

# Cloud Pak for Data 3.0.1 on Managed OpenShift (IBM Cloud)

Date of last update: 06/30/2020

## Deployment Steps

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1. Create Managed OpenShift v4.3 cluster
2. Deploy CP4D v3.0.1
3. Create File Storage for Watson Discovery
4. Gather parameter values
5. Configure OpenShift v4.3
6. Create NFS storage class and provisioner
7. Prepare Watson Discovery v2.1.3 installation files
8. Deploy Watson Discovery v2.1.3
9. Launch Watson Discovery

### Prerequisites

To deploy Cloud Pak for Data, you must already have a valid license. If your organization has already purchased a valid license, your account administrator must bind the entitlement to your IBM Cloud account before you can assign an entitlement by using the **Create** tab. If your organization has not yet purchased a license, contact your IBM sales representative.

To install Cloud Pak for Data on IBM Cloud, you must have an [IBM Red Hat OpenShift Version 4.3.18 or above](#) single-zone classic cluster on IBM Cloud.

## Infrastructure

Choose which network and compute environment to run your cluster on. [Learn more about the differences.](#)

### Classic

Run your cluster with native subnet and VLAN networking on our classic infrastructure.



### VPC

Create a fully customizable, software-defined virtual network with superior isolation using IBM Cloud VPC.

## Location

Choose your location and configure your VLANs. [Learn more about this.](#)

Resource group

Development and POC

Geography

North America

Availability

Single zone

Worker zone

Dallas 13



## Select a flavor for the worker pool



Filter 1 x

Flavor ①

### Machine

- ☐ Bare Metal (9)
- ☐ Virtual - shared (16)
- ☒ Virtual - dedicated (9)

### Use cases

- ☐ Balanced Cores and RAM (10)
- ☐ Extra local storage for SDS (4)
- ☐ GPU (0)
- ☐ RAM-intensive (13)
- ☐ Data-intensive (9)

### Size

- ☐ Medium (17)
- ☐ Large (16)

**4 vCPUs 16GB RAM**  
Virtual - dedicated  
b3c.4x16  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$0.53 / hr**

**8 vCPUs 32GB RAM**  
Virtual - dedicated  
b3c.8x32  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$0.72 / hr**

**16 vCPUs 16GB RAM**  
Virtual - dedicated  
c3c.16x16  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$0.88 / hr**

**16 vCPUs 32GB RAM**  
Virtual - dedicated  
c3c.16x32  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$0.98 / hr**

**16 vCPUs 64GB RAM**  
Virtual - dedicated  
b3c.16x64  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$1.27 / hr**

**32 vCPUs 32GB RAM**  
Virtual - dedicated  
c3c.32x32  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$1.53 / hr**

**32 vCPUs 64GB RAM**  
Virtual - dedicated  
c3c.32x64  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$1.75 / hr**

**32 vCPUs 128GB RAM**  
Virtual - dedicated  
b3c.32x128  
RHEL  
25GB SSD primary disk  
100GB SSD secondary disk  
1Gbps network speed  
**\$2.10 / hr**

(Minimum is 16X64 Virtual Nodes (3 min))

### Worker pool

Set up a worker pool with the flavor and number of worker nodes that you want to run your first workload. At any time later, you can add more worker pools with different flavors, or resize your worker pools to fit the resource needs of your workloads.

Bare metal, RHEL

16  
Cores

64 GB  
Memory

\$1,550.00 / month  
Cost

Change flavor

Worker nodes per data center

4

x 1 zone  
= 4 workers total

Encrypt local disk

☒ On

Infrastructure permissions checker

Permission requirements and suggestions satisfied

For more information, see [Getting started with Red Hat OpenShift on IBM Cloud](#).

To install Cloud Pak for Data on IBM Cloud, a user must have the following IAM Roles:

- Account Management > License and Entitlement > Platform Editor role - To assign license

What type of access do you want to assign?

License and Entitlement

Platform access

☐ Viewer 10 As a viewer, you can view service instances, but you can't modify them.

☐ Operator 20 As an operator, you can perform platform actions required to configure and operate service instances, such as viewing a service's dashboard.

☒ Editor 30 As an editor, you can perform all platform actions except for managing the account and assigning access policies.

☐ Administrator 40 As an administrator, you can perform all platform actions based on the resource this role is being assigned, including assigning access policies to other users.

Reset

Add

- IAM Services > Schematics > Service Manager role in any resource group - To create workspace

What type of access do you want to assign?

Schematics x v in Account x v

workspaceId

string equals v ⓘ

Platform access ⓘ

☐ Viewer 10 As a viewer, you can view service instances, but you can't modify them.

☐ Operator 20 As an operator, you can perform platform actions required to configure and operate service instances, such as viewing a service's dashboard.

☐ Editor 29 As an editor, you can perform all platform actions except for managing the account and assigning access policies.

☒ Administrator 38 As an administrator, you can perform all platform actions based on the resource this role is being assigned, including assigning access policies to other users.

Service access ⓘ

☐ Reader 4 As a reader, you can perform read-only actions within a service such as viewing service-specific resources.

☐ Writer 6 As a writer, you have permissions beyond the reader role, including creating and editing service-specific resources.

☒ Manager 10 As a manager, you have permissions beyond the writer role to complete privileged actions as defined by the service. In addition, you can create and edit service-specific resources.

- Classic Infrastructure > Services > Storage Manage, Classic Infrastructure > Account > Add/Upgrade Storage - To modify image registry volume

Access policies **Classic infrastructure** Cloud Foundry

Devices | VPN subnets

*As account owner, you have full access to classic infrastructure services and devices.*

- IAM Services > Kubernetes Service > Service Manager role - To run pre-install script & Service Writer role - To run Install script

Viewer Manager 14 Kubernetes Service service  
Region string equals us-south

Service access ⓘ

☐ Reader 3 As a reader, you can perform read-only actions within a service such as viewing service-specific resources.

☒ Writer 3 As a writer, you have permissions beyond the reader role, including creating and editing service-specific resources.

☒ Manager 3 As a manager, you have permissions beyond the writer role to complete privileged actions as defined by the service. In addition, you can create and edit service-specific resources.

Cancel Save

IBM Cloud accounts have a default quota of 250 storage volumes. Before you start the installation, ensure that each account has enough storage volumes for Cloud Pak for Data to be installed.

For more information, see [How many volumes can be ordered?](#).

Make sure the image registry volume size is modified before installation. For more information, see Complete the Preinstallation on the **Create** tab. If the OpenShift cluster image registry has images of other applications, you might need to increase the image registry volume size to more than 200GB.

## Resources Required

By default, you provision a **3-node Red Hat OpenShift cluster**. Each node is automatically provisioned with a 25 GB SSD primary disk and 100 GB SSD secondary disk. This disk storage is different from persistent storage.

The minimum recommendation for Cloud Pak for Data is:

- 16 cores, 64GB RAM
- 1 TB Persistent storage.

This **minimum recommendation is not enough to install all of the services**. You must ensure that you have sufficient resources for the services that you planned to install.

For more information, see [System Requirements for IBM Cloud Pak for Data](#).

Minimum requirements for Red Hat® OpenShift Container Platform Version 3.11.188 or later fixes:

Node role	Hardware	Number of servers	Available vCPU	Memory
Master + infra	x86-64	1 master and 1 infrastructure on the same node	8 vCPU	32 GB RAM
Worker/compute	x86-64	2 worker/compute nodes for NFS; 3 worker/compute nodes for Portworx	16 vCPU	64 GB RAM

Minimum requirements for Red Hat OpenShift Container Platform Version 4.3.18 or later fixes:

Node role	Hardware	Number of servers	Available vCPU	Memory
Master + infra	x86-64, ppc64le	3 master (for high availability) and 3 infrastructure on the same 3 nodes	4 vCPU	16 GB RAM
Worker/compute	x86-64, ppc64le	3 worker/compute nodes	16 vCPU	64 GB RAM

## Supported storage

When you install your Red Hat OpenShift cluster, IBM Cloud File Storage is set up by default. Cloud Pak for Data must use the `ibmc-file-gold-gid` storage class on IBM Cloud File Storage.

For more information, see [Storing data on classic IBM Cloud File Storage](#).

Cloud Pak for Data uses dynamic provisioning. You must have sufficient persistent storage for the services that you plan to install.

For more information, see [System Requirements for IBM Cloud Pak for Data](#).

Consider the storage class `ibmc-file-gold-gid` while provisioning the instances of any service. If you want to retain the volume, consider the storage class `ibmc-file-retain-gold-gid`.

## Configuration

When you install Cloud Pak for Data, you can specify which services are on the Cloud Pak for Data control plane. To install a service, set the appropriate parameter to **true** in the **Deployment values** section.

After you install Cloud Pak for Data, log in to the web console with the `admin` username and change the default password `password`. You can launch the web console from the workspace by clicking **Offering Dashboard**.

**Tip:** If you want to install services to your cluster after you install to the existing deployed namespace, repeat the same steps to install from IBM cloud catalog and set the required service value to **true** in the **Deployment values** section.

## Cluster Init (Prep for CPD)

Clusters / WWPOC-dal13-ms3c.16x64.CPD ✓ Normal Add tags

**Access**

- Overview
- Worker Nodes
- Worker Pools
- Add-ons
- DevOps New

**Before your cluster provisions, set up your CLI tools**

1. Run this command with your PowerShell to download and install a few CLI tools and plugins.  

```
Set-ExecutionPolicy Unrestricted; iex(New-Object Net.WebClient).DownloadString('...')
```
2. [Download](#) the OpenShift CLI (oc) that matches your local operating system and cluster version. For information about how to install the CLI, [see the docs](#).

**After your cluster provisions, gain access**

1. When your cluster is fully deployed, log in to it with your IBMid by using one of the following methods:
  - Browse to the OpenShift console by using the button below. From the dropdown menu in the upper right of the page, click Copy Login Command. Paste the copied command in your local terminal.

[OpenShift web console](#) GET TOKEN

- Browse to the [auth token request page](#). Follow the instructions on the page.

2. Verify you can communicate with your cluster.  

```
oc version
```

For other ways to log in to the cluster, such as from the CLI or for automation purposes, [see the docs](#).

**Next step: Enable continuous delivery**

Enable continuous delivery to automate builds, test, and deployments through the Delivery Pipeline, git repos, issue tracking, and more.

[Enable toolchain](#) [Learn more](#)

Your API token is

XXXXXX

Log in with this token

```
oc login --token=XXXXXX --server=https://c106-e.us-south.containers.cloud.ibm.com:32746
```

Use this token directly against the API

```
curl -H "Authorization: Bearer XXXX" https://c106-e.us-south.containers.cloud.ibm.com:32746/apis/user.openshift.io/v1/users/~
```

```
Administrator: Windows PowerShell

PS C:\Users\BRANDONSWINK> oc login --token=hGw7FQzGM2GyUxe61oXl1n59-JK57MUTIG0epUJ --server=https://c186-e.us-south.containers.cloud.ibm.com:32746
Logged into "https://c186-e.us-south.containers.cloud.ibm.com:32746" as "IAM@swink@us.ibm.com" using the token provided.

You have access to 57 projects, the list has been suppressed. You can list all projects with 'oc projects'

Using project "default".
PS C:\Users\BRANDONSWINK>
```

Log in to IBM Cloud (use IAM API Key)

```
PS C:\Users\BRANDONSWINK> ibmcloud login --apikey h-1aEGu_4X1AY0xMKWAc-hvD0wE3XUgRwpLEM2n8km-5
API endpoint: https://cloud.ibm.com
Region: us-south
Authenticating...
OK

Targeted account Brandon Swink's Account (b3076ea396fcd62e3e09e594beddef9e) <-> 1598542

API endpoint: https://cloud.ibm.com
Region: us-south
User: SWINK@US.IBM.COM
Account: Brandon Swink's Account <-> 1598542
Resource group: No resource group targeted, use 'C:\Program Files\IBM\Cloud\bin\ibmcloud.exe target -g RESOURCE_GROUP'
CF API endpoint:
Org:
Space:
PS C:\Users\BRANDONSWINK>
```

Modify the Storage from 100 to 300 for image capacity via modifyVol.sh or here:  
(Cloud, Resources, Storage)

Storage (3)						
Cloud Object Storage-lite	Development and POC	Global	Cloud Object Storage	Active	—	i
IBM02SEV1598542_2	Classic Infrastructure	Dallas 13	File Storage	Provisioned	—	i
cloud-object-storage-DEV-POC	Development and POC	Global	Cloud Object Storage	Active	—	i
Network (0)						

File Storage / Modify File Share

Modify File Share: IBM02SEV1598542\_2

File Storage

Choose from NFS or SMB-based storage ideally suited for I/O intensive applications such as relational databases that require predictable levels of performance. File shares come in sizes from 20 GB to 4 TB with user-selectable IOPS ranging from 100 to 48000.

[View Docs](#) [View Terms](#)

1. Expand Storage Size

Enter a new File Share size in GB. You may add any value between the minimum and maximum sizes.

New Storage Size:

300

Current Size: 100 GB (\$0.053/hour)

Maximum Size: 4000 GB

\*The Replica is automatically resized when the primary File Share is expanded.

2. Adjust Storage IOPS

Specify a new IOPS tier greater than 0.25 for your storage. You may increase the IOPS tier at any time.

Endurance (Tiered IOPS)

IOPS TIER	DESCRIPTION	PRICE/HOUR	COST ESTIMATION
<input type="radio"/> 0.25 IOPS/GB	Designed for low intensity workloads	\$0.00006/GB	
<input type="radio"/> 2 IOPS/GB	Designed for most general purpose use	\$0.00013/GB	
<input type="radio"/> 4 IOPS/GB	Designed for higher-intensity workloads	\$0.00018/GB	
<input checked="" type="radio"/> 10 IOPS/GB	Designed for most demanding workloads	\$0.00053/GB	\$0.159/hour

\*The Replica IOPS Tier is automatically adjusted when the primary storage IOPS Tier is changed.

Review Pricing Details

Click the link below to review the pricing details that include taxes, promotional discounts, and prorated costs.

[Review Pricing Details](#)

You have unread notifications for events which may affect your services

Announcement Events (2) Planned Events (2)

11:16 AM

Cookie Preferences



Run Pre-Install Script

If you are not a cluster administrator, click [Share link](#). Copy the link and share it with your administrator.

Run the following pre-install script in the project that you specified in **Configure your installation environment**. It has the same effect regardless of the number of times it is run.

Preinstallation script

```
#!/bin/bash

if [[ ${JOB_NAMESPACE} -eq 0 ]] || [[ ${JOB_NAMESPACE} -gt 8 ]]; then
  echo "The project name cannot be empty or longer than 8 characters"
  exit 1
fi

if [[ ${JOB_NAMESPACE} == "default" ]] || [[ ${JOB_NAMESPACE} == "kube-*" ]] || [[ ${JOB_NAMESPACE} == "openshift-*" ]] || [[ ${JOB_NAMESPACE} == "calico-*" ]] || [[ ${JOB_NAMESPACE} == "ibm-*" ]] || [[ ${JOB_NAMESPACE} == "tigera-operator" ]]; then
  echo "The project name cannot be default cluster namespaces"
  exit 1
fi

oc create sa opinstall -n kube-system
oc create sa opinstall -n ${JOB_NAMESPACE}
```

Show more

Preinstallation complete: The script ran successfully on WWPOC-dal13-ms3c.16x64.CPD (us-south). View the [logs](#) to check the status of the script.

Share link

Run script

Set Storage Class

Set the deployment values

Parameters without default values

Enter the required value for each parameter.

Parameter	Description	Value
storageclass	Choose ibmc-file-retain-gold-gid storage class if you want to retain the data, ibmc-file-gold-gid storage class if you do not want to retain data.	<div>ibmc-file-gold-gid</div>

Parameters with default values

A default value is set for each parameter. Review and accept the defaults, or you can update with customized values.

Interact to expand Tile

Execute Pre-req Script

Install

IBM Cloud		Search resources and offerings...		Q	Catalog	Docs	Support	Manage	1595542 - Brandon Smith...		
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	2020-07-03 16:42:21.906234635 +0000 UTC m=+841.44255947								
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	Module	Arch	Version				Status		
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	0010-infra	x86_64	3.0.1				Ready		
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	0015-setup	x86_64	3.0.1				Ready		
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	0020-core	x86_64	3.0.1				In Progress		
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	-----								
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	Deployment		2/2						
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	Job		2/2						
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	Replicatet		7/8						
2020/07/03 16:42:22	Terraform apply	null_resource.script (local-exec):	-----								
2020/07/03 16:42:22	Terraform apply	null_resource.script: Still creating...	[1640ms elapsed]								
2020/07/03 16:42:32	Terraform apply	null_resource.script: Still creating...	[156ms elapsed]								
2020/07/03 16:42:42	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:42:52	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:42:52	Terraform apply										
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	2020-07-03 16:42:52.891945746 +0000 UTC m=+872.348270695								
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	Module	Arch	Version				Status		
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	0010-infra	x86_64	3.0.1				Ready		
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	0015-setup	x86_64	3.0.1				Ready		
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	0020-core	x86_64	3.0.1				In Progress		
2020/07/03 16:42:52	Terraform apply	null_resource.script (local-exec):	-----								
2020/07/03 16:42:53	Terraform apply	null_resource.script (local-exec):	Deployment		8/8						
2020/07/03 16:42:53	Terraform apply	null_resource.script (local-exec):	Job		2/2						
2020/07/03 16:42:53	Terraform apply	null_resource.script (local-exec):	Replicatet		8/8						
2020/07/03 16:42:53	Terraform apply	null_resource.script (local-exec):	-----								
2020/07/03 16:42:53	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:43:02	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:43:12	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:43:20	Terraform apply										
2020/07/03 16:43:20	Terraform apply	null_resource.script (local-exec):	2020-07-03 16:43:19.978652353 +0000 UTC m=+899.434977236						Status		
2020/07/03 16:43:20	Terraform apply	null_resource.script (local-exec):	Module	Arch	Version				Ready		
2020/07/03 16:43:20	Terraform apply	null_resource.script (local-exec):	0010-infra	x86_64	3.0.1				Ready		
2020/07/03 16:43:20	Terraform apply	null_resource.script (local-exec):	0015-setup	x86_64	3.0.1				Ready		
2020/07/03 16:43:20	Terraform apply	null_resource.script (local-exec):	0020-core	x86_64	3.0.1				Ready		
2020/07/03 16:43:22	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:43:32	Terraform apply	null_resource.script: Still creating...	[1560ms elapsed]								
2020/07/03 16:43:42	Terraform apply	null_resource.script: Still creating...	[1603ms elapsed]								
2020/07/03 16:43:51	Terraform apply										
2020/07/03 16:43:51	Terraform apply	null_resource.script (local-exec):	2020-07-03 16:43:50.979615434 +0000 UTC m=+930.435940315						Status		
2020/07/03 16:43:51	Terraform apply	null_resource.script (local-exec):	Module	Arch	Version				Ready		
2020/07/03 16:43:51	Terraform apply	null_resource.script (local-exec):	0010-infra	x86_64	3.0.1				Ready		
2020/07/03 16:43:51	Terraform apply	null_resource.script (local-exec):	0015-setup	x86_64	3.0.1				Ready		
2020/07/03 16:43:51	Terraform apply	null_resource.script (local-exec):	0020-core	x86_64	3.0.1				Ready		
2020/07/03 16:43:52	Terraform apply	null_resource.script: Still creating...	[16020ms elapsed]								
2020/07/03 16:43:54	Terraform apply	null_resource.script (local-exec):	[INFO] [2020-07-03 16:43:54:0283] Access the web console at https://zen-cpd-zen.wwpoc-dal13-ms3c-16x64-0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-south.containers.appdomain.cloud								
2020/07/03 16:43:54	Terraform apply	null_resource.script (local-exec):	*** Initializing version configmap for assembly lite ***								
2020/07/03 16:43:54	Terraform apply	null_resource.script (local-exec):	[INFO] [2020-07-03 16:43:55:0092] Assembly configmap update complete								
2020/07/03 16:43:55	Terraform apply	null_resource.script (local-exec):	[INFO] [2020-07-03 16:43:55:0093] *** Installation for assembly lite completed successfully ***								
2020/07/03 16:43:55	Terraform apply	null_resource.script (local-exec):	Installation of assembly lite is successfully completed								
2020/07/03 16:43:55	Terraform apply	null_resource.script (local-exec):	Unable to use a TTY - Input is not a terminal or the right kind of file								
2020/07/03 16:43:56	Terraform apply	null_resource.script (local-exec):	The Services installed successfully from the chosen services : + *lite								
2020/07/03 16:43:56	Terraform apply	null_resource.script (local-exec):	The Services failed to install from the chosen services								
2020/07/03 16:43:57	Terraform apply	null_resource.script (local-exec):	Unable to use a TTY - Input is not a terminal or the right kind of file								
2020/07/03 16:43:58	Terraform apply	null_resource.script (local-exec):	tar: Removing leading / from member names								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	route.route.openshift.io "zen-cpd" deleted								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	route.route.openshift.io/zen-cpd created								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	Installation finished								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	Access Cloud Pak for Data console using the address:								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	zen-cpd-zen.wwpoc-dal13-ms3c-16x64-0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-south.containers.appdomain.cloud								
2020/07/03 16:43:59	Terraform apply	null_resource.script (local-exec):	#####								

<https://zen-cpd-zen.wwpoc-dal13-ms3c-16x64-0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-south.containers.appdomain.cloud>

## Limitations and known issues

- The installation does not verify whether there are sufficient resources on the cluster to install Cloud Pak for Data. If you are running other applications on your Red Hat OpenShift cluster, ensure that you have sufficient resources on the cluster before you install Cloud Pak for Data.
- The uninstall action deletes the project. Before you delete a project, make sure that the project does not contain any other applications. For more information, see [Uninstalling Cloud Pak for Data](#).
- Cloud Pak for Data includes a subset of services from the IBM cloud catalog. Other supported services on the IBM Managed OpenShift Cluster are: DataStage, MongoDB, Db2 Advanced Edition, Db2 Big SQL, Cognos Analytics and Watson Studio Premium. If you want to install these addons, which are not supported by the IBM Cloud Catalog, they must be added manually.
- You cannot install services from the IBM Cloud Schematics workspace by modifying the plan.
- When service instances are created, they initially appear as Failed or Red because the persistent volume claims take some time to bound.
- The installation does not support on IBM Managed Redhat Openshift Cluster VPC Gen2. It supports only classic Infrastructure.
- It only supports single zone availability.
- The install log has the error Error verifying current oauth token - Error from server (NotFound) as install is performed as serviceaccount, can be ignored.

You install Cloud Pak for Data on an IBM Cloud managed OpenShift cluster in transfer mode. The following commands can be used to install any service after 'oc login' to the cluster from a

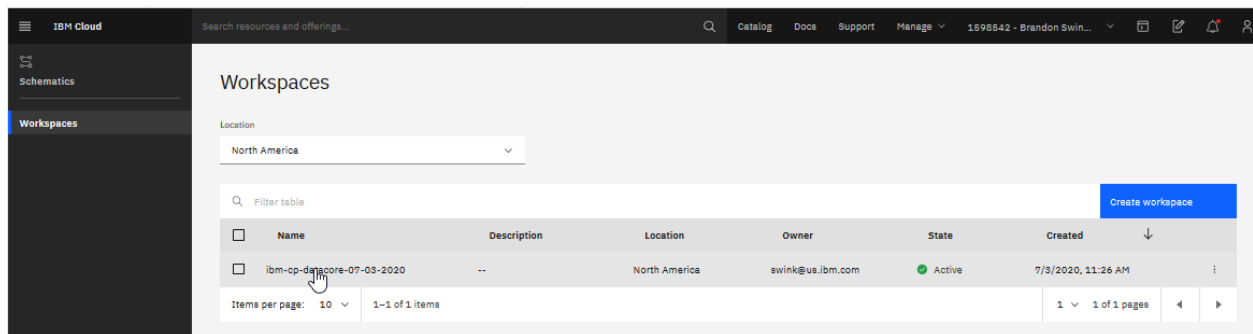
machine where the OpenShift CLI (oc) v4.3.18 and above compatible client with OpenShift cluster version is installed:

```
./cpd-linux adm --apply --repo <repofile> --assembly <assembly> --namespace <namespace> --accept-all-licenses
```

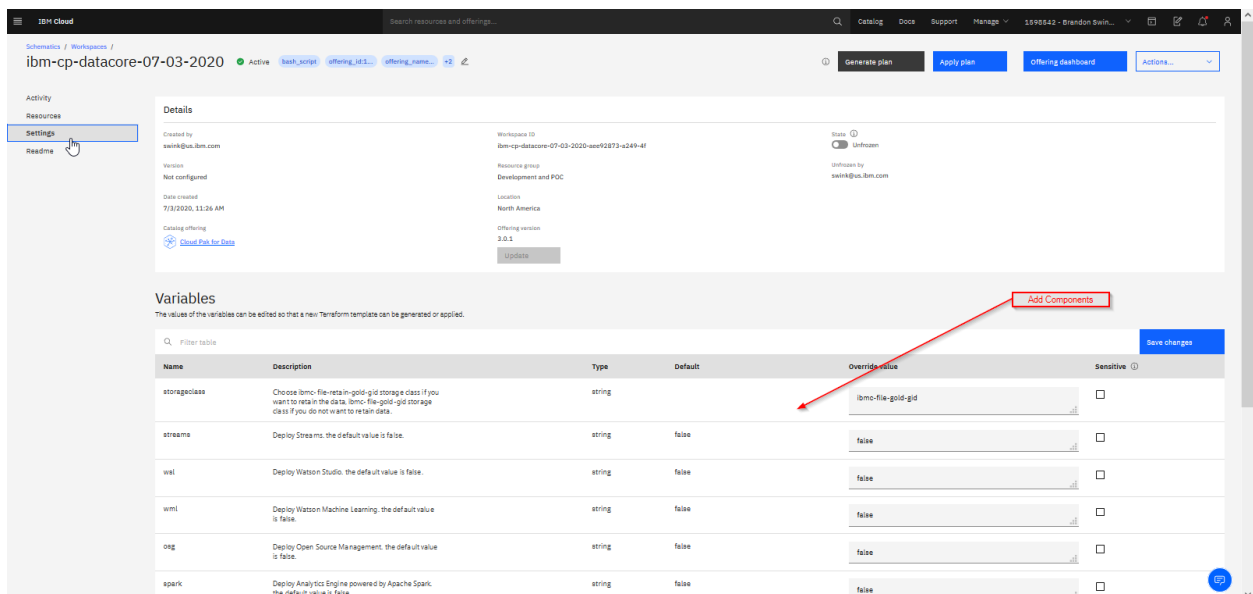
```
./cpd-linux --repo <repofile> --assembly <assembly> --target-registry-password $(oc whoami -t) --target-registry-username $(oc whoami) --insecure-skip-tls-verify --cluster-pull-prefix image-registry.openshift-image-registry.svc:5000/<namespace> --transfer-image-to $(oc get route -n openshift-image-registry | tail -1 | awk '{print $2}']/<namespace> --namespace <namespace> -c ibmc-file-gold-gid --accept-all-licenses
```

For more information, see [Getting started with the CLI](#).

## Add additional services?



<https://cloud.ibm.com/schematics/workspaces/ibm-cp-datacore-07-03-2020-aee92873-a249-4f/activity?region=us>



storageclass	Choose ibmc-file-retain-gold-gid storage class if you want to retain the data, ibmc-file-gold-gid storage class if you do not want to retain data.	string	<div>storageclass</div> <div>ibmc-file-gold-gid</div> <div></div>	<input type="checkbox"/>
streams	Deploy Streams. the default value is false.	string false	<div>streams</div> <div>false</div> <div></div>	<input type="checkbox"/>
wsl	Deploy Watson Studio. the default value is false.	string false	<div>wsl</div> <div>false</div> <div></div>	<input type="checkbox"/>
wml	Deploy Watson Machine Learning. the default value is false.	string false	<div>wml</div> <div>false</div> <div></div>	<input type="checkbox"/>
osg	Deploy Open Source Management. the default value is false.	string false	<div>osg</div> <div>false</div> <div></div>	<input type="checkbox"/>
spark	Deploy Analytics Engine powered by Apache Spark. the default value is false.	string false	<div>spark</div> <div>false</div> <div></div>	<input type="checkbox"/>
aiopenscale	Deploy Watson Open Scale. the default value is false.	string false	<div>aiopenscale</div> <div>false</div> <div></div>	<input type="checkbox"/>
cde	Deploy Analytics Dashboard. the default value is false.	string false	<div>cde</div> <div>false</div> <div></div>	<input type="checkbox"/>
db2wh	Deploy DB2 Warehouse. the default value is false.	string false	<div>db2wh</div> <div>false</div> <div></div>	<input type="checkbox"/>
wkc	Deploy Watson Knowledge Catalog. the default value is false.	string false	<div>wkc</div> <div>false</div> <div></div>	<input type="checkbox"/>
dv	Deploy Data Virtualization. the default value is false.	string false	<div>dv</div> <div>false</div> <div></div>	<input type="checkbox"/>
rstudio	Deploy RStudio. the default value is false.	string false	<div>rstudio</div> <div>false</div> <div></div>	<input type="checkbox"/>

## Documentation

Documentation for IBM Cloud Pak for Data Version 3.0.1 is available in IBM Knowledge Center at [https://www.ibm.com/support/knowledgecenter/SSQNUZ\\_3.0.1/cpd/overview/welcome.html](https://www.ibm.com/support/knowledgecenter/SSQNUZ_3.0.1/cpd/overview/welcome.html).

### Assistant

Code: <http://icpfs1.svl.ibm.com/zen/cp4d-builds/3.0.1/local/components/ibm-watson-assistant/final/>

Instructions: <https://github.ibm.com/watson-deploy-configs/conversation/blob/wa-icp-1.4.2/templates/icp.d/stable/ibm-watson-assistant-prod-bundle/charts/ibm-watson-assistant-prod/README.md>

### Watson Discovery

Code: <http://icpfs1.svl.ibm.com/zen/cp4d-builds/3.0.1/local/components/watson-discovery/2.1.3/>

Instructions: [https://github.ibm.com/Watson-Discovery/do/wiki/Installing-Discovery-\(Entitled-Registry\)#Manual](https://github.ibm.com/Watson-Discovery/do/wiki/Installing-Discovery-(Entitled-Registry)#Manual)

Documentation:

[http://earth1.fyre.ibm.com:9081/support/knowledgecenter/SSQNUZ\\_3.0.0/cpd/svc/watson/discovery-install-overview.html](http://earth1.fyre.ibm.com:9081/support/knowledgecenter/SSQNUZ_3.0.0/cpd/svc/watson/discovery-install-overview.html)

### Speech

Code: <http://icpfs1.svl.ibm.com/zen/cp4d-builds/3.0.1/local/components/watson-speech/latest/>

Instructions: <https://github.ibm.com/watson-deploy-configs/speech/blob/cp4d-master-case/icp.d/stable/ibm-watson-speech-prod-case-bundle/charts/ibm-watson-speech-prod/README.md>

## Installing Watson Discovery Services

### Make Sure you have a Current OAuth Token for Your Cluster

<https://c106-e.us-south.containers.cloud.ibm.com:30086/oauth/token/display>

After your cluster provisions, gain access

1. When your cluster is fully deployed, log in to it with your IBMid by using one of the following methods:

- Browse to the OpenShift console by using the button below. From the dropdown menu in the upper right of the page, click Copy Login Command. Paste the copied command in your local terminal.

OpenShift web console

- Browse to the [OAuth token request page](#). Follow the instructions on the page.

2. Verify you can communicate with your cluster.

oc version



For other ways to log in to the cluster, such as from the CLI or for automation purposes, [see the docs](#).

### Get Software Key:

<https://myibm.ibm.comand/> or <https://myibm.ibm.com/products-services/containerlibrary>

### Create NFS

```
oc patch configs.imageregistry.operator.openshift.io/cluster --type
merge -p '{"spec":{"defaultRoute":true}}'
```

```
# You need to login to some Linux server where you can run oc cli and
some command remotely
export NFSNS=zen
export NFSHOST=${NFS_HOST}
export NFSPATH=${NFS_PATH}
export OCLOGIN=${OC_LOGIN}
mkdir ~/wd213 cd ~/wd213 curl -L -o kubernetes-incubator.zip
https://github.com/kubernetes-incubator/external-
storage/archive/master.zip
unzip kubernetes-incubator.zip
cd external-storage-master/nfs-client
sed -i"" "s/namespace:./namespace: $NFSNS/g" ./deploy/rbac.yaml
sed -i"" "s/namespace:./namespace: $NFSNS/g" ./deploy/deployment.yaml
sed -i"" "s/value: 10.10.10.60/value: $NFSHOST/g"
./deploy/deployment.yaml
sed -i"" "s/server: 10.10.10.60/server: $NFSHOST/g"
./deploy/deployment.yaml
sed -i"" "s|value: /ifs/kubernetes|value: $NFSPATH|g"
./deploy/deployment.yaml
sed -i"" "s|path: /ifs/kubernetes|path: $NFSPATH|g"
./deploy/deployment.yaml
${OCLOGIN}
oc new-project $NFSNS
oc create -f ./deploy/rbac.yaml
```

```
oc adm policy add-scc-to-user hostmount-anyuid
system:serviceaccount:$NFSNS:nfs-client-provisioner
oc create -f ./deploy/class.yaml
oc create -f ./deploy/deployment.yaml
```

### Set Env Variables

# You need to login to some Linux server where you can run oc cli and some command remotely

```
export PATH="/mnt/c/DownloadDirector/oc:$PATH"
export CLUSTER_HOST=wwpoc-dal13-ms3c-16x64-
0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-
south.containers.appdomain.cloud
export IMAGE_REGISTRY=image-registry-openshift-image-registry.wwpoc-
dal13-ms3c-16x64-0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-
south.containers.appdomain.cloud
export NFS_HOST=fsf-dal1301e-fz.adn.networklayer.com
export NFS_PATH=/IBM02SEV1598542_12/data01
export OC_LOGIN='oc login --token=M40jhyIW4M6yex-
1dgVu0mwwk9WP5HcnoPTC28Shrg --server=https://c106-e.us-
south.containers.cloud.ibm.com:32746'
export CPD_KEY=XXXXX
export NFSNS=zen
export NFSHOST=${NFS_HOST}
export NFSPATH=${NFS_PATH}
export OCLOGIN=${OC_LOGIN}
export CPDKEY=${CPD_KEY}
export IMAGEREGISTRY=${IMAGE_REGISTRY}
```

# You need to login to some Linux server where you can run oc cli and docker command remotely. export OCLOGIN=\${OC\_LOGIN} export

```
IMAGEREGISTRY=${IMAGE_REGISTRY}
cd ~/wd213 ${OCLOGIN}
sudo podman login -u $(oc whoami) -p $(oc whoami -t) --tls-
verify=false ${IMAGEREGISTRY}
sudo bin/cpd-linux adm --repo ~/wd213/repo.cp4d301_wd213.yaml -a
watson-discovery -n zen --apply
KUBERNETES_SERVICE_PORT=443
DISABLE_AUTO_UPDATE=false
KUBERNETES_PORT_53_TCP_PORT=53
HOSTNAME=ibm-content-mgmt-script-pod-2cb79525-3c3a-4329-8c5f-
6500616adec
PUBLIC_SERVICE_ENDPOINT_URL=https://c106-e.us-
south.containers.cloud.ibm.com:30009
SERVICE_SUBNET=172.21.0.0/16
MODIFIED_DATE=2020-05-09T16:57:43+0000
KUBERNETES_PORT_53_UDP_PORT=53
MASTER_STATE=deployed
TYPE=openshift
NAME=mycluster.dev.test.poc
PWD=/home/ibm
VLANS=[]
```

MASTER\_STATUS\_MODIFIED\_DATE=2020-05-09T17:40:18+0000  
TZ=America/New\_York  
MASTER\_STATUS=Ready  
WORKER\_ZONES=[dal10]  
KUBERNETES\_PORT\_53\_TCP=tcp://172.21.0.1:53  
KUBERNETES\_PORT\_53\_UDP=udp://172.21.0.1:53  
CREATED\_DATE=2020-05-09T16:56:55+0000  
WORKER\_COUNT=3  
HOME=/home/ibm  
LANG=en\_US.UTF-8  
INGRESS\_SECRET\_NAME=myclusterdevtestpoc-0ad343091ec26c7d74ad6f88c96f0ee5-0000  
KUBERNETES\_PORT\_443\_TCP=tcp://172.21.0.1:443  
SERVER\_URL=https://c106-e.us-south.containers.cloud.ibm.com:30009  
MULTI\_AZ\_CAPABLE=true  
JOB\_CLUSTER\_NAME=mycluster.dev.test.poc  
TRAVIS\_BRANCH=ypprod  
KUBERNETES\_SERVICE\_PORT\_DNS=53  
ID=bqrellqd06bj2ajpk050  
MASTER\_KUBE\_VERSION=3.11.200\_1548\_openshift  
KUBERNETES\_PORT\_53\_TCP\_PROTO=tcp  
TERM=xterm  
DATA\_CENTER=dal10  
KUBERNETES\_SERVICE\_PORT\_DNS\_TCP=53  
KEY\_PROTECT\_ENABLED=false  
PULL\_SECRET\_APPLIED=true  
SHLVL=1  
JOB\_NAMESPACE=zen  
KUBERNETES\_PORT\_443\_TCP\_PROTO=tcp  
POD\_SUBNET=172.30.0.0/16  
PRIVATE\_SERVICE\_ENDPOINT\_ENABLED=false  
KUBERNETES\_PORT\_443\_TCP\_ADDR=172.21.0.1  
ADDONS=[]  
KUBERNETES\_PORT\_53\_UDP\_ADDR=172.21.0.1  
LogLevel=DEBUG  
PUBLIC\_SERVICE\_ENDPOINT\_ENABLED=true  
KUBERNETES\_SERVICE\_HOST=172.21.0.1  
KUBERNETES\_PORT\_53\_TCP\_ADDR=172.21.0.1  
KUBERNETES\_PORT=tcp://172.21.0.1:443  
RESOURCE\_GROUP=65fde0edc9a54d698ff90622a82ff372  
KUBERNETES\_PORT\_443\_TCP\_PORT=443  
KUBERNETES\_PORT\_53\_UDP\_PROTO=udp  
STATE=normal  
RESOURCE\_GROUP\_NAME=Development and POC  
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin  
INGRESS\_HOSTNAME=myclusterdevtestpoc-0ad343091ec26c7d74ad6f88c96f0ee5-0000.us-south.containers.appdomain.cloud  
JOB\_ID=2cb79525-3c3a-4329-8c5f-6500616adec0-global-preinstall  
CRN=crn:v1:bluemix:public:containers-kubernetes:us-south:a/b3076ea396fcd62e3e09e594beddef9e:bqrellqd06bj2ajpk050::  
LOCATION=Dallas  
ETCD\_PORT=31974



```
WORKER_VLANS=[]
MASTER_HEALTH=normal
TARGET_VERSION=3.11.200_1548_openshift
IS_PAID=true
_=/usr/bin/env
-----
```

Plug-in 'container-service 1.0.57' is now available (you have 1.0.15).  
Use 'ic plugin update container-service' to upgrade the plug-in.  
Use 'ic config --check-version=false' to disable update check.

```
-----
oc whoami: IAM#swink@us.ibm.com
User:          SWINK@US.IBM.COM
Account:       Brandon Swink (XXXX) <-> 1598542
current-context: default/cl06-e-us-south-containers-cloud-ibm-
com:30009/IAM#swink@us.ibm.com
-----
```

```
Error from server (AlreadyExists): serviceaccounts "cpdinstall"
already exists
Error from server (AlreadyExists): serviceaccounts "cpdinstall"
already exists
securitycontextconstraints.security.openshift.io/zen-zenuid configured
scc "zen-zenuid" added to: ["system:serviceaccount:zen:cpdinstall"]
scc "anyuid" added to: ["system:serviceaccount:zen:icpd-anyuid-sa"]
cluster role "cluster-admin" added:
"system:serviceaccount:zen:cpdinstall"
cluster role "cluster-admin" added: "system:serviceaccount:kube-
system:cpdinstall"
volume id is 140688464
Order 58669504 was placed successfully!.
> Storage as a Service

> 200 GBs

> 10 IOPS per GB
```

You may run 'ibmcloud sl file volume-list --order 58669504' to find  
this file volume after it is ready.  
Docker registry Volume is modified  
\*\* exit(0), Removing pod's secret