FUJITSU Enterprise Postgres 14 for Kubernetes

Quick Start Guide

Linux



J2UL-QK14-05ENZ0(00) June-2023

1. Prerequisites

• Registered OpenShift cluster with Red Hat Marketplace

cf. <u>https://marketplace.redhat.com/en-us/documentation/clusters#register-openshift-cluster-with-red-hat-marketplace</u>

• Buy or try the product 'FUJITSU Enterprise Postgres for Kubernetes ' from Red Hat Marketplace

cf. https://marketplace.redhat.com/en-us/documentation/operators

2. system requirements

2.1. **CPU**

It should be noted that it provides supports to both the following CPU Architectures to meet the scope of work.

No	CPU architecture
1	x86
2	s390x
3	ppc64le

2.2. Supported Platform

It supports running on the following platforms.

N	ю	Platform	Version
1		OpenShift Container Platform	4.10, 4.11, 4.12

3. Operator installation from Red Hat Marketplace

- For information on registering your cluster and creating a namespace, see <u>Red Hat Marketplace</u> <u>Docs</u>. This must be done prior to operator install.
- 2. On the main menu, click **Workspace**, click **Software**, click on the **product box** of 'FUJITSU Enterprise Postgres for Kubernetes ', and then click Install Operator.
- 3. On the Update Channel section, select an option.
- 4. On the *Approval Strategy* section, select either *Automatic or Manual*. The approval strategy corresponds to how you want to process operator upgrades.
- 5. On the *Target Cluster* section:

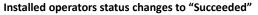
- \circ $\,$ Click the checkbox next to the clusters where you want to install the Operator.
- For each cluster you selected, under **Namespace Scope**, on the **Select Scope** list, select an option.
- 6. Click Install. It may take several minutes for installation to complete.
- 7. Once installation is complete, the status will change from installing to Up to date.
- 8. For further information, see the Red Hat Marketplace Operator documentation

Install Operator								
Update channel								
Operators are organized into packages and streams of updates called "channels". If an operator is available through multiple channels, you can choose which one you want to subscribe to. Learn more								
• stable								
Approval strategy								
Automatic updates keep the operator and any inst CLI. Learn more	tances on the cluster up to date. Mai	nual updates require approval and are done via OpenShift co	onsole or					
 Automatic Manual 								
0								
Target clusters Choose clusters where you want to install and mar	nage this operator. Then select the N	lamespace scope for each cluster you are installing into. Lea	irn more					
Name	Platform	Namespace Scope						
rj-rhm-amy-test	IBM Cloud	Select Scope	\sim					
		Cancel Ins	tall					

4. Verification of operator installation

- 1. Once status changes to Up to date, click the vertical ellipsis and select Cluster Console.
- 2. Open the cluster where you installed the product
- 3. Go to **Operators > Installed Operators**
- 4. Select the Namespace or Project you installed on
- 5. Verify status for product is Succeeded

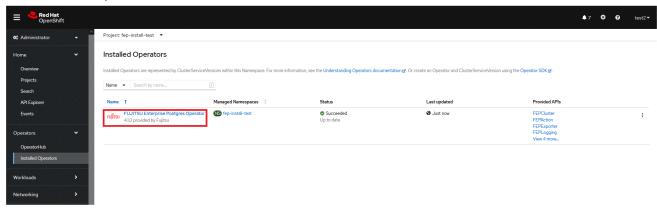
E Red Hat OpenShift						\$ 7	• •	test2 ▼
Administrator	Project: fep-install-test 💌							
Home 🗸	Installed Operators							
Overview	Installed Operators are represented by ClusterServi	eVersions within this Namespace. For more infor	rmation, see the Understanding Operators docu	mentation g. Or create an Operator and ClusterServiceVersi	on using the Operator SDK 🖉.			
Projects	Name Search by name							
Search API Explorer	Name †	Managed Namespaces	Status	Last updated	Provided APIs			
Events	FUJITSU Enterprise Postgres Operate 4.1.0 provided by Fujitsu	or 🚯 fep-install-test	Succeeded Up to date	Just now	FEPCluster FEPAction FEPExporter			ł
Operators 🗸					FEPLogging View 4 more			
Installed Operators								
Workloads >								
Networking >								



5. Deploying FEPCluster using Operator

To deploy a FEPCluster in given namespace, follow these steps:

1. Under "Operators" menu item, click on "**Installed Operators**". You would see the installed FEP operator. Click on the name of operator.



- It will display a page with all CRs this operator supports. FEPCluster is the main CR and all others are child CR. We would create main CR and all other CRs will be created automatically by Operator. To create Cluster CR, either
 - (1) Click on "Create Instance" under FEPCluster.
 - OR

(2) Click on "FEPCluster" on top and then click on "Create FEPCluster" on next page.

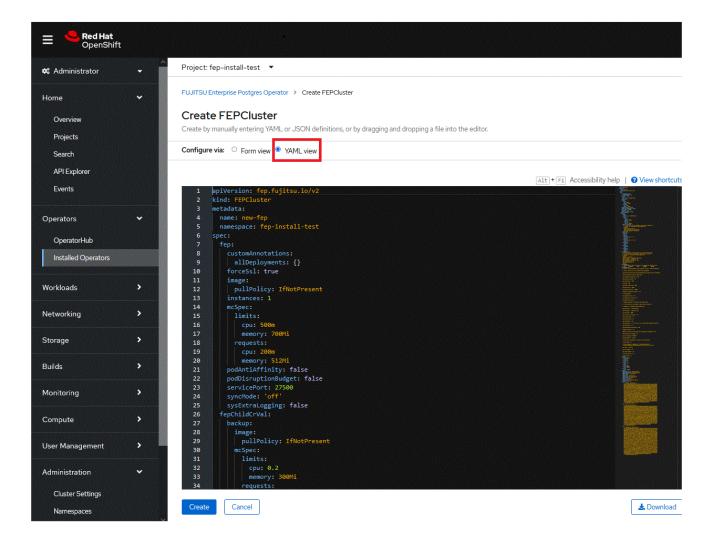
E SpenShif	ť					▲ 7 ○	😧 test2 🗸
≎ Administrator	- ^	Project: fep-install-test 💌					
Home	~	Installed Operators > Operator details	rator				
Overview		FUITSU 41.0 provided by Fuitsu	(2)				Actions 💌
Projects		Details YAML Subscription	Events All instances FEPCluster	FEPAction FEPExporter FEPLog	ging FEPPgpool2Cert FEPPgpoo	12 FEPRestore FEPUpgrade	
Search							
API Explorer		Provided APIs				Provider Fujitsu	
Events		(FEPC) FEPCluster	FEPA FEPAction	FEPE FEPExporter	(FEPL) FEPLogging	Created at	
Operators	~	Not available	Not available	Not available	Not available	Mar 28, 2022, 9:45 AM	
OperatorHub		(1)				Links Fujitsu Enterprise Postgres	
Installed Operators			⊕ Create instance		Create instance	https://www.postgresql.fastware.com/ gr	
						Maintainers Fujitsu	
Workloads	•	FEPP FEPPgpool2Cert	FEPP FEPPgpool2	FEPR FEPRestore	FEPU FEPUpgrade	pgtechenquiry@aufujitsu.com	
Networking	•	Not available	Not available	Not available	Not available		
Storage	•			⊕ Create instance			
Builds	•						
Monitoring	>	Description	terprise-grade PostgreSQL on OpenShift Container F	Disform			
Compute	•		cloud solution while delivering an enhanced distributi		oads and provide improved deployment and manage	ment,	
User Management	,	Available as a multi-architecture container built					
Administration	~		y subject to the terms of the End User License Agreer s a whole or part into a third party program, only Auth			ements.	

3. This will bring to "Create FEPCluster" page. Here you have two options to configure. The first one is Form View. At the moment, in Form View, one can change only the name of cluster being deployed. Default name is "new-fep".

This name must be unique within a namespace.

= Red Hat OpenShift		▲ 7 O test2 ▼
C Administrator	Project: fep-install-test 💌	
Home	FUJITSU Enterprise Postgres Operator > Create FEPCluster	
Overview	Create FEPCluster Create by completing the form. Default values may be provided by the Operator authors.	
Projects Search	Configure via: Form view VAML view	
API Explorer Events	Note: Some fields may not be represented in this form. Please select "VAML View" for full control of object creation.	លើលេ provided by Fujitsu Not available
Operators •	Name * new-lep	
OperatorHub Installed Operators	Labels app-frontend	
Workloads	Create Cancel	
Networking		
Storage		
Builds 3		

4. In YAML View, starting value of CR is visible and one can choose to modify parameters before creating CR. Refer to the <u>Reference</u> for details of parameters.For example, add a configuration value for the customPgHba parameter according to your environment.



5. When "Create" is clicked on either of two pages above, operator creates FEPCluster CR and there after one by one FEPBackup, FEPConfig, FEPVolume, FEPUser and FEPCert child CRs are created automatically. The starting values for child CRs are taken from "fepChildCrVal" section of FEPCluster CR yaml file. Once child CRs are created, respective values are managed through child CRs only. If you want to change the value, modify the value in FEPCluster "fepChildCrVal" section. Operator reflects changes from FEPCluster parent CR to respective child CRs. Only allowable changes are reflected in child CRs. Child CRs are marked internal objects and hence will not be visible on OCP console. However, you can check child CRs using command line tools.

≡ ^e Red Hat OpenShift							\$ 7	•	Ø test2▼
* Administrator	- î	Project: fep-install-test 🔹							
Home	•	Installed Operators > Operator details							
Overview		FUJITSU Enterprise Postgres Operator 41.0 provided by Fujitsu							Actions •
Projects		Details YAML Subscription Even	ts All instances FEPCluster	FEPAction FEPExporter	FEPLogging FEPPgpool2Cert	FEPPgpool2 FEPRestore FEPUpgrade			
Search API Explorer		FEPClusters						Cres	ate FEPCluster
Events		Name - Search by name							
Operators	~	Name 1	Kind 1	Status 👔	Labels I	Last updated 🛛 🕄			
OperatorHub		FEPC new-fep	FEPCluster	Condition: Runn	ng No labels	5 minutes ago			1
Installed Operators									
Workloads	~								
Pods									
Deployments									

6. In FEPCluster CR, annotations are added to indicate that child CRs are created successfully and has initialized properly. It may take some time to complete.

≡ [●] Red Hat OpenShift					
C Administrator	-	Project: fep-install-test 👻	Edit annotations		
		Installed Operators > fujitsu-enterprise-postgres-operators/41.0 > FEPCI	Key fepBackupDone	Value True	•
		FEPC new-fep	fepCertDone	True	0
		Details YAML Resources Events	fepConfigDone	True	٥
		FEPCluster overview	fepCrPatchProcessed	True	٥
		Name new-fep	fepUserDone	True	٥
		Namespace	fepVolumeDone fepcluster.fep.fujitsu.io/MaxFe	True	•
		I fep-install-test Labels	Add more	14	
		No labels			
		Annotations 7 annotations 🖉		[Cancel Save
Deployments DeploymentConfigs		Created at I minutes ago			
		Owner No owner			

7. Once all four child CRs are marked done in annotations, operator creates StatefulSet for the cluster.

Red Hat OpenShift					♣77 O O support25 ▼
🕫 Administrator	•	Project: install-test 🔻			
Home	>	Stateful Sets			Create Stateful Set
Operators	×	Name 👻 Search by name	/		
OperatorHub		Name 1	Status 💲	Labels 1	Pod Selector 1
Installed Operators		65 new-fep-sts	1 of 1 pods	app=new-fep-sts fepclustername=new-fep	Q app=new-fep=sts, fepclustername=new-fep
Workloads	~				
Pods					
Deployments					
Deployment Configs					
Stateful Sets					
Secrets					
Config Maps					
Cron Jobs					
Jobs					
Daemon Sets					
Replica Sets					
Replication Controllers					
Horizontal Pod Autoscal	ers 🗸				

8. StatefulSet will start one FEP instance at one time and will wait it to be ready before starting next one.

Red Hat OpenShift									. 76	? supp	port25 🝷
📽 Administrator	-	Project: install-test 🔹									
Home	•	Pods								Cre	ate Pod
Operators	~	▼ Filter ▼ Name ▼	Search by name	7							
OperatorHub		Name 1	Status 🔋	Ready	I	Restarts 💲	Owner 1	Memory 1	CPU 1	Created	
Installed Operators		4f26dc08e7226781fb269c0 21432a282e84f1b53203189 a8148647966ejj89v	Completed	0/1		0	 4f26dc08e7226781fb269c0 21432a282e84f1b53203189 a8148647966ef03b1 	-	-	Sep 7, 10:25 pm	÷
Workloads Pods	ř	P fep-ansible-operator- cm-654679b876-msqx4	C Running	1/1		0	RS fep-ansible-operator- cm-654679b876	123.7 MIB	0.002 cores	Sep 7, 10:26 pm	÷
Deployments		fujitsu-enterprise-postgres- 13-registry-sp25-77k9j	C Running	1/1		0	fujitsu-enterprise- postgres-13-registry-sp25	44.9 MiB	0.004 cores	Sep 7, 10:15 pm	÷
Deployment Configs Stateful Sets		P new-fep-sts-0	C Running	2/2		0	SS new-fep-sts	114.1 MiB	0.002 cores	Sep 7, 10:53 pm	÷
Secrets											
Config Maps											
Cron Jobs											
Jobs											
Daemon Sets											
Replica Sets											
Replication Controllers											
Horizontal Pod Autoscalers	s 🗸										

9. Once all instances of FEP servers are started, operator marks a flag "fepClusterReady" in "fepStatus" section of CR to be **true**, indicating that FEPCluster is ready for use. Looking at YAML of FEPCluster CR, it would look like as below:

⊟ [●] Red Hat OpenShift			≜ 7 ℃ 10 test2 •
😂 Administrator	Project	t fep-install-test 💌	
Home	*	sters > FEPCkuster details	
Overview	FEPC) new-fep	Actions 👻
Projects Search	Details	s YAML	
API Explorer			[Alt] + [F1] Accessibility help 🕢 View shortcuts 🕚 View sidebar
Events	263 264 265	pgdit system pgdit	A second s
Operators	 ✓ 266 267 268 268 	toppsspmrase: ystemicrificates: carct: - 	
OperatorHub	269 270 271		
Installed Operators	272 273 274	crt: -	
Workloads	✓ 275 276		
Pods	277 278 279		
Deployments	280		Norma cana a fair ann an Air an Air ann an Air ann an Air Na Airtean Air ann an Air ann an Air ann ann an Air ann ann ann ann ann ann ann ann ann an
DeploymentConfigs	281 282	conditions: - ansiblesult:	La constante d'al la constante de la constante
StatefulSets	283 284	changed: 9 completion: '2022-03-20701:15:09.690792'	Research and the second sec
Secrets	285	failures: 0 ok: 62	
ConfigMaps	287 288	skipped: 270 lastTransitionTime: '2022-03-28T01:09:322'	
CronJobs	289 290 291	nessage: Awiling next reconciliation reason: Successful status: True'	
Jobs	291 292 293	Status: True type: Running fedurentinstances: 1	
DaemonSets	294 295	<pre>fepLabelSelector: 'app=new-fep-sts,fepclustername=new-fep' fepStatus:</pre>	
ReplicaSets	296 297	fepClusterReady: true	

- 10. Operator also masks the sensitive fields like passwords, passphrase, certificates and keys in FEPCluster fepChildCrVal and also in child CRs.
- 11. For further information, see the FUJITSU Enterprise Postgres 14 for Kubernetes Manuals