Configuration Steps to Implement CIAB RemoteApps

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Prereqs:

Ubuntu 24.04

freerdp3 installed:

$ sudo apt install freerdp3-x11 -y
$ sudo apt install freerdp3-wayland -y

Freerdp3 provides the **Remote Desktop Protocol (RDP)** connection to a **Windows 11 Pro** or **Windows 11 Enterprise** VM on Ubuntu 24.04.

Two ways to enable remoteapps for use on Ubuntu Desktop.

1. If you have an existing **Windows 11 Pro or Enterprise** pc/laptop that is connected on the LAN with your Ubuntu Desktop system then you can use that. All the same steps can be used except any commands/statements mentioning LXD/LXC or Incus

2. However many will need/want to create/use an LXD or Incus **Windows 11 Pro/Enterprise** VM.

Creating *new LXD Windows 11Pro/Enterprise VMs*

- Tutorials:

https://ubuntu.com/tutorials/how-to-install-a-windows-11-vm-using-lxd#1-overview

https://discourse.ubuntu.com/t/how-to-install-a-windows-11-vm-using-lxd/28940?page=2

- Videos:

https://www.youtube.com/watch?v=r0WheXvADHk&t=12s

https://www.youtube.com/watch?v=3PDMGwbbk48

https://www.youtube.com/watch?v=amslKipAjxo&t=248s

Creating *new Incus Windows 11Pro/Enterprise VMs*

- Tutorials:

https://blog.simos.info/how-to-run-a-windows-virtual-machine-on-incus-on-linux/

- Videos:
https://youtu.be/EVMKfGRx8eg?si=YjiUTOhngv381VCB

For this guide we will assume your Windows 11 VM is named - **win11**
and **currently its in a Stopped state** (ie not running)

If it is an **LXD VM:**

You can set the # of CPU and the amount of memory for the VM with the following commands:

$ lxc config set win11 limits.cpu=N (N=1,2,3,4...etc)

Set the amount of Memory for the VM to use:

$ lxc config set win11 limits.memory=XGB (X=2,4,8,16 etc)

To verify it was configured to what you want

$ lxc config show win11

Start the LXD win11 VM

$ lxc start win11

Then get the **LXD VM's IP** address:

$ lxc ls win11

If it is an **Incus VM:**

You can set the # of CPU and the amount of memory for the VM with the following commands:

$ incus config set win11 limits.cpu=N (N=1,2,3,4...etc)

Set the amount of Memory for the VM to use:

$ incus config set win11 limits.memory=XGB (X=2,4,8,16 etc)

To verify it was configured to what you want:

$ incus config show win11

Start the Incus win11 VM

$ incus start win11

Then get the **Incus VM's IP** address:

$ incus ls win11

The configuration of **CIAB RemoteApps uses Kimm Knight's RemoteAppTool** installed on your Windows 11 VM

Kimm Knight – Github repository for RemoteAppTool
See RemoteAppTool Windows Compatibility Chart

The rest of this config Guide will call the Windows 11 VM => ***win11***

The following steps ***work exactly the same*** whether you are using an LXD or Incus Windows 11 Pro/Enterprise VM.

STEP 1 – Install RemoteAppTool on Windows

Log into your Windows Desktop from Ubuntu:

If LXD:
$ lxc console win11 -- type=vga

If Incus:
$ incus console win11 --type=vga

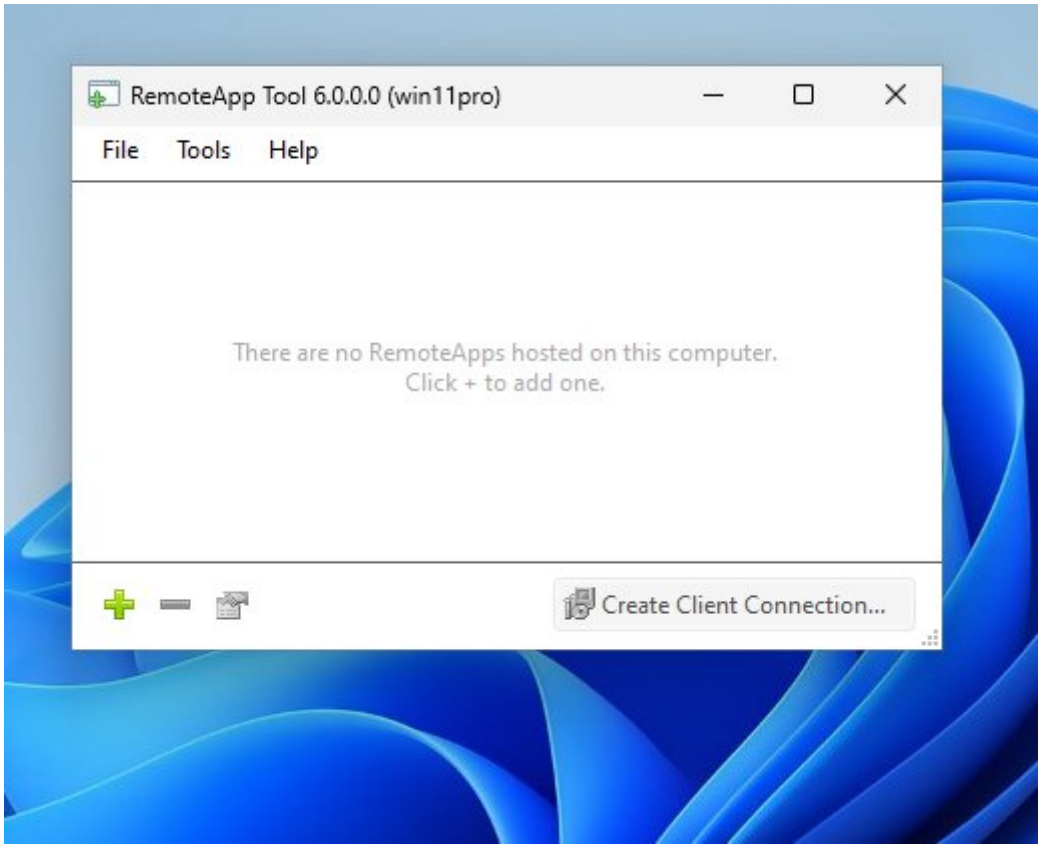
Start your *Windows* browser and goto Kimm Knight's Github page:

https://github.com/kimmknight/remoteapptool?tab=readme-ov-file

Scroll *to the* ***Download Section*** and **download the Installer** to your Windows VM.

My preference is to *copy the* ***remoteapptool installer*** *from my Windows Downloads folder to my Windows Desktop*.

Execute the **remoteapptool** you downloaded and you will see:



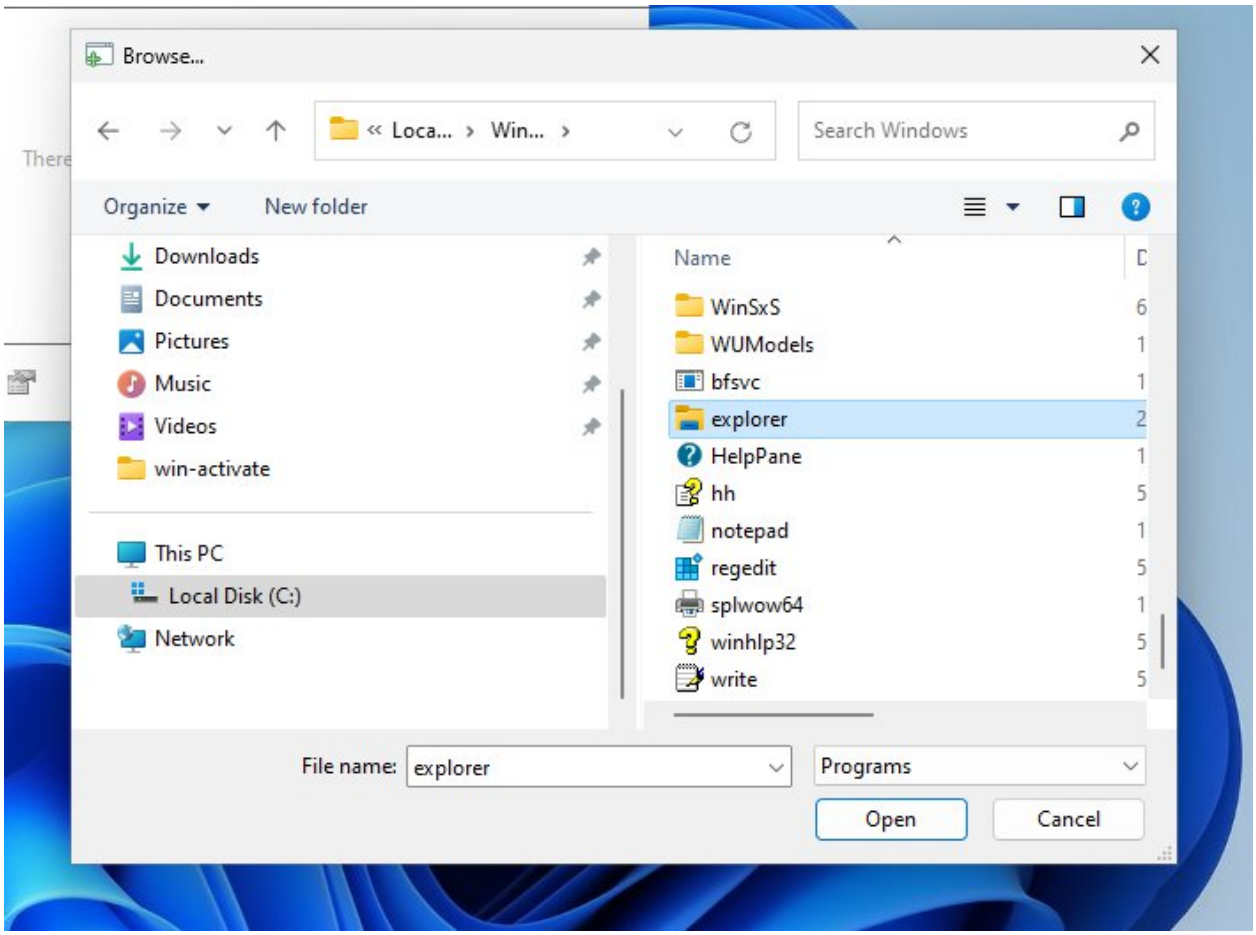
Clicking **+** symbol to Add a RemoteApp brings up Windows Explorer.

Click on: **Local Disk (C:)**

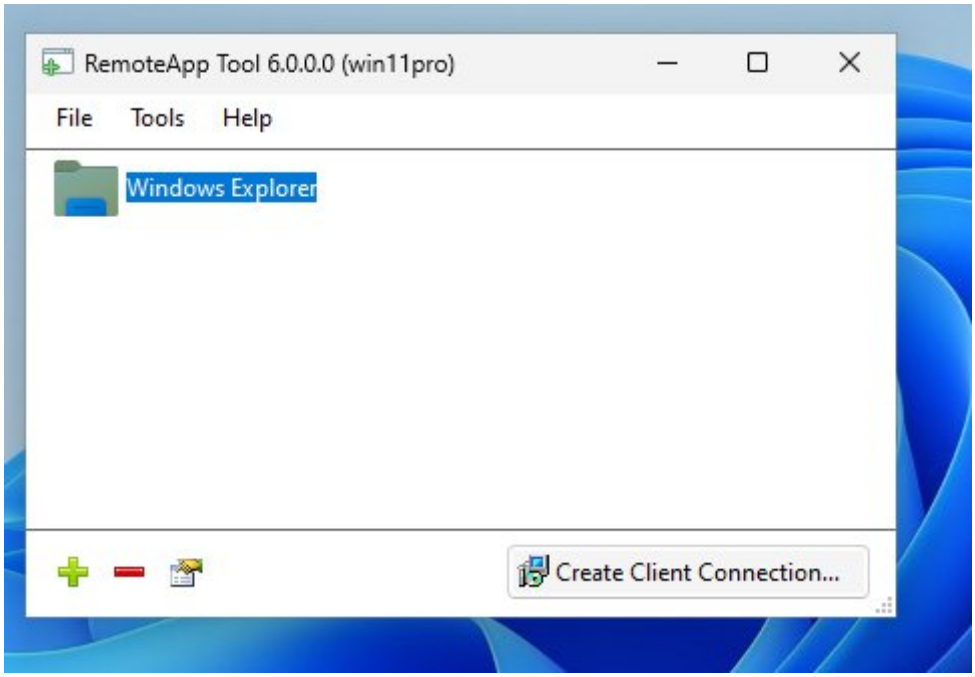
Click on **Windows**

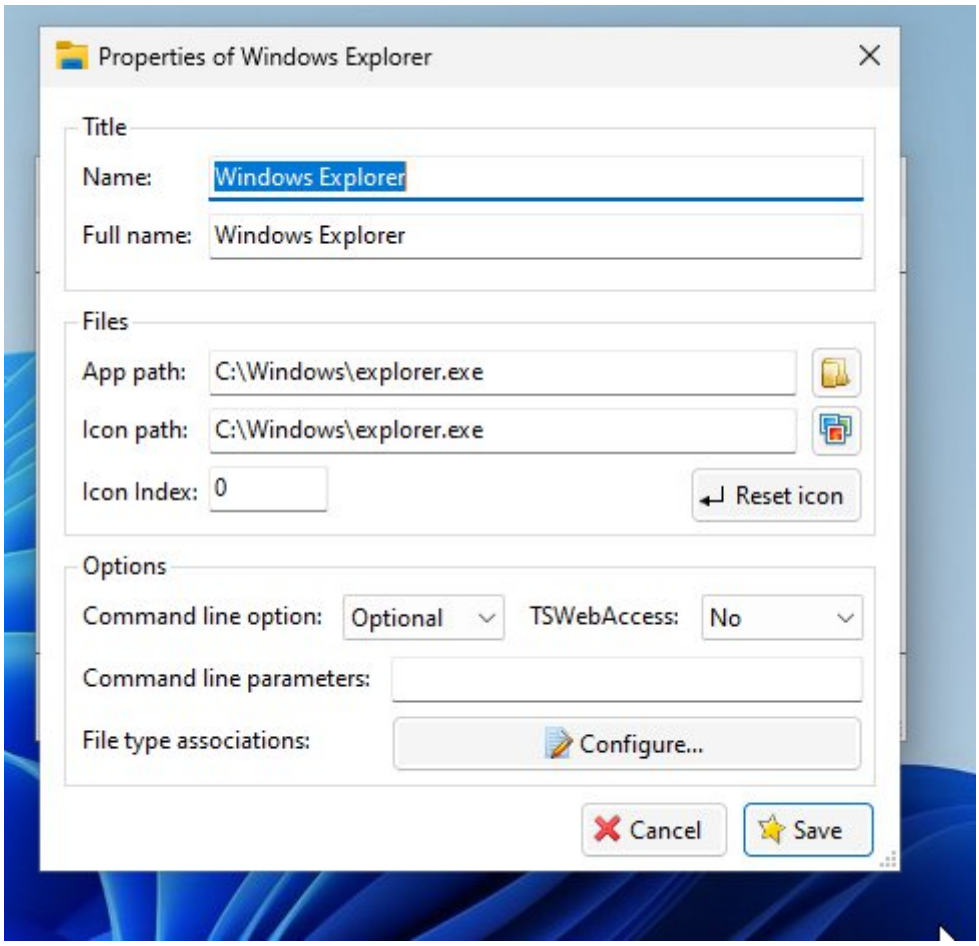
Scroll down to find: **Explorer**

Click on **Open**


Browse...
« Loca... › Win... ›
Search Windows
Organize
New folder
Downloads
Documents
Pictures
Music
Videos
win-activate
This PC
Local Disk (C:)
Network
Name
WinSxS
WUModels
bfsvc
explorer
HelpPane
hh
notepad
regedit
splwow64
winhlp32
write
File name: explorer
Programs
Open
Cancel

That will return you to the previous RemoteAppTool Menu where you will now see **Windows Explorer** listed.



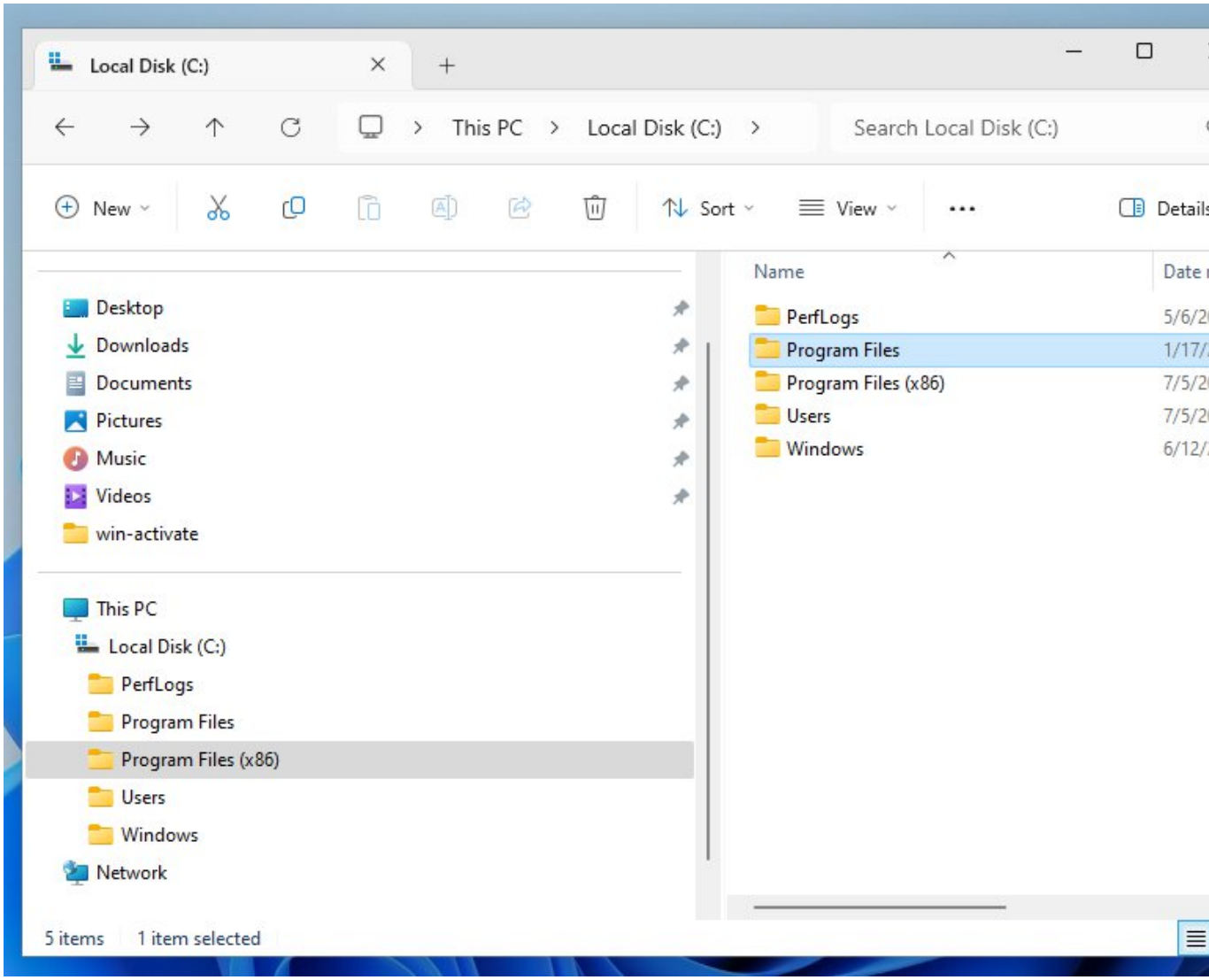


Optional => *Double Click on the Windows Explorer* entry to change Name or Full Name.

Click **Save**

STEP 2 – Create “shortcuts” of all Windows apps you want to use on Ubuntu

Using Windows Explorer find all applications you want to use on your Ubuntu Desktop.



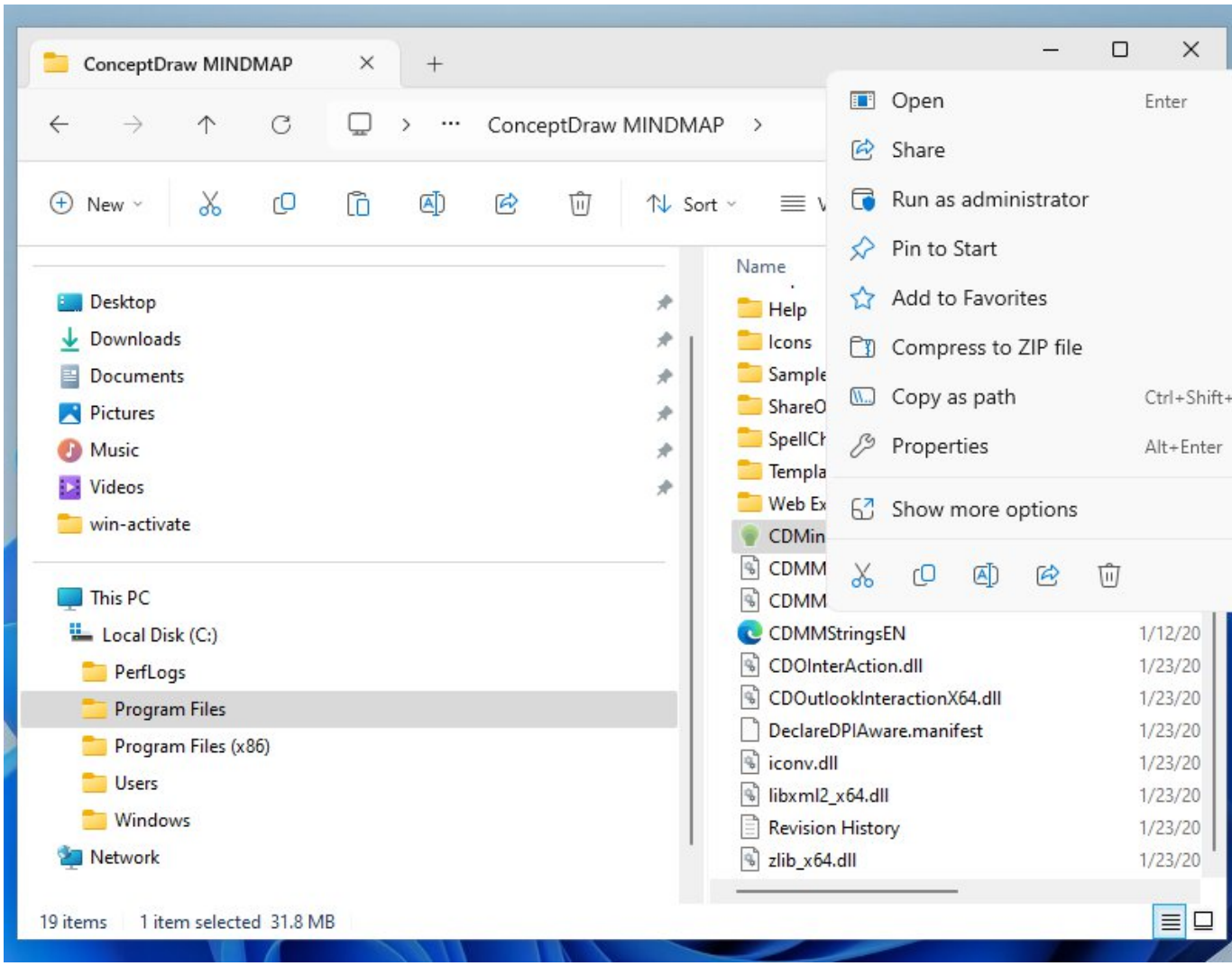
User installed Windows Apps are usually found in:

Program Files (see above)

Click on that and you will see a folder for every Windows App you have installed.

Go into each folder and find the “***executabl***e” for that app

Right Click on that executable and a side menu opens:

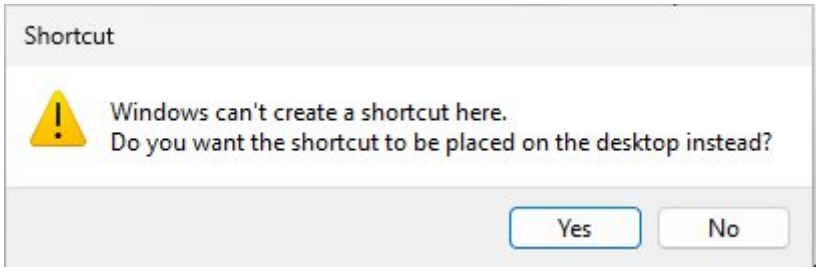


Click on **Show more options**

The side menu changes, adding more options.

Click on **Create shortcut**

Windows will present another window telling you:



Click on **Yes**

Now ***repeat Step 2 for every Windows application you want to use*** on your Ubuntu Desktop Session.

STEP 3 - *Enable* Windows Remote Desktop

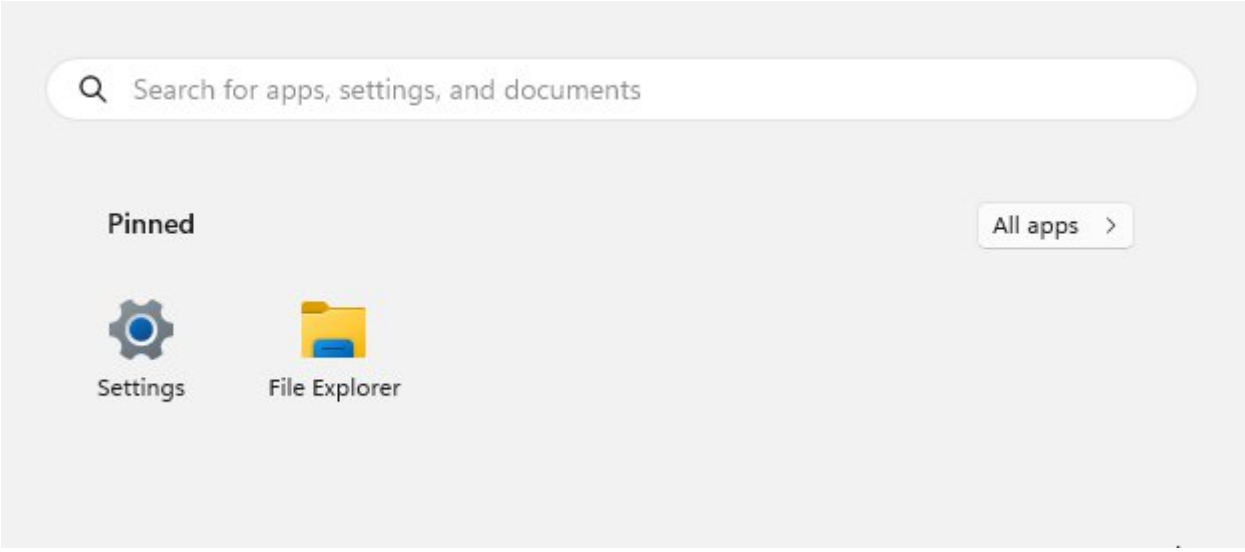
Click the **Windows Start Icon**

Finally, add one more Windows Shortcut to the Desktop.

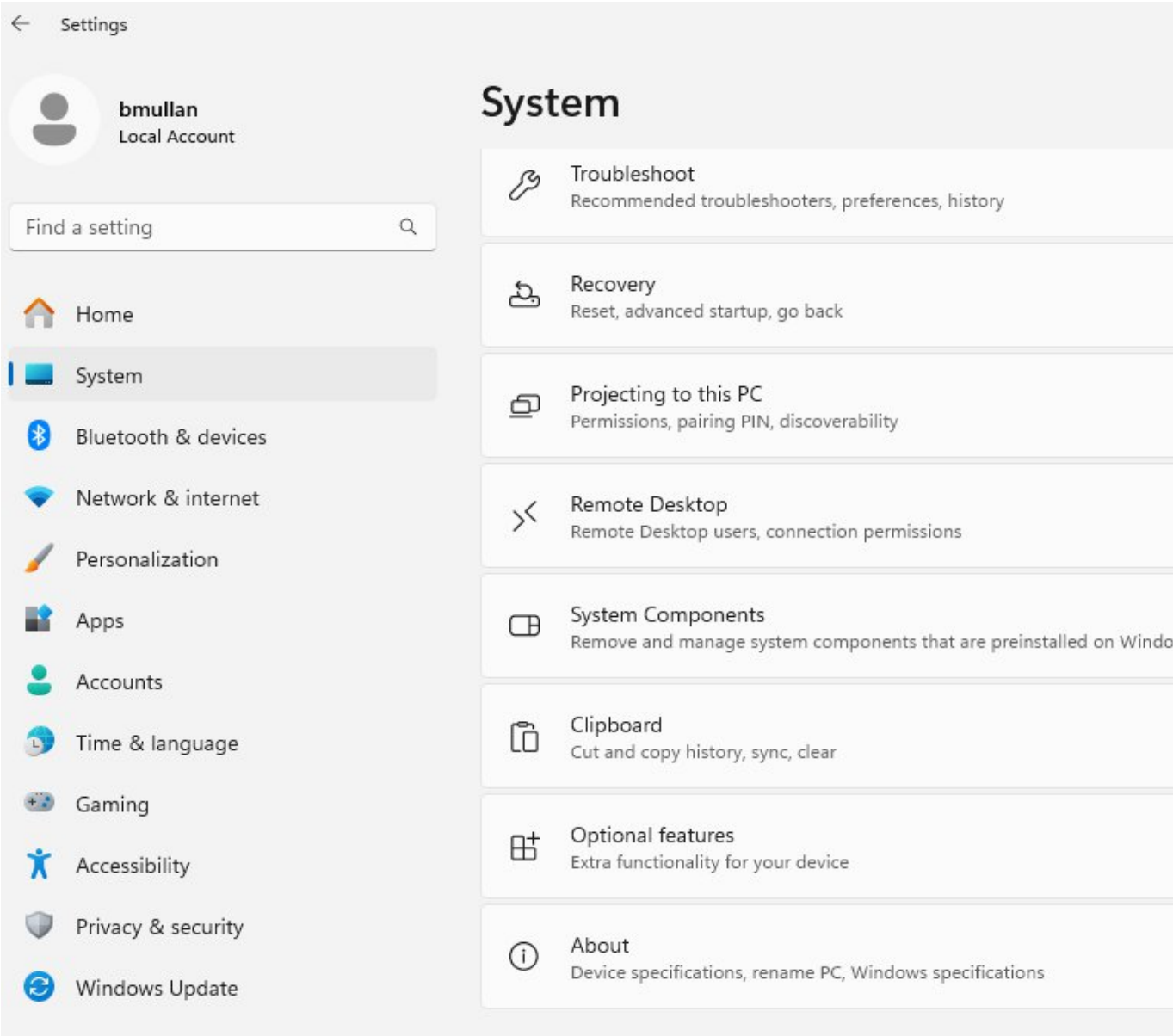
This *needs to be a WIndows Shortcut pointing to the Windows logoff executable:*

C:\Windows\System32\logoff

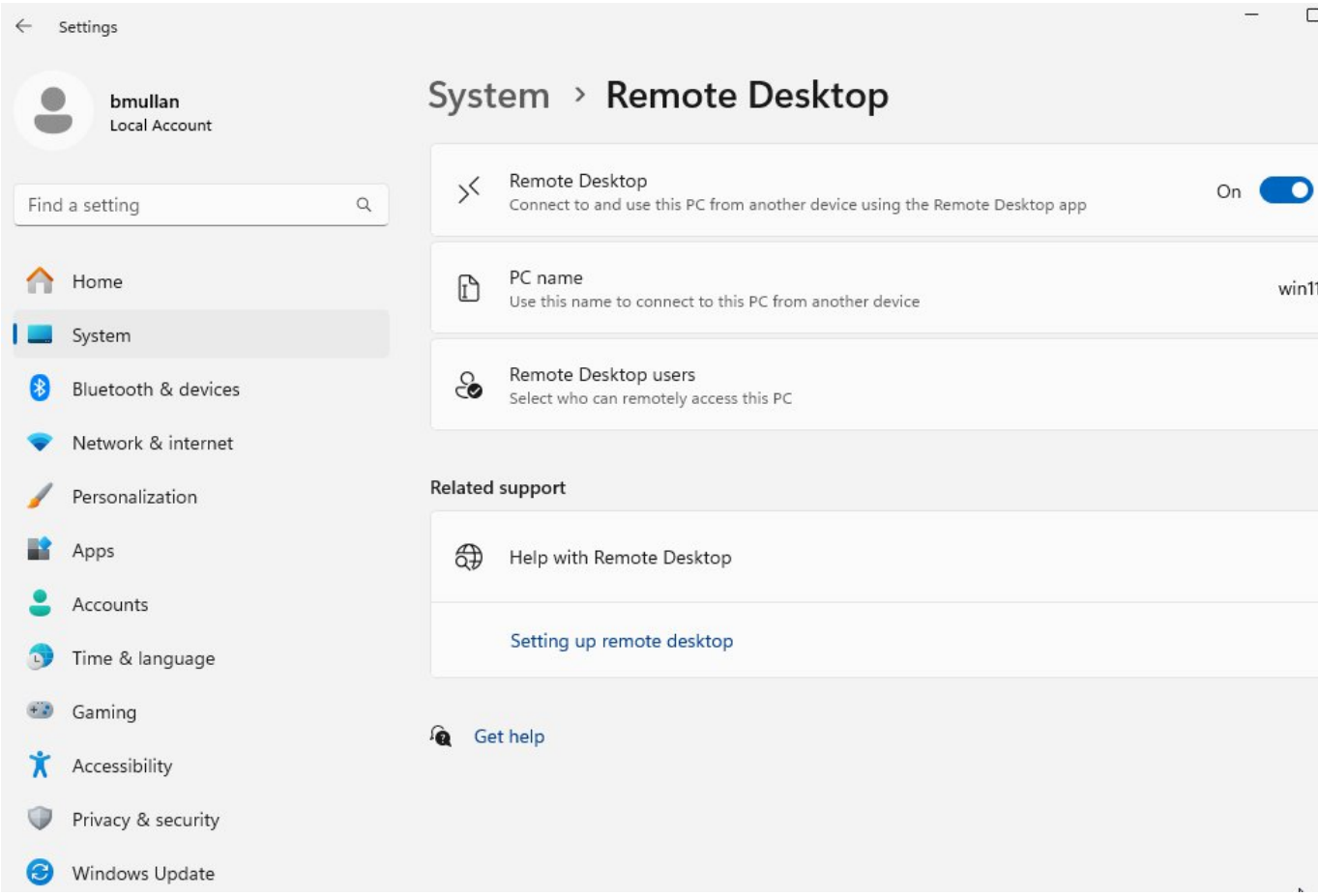
Click on **Settings**



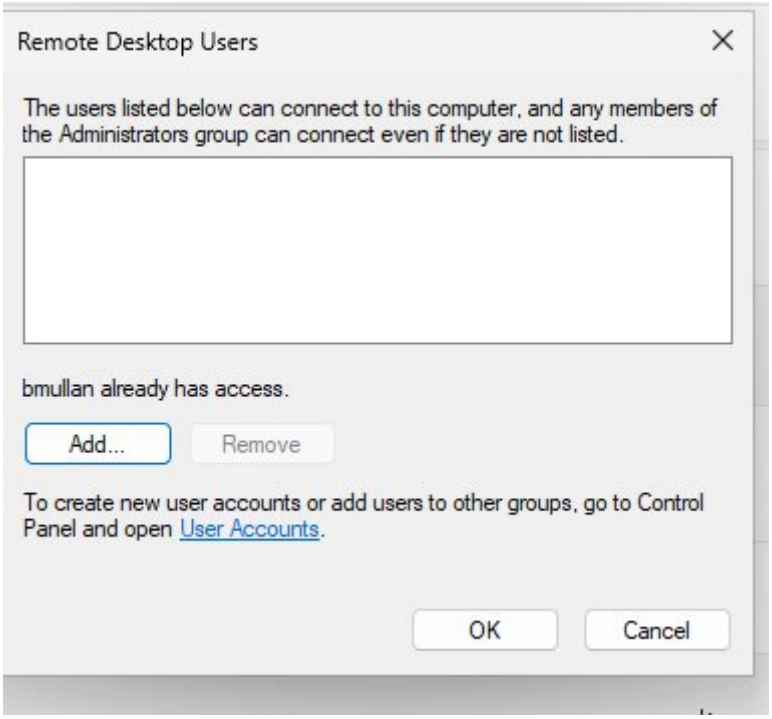
Scroll down and & on the right side click on **Remote Desktop**



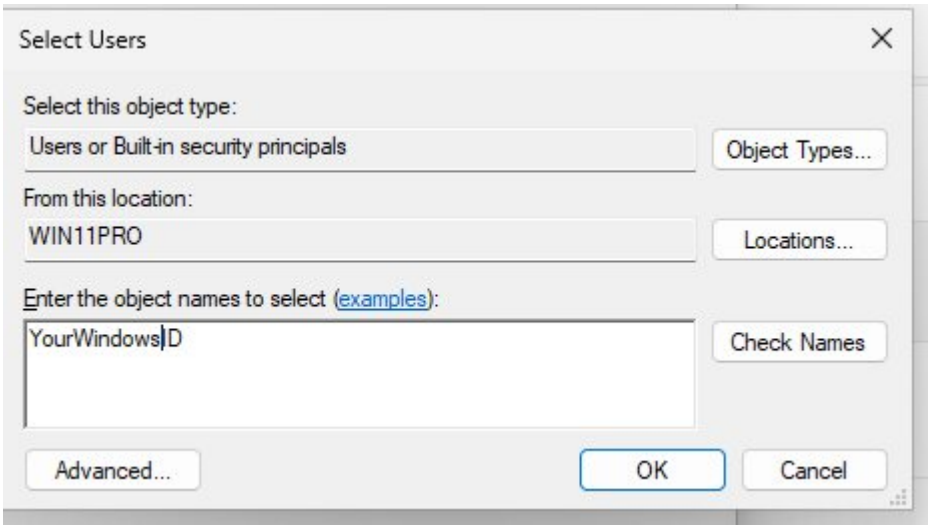
Toggle Remote Desktop to **ON**



Click on **Remote Desktop users**



Click **Add** and enter **YourWindowsID**



Click **Check Names**

Assuming Windows knows your Login ID then next just Click **OK**

*The configuration required for your Windows 11 VM **is now complete!***

Sign-out/logoff Windows & Click X to kill the windows **11 VM display.**
It will still be running but now "*detached*" & running in the Background.

STEP 4 – Create Bash script to automate the RDP Connection to Windows & start the ‘Windows Explorer’ RemoteApp

In a **Terminal**...

$ cd ~/

Use a text editor (nano, vi etc) to create a **Bash** file named **win11.sh** with this content:

```
<Start of win11.sh script>

#!/bin/bash
# 'Note: this script has some Long lines in it -- Edit it full screen'

#====={ Purpose }=========================================
======================
# This script will initiate an RDP Remote Desktop session with a 'target' Windows
VM/server for the
# Current User.
#
# NOTE;  Script “assumes” that User has the same login ID on both Ubuntu & Windows!
# User will be prompted for Password.

#=========================================================================
=========
# Statically identify the target Windows IP address
#=========================================================================
=========

# IMPORTANT...
# Change the following X.X.X.X to the IP address of your Windows 11 VM you found
earlier

win11ip=X.X.X.X

# now use xfreerdp3 to log into the WIN11 VM

#=========================================================================
========
# NAME:  win11.sh
#
# PURPOSE:
#
# Login to Windows and Execute a Remote App to display on  your
# Linux Desktop using the Linux application called "xfreerdp3",
#=========================================================================
========
```

```
# Get User to enter a password for the win11 session
# NOTE: Script hides display of password while entering it

clear
echo
read -s -p "Enter your Windows password: " win_pwd
echo
echo "Connecting to Win11 RemoteApps..."

# Start the Windows Explorer RemoteApp you created on Windows

LOG_LEVEL=OFF xfreerdp3 \
/cert:ignore \
/u:$USER \
/p:$win_pwd \
/printer \
/drive:auto,* \
/drive:shared-folder,/home/bmullan/shared-folder \
/app:program:'%windir%\explorer.exe' \
/v:$win11ip > /dev/null 2>&1
```

<end of win11.sh script>

Explanation of the above “options”:

/printer => will share all printers that Ubuntu knows with Windows 11

/drive:auto,* => will share ALL drives on your Ubuntu System with Windows 11

/drive:shared-folder,/home/bmullan/shared-folder => will share only a single folder
on your Ubuntu system. That folder ***has*** to pre-exist. In this example: I created a
directory in my /home/bmullan called “shared-folder”.

NOTE: you can configure either one **or** both of the above “/drive” freerdp3
command options

**/app:program:'%windir%\explorer.exe' **
- names the Windows application that is your “remoteapp”

NOTE: the single quotes **(‘)** around => **‘%windir%\explorer.exe’**

Save the **~/win11.sh** file

Set win11.sh to be executable:

$ sudo chmod 777 ~/win11.sh

STEP 5 – Create an Ubuntu Desktop Launcher you can click on to
execute the 'win11.sh' script

Next, **change to your Desktop directory.**

$ cd ~/Desktop

Create a launcher file called **win11.desktop** in your Desktop directory
using your favorite Text Editor.

Contents of => **~/Desktop/*win11.desktop***

#!/usr/bin/env xdg-open
[Desktop Entry]
Type=Application
Name=Windows-11
GenericName=CIAB RemoteApps
Comment=CIAB Windows 11 Remote App
Type=Application
Icon=<path & name of ICON you want to see for this on your Desktop>
Categories=Utility;
Keywords=remoteapp;
StartupNotify=false
Terminal=true
Exec=/home/***YourUserID***/win11.sh

Change **YourUserID** *to* **your Windows UserID**

If ***you did not*** save the win11.sh in your ~/Desktop directory, change this Exec="path" to where win11.desktop is located.

Save the win11.desktop file and make it executable

$ chmod +x ~\Desktop\win11.desktop

NOTE: You can use any ICON you want in the above

To see what Icons ubuntu already has installed look here:

$ cd ~/.local/share/icons/hicolor

But you can use any ICON of the appropriate size for a Desktop launcher

!! That's it...!!

You may want to reboot your Windows 11 VM to make sure all the changes are in effect.

If everything was configured correctly you should be able to see your Desktop Launcher named: **"CIAB Remoteapps"**

Double click on it to execute it and you will get prompted for your Windows password.

If you configured your VM IP address correctly in the BASH script win11.sh you should see the Windows Explorer RemoteApp appear in its own Ubuntu Desktop Session Window.

Use Explorer to navigate to your Windows "Desktop" and click on any of the Windows app "*shortcuts*" you made earlier and they to should appear, each in its own Ubuntu Desktop Session Window

ADDENDUM

Xfreerdp has **a lot of command options** that my script doesn't use but you certainly can. However, from my communication w/the freerdp Dev's many may not benefit you more than using the Defaults. My script has just the Minimum options the Dev's advised me to stick with unless there were reasons to add more.

To ***see the full list of xfreerdp options*** execute:

$ xfreerdp3 --help | more

Be aware that there is about 5-6 pages of command options that are documented.

Tips:

Some command 'options' have a **default** *that does* **"auto-detect"**

Example (look in win11.sh)

For enabling File System sharing you can **share all Drives** on your Ubuntu system with Windows:

**/drive:auto,* **

Or you can **share** just a **single specific directory**:

**/drive:shared-folder,/home/bmullan/shared-folder **

The above shares a directory named "shared-folder" which I created
in my Home directory**.**

If there are more command options you want to use say for **USB j**ust **append it to the end in the win11.sh** file.

Don't forget the "**/**" and "**\"**

Learning Resources: LXD and/or Incus

Youtube channel for Scotti-BYTE Enterprise Consulting Services has many ***How-To videos*** for both LXD and Incus.

> **https://www.youtube.com/@scottibyte/videos**
>
> Scott has an associated "***Discussion Forum***" on which he has posted *all of the Configuration steps for each respective video* allowing you to copy & paste when trying to do whatever it is about.
>
> **https://discussion.scottibyte.com/**

Look into Simos Xenitellis's Blog for the many great LXD and Incus How-To guides:

> **https://blog.simos.info/**

Reddit

If you are a Reddit user.... there are both LXD and Incus sub-reddits.

NOTE:
Neither are ***Support forums!***
Use the ***in Reference Sites*** *at the end* of this Guide for that.

These sub-reddits are meant to consolidate info from around the web on those two VM/Container systems.

For LXD: **https://www.reddit.com/r/LXD/**

For Incus**:** **https://www.reddit.com/r/incus/**

Reference Sites

For freerdp/xfreerdp github:
https://github.com/FreeRDP/FreeRDP

For freerdp/xfreerdp discussion:
https://github.com/FreeRDP/FreeRDP/discussions

For LXD:
https://canonical.com/lxd

For LXD discussions/support (LXD Discourse):
https://discourse.ubuntu.com/c/lxd/126

For Incus:
https://linuxcontainers.org/incus/introduction/

For Incus discussions/support:
https://discuss.linuxcontainers.org/