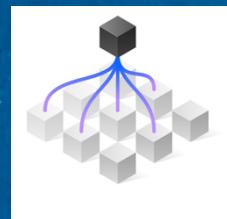


Db2 Shift

Modernizing Db2 Linux Installations

C2C Hands-on Lab Instructions



George Baklarz and Phil Downey

About the Lab

Deploying an existing Db2 to OpenShift, Kubernetes, or Cloud Pak for Data usually involves some form of export and import and a lot of work! The new Db2 Shift tool moves your on-premises database directly to the Cloud – with no exporting of data!

Db2 Shift can migrate your 10.5, 11.1 and 11.5 database directly into a Db2 container with no additional effort. This eBook will take you through the IBM Db2 Shift program and how it can help modernize your Db2 databases quickly and efficiently!

The lab covers the following topics:

- Getting started with the Skytap Lab environment
- How to register for, download, and install the C2C Db2 Shift program
- How to install Db2U on a Kubernetes cluster
- An overview of the Db2 Shift program
- Five shift scenarios:
 - Shift Db2 11.5 database to Db2U on Kubernetes
 - Shift Db2 11.5 database to another Instance
 - Shift Db2 11.5 database via clone and deploy functions
 - Upgrade Db2 11.1 Columnar database to Db2 on K8s
 - Shift Db2 11.5 database to Db2 11.5 Instance with HADR
- The use of Data Management Console to review database contents

Enjoy the lab, and we hope you find the new Click to Containerize Db2 Shift tool to be useful in your modernization plans for Db2!

George and Phil

Request Lab Access

To run the C2C lab, you first need to request a copy of the lab from:

- <https://techzone.ibm.com/collection/db2-click-to-containerize-kubernetes-lab>

Wait for the email indicating that the lab now Ready:

The screenshot shows an email from the IBM Technology Zone. The subject line is "Status Update: Ready". The body of the email contains the following information:

Your environment is now available. Please use the following information to access the environment.

Environment Name:
Db2 Click to Containerize Lab Environment

Reservation Details:
<https://techzone.ibm.com/my/reservations/ibmcloud-2/6426f27bf0a03d001763c686>

Collection URL:
<https://techzone.ibm.com/collection/62bce020ac56bc00177f5a38>

End Date :
2023-04-04 14:47:00 (UTC Time)

- Server 1: ssh -p 35417 db2inst1@ussouth.techzone-services.com
- Server 2: ssh -p 49280 db2inst1@ussouth.techzone-services.com
- K8 Server: ssh -p 33316 k8s@ussouth.techzone-services.com
- Lab Table of Contents: http://ussouth.techzone-services.com:46823/notebooks/Table_of_Contents.ipynb
- Notebook Directory: <http://ussouth.techzone-services.com:46823>
- Kubernetes Console: <https://ussouth.techzone-services.com:40449>
- Environment ID: itz-270004f0m3-2loixbz8

The URLs found in the note are required for you to run the lab. The three URLs that you need to take a note of are:

- Lab table of contents
- Notebook directory
- Kubernetes Console

The other URLs are required only if you want to use SSH to tunnel into the servers using your own terminal session.

If you go to your Reservation details, you will see a screen like that found on the next page.

IBM Technology Zone

My Library Help

Test Db2 C2C Lab

Date: Mon, Mar 13th 2023, 10:20 pm Fri, Mar 17th 2023, 9:20 pm EDT (-04:00)

Status: Active

Region: Americas

Location: Toronto

Build, Show, Share.

Description

Db2 Click to Containerize Test

Need help?

Send an email to your instructor(s):
baklarz@ca.ibm.com

Your environment

Environment ID

This is the unique ID which identifies your environment. Your environment ID is **1**

Published Services

Server 1: ssh -p 45985 db2inst1@useast.techzone-services.com
 Server 2: ssh -p 25036 db2inst1@useast.techzone-services.com
 K8 Server: ssh -p 31848 k8s@useast.techzone-services.com
 Lab Table of Contents: http://useast.techzone-services.com:40142/notebooks/Table_of_Contents.ipynb
 Notebook Directory: <http://useast.techzone-services.com:40142>
 Kubernetes Console: <https://useast.techzone-services.com:32723>

Environment info

You will need to use this information to access your personal virtual environment.

Environment

Bastion Remote Desktop: Disabled
 Public VPN Endpoint: Disabled
 Router IP: 10.0.0.130.242
 vCenter IP: https://vcenter.techzone.ibm.com
 vCenter Password: Disabled
 vCenter Console Access: Disabled
 vCenter Username: Disabled

Downloads

[Download Wireguard VPN config](#)

VM Remote Console

[45-270007muae-vd0baueu-c2ckblab_db2_1](#)
 Processor: 8 vCPUs
 Memory: 16 GB

[45-270007muae-vd0baueu-c2ckblab_db2_2](#)
 Processor: 8 vCPUs
 Memory: 16 GB

[45-270007muae-vd0baueu-c2ckblab_k8s](#)
 Processor: 8 vCPUs
 Memory: 16 GB

The URLs are found under the Published Services section:



Published Services

Server 1: ssh -p 45985 db2inst1@useast.techzone-services.com
 Server 2: ssh -p 25036 db2inst1@useast.techzone-services.com
 K8 Server: ssh -p 31848 k8s@useast.techzone-services.com
 Lab Table of Contents: http://useast.techzone-services.com:40142/notebooks/Table_of_Contents.ipynb
 Notebook Directory: <http://useast.techzone-services.com:40142>
 Kubernetes Console: <https://useast.techzone-services.com:32723>

You can use the blue boxes at the bottom of the reservation details to access the console of each machine. This is not necessary to run the lab! However, if you find you are having difficulties using your web browser to access the external ports, you can log into one of the machines (K8S server is recommended) and use the Firefox browser that is included in the machine.

Userids and Passwords

Passwords for the various userids are supplied with the lab, but in case you can't find them, here is the list of the default userids and passwords:

Userid	Type	Server	Password
db2inst1	User Db2	Server 1 (10.0.0.1)	db2inst1
db2inst2	User Db2	Server 1 (10.0.0.1)	db2inst2
db2inst1	User Db2	Server 2 (10.0.0.2)	db2inst1
admin	Data Mgmt Admin	Server 1 (10.0.0.1)	passw0rd
k8s	User Kubernetes	Server 3 (10.0.0.3)	engageibm
Notebooks	Jupyter notebook	NA	kubernetes

Table of Contents

To access the table of contents for the lab, copy the URL found in your Published services section that refers to the Lab Table of Contents.



Published Services

Server 1: ssh -p 45985 db2inst1@useast.techzone-services.com

Server 2: ssh -p 25036 db2inst1@useast.techzone-services.com

K8 Server: ssh -p 31848 k8s@useast.techzone-services.com

Lab Table of Contents: http://useast.techzone-services.com:40142/notebooks/Table_of_Contents.ipynb

Notebook Directory: <http://useast.techzone-services.com:40142>

Kubernetes Console: <https://useast.techzone-services.com:32723>

Using your favorite browser, you should see a screen requesting a password to access the notebooks:



The password to access the notebooks is “kubernetes”. Once you enter the password, the notebook directory is displayed:

jupyter Table_of_Contentts Last Checkpoint: Last Friday at 11:14 AM (autosaved)

File Edit View Insert Cell Kernel Help

Logout Trusted Python 3

Db2 Click to Containerize

Overview of Jupyter notebooks if you have never used them

Db2 Click to Containerize Lab

These series of notebooks will demonstrate how to install Db2U on a Kubernetes cluster and then use the Db2 Shift utility to move an on-premise database into a Db2U Pod.

Introduction to Jupyter Notebooks

If you are not familiar with Jupyter notebooks, select this document to learn about the basics of navigating within a notebook.

Introduction to the Lab

What exactly are you going to do in the lab and what makes up this environment? Start here to find out what the lab is all about.

Db2 Shift

Db2 Shift is the name of the utility that allows for the easy movement of your Db2 database into a containerized (or virtual machine) environment. This document gives you an overview of the utility and the features that it includes.

Kubernetes, the Db2 Operator and Db2U

Kubernetes Console (Optional)

Terminal Basics

Click on the arrow to view →

0

If you are not familiar with Jupyter notebooks, click on the arrow found in the first box to get a tour of the features.

Each lab exercise is found as a box in this table of contents. The contents are meant to be run in sequence, except for ones that are marked optional.

With each lab there will instructions and copies of the commands you need to run. Some of these commands will need to be run in a console, so you will create a console window using the Notebook directory.

Notebook Directory

Select the URL for notebook directory and paste into a browser tab.

Published Services

Server 1: ssh -p 45985 db2inst1@useast.techzone-services.com

Server 2: ssh -p 25036 db2inst1@useast.techzone-services.com

K8 Server: ssh -p 31848 k8s@useast.techzone-services.com

Lab Table of Contents: http://useast.techzone-services.com:40142/notebooks/Table_of_Contentts.ipynb

Notebook Directory: <http://useast.techzone-services.com:40142>

Kubernetes Console: <https://useast.techzone-services.com:32723>

This will display a list of documents that are in the notebook directory. You do not need to access the notebooks through this interface. However, we need this screen to open a console window.

A Terminal Window will be accessed through the "New" button. Details are in the lab.

Name	Last Modified	File size
0	5 days ago	
images	5 days ago	11.7 kB
An_Intro.ipynb	5 days ago	13.4 kB
Db2_Db2u.ipynb	5 days ago	15.4 kB
Db2_Db2u_Clone.ipynb	5 days ago	17.7 kB
Db2_HADR.ipynb	5 days ago	26 kB
Db2_Shift.ipynb	5 days ago	19.2 kB
Db2_Upgrade.ipynb	5 days ago	4.64 kB
Db2Shift_Lab.ipynb	5 days ago	17.3 kB
Kubernetes_Console.ipynb	5 days ago	7.52 kB
Reset.ipynb	5 days ago	7.88 kB
Table_of_Contents.ipynb	Running	15.4 kB
Terminal.ipynb	6 days ago	2.67 kB
config	8 days ago	1.84 kB

Selecting “new” will open a console (terminal) window on the K8S server. This window will be used for executing many of the commands. You can open as many console windows as you need, but usually only one is needed for most commands.

Kubernetes Console

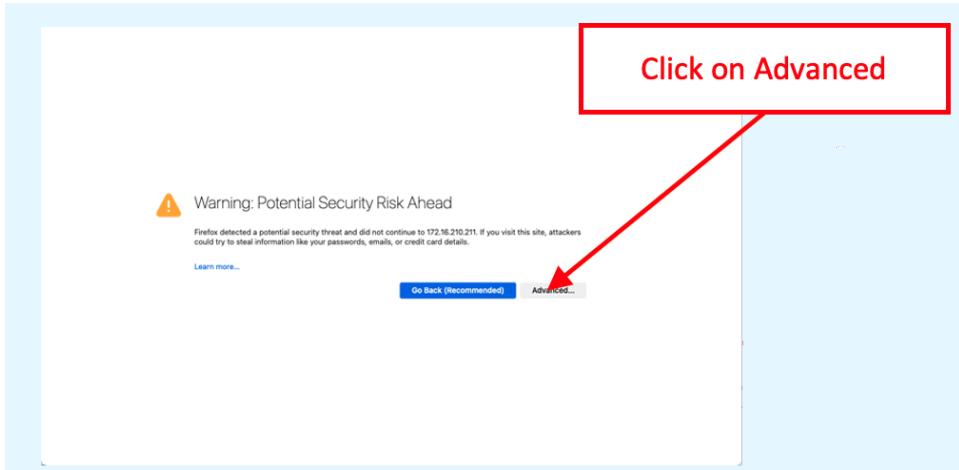
One of the optional exercises provides you with an opportunity to view the Kubernetes console. If you have any experience with the OpenShift console, this will look very familiar.

To access the console, you will need to get the Kubernetes Console URL from the Published Services list.

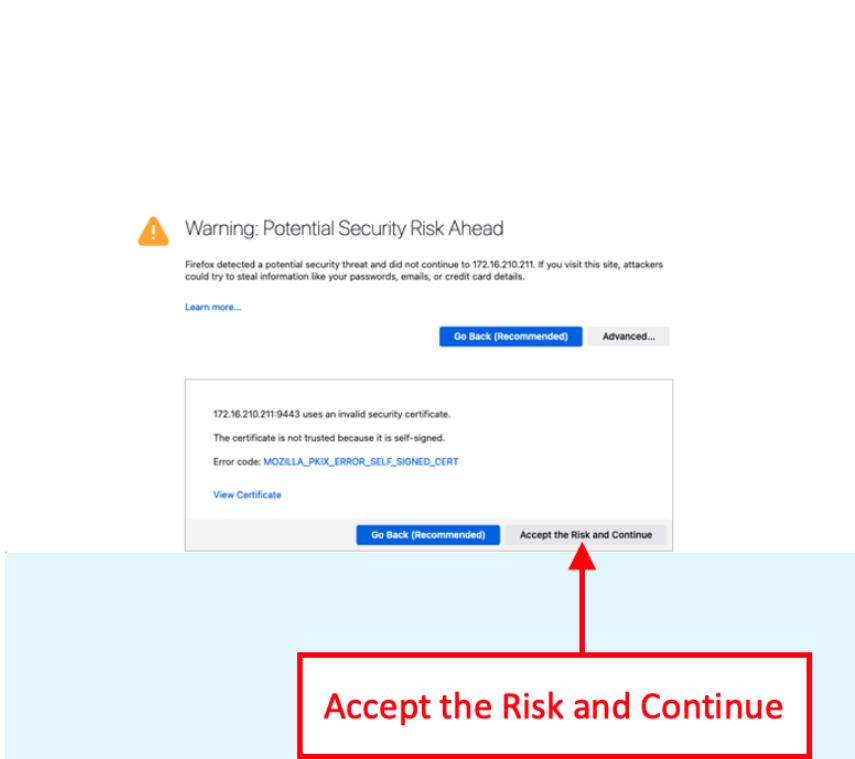
Published Services
Server 1: ssh -p 45985 db2inst1@useast.techzone-services.com
Server 2: ssh -p 25036 db2inst1@useast.techzone-services.com
K8 Server: ssh -p 31848 k8s@useast.techzone-services.com
Lab Table of Contents: http://useast.techzone-services.com:40142/notebooks/Table_of_Contents.ipynb
Notebook Directory: <http://useast.techzone-services.com:40142>
Kubernetes Console: <https://useast.techzone-services.com:32723>

Accessing the console will cause some error messages to appear due to self-signed security certificates.

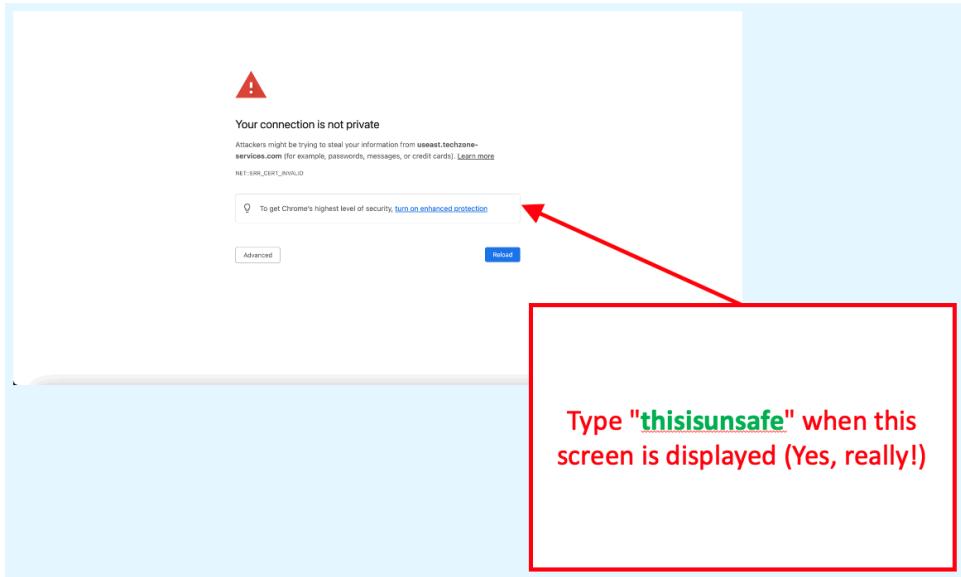
If you are accessing the URL from Firefox, the following error will display:



Clicking on Advanced will display another message. Accept the risk to continue:

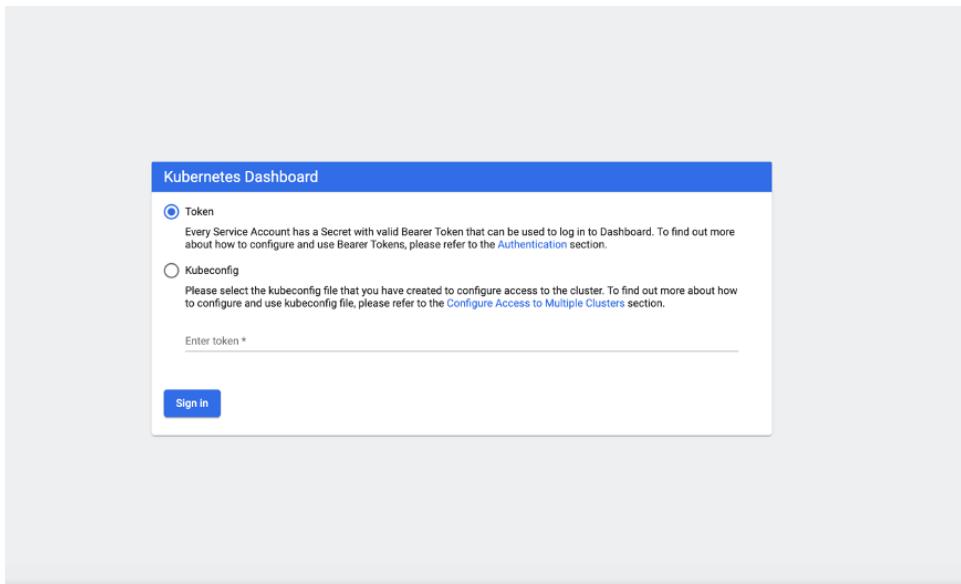


If you are using Chrome, you will see a different error message:



There is no “Advanced” option tab to get past this screen. You must type in “thisisunsafe” as one string while on this screen to bypass the error.

The Kubernetes login screen will then appear. Details of how to login are in the lab instructions.



Lab Sections

The C2C lab contains the following sections:

- Install Db2 operator and Db2U
- Kubernetes Console Overview
- Open Terminal Window
- Move a database into Kubernetes
- Move a database with clone and deploy to Kubernetes
- Upgrade a Database from 11.1 to 11.5 and Shift to Kubernetes
- Move a database to a new traditional instance and set up HADR

We hope you enjoy running the lab!