172.20.43.136	1services EXTERNAL-IP <none></none>	PORT(S) 3333:30846/TCP_9996:31370/TCP_1999:31477/TCP	AGE 3h49n	m
C:\Users\vivek	_kumar>_					

Figure 3.53

Here, **Wrapper Admin port 9990** is exposed outside the container and Kubernetes has generated a random port **31370** as a NodePort. This NodePort keeps changing whenever you redeploy the container.

Register New S	erver		×
Enter the details	5		
Server Type	JTS		-
IP Address	35.154.27.	245	
Admin Port	31370		
	ОК	Cancel	

Figure 3.54

4. Click **OK** to register the JTS Server.

# **3.7.3** Connecting OSA to the JTS Server

Perform the below steps to connect the OSA to the JTS Server:

1. Once the JTS Server is registered, it is displayed in the list in a disconnected state.

- 🖳 Servers	Services			
_	Select Servic	e <all></all>	•	
		Server	Location	S
	JTS		35.154.27.245 : 31370	Disconnected
	Start	Stop	<u>R</u> egister <u>U</u> nregister	<u>Connect</u> <u>Disconnect</u>
	L			

Figure 3.55

- 2. Select the registered JTS Server and click **Connect**. Once JTS is connected, the **Manage** button gets enabled.
- 3. Click **Manage** button, after clicking on the Manage button, an entry of the connected JTS server along with its IP Address is displayed on the upper-left panel in the repository view.
- 4. Select the JTS from the repository view. The list of already created and associated cabinets, appears.

OmniDocs Service Adminis	tration			- 0	×
♀         ▲         Servers           ♀         ▲         JTS (35.154.27.245 : :           ↓         ▲         Locks           ↓         ↓         ↓           ↓         ↓         ↓           ↓         ↓         ↓	Encoding	s 35.154.27.245 I UTF-U V ion V Xml V Error Socke	SocketTimeo	Log Count 10	Adn <u>B</u> at
	Cabinet Transaction Pool CabinetName ecmsuitesql ecmsuite17july	MinDBConnections 10 10	MaxDBConnections 25 10	CabinetType Both Document Database and Ima Both Document Database and Ima	
	Cabinet Operations				
period and a second sec	Associate Dissociate	Compile SP Property	Test Delete Unlock	Enable <u>T</u> race Upgrad	eLicense
Status Cabinet List fetched successfully					Ready

Figure 3.56

## 3.7.4 Creating a cabinet

Perform the below steps to create a cabinet:

### For MSSQL:

1. Click **Create**. The Create Cabinet dialog appears.

Create Cabinet (35.154.27.2	45 : 31370)	X
Cabinet Type		
O Document datab	ase 🔾 Image Server database 🖲 Both	
Database Type		
MSSQL / Amazon	RDS <u>O</u> racle OPostgres OAzure	
MSSQL Information		
Device Size (N	1B) 5 Log Size (MB) 5	
Cabinet information		
C <u>a</u> binet Name		
Server Name		
<u>U</u> ser name		
Password		
Database <u>P</u> ath	.mdf	
CD Key		
Security Level	Object Level	•
Password Algorithm	PC1	•
	Enable ETS	
Status		
อเลเมร		
	OK Cancel	

Figure 3.57

- 2. Select the cabinet type that needs to be created from the Cabinet Type area. The Cabinet can be a **Document database**, an **Image server database**, or both.
- 3. Select the database option from the Database Type section.
- 4. Specify the initial database size in the **Device Size** textbox and specify the initial log size in the **Log Size** textbox. Else, continue with the default values.

- 5. Specify the following cabinet information:
  - Specify the cabinet name in the **Cabinet Name** textbox.
  - Specify the server name (name of the machine where the MS SQL server is running) in the **Server I.P.** textbox.
  - Specify the username in the **User name** textbox.
  - Specify the password in the **Password** textbox.
  - Specify the CD key in the **CD Key** textbox.
  - Select the **Enable FTS** checkbox.

#### NOTE:

In the case of MSSQL if the Database port is not equal to 1433 (Default port) update the database port in the *DatabaseDriver.xml* file located inside the OmniDocs11.0Ejb/ngdbini folder kept inside the Azure FileShare before creating the cabinet.

Create Cabinet (35.154.27.2	-5.51576/
Cabinet Type	
O Document datab	ase 🔘 Image Server database 💿 Both
Database Type	
MSSQL / Amazon	RDS Oracle O Postgres O Azure
MSSQL Information	
Device Size (N	1B) 5 Log Size (MB) 5
Cabinet information	
Cabinet Name	ecmsuite
Server Name	10.0.1.43
<u>U</u> ser name	applogin
Password	•••••
Database <u>P</u> ath	ecmsuite.mdf
CD Key	36QI0YDOyA0iokFMtD~q8old6izYz0v6ek1M
Security Level	Object Level 💌
Password Algorithm	PC1 💌
	Enable FTS
Status	
	OK Cancel

6. Click **OK** to create the cabinet. The Cabinet created successfully dialog appears.

## 3.7.5 Associating a cabinet

Perform the below steps to associate the cabinet:

### For MSSQL:

- 1. Click **Stop** to enable the Associate button.
- 2. Click Associate. The Associate a Cabinet dialog appears with the following tabs:
  - i. Database tab: Select the database type.
  - ii. **Cabinet properties tab:** Specify the cabinet details that you have specified during cabinet creation.

	Cabinet pro	operties	Connection		
			d the server name when a server name		
C <u>a</u> binet Na	ame	ecms	uite		
Map this o	cabinet to				
Doc <u>u</u> n	nent databas	e	🖌 Image Server d	atabase	
<u>S</u> erver Na	me	10.0.1	.43		
<u>S</u> erver Na Us <u>e</u> r name		10.0.1 applo	2017. Maria		
	•		gin		

Figure 3.59

iii. **Connection tab:** Specify the **maximum** and the **minimum** number of connections that the JTS should maintain with the database, specify the **query time** out for the selected cabinet in the Query timeout text box and specify the **refresh interval** time for connection.

ociate a C	abinet (35.154.27.245	0.51570)		
Database	Cabinet properties	Connection		
	e number of database inet. Also specify the o		in be made available t id for this cabinet.	
Ma <u>x</u> imu	m connection	25		
Minimu	m connection	10		
Query ti	meout	0	second(s)	
Refresh	Interval	60	Minutes	
< <back< td=""><td>Next&gt;&gt;</td><td>10</td><td>Done Can</td><td></td></back<>	Next>>	10	Done Can	

Figure 3.60

3. Click **Done** to associate the selected cabinet. Once the cabinet is associated successfully, it appears with the list.

@ OmniDocs Service Administ	tration			- 0	) ×
Server JTS Help					
♀         ▲         Servers           ♀         ▲         JTS (35.154.27.245 : 3           ↓         ▲         ↓           ↓         ↓         ↓           ↓	- Server Information IP Addre Encodir	ss 35.154.27.245 Ig UIT-8 🔻		erverPort 3333	Adı <u>B</u> a
	Log	tion 🖌 Xml 🖌 Error 🗌 Sock	et Error Log Size (MB) 10	Log Count 10	
		Start	Stop Disconnect	Ēdiţ <u>C</u> reate	
	Cabinet Transaction Pool CabinetName	MinDBConnections	MaxDBConnections	CabinetType	
	ecmsuitesql	10	25	Both Document Database and Ima	. mssql
	ecmsuite17july	10	10	Both Document Database and Ima	. mssql
	ecmsuite	10	25	Both Document Database and Ima	. mssql
	Cabinet Operations				
	Associate Dissociate	Compile SP Property	Test Delete Unloa	k Enable <u>T</u> race Upgrad	de <u>L</u> icense
	1				)
- Status Associate Cabinet successful					Ready

Figure 3.61

## 3.7.6 Creating a data source

Perform the below steps to create the data source:

## For MSSQL:

- Open the<Host-Path URL of OmniDocs+RMS EJB container> like http://ecmsuiteconsole.newgendocker.com.in as defined in the AppGateway-IngressController.yml file. It automatically redirects to the JBoss EAP 7.4 Admin console.
- 2. Enter the newgen as username and password system123# respectively to login to the Admin console. After a successful login, the Red Hat JBoss Enterprise Application Platform screen appears.

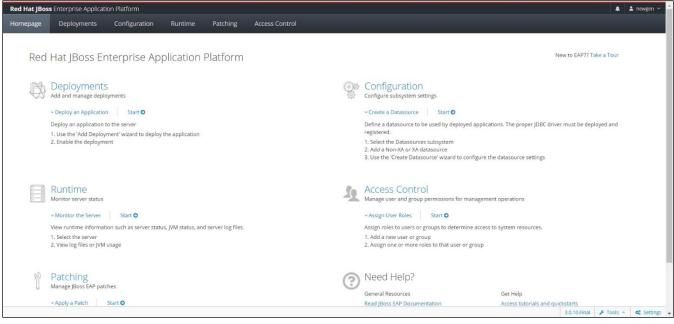


Figure 3.62

- 3. Go to the **Subsystems** in the Configuration tab.
- 4. Go to the Datasources & Drivers. Then, click Datasources.

Homepage Deployments	Configuration Runtime Pat	ching Access Control	
Configuration	Subsystem (29)	Datasources & Drivers	Datasource @- 2 Datasources
Subsystems 2 > Interfaces > Socket Bindings > Paths System Properties .	Fiter by: name or subtitle         Batch         pileret         Core Management         Datasources & Drivers         Objective         Objective         Objective         Objective         Objective         Batch         Discovery         EE         BB         IO         Infinispan         JCA         JMX	Datasources 4	Filter by: name, xtt/diubbled       Add Datasource       Image: Add XA Datasource         Add XA Datasource       Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image: Add XA Datasource         Image: Add XA Datasource       Image: Add XA Datasource       Image

Figure 3.63

- 5. Click Plus + icon and select Add Datasource. The Add Datasource dialog appears.
- 6. For MSSQL Database Server, select **Microsoft SQLServer** and click **Next**.

Add Datasource					×
Choose Template	Attributes	JDBC Driver	Connection	Test Connection	Review
Choose one of the prede	fined templates to quic	kly add a datasource or cho	oose "Custom" to specify	your own settings.	
O Custom					
○ H2					
O PostgreSQL					
MySQL					
Oracle					
Microsoft SQLServer					
O IBM DB2					
Sybase					

Figure 3.64

- 7. Provide a DataSource Name and JNDI Name.
  - Name: Enter the OmniDocs cabinet name that is cabinet name.
  - JNDI Name: java:/same as OmniDocs cabinet name
- 8. Click Next.
- 9. Select JDBC Driver Name.
- 10. For MSSQL, select sqljdbc42.jar.
- 11. Clear Drive Module Name and Driver Class Name textboxes.
- 12. Click Next.

Add Datasource				×
Choose Template Attribu	utes JDBC Driver	Connection	Test Connection	Review
Help Driver Name *	sqljdbc42.jar			*
Driver Module Name				
Driver Class Name	Required fields are marked with *			

Figure 3.65

- 13. Provide the following Connection Setting details and click Next:
  - Connection URL:

jdbc:sqlserver://MSSQL\_Server\_IP:MSSQL\_Server\_Port;databaseName=CABINET\_NAME

- UserName: Enter the SQL Server User Name
- Password: Enter the SQL Server Password
- Security Domain: Keep this blank.

Add Datasource					>
Choose Template Attrii	2)	JDBC Driver	Connection	Test Connection	Review
Help					
Connection URL	jdbc:sqlse	rver://10.0.1.43:1522;dat	abaseName=ecmsuite		
User Name	applogin				Ð
Password	••••••				۲
Security Domain					۲
				Cancel	< Back Next >

Figure 3.66

14. Click **Next** on the **Test Connection** page.

				×
Attributes	JDBC Driver	Connection	Test Connection	Review
		rd:		
nd change settings, this e datasource has been o	will <b>modify</b> the newly creat created.	ed datasource. Please no		name and JNDI
e without testing the co	nnection, the datasource w	vill be created after finish	ing the wizard.	
	Test Con	nection		
	2 st the connection of you the connection changes Connection for the first d change settings, this is e datasource has been of wizard, the datasource	at the connection of your datasource. the connection changes the semantics of this wiza <b>Connection</b> for the <b>first time</b> , the datasource is a d change settings, this will <b>modify</b> the newly creat e datasource has been created. wizard, the datasource will be <b>removed</b> again. This without testing the connection, the datasource wi	2       3       3         st the connection of your datasource.       the connection changes the semantics of this wizard:         Connection for the first time, the datasource is created in advance.       of change settings, this will modify the newly created datasource. Please not e datasource has been created.         .wizard, the datasource will be removed again. This might require a reload	3     3     3     3     3     3     3     3     3     3

Figure 3.67

- 15. Click **Finish.** After the creation of the datasource, a success message appears.
- 16. Click View Datasource to view the created datasource. The created datasource appears in the list of Datasource.

- 17. Click **View** against the datasource. A screen appears with the attributes of the datasource appears.
- 18. Click Edit link.

Red Hat	<b>JBoss</b> Enterprise Ap	plication Platfo	rm					ී Reload Required 🦨	newgen 🗸
«Back /	Configuration $\Rightarrow$ S	Subsystems /	Subsystem =	Datasourc Drivers 🗸	Datasources & Drivers	Datasources	/ Datasource ⇒ ecmsuite ∨		<b>#</b> C
ecms	uite (enabled)								
	ta-source configuration	1							
Attributes	Connection P	ool Security	Credential	Reference Validation	Timeouts Statements /	Tracking			
🖌 Edit 🛛 🖸	Reset 🕐 Help								
		Datas	ource Class	com.microsoft.sqlserver.jd	bc.SQLServerDataSource				
		1	Driver Class						
		C	river Name	sqljdbc42.jar					
			JNDI Name	java:/ecmsuite					
		Statis	tics Enabled	false					

Figure 3.68

19. Clear the **Datasource Class** textbox and click **Save**.

Red Hat	t JBoss Enterprise	Application Platfo	orm				🔊 Reload Required 🔍	💄 newgen 🗸
« Back	Configuration =	Subsystems /	Subsystem =	» Datasourc Drivers 🗸 /	/ Datasources & Drivers ⇒ Datasources			<b>#</b> C
A JDBC da	SUITE (enabled) ata-source configurat	on						
Attribute:	s Connection	Pool Securit	y Credentia	l Reference Validation	Timeouts Statements / Tracking			
		Data	source Class					
			Driver Class					
		D	river Name *	sqljdbc42.jar				
		1	JNDI Name •	java:/ecmsuite				
		Statis	stics Enabled	% OFF				
				Required fields are marked	d with *			
							Cancel	Save

Figure 3.69

- 20. After that restart the OmniDocs+RMS EJB container.
- 21. Once the OmniDocs+RMS EJB container is restarted, open the JBossEAP Admin console once again.
- 22. Go to the **Subsystems** in the Configuration tab.
- 23. Go to the **Datasources & Drivers**. Then, click Datasources.
- 24. Select the created data source and click **Test connection** from the dropdown list. On the successful data connection, a success message appears.

Red Hat JBoss Enterprise Applica	ation Platform			ා Reload Required 🙎 🛓 newgen
Homepage Deployments	Configuration Runtime Pat	thing Access Control		
Configuration	Subsystem (29)	Datasources & Drivers	Datasource 🕑 🗸 🗸	ecmsuite
Subsystems	> Fiter by: name or subtitle	Datasources 🙆 >	Filter by: name, xa,/disabled, deployment	Datasource
Interfaces	Batch JBeret	JDBC Drivers >		O The datasource ecmsuite is enabled. Disable
Socket Bindings	Core Management			
Socket bindings	Datasources & Drivers (3) >		⊘ ecmsul <sup>®</sup> Test Connection (5)	Main Attributes
Paths	, i i i i i i i i i i i i i i i i i i i		Remove	JNDI Name: java:/ecmsuite
System Properties	Deployment Scanners		ecmsuitesqi	Driver Name: sqljdbc42.jar
	Discovery			Connection URL: jdbc:sqlserver://10.0.1.43:1522;databaseName=ecm
	EE			Enabled: true
	EJB			Statistics Enabled: false
	IO			
	Infinispan >			
	JCA			
	JMX			



Red Hat JBoss Enterprise Application	on Platform			🦧 🛓 newgen 🛩
Homepage Deployments	Configuration Runtime Patc	hing Access Control		
Configuration	Subsystem (29)	Datasources & Drivers	Datasource ©~ C	ecms Successfully tested connection for datasource ecmsuite. ×
Subsystems >	Fiter by: name or subtitle	Datasources >	Filter by: name, xa,/disabled, deployment	Datasource
Interfaces >	Batch JBeret	DBC Drivers >	⊘ ExampleDS	The datasource ecmsuite is enabled. Disable
Socket Bindings >	Core Management		⊘ ecmsuite View ✓	
	Datasources & Drivers >>		⊘ ecmsuite17july	Main Attributes
Paths	Deployment Scanners		⊘ ecmsuitesql	JNDI Name: javat/ecmsuite
System Properties				Driver Name: sqljdbc42.jar
	Discovery			Connection URL: jdbc:sqlserver://10.0.1.43:1522;databaseName=ecm
	EE			Enabled: true
	EJB			Statistics Enabled: faise
	10			
	Infinispan >			
	JCA			
	јМХ			
				3.0.10.Final 🎤 Tools 🔨 😋 Setting



25. Add the below connection pool setting and idle-connection-timeout setting inside the created DataSource in *standalone.xml* file located inside the **OmniDocs11.0Ejb** or **configuration** folder kept inside the Azure FileShare.

```
<pool>
        <min-pool-size>100</min-pool-size>
        <initial-pool-size>100</initial-pool-size>
        <max-pool-size>600</max-pool-size>
```

### For example,



Figure 3.72

26. Restart the **OmniDocs+RMS EJB** container once again.

## **3.7.7** Registering cabinet in OmniDocs

Perform the below steps to register a cabinet:

 Register the cabinet for OmniDocs Admin using the following URL: http://<Host-Path URL of OmniDocsWeb container>/omnidocs/admin/main/registration/registration.jsp For example, http://ecmsuite.newgendocker.com /omnidocs/admin/main/registration/registration.jsp

Cabinet List			
Select Cabinet			~
Site List			
Select Site			~
Username			
supervisor2			
Password			
Register as O Admin O W	eb 💿 B	oth	
		Cancel	Register

Figure 3.73

All the created cabinets get auto populated in the Cabinet List dropdown list.

- 2. Select the required cabinet, select the associated site, and specify the Username and Password.
- 3. Select the Register as **Both** and click **Register.** After successful registration, a confirmation message appears.

## 3.7.8 Registering cabinet in RMS

Perform the below steps to register a cabinet for RMS:

 Configure the cabinet for RMS using the following URL: http://<Host-Path URL of OmniDocsWeb container>/rms/config For example, http://ecmsuite.newgendocker.com/rms/config

<b>Prewgen</b> OmniDocs RMS
Select Cabinet
∧ Username
A Password
Configure

Figure 3.74

All the created cabinets get auto populated in the **Cabinet List** dropdown list.

2. Select the required cabinet, specify the **Username** and **Password** and click Configure.

?	<b>newgen</b> OmniDocs RMS
Cor	figuration
	rmsazure04jan 💌
ĉ	supervisor
⋳	••••••
	Configure

Figure 3.75

After successful configuration, a confirmation message appears.

## 3.7.9 Creating site and volume

Perform the below steps to create site and volume:

 Login to the OmniDocs Admin using the following URL: http://<Host-Path URL of OmniDocsWeb container>/omnidocs/admin For example,

http://ecmsuite.newgendocker.com/omnidocs/admin

Highly Scalable Architecture	OmniDocs Enterprise Content Management management of large volume of documents an disposition. It samelasis integrates with oth unstructured content and enables digital transf	(ECM) platform enables end-to-end ad digital content, right from capture to er enterprise applications to manage
	Login UserName Password emsuite Bernember Me	v
For best view, use "16 11, Marila Firefux 61 to 66, Owners 71 to 76 or Safari 13.27.	Login	Forgot Password?

Figure 3.76

2. After a successful login, click **Sites** link under **Administration**.

Administration   Cabinet Details   • Applications   • Global Indexes   • Stres   • Stres   • Nanage Audit Logs	<b>NEWGEN</b> OmniDocs ADMIN DE	SKTOP		0 0
<ul> <li>Applications</li> <li>Global Indexes</li> <li>Folders</li> <li>Keywords</li> <li>Users</li> <li>Stass</li> <li>Yolumes</li> <li>Koles</li> <li>Manage Audit Logs</li> <li>Keport Management</li> <li>Service Management</li> </ul>	<b>Q</b> Administration	Configure	Personalize	
Report Management     Service Management	Applications     Global Indexes       Folders     Keywords       Users     Sites       Groups     Volumes		Repository View     Too	l Bar
	Report Management			

Figure 3.77

3. Click +Add. The Add Site dialog appears.

Add Site	×
SMS Site	Site*
Hadoop Site	
Amazon S3 Site	Site Address*
HCP Site	
MS Azure Site	Port No*

Figure 3.78

- 4. Click Amazon S3 Site.
- 5. Specify the user-defined site name, **Access Key**, and **Secret Key** that have rights to the S3 bucket.
- 6. Click Save.

Add Site	×
SMS Site	Site*
Hadoop Site	auroraod23oct1site
Amazon S3 Site	Role Based
HCP Site	Region*
MS Azure Site	
	Access Key*
	AKIAJENJGPC2TBE3W5EA
	Secret Key*
	•••••
	Cancel Save

Figure 3.79

The added Site appears under Sites in the left pane.

<b>N</b>	IEWGEN 0	mniDocs	ADMIN DESKTOP		0
Lo Administration	🛈 Home > Admin	istration- Sites	5		
OmniProcess	Sites	+ Add	auroraod23oct1site		
⊕ Search	auroraod23oct1site				
WebAPI				Site* auroraod23oct1site	
C Personalize				Role Based*	
Dashboard				Region*	
 Management				Access Key* AKIAJENJGPC2TBE3W5EA	
				Secret Key*	
					]

Figure 3.80

7. Go back to the **Home** page.

🔘 NEWGEN	OmniDocs ADMIN DE	ѕктор		0	
Administration		• Configure		Personalize	
<ul> <li>Cabinet Details</li> <li>Applications</li> <li>Folders</li> <li>Users</li> <li>Groups</li> <li>Roles</li> </ul>	DataClasses     Global Indexes     Keywords     Sites     Volumes     Manage Audit Logs	OmniProcess     Web API	Search     Dashboard	Color and Accessibility The     Landing Page Configuration     Repository View     Tool Bar     Custom Operations     Multilingual Definition	
Management     Report Management     License Management	nt <ul> <li>Service Management</li> <li>Trash Management</li> </ul>				

Figure 3.81

8. Select Volumes. The Volumes screen appears.

<b>()</b> N	IEWGEN	OmniDocs	ADMIN DESKTOP				0
Lo Administration	1 Home >	Administration- Volu	mes				
o	Volumes	+ Add	Name your new volume here*				
OmniProcess							
⊙ Search				Home Site	select a site	v	
ATI WebAPI				Default Path*	select a path	÷	
A Personalize				Volume Block Size (MB)	50	Ŷ	·
Dashboard				Encryption	No Encryption     O Default 256-bit	O Custom Encryption	
ू Management				Encryption Class Name			
				Replication Type	Immediate	v	·

Figure 3.82

- 9. Specify the following details:
  - Home Site: Select the newly created Site name.
  - Default Path: Select the S3 bucket in which you want to store PN files.
  - Volume Name: Specify the user-defined volume name.

10. Click **Add**.

<b>()</b>	NEWGEN	OmniDocs	ADMIN DESKTOP			0
<b>⊑o</b> Administration	🗊 Home >	Administration- Volu	umes			
ComniProcess	Volumes	+ Add	auroraod23oct1vol			Run Compaction Replicate
⊙ Search				Home Site	auroraod23oct1site ~	
WebAPI				Default Path*	SMS:od10devnew ~	]
O Personalize				Volume Block Size (MB)	50 ~	]
Dashboard				Encryption	No Encryption     O Default 256-bit     O Custom Encryption	
ৃ Management				Encryption Class Name		
				Replication Type	Immediate ~	]

Figure 3.83

The added volume appears under **Image Volumes** in the left panel.

<b>I</b>	<b>NEWGEN</b> OmniDocs <b>ADMIN DESKTOP</b>
_ <b>c</b> Administration	🔟 Home > Administration- Volumes
ø	Volumes + Add : auroraod23oct1vol
OmniProcess ÷ Search	auroraod23oct1vol
MebAPi	

Figure 3.84

11. Go back to the **Home** screen.

🔘 NEWGEN	OmniDocs ADMIN DE	ѕктор			0
Administrat	ion	Configure		Personalize	
Cabinet Details     Applications     Folders     Users     Groups     Roles	DataClasses     Global Indexes     Keywords     Sites     Volumes     Manage Audit Logs	OmniProcess     Web API	Search     Dashboard	Color and Accessibility The     Landing Page Configuration     Repository View     Tool Bar     Custom Operations     Multilingual Definition	n
Management     Report Management     License Management	• Service Management • Trash Management				

Figure 3.85

- 12. Click Cabinet Details.
- 13. Select the added volume from the Default Image Volume using the dropdown
- 14. Click **Save**. The Site and Volume are now created successfully.

🚫 N	IEWGEN OmniDocs ADMIN DESKTOP		0			
Lo Administration	Home > Administration- Cabinet Details					
¢	Cabinet Details			&	'ወ'	T
OmniProcess ① Search	Cabinet Name auroraod23oct1	Cabinet Type postgres	Created Date and Time 08/11/2020 04:46			
WebAPI O Personalize	Inherit Ownership	Remove the Rights of Supervisor (Rights once removed will not be restored again)	Separate User/ Group Privileges (Once enabled, can't be disabled)			
Dashboard Q Management	Cince enabled, can't be disabled)	Enable Data Security Functionality (Once enabled, can't be disabled)	Enable User Access Report			
	Key Management Service None	Default Imaging Volume auroraod23oct1vol	Auto Versioning			
	Enable Two Factor Authentication	Two Factor Authentication Class Name	Enable Multilingual			
				Cancel	Sa	ave

Figure 3.86

15. Log in to the OmniDocs Web using the below URL to start. http://<Host-Path URL of OmniDocsWeb container>/omnidocs/web For example: http://ecmsuite.newgendocker.com/omnidocs/web

# 3.8 EasySearch post-deployment changes

Perform the below steps to do EasySearch post-deployment changes:

 Login to the ApacheManifold Admin using the following URL: <Host-Path URL of ApacheManifold>/mcf-crawler-ui/login.jsp For example,

http://ecmsuiteapache.newgendocker.com/mcf-crawler-ui/login.jsp



Figure 3.87

- 2. Log in with the following credentials:
  - User ID: admin
  - Password: admin
- 3. After a successful login, click **Jobs** tree showing in the left panel.
- 4. Click Status and Job Management. The below job list appears:
  - <CABINET\_NAME>\_Document
  - <CABINET\_NAME>\_Folder
- 5. Start both the jobs.
- 6. Once both the jobs started, the Job's status appears as **Running.**

Apache ManifoldCF™	■ Document Ingestion							
	Status of Jobs							
⊡ Outputs <	1.0.1	Name						
Authorities <	Action		Status	Start Time	End Time	Documents	Active	Processed
🛓 Repositories 🛛 <		ecmsuite_Document	Running	7/29/20 5:07:54 PM		1	1	1
⊐ Jobs ~	▶ Restart 💉 Restart minimal 🔲 Pause 🔳 Abort	ecmsuite_Folder	Running	7/30/20 11:34:17 AM		1	1	1
List all Jobs	C Refresh							
Elstan Jobs Status and Job Managemen								
Status Reports <								
D History Reports <								
Miscellaneous <								
	Copyright© 2010-2018 The Apache® Software Foundation							Version 2

Figure 3.88

# 3.9 OmniScanWeb: registration of cabinet

Perform the below steps to register the cabinet in OmniScanWeb:

 Open the OmniScanWeb using the following URL: http://<Host-Path URL of OmniScanWeb container>/omniscanweb For example,

https://omniscan.newgendocker.com/omniscanweb

2. Click Register New Cabinet link on the OmniScan Web login screen.

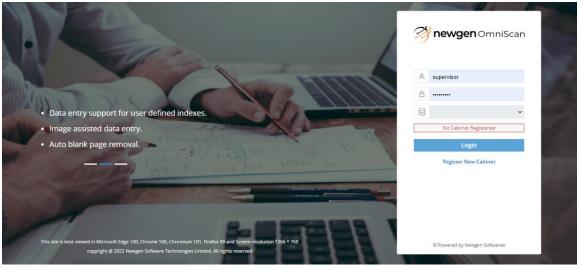


Figure 3.89

 Specify the Server URL as given below: http://<Host-Path URL of OmniDocsWeb container>/NGServlet/servlet/ExternalServlet For example,

https://omnidocs.newgendocker.com/NGServlet/servlet/ExternalServlet

4. Specify the **OmniDocs EJB** container name for AppServer IP or Server URL, 8080 for AppServer Port, and JBOSSEAP for AppServer Type.

← Login	Register Cabinet
1 Connect (	2) Register
Server URL	
https://omnidocs1	1alpine.newgendocker.com/NGServlet/servlet/ExternalS
AppServer IP	
od110ejb	
AppServer Port	
8080	
AppServer Type	
JBOSSEAP	~
	Connect
Ţ,	<b>newgen</b> OmniScan
	© Powered by Newgen Softwares

Figure 3.90

- 5. Click Connect.
- 6. Select the **Cabinet Name**, **Site ID**, and **Volume ID** from the list.

← Login Register Cabinet
Onnect 2 Register
Cabinet Name
odpostgres19nov 🗸
Site ID
odpostgres19novsite 🗸 🗸
Volume ID
odpostgres19novvol
Register
🎢 newgen OmniScan
© Powered by Newgen Softwares

Figure 3.91

7. Click Register.

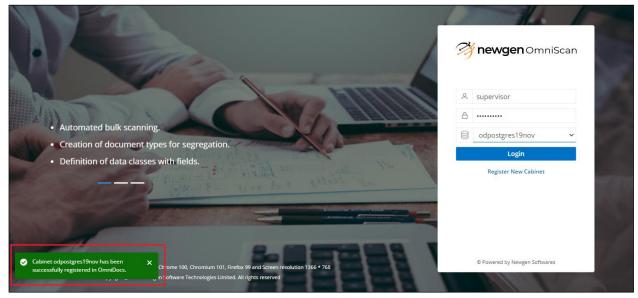


Figure 3.92

The registered cabinet appears in the **Cabinet Name** list on the login screen. Now you can log into OmniScan Web.

NOTE:

Ensure that the **OmniScan\_Template\_Repository** folder is already created in OmniDocs before logging into OmniScan Web.

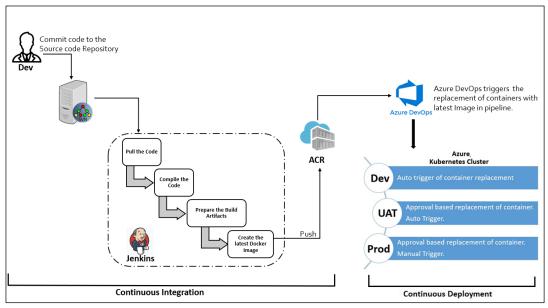
# **4 Configuring Azure DevOps release pipeline**

This chapter describes the configuration of Azure DevOps Release Pipeline. Refer the below sections for procedural details.

## 4.1 Overview

The Build Pipeline and Release Pipeline are separated into two parts. Build Pipeline is done through the Jenkins server which can be installed on an on-premises machine or a cloud machine. Using the Azure DevOps Release Pipeline cloud service, you can manage the Release pipeline. In this architecture, three stages are created that is, Dev, UAT, and Production and in each stage, deployment is quite different. You can have some more stages depending on the requirements. This guide describes the configuration of the Azure DevOps Release Pipeline for container deployment on Azure Kubernetes Service (AKS).

# 4.2 CICD pipeline architecture





- 1. The Newgen representative builds the product's base Docker images on the company's onpremises servers using Jenkins.
- 2. As soon as the Dev team commits the code to the source code repository, the Jenkins pipeline gets triggered. It pulls the code then compiles them and prepares the build artifacts as well as creates Docker images and pushes the newly created Docker images to the Azure Container Registry.
- 3. As soon as any Docker image is pushed to the Azure Container Registry, Azure DevOps Release Pipeline triggers the deployment to the Dev environment. Here, you can configure the performance testing as well as security testing of the application. In Addition, you can perform manual testing as required.
- 4. UAT and Production deployments are based on approval and are available on-demand. To deploy to the UAT environment, you need to trigger the UAT deployment. Upon deployment trigger, an approval mail is sent to the project manager or the concerned team. As soon as the project manager approves the go-ahead, UAT deployment gets started automatically.
- 5. Production deployment is also based on approval, but it is multi-level approval. To deploy a production environment, you require the approval of all stakeholders, and the production environment doesn't get triggered automatically on receiving all the approvals. A manual intervention mail is sent to the engineer who is supposed to deploy to production with a checklist. During deployment, all the checklist points get verified before performing the production deployment. In case any point of the checklist is not covered, then deployment to the production gets rejected.

# 4.3 Configuring Azure DevOps

Perform the below steps to configure Azure DevOps:

- 1. Sign in to the Azure DevOps portal at <a href="https://azure.microsoft.com/en-in/services/devops/">https://azure.microsoft.com/en-in/services/devops/</a>
- 2. After a successful sign in, click **New Project** to create a new project.

C Azure DevOps		Create new project	×
vivekkumar0906	vivekkumar0906		
New organization	Projects My work items My pull requests	Project name * BPMSuite_Containers	~
	vivek_kumar • • • •	Description Release Pipeline for <u>BPMSuite</u> Containers Visibility	•
		✓ Advanced	
Organization settings		Can	ncel Create

Figure 4.2

- 3. Specify the Project name, and Description.
- 4. Select the **Visibility** as **Private** and create the Azure DevOps Release Pipeline for different Docker Images.

### 4.3.1 Configuring release pipeline

This section explains how to create Release Pipeline.

#### NOTE:

Refer the following steps to configure the Release Pipeline for the Docker Images.

- OmniDocs11.0Web
- OmniDocs11.0Web\_Services
- OmniDocs11.0EJB
- OmniDocs11.0Services
- EasySearch11.0
- TEM11.0
- OmniScanWeb6.0
- RMS SharePoint Adapter

Perform the below steps to create Release Pipeline:

1. After project creation, the project summary screen appears. Hover over the **Repos** and select **Files**.

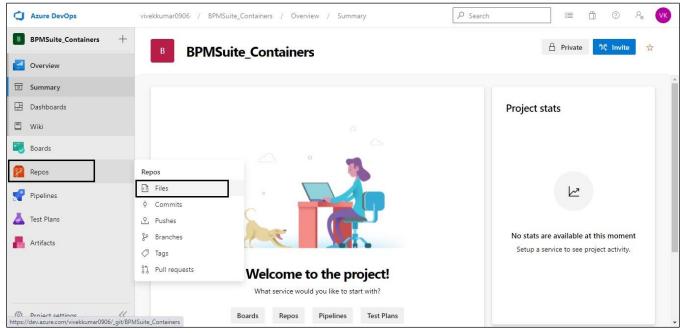


Figure 4.3

#### 2. Click Initialize.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Repos / Files / ♦BPMSuite_Containers ×		Ô (	9 %	VK
B BPMSuite_Containers +	BPMSuite_Containers is empty. Add some code!				
Overview	Clone to your computer				
関 Boards					
😰 Repos	HTTPS SSH https:///wekkumar0906@dev.azure.com//wekkumar0906/8PMSuite, 🗅 OR 🖙 Clone in VS Code 🗸				
Files	Generate Git Credentials O Having problems authenticating in Git? Be sure to get the latest version Git for Windows or our plugins for Intellit. Edipse, Android Studio or Windows command line.				
¢ Commits	O having problems authenticating in Sit: pe sole to get the latest version on for windows or bor progris for many, surger window source windows command line.				
Pushes	Push an existing repository from command line				
🖉 Tags	HTTPS SSH				
រិរ Pull requests	git remote add origin https://vivekkumar0906@dev.azure.com/vivekkumar0906/BPMSuite_Containers/_git/				
Pipelines					=
Lange Test Plans	Import a repository				
Artifacts	Import				
	Initialize & main branch with a README or gitignore				
	✓ Add a README Add a .gitignore: None ✓ Initialize				
Waiting for web.vortex.data.microsoft.	com				_



3. Click **More actions** and then select the **Upload file(s)**.

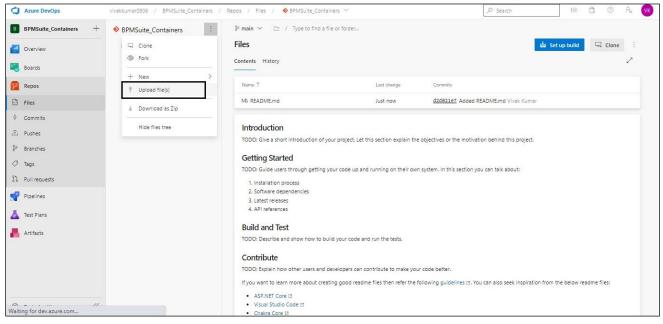


Figure 4.5

4. Browse or drag and drop all the YAML files that have shared and then select Commit.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers /	Repos / Files / 🚸 BPMSuite_Conta	iners 🗠		Commit ×
B BPMSuite_Containers +	BPMSuite_Containers	🌮 main \vee 🗈 / Type to find a fi	le or folder		
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🖲 Boards		Contents History			remove all
😰 Repos		Name †	Last change	Commits	1.3 KB remove
Files		M4 README.md	4m ago	<u>d2d021e7</u> Add	OmniDocs11.0Services.yml 3 KB remove
<ul> <li>Commits</li> <li>Pushes</li> <li>Branches</li> </ul>		Introduction TODO: Give a short introduction of yo Getting Started	our project. Let this section explain the	objectives or the mo	Comment Added 9 files to /
✓ Tags 別 Pull requests		TODO: Guide users through getting y 1. Installation process	our code up and running on their owr	n system. In this sectio	Branch name
Pipelines		2. Software dependencies 3. Latest releases 4. API references			Work items to link
Artifacts		Build and Test TODO: Describe and show how to bu	ild your code and run the tests.		Search work items by ID or title 🗸 🗸
			levelopers can contribute to make you ting good readme files then refer the f		
Project settings		ASP.NET Core      Visual Studio Code      Chakra Core			Cancel Commit

Figure 4.6

5. Hover over to the **Pipelines** in the left panel and select **Releases**.

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Figure 4.7

- 6. Click New Pipeline button. Select a template dialog appears.
- 7. Select the Deploy to a Kubernetes cluster template.

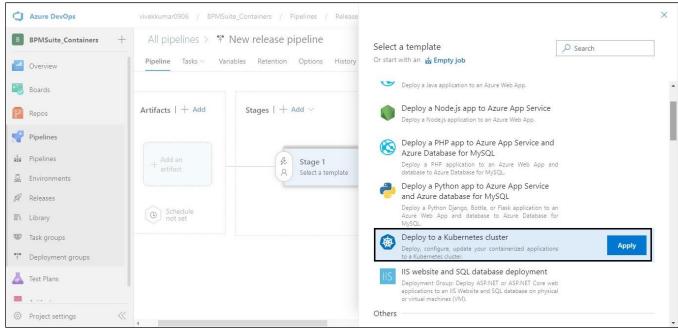
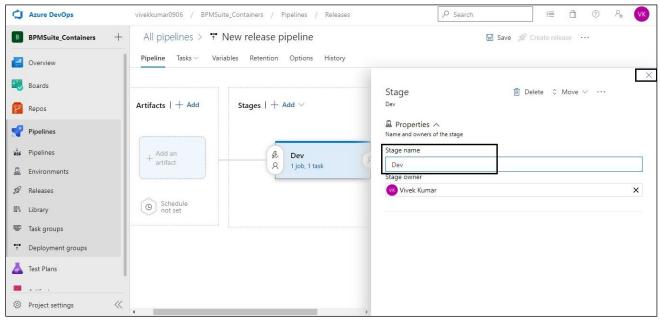


Figure 4.8

- 8. Click Apply. The Stage panel appears.
- 9. Specify the **Stage name** and click **close** icon to close the dialog.





10. Enter the unique name for your pipeline and click **Save**.

Azure DevOps	vivekkumar0906 / BPMSuite_Con	tainers / Pipelines / Releases		i 0 % 😿
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Ø Releases Ⅲ Library	Schedule not set			
Task groups				
T Deployment groups				
👗 Test Plans				
📕 Artifacts				
Project settings				



11. Specify **Comment** and click **OK** on the **Save** dialog.

Save		2
Folder *		
Λ		$\sim$
Comment Rename the pipeline name		
	ОК	Cancel

Figure 4.11

- 12. Click Add an artifact. The Add an artifact dialog appears.
- 13. Click Azure Container Registry under the Source type.
- 14. Select the **Service connection** which authenticates the Azure Container Registry.
- 15. In case Service connection is not created, follow the below steps to create Service connection: Configuration of Service connection for Azure Container Registry:
  - Click Manage link. The Create service connection page appears in a new tab.
  - Click **Create service connection**. The New service connection dialog appears.
  - Select Azure Resource Manager as the connection type and click Next.
  - Select Service principle (automatic) as the Authentication method.
  - Specify the following parameters:
    - Subscription as Scope level.
    - Select an existing **Azure subscription**.
    - Select the **Resource Group** in which Azure Container Registry is created.
    - (Optional) Specify the **Service connection** name and **Description**.
    - Select the checkbox Grant access permission to all pipelines.
  - Click **Save**. Once the service connection is created, it appears in the list.

New Azure service connection		$\times$
Azure Resource Manager using service principal	(automatic)	
Scope level		
Subscription		
<ul> <li>Management Group</li> </ul>		
<ul> <li>Machine Learning Workspace</li> </ul>		
Subscription		
HIVR (b8233ce3-0bae-46c4-a9ca-24d7b6a6e9	14)	~
Resource group		
AzureKubernetes		~
Service connection name ACR_Connection1		
Service connection name ACR_Connection1		
Service connection name ACR_Connection1 Description (optional) ACR_Connection1 for container registry		
Service connection name ACR_Connection1 Description (optional) ACR_Connection1 for container registry		
Description (optional) ACR_Connection1 for container registry Security	Back	Save

Figure 4.12

- 16. If the **Service connection** is already created, then select the created service connection.
- 17. Select **Resource Group** from the list in which Azure Container Registry is created.
- 18. Select the created Azure Container Registry.
- 19. Select a Docker image for example, **ibps5serviceinstanceweb** as a **Repository**.
- 20. Select Latest as the Default version. Leave the Source alias with its default value and click Add.

Azure DevOps	vivekkumar0906 / BPMSuite_Con	tainers / Pipelines / Releases	×
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Ø Releases	Schedule not set		newgencontainerregistry V
Task groups	of not set		Repository *
*** Deployment groups			ibps5serviceinstanceweb $\checkmark$
			Default version *
📥 Test Plans			Latest $\checkmark$
Artifacts			Source alias *
			_ibps5serviceinstanceweb
Project settings			Add



21. Once the artifact is added, it appears in the **Artifacts**. Click **Continuous deployment trigger** icon. The **Continuous deployment trigger** dialog appears.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	
B BPMSuite_Containers +	All pipelines > 👎 iBPS5-ServiceInstance-Web	🗟 Save 🔗 Create release 🗮 View releases 🛛 …
Overview	Pipeline Tasks - Variables Retention Options History	
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Environments	nceweb 8 1 job, 1 task	
₩ Releases	Schedule not set	
Task groups		
*œ Deployment groups		
👗 Test Plans		
Artifacts		
Project settings		

Figure 4.14

22. Enable the Trigger and specify the Tag filter.

### For example,

**^latest\$** - trigger the release only if the tag is "latest"

v1\.[0-9] - trigger the release for tags like "v1.23", "beta-v1.3-test"

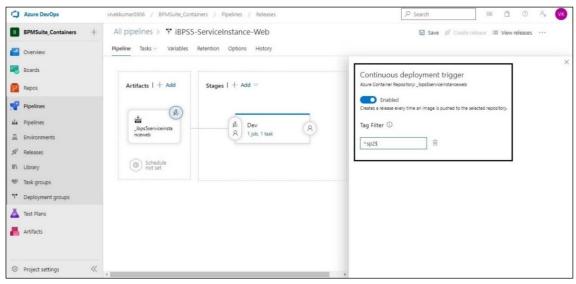


Figure 4.15

- 23. Click Close icon to close the Continuous deployment trigger dialog.
- 24. Click Save.
- 25. Click Add an artifact. The Add an artifact dialog appears.
- 26. Click **Azure Repos** under the Source type.
- 27. Select the **project**, **Source (repository)** and default branch **main.** Also, keep the other settings as default.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	)
B BPMSuite_Containers +	All pipelines > ** iBPS5-ServiceInstance-Web	Build Azure Re GitHub TFVC
Overview	Pipeline Tasks Variables Retention Options History	5 more artifact types 🗸
Boards		Project * ①
Repos	Artifacts   $+$ Add Stages   $+$ Add $\vee$	BPMSuite_Containers
		Source (repository) * ①
Pipelines		BPMSuite_Containers ~
uta Pipelines	ibps5serviceinsta	R Default branch * ①
L Environments	nceweb 8 1 job, 1 task	main
🖉 Releases		Default version * ①
III Library		Latest from the default branch $\checkmark$
I Task groups	Add an artifact	Checkout submodules
T Deployment groups		Checkout files from LFS ①
👗 Test Plans	Schedule not set	Shallow fetch depth ①
Artifacts	not set	Source alias * ①
		_BPMSuite_Containers
Project settings		Add

Figure 4.16

- 28. Click **Add** then click **Save**.
- 29. Configure three stages: Dev, UAT, and Production, and on each stage deployment process is different. You can have some more stages depending on the requirements.

## 4.3.2 Configuring Dev stage

Perform the below steps to configure the Dev Stage:

1. Click View stage tasks.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	ାଳ 🗇 ତି ନି 👀
B BPMSuite_Containers +	All pipelines > 🚏 iBPS5-ServiceInstance-Web	🔄 Save 🔗 Create release 🗮 View releases \cdots
Overview	Pipeline Tasks Variables Retention Options History	
🔍 Boards		
P Repos	Artifacts   + Add Stages   + Add $\sim$	
Pipelines	(F)	
Pipelines 🖬	jbpsSserviceinsta	
Lenvironments	nceweb	
🖉 Releases	View stage tasks	
III Library		
📟 Task groups	BPMSuite_Contai ners	
T Deployment groups		
👗 Test Plans	Schedule not set	
Artifacts		
Project settings		

Figure 4.17

2. Click Agent Job and then select ubuntu as the Agent Specification.

C	Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	, 𝒫 Search		/≣ Õ	0 8	VK
в	BPMSuite_Containers +	All pipelines > 👎 iBPS5-ServiceInstance-Web	🗔 Sa	ve 🚀 Create rel	ease 🔳 View i	releases …	
	Overview	Pipeline Tasks Variables Retention Options History					
	Boards	Dev	Agent job ①			🗐 Rer	move
P	Repos	Agent job +	Display name "				- 1
s?	Pipelines		Agent job				
di.	Pipelines	P Kubecti	Agent selection A				- 1
1	Environments		Agent pool ①   Pool information   Manage	18			
Ø	Releases		Azure Pipelines			$\sim$	0
07	Library		Agent Specification *				_
₽	Task groups		ubuntu-20.04				$\sim$
Ť	Deployment groups		Demands ①				
▲	Test Plans		Name	Condition	1	alue	
	Artifacts		+ Add				
			Execution plan $\land$				
8	Project settings 🛛 🐇		Parallelism ①				+



3. Click Add a task to Agent Job + icon and search for the Replace Tokens and add them.

#### NOTE:

Ensure **Replace Tokens** task must be the 1<sup>st</sup> task under the Agent Job.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	P Se	earch 📧 🗇 📀 🔗 🗸
B BPMSuite_Containers	+ All pipelines > 🚏 iBPS5-ServiceInstance-Web		🗟 Save 💋 Create release 🔳 View releases 🛛 😶
Overview	Pipeline Tasks Variables Retention Options History		
🕄 Boards	Dev	Replace Tokens ①	🖺 View YAML 📋 Remove
🛜 Repos	Agent job +	Task version 4.* ~	
Pipelines	#()# Replace tokens in **/*.config	Display name *	
🛍 Pipelines	var  Replace Tokens	Replace tokens in **/*.config	
Environments	Pa Kubecti	Root directory ①	
🖉 Releases			
IIN Library		Target files *	
📟 Task groups		**/*.config	
Deployment groups		Files encoding *	
📥 Test Plans		auto	Y
Artifacts		Token pattern *	
		#{ }#	~
		🕑 Write unicode BOM 🛈	
Project settings	«	Escape values type 🕕	

Figure 4.19

- 4. Click Browse Root Directory icon under the Replace Token settings.
- 5. Select appropriate YAML file (for example, *iBPS5.0ServiceInstanceWeb.yml*).
- 6. Copy the content of the **Root directory** and paste it to the **Target files** textbox.
- 7. Leave the other settings as default and click Save.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	P Search I≣ ⊡ ⊙ P, 💘
B BPMSuite_Containers +	All pipelines > ₹ iBPS5-ServiceInstance-Web	🗟 Save 💋 Create release 🗮 View releases ····
Overview	Pipeline Tasks Variables Retention Options History	
E Boards	Dev -	Task version 4. <sup>∞</sup> →
😢 Repos	Agent job +	Display name *
Pipelines		Replace tokens in \$(System.DefaultWorkingDirectory)/_BPMSuite_Containers/iBPS5.0ServiceInstan
Pipelines	vor Replace Tokens	Root directory ①
L Environments	kubecti Parkosecti	\$(System.DefaultWorkingDirectory)/_BPMSuite_Containers/iBPS5.0ServiceInstanceWeb.yml
Ø Releases		Target files * ①
₩\ Library		\$(System.DefaultWorkingDirectory)/_BPMSuite_Containers/iBPS5.0ServiceInstanceWeb.ym
📟 Task groups		Files encoding * ①
Deployment groups		auto
📥 Test Plans		Token pattern *
Artifacts		#()# ~
		Vrite unicode BOM ①
<u>u</u>		Escape values type ①
Project settings		auto

Figure 4.20

- 8. Click Kubectl task under the Agent Job.
- 9. Select Task version **1** and specify the **Display name**.
- 10. Select Kubernetes Service Connection as the Service connection type.
- 11. Select **Kubernetes service connection** which authenticates kubectl to interact with the Kubernetes cluster.
- 12. If **Kubernetes service connection** is not created, then follow the below step to create Kubernetes service connection.
- 13. Configuration of Kubernetes service connection.
  - Click Manage link. The Service connections page appears in a new tab.
  - Click **New service connection** or **Create service connection**. The New service connection dialog appears.
  - Select **Kubernetes** and click **Next**. The New Kubernetes service connection dialog appears.
  - Select KubeConfig as an Authentication method.
  - Copy the content of *KubeConfig* file.

#### NOTE:

You can get the KubeConfig file by executing below command:

```
az aks get-credentials --resource-group <ResourceGroupName> --name
<AzureEKSClusterName>
For example,
az aks get-credentials --resource-group AzureKubernetes --name BPMSuite-
AKSCluster
```

- Select an existing Azure Kubernetes cluster for example, BPMSuite\_AKSCluster
- Specify the Service connection name and Description.
- Select the checkbox **Grant access permission to all pipelines** and click **Verify** and **Save**. Once the Service connection is created, it appears in the list.

New Kubernetes serv	ice conne	ection	$\times$
KubeConfig			
<ul> <li>Service Account</li> </ul>			
O Azure Subscription			
KubeConfig			
apiVersion: v1			
clusters:			
- cluster:			
certificate-authority-data: Copy and paste the contents of your Ku	ibeConfig file		*
Cluster context (optional)			
	_		~
BPMSuite_EKSCluster	tes		60 70
the second and the second second second	tes		
Accept untrusted certificat     Verify	tes		100
Accept untrusted certificat     Verify Details	tes		
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Accept untrusted certificat      Verify  Details  Service connection name      Kubernetes_Connecton1  Description (optional)	tes		
Accept untrusted certificat Verify Details Service connection name Kubernetes_Connecton1 Description (optional) Kubernetes_Connecton1			
Accept untrusted certificat      Verify  Details  Service connection name      Kubernetes_Connecton1  Description (optional)      Kubernetes_Connecton1  Security		Verify and	

Figure 4.21

- 14. If **Kubernetes service connection** is already created, then select the created connection.
- 15. Select the Namespace, that is, **dev.**
- 16. Select **Apply** command using the **Command** dropdown.

🔁 Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 🗐 🗇 🖧 💔
B BPMSuite_Containers +	All pipelines > 🚏 iBPS5-ServiceInstance-Web	🗟 Save 💋 Create release 🗮 View releases 🛛 …
Overview	Pipeline Tasks - Variables Retention Options History	
n Boards	Dev ···· Deployment process	Task version 1.* V
😢 Repos	Agent job +	Display name *
Pipelines	Run on agent  ()  ()  ()  ()  ()  ()  ()  ()  ()  (	kubectl AzureFile_PV_PVC
🖬 Pipelines	var I Replace Tokens	Kubernetes Cluster A
L Environments	kubecti AzureFile_PV_PVC	Service connection type * ①
Ø Releases		Kubernetes Service Connection
Library     Task groups		Kubernetes service connection * ①   Manage L <sup>a</sup>
T Deployment groups		kubernetes_connection1 V O + New
👗 Test Plans		Namespace 🕜 dev
Artifacts		Commands ^
		Command ①
Project settings		apply

Figure 4.22

- 17. Select the checkbox **Use configuration**.
- 18. Select the radio button **File path**.
- 19. Browse the *AzureFile\_PV\_PVC.yml* file path from the *Azure Repos*.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases		Search I≣ Ĉi ⊙	R. VK
B BPMSuite_Containers +	All pipelines > * iBPS5-ServiceInstance-Web		🗟 Save 🖉 Create release 🗮 View releases	
Overview	Pipeline Tasks Variables Retention Options History			
n Boards	Dev Deployment process		Command 🔘	
P Repos	Agent job	+	apply Use configuration ①	~
Pipelines	■ Run on agent #O# Replace tokens in \$(System.DefaultWorkingDir		Configuration type ①	
🛍 Pipelines	var I Replace Tokens		File path Inline configuration	
🚊 Environments	kubectl AzureFile_PV_PVC	•	File path * ①	]
🔊 Releases			\$(System.DefaultWorkingDirectory)/_BPMSuite_Containers/AzureFile_PV_PVC.yml	
₩\ Library			Arguments ①	4
🕮 Task groups				
T Deployment groups				4
👗 Test Plans			Secrets A	
Artifacts			Type of secret * ①	
			dockerRegistry	$\sim$
			Container registry type *	
Project settings			Azure Container Registry	~ _

Figure 4.23

- 20. Expand the **Advanced** tree structure.
- 21. Select the Check for latest version checkbox.
- 22. Right click added kubectl task and select Clone task(s).

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 🕮 🗂 💿 ନ୍ଦୁ 📢
B BPMSuite_Containers +	All pipelines > 👎 iBPS5-ServiceInstance-Web	ا Save Ø Create release ■ View releases
Overview	Pipeline Tasks Variables Retention Options History	
🕄 Boards	Dev Deployment process	Secrets ^
P Repos	Agent job	Type of secret * ①
_	I Run on agent	dockerRegistry ~
Pipelines	#0# Replace tokens in \$(System.DefaultWorkingDir	Container registry type * ①
Pipelines	var  Replace Tokens	Azure Container Registry
Lenvironments	kubectl AzureFile_PV_PVC	
🔊 Releases	Enable selected task(s)	ACR_connection1 V O
III\ Library	O Disable selected task(s)	Scoped to resource group 'AzureKubernetes'
😇 Task groups	Remove selected task(s)	Azure container registry 🕥
T Deployment groups	Clone task(s)	newgencontainerregistry $\checkmark$ O
👗 Test Plans	+ Create task group	Secret name
Artifacts	Manage task group	azurepullsecret
Aitilduta		Source update secret ①
		ConfigMaps V
$^{\odot}$ Project settings $\ll$		Advanced ^

Figure 4.24

23. Change the **Display name** of newly cloned task.

24. Browse the *yml* file (for example, **iBPS5.0ServiceInstanceWeb.yml**) path from the **Azure Repos**.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 💷 🗇 📀 🖧 📢
B BPMSuite_Containers +	All pipelines > 👎 iBPS5-ServiceInstance-Web	$\blacksquare$ Save $\mathscr{G}$ Create release $≔$ View releases $\cdots$
Overview	Pipeline Tasks Variables Retention Options History	Kubernetes Service Connection
Noards	Dev ···· Deployment process	Kubernetes service connection * ①   Manage (2
P Repos	Agent job +	kubernetes_connection1 $\checkmark$ O + New
Pipelines	*O* Replace tokens in \$(System.DefaultWorkingDir	Namespace 🕥
🖬 Pipelines	var+ Replace Tokens	dev
Lenvironments	kubectl AzureFile_PV_PVC	Commands ^
🖉 Releases	kubectl iBPS5.0ServiceInstanceWeb	Command ①
IIN Library	Kubecti :	apply ~
Task groups		☑ Use configuration ①
T Deployment groups		Configuration type ①
Test Plans		File path     Inline configuration
Artifacts		File path * ①
		\$(System.DefaultWorkingDirectory)/_BPMSuite_Containers/iBPS5.0ServiceInstanceWeb.yml
		Arguments ①
Project settings		

Figure 4.25

- 25. Expand the Secrets tree structure.
- 26. Select dockerRegistry as a Type of secret.
- 27. Select Azure Container Registry (ACR) as a Container registry type.

- 28. Select the created Azure service connection for ACR.
- 29. Select the created Azure container registry.
- 30. Specify the secret name such as azurepullsecret.
- 31. Select the Force update secret checkbox.

Azure DevOps	amitgaur0360 / amitgaur / Pipelines / Releases			°. A
A amitgaur +	All pipelines > 👎 iBPS5-ServiceInstance-Web		🔚 Save 💋 Create release \cdots	
Overview	Pipeline Tasks - Variables Retention Options History			
n Boards	Dev Deployment process		Type of secret * (j)	
-			dockerRegistry	$\sim$
Repos	Agent job ≣ Run on agent	+	Container registry type * ①	
Pipelines	#()# Replace tokens in \$(System.DefaultWorkingDir		Azure Container Registry	$\sim$
Pipelines	Vur.+ Replace lokens		Azure subscription (i)   Manage ⊡	
📱 Environments	kubectl AzureFile_PV_PVC.yml		DevopsGen (#1008-2003	Q
🔊 Releases	kubectl iBPS5-ServiceInstance-Web		① Scoped to subscription 'DevopsGen'	
01 Library	Kubecti	⊘	Azure container registry (j)	
響 Task groups			k8snonprdcidevacr V	Q
Deployment groups			Secret name ①	
👗 Test Plans			azurepullsecret	
			✓ Force update secret ①	
🖏 Project settings 🛛 📿			ConfigMaps 🗸	



- 32. Right click cloned kubectl task and Select Clone task(s).
- 33. You can change the **Display name** of newly cloned task.
- 34. Browse the *AppGateway-IngressController.yml* file path from the **Azure Repos**.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 💷 🗇 🔗 💔
B BPMSuite_Containers +	All pipelines > 👎 iBPS5-ServiceInstance-Web	🗟 Save 🧳 Create release 🗮 View releases \cdots
Overview	Pipeline Tasks Variables Retention Options History	kubernetes_connection1
Boards	Dev Deployment process	Namespace ()
😢 Repos	Agent job +	dev
Pipelines	#()# Replace tokens in \$(System.DefaultWorkingDir	Commands ^
ui Pipelines	Nor Replace Tokens	Command ①
🚊 Environments	kubectl AzureFile_PV_PVC	apply
🖉 Releases	kubectl iBPS5.0ServiceInstanceWeb	Use configuration ①
II Library		Configuration type 🕕
📟 Task groups	kubectl AppGateway-IngressController	File path      Inline configuration
T Deployment groups		File path * ① Browse File path
📥 Test Plans		S(System.DefaultWorkingDirectory)/_BPMSuite_Containers/AppGateway- IngressController.yml
📕 Artifacts		Arguments ①
Project settings		Secrets V



35. Click **Save**. Now, as soon as any Docker Image is pushed to the Azure container registry with the tag name **sp2**, Azure DevOps trigger the deployment to the **Dev Stage**.

## 4.3.3 Configuring UAT stage

Perform the below steps to configure the UAT Stage:

- UAT deployments are approval based and they are available on-demand. Once you are ready to deploy to the UAT environment, you just need to trigger the UAT deployment. When you trigger that deployment, an approval mail is sent to the project manager or the concerned team. As soon as the approval is provided for the go-ahead, the UAT deployment starts automatically.
- 2. Go to the **Pipeline** tab of the Release Pipeline for which **Dev stage** is configured (for example, **iBPS5-ServiceInstance-Web**).
- 3. Select **Dev stage** and click **Clone icon.** A cloned Stage gets created.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 📧 🗇 🔗 📢
B BPMSuite_Containers +	All pipelines > 〒 iBPS5-ServiceInstance-Web	🗟 Save 💋 Create release 🗮 View releases 🛛 …
Overview	Pipeline Tasks	
Boards		
😰 Repos	Artifacts   + Add Stages   + Add ~	
Pipelines		
utu Pipelines	ibnsScenijejinsta & Dev Q	
Lenvironments	nceweb 8 1 job, 4 tasks	
🖉 Releases	+ D Clone	
IIN Library	<b>A</b>	
📟 Task groups	_BPMSuite_Contai ners	
T Deployment groups		
👗 Test Plans	Schedule not set	
Artifacts		
Project settings		

Figure 4.28

- 4. Specify the name of the cloned stage as **UAT** in the **Stage** panel.
- 5. Click **Pre-deployment conditions** icon of the UAT stage. The Pre-deployment conditions panel appears.

		Р	re-deployment condition	ons	
 \$2 Q	Dev 1 job, 4 tasks	8-	& UA R 1jo	<b>T</b> b, 4 tasks	8
-				+ 6	

Figure 4.29

- 6. Select the Manual Only under the Triggers section.
- 7. As soon as the trigger type is changed from After **stage** to **Manual Only**, the UAT stage appears in parallel to Dev Stage instead of a series.

Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 📧 🗇 🗞 📢
B BPMSuite_Containers +	All pipelines > 🚏 iBPS5-ServiceInstance-Web	🗟 Save 🖋 Create release 🗮 View releases \cdots
Overview	Pipeline Tasks Variables Retention Options History	
Noards		Pre-deployment conditions
P Repos	Artifacts       + Add     Stages       + Add $\vee$	UAT
Pipelines	(J. )	5% Triggers ^ Define the trigger that will start deployment to this stage
👪 Pipelines	incr5renireinta	Select trigger ①
Environments	Reveb A 1 job, 4 tasks	
₩ Releases	(F)	After After Manual release stage only
Library     Task groups	BPMSuite_Contai	
T Deployment groups	Pers UAT R A 1 job, 4 tasks	R Pre-deployment approvals
👗 Test Plans	Schedule	Select the users who can approve or reject deployments to this stage
Artifacts	not set	->] Gates ① Disabled Define gates to evaluate before the deployment.
Project settings	4	δ <sup>0</sup> Deployment queue settings ∨ ▶ Define behavior when multiple releases are queued for deployment ▼



- 8. In the Pre-deployment conditions panel, enable the **Pre-deployment approvals**.
- 9. Select the list of users or groups who can approve or reject the deployment to this stage.
- 10. You can select users or groups by typing their names.
- 11. Select the **The user requesting a release or deployment should not approve it** checkbox in Approval policies.
- 12. Click **Close icon** to close the Pre-deployment conditions panel.
- 13. Click **Save** to save the changes.

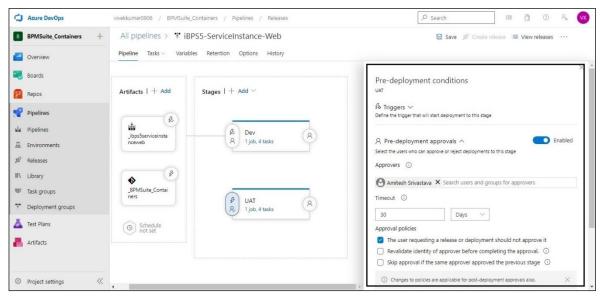


Figure 4.31

14. Click **View stage tasks** link of the UAT stage. Also, make the required changes in the UAT stage's tasks as per your requirements.

For example, you can make the following changes in the below tasks:

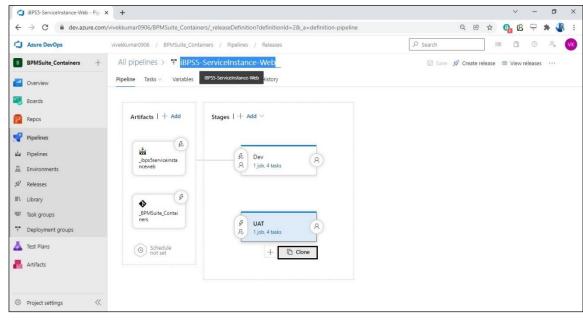
• **Kubectl Task:** Kubernetes service connection, Kubectl command, changes in YAML files, and so on.

## 4.3.4 Configuring production stage

Production deployment is also based on approval, but it is multi-level approval. To deploy a production environment, you require the approval of all stakeholders, and the production environment doesn't get triggered automatically on receiving all the approvals. A manual intervention mail is sent to the engineer who is supposed to deploy to production with a checklist. During deployment, all the checklist points get verified before performing the production deployment. In case any point of the checklist is not covered, then deployment to the production gets rejected.

Perform the below steps to configure the Production Stage:

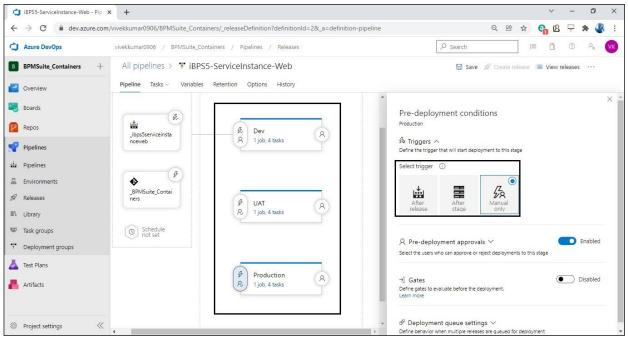
1. Go to the **Pipeline** tab of the Release Pipeline (for example, **iBPS5-ServiceInstance-Web**) for which **Dev and UAT stages** are just configured.



2. Select the UAT stage and click Clone icon. A cloned Stage gets created.

- Figure 4.32
- 3. Specify the name of the cloned stage as **Production** in the **Stage** panel.

- 4. Click **Pre-deployment conditions** icon of the Production stage. The Pre-deployment conditions dialog appears.
- 5. Select Manual Only option under the Triggers section.
- 6. As soon the trigger type is changed from **After stage** to **Manual Only**, the Production stage appears in parallel to Dev and UAT stages instead of a series.



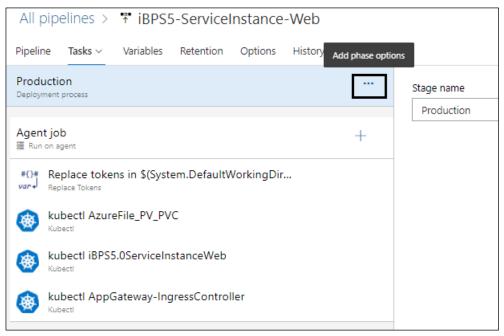


- 7. In the **Pre-deployment conditions** panel, select the list of users or stakeholders whose approval is required for the deployment to the Production stage.
- 8. Select **Any Order** as an **Approval order**. It indicates that approval of all Stakeholders is required (in any order).
- 9. Select **The user requesting a release or deployment should not approve it checkbox** in the select policies.
- 10. Click Close icon to close the Pre-deployment conditions panel.
- 11. Click **Save** to save the changes.

🗯 iBPS5-ServiceInstance-Web - Pip 🗙	+	✓ - □ ×
← → C	vivekkumar0906/BPMSuite_Containers/_releaseDefinition?definitionId=2&_a=definition-pip	eline 🔍 🖻 🕁 🍕 🥵 🗄
Azure DevOps	vivekkumar0906 / BPMSuite_Containers / Pipelines / Releases	🔎 Search 📰 🗇 🗞 🗸
B BPMSuite_Containers +	All pipelines > 🔻 iBPS5-ServiceInstance-Web	🗟 Save 🥖 Create release 🗮 View releases \cdots
Overview	Pipeline Tasks Variables Retention Options History	
n Boards	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	So Triggers ∨ Define the trigger that will start deployment to this stage
😰 Repos	Ber O	
Pipelines	nceweb	R Pre-deployment approvals Select the users who can approve or reject deployments to this stage
Pipelines سلط	( <del>)</del>	Approvers ①
🚊 Environments	•	Amitesh Srivastava 🗙 💽 Sanjeev Kumar 🗙
🖉 Releases	BPMSuite_Contai ners 9 UAT 8	Search users and groups for approvers
III Library	A 1 job, 4 tasks	Approval order
📟 Task groups	Schedule not set	Any order     In sequence     Any one user
T Deployment groups		Timeout ①
👗 Test Plans		30 Days ~
Refracts	(♂ ♀) Production 1 job, 4 tasks	Approval policies The user requesting a release or deployment should not approve it
	, job, t test	<ul> <li>Revalidate identity of approver before completing the approval.</li> </ul>
		Skip approval if the same approver approved the previous stage
Project settings	•	, · [,

Figure 4.34

- 12. Click View stage tasks link to the Production stage.
- 13. Click Add phase options icon in the Tasks tab.





14. Select the Add an agentless job.

15. Move Agentless job above the Agent Job in the Tasks tab.

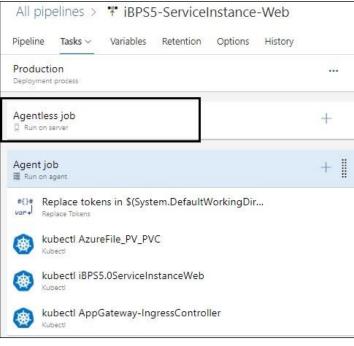


Figure 4.36

- 16. Click Add a task to Agentless job icon.
- 17. Add a Manual intervention task.

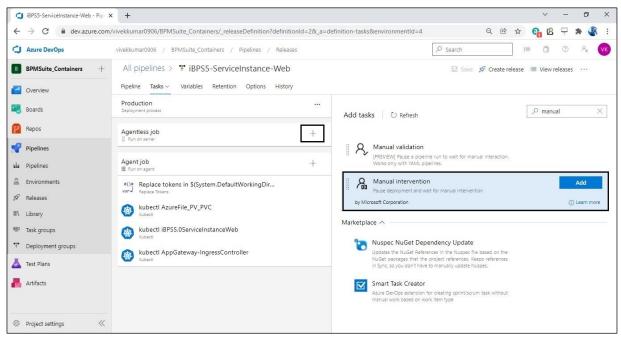


Figure 4.37

### 18. Click added task Manual intervention.

19. Specify the checklist points that need to execute before deploying to the production stage.

### For example:

Before deploying to the Production, ensure that the below checklists are completed:

- All Major and Catastrophic bugs must be fixed.
- The latest images must be thoroughly tested on the Dev and UAT stages.
- Approval has taken from all stakeholders.
- Deployment downtime has taken from the client.
- 20. Select the user or group that are supposed to deploy to the production. A manual intervention mail with the above-mentioned checklist is sent to the engineer who is supposed to deploy to production with a checklist. During deployment, all the checklist points get verified before performing the production deployment. In case any point of the checklist is not covered, then deployment to the production gets rejected.

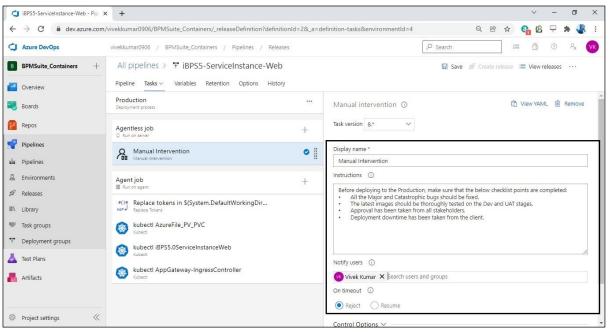


Figure 4.38

- 21. Make the other required changes in the Production stage's tasks as per your requirements. For example, you can make the following changes in the below tasks:
  - **Kubectl Task:** Kubernetes service connection, Kubectl command, changes in YAML files, and so on.

#### NOTE:

Refer the above steps to configure the Release Pipeline of other Docker Images.

## Appendix

This guide contains third-party product information about configuring Microsoft Azure CICD Pipeline for Container Deployment on AKS Azure Kubernetes Cluster. Newgen Software Technologies Ltd does not claim any ownership on such third-party content. This information is shared in this guide only for convenience of our users and could be an excerpt from the Azure documentation. For latest information on configuring the Azure Kubernetes Cluster and Azure DevOps refer to the Azure documentation.