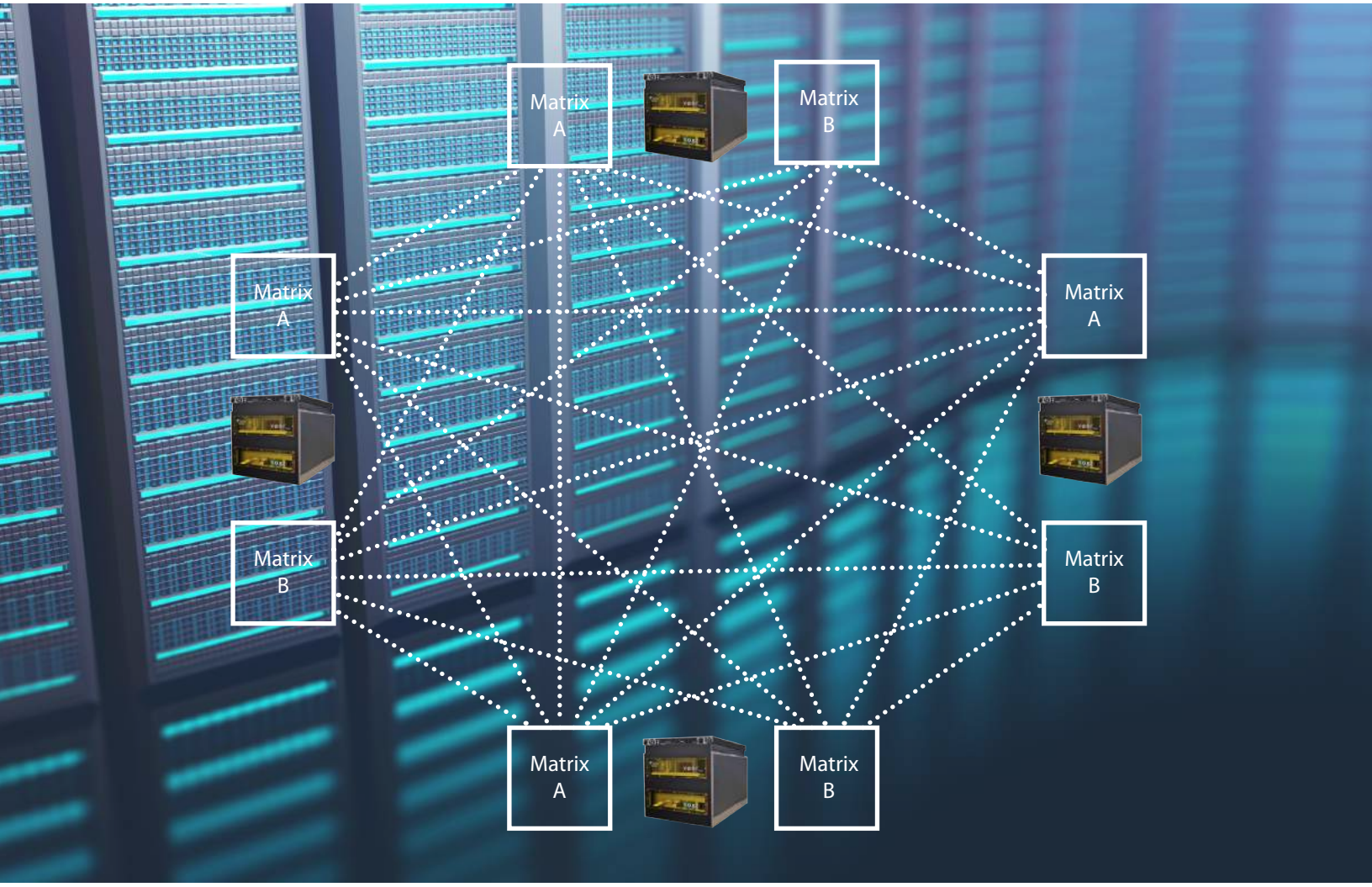
FiberSmart



ROME® Quick Start Guide with CloudShell™

v.10318

TABLE OF CONTENTS

1 Introduction

This document guides you through the driver installation and driving ROME® in the Quali® CloudShell™. The new driver and its future releases will be uploaded to the GitHub. Release of new version of the driver will be notified and provided with quick link to download.

2 ROME® Driver

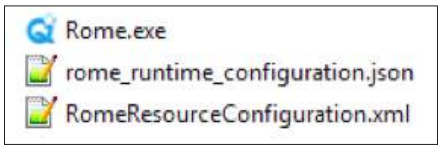
This section walks you through reviewing the driver files, downloading and installation of the ROME® driver into your system.

2.1 Driver Download

The new driver and its future releases will be uploaded to GitHub. Please go here: https://github.com/Wave2WaveSolution and visit the Wave2Wave GitHub page to download the latest driver files. The latest driver file will be attached with Latest Release tag. The driver files are in **ROMEDriver.zip** folder. The folder starts to download once it is clicked. If interested to look at the driver source code, download the Source code folder.

2.2 Driver Review

Navigate to the driver downloaded location, the driver files will be zipped use unzipper tool to unzip the folder. The driver has three files **Rome.exe, RomeResourceConfiguration.xml** and **rome_runtime_configuration.json**.



- Rome.exe: This file helps to drive the ROME® using the Quali® CloudShell™
- RomeResourceConfiguration.xml: This file is used to import the ROME configuration into the Resource Manager client
- Rome_runtime_configuration.json: This file imports the ROME® characteristics -family and model of the driver variables such as switch, blade and port

2.3 Driver Installation

Navigate to the driver downloaded location, the driver files will be zipped use unzipper tool to unzip it. Copy the two files **Rome.exe** and **rome_runtime_configuration.json** and paste them into the location where Quali CloudShell is installed in your system.

Installation Location: *C:\Program Files (x86)\QualiSystems\CloudShell\Server\Drivers*

Note: Rome.exe file needs to be unlocked after copying.

To unblock the ROME.exe file, right click on the file (copied) and choose properties. Click unblock then apply and click OK.

Now, the driver is installed and all set to import ROME® configuration into the Resource Manager client.

3 Resource Manager Client []

This is the tool used to configure ROME® for operation inside the Quali® CloudShell™. This tool is specifically used by the Admin for resource configuration.

Admin Operations include:

- Defining the resource data model
- Populating the resource data model
- Adding users, groups, and domains
- Assigning users to groups and domains
- Setting up the CloudShell license server

*Note: Some of these actions are performed in **Resource Manager Client** and others in **CloudShell Portal.***

Define the resource data hierarchy
After defining the data model, structure resource families and models into a logical hierarchy.

Build the attributes repository
Use attributes to define resource runtime behavior, to assist with route resolution, and to define blueprint categories.

Add resource families and models
Define the various models for each type or resource family, and populate the resource repository with instances of these models.

Define CloudShell users
Add or import your users into CloudShell.

Control permission levels
Manage user access to resources by assigning them users to groups. Permission levels are determined by group membership.

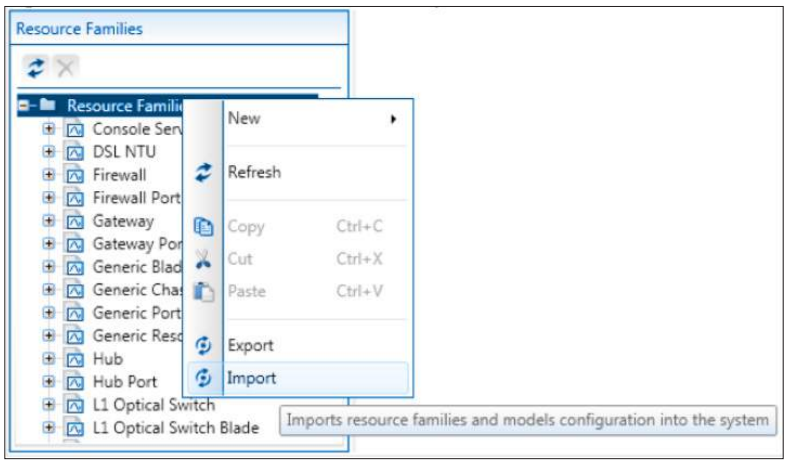
Allocate resources
Associating groups with domains allows the group's user access to domain resources.

3.1 Importing ROME®

To import ROME into CloudShell, import the RomeResourceConfiguration.xml file into the CloudShell resource manager client. To import the file into the resource manager, please follow the following steps.

Start the resource manager client.

Choose **Resource Families** , right click on the **Resource Families folder** that is located to the left and choose import and select file - **RomeResourceConfiguration.xml**.



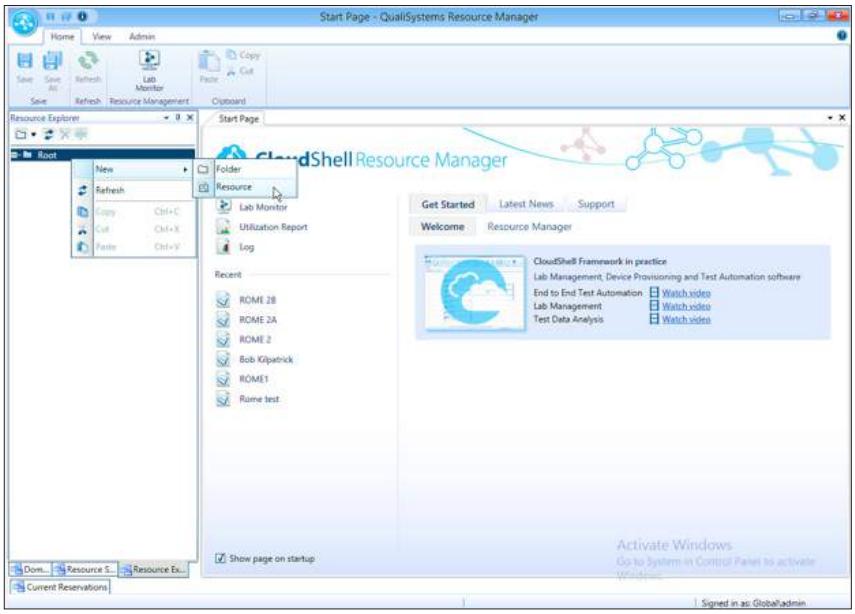
Now, the ROME® has been imported into the resource manager. Now, resources can be created using ROME®.

3.2 Creating ROME® Resources

This section walks through the adding new resources and creation of DUTs (Device Under Test) using ROME®.

3.2.1 Creating a New Resource

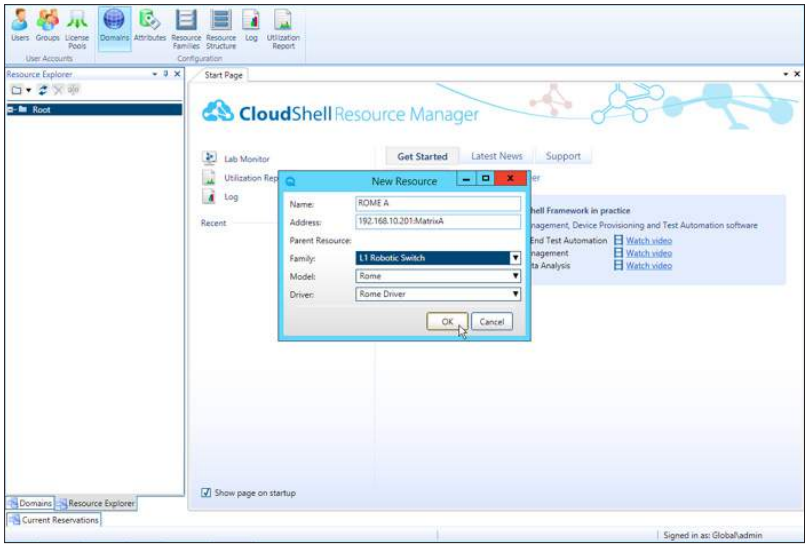
Choose the resource explorer and right click on the root node, select new and then resource. This will add a new resource into the resource explorer.



When the new resource is added, a window pops up. In here, add a name, address with required matrix to the resource by selecting the L1 Robotic Switch as the family. Select model name as ROME and driver as ROME Driver.

Example:

To use Matrix A	To use Matrix B
Name: ROME1A	Name: ROME1B
Address: 192.168.101.11:MatrixA	Address: 192.168.101.11:MatrixB
Family: L1 Robotic Switch	Family: L1 Robotic Switch
Model: ROME	Model: ROME
Driver: ROME Driver	Driver: ROME Driver



Note: The user needs to specify the address in the same format as mentioned above for proper operation (there are no spaces between any characters) and user needs to select the same for family type, model and driver entries as specified above.

Specifying Matrix A, will select ports on Matrix A and specifying Matrix B will select the ports on the Matrix B. In here, ports are not added yet. The resource needs to be configured for the ports to be added.

3.2.2 Configuring the ROME® Resource

To configure the resource, right click on the resource and select configuration or double click on the resource. Configuration windows will be displayed.

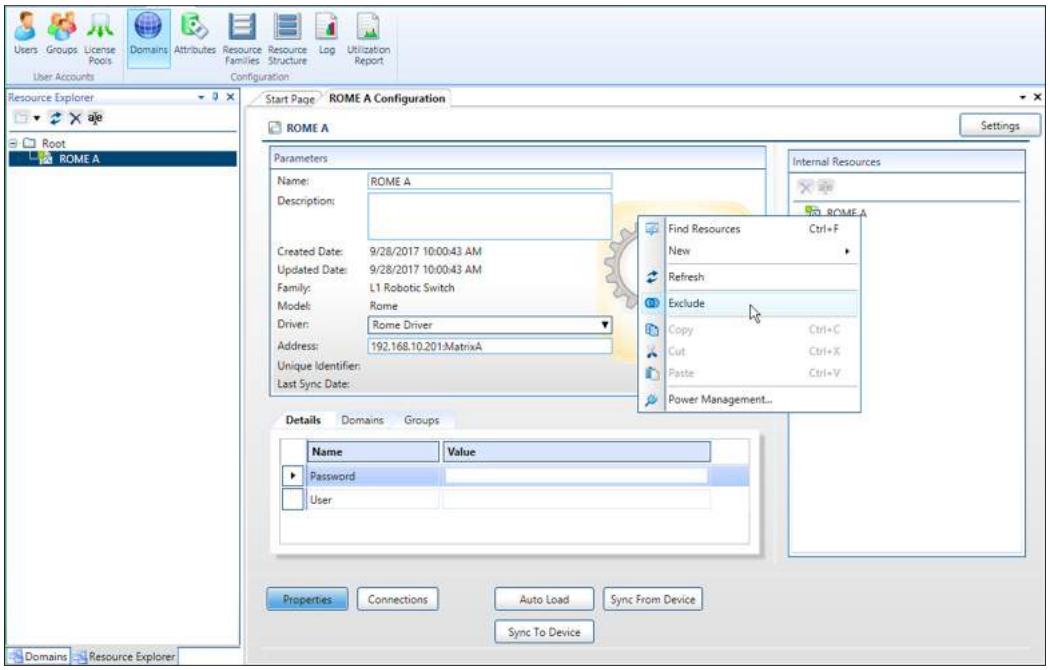
3.2.3 Adding Ports and Fetching the Status of ROME®

Now, that a resource has been added, ports are not included and status (connections present, if any made) of the ROME® is unknown.

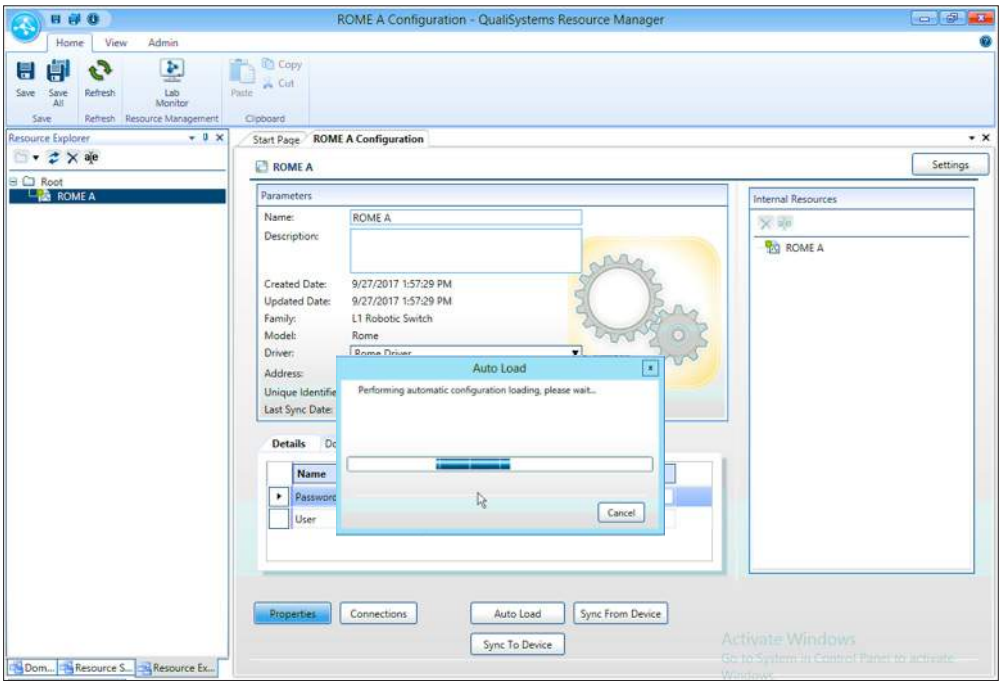
Hence, to add the ports into the resources and load the status of the ROME® Auto-Loading needs to be performed.

3.2.3 Auto-Load

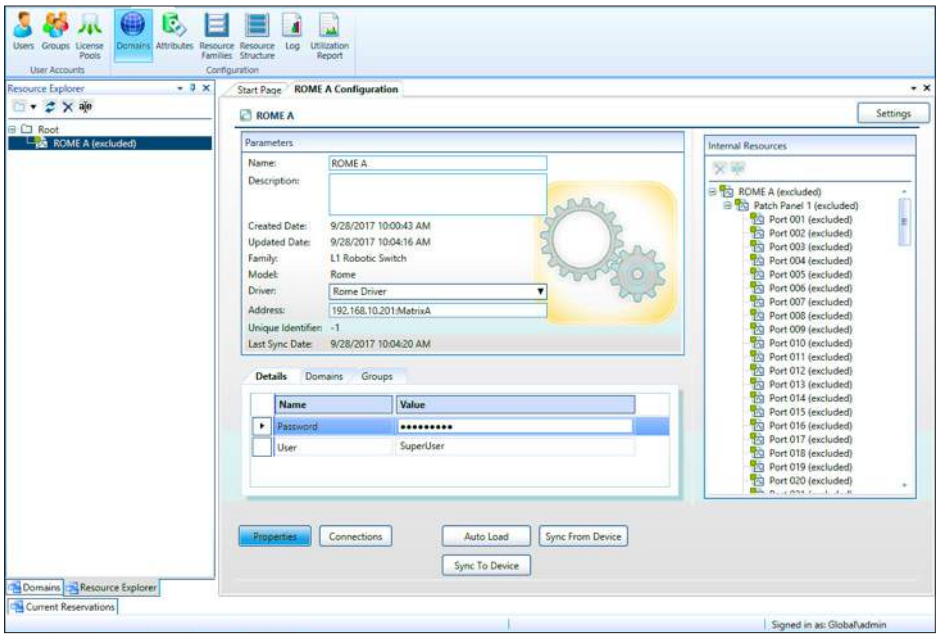
For auto-loading the device needs to be excluded. In the configuration tab, right click on the device in the internal and select exclude.



Once excluded, provide the user name and password for authenticity (when auto-loading for the first time) and click auto upload. A resource update window pops up, click Yes if you wish to configure the device.



Now the resource is configured with the ports. Matrix A, gets ports from 1 to 128 added. Similarly, for Matrix B, ports from 129 to 256 will be added.



Right click on the device and select include to include the device back.

The ROME® is now configured completely to be used in the CloudShell™.

3.3 Creating DUTs

This section guides you through the creation of DUTs for ROME. From the resource explorer, right click on the Root and select new resource.

Name: DUT
Address: NA
Family: DUT
Model: DUT
Driver: DUT

3.3.1 Adding Ports to DUT

Open the DUT configuration tab. Right click on the DUT in the internal resource section and select the new resource. This adds a port to the DUT. Ports can be added as many as needed based on the requirements.

3.3.2 Mapping DUT Ports to ROME

ROME® itself cannot be imported into CloudShell™, hence DUTs are created and their ports are logically mapped to the ROME® ports, using which the connections on the ROME® could be made through CloudShell™.

To logically map the connections between DUT and ROME® ports, open either DUT's or ROME®'s configuration tab. Click on the **connections** and in the connections page map the required ports to the respective device.

Note: The logical connection creation will happen on both the devices when configured on either DUT or ROME® configuration. To cross check visit the ROME® connections in the configuration page to find the logically connections mapped to the DUT here as well.

3.4 Creating Backbone Connections

This section guides you in the creation of backbone connections. Backbone connection is needed when the connection is required between Matrix-2-Matrix or ROME-2-ROME.

To have the backbone connections setup between any two entities, open the configuration tab of either of the entities and click on the connections. In here select the device to which the connections need to be established. Refer to the following examples for better understanding.

4 CloudShell Portal

CloudShell is a cloud automation platform that lets you deliver fully functional sandboxes over any combination of infrastructure, from legacy to public cloud, and eliminate resource conflicts. Creating a blueprint can be as simple as dragging the resources you need from the inventory and creating the connections between them.

CloudShell significantly reduces blueprint configuration time (by automating the management of IT resources), offers clear visibility into your organization's resources and their availability status, and optimizes resource use.

CloudShell offers the following powerful self-service infrastructure automation capabilities:

- Cloudifying and automating operational processes including application development, QA and testing, training, technology demonstration, integration and proof of concept and complex infrastructure deployment.
- Enabling DevOps, agile and continuous development processes, leading to faster time to market
- Managing your inventory of all physical, virtual, public cloud and logical resources
- Open integration with legacy and dedicated infrastructure, private and public clouds, and industry-specific infrastructure both directly and via any automation tool or language
- Reserving and scheduling blueprints
- Generating resource utilization BI reports
- Reservation and scheduling system
- Resource utilization BI reporting
- Web-based self-service portal and catalog

4.1 Blueprint

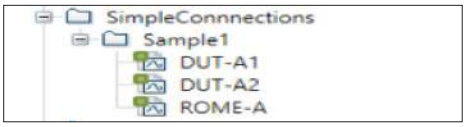
Blueprint is an environment, where in logical connections between the devices can be made and saved. The saved blueprint can later be used for making connections.

5 Blueprint Designs

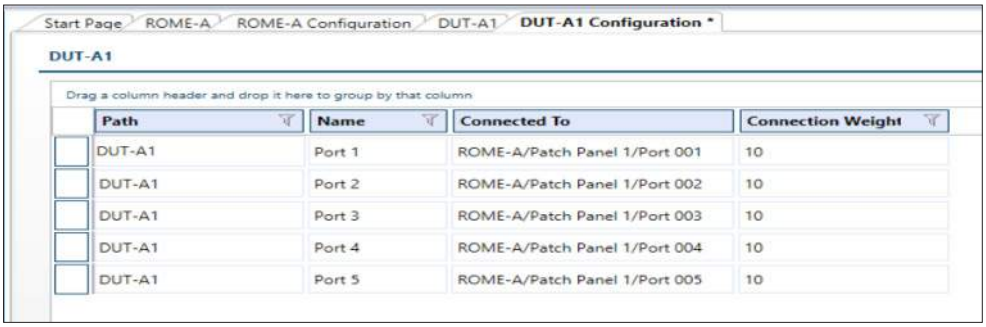
This section walks through the creation of blueprints of ROME® for connections within the matrix, matrix-2-matrix and ROME-2-ROME.

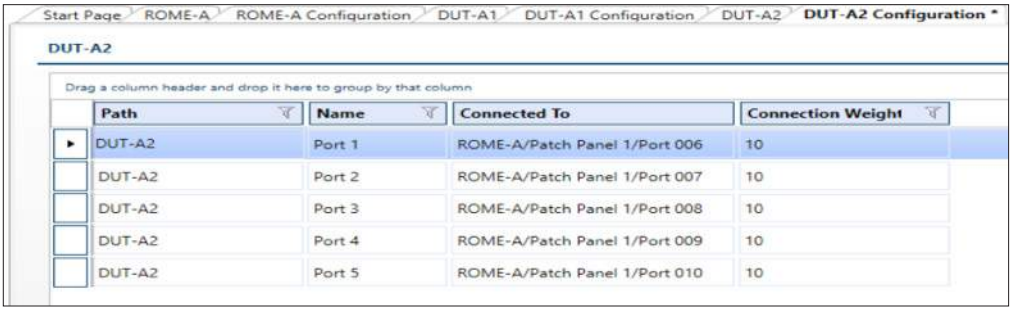
5.1 Within Matrix Connections

Step 1: Initially, create two DUTs and one ROME of Matrix A or Matrix B configured in the Resource Manager as shown below.

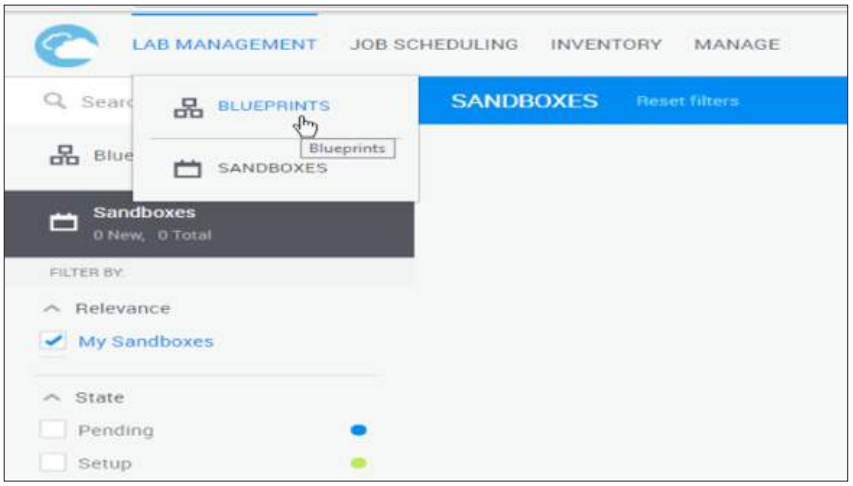


Assigning 5 ports to DUT-A1 and 5 Ports to DUT-A2 from ROME-A.

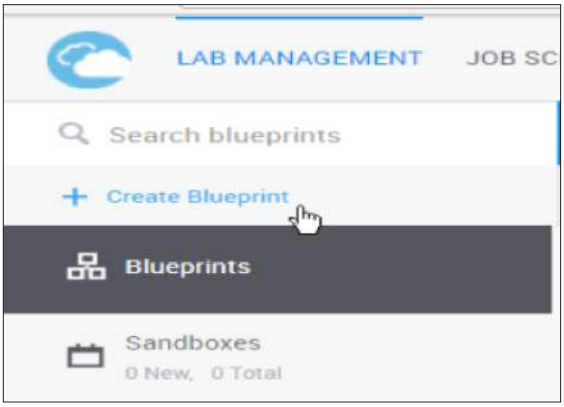




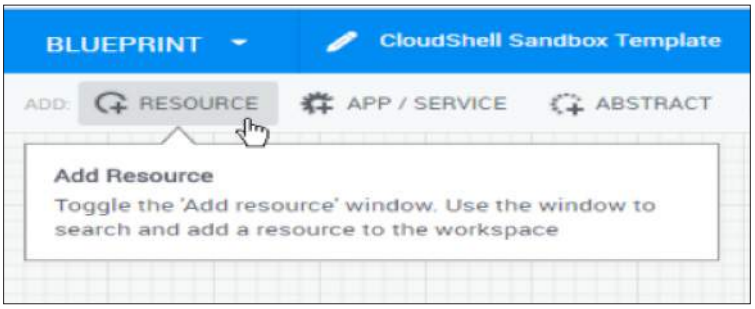
Step 2: Visit the Cloudshell portal and click on the Lab Management and select Blueprints.



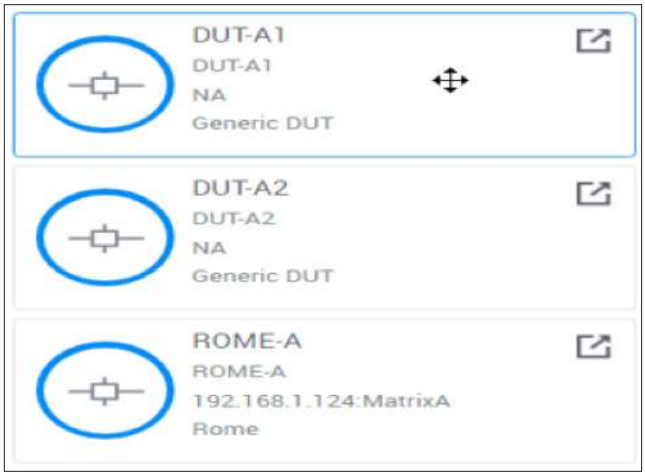
Step 3: Click on the create blueprint.



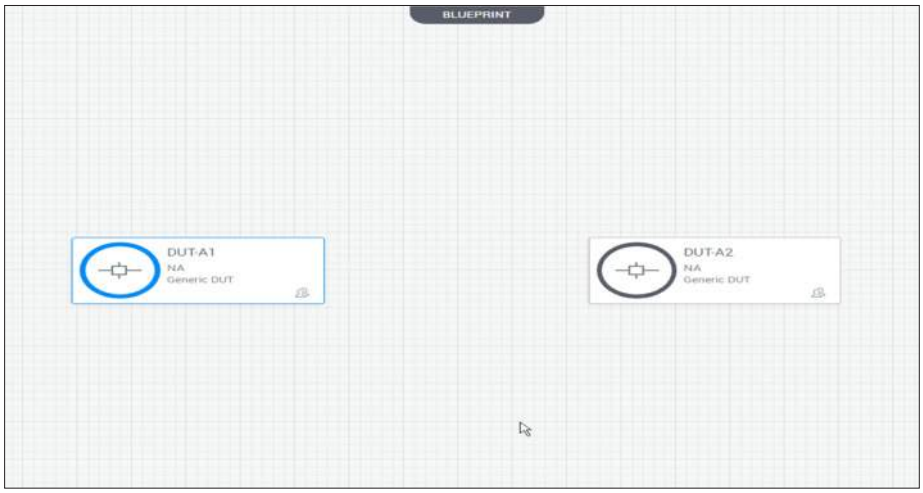
Step 3: Now, to add resources to the blueprint. Click on the resources. Now, all the available resource are shown.



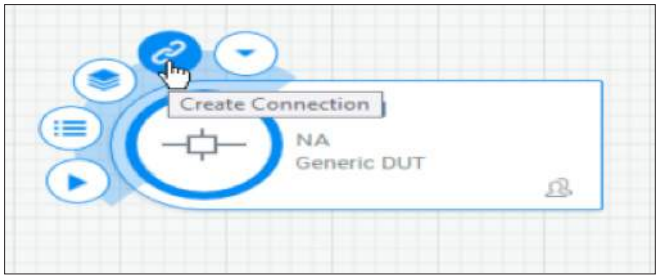
Available resources are as shown below.



Drag and drop the resources into the blueprint.

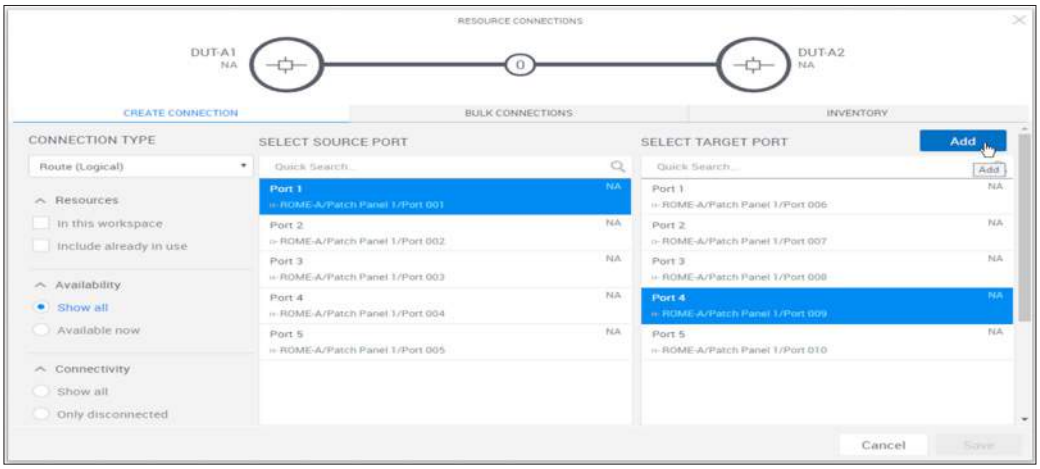


Step 3: To make connections, roll over the mouse pointer on any device and select create connection and then select the other device to which connection is to be made.

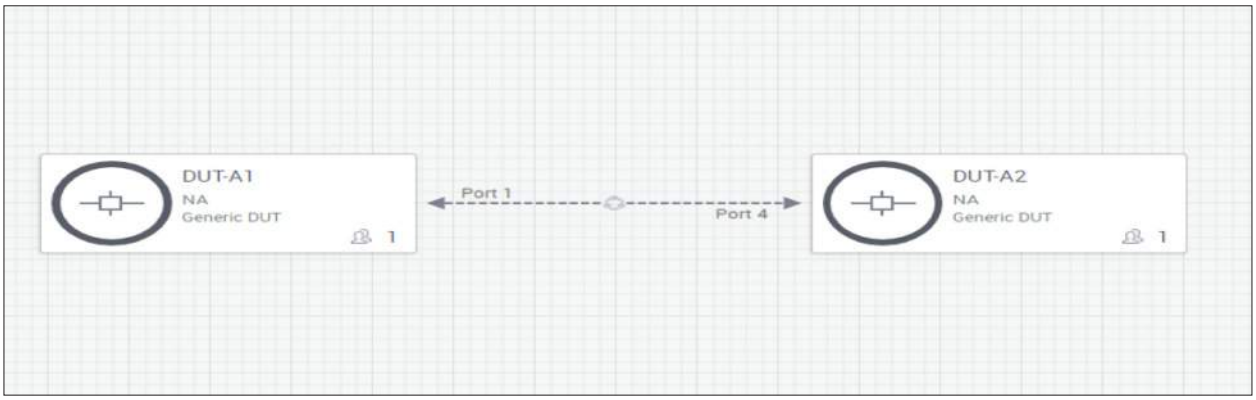


A list available ports will be shown.

Select the port between which the connection is needed.

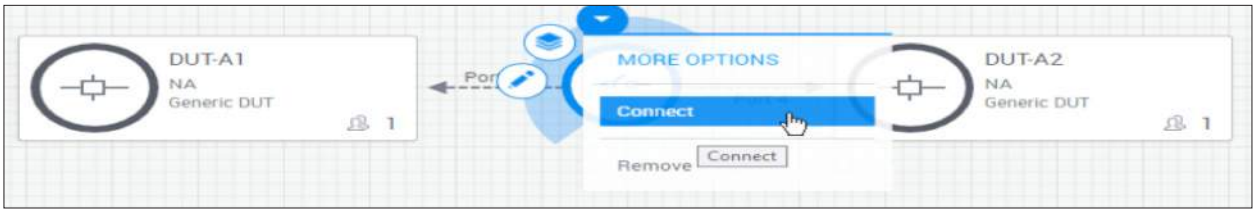


A logical link will be created between the two devices.



Click on the reserve button on the right top corner to enable the blueprint to be on Sandbox mode.

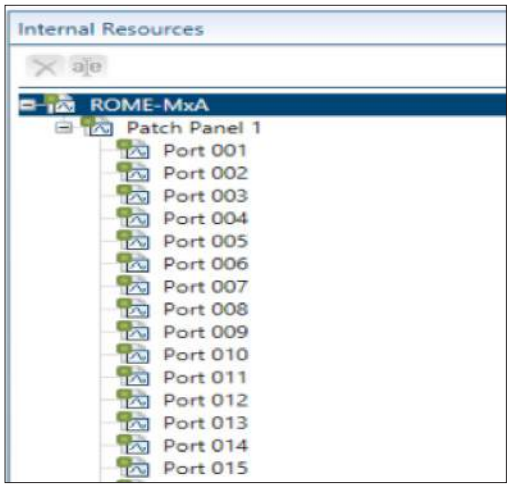
Click on the link and press connect to make a connection between the two ports.

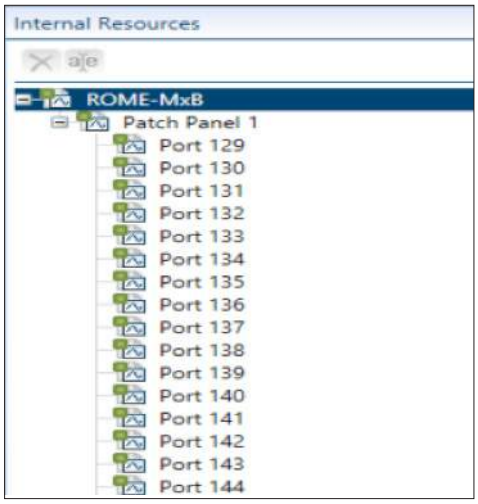


To end the blueprint, click on the stop symbol on the right top corner. Ending the blueprint will remove all the connections made in the blueprint.

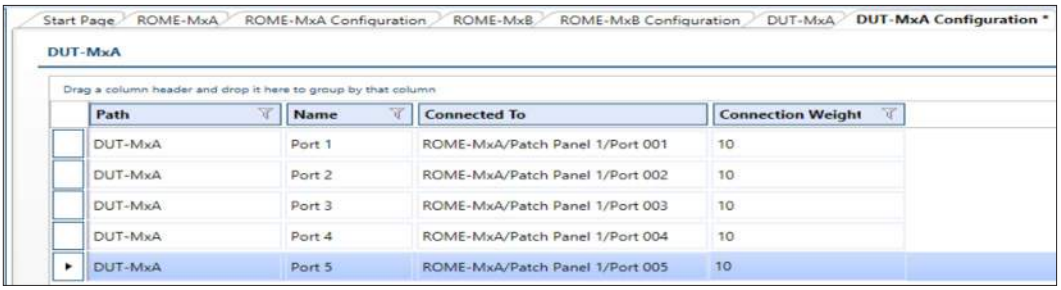
5.2 Matrix-2-Matrix

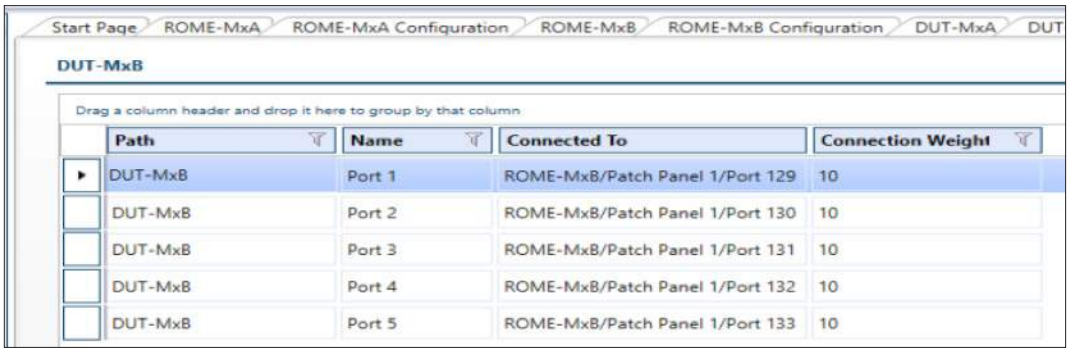
Step 1: Initially, create two DUTs, one ROME of Matrix A and other of Matrix B configured in the Resource Manager.



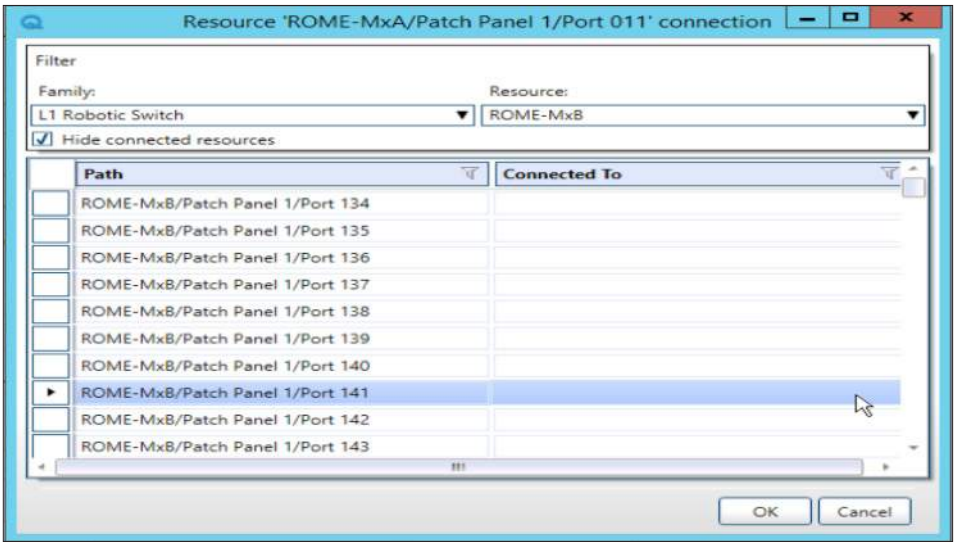


Assigning 5 ports to DUT-MxA and 5 Ports to DUT-MxB from ROME-A.



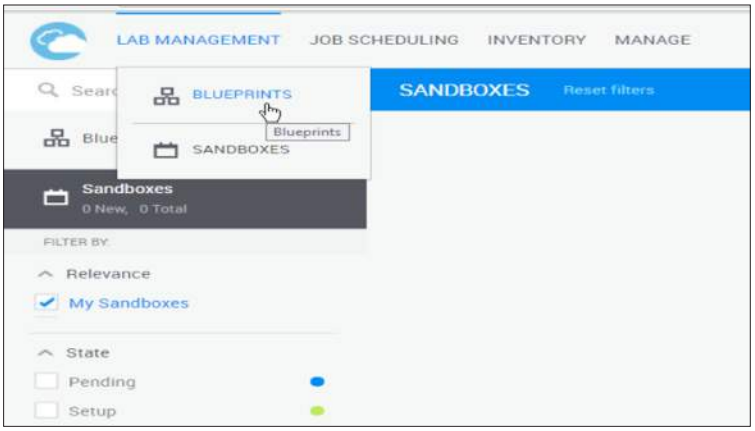


Step 2: Creating backbone connections between the Matrices.

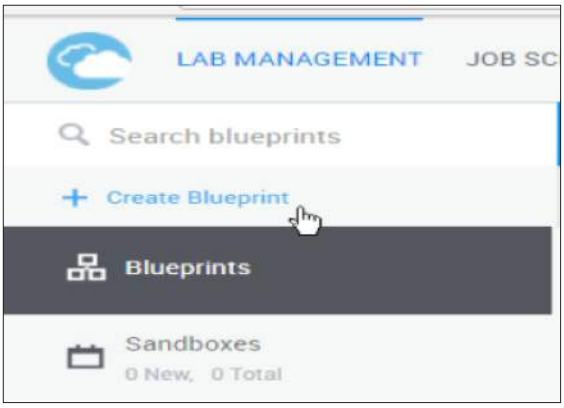


ROME-MxA/Patch Panel 1	Port 011	ROME-MxB/Patch Panel 1/Port 141	10
ROME-MxA/Patch Panel 1	Port 012	ROME-MxB/Patch Panel 1/Port 142	10

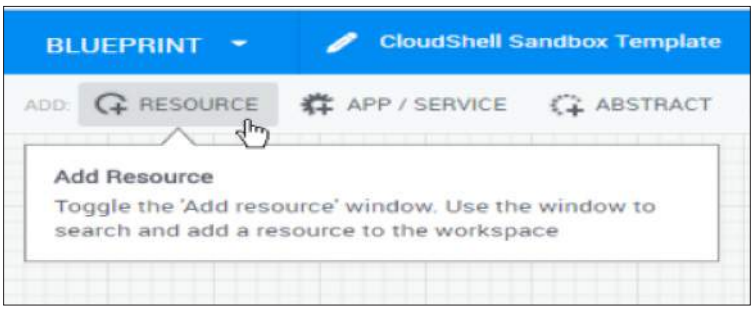
Step 3: Visit the Cloudshell portal and click on the Lab Management and select Blueprints.



Step 3: Click on the create blueprint.



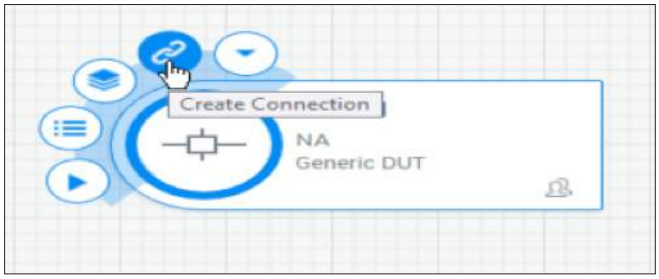
Step 3: Now, to add resources to the blueprint. Click on the resources. Now, all the available resource are shown.



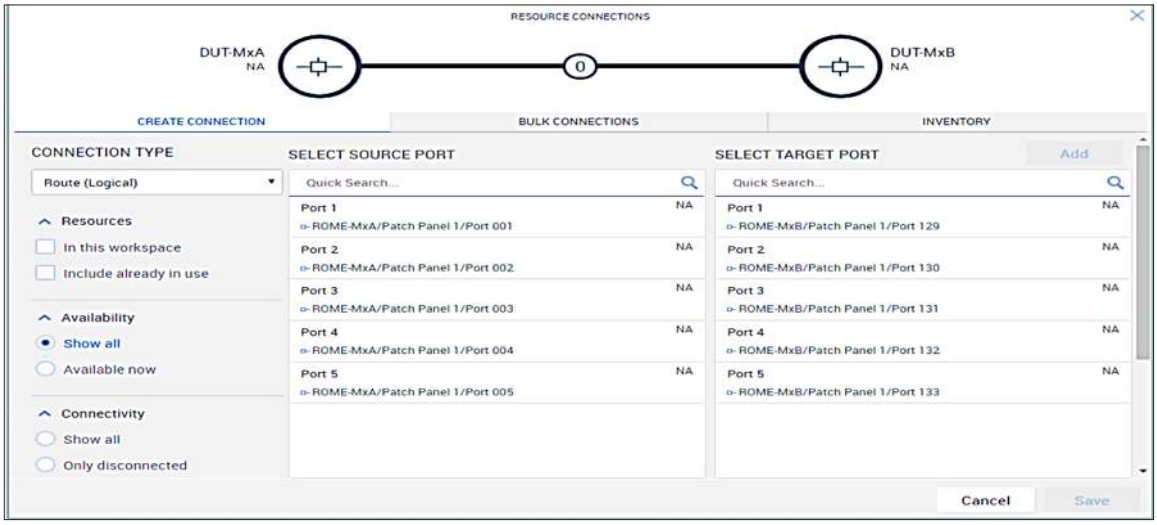
Available resources are as shown below.

Drag and drop the resources into the blueprint.

Step 3: To make connections, roll over the mouse pointer on any device and select create connection and then select the other device to which connection is to be made.



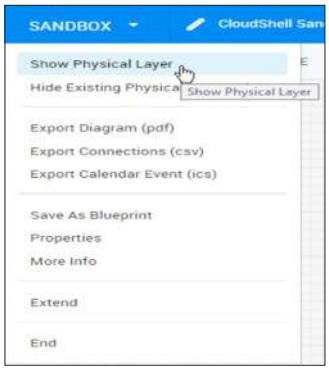
A list available ports will be shown.

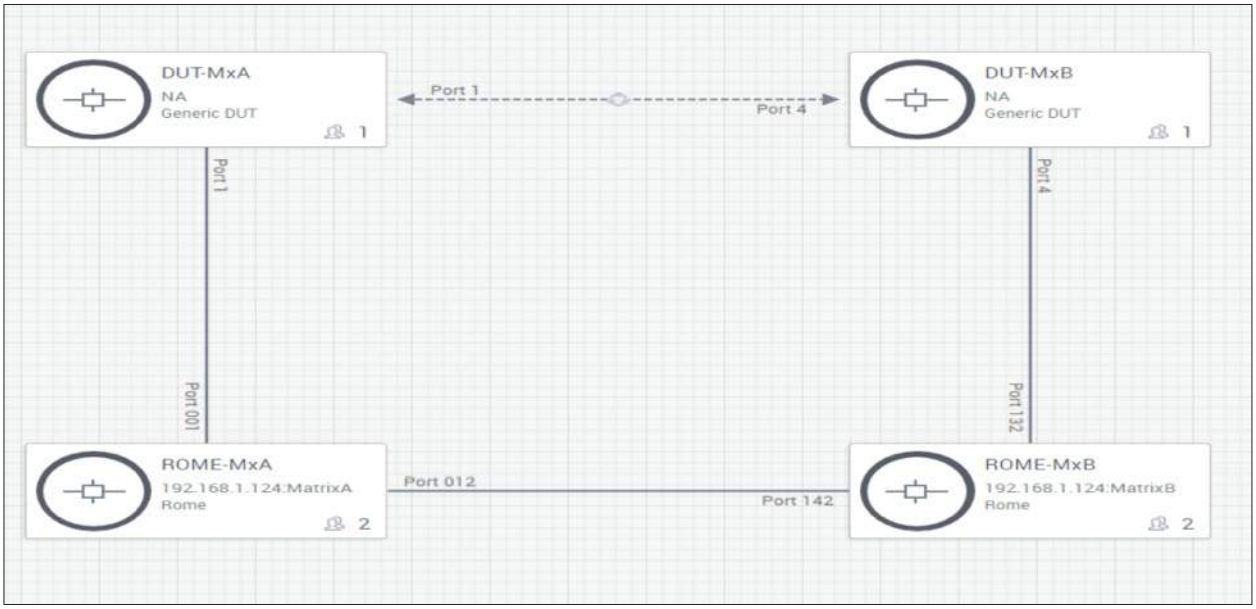


Select the port between which the connection is needed. A logical link will be created between the two devices.

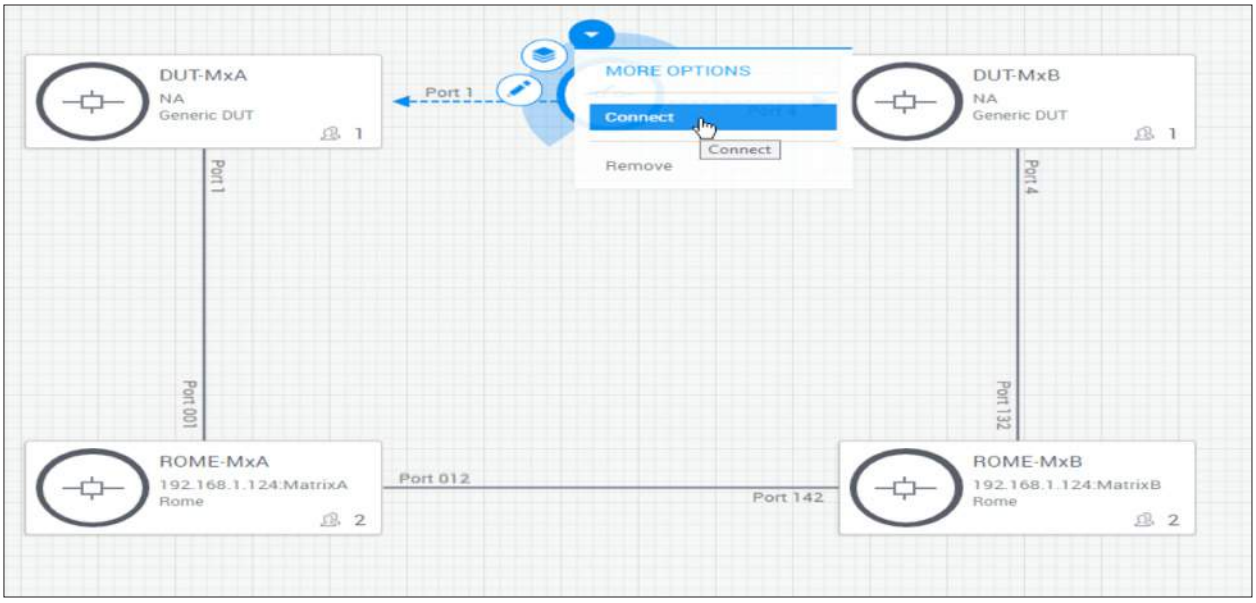
Click on the reserve button on the right top corner to enable the blueprint to be on Sandbox mode.

On the left-top corner, click on the sandbox and select show physical layer to see physical

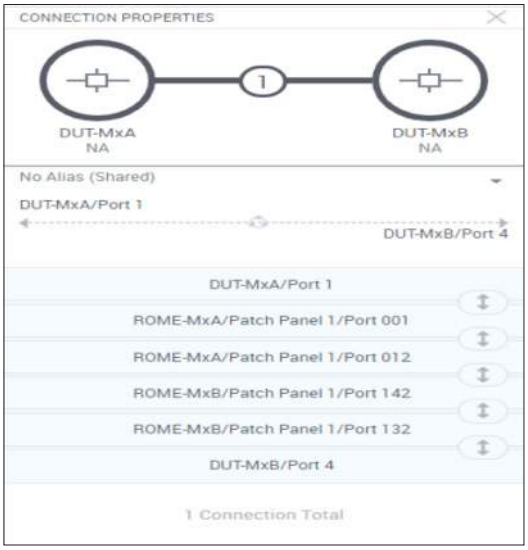




Click on the link and press connect to make a connection between the two ports.



To see the connection flow between the matrix, roll over the mouse on any DUT and select the properties.

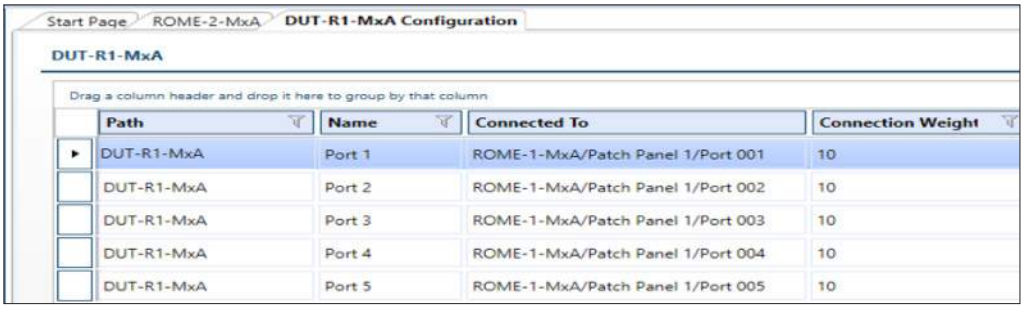


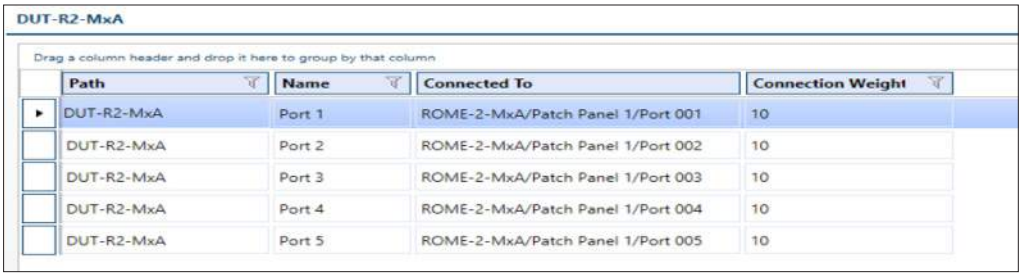
To end the blueprint click on the stop symbol on the right top corner. Ending the blueprint will remove all the connections made in the blueprint.

5.3 ROME-2-ROME

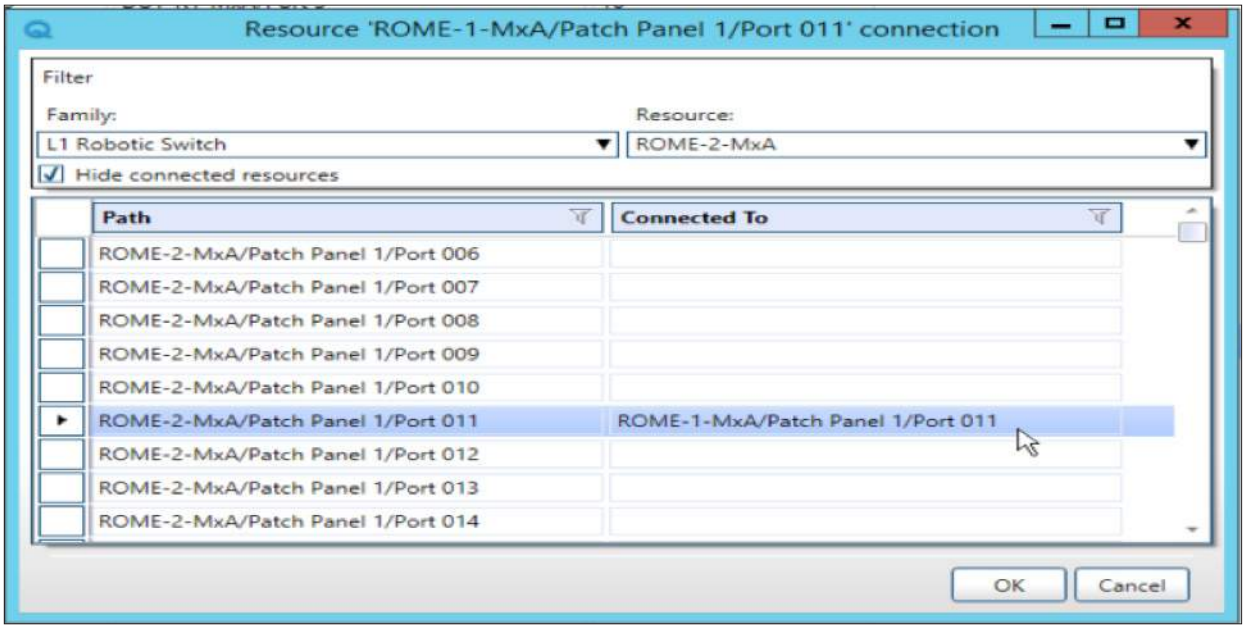
Step 1: Initially, create two DUTs, one ROME of Matrix A and other ROME Matrix B configured in the Resource Manager.

Assigning 5 ports to DUT-R1-MxA and 5 Ports to DUT-R2-MxA from ROME-R1-MxA and ROME-R2-MxA respectively.



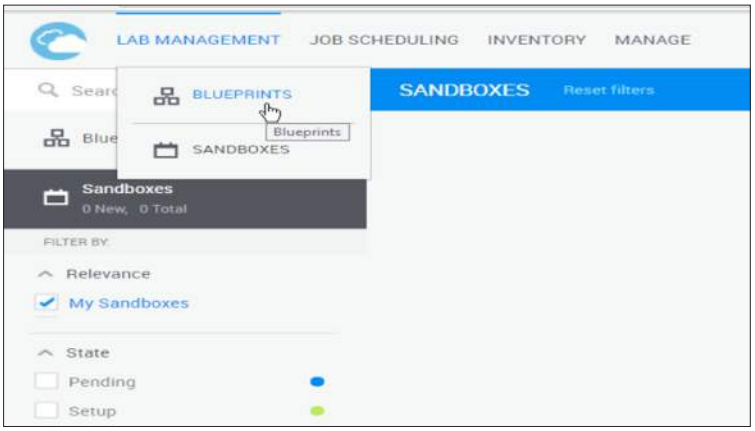


Step 2: Creating backbone connections between the Matrices.

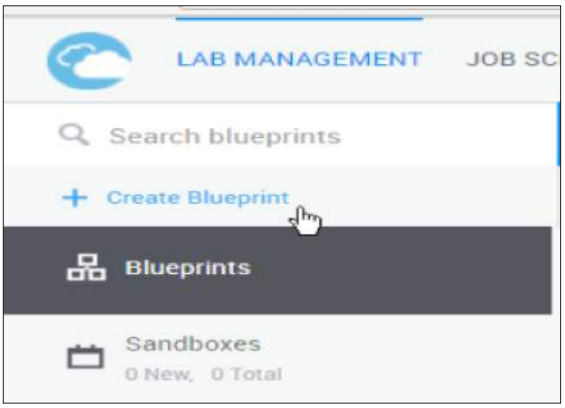


	ROME-1-MxA/Patch Panel	Port 011	ROME-2-MxA/Patch Panel 1/Port 011	10
	ROME-1-MxA/Patch Panel	Port 012	ROME-2-MxA/Patch Panel 1/Port 012	10

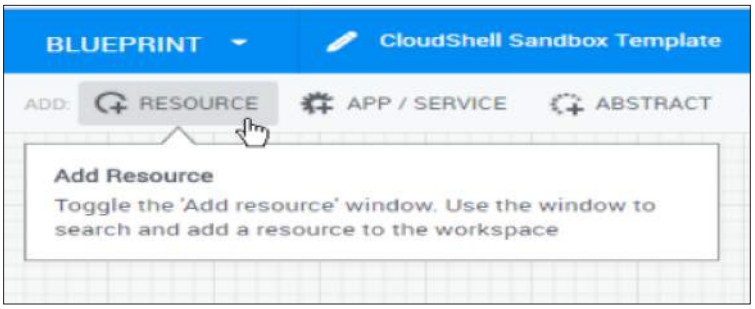
Step 3: Visit the CloudShell portal and click on the Lab Management and select Blueprints.



Step 3: Click on the create blueprint.



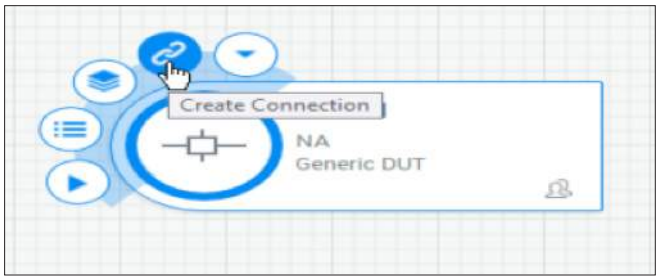
Step 3: Now, to add resources to the blueprint. Click on the resources. Now, all the available resource are shown.



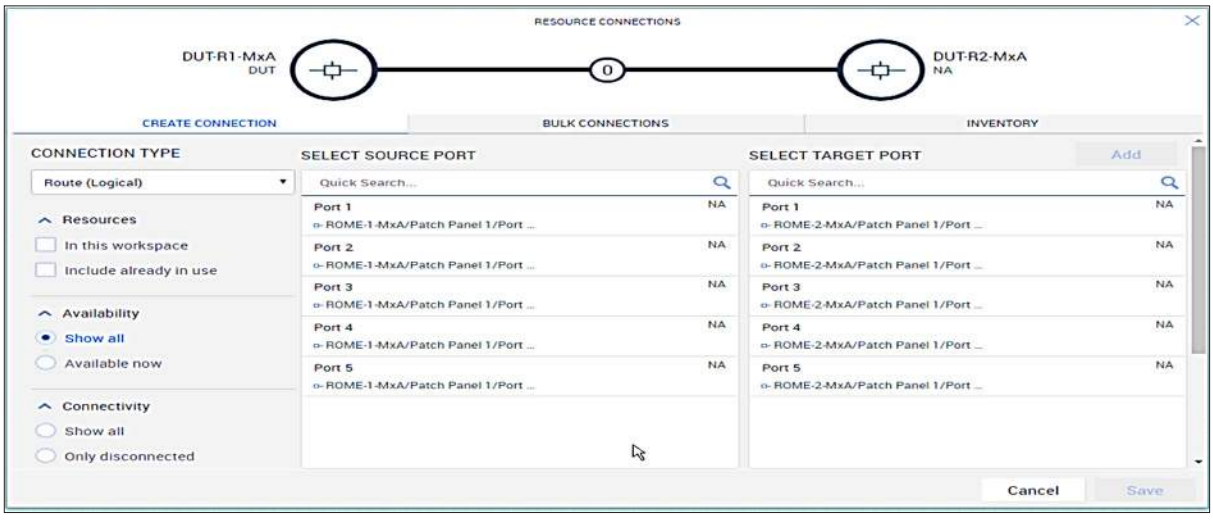
Available resources are as shown below.

Drag and drop the resources into the blueprint.

Step 3: To make connections, roll over the mouse pointer on any device and select create connection and then select the other device to which connection is to be made.



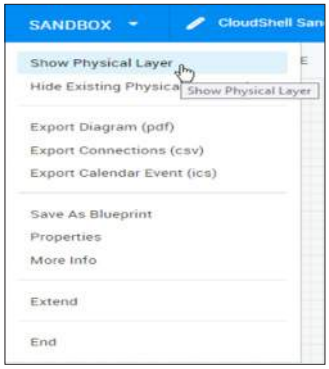
A list available ports will be shown.

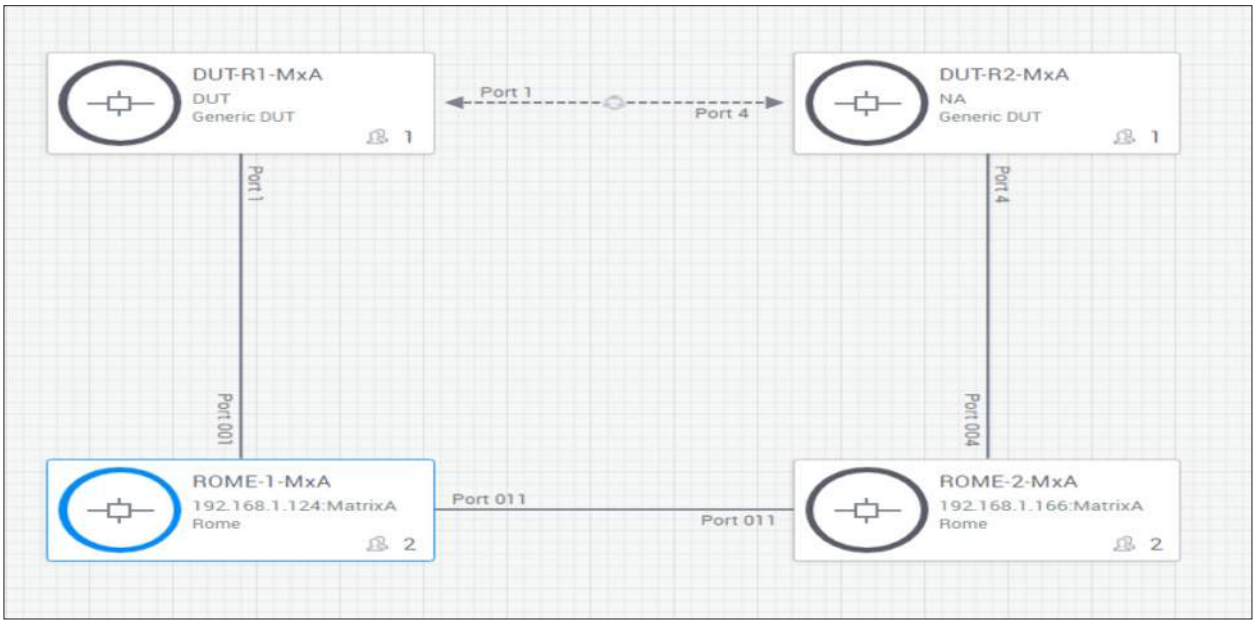


Select the port between which the connection is needed. A logical link will be created between the two devices.

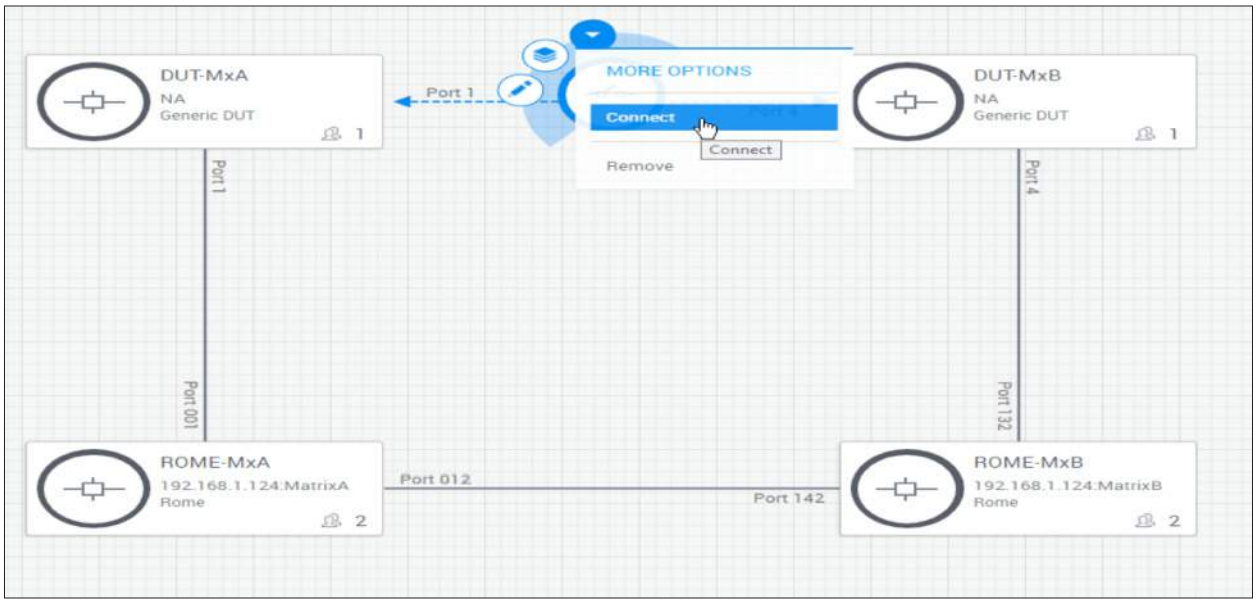
Click on the reserve button on the right top corner to enable the blueprint to be on Sandbox mode.

On the left-top corner, click on the sandbox and select show physical layer to see physical

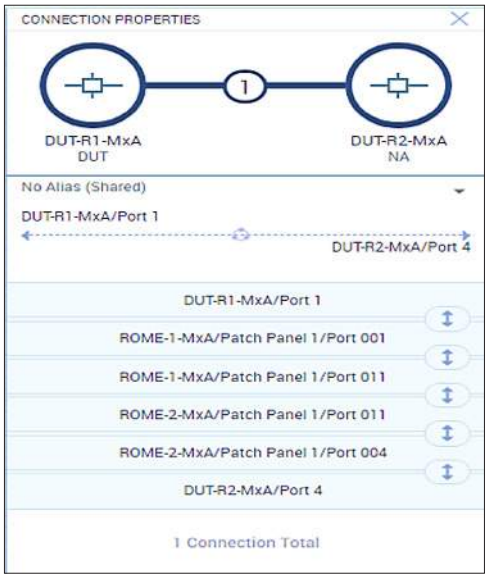




Click on the link and press connect to make a connection between the two ports.



To see the connection flow between the matrix, roll over the mouse on any DUT and select the properties.



To end the blueprint click on the stop symbol on the right top corner. Ending the blueprint will remove all the connections made in the blueprint.

6 Conclusion

Through ROME®, layer-0 automation can be achieved using an orchestration layer software, such as CloudShell®. Few examples of adding resources, creation of blueprint have been presented. However many different cases can be created based on the user requirement. Proper steps need to be followed while adding the resources into the resource manger and creating a blueprint.

Blueprint design can be referred for better understanding of the activities. One can also use Sandbox to create mappings. When the Sandbox is used, it always starts in an active environment and once it ends it does not save any logical connections created unlike the blueprint. To alter the connection properties such as type of connections-duplex or simplex, could be done only before activating the blueprint.

Once blueprint has been activated, it becomes a sandbox environment where connections can be made on the default properties. To change the properties of the connection, click on the link and select inventory. In here the properties of the connection could be changed based on the user requirement.

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