**Graphical user interface, application

Description automatically generated**

Text

Description automatically generated with medium confidence

**OpenStack [Beta] MS-Windows VM User Manual**

**Version: V\_0.2**

**04 July 2022**

Copyright @ National Cybersecurity R&D Lab (NCL) [C] 2021 - 2022

# Version Control

| **Version** | **Date** | **Amended by** | **Summary of Changes** |
| --- | --- | --- | --- |
| 0.1 | 04 April 2022 | Liu Yuancheng | Init the doc draft. |
| 0.2 | 04 July 2022 | Florentiana Yuwono & Thng Yu Xuan | Small improvements |

Contents

[Version Control 2](#_Toc100267648)

[1. Introduction 4](#_Toc100267649)

[2. Windows VM Creation 5](#_Toc100267650)

[2.1 Login the NCL OpenStack Platform 5](#_Toc100267651)

[2.2 Create an Instance with Windows-VM-Image 6](#_Toc100267652)

[2.2.1 Access the Instance Creation Page 6](#_Toc100267653)

[2.2.2 Create an Instance with Windows-VM Image 6](#_Toc100267654)

[2.3 Config the Windows VM Security Access [Optional] 11](#_Toc100267655)

[2.3.1 Config the Instance Network Security Group 11](#_Toc100267656)

[2.3.2 Check the Windows-VM running [Optional] 12](#_Toc100267657)

[3. Remote Access the Windows VM 14](#_Toc100267658)

[4.File Transfer [Optional] 16](#_Toc100267659)

[Appendix 18](#_Toc100267660)

# 1. Introduction

**Doc description**:

This manual will be used by National Cybersecurity R&D Lab (NCL) users as a reference for creating a Microsoft Windows VM in their project under NCL OpenStack [Beta] Testbed and use the RDP (remote desktop client) to remotely access their Windows VM in their instance from local computer. The document contains 2 main sections, the **Windows VM Creation** section will introduce the detailed steps to create the VM under an instance. The **VM Remote Access** part will introduce how to config remote access to VM from user’s local computer.

**Doc Type:**

External User [Customer] Manual, All NCL external users.

**Doc Remark:**

* **Customer**: The key contact person and the one who make payment to NCL.
* **User**: The person who will use our NCL service such as access the instance.

## 1.1 Prerequisites

Before proceeding with the user manual, please ensure that you have the following accounts:

1. NCL account on OpenStack beta platform (openstack.ncl.sg)
2. NCL gateway account (gateway.ncl.sg) for SSH access

For more details on how to create the required accounts, you may refer to the Account Creation Manual.

# 2. Windows VM Creation

Follow the steps 2.1 to 2.3 below to create a Windows VM in an instance under user’s project.

## 2.1 Login to the NCL OpenStack Platform

OpenStack [Beta] platform link: <https://openstack.ncl.sg/>

Login with the NCL OpenStack [Beta] web account and password under domain **default**. (As shown below, the account username ncl-xxxx)

Domain: default

Username/password: <customer ncl username>/< customer password >

Graphical user interface, application

Description automatically generated

**NOTE:** If there is any login problem or you don't have an account on the NCL OpenStack platform yet, please contact NCL Support ([support@ncl.sg](mailto:support@ncl.sg)).

## 2.2 Create an Instance with Windows-VM-Image

Follow below steps 2.2.1 to 2.2.3 to create an instance with the NCL public Windows-VM image. In this section, we use MS-Windows 10 Professional x64 as an example.

### 2.2.1 Access the Instance Creation Page

After the user login to OpenStack [Beta] platform web (as shown below), please follow the steps below:

**Step\_1**: Select your project in the top drop-down menu. If you don’t have a project yet, please create a new project or contact NCL-support ([support@ncl.sg](mailto:support@ncl.sg)).

**Step\_2**: In the left side navigation panel, select Project => Compute => Instances to view the instance management page.

**Step\_3**: In the instance management page, select launch Instance button.

Graphical user interface, application

Description automatically generated

### 2.2.2 Create an Instance with Windows-VM Image

After the instance configuration dialog pop-up, config the instance with the steps below:

**Step\_1**: Add a unique instance name (instance ID) in the “Details” config page (as shown below).

Use default setting:

* Availability Zone: **nova**.
* Instance Count: **1**;

Graphical user interface, application

Description automatically generated

**Step\_2**: Click “Next” then switch to the “S**ource”** page to select the Image, in the public VM-image - lists, select the Windows VM image you want to use (Windows10\_Pro\_x64) and press the '**up**' arrow button to add the image to the allocated list.

Use default setting as follow: Select Boot Source: `**image**` and Create New Volume: `**No**`;

Graphical user interface, application

Description automatically generated

**Note**: Public image can be used in any instance, but private image can only be used in your own project instance.

**Step\_3**: Click “Next” and switch to “Flavor” page to select the image instance hardware config. Press the 'up' arrow button to add the flavor as shown below (we prefer to use the `**m1.medium**` or higher level flavor for all the Windows VM):

Graphical user interface

Description automatically generated

**Note**: If the flavor shows "alert" icon of the flavor (as shown below), that means your instance does not have enough capacity for allocating the hardware flavor. Choose a flavor which does not contain any “alert” icons. Otherwise, please contact NCL support team to extend the instance capacity if you wish: support@ncl.sg.

Graphical user interface, application

Description automatically generated

**Step\_4**: Click “Next” and switch to “**Networks**” config page and select provider config. Press the 'up' arrow button to add the provider network (as shown below).

**Note:** If you want to login to your instance using SSH, you must add the instance to the provider network. In addition, make sure that the 'default' security group allows ICMP (ping) and secure shell (SSH with TCP port 22).

Graphical user interface, text, application

Description automatically generated

**Step\_5**: Switch to “Key Pair” page to create the keypair. Press the `**Create Key Pair**` button. Type in the keypair name and download the keypair **`\*.pem**` file and keep it in your own device.

Graphical user interface, application

Description automatically generated

**Note**: If you have your own \*.pem file, you can select the import key pair. You may also use the key pair you created before. The key pair you created will be shown in the available list.

**Step\_6**: Finish all the other setting pages with the default setting (i.e., do not change anything), and press the “Launch Instance” button to launch the VM. (As shown below)

Graphical user interface, text, application

Description automatically generated

After the instance launched, you can see the instance is under spawning:

Graphical user interface, application, email

Description automatically generated

When the “Power State” shows Running, the instance is ready to be used:

Graphical user interface, text, application, email

Description automatically generated

## 2.3 Config the Windows VM Security Access [Optional]

The security and most networking settings will be done by NCL staff. External user/customer may just configure internal network among multiple VMs in his/her project.

### 2.3.1 Config the Instance Network Security Group [Optional]

**Step\_1**: Select “**Edit security group**” in the instance actions drop down menu:

Graphical user interface

Description automatically generated

**Step\_2**: Select the security group you want to add to the instance as shown below (we prefer the default\_no\_internet):

Graphical user interface, application

Description automatically generated

**Note**: We prefer user use the security group configed below:

* **Default** [internet, SSH, RDP];
* **Default\_no\_internet** [RDP, SSH];

To check the configuration of the security group, follow the steps below:

1. Go to “Project”, choose “Network” and select “Security Group”.
2. Check if the rules are as outlined below.

Default network police rules:

Table

Description automatically generated

Default\_no\_internet network police rules:

Table

Description automatically generated

1. If your rule configuration is different, you can create the rule by clicking “Add Rule”.
2. Below “Rule”, you can choose “SSH” or “RDP”, depending on the rule that you do not have.
3. Below “Remote”, choose “Security Group”.
4. Click “Add” and you are finished.

### 2.3.2 Check the Windows-VM running [Optional]

Select the instance webpage (click the instance name) and press the console tab to access the VM directly [**username**: ncl\_win64\_pro, **password** 123 ] :

Graphical user interface, text, application, email

Description automatically generated

Then the webpage will show the VM desktop, please switch to full screen by click the button “**Click here to show only console**” in “**console**” tab so you can type in the password **123**.

Graphical user interface, text, application, email

Description automatically generated

Confirm the remote desktop has been enabled:

Graphical user interface, application, Word

Description automatically generated

**Note**: We recommend customer to change the default password **123** to their own password.

# 3. Remote Access the Windows VM

Follow the steps below to remotely access the Windows VM from user’s local computer using RDP software. Get the instance internal IP address from the instance list (as shown below the IP address is **10.10.0.140**):

Graphical user interface, text, application, email

Description automatically generated

**Step\_1:** On your local machine (not the VM image), open a new cmd terminal and run the following command to do port forwarding on your local machine to the VM image. Ensure that you do not login to the NCL gateway account before running the command.

ssh -L 3389:<instance ip address>:3389 <username>@gateway.ncl.sg

example: ssh -L 3389:10.10.0.140:3389 ncl-yuancheng@gateway.ncl.sg

**Step\_2**: Open Windows RDP client on your local machine by typing “Remote Desktop Connection” on the search bar and fill in the IP address **127.0.0.1,** username: **ncl\_win10\_pro.**

**Step\_3:** Click the "Connect "button and when the password input dialog popup, type in password **123.**

Graphical user interface, text, application

Description automatically generated

Press “**Yes**” when the connection certification alert window pop-up:

Graphical user interface, text, application, email

Description automatically generated

Then You can use RDP to access the VM as shown below:

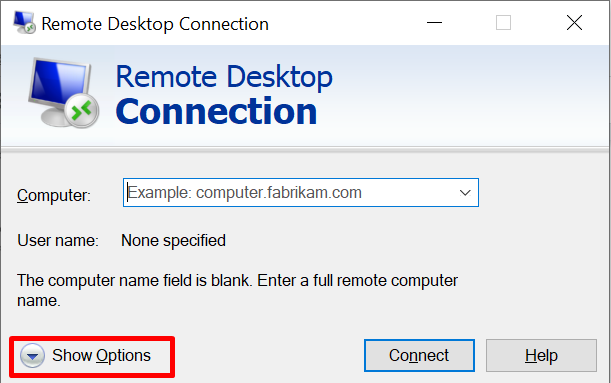
Graphical user interface, website

Description automatically generated

# 4.File Transfer [Optional]

If the users want to transfer files from their local computer to the OpenStack VM or download files from the OpenStack VM to their local computer, they can follow below steps:

**Step 1**: Click “**Show Options**” within the RDP window (the RDC configuration options).



**Step 2**: Click “**Local Resources**” tab then select “**More**”, after that check the volume you want to config as a network shared driver.(as shown below, the local driver E: is configured as shared driver)

Graphical user interface, text, application

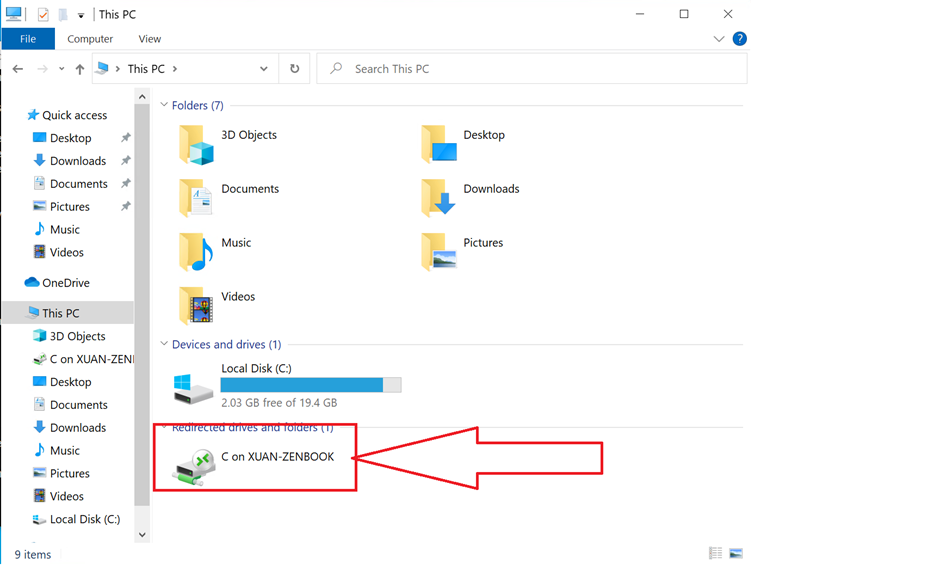
Description automatically generated

Step 3: In RDP window, the user needs to click the **network** => **tsclient** => **\\tslient:E** , then he can see the shared network driver and he can drag file in to the VM or download the VM file to his local computer. (As shown below)

Graphical user interface, application

Description automatically generated

If the selected drive was not configured as a shared network drive, the drive will show up in the remote connection under ‘Redirected drives and folders’



You may now copy and paste files between the local machine and the remote desktop connection.

**Reference**: https://www.helpwire.app/blog/remote-desktop-transfer-files/

# Appendix

Enable ping Windows VM from another server:

1.Enable the ICMP network policy rule:

Graphical user interface, application, PowerPoint

Description automatically generated

2. Enable the ICMP in Windows VM firewall:

