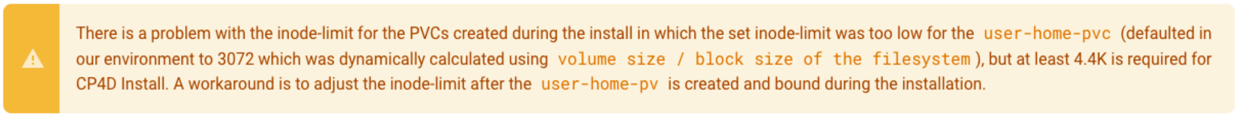
1. The “Installing the control plane” section (https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=installing-control-plane) should include information on the known issue and workaround for inode-limit for PVCs:

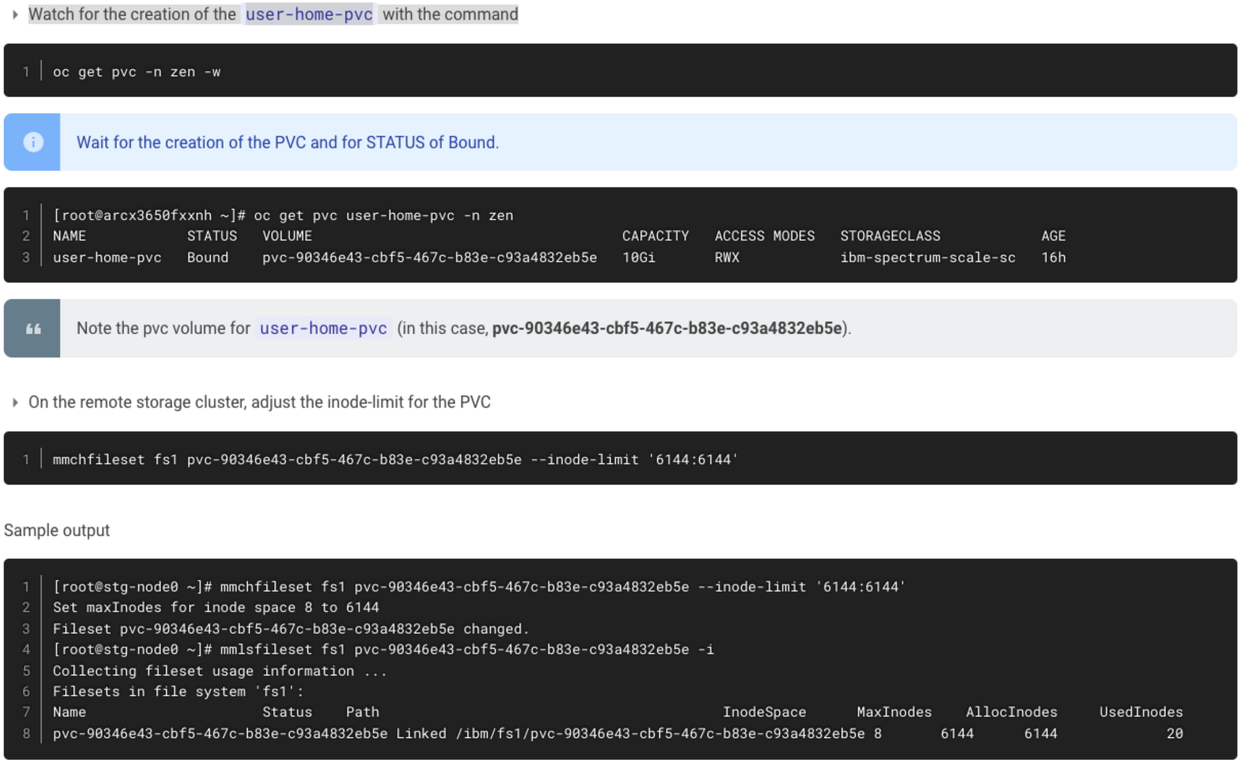
There is a problem with the inode-limit for the PVCs created during the install in which the set inode-limit was too low for the `user-home-pvc` (defaulted in our environment to 3072 which was dynamically calculated using `volume size / block size of the filesystem`), but at least 4.4K is required for CP4D Install. A workaround is to adjust the inode-limit after the `user-home-pv` is created and bound during the installation.



⚠ There is a problem with the inode-limit for the PVCs created during the install in which the set inode-limit was too low for the `user-home-pvc` (defaulted in our environment to 3072 which was dynamically calculated using `volume size / block size of the filesystem`), but at least 4.4K is required for CP4D Install. A workaround is to adjust the inode-limit after the `user-home-pv` is created and bound during the installation.

https://wiki.cpst-lab.no-users.ibm.com/en/general/CP4D

2. On the “Installing from cpd-cli” section (https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=plane-installing-from-cpd-cli) it would also be helpful to add a step after step #4 about how to verify creation of PVC. For example, the following could be added before the “Verifying that the installation completed successfully section”: https://wiki.cpst-lab.no-users.ibm.com/en/general/CP4D



- Watch for the creation of the `user-home-pvc` with the command

```
oc get pvc -n zen -w
```

ⓘ Wait for the creation of the PVC and for STATUS of Bound.

```
[root@arcx3650fxxnh ~]# oc get pvc user-home-pvc -n zen
NAME            STATUS   VOLUME                                     CAPACITY   ACCESS MODES   STORAGECLASS            AGE
user-home-pvc   Bound    pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e   10Gi       RWX            ibm-spectrum-scale-sc   16h
```

> Note the pvc volume for `user-home-pvc` (in this case, **pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e**).

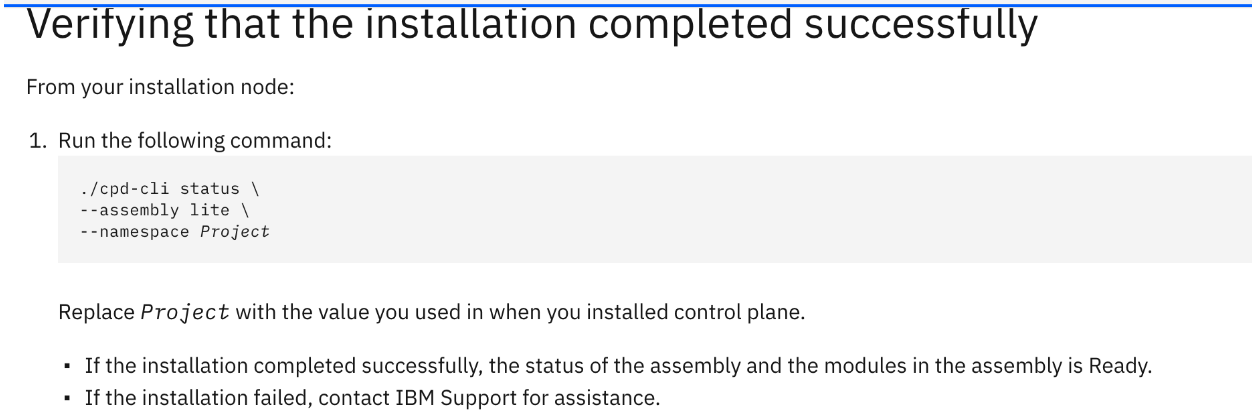
- On the remote storage cluster, adjust the inode-limit for the PVC

```
mmchfileset fs1 pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e --inode-limit '6144:6144'
```

Sample output

```
[root@stg-node0 ~]# mmchfileset fs1 pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e --inode-limit '6144:6144'
Set maxInodes for inode space 8 to 6144
Fileset pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e changed.
[root@stg-node0 ~]# mmlsfileset fs1 pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e -i
Collecting fileset usage information ...
Filesets in file system 'fs1':
Name                     Status    Path                                         InodeSpace      MaxInodes    AllocInodes     UsedInodes
pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e Linked /ibm/fs1/pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e 8       6144      6144             20
```

3. Under the “Verifying that the installation completed successfully” section, the ./cpd-cli status command does not include the –repo flag (https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=plane-installing-from-cpd-cli)



Verifying that the installation completed successfully

From your installation node:

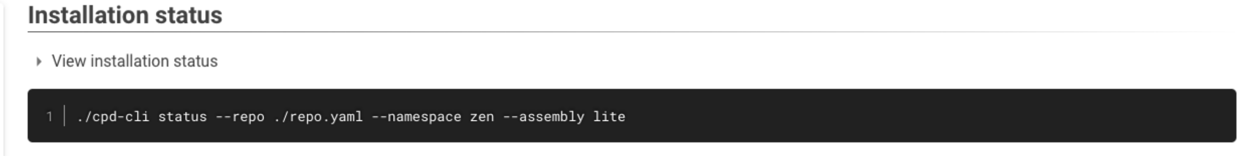
1. Run the following command:

```
./cpd-cli status \
--assembly lite \
--namespace Project
```

Replace *Project* with the value you used in when you installed control plane.

- If the installation completed successfully, the status of the assembly and the modules in the assembly is Ready.
- If the installation failed, contact IBM Support for assistance.

Here is an example of the ./cpd-cli status command from our CPST team wiki:



Installation status

```
./cpd-cli status --repo ./repo.yaml --namespace zen --assembly lite
```

4. Under the “Installing the Cloud Pak for Data control plane from cpd-cli”, it would be useful to include a section about the 4MiB file system workaround. https://wiki.cpst-lab.no-users.ibm.com/en/general/CP4D

This workaround is only necessary if the storage cluster file system is set to 4 MiB block size (Scale GUI defaults to 4 MiB).

Watch for the creation of the `user-home-pvc` with the command:

```
oc get pvc -n zen -w
```

Wait for the creation of the PVC and for STATUS of Bound.

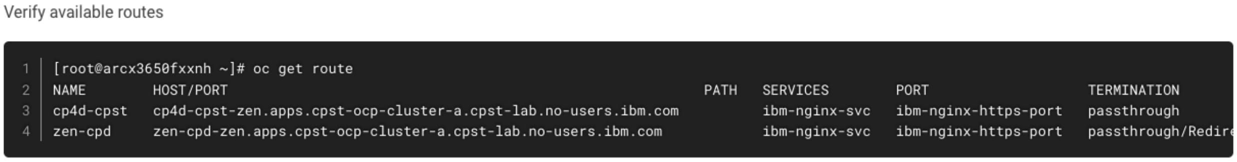
```
[root@arcx3650fxxnh ~]# oc get pvc user-home-pvc -n zen
NAME          STATUS   VOLUME                                     CAPACITY   ACCESS MODES
STORAGECLASS          AGE
user-home-pvc   Bound    pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e   10Gi       RWX
ibm-spectrum-scale-sc   16h
```

Note the pvc volume for `user-home-pvc` (in this case, **pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e**).

On the remote storage cluster, adjust the inode-limit for the PVC:

```
mmchfileset fs1 pvc-90346e43-cbf5-467c-b83e-c93a4832eb5e --inode-limit '6144:6144'
```

5. In the “Creating a custom route to the platform section” (https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=tasks-creating-custom-route-platform), it would be useful to also list the command to verify available routes after step #3.
   The command to verify available routes is: oc get route



Verify available routes

```
[root@arcx3650fxxnh ~]# oc get route
NAME        HOST/PORT                                                         PATH   SERVICES        PORT                   TERMINATION
cp4d-cpst   cp4d-cpst-zen.apps.cpst-ocp-cluster-a.cpst-lab.no-users.ibm.com          ibm-nginx-svc   ibm-nginx-https-port   passthrough
zen-cpd     zen-cpd-zen.apps.cpst-ocp-cluster-a.cpst-lab.no-users.ibm.com            ibm-nginx-svc   ibm-nginx-https-port   passthrough/Redire
```

https://wiki.cpst-lab.no-users.ibm.com/en/general/CP4D

6. After step 5 in the “Preparing clusters connected to the internet section” https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=db2-setting-up-cluster it would be useful to also include information about how to grant cpd-admin-role to the project administrator user:

   For example:

   Run the following command to grant cpd-admin-role to the project administration user:

   ```
   oc adm policy add-role-to-user cpd-admin-role ocpadmin --role-namespace=zen -n zen
   ```

   https://wiki.cpst-lab.no-users.ibm.com/en/general/db2oltp

7. Under the ‘Setting up the cluster for Db2 Warehouse’, after step 5 in the “Preparing clusters connected to the internet section” https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=warehouse-setting-up-cluster-db2 it would be useful to also include information about how to grant cpd-admin-role to the project administrator user:

   For example:

   Run the following command to grant cpd-admin-role to the project administration user:

   ```
   oc adm policy add-role-to-user cpd-admin-role ocpadmin --role-namespace=zen -n zen
   ```

   https://wiki.cpst-lab.no-users.ibm.com/en/general/db2wh

8. Under the ‘Setting up the cluster for DataStage Enterprise’, after step 4 in the “Preparing clusters connected to the internet section” (https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=enterprise-setting-up-cluster-datastage) it would be useful to also include information about how to grant cpd-admin-role to the project administrator user:

   For example:

   Run the following command to grant cpd-admin-role to the project administration user:

   ```
   oc adm policy add-role-to-user cpd-admin-role ocpadmin --role-namespace=zen-automated -n zen-automated
   ```

   https://wiki.cpst-lab.no-users.ibm.com/en/general/DataStage

9. In the “Installing The DataStage Enterprise service” section before “What to do next” it would be beneficial to include the following Post Installation tasks

   Data Stage post installation tasks

   Edit the statefulset

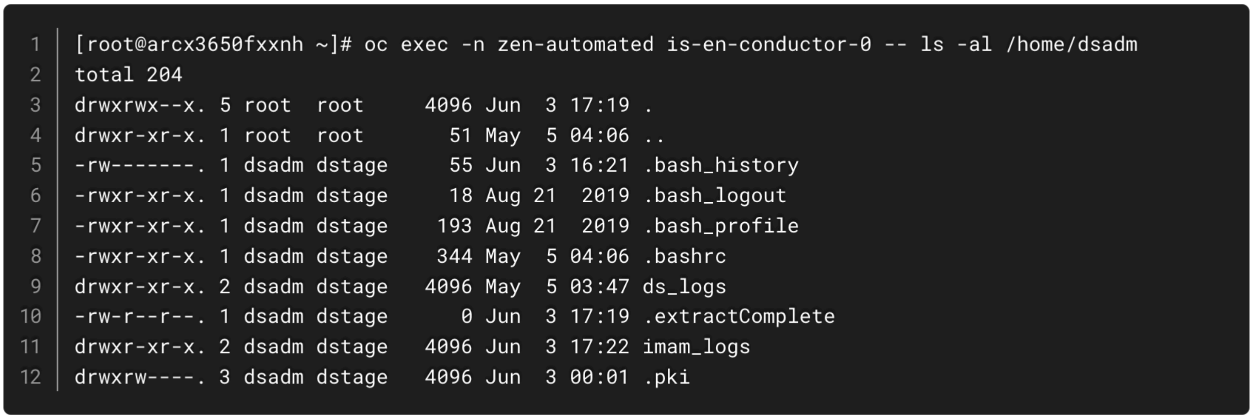
```
oc edit sts/is-en-conductor
```

   Insert the following entry under VolumeMounts

```
VolumeMounts:
mountPath: /home/dsadm
name: engine-dedicated-volume
subPath: is-en-conductor-0/EngineClients/db2_client/dsadm
```

   Upon saving, the pod will restart

   There is an extra step here, but only if the pod has been restarted since installing (or if the files put in /home/dsadm by default are otherwise deleted)
   Files that should be in /home/dsadm



```
[root@arcx3650fxxnh ~]# oc exec -n zen-automated is-en-conductor-0 -- ls -al /home/dsadm
total 204
drwxrwx--x. 5 root  root     4096 Jun  3 17:19 .
drwxr-xr-x. 1 root  root       51 May  5 04:06 ..
-rw-------. 1 dsadm dstage     55 Jun  3 16:21 .bash_history
-rwxr-xr-x. 1 dsadm dstage     18 Aug 21  2019 .bash_logout
-rwxr-xr-x. 1 dsadm dstage    193 Aug 21  2019 .bash_profile
-rwxr-xr-x. 1 dsadm dstage    344 May  5 04:06 .bashrc
drwxr-xr-x. 2 dsadm dstage   4096 May  5 03:47 ds_logs
-rw-r--r--. 1 dsadm dstage      0 Jun  3 17:19 .extractComplete
drwxr-xr-x. 2 dsadm dstage   4096 Jun  3 17:22 imam_logs
drwxrw----. 3 dsadm dstage   4096 Jun  3 00:01 .pki
```

If any are missing, delete .extractComplete, then restart the pod:

```
oc exec -n zen-automated is-en-conductor-0 -- rm -f /home/dsadm/.extractComplete
```

10. In the “Uninstalling DataStage Enterprise” Section under the “What to do next” topic it would be beneficial to include the following:

Run the following command if pvc or pv get hung “Terminating” status:
oc patch pvc {PVC_NAME} -p '{"metadata":{"finalizers":null}}'
oc patch pv {PVC_NAME} -p '{"metadata":{"finalizers":null}}'

11. In the “Uninstalling DataStage Enterprise” and “Uninstalling DataStage Enterprise Plus” sections, the commands to uninstall DataStage should have the --profile flag when they are run

```
./cpd-cli uninstall \
--assembly ds \
--namespace zen-automated \
--profile cpst-test-profile
--dry-run

./cpd-cli uninstall \
--assembly ds \
--namespace zen-automated \
--profile cpst-test-profile
```

12. Also under the “Uninstalling DataStage Enterprise” section the following should be added:

Also remove the iis component (assuming its not used by other services) for a true uninstall

```
./cpd-cli uninstall \
--assembly iis \
--namespace zen-automated \
--profile cpst-test-profile
```

13. Under the “Uninstalling DataStage Enterprise” section the commands in the “Delete all PersistentVolumeClaim (PVC) and PersistentVolume (PV) resources:”, “Delete all job resources:” and “Delete all cronjob resources:” sections should be replaced with the following commands (which need to be run in this specific order):

```
oc get deployment --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete deployment <deployment_name>
oc get jobs --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete job <job_name>
oc get StateFulSet --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete StateFulSet <StateFulSet_name>
oc get ReplicaSet --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete ReplicaSet <ReplicaSet_name>
oc get services --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete service <service_name>
oc get pods --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete pod <pod_name>
oc get pvc --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete pvc <pvc_name>
oc get pv --sort-by='{.metadata.creationTimestamp} | grep ds-'
oc delete pv <pv_name>
```

14. In the “Installing Watson Machine Learning” section, the command to install the wml service could contain the --target-registry-username and --target-registry-password flags depending on how the cluster has been configured by the customer

```
./cpd-cli install \
--repo ./repo.yaml \
--assembly wml \
--arch x86_64 \
--namespace zen \
--storageclass ibm-spectrum-scale-sc \
--transfer-image-to registry.cpst-lab.no-users.ibm.com \
--cluster-pull-prefix registry.cpst-lab.no-users.ibm.com \
--ask-push-registry-credentials \
--latest-dependency \
--dry-run

Username: oc whoami
Password: oc whoami -t
```

15. In the “Uninstalling Watson Machine Learning” section, the command to uninstall wml should have the --profile flag when it is run

```
./cpd-cli uninstall \
--assembly wml \
--namespace zen \
--profile cpst-test-profile
```

16. In the “Installing Watson Studio” section, the command to install the wsl service could contain the --target-registry-username and --target-registry-password flags depending on how the cluster has been configured by the customer

```
./cpd-cli install \
--repo ./repo.yaml \
--assembly wsl \
--arch x86_64 \
--namespace zen \
--storageclass ibm-spectrum-scale-sc \
--transfer-image-to registry.cpst-lab.no-users.ibm.com \
--cluster-pull-prefix registry.cpst-lab.no-users.ibm.com \
--ask-push-registry-credentials \
--latest-dependency \
--dry-run

Username: oc whoami
Password: oc whoami -t
```

17. In the “Uninstalling Watson Studio” section, the command to uninstall wsl should have the --profile flag when it is run

```
./cpd-cli uninstall \
--assembly wsl \
--namespace zen \
--profile cpst-test-profile
```

18. In the section “Preparing the cluster for the Watson Knowledge Catalog service” prior to the “Next Step” section, it would be beneficial to add the following:

Run the following command to grant cpd-admin-role to the project administration user:

```
oc adm policy add-role-to-user cpd-admin-role ocpadmin --role-namespace=zen-automated -n zen-automated
```

19. In the “Uninstalling Watson Knowledge Catalog” section, the command to uninstall wkc should have the --profile flag when it is run

```
./cpd-cli uninstall \
--assembly wkc \
--namespace zen \
--profile cpst-test-profile
```

20. After the uninstall command is run, the following commands should be added in order to make sure everything is removed. The commands should be run in the following order:

```
oc get deployment --sort-by='{.metadata.creationTimestamp}'
oc delete deployment <deployment_name>

oc get jobs --sort-by='{.metadata.creationTimestamp}'
oc delete job <job_name>

oc get StateFulSet --sort-by='{.metadata.creationTimestamp}'
oc delete StateFulSet <StateFulSet_name>

oc get ReplicaSet --sort-by='{.metadata.creationTimestamp}'
oc delete ReplicaSet <ReplicaSet_name>

oc get services --sort-by='{.metadata.creationTimestamp}'
oc delete service <service_name>

oc get pods --sort-by='{.metadata.creationTimestamp}'
oc delete pod <pod_name>

oc get pvc --sort-by='{.metadata.creationTimestamp}'
oc delete pvc <pvc_name>
oc get pv --sort-by='{.metadata.creationTimestamp}'
oc delete pv <pv_name>

oc get configmap --sort-by='{.metadata.creationTimestamp}'
oc delete configmap <configmap_name>
```

21. After running the commands above commands to remove all instances belonging to Watson Knowledge Catalog, the following commands should be run in case pvc or pv get hung

    ```
    oc patch pvc {PVC_NAME} -p '{"metadata":{"finalizers":null}}'
    oc patch pv {PVC_NAME} -p '{"metadata":{"finalizers":null}}'
    ```

22. In the “Installing Data Virtualization” section, it would be beneficial to include information regarding checking for patches after running the command under “Verifying that the installation completed successfully”

    Checking for available patches

    ```
    ./cpd-cli status \
    --repo ./repo.yaml \
    --namespace zen \
    --assembly dv \
    --patches \
    --available-updates
    ```

23. In the “Installing DB2 Data Management Console” section, it would be beneficial to include information regarding checking for patches after running the command under “Verifying that the installation completed successfully”

    Checking for available patches

    ```
    ./cpd-cli status \
    --repo ./repo.yaml \
    --namespace zen \
    --assembly dmc \
    --patches \
    --available-updates
    ```

24. The “Uninstalling DB2 Data Management Console” section is missing the procedures to uninstall dmc

    Run the following command to preview what will be removed for dmc

    ```
    ./cpd-cli uninstall \
    --assembly dmc \
    --namespace zen \
    --profile cpst-test-profile
    --dry-run
    ```

25. Under the ‘Setting up the cluster for Analytics Engine Powered by Apache Spark’, before the ‘What to do next’ section, it would be useful to also include information about how to grant cpd-admin-role to the project administrator user:

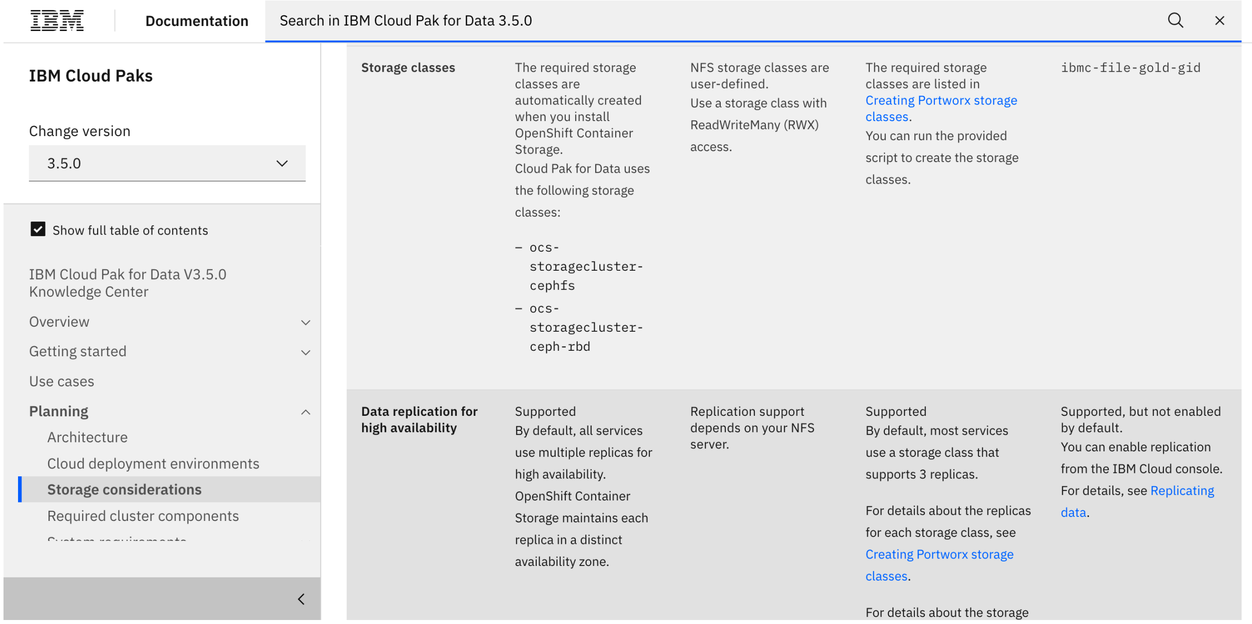
    For example:

Run the following command to grant cpd-admin-role to the project administration user:

```
oc adm policy add-role-to-user cpd-admin-role ocpadmin --role-
namespace=zen -n zen
```

Future Documentation Enhancements:

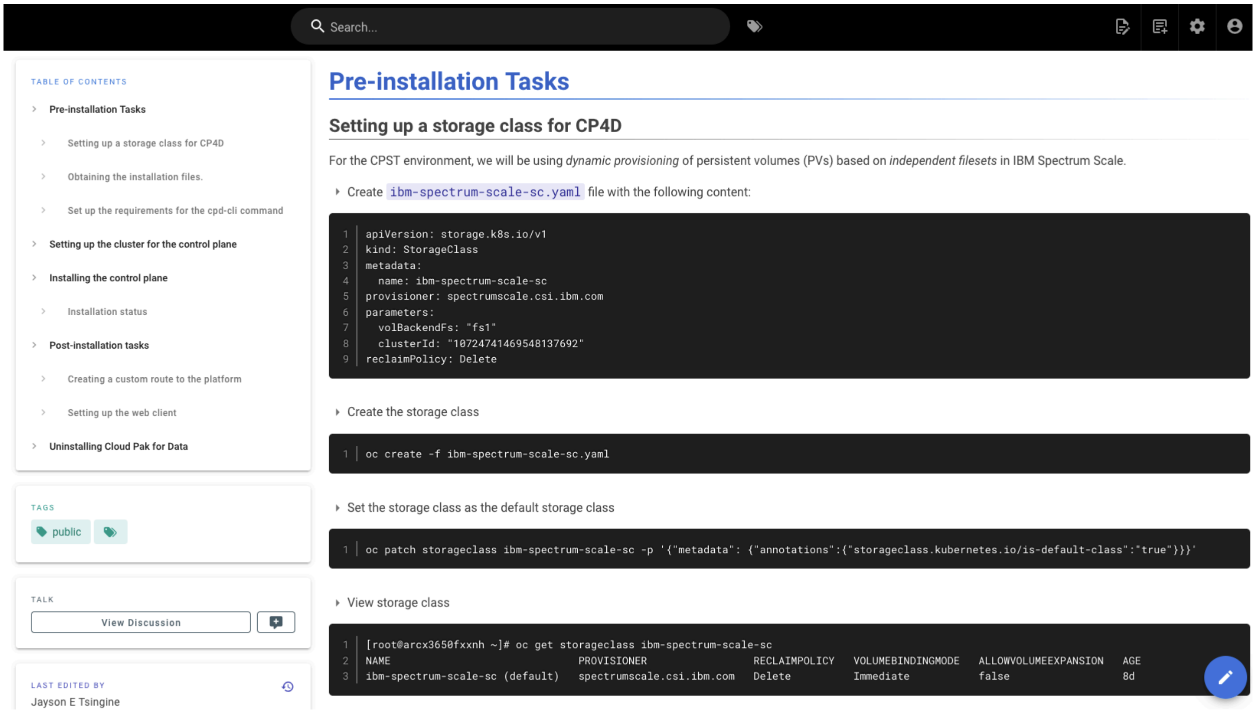
26. Once CP4D officially supports CNSA/CSI storage classes, the section below could be updated to mention how to set up storage class for Spectrum Scale. https://www.ibm.com/docs/en/cloud-paks/cp-data/3.5.0?topic=planning-storage-considerations



IBM
Documentation
Search in IBM Cloud Pak for Data 3.5.0
IBM Cloud Paks
Change version
3.5.0
☑ Show full table of contents
IBM Cloud Pak for Data V3.5.0 Knowledge Center
Overview
Getting started
Use cases
Planning
Architecture
Cloud deployment environments
Storage considerations
Required cluster components

Storage classes	The required storage classes are automatically created when you install OpenShift Container Storage. Cloud Pak for Data uses the following storage classes: – `ocs-storagecluster-cephfs` – `ocs-storagecluster-ceph-rbd`	NFS storage classes are user-defined. Use a storage class with ReadWriteMany (RWX) access.	The required storage classes are listed in Creating Portworx storage classes. You can run the provided script to create the storage classes.	`ibmc-file-gold-gid`
Data replication for high availability	Supported By default, all services use multiple replicas for high availability. OpenShift Container Storage maintains each replica in a distinct availability zone.	Replication support depends on your NFS server.	Supported By default, most services use a storage class that supports 3 replicas. For details about the replicas for each storage class, see Creating Portworx storage classes. For details about the storage	Supported, but not enabled by default. You can enable replication from the IBM Cloud console. For details, see Replicating data.

The steps below, could be integrated into the CSM Playbook. https://wiki.cpst-lab.no-users.ibm.com/en/general/CP4D



TAGS

public

TALK

LAST EDITED BY

Jayson E Tsingine

Pre-installation Tasks

Setting up a storage class for CP4D

For the CPST environment, we will be using *dynamic provisioning* of persistent volumes (PVs) based on *independent filesets* in IBM Spectrum Scale.

- Create `ibm-spectrum-scale-sc.yaml` file with the following content:

```
apiVersion: storage.k8s.io/v1
kind: StorageClass
metadata:
  name: ibm-spectrum-scale-sc
provisioner: spectrumscale.csi.ibm.com
parameters:
  volBackendFs: "fs1"
  clusterId: "10724741469548137692"
reclaimPolicy: Delete
```

- Create the storage class

```
oc create -f ibm-spectrum-scale-sc.yaml
```

- Set the storage class as the default storage class

```
oc patch storageclass ibm-spectrum-scale-sc -p '{"metadata": {"annotations":{"storageclass.kubernetes.io/is-default-class":"true"}}}'
```

- View storage class

```
[root@arcx3650fxxnh ~]# oc get storageclass ibm-spectrum-scale-sc
NAME                          PROVISIONER                 RECLAIMPOLICY   VOLUMEBINDINGMODE   ALLOWVOLUMEEXPANSION   AGE
ibm-spectrum-scale-sc (default)   spectrumscale.csi.ibm.com   Delete          Immediate           false                  8d
```