



Configuration Document

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Version History

Version	Date	Nature of Amendment
1.0	25 th May, 2020	First Version
1.1	23 rd June, 2020	Added Specs, Configuration Parameter details

Definitions, Abbreviations and Acronyms

SL	Term	Description
1	FP	Findability Platform
2	FS	Findability Sciences
3	CSV	Comma Separated Values
4	Training File	A CSV file containing the historical dataset required to train the system and create the models.
5	Target Variable	The variable present in the Training file for which the system is being trained.
6	Prediction File	A CSV file containing the dataset where the values of target variables are to be predicted. Values of the target variable may or may not be known beforehand.
7	Id variable	The variable which is used to uniquely identify the records in the dataset.
8	Models file	System generated models file, which may be used to run prediction only jobs. This file is generated for Modeling only and Modeling and Prediction Jobs.
9	Decile	10 th part of the Results
10	Hits Percent	Percentage of hits for a given decile
11	Random Probability	Probability of finding the hits in the whole data set
12	Lift	Hits Percent / Random Probability
13	Outlier	An outlier is an observation that lies outside the overall pattern of a distribution
14	Binary target variable	Only two unique values present in the target variable.
15	Discrete target variable Case (DTV)	Case where the predicted value must be one of the values present in target variable in training file.
16	Continuous Target variable Case (CTV)	Case where the predicted value can be beyond the values present in target variable in training file.
17	PV	Persistent Volume
18	PVC	Persistent Volume Claim

1. Overview

1.1 Intended Audience

This document is intended to cover the configuration for deployment of FP-Predict+ on OpenShift using Operator.

2. System Requirements

Table 1 - System Requirements

SNo	Requirement	Value	Comment
1	CPU	8 Cores	May need to be tweaked based on jobs
2	Ram	16Gb	May need to be tweaked based on jobs
3	Storage	50 GB	May need to be tweaked based on jobs
4	Storage Types	NFS and Portworx	These are the storages with which the system. Please note PV must be created before deployment.
5	Number of Replicas	1	System will create only one copy of the container for one deployment.

3. Deployment Steps

1. Make sure you have create a namespace, in which we want to deploy Fp-Predict+. For the following steps, we are assuming we have created the namespace with name “fppredict-plus”

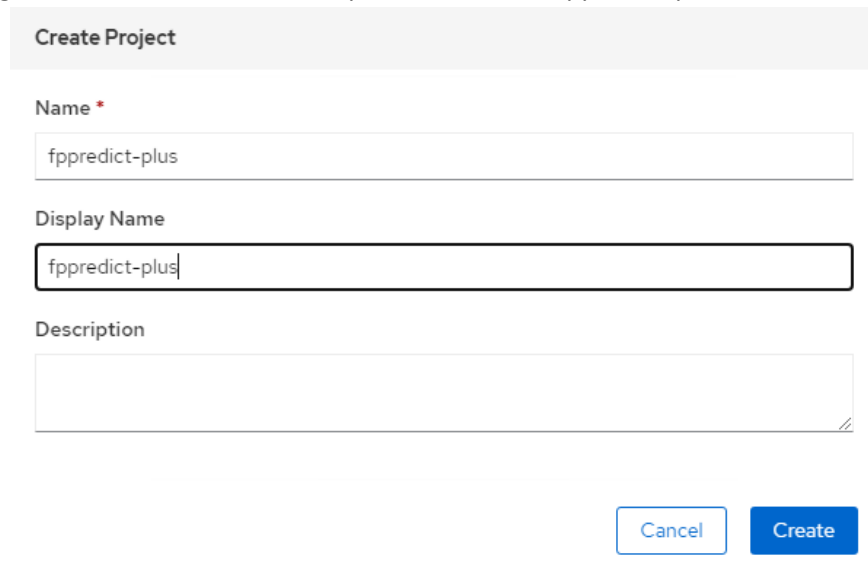


Figure 1 - Create Project

2. In case your cluster is hosted on IBM cloud, and you are using IBM Cloud File storage as persistent volume, please following the steps in Appendix #1 to create a Persistent Volume and PVC before next steps.
3. Go to OperatorHub on your cluster and install “FP Predict Plus Operator”

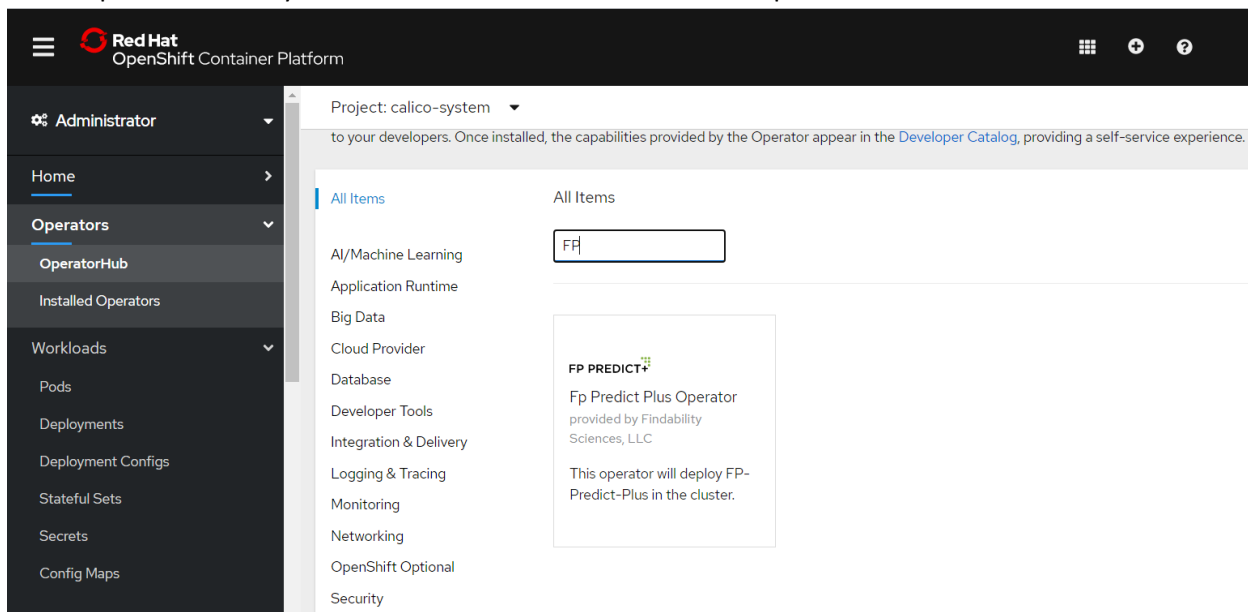


Figure 2 - OperatorHub

Create Operator Subscription

Install your Operator by subscribing to one of the update channels to keep the Operator up to date. The strategy determines either manual or automatic updates.

Installation Mode *

All namespaces on the cluster (default)
Operator will be available in all namespaces.

A specific namespace on the cluster
Operator will be available in a single namespace only.

Update Channel *

stable

Approval Strategy *

Automatic

Manual

Fp Predict Plus Operator
provided by Findability Sciences, LLC

Provided APIs

FP FP-Predict-Plus

FP-Predict-Plus Automated Predictions

Figure 3 - Create Operator Subscription

Project: fppredict-plus ▼

Installed Operators

Installed Operators are represented by Cluster Service Versions within this namespace. For more information, see the [Operator Lifecycle Manager documentation](#). Or create an Operator and Cluster Service Version using the [Operator SDK](#).

Filter by name...





Name ↑	Namespace	Deployment	Status	Provided APIs
 Fp Predict Plus Operator 0.0.4 provided by Findability Sciences, LLC	 fppredict-plus	 fp-predict-plus-operator	 Succeeded Up to date	FP-Predict-Plus

Figure 4 - Installation Succeeded

- After installation, create an instance of FP Predict+, by first going to installed operators and Clicking on “Fp Predict Plus Operator”.

Project: fppredict-plus

Installed Operators

Installed Operators are represented by Cluster Service Versions within this namespace. For more information, see the [Operator Lifecycle Manager documentation](#). Or create an Operator and Cluster Service Version using the [Operator SDK](#).

Filter by name...






Name ↑	Namespace	Deployment	Status	Provided APIs
 Fp Predict Plus Operator 0.0.4 provided by Findability Sciences, LLC	 fppredict-plus	 fp-predict-plus-operator	 Succeeded Up to date	FP-Predict-Plus <div style="float: right;">⋮</div>

Figure 5 - FP-Predict+ Operator Details

Project: test-24-05-2020


Installed Operators > Operator Details

 **Fp Predict Plus Operator**
0.0.2 provided by Findability Sciences, LLC

Actions

Overview | YAML | Subscription | Events | **FP-Predict-Plus**

Provided APIs

 **FP-Predict-Plus**
 FP-Predict-Plus Automated Predictions

[Create Instance](#)

Provider
Findability Sciences, LLC

Created At
May 24, 6:26 pm

Links
Website
<https://findabilitysciences.com>

Maintainers
Findability Sciences, LLC
support@findabilitysciences.zendesk.com


Description

This operator will deploy FP-Predict-Plus in the cluster.

Figure 6 - Instance Deployment

Then, click on FP-Predict-Plus and then Create Instance.

Project: fppredict-plus

 **Fp Predict Plus Operator**
0.0.4 provided by Findability Sciences, LLC

Actions

Overview | YAML | Subscription | Events | **FP-Predict-Plus**

FPpredictpluses

[Create FPpredictplus](#)

Filter by name...

Figure 7 - Create Instance

- On Create instance, System will provide you with a Screen showing you YAML to be updated before you create a new instance. The Options to be updated as follows:

To be noted, the convention here (var1 > var2) corresponds to var2 under var1.

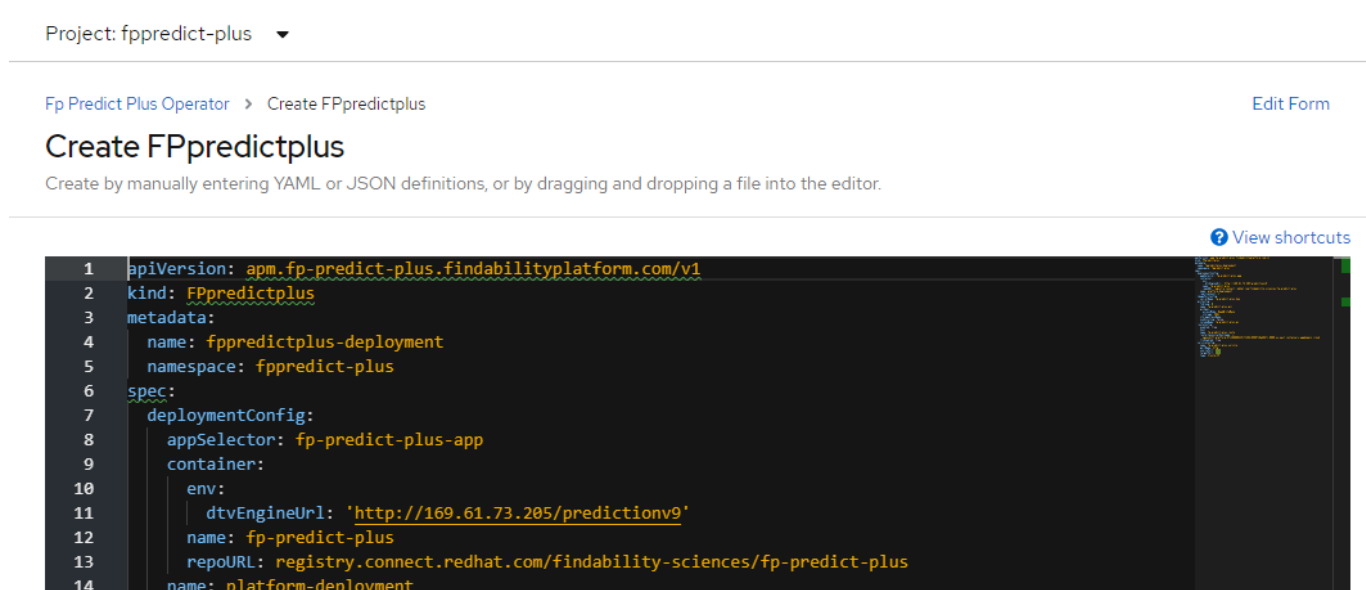


Figure 8 - Default YAML

Table 2 - YAML Options

Sno	Name	Description	Default Value	Comments
1	metadata > name	Name of the deployment	fppredictplus-deployment	Should update the value
2	metadata > namespace	Namespace in which the instance will be deployed	-	
3	spec > deploymentConfig > appSelector	App selector used by the routes and services for association	fp-predict-plus-app	Only change if deploying multiple instances in same namespace
4	spec > deploymentConfig > container > env > dtvEngineUrl	URL of CTV engine. Pod must be able to access the URL to run	http://169.61.73.205/predictionv9	Do not change the value. In case your instance is airgapped, whitelist this URL to run DTV jobs.
5	spec > deploymentConfig > container > name	Name of the deployment config	platform-deployment	Only change if deploying multiple instances in same namespace

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Sno	Name	Description	Default Value	Comments
6	spec > deploymentConfig > container > repoURL	Repository URL of container		Do not change the value
7	spec > deploymentConfig > container > replicas	Number of replicas to be maintained	1	Do not change the value
8	imagePullConfig > secretName			Do not change the value
9	pvcConfig > fsGroup	Group ID of user which has the access to the persistent storage.	0	Change as per your setup. By default, system requires that we persistent storage should be writable by group id 0
10	pvcConfig > name	Name of the PVC	fp-predict-plus-pvc	Only change if deploying multiple instances in same namespace. Change this to the pvc name given in Appendix #1 in case you are using IBM Cloud.
11	pvcConfig > pvcSpec > accessMode	Access mode requested by the PVC	ReadWriteMany	Do not change the value
12	pvcConfig > volumeName	volumeName to be used for creating the pvc		fp-predict-plus-pv
12	pvcConfig > pvcSpec > storage	Storage size requested by the PVC	50Gi	Suggested is 50Gi. Based on your use case, should be updated. Must be less than or equal to the Persistent volume size
13	pvcConfig > storageClassName	Storage class name with which the pvc is to be created	-	If kept empty, will use default storageclass. Please use your default. Make sure the PV allows non root users

Sno	Name	Description	Default Value	Comments
				write privileges on the PV.
14	pvcConfig > useExisting	Allows users to create a PVC first and then use that for the system instead of creating a new PVC during deployment	False	Helps in cases where there are storage classes which automatically provision PV with the correct Privileges. Eg: *-gid classes on IBM cloud. In that case you have created a PVC first (Appendix #1), change this value to "True"
15	serviceConfig > name	Name of the service which will be created	fp-predict-plus-service	Only change if deploying multiple instances in same namespace
16	serviceConfig > portName	Name of the port	http	Do not change the value
17	serviceConfig > sourcePort	Source port of the service	8080	Do not change the value
18	serviceConfig > targetPort	Target port of the service	8080	Do not change the value
19	serviceConfig > type	Type of Service	ClusterIP	Do not change the value
20	routeConfig > enabled	Controls in case we need to create the	True	Do Not change the value
21	routeConfig > host	Host name with which the application is to accessed.	-	Leave it empty if you don't have a Domain available. In that case the URL will be generated automatically
22	routeConfig > name	Name of the route		Only change if deploying multiple instances in same namespace

Sno	Name	Description	Default Value	Comments
23	routeConfig > routerCanonicalHostname	Hostname of the deployment. This setting will be used to setup the URL, in case host is empty.	openshift-platform-5fc468809245cf1363c9989f10ab9bfc-0000.us-east.containers.appdomain.cloud	Must change the value corresponding to the cluster. If console URL is console-openshift.example.com , this value will be example.com
24	routeConfig > tlsEnabled	Controls if TLS is to be enabled for the route	True	Do Not change the value

At the minimum, please update the PVC and routerCanonicalHostname to deploy the container. After changes, press Create.



Figure 9 - Create Operand

After clicking Create, system will show a list of operands deployed.



Name ↑	Labels ↓	Kind ↓	Status ↓	Version ↓	Last Updated ↓
 fppredictplus-deployment	No labels	FPpredictplus	Unknown	Unknown	 a minute ago

Figure 10 - Operand List

After this, we may go to Workloads -> Pods and wait for the pod starting with the name you provided in the section above (#1) and wait for it to be ready.

Name ↑	Namespace ↓	Owner ↓	Node ↓	Status ↓	Readiness ↓
fp-predict-plus-operator-bbb6df9fb-k9sq4	test-24-05-2020	fp-predict-plus-operator-bbb6df9fb	10.190.51.158	Running	Ready
platform-deployment-56b59b5796-rd7k7	test-24-05-2020	platform-deployment-56b59b5796	10.190.51.174	Running	ContainersNotReady

Figure 11 - Pod Not Ready

Name ↑	Namespace ↓	Owner ↓	Node ↓	Status ↓	Readiness ↓
fp-predict-plus-operator-bbb6df9fb-k9sq4	test-24-05-2020	fp-predict-plus-operator-bbb6df9fb	10.190.51.158	Running	Ready
platform-deployment-56b59b5796-rd7k7	test-24-05-2020	platform-deployment-56b59b5796	10.190.51.174	Running	Ready

Figure 12 - Pod Ready

After Pod is ready, you can access the application by navigating to the URL present in the route. Make sure you are using the same route that we provided in the previous section (#22).

Name ↑	Namespace ↓	Location ↓	Service ↓	Status
fp-predict-plus-route	test-24-05-2020	https://fp-predict-plus-route-test-24-05-2020.openshift-platform-5fc468809245cf1363c9989f10ab9bfc-0000.us-east.containers.appdomain.cloud/	fp-predict-plus-service	Accepted

Figure 13 - Route and Application URL

4. Post Deployment Steps

1. Login into the system with following default credentials:

- URL: <URL got from the route in the previous section>
- Username: admin@findabilityplatform.com
- Password: fppr3dictpLu5

2. Accept the End User License Agreement:

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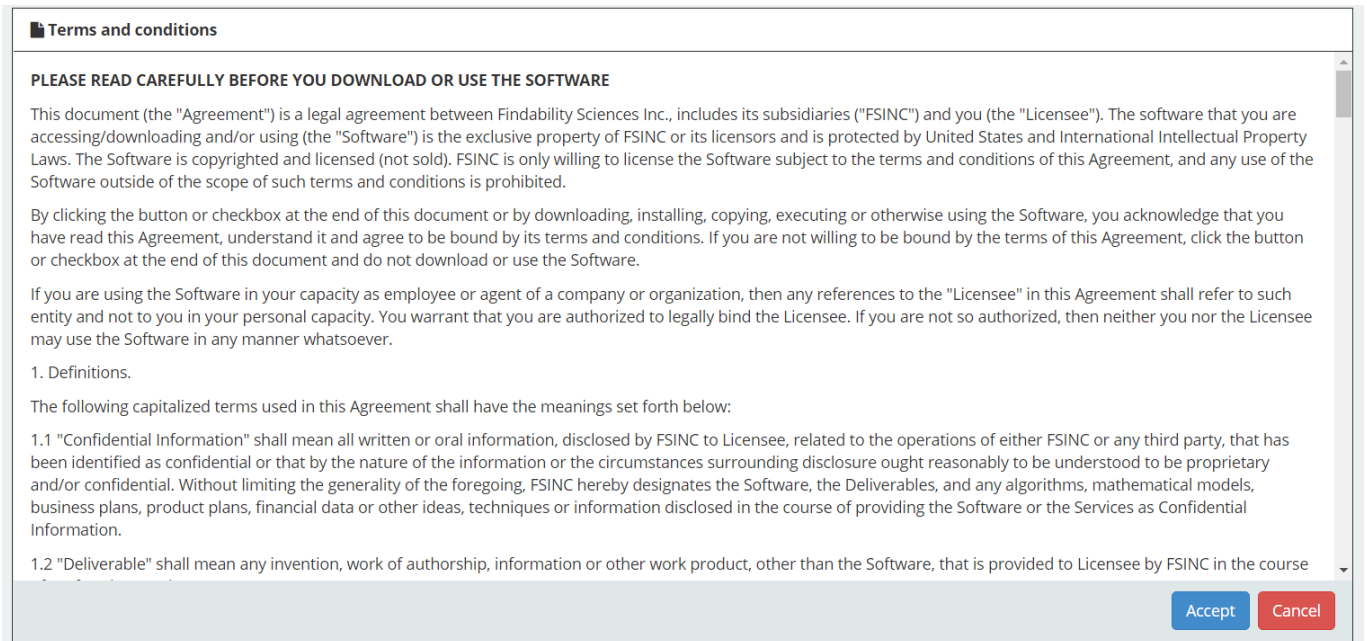


Figure 14 - EULA

3. On the Register instance Page, download and share the system information file with support@findabilitysciences.zendesk.com for getting a license.

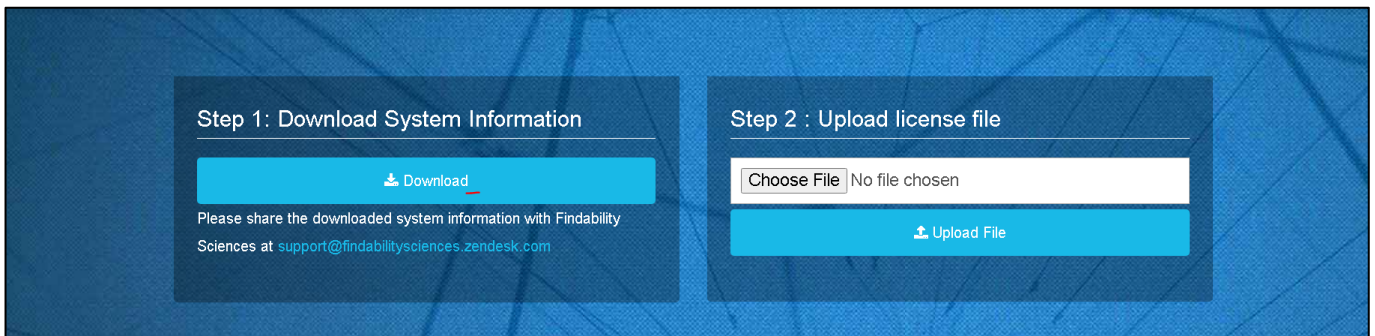


Figure 15 - Download System Information

The Support team will share a license file with you, based on the system information collected, specific to this instance. Apply the license by using the upload license button.

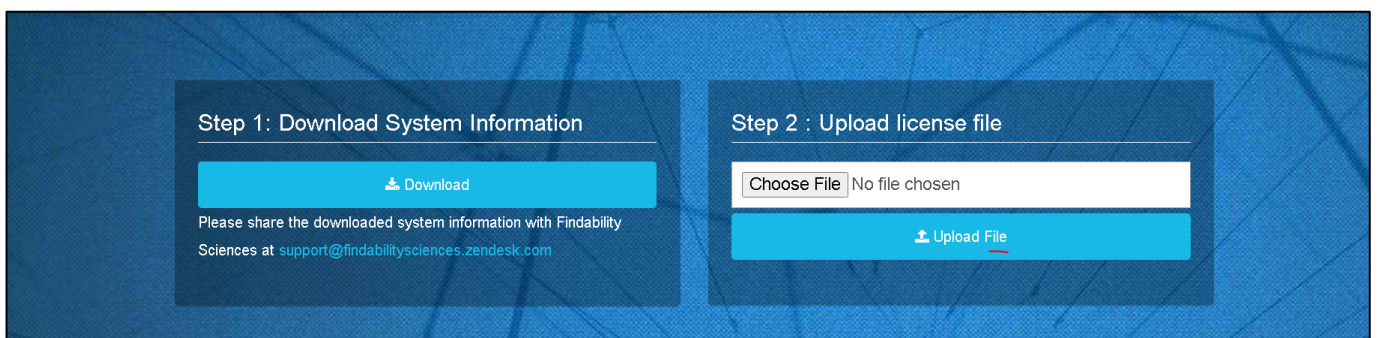


Figure 16 - Upload license

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After the license is successfully, applied system will redirect you to the license information page.

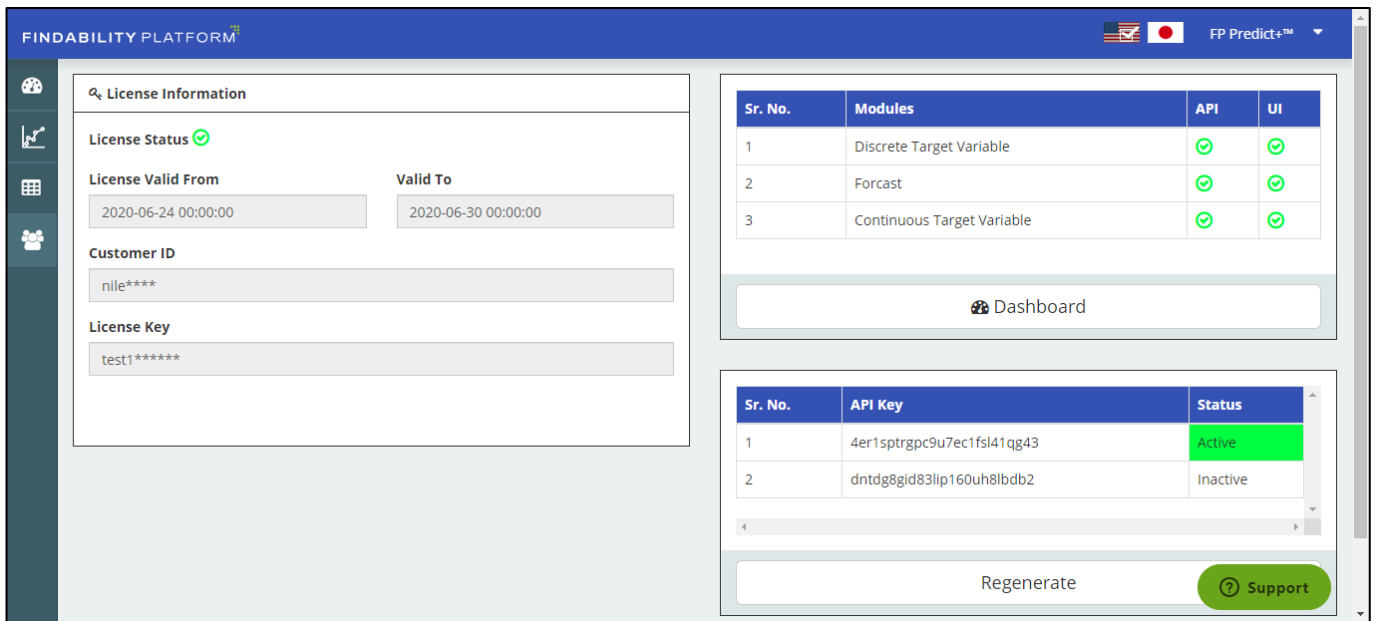


Figure 17 - License Info

5. Uninstallation





1. Go to Installed operators and click on FP-Predict+ Operator.

Project: fppredict-plus ▾

Installed Operators

Installed Operators are represented by Cluster Service Versions within this namespace. For more information, see the [Operator Lifecycle Manager documentation](#). Or create an Operator and Cluster Service Version using the [Operator SDK](#).

Filter by name...

Name ↑	Namespace	Deployment	Status	Provided APIs
 Fp Predict Plus Operator 0.0.4 provided by Findability Sciences, LLC	 fppredict-plus	 fp-predict-plus-operator	 Succeeded Up to date	FP-Predict-Plus

2. Click on FP-Predict-Plus Tab.

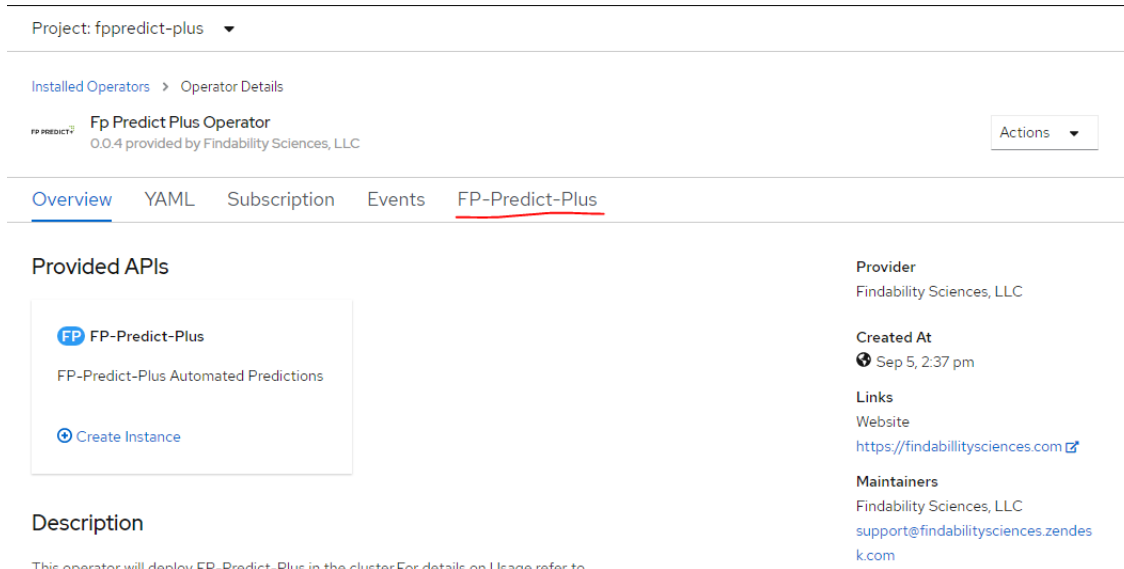


Figure 18 - Fp-Predict-Plus

- Use Delete FpPredictPlus Option to remove the delete the instance created.

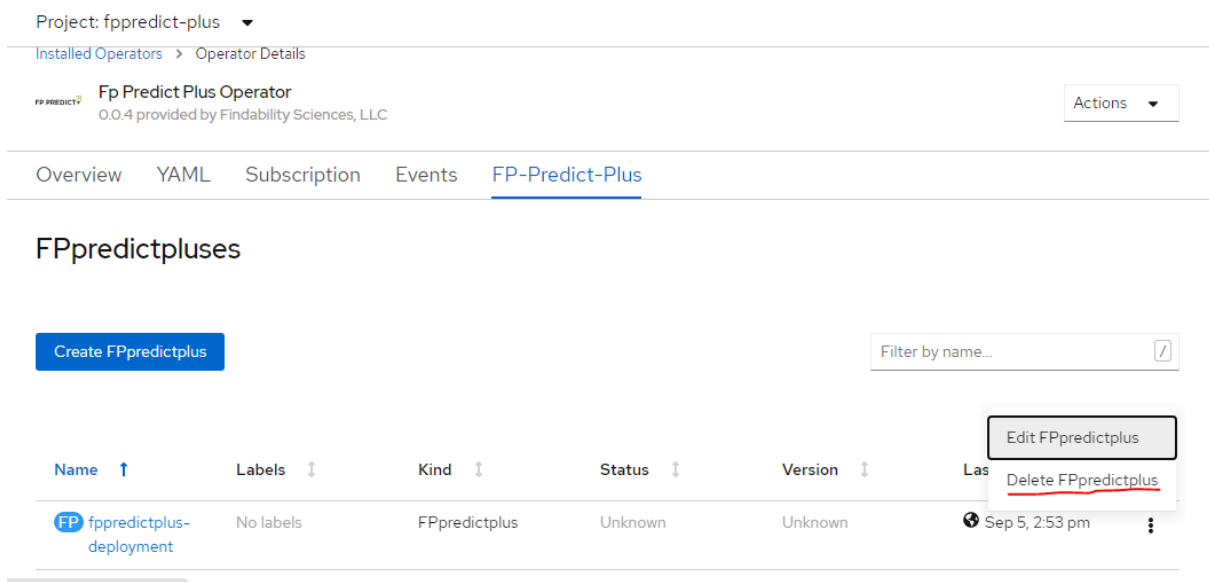


Figure 19 - Delete FP-Predict-Plus

- After deleting the instance, remove the PVC created in case you are using IBM Cloud.

Appendix #1: Create persistent volume and Volume Claim in IBM Cloud

1. Make sure to note in which zone your worker pool is present

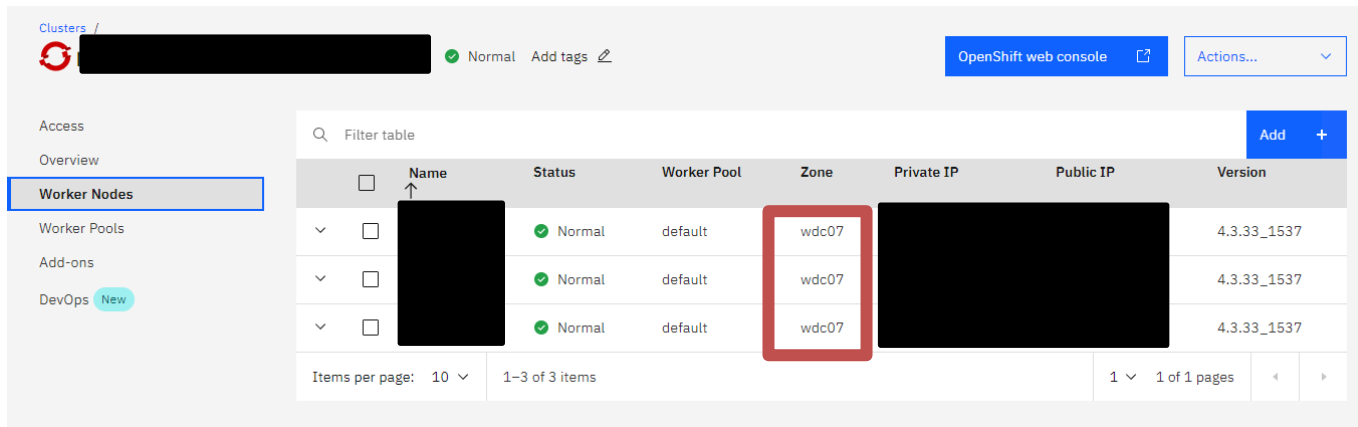


Figure 20 - Worker Nodes

2. Create a persistent volume using the YAML file below. Make sure to update zone and region (highlighted in red) as per the Cluster info below. Also note the name you are giving here, which we will put configuration during the deployment.
Also make sure that we are creating the Persistent volume claim in the correct project/namespace.

Make sure that storage class is of type "ibmc-file-*gid"

```

apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: fppredict-plus-pvc
  namespace: fppredict-plus
labels:
  billingType: "hourly"
  region: us-east
  zone: wdc07
spec:
  accessModes:
    - ReadWriteMany
  resources:
    requests:
      storage: 20Gi
  storageClassName: ibmc-file-gold-gid
  
```

Project: fppredict-plus ▾

Create Persistent Volume Claim

[Edit YAML](#)

Storage Class

SC ▾

Storage class for the new claim.

Persistent Volume Claim Name *

A unique name for the storage claim within the project.

Access Mode *

Single User (RWO) Shared Access (RWX) Read Only (ROX)

Permissions to the mounted drive.

Size *

GiB ▾

Desired storage capacity.

Figure 21- Create PVC - 1

Create Persistent Volume Claim

Create by manually entering YAML or JSON definitions, or by dragging and dropping a file into the editor.

```

2  kind: PersistentVolumeClaim
3  metadata:
4    name: fppredict-plus-pvc
5    namespace: fppredict-plus
6    labels:
7      billingType: "hourly"
8      region: us-east
9      zone: wdc07
10 spec:
11   accessModes:
12     - ReadWriteMany
13   resources:
14     requests:
15       storage: 50Gi
16   storageClassName: ibmc-file-gold-gid

```

Figure 22 - Create PVC 2

3. After after pressing create, wait for the status to become ready, before continuing further installation. Make sure you have a dedicated pvc for every new instance.

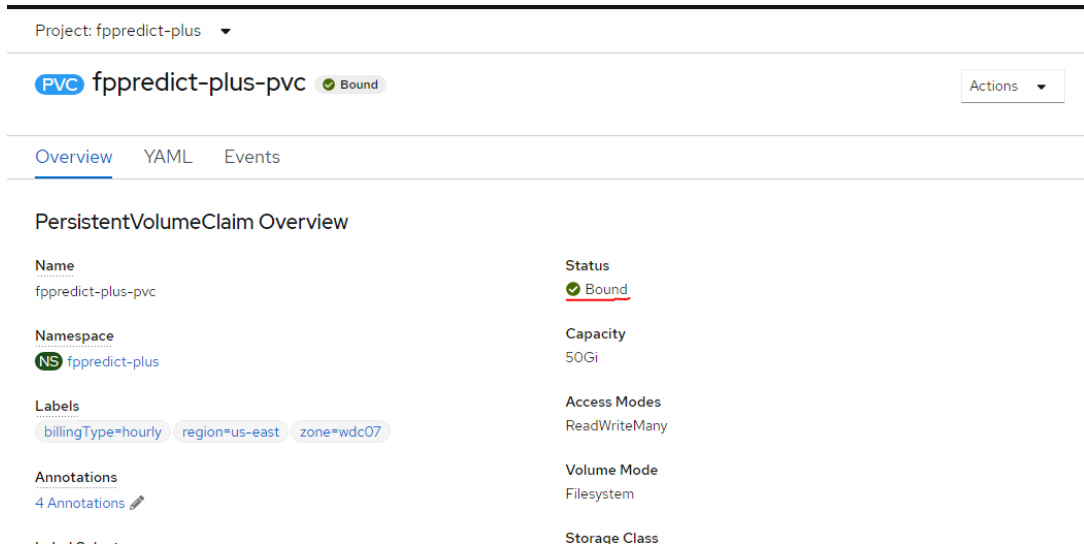


Figure 23 - Volume ready

- If you are uninstalling Fp-Predict+, make sure you install the PVC created here manually after uninstalling the instance.

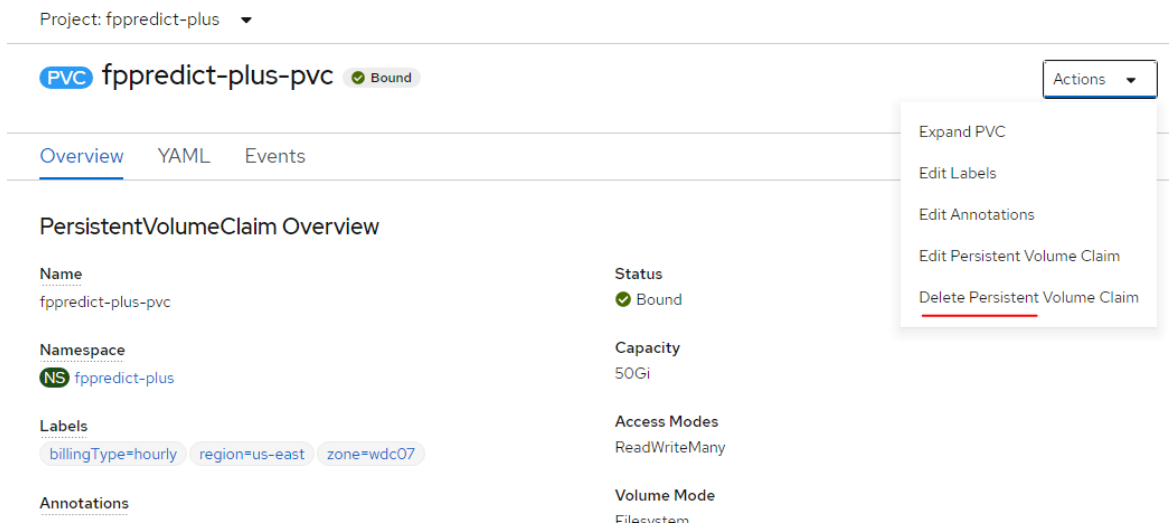


Figure 24 - Delete Claim