Kafkawize

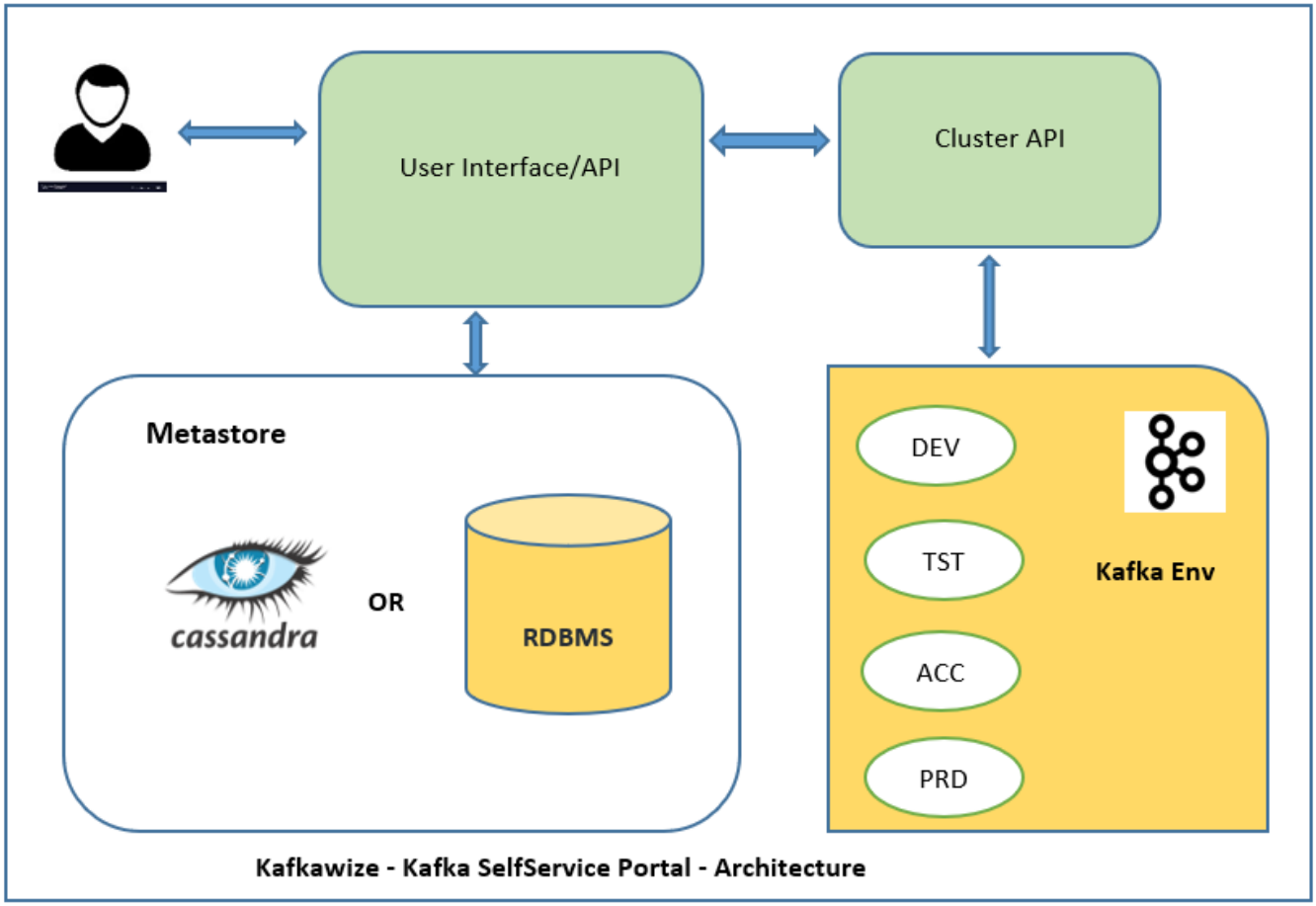
medium.com/@murali.basani/kafkawize-1908b223c082

A Self service Apache Kafka Topic Management portal/tool. A Web application which automates the process of creating and browsing Kafka components, by introducing roles/authorizations to users of various teams of an organization.

> **Github** : https://github.com/muralibasani/kafkawize

Latest release : kafkawize 2.0 includes support for Rdbms as metastore

Technical Architecture



Application details :

Kafkawize contains two main APIs. (User Interface API and Cluster management API)

User Interface API directly communicates between users and Cluster API.

Front end is built with AngularJs, HTML, and Java script.

Cluster API acts as middle layer between Kafka brokers and UserInterface API.
Cluster API creates Kafka Admin Client and executes the requests for Topic, Acls or Schema registry.

Apache Cassandra OR Rdbms(MySql/Oracle/..) datastore stores all users, teams, topics, request and execution data from all the users., and to maintain source of truth.

Spring Security, Spring Boot frameworks, JPA/Hibernate are used to develop this application.

Functionalities :

(Broadly divided into two categories based on user roles.)
ROLE : USER can request for creation of kafka components, and browse kafka components.
ROLE : ADMIN can approve and execute the requests of users to create kafka components.
ROLE : SUPERUSER can synchronize topics meta information with Cassandra Datastore from Kafka Brokers (Source of Truth.)

Browse: (ROLE : USER, ADMIN, SUPERUSER)
All users can Browse Topics
All users can Browse Acls
All users can view the producers and consumers of all topics.

Requests:(ROLE : USER)
Users can request for Kafka Topics
Users can request for Kafka Acl
Users can request for Schemas to be registered on Confluent Schema registry.

Audit :
Users can view all the requests from his team.

Users can view all the activities from his team or as a super user from all teams

Environments:(ROLE : USER)
Users can view the available environments

Approve — Execute :(ROLE : ADMIN)
Users can appprove requests for creating Kafka Topics
Users can appprove requests for creating Kafka Acls
Users can appprove requests for uploading schemas on topics

Users :(ROLE : ADMIN)
Users can view all user details
Users can add new users

Teams :(ROLE : ADMIN, SUPERUSER)
Users can view all team details
Users can add new team

Environments:(ROLE : SUPERUSER)
Users can add a new environment environments

Synchronize Metadata :(ROLE : SUPERUSER)
Users can synchronize topic information from Brokers with Cassandra OR Rdbms(MySql/Oracle/..) datastore. (Update team info.)
Users can synchronize acls information from Brokers with Cassandra OR Rdbms(MySql/Oracle/..) datastore. (Update team info.)

My Profile :(ROLE : USER, ADMIN)
Users can view their profile.

Change Password :(ROLE : USER, ADMIN)
Users can change their passwords.

Logout :(ROLE : USER, ADMIN)
Users can logout.

How to Run the application

KafkaWize needs the following applications to be up and running.

1. Spring boot application KafkaWize
   https://github.com/muralibasani/kafkawize

2. Spring boot application KafkaWize ClusterApi https://github.com/muralibasani/kafkawizeclusterapi
3. Apache Cassandra OR Rdbms(MySql/Oracle/..)

Steps to run with **Cassandra** as Metastore:

1. Install Apache Cassandra
2. Setup project KafkawizeClusterApi and update server.port if necessary in application properties
3. Start KafkaClusterApi
4. Setup project KafkaWize, and configure Cassandra running host, Cluster api host, in application properties
5. Set db.storetype=cassandra in application.properties
6. Start KafkaWize
7. Cassandra db setup will be done on the startup of the application. We do not have to create manually.

Steps to run with **Rdbms** as Metastore:

1. Install an Rdbms database (Mysql or Oracle or ..)
2. Setup project KafkawizeClusterApi and update server.port if necessary in application properties
3. Start KafkaClusterApi
4. Setup project KafkaWize, and configure Cassandra running host, Cluster api host, in application properties
5. Set db.storetype=rdbms and few other datasource properties in application.properties
6. Start KafkaWize
7. Run the ddl and insert scripts available in src/main/resources/scripts/base/rdbms.

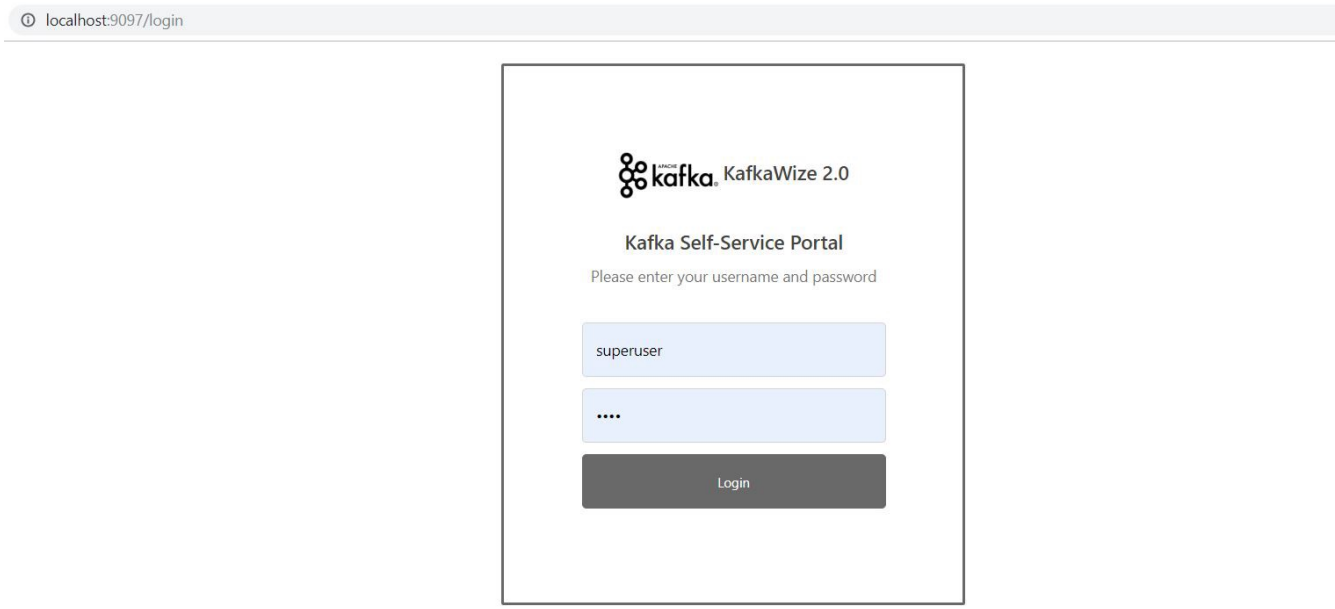
By default KafkaWize runs on port 9097. Access it by http://localhost:9097

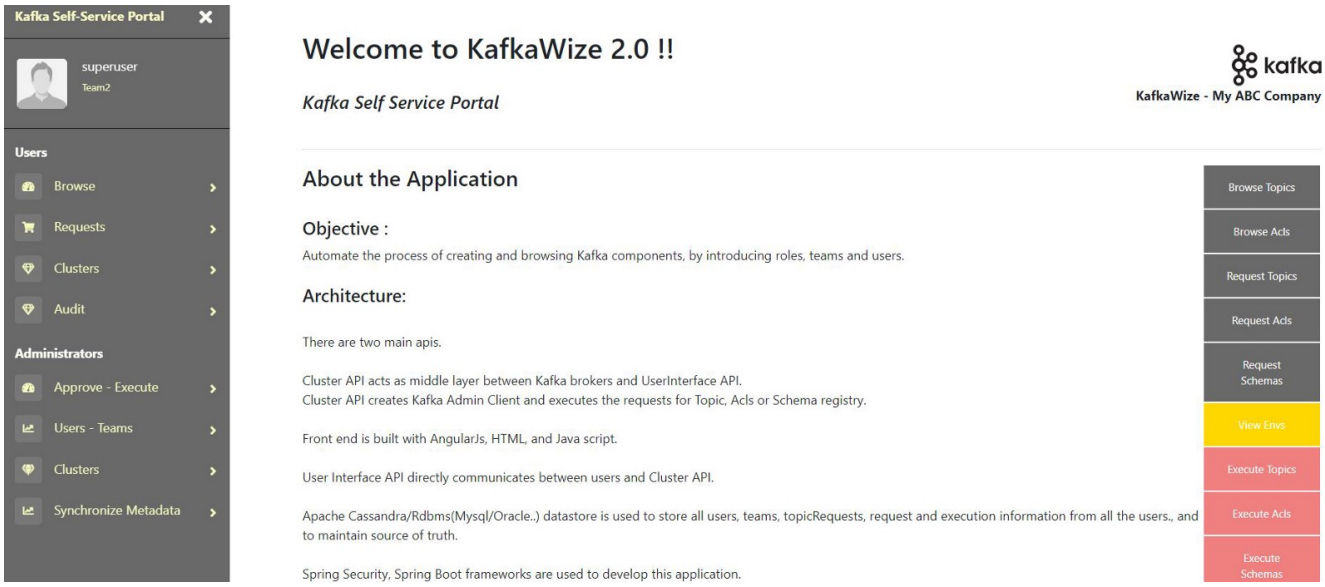
Default Teams Team1 Team2 Team3

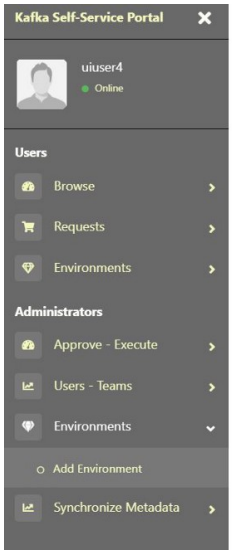
Default Users(with pwds)

uiuser1/user from Team1
uiuser2/user from Team2
uiuser4/user from Team1 Admin
uiuser5/user from Team2 Admin
superuser/user from Team2 Superuser

Screenshots :







Add New Environment

kafka
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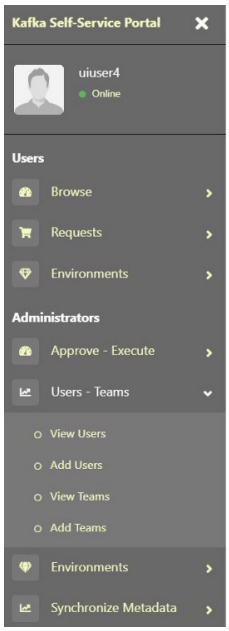
Existing Environments	
New Environment name	ACC_KAFKA
Host	kafka-acc-env
Port	9092
Protocol	plain
Environment Type	kafka

Add



Add New Team

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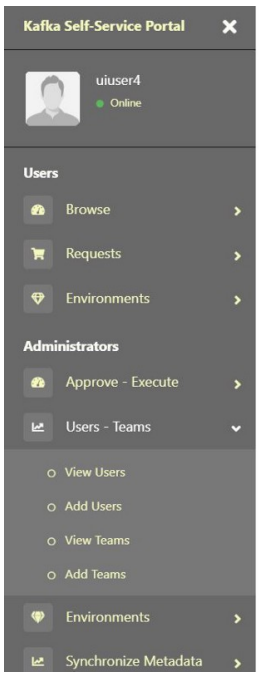
Existing Teams	Team2
New Team Name	Team4
Team Mail	team4@team.com
Team Phone	+3142342432
Team Contact Person	Kafka Wizer
Team Application	My Kafka App

Submit New Team

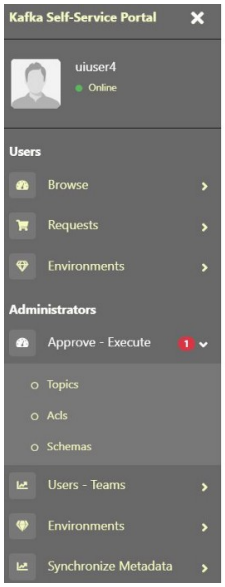


Add New User

KafkaWize -

User Name	kafkawizeuser10
Full Name	Kafka Wizer
Password	•••••••
Team	Team2
Role	USER

Submit New User



Execute Acls

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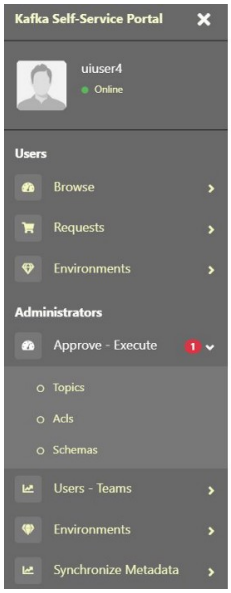
	TopicName	AclType	ConsumerGroup	Environment	Requestor	Acl_IP	Acl_SSL	Application	Requesting Team	Remarks	Status	RequestedTime	ApprovingTime
◉	demotopic2	Consumer	newgroup	DEV	uiuser1	127.0.0.1		NewApp	Team1	Remarks	created	Sat Dec 01 21:40:52 CET 2018	null

Approve Acl Requests



Execute Topics

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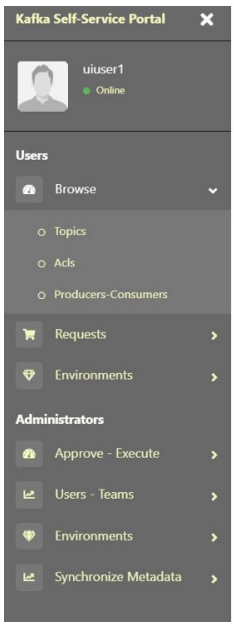
	TopicName	TopicPartitions	TopicReplicationFactor	Environment	Requestor	Acl_IP	Acl_SSL	Application	Team	Remarks	Status	RequestedTime	Approving
○	demotopic4	2	1	DEV	uiuser1	127.0.0.1		App	Team1	Pls approve	created	Sat Dec 01 21:44:03 CET 2018	null

Approve Topic Request



Browse Acls

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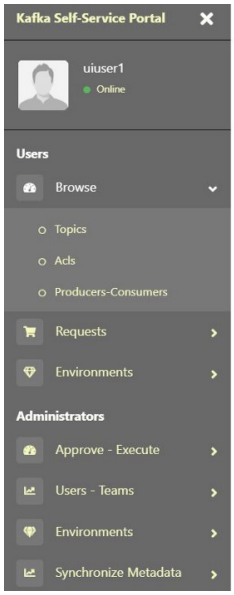
Environment DEV

Show

Pages: [1] 2

Sequence	TopicName	ConsumerGroup	Hosts	Principle	AclType	Owned by
1	testtopic		127.0.0.1	User:*	Producer	Team1
2	demotopic1		127.0.0.1	User:*	Producer	Team3
3		testconsumergroup	127.0.0.1	User:*	Consumer	Team2
4	testtopic13		127.0.0.1	User:*	Consumer	Team2
5	testtopic4		127.0.0.1	User:*	Producer	
6	testtopic1		127.0.0.1	User:*	Producer	
7	testtopic		localhost	User:*	Producer	
8	testtopic2		127.0.0.1	User:*	Producer	
9	testtopic12		127.0.0.1	User:*	Producer	
10	testtopic10		127.0.0.1	User:*	Producer	



Browse Topics

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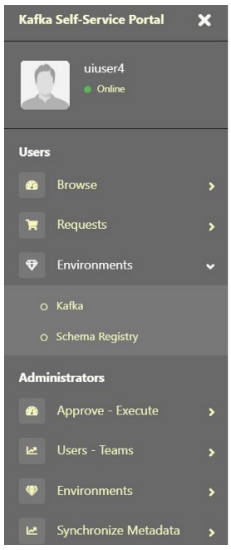
Environment DEV

Show

Pages: [1]

Sequence	TopicName	Partitions	Replicas	Owned by
1	demotopic1	1	1	Team1
2	demotopic2	1	1	Team1
3	testtopic10	1	1	Team3
4	testtopic11	1	1	Team2
5	testtopic12	1	1	Team3
6	testtopic13	1	1	Team1
7	testtopic1	1	1	Team3
8	testtopic2	1	1	Team3
9	testtopic4	1	1	



Kafka Environments

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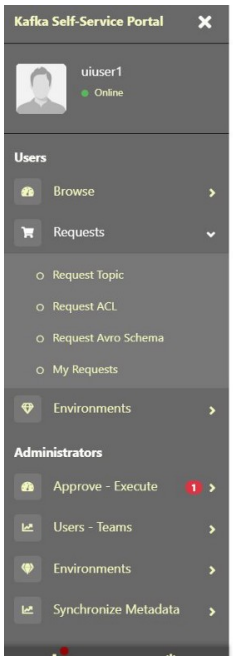
Environment	Host	Port	Protocol	Type
DEV_NEW	127.0.0.1	9095	plain	kafka
DEV	localhost	9092	PLAIN	kafka
TST_SSL	tesstserver	9093	SSL	kafka
TST	tesstserver	9092	PLAIN	kafka

Schema Registry Environments

Environment	Host	Port	Protocol	Type
DEV_SCHEMAREGISTRY	localhost	8081	PLAIN	schemaregistry



My Requests

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Topic Requests

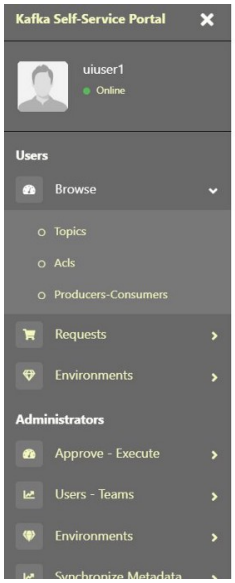
	TopicName	Environment	Requestor	Acl_IP	Acl_SSL	Application	Team	Remarks	Status	RequestedTime	ApprovingTime
○	demotopic1	DEV	uiuser1	127.0.0.1		App1	Team1	Please create the topic	approved	Sun Nov 18 19:40:32 CET 2018	Sun Nov 18 19:43:12 CET 2018
○	demotopic2	DEV	uiuser1	127.0.0.1		App	Team1	Rem	approved	Sat Dec 01 18:15:17 CET 2018	Sat Dec 01 18:15:33 CET 2018

Delete Topic Request

Acl Requests

	TopicName	AclType	ConsumerGroup	Environment	Requestor	Acl_IP	Acl_SSL	Application	Topic Owner Team	Remarks	Status	RequestedTime	ApprovingTime
○	demotopic2	Consumer	newgroup	DEV	uiuser1	127.0.0.1		NewApp	Team1	Remarks	created	Sat Dec 01 21:40:52 CET 2018	null

Delete Acl Request



Producers-Consumers

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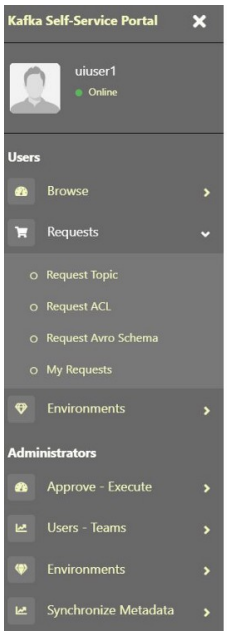
Environment DEV

Show

Topic	Producer Teams	Consumer Teams
testtopic1	Team3	
demotopic1	Team1 Team3	Team3
testtopic13	Team1 Team2	Team2 Team1 Team3
testtopic5	Team2	
testtopic10	Team3	



Request For ACL

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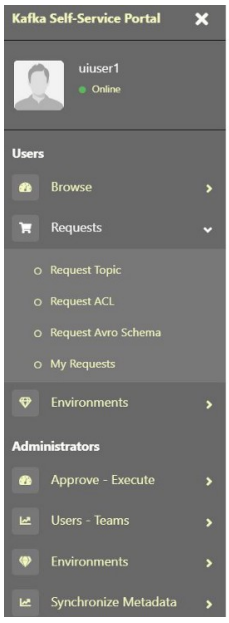
Select Environment DEV
Topic Names demotopic2
Type Consumer
Consumer group newconsumergroup
Acls IP 127.0.0.1
Acls SSL Ex:CN=cnname,OU=IS,OU=OU,OU=Services,O=Org
Topic Owner Team Team1
Team Application TeamApp1
Remarks Pls approve

Submit Acl Request



Request For Topics

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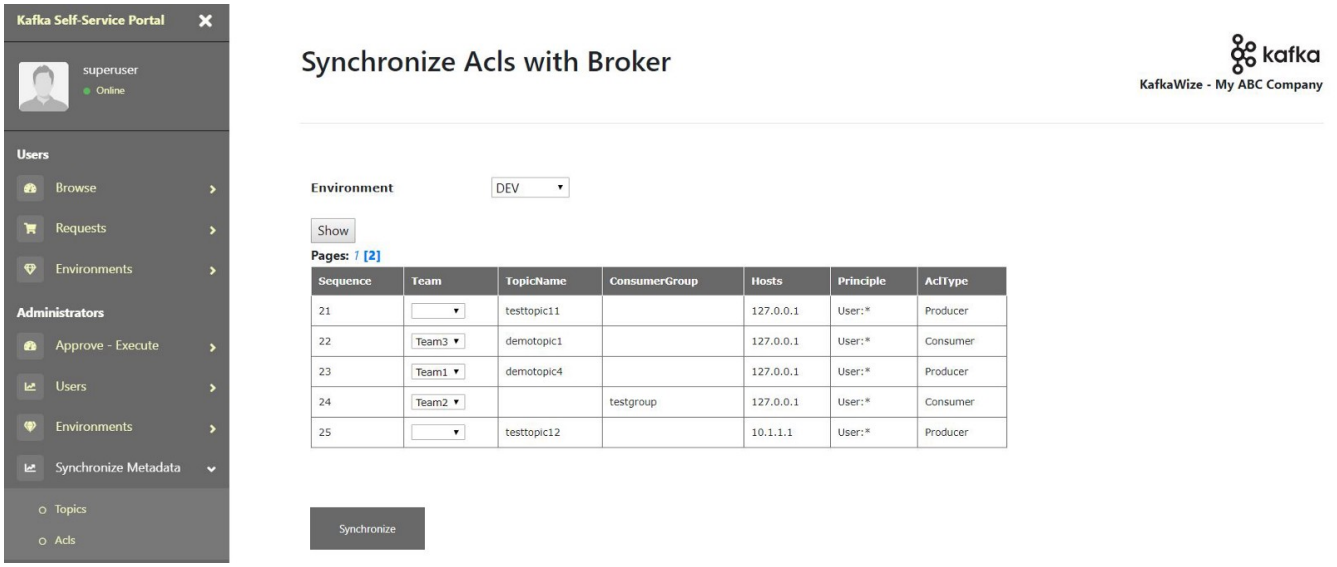
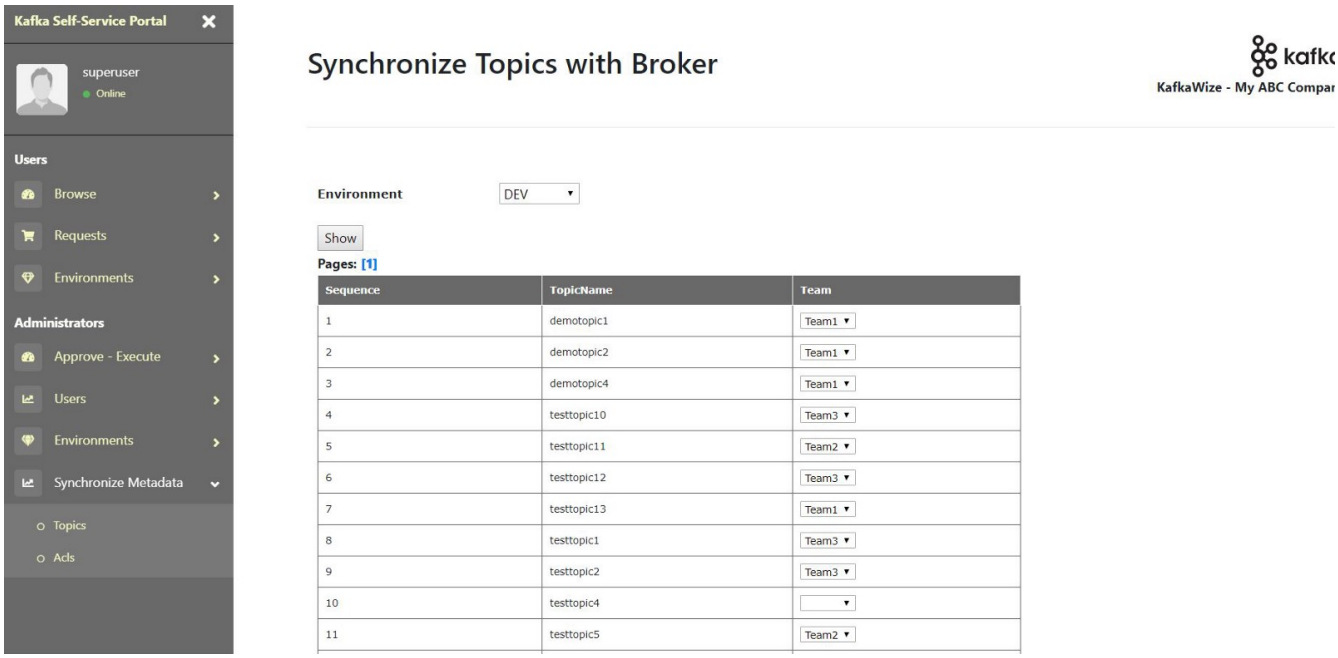
Select Environment DEV
Topic Names demotopic3
Topic Partitions 2
ACLs IP 127.0.0.1
ACLs SSL Ex:CN=cnname,OU=IS,OU=OU,OU=Services,O=Org
Team Team1
Team Application App1
Remarks Pls approve

Submit Topic Request





Github : https://github.com/muralibasani/kafkawize

Kafkawize is an opensource project. Please contribute/checkout to this github project.