

Running UWP on Linux with Uno Platform

youtube.com/FutureOfDotNet



[Running UWP on Linux With Uno](#)



Ian Bebbington

Thanks for the coffee and asking permission. Yes, by all means make a YouTube video but please include a link to the blog post (and send me a link to the video :0) Thanks again.

Reference

[Uno Platform and Windows Community Toolkit built app running on Ubuntu Linux, on Raspberry Pi](#)

```
Windows PowerShell
kaki104@DESKTOP-4NOMSLA:
ventArgs.PrelaunchActivated is not implemented in Uno [C:\Users\kaki1\unolinux\unolinux.skia.gtk\UnoLinux.Skia.Gtk.csproj]
j]
ux.Skia.Gtk -> C:\Users\kaki1\unolinux\unolinux.skia.gtk\bin\Release\netcoreapp3.1\linux-x64\UnoLinux.Skia.Gtk
ux.Skia.Gtk -> C:\Users\kaki1\unolinux\unolinux.skia.gtk\bin\Release\netcoreapp3.1\linux-x64\publish\
ers\kaki1\unolinux\unolinux.skia.gtk> dotnet build --self-contained
t (R) Build Engine version 16.7.0+b89cb5fde for .NET Core
t (C) Microsoft Corporation. All rights reserved.

ining projects to restore...
\kaki1\unolinux\unolinux.skia.gtk\UnoLinux.Skia.Gtk.csproj : warning NU1701: Package 'SkiaSharp.Views 2.
ed using '.NETFramework,Version=v4.6.1, .NETFramework,Version=v4.6.2, .NETFramework,Version=v4.7, .NETFr
v4.7.1, .NETFramework,Version=v4.7.2, .NETFramework,Version=v4.8' instead of the project target framework
ersion=v3.1'. This package may not be fully compatible with your project.
ed C:\Users\kaki1\unolinux\unolinux.skia.gtk\UnoLinux.Skia.Gtk.csproj (in 614 ms).
\kaki1\unolinux\unolinux.skia.gtk\UnoLinux.Skia.Gtk.csproj : warning NU1701: Package 'SkiaSharp.Views 2.
ed using '.NETFramework,Version=v4.6.1, .NETFramework,Version=v4.6.2, .NETFramework,Version=v4.7, .NETFr
v4.7.1, .NETFramework,Version=v4.7.2, .NETFramework,Version=v4.8' instead of the project target framework
ersion=v3.1'. This package may not be fully compatible with your project.
\kaki1\unolinux\UnoLinux.Shared\App.xaml.cs(56,9): warning Uno0001: Windows.ApplicationModel.Activation.I
ventArgs.PreviousExecutionState is not implemented in Uno [C:\Users\kaki1\unolinux\unolinux.skia.gtk\Uno
sproj]
\kaki1\unolinux\UnoLinux.Shared\App.xaml.cs(65,8): warning Uno0001: Windows.ApplicationModel.Activation.I
ventArgs.PrelaunchActivated is not implemented in Uno [C:\Users\kaki1\unolinux\unolinux.skia.gtk\UnoLinu
j]
ux.Skia.Gtk -> C:\Users\kaki1\unolinux\unolinux.skia.gtk\bin\Release\netcoreapp3.1\linux-x64\UnoLinux.Sk
ux.Skia.Gtk -> C:\Users\kaki1\unolinux\unolinux.skia.gtk\bin\Release\netcoreapp3.1\linux-x64\publish\
ers\kaki1\unolinux\unolinux.skia.gtk>
```

- Windows PowerShell Ctrl+Shift+1
- Command Prompt Ctrl+Shift+2
- Azure Cloud Shell Ctrl+Shift+3
- Ubuntu-20.04 Ctrl+Shift+4
- Settings Ctrl+,
- Feedback
- About

Windows Terminal

[Get Windows Terminal - Microsoft Store](#)

PowerShell & Ubuntu

for free Get started with 12 months of free services and build .NET cloud apps with your Azure free account. [Start free >](#)

Download .NET SDKs for Visual Studio

🔗 Not sure what to download? [See recommended downloads for the latest version of .NET.](#)

⚠️ These downloads may update Visual Studio and the .NET Framework on your machine. Some of the downloads may only support certain Visual Studio versions.

.NET Core

.NET Core is a cross-platform version of .NET for building websites, services, and console apps.

Version	Status	Visual Studio 2017 SDK 📄	Visual Studio 2019 SDK 📄	Runtime 📄	Release notes
.NET 5.0	Preview 📄	N/A	x64 SDK x86 SDK (v5.0.100-preview.8)	x64 Runtime x86 Runtime (v5.0.0-preview.8)	Release notes
.NET Core 3.1	LTS 📄	N/A	x64 SDK x86 SDK (v3.1.401)	x64 Runtime x86 Runtime (v3.1.7)	Release notes
.NET Core 3.0	End of life 📄	N/A	x64 SDK x86 SDK (v3.0.103)	x64 Runtime x86 Runtime (v3.0.3)	Release notes
.NET Core 2.2	End of life 📄	x64 SDK x86 SDK (v2.2.110)	x64 SDK x86 SDK (v2.2.207)	x64 Runtime x86 Runtime (v2.2.8)	Release notes

.NET Core SDK 3.1.100

[Download .NET SDKs for Visual Studio \(microsoft.com\)](#)

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

C:\Users\kakil> dotnet new --install Uno.ProjectTemplates.Dotnet::3.1.0-dev.39
Installing...
Getting ready...
Determining projects to restore...
Restored C:\Users\kakil\.templateengine\dotnetcli\v5.0.100-preview.4.20268.1\scratch\restore.csproj (

Templates      Short Name      Language      Tags
-----
Console...    console         [C#], F#, VB  Common/Console
Class Lib...  classlib       [C#], F#, VB  Common/Library
WPF App...    wpf            [C#], VB      Common/WPF
WPF Class...  wpflib        [C#], VB      Common/WPF
WPF Custom... wpfcustomcontrollib [C#], VB      Common/WPF
WPF User...   wpfusercontrollib [C#], VB      Common/WPF
Windows...    winforms       [C#], VB      Common/WinForms
Windows...    winformslib    [C#], VB      Common/WinForms
Worker...     worker         [C#]          Common/Worker/Web
Web Pla...    wasmxhead      [C#]          Console
Prism C...    unoapp-prism   [C#]          Prism/Xamarin/Uno Platform/WebAssembly/iOS/A
Unit Te...    mstest        [C#], F#, VB  Test/MSTest
NUnit 3...    nunit         [C#], F#, VB  Test/NUnit
NUnit 3...    nunit-test    [C#], F#, VB  Test/NUnit
NUnit T...    xunit         [C#], F#, VB  Test/xUnit
Razor C...    razorcomponent [C#]          Web/ASP.NET
Razor Page   page          [C#]          Web/ASP.NET
C View...    viewimports    [C#]          Web/ASP.NET
```

Uno ProjectTemplates

[NuGet Gallery | Uno.ProjectTemplates.Dotnet 3.0.12](#)

dotnet new --install Uno.ProjectTemplates.Dotnet::3.1.0-dev.100

8/26/2020

WSL2(Windows Subsystem for Linux)


- [Windows Subsystem for Linux Installation Guide for Windows 10](#)
 - <https://bit.ly/31unnsp>
- Install WSL
 - `dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart`
 - Restart machine
- Update to WSL2
 - Windows 10 version 1903 or higher, Build 18362
 - `dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /norestart`
 - Restart machine
- `wsl --set-default-version 2`

Microsoft Store

← Home Gaming Entertainment Productivity Deals

Search

↓ 2




Ubuntu 20.04 LTS

Canonical Group Limited • Developer tools > Utilities

★★★★★ 37 Share

Ubuntu 20.04 LTS on Windows allows you to use Ubuntu Terminal and run Ubuntu command line utilities including bash, ssh, git, apt and many more.

More



Wish list

[Overview](#) System Requirements Reviews Related

Install Ubuntu 20.04 LTS

[Get Ubuntu 20.04 LTS -
Microsoft Store](#)

Microsoft Store


← Home Gaming Entertainment Productivity Deals

Search

1

This app has a free trial

Free Trial



SAVE \$40.00

X410

Choung Networks • Developer tools

★★★★★ 31 Share

X410 is an X Window server for Windows 10. When you want to use X Window GUI apps on remote servers, simply run X410 and connect to your server via SSH with X11 forwarding. Once connected, just launch your GUI app from the command prompt; it'll

More

~~\$49.99~~ \$9.99
80% off • 6 days left

ESRB EVERYONE

Buy

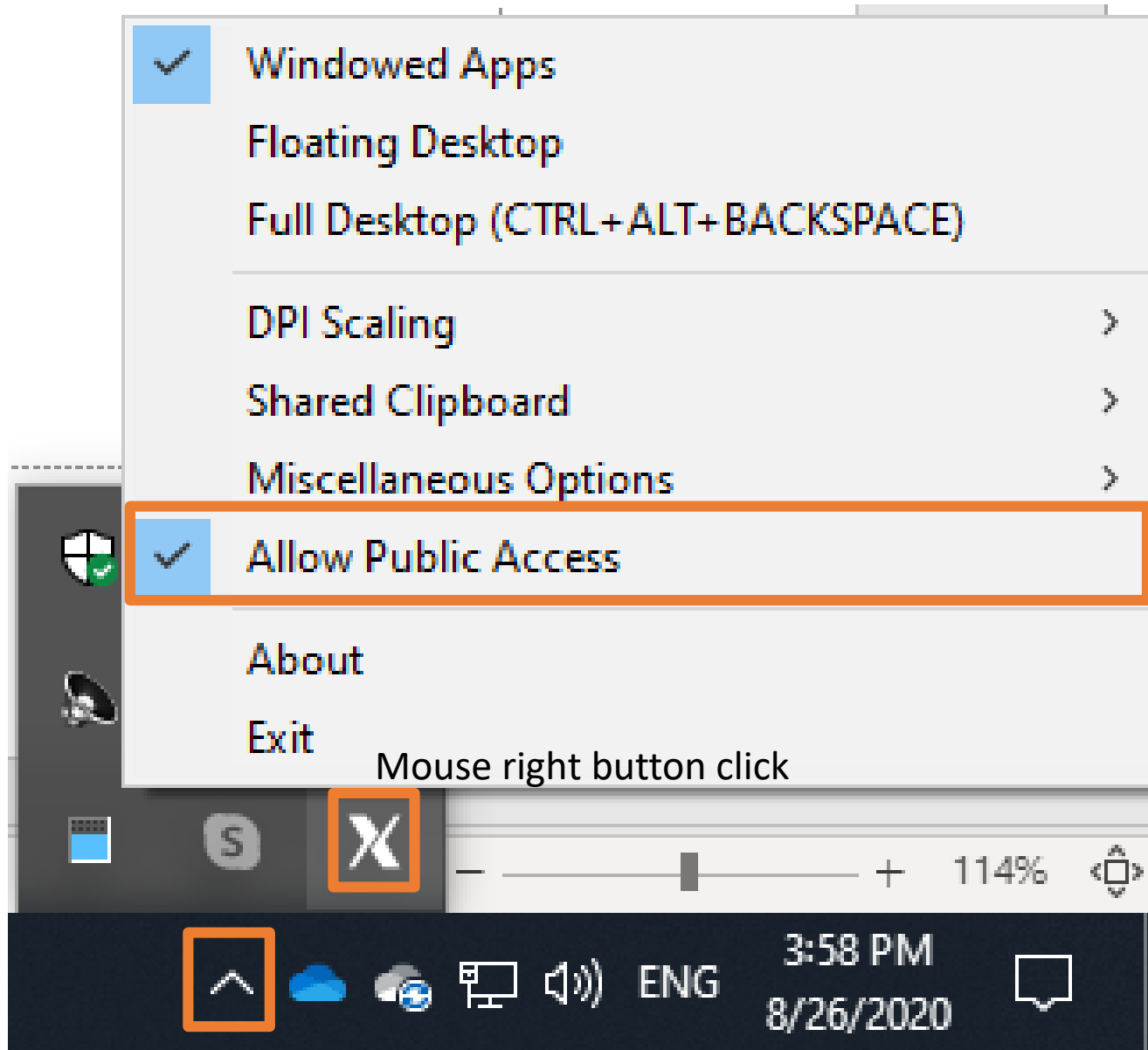
Add to cart

Buy as gift Wish list

Install X410

[Buy X410 - Microsoft Store](#)

[X410 구매 - Microsoft Store ko-KR](#)



X410
setting

Allow Public Networks

```
Windows PowerShell
kaki104@DESKTOP-4NOMSLA:
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ sudo apt-get update
[sudo] password for kaki104:
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [107 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [111 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [163 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [59.8 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal-backports InRelease [98.3 kB]
Get:7 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [4220 B]
Get:8 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [55.1 kB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [28.4 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [2180 B]
Get:11 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [1172 B]
Get:12 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [540 B]
Get:13 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [116 B]
Get:14 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
Get:18 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:19 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:20 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [328 kB]
Get:21 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [125 kB]
Get:22 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [8516 B]
Get:23 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [29.3 kB]
Get:24 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [7768 B]
Get:25 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [158 kB]
```

Test WSL2 + X Window Server

```
sudo apt-get update
```

```
sudo apt-get install vim-gtk
```

```
Windows PowerShell
kaki104@DESKTOP-4NOMSLA:
Try the new cross-platform PowerShell https://aka.ms/pscore6
PS C:\Users\kaki1> ipconfig

Windows IP Configuration

Ethernet adapter vEthernet (New Virtual Switch):

    IPv4 Address. . . . . : 192.168.0.2
    Default Gateway . . . . . : 192.168.0.1

Ethernet adapter vEthernet (vEthernet (New )):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . :
    IPv4 Address. . . . . :
    Subnet Mask . . . . . :
    Default Gateway . . . . . :

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . :
    IPv4 Address. . . . . :
    Subnet Mask . . . . . :
    Default Gateway . . . . . :

Ethernet adapter vEthernet (WSL):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . :
    IPv4 Address. . . . . : 172.28.176.1
    Subnet Mask . . . . . :
    Default Gateway . . . . . :
PS C:\Users\kaki1>
```

Find my IP
address

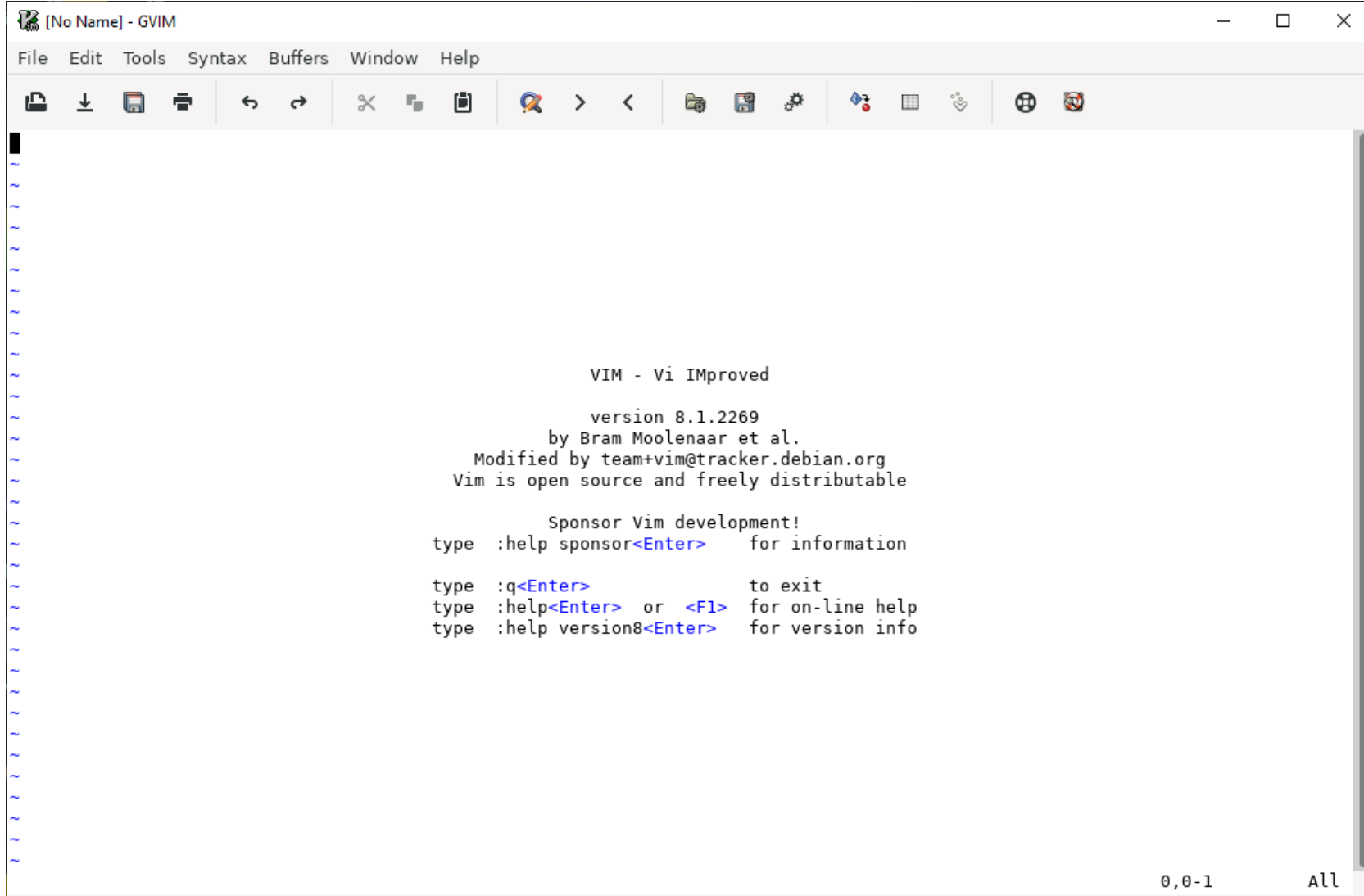
ipconfig

WSL -> IPv4 Address

```
Windows PowerShell
kaki104@DESKTOP-4NOMSLA:
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ export DISPLAY=172.28.176.1:0
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ export DISPLAY=[172.28.176.1]:0
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ gvim
E233: cannot open display
^[[A^[[B^[[B^[[ type command to continue
ERROR!!
E852: The child process failed to start the GUI
Press ENTER or type command to continue
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ export DISPLAY=172.28.176.1:0
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ gvim
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ cd /mnt/c/users/kaki1/unolinux/unolinux.skia.gtk/bin/release/netcoreapp3.1/4
kaki104@DESKTOP-4NOMSLA:/mnt/c/users/kaki1/unolinux/unolinux.skia.gtk/bin/release/netcoreapp3.1/linux-x64$ ls
AtkSharp.dll                      System.Reflection.Emit.ILGeneration.dll
CairoSharp.dll                    System.Reflection.Emit.Lightweight.dll
CommonServiceLocator.dll          System.Reflection.Emit.dll
GLibSharp.dll                     System.Reflection.Extensions.dll
GdkSharp.dll                      System.Reflection.Metadata.dll
GioSharp.dll                      System.Reflection.Primitives.dll
GtkSharp.dll                      System.Reflection.TypeExtensions.dll
Microsoft.CSharp.dll              System.Reflection.dll
Microsoft.Extensions.Configuration.Abstractions.dll System.Resources.Reader.dll
Microsoft.Extensions.DependencyInjection.Abstractions.dll System.Resources.ResourceManager.dll
Microsoft.Extensions.Logging.Abstractions.dll System.Resources.Writer.dll
Microsoft.Extensions.Logging.Console.dll System.Runtime.CompilerServices.Unsafe.dll
Microsoft.Extensions.Logging.Filter.dll System.Runtime.CompilerServices.VisualC.dll
Microsoft.Extensions.Logging.dll System.Runtime.Extensions.dll
Microsoft.Extensions.Primitives.dll System.Runtime.Handles.dll
Microsoft.VisualBasic.Core.dll System.Runtime.InteropServices.RuntimeInformation.dll
Microsoft.VisualBasic.dll System.Runtime.InteropServices.WindowsRuntime.dll
Microsoft.Win32.Primitives.dll System.Runtime.InteropServices.dll
Microsoft.Win32.Registry.dll System.Runtime.Intrinsics.dll
PangoSharp.dll                   System.Runtime.Loader.dll
SOS_README.md                    System.Runtime.Numerics.dll
```

Export Display setting

export DISPLAY=[IP Address]:0
Ex) export DISPLAY=172.28.176.1:0



```
VIM - Vi IMproved
      version 8.1.2269
    by Bram Moolenaar et al.
 Modified by team+vim@tracker.debian.org
 Vim is open source and freely distributable

  Sponsor Vim development!
type  :help sponsor<Enter>   for information

type  :q<Enter>              to exit
type  :help<Enter> or <F1>   for on-line help
type  :help version8<Enter> for version info

0,0-1 All
```

Execute gvim

gvim

[Troubleshooting](#)

Create and Publish an Uno project

```
Windows PowerShell x kak104@DESKTOP-4NOMSLA: x + v - □ x
Default Gateway . . . . . :
PS C:\Users\kak1>
PS C:\Users\kak1> dotnet new unoapp -o UnoLinux -w=false -wasm=false -ios=false
-android=false -macos=false -sw=false
The template "Cross-Platform App (Uno Platform)" was created successfully.
PS C:\Users\kak1> dir

Directory: C:\Users\kak1

Mode                LastWriteTime         Length Name
----                -
d-----            8/19/2020   10:18 PM      .android
d-----            4/25/2020   11:35 AM      .azcopy
d-----            7/24/2019    5:25 PM      .azurefunctions
d-----            5/28/2019    5:00 PM      .config
d-----            8/24/2020   10:36 AM      .docker
d-----            8/24/2020   10:52 AM      .dotnet
d-----            4/3/2020    2:22 PM      .keras
d-----            7/25/2019    9:16 AM      .librarymanager
d-----            5/28/2019    3:34 PM      .nuget
d-r-----          7/29/2020   12:35 PM      3D Objects
d-----            2/8/2020    9:14 AM      Apple
```

- dotnet **new** unoapp -o UnoLinux -w=false -wasm=false -ios=false -android=false -macos=false -sw=false
- cd .\UnoLinux\UnoLinux.Skia.Gtk\
- dotnet build
- dotnet publish --runtime linux-x64 -c Release --self-contained

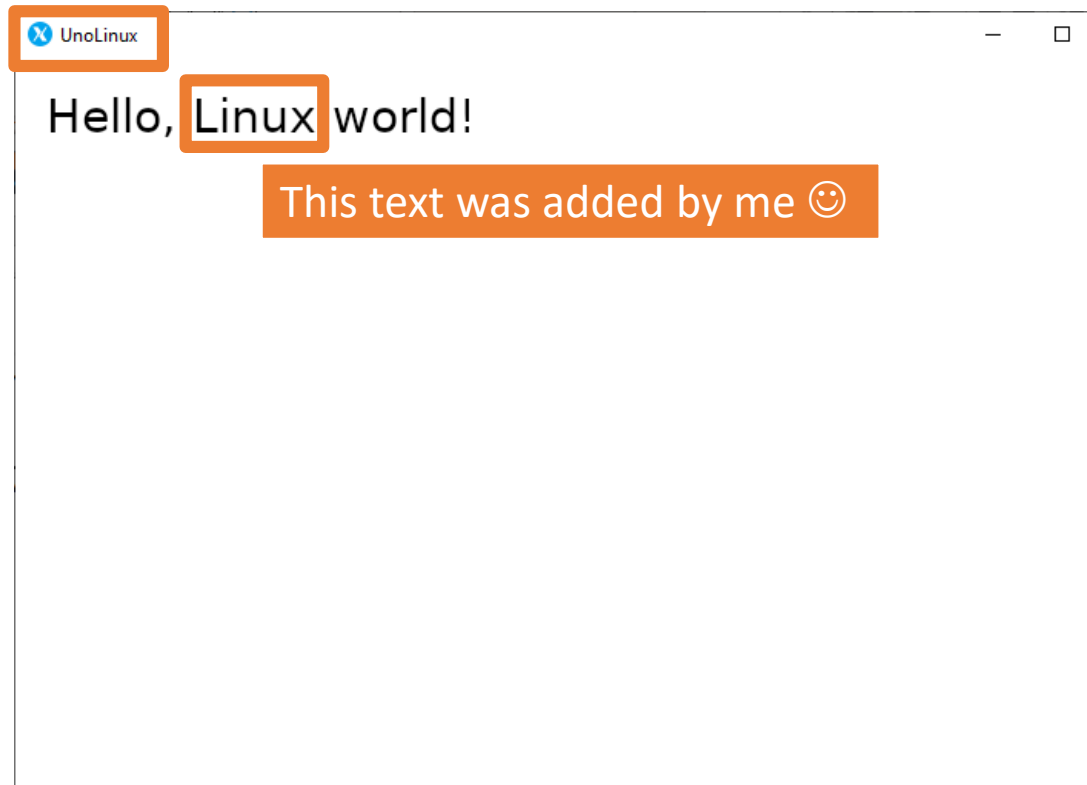
Running UWP on Ubuntu

```
Windows PowerShell x kak104@DESKTOP-4NOMSLA: x + v - □ x
kaki104@DESKTOP-4NOMSLA:/mnt/c/Users/kaki1$ cd /mnt/c/users/kaki1/unoLinux/unoLinux.Skia.Gtk/bin/release/netcoreapp3.1/linux-x64
kaki104@DESKTOP-4NOMSLA:/mnt/c/users/kaki1/unoLinux/unoLinux.Skia.Gtk/bin/release/netcoreapp3.1/linux-x64$ ls
AtkSharp.dll System.Reflection.Emit
t.ILGeneration.dll System.Reflection.Emit
CairoSharp.dll System.Reflection.Emit
t.Lightweight.dll System.Reflection.Emit
CommonServiceLocator.dll System.Reflection.Emit
t.dll System.Reflection.Emit
GLibSharp.dll System.Reflection.Extensions.dll
GdkSharp.dll System.Reflection.Metadata.dll
GioSharp.dll System.Reflection.Primitives.dll
GtkSharp.dll System.Reflection.TypeExtensions.dll
Microsoft.CSharp.dll System.Reflection.dll

Microsoft.Extensions.Configuration.Abstractions.dll System.Resources.Reader.dll
Microsoft.Extensions.DependencyInjection.Abstractions.dll System.Resources.ResourceManager.dll
```

- `cd /mnt/[DRIVE LETTER]/[PATH]/UnoLinux/UnoLinux.Skia.Gtk/bin/Release/netcoreapp3.1/linux-x64`
 - Ex) `cd /mnt/c/users/kaki1/UnoLinux/UnoLinux.Skia.Gtk/bin/Release/netcoreapp3.1/Linux-x64`
- `./UnoLinux.Skia.Gtk`

UWP app running in Ubuntu



- Uno UWP app
- Rendering to a Skia backend
- GTK host
- Ubuntu
- Windows Subsystem for Linux 2