Fujitsu Enterprise Postgres 15 for Kubernetes

Quick Start Guide

Linux



J2UL-QK15-02ENZ0(00) October-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-</u> <u>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 Requirments

2.1. **CPU**

The following CPU architectures are supported.

No	CPU architecture
1	x86
2	s390x
3	ppc64le

2.2. Supported Platform

The following platform is supported.

No	Platform	Version
1	OpenShift Container Platform	4.11, 4.12, 4.13

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 installing the operator.
- 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

Jpdate channel			
Operators are organized into packages an one you want to subscribe to. Learn more		operator is available through multiple channe	ls, you can choose which
● stable			
Approval strategy			
Automatic updates keep the operator and CLI. Learn more	d any instances on the cluster up to date. Mai	nual updates require approval and are done via	OpenShift console or
 Automatic 			
🔿 Manual			
arget clusters			
arget clusters	and manage this operator. Then select the N	Namespace scope for each cluster you are inst	alling into. Learn more
arget clusters	and manage this operator. Then select the N Platform	Namespace scope for each cluster you are inst Namespace Scope	alling into. Learn more
Target clusters Choose clusters where you want to install	-		alling into. Learn more
arget clusters Choose clusters where you want to install Name	Platform	Namespace Scope	alling into. Learn more

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

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📽 Administrator	-	Project: fr	ep-install-test ▼						
Home Overview Projects	*	Installed O		ensions within this Namespace, For more fefore	nation, see the Understanding Operators documental	tion 😰 Or create an Operator and ClusterScrytocVersion us	ing the Operator SDK C.		
Search API Explorer Events		Name FUĴTSU	L Fujitsu Enterprise Postgres Operator 53.0 provideri by Fujitsu	Managed Namespaces	Status Ø Succeeded Up to date	Last updated	Provided APIs FEPCluster FEPAction TEPPAporter		I
Operators OperatorHub Installed Operators	ř						EFILogging View 4 more.		
Workloads	,								

Installed operators status changes to "Succeeded"

5. Deploying FEPCluster using Operator

CR templates are published in the following repository on GitHub.

https://github.com/fujitsu/fep-operator-examples

This repository provides sample files that you can use to run Fujitsu Enterprise Postgres Operator.

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

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

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📽 Administrator	Project: fep-install-test 🔹						
Home			nation, see the Understanding Operators documental	tion 🖉 Or create an Operator and DiusterScriviczVersion us	ing the Operator SDK C.		
Projects Search API Explorer Events	Name • South Hy mims. Name Fujitsu Enterprise Postgres Operator SLIT providel by Fujitsu	Managed Namespaces	Status Ø Succeeded Up to date	Last updated	Provided APIs FEPCluster FEPAction		I
Operators OperatorHub					FEPExporter FEPExpogning View 4 more.		
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Workloads Networking							

 A page with all CRs that this operator supports will be displayed. FEPCluster is the main CR and all others are child CRs. 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.

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📽 Administrator		Project: fep-install-test 🔹						
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Events		FEPG FEPCluster	FEPA FEPAction	FEPE FEPExporter	FEPLogging		Created at	
Operators OperatorHub Installed Operators	*	Not available (1) Create Instance	Not available Create instance	Not available Create Instance	Not available Create instance		Links Fujitsu Enterprise Postgres https://www.postgresgt/astwarp.com/ @ Maintainers	
Workloads		(FEPP) FEPPgpool2Cert		FEPR FEPRestore	FEPU) FEPUpgrade		Fujitsu pgtechenquiry@au.fujitsu.com	
Networking		O Create Instance	O Create instance	O Create instance	O Create Instance			
Storage		Content instants	C croate astance	C COURT PROCESS				
Builds		Description						
Observe		This solution provides the flexibility of a hybrid	rprise-grade PostgreSQL on OpenShift Container P i cloud solution while delivering an enhanced distribu-	latform. stion of PostgreSQL to support enterprise-level worklo	ads and provide improved deployment and managem	ent, availability,		
Compute		performance, data governance and security. Available as a multi-architecture container bu	It for both amd64, s390x and ppc64le.					
User Management			ly subject to the terms of the End User License Agre or part into a third party program, only Authorised Ci	ement with Fujitsu Limited found at https://www.fast.fu istomers may download and use the Product.	ujitsu.com/fujitsu-enterprise-postgres-license-agreer	ients. Where the		
Administration								

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.

E Red Hat OpenShif	ft			\$ 1	Ð	0
♥\$ Administrator	•	Project: fep-install-test				
Home Overview Projects	¥	Create FEPCluster Create by completing the form. Default values may be provided by the Operator authors. Configure via: Porm view VAML view				
Search API Explorer Events		Note: Some fields may not be represented in this form. Please select "YAML View" for full control of object creation.	Not available			
Operators OperatorHub Installed Operators	*	Name * new-fep Labels app=frontend	-			
Workloads	•	Create				
Networking	*					
Storage	>					
Builds	•					

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.

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🏶 Administrator	+	Project: fep-install-test 👻	
		Fujitsu Enterprise Postgres Operator > Create FEPCluster	
Home	*	Create FEPCluster	
Overview		Create by manually entering YAML or JSDN definitions, or by dragging and dropping a file into the editor.	
Projects		Configure via: O Form view 9 YAML view	
Search		and a second	
API Explorer			alt + FI Accessibility help
APIExplorer		1 apiVersion: fep.fujitsu.io/v2 2 kind: FEPCluster	
Events		3 metadata:	
		4 name: new-fep 5 namespace: fep-install-test	
Operators	~	6 spec:	
		7 fep:	
OperatorHub		<pre>8 customAnnotations: 9 allDeployments: ()</pre>	
Installed Operators	_	10 forceSs1: true	
installed Operators		11 image:	
		12 pullPolicy: IfNotPresent 13 instances: 1	
Workloads	,	14 mcSpec:	
		15 limits:	
Networking	>	16 cpu; 500m 17 memory: 700Mi	
	-	18 requests:	
Storage	>	19 kpu: 200m	
and the		20 memory: 512%: 21 podAntiAffinity: false	
Builds		22 podDisruptionBudget: false	
builds		23 servicePort: 27500 24 syncMode: 'off'	
Observe	\$	24 syncMode: 'off' 25 sysExtraEvent: true	
Compute	5	Create Cancel	

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.

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🕫 Administrator 👻	Project: fep-install-test +							
Home 👻	Instaled Operators > Operator details Fujitsu Enterprise Postgres Operator 510 provided by Fujitsu						Actions	•
Projects	Details YAML Subscription Eve	nts All instances FEPCluster	FEPAction FEPExporter	FEPLogging FEPPgpool2Cert	FEPPgpool2 FEPRestore	FEPUpgrade		
Search API Explorer	FEPClusters						Create FEPClust	tor
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Operators 👻	Name	Kind	Status	Labels 2		Last updated		
OperatorHub	(LUC) new-fep	TEPCluster	Condition:	ing Nalisbels		🚱 3 minutes ago	Į.	
Installed Operators								
Workloads 🗸 🗸								
Pods								

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

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o: Administrator	- 1 i	Project (ep-install-test +	Edit annotations				
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Overview		rep new-fep	tepConfigCR	Done	•		Actions •
Projects		Details VAML Resources Events	sepCertCR-	Done	•		
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Events		Name new-tep	fepUserCR	Done	0		
Operators		Namespace	fepVolumeDone	True	0		
OperatorHub		C introduction	fepConfigDone	True	٥		
Installed Operators		Labels Mitchisotti	fepBackupDone	True	•		
Workloads		Annotations	fepCertDone	True	٥		
Pods		2.emotetice	tepCrPatchDefaults	NotNeeded	٥		
Deployments		Created at 3 divisioning age	fepVolumeCR	Done	•		
DeploymentConfigs		Owney	fepUserDone	True	0		
StatefulSets		No compres	O Add more				
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ConfigMape		Conditions			Cancel Save		
CronJobs		Type Status			1	Massage	
Jolia		Running Ince	8 4 minutes ago		Running	Manning reconcliation	
DaemonSets							
ReplicaSets							

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

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🕫 Administrator	•	Project: install-test 👻			
Home	,	Stateful Sets			Create Stateful Set
Operators	~	Name Search by name_	1		
OperatorHub		Name 1	Status I	Labels I	Pod Selector
Installed Operators		S new-fep-sts	1 of 1 pods	app=new-fep-sts fepclustername=new-fep	Q appmew-fep-sts, fepclusternamemew-fep
Workloads Pods Pods Deployments Deployment Configs Stateful Sets Secrets Config Maps Cron Jobs Jobs Daemon Sets Replica Sets Replication Controllers Horizontal Pod Autoscab	era				

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

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Home	,	Pods							Crea	te Pod
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Workloads Pods	Ť	(ep-ansible-operator- cm-654679b876-msqx4	C Running	VI	0	fep-ansible-operator- cm-654679b876	123.7 MIB	0.002 cores	Sep 7, 10:26	I
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Daemon Sets										
Replica Sets										
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Horizontal Pod Autosca	lers									

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			♣1 O O testl≁
📽 Administrator	+	Project: fep-install-test 👻	
Home	*	FEPClusters > FEPCluster details	Actions 👻
Overview		Details YAML	
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APIExplorer		416 CERTIFICATE	
Events		417 crt: [- 418BEGIN CERTIFICATE 419	
Operators	*	420	
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		424 END RSA PRIVATE KEY-THE	ACCESS OF
Installed Operators		425 status; 426 conditions; 427 - Lastramsitionfime: '2023-02-07104;49;242	The second
Workloads	*	432 - ansibleResult: 433 changed: 6	
Pods		434 completion: '2023-02-07T04:51:49.862517' 435 failures: 0	
Deployments		436 0k: 85	
Deployments		437 skipped: 228	1
DeploymentConfigs		438 LastTransitionTime: '2023-02-07T04:43:17Z' 439 message: Awaiting next reconciliation	- Marine - M Marine - Marine - Mari
and the second		440 reason: Successful	
StatefulSets		-441 status: 'True'	
Secrets		442 type: Running	
		443 >lastTransitionTime: '2023-02-07T04:51:502'	
ConfigMaps		448 fepCurrentInstances: 1 449 feptabelSelector: 'app=new-fep-sts,fepclustername=new-fep'	
		450 FepStatus:	
CronJobs		451 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 15 for Kubernetes Manuals .