IBM Cloud Pak for Business Automation Demos and Labs 2022

Bring-up Lab

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1 Introduction

1.1 IBM Cloud Pak for Business Automation

IBM Cloud Pak for Business Automation (CP4BA) assembles certified software from the IBM Automation Platform for Digital Business on multiple cloud infrastructures. It offers design, build, run, and automation services to rapidly scale your programs and fully execute and operationalize an automation strategy.

You can read more about CP4BA here: **https://www.ibm.com/docs/en/cloud-paks/cp-biz-automation/21.0.3?topic=overview-what-is-cloud-pak-business-automation**

1.2 Lab Overview

In this lab, you will learn how to **configure and install CP4BA Production** on an OpenShift cluster on IBM Cloud using the rapid deployment scripts.

As a part of this lab, you will also deploy a DB2 instance on your OpenShift cluster.

Approximate Duration: 12 hours

2 Exercise: Installing CP4BA version 21.0.3 IF005

2.1 Introduction

IBM Automation SWAT team has created and published scripts and doc for rapid deployment of CP4BA on IBM Cloud. As part of this lab, you will leverage those scripts to successfully deploy DB2 and CP4BA version 21.0.3 IF005.

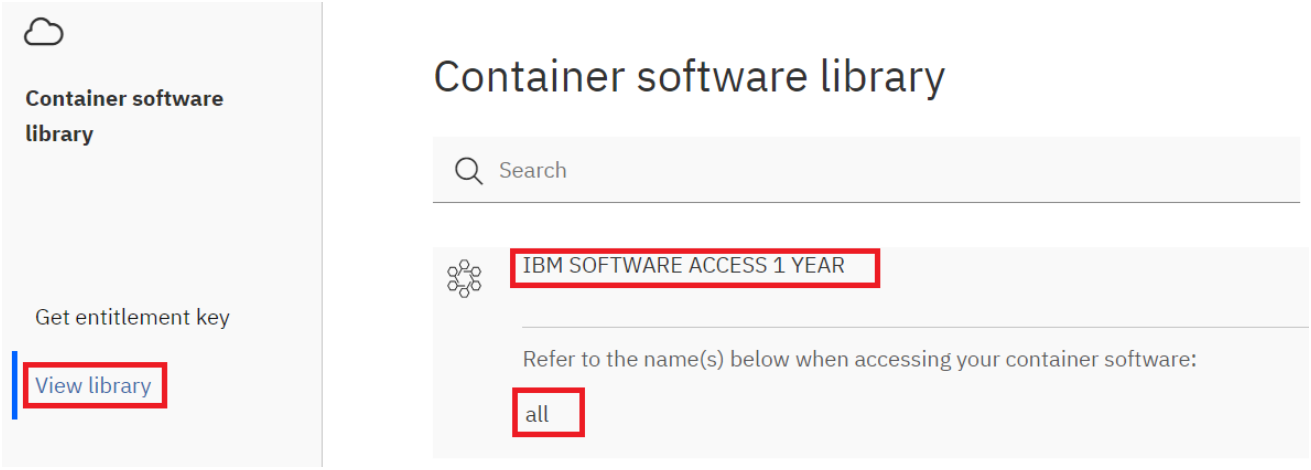
2.2 Exercise Instructions

1. Before you can start this lab, you need the following prerequisites:
    - An **entitlement key**, and
    - A **ROKS cluster** on IBM Cloud, and
    - A **bastion host** from which you will access the ROKS cluster through command line and where you will execute the scripts for rapid deployment

2. To be able to complete this lab you **must have an entitlement key already available** that includes a license for CP4BA to pull the container images from IBM's container library cp.icr.io. As a first step, please check that you have such an entitlement key with a license for CP4BA available. For this, please **open** **https://myibm.ibm.com/products-services/containerlibrary** and log in with your **IBM ID**. IBMers can use their **w3 ID**.

    Then, switch to the **View library** page.

    IBMers should see the following, what means that they **do have such an entitlement key available**:



    Business Partners before proceeding **must verify that in their list a license for CP4BA is included**. Without this entitlement / license, you can't perform this bring-up lab, means you must stop here and proceed with another lab.

3. To get hold of a ROKS cluster, first **express your interest in this lab in the Slack channel for the bring-up lab (#cp4ba-tech-jam-bring-up, https://ibm-cloudpak-partners.slack.com/archives/C0354GHAA3H)**. A member of the IBM Automation SWAT team will help you to get access to such a cluster.

   Note: As we have only a limited amount of ROKS clusters available, it might be that you will not be able to perform this lab.

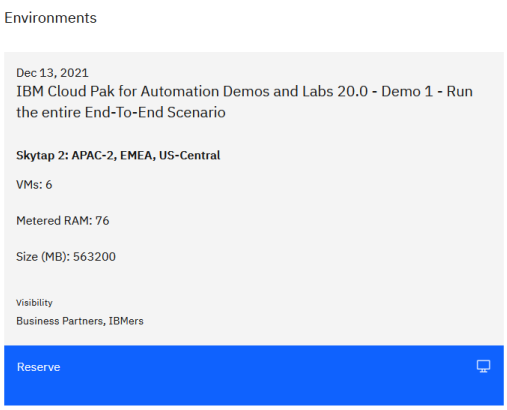
4. Once a cluster is available for you, as a first step **you will get invited to the IBM Cloud account of the DBA SWAT team**. This invitation will reach you in the form of an Email, please also check the spam folder for that Email. In the Email you will find a link, by opening that link in your browser, you are accepting the invitation to that account. Without accepting the invitation, access to a ROKS cluster is not possible.

   Note: To be able to install CP4BA version 21.0.3 IF005 on that ROKS cluster you will get full administrative access to that ROKS cluster. Also, this ROKS cluster can only be accessed by you and the members of the SWAT team, other Jam participants will not have access.

5. Once you have accepted the invitation, please **let the member of the SWAT team know** so that he can start to provide you access to your ROKS cluster.

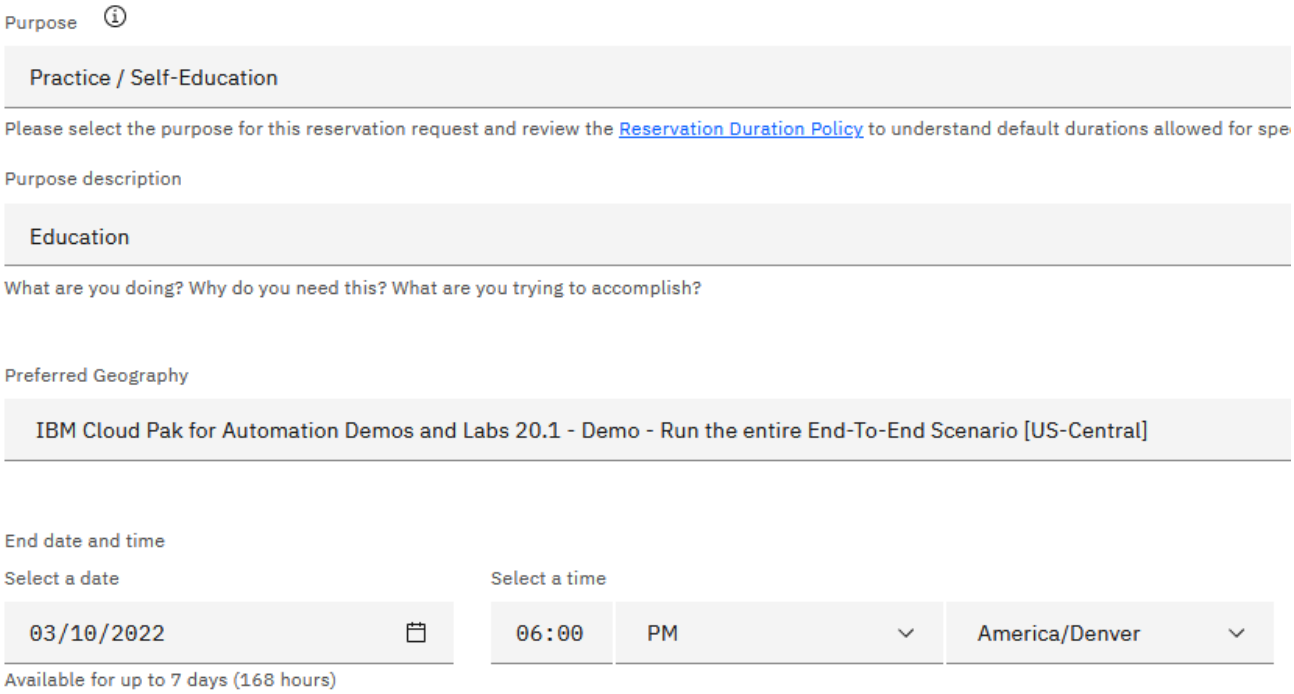
6. While you are waiting to finally get access to your ROKS cluster, you can **start the process to get access to a bastion host**. A bastion host is the computer from which you access the ROKS cluster through command line to administrate the ROKS cluster. Administration of a ROKS cluster also includes to configure and install new software, for example CP4BA. In addition, the rapid deployment scripts and some scripts from the product will get executed on that bastion host, therefore the bastion host must be one of RHEL, CentOS or macOS. Finally, all by the scripts needed command line interfaces (CLIs) must be available on the bastion host, for example the OpenShift CLI, Kubernetes CLI, ...and so on.
   To save you time and trouble with setting up your own bastion host (as the focus of this lab is installing CP4BA), **we have made a RHEL VM available for you** in IBM Technology Zone. You can reserve an environment with that VM here: **https://techzone.ibm.com/collection/ibm-cloud-pak-for-automation-demos-and-labs-20-1-demo-01-run-the-entire-end-to-end-scenario**

7. **Open that page**, scroll down to the **Environments** section and click on the **Reserve** button to start the reservation process.



8. On the next page select **Reserve now**.

9. On the next page **fill out the form** as follows:



Note: Under Preferred Geography select **US-Central**.

Note: Select as end date **03/10/2022**. The ROKS cluster also will be available for you till that day. Select as end time **6 PM** and **your time zone**.

10. Click **Submit**. After a while you get two Emails, one that lets you know that your request was received and a second that provides you a **Desktop URL** and a **Desktop password** to access the environment.

You have now **requested** both, the ROKS cluster and the bastion host. It might take a while till both is finally available for you.

Once you got the confirmation from the SWAT team member that you now should have access to your own **ROKS cluster**, and you got the second Email with the link and password to access your **bastion host**, you can start your lab:

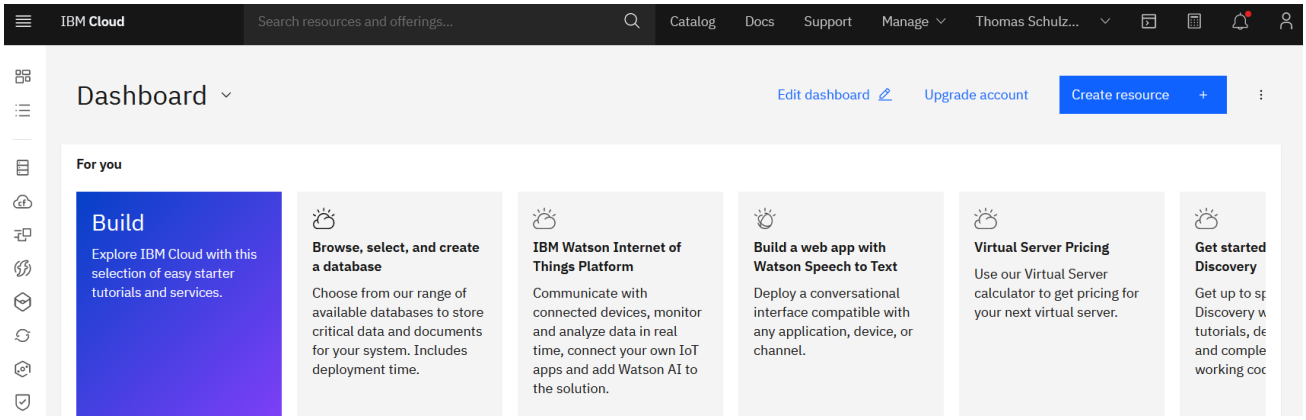
11. You can access your ROKS cluster **here: https://cloud.ibm.com**

Note: It's recommended to access your ROKS by UI from your local machine, not from the bastion host.

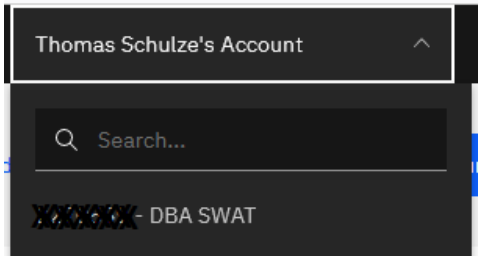
12. Log-in with your **IBM ID** (IBMers use their w3 ID).

    It might be that you first must create an account for IBM Cloud, please complete that process.

    Once the account got created you should see the **IBM Cloud Dashboard**:

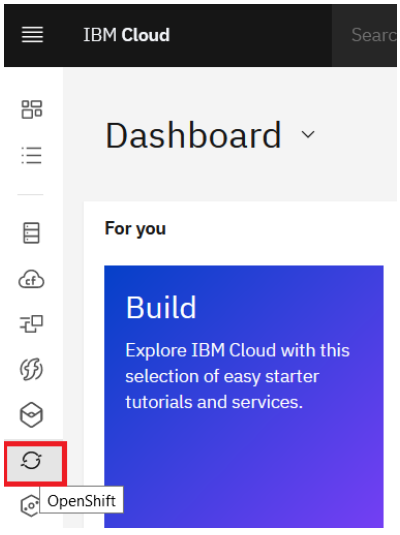


13. In the top bar, besides your name, click the **arrow** and you should now see the **DBA SWAT** account.

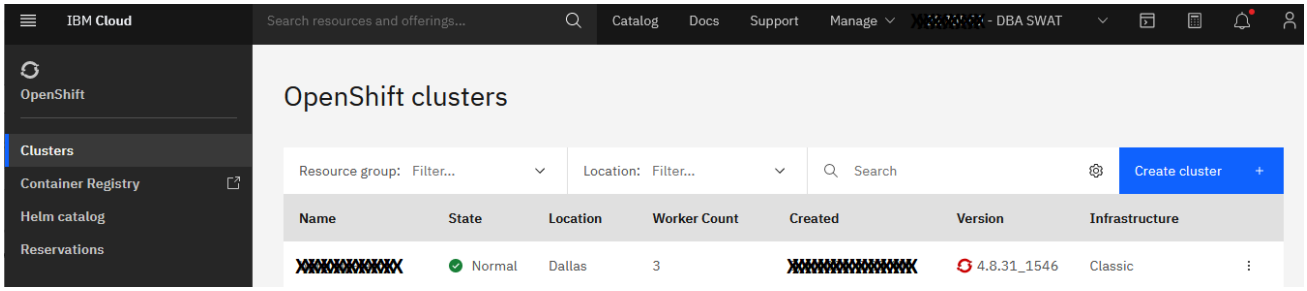


14. **Switch** to that account.

    On the left-hand side, click the **OpenShift** icon.



15. You should now see **one cluster** in the list.

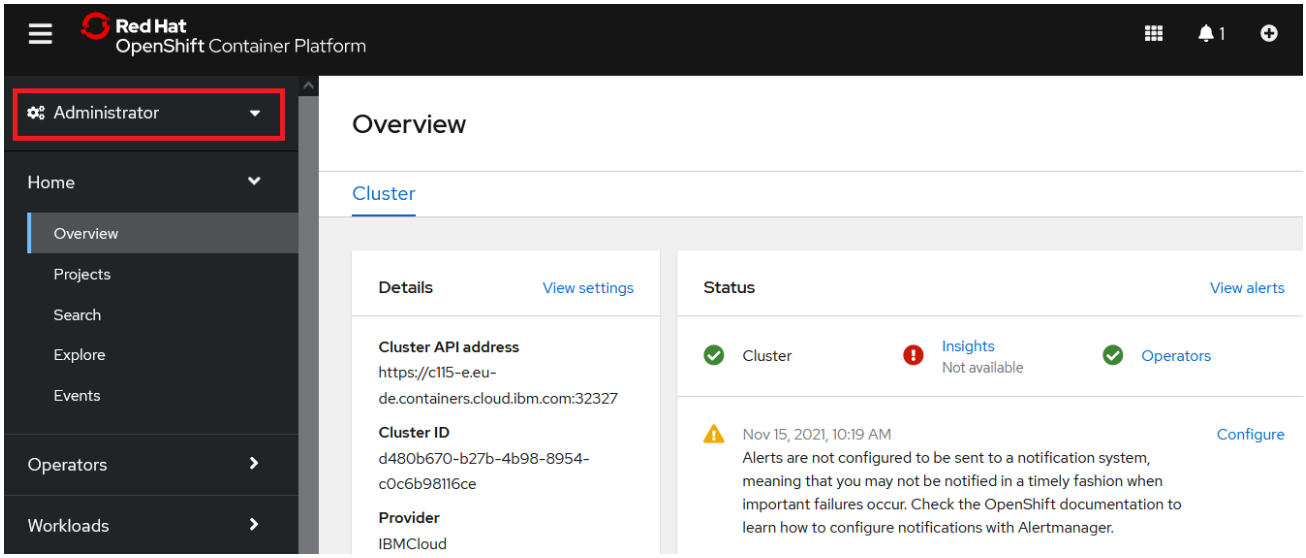


This cluster should:
- be named **bringup- amer-xx**
- show State **Normal**
- be in Location **Dallas**
- have a Worker Count of **three**
- be of OCP Version 4.8.xx_xxxx

16. Click on the cluster **Name**.

17. Click on the blue button **OpenShift web console** to access your cluster in the browser.

Verify that the OpenShift web console opens (you might need to allow pop-ups) and that you have **Administrative** access.

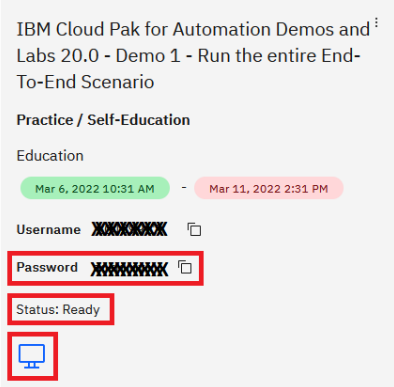


In case of any issues accessing your OpenShift cluster, or any other issues or questions related to this lab, please reach out for help in the Slack channel for this bring-up lab:

#cp4ba-tech-jam-bring-up
https://ibm-cloudpak-partners.slack.com/archives/C0354GHAA3H

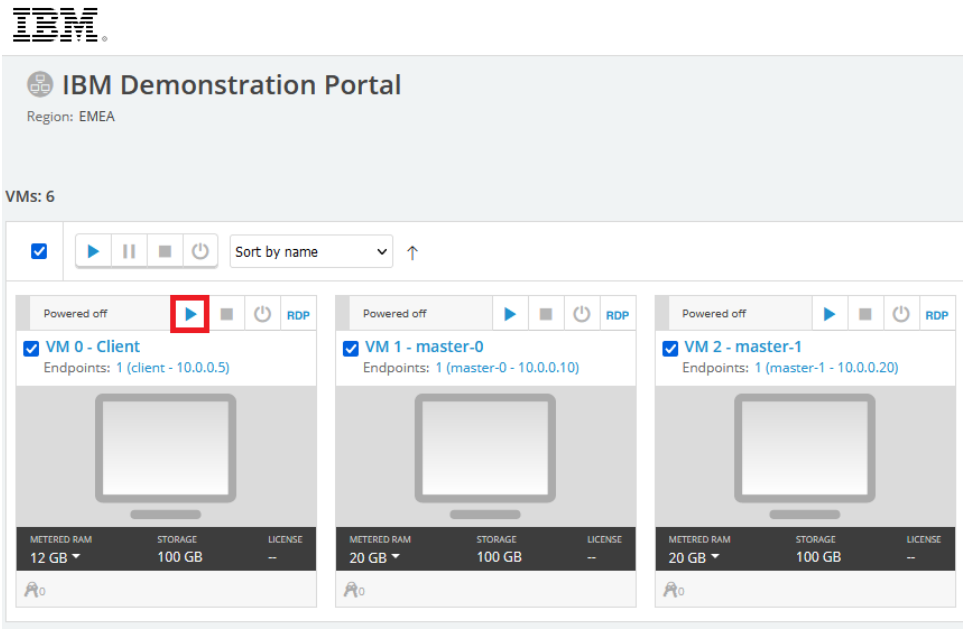
18. To access the **bastion host**, open the **Desktop URL** you got by Email and enter the **Desktop password** (copy & past also does work).

    Optionally, check the **My reservations** page **https://techzone.ibm.com/my/reservations**, once the Status is set to **Ready**, take a note of the **Password** and access the environment by clicking on the monitor icon.



    On the next page click on **Open your Skytap environment** and provide the **password**.

19. You now should be able to see the environment that contains your bastion host **VM 0 - Client**.



    Note: As you can see, this environment also consists of some other VMs (VM 1, VM 2, ...), but for the purpose of this bring-up lab they are not needed. Therefore, keep them stopped all the time, **only VM 0 – Client is needed**.

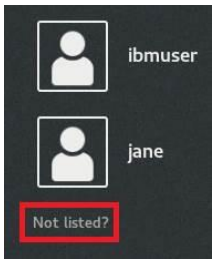
20. Click the **Run this VM** icon **above VM 0 - Client** to start only this VM, if it is not yet running.

    Note: If you for a longer time do not need this VM, please stop it, otherwise it will get stopped after a while automatically.

21. To access the desktop of your VM 0 **click the large monitor icon** of that VM to access it through your Browser.

22. In case you see the current time and date, press the **Space** key to get to the log-in screen of VM 0.

23. On the log-in screen click **Not listed?**



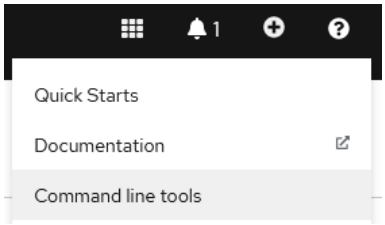
24. Log-in using **root / passw0rd**

    You should now see the Red Hat Enterprise Linux (RHEL) Server desktop of VM 0.

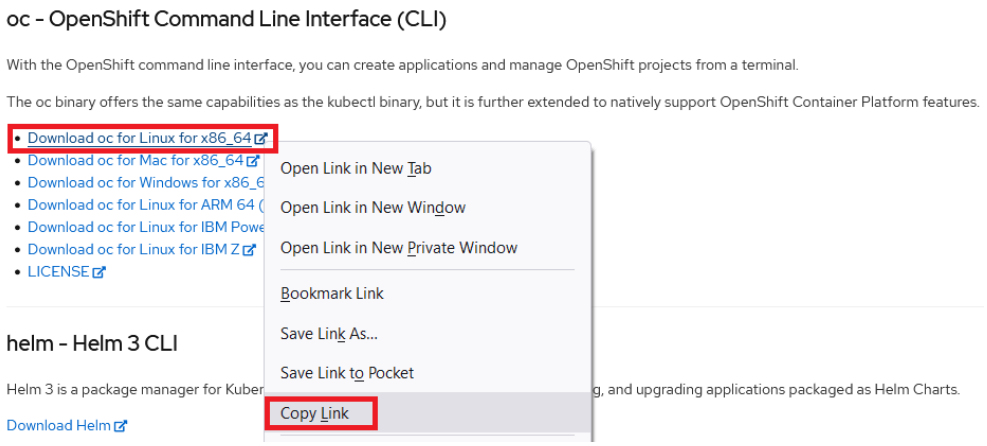
25. As this VM 0 still uses an older version of the OC CLI, you first must update it. For this:

    - Switch back to the Browser window on your local machine where you have the **OpenShift web console** open

    - Click at the top on the **question mark icon** and select **Command line tools**

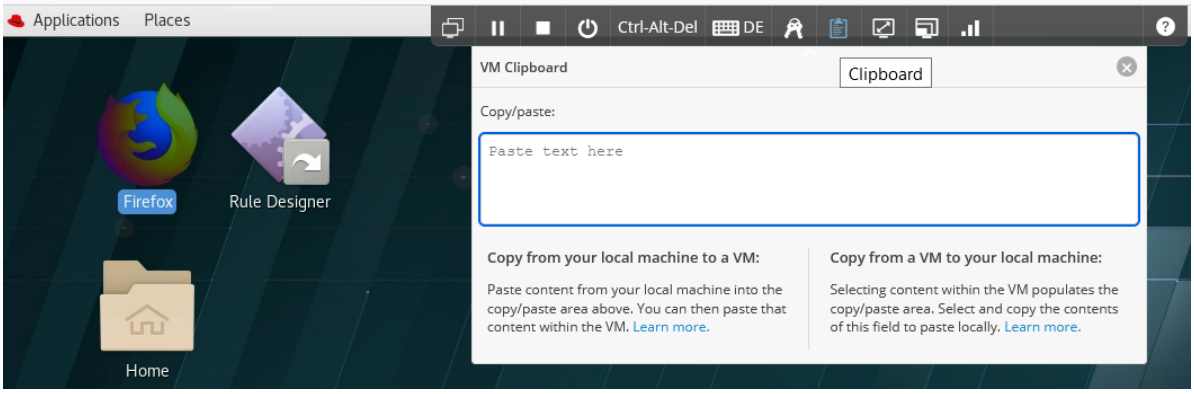


    - **Copy** the link of **Download oc for Linux for x86_64**



- Switch back to the **Desktop of VM 0**
- Open **Firefox** Browser **within VM 0** and open the **copied link**

  Note: To copy the clipboard of your local machine to VM 0 use the **Clipboard** icon



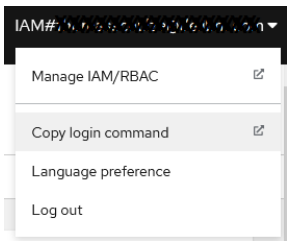
- Open **oc.tar** with **Archive Manager**
- Click **Extract** in the top left corner
- Navigate to directory **/usr/bin** and click **Extract** in the top right corner

- When you are asked to replace file oc, click **Replace**
- Close Archive Manager and the Browser on VM 0

26. Finally, also log in from the bastion host's **command line** to your OCP cluster.

    For that, first switch back to the Browser window on your local machine where you have the **OpenShift web console** open.

27. Click on the arrow besides your name and select **Copy login command**.



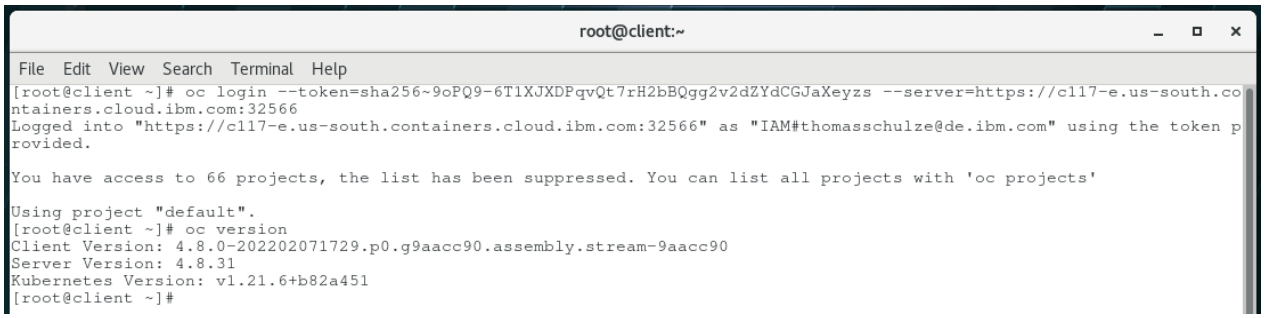
28. In the new tab that opens, click **Display Token**.

    Under **Log in with this token** copy the entire command that starts with **oc login ...**

29. Within your bastion host VM 0 open a **Terminal** window.

    Paste the login command to login to your cluster through **command line**.

30. Run the **oc version** command to verify the OC CLI and Server do match (both must be 4.8.x).



31. Now that you accessed both, your bastion host and your OCP cluster, it's time to access the **CP4BA rapid deployment scripts** github project: **https://github.com/IBM/cp4ba-rapid-deployment**

32. The **doc** in this github covers pieces that you already completed as part of the previous steps. Feel free to review them in more detail to better understand what happened so far and what other options you might have when you set-up your own ROKS cluster using your own IBM Cloud account.

    In **Step 0** (**https://github.com/IBM/cp4ba-rapid-deployment/blob/main/cp4ba-21-0-3/00selectTemplate.md**) we already selected the **Foundation, Content** template for you, as the OpenShift clusters we can provide you in the context of this Tech Jam can't be to large.

    You completed **Step 1** by getting invited to the DBA SWAT account.

    The SWAT team created the OpenShift cluster for you and gave you access. Check out **Step 2** (**https://github.com/IBM/cp4ba-rapid-deployment/blob/main/cp4ba-21-0-3/02createRedHatOpenShiftCluster.md**) to understand how easy it is to create such an OpenShift cluster in IBM Cloud.

    The SWAT team also already prepared for you a **VM that hosts LDAP**, installed **IBM SDS** on it and created some **users and groups** in that LDAP that you will use to configure CP4BA. How this is done is documented in **Step 3**.

    You now have **all prerequisites** in place to start installing IBM DB2 container and afterwards IBM Cloud Pak for Business Automation on your OpenShift cluster using these rapid deployment scripts.

33. To install the IBM DB2 Operator and an instance of DB2 on your OpenShift cluster, please follow the instructions under **Step 4: https://github.com/IBM/cp4ba-rapid-deployment/blob/main/cp4ba-21-0-3/04deployIBMDB2.md**

    Note: A DB2 Standard Edition license key is **NOT** needed for the selected **Foundation, Content** template.

    Note: In **01-parametersForDb2OnOCP.sh** specify for parameter **cp4baTemplateToUse** the value **ibm_cp4a_cr_template.002.ent.FoundationContent.yaml**

    Note: Also run the **03-...** script to create the needed databases for the CP4BA deployment.

    Note: Running the script to create databases for ADP is **not** needed for the selected **Foundation, Content** template.

34. To install the IBM Cloud Pak for Business Automation Operator and deploy an instance of CP4BA, please follow the instructions under **Step 5: https://github.com/IBM/cp4ba-rapid-deployment/blob/main/cp4ba-21-0-3/05installCP4BA.md**

    Note: In **05-parametersForCp4ba.sh** specify the following values (besides others that you can define):

    cp4baAdminPassword=**passw0rd**
    (this password is set in the LDAP already)

    ldapAdminPassword=**passw0rd**
    (this password was chosen for cn=root when installing LDAP)

    ldapServer=**" 169.63.41.36"**
    ldapName= **ldap_americas**

    Note: Because you are deploying the Foundation, Content template only, you can **skip the sub-steps 29-48**.

35. To finally **verify your deployment**, make sure to complete **sub-step 28**. That config map should give you all important URLs & context roots to your system based on your deployment. Verify that all of them work and you can log-in by using LDAP user ID **cp4badmin / passw0rd**.

36. Steps 6-11 are **not needed** because you only deployed the Foundation, Content template.

    6. Optional: Install the Process Mining Operator & deploy Process Mining
    7. Optional: Deploy Machine Learning Service for ADS
    8. Optional: Setup OpenShift Logging Stack
    9. Optional: Setup OpenShift Monitoring Stack
    10. Optional: Create new VSI for RPA & install IBM RPA
    11. Optional: Scale up the deployment

Also, the cluster you got as part of this lab is not large enough to host all those additional components.

Feel free to review those options, in case you need them later in a customer situation or when setting up your own larger environment also using a template that covers more components.

With that, you have successfully completed this exercise and learned how to leverage the CP4BA rapid deployment scripts to install CP4BA on an OCP cluster on IBM Cloud.

The CP4BA rapid deployment scripts (**https://github.com/IBM/cp4ba-rapid-deployment**) are accessible by customers, business partners and IBMers. They are continuously maintained by the IBM Automation SWAT team. Feel free to use them.

Going forward, if you like to deploy one of the larger templates on your own ROKS cluster, the differences to what you have just done are:

- You need your own IBM Cloud account with funding for hosting the infrastructure
- You need to create your own ROKS cluster with the number of workers and resources as documented in Step 0 (**https://github.com/IBM/cp4ba-rapid-deployment/blob/main/cp4ba-21-0-3/00selectTemplate.md**)
- You need to set-up your own LDAP (includes access to SDS image/ a license - part number: CN487ML, needs to be downloaded from IBM Passport Advantage, or internally from IBM Internal DSW Downloads/XL Software)
- You need to get for DB2 the DB2 Standard Edition license key (PPA or XL SW, search for part number CC36WML), and you need to assign more resources to your DB2 deployment (see additional parameters in **01-parametersForDb2OnOCP.sh**)
- After the CP4BA deployment there are more post-deployment steps to be applied. Also, you might want to install other components like Process Mining, the ADS ML Service, … and scale up your deployment for High Availability
- Once the installation is complete you might want to import the Client Onboarding Solution, see also **https://github.com/IBM/cp4ba-client-onboarding-scenario**

Congratulations on completing this lab!