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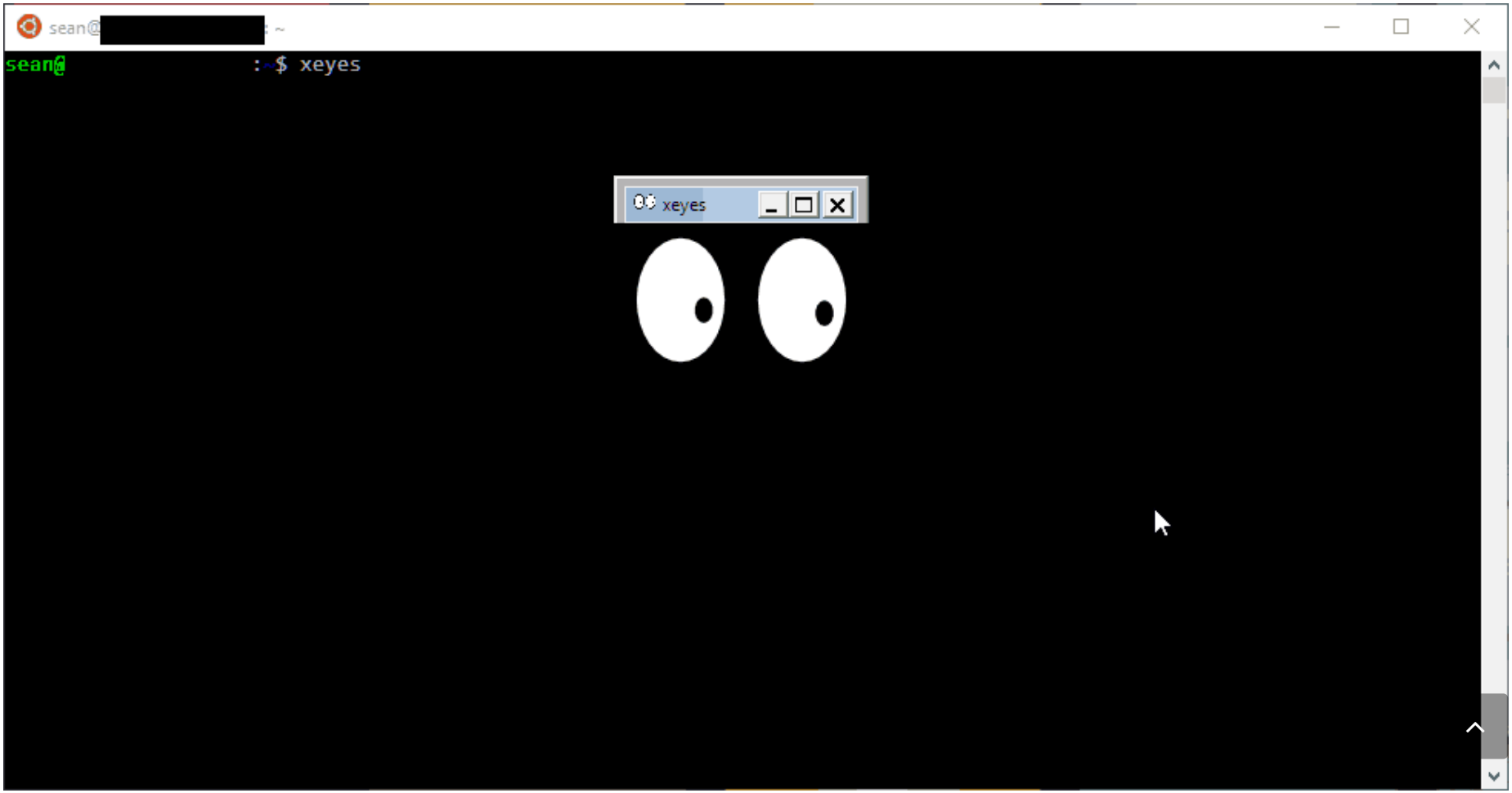
Menu



How to run graphical Linux applications on Bash on Ubuntu on Windows 10

June 11, 2017 by Sean Whalen

Bash on Ubuntu on Windows was introduced by Microsoft in the Windows 10 Anniversary Update. It allows users to run a full Ubuntu user space in Windows. It is a much nicer approach for most applications than Cygwin, or using a Linux VM. It is not an emulator either. Think of it as GNU/Linux/Windows (apologies to Richard Stallman). This guide starts off with Microsoft's instructions for installing Bash on Ubuntu on Windows, and then goes a few steps further by describing how to run graphical Linux applications.

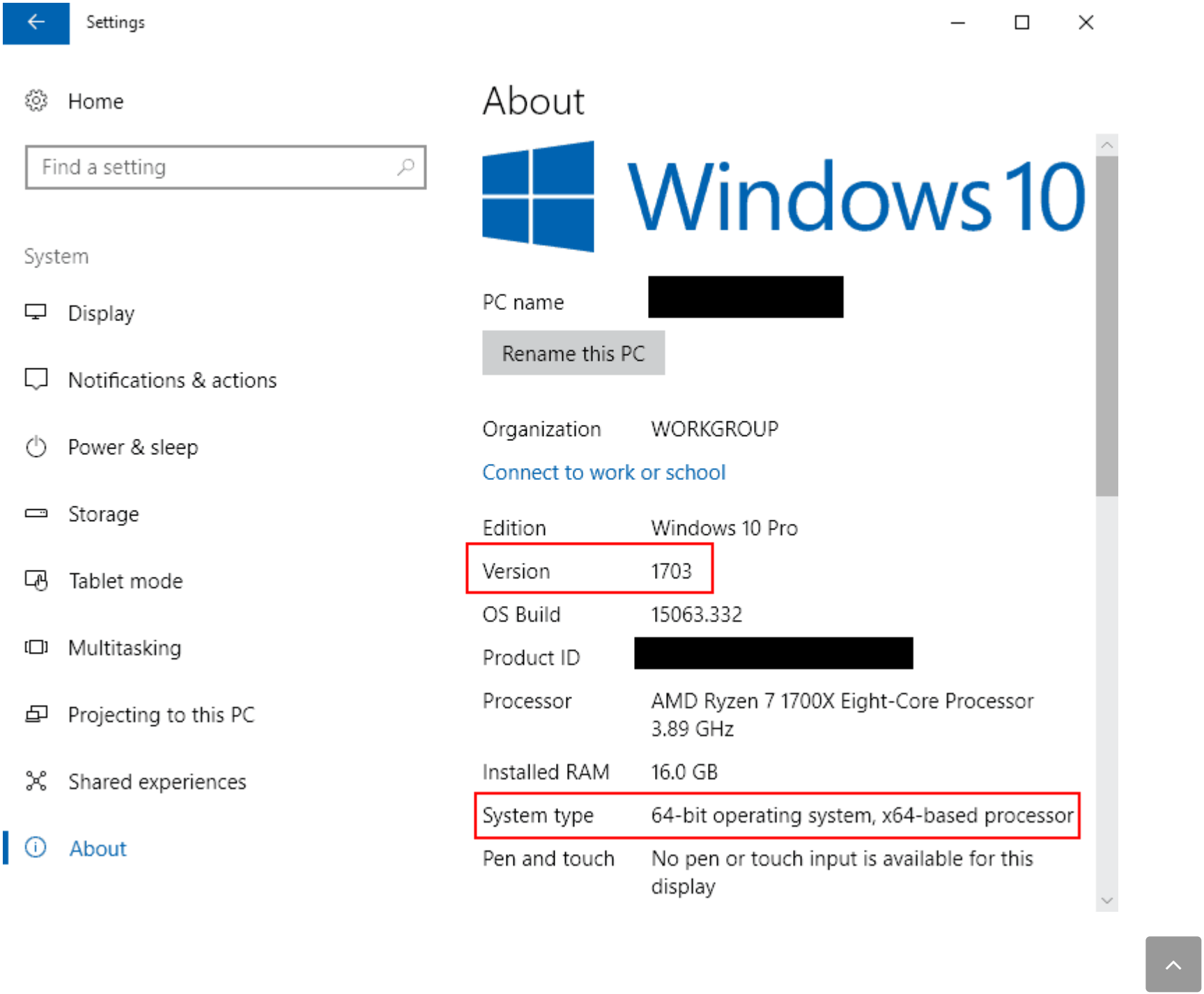
Before proceeding any further, note this warning from Microsoft:

> ***Important note***
> *This is the first release of Bash on Windows and it is branded "beta" deliberately – it's not yet complete! You should expect many things to work and for some things to fail! We greatly appreciate you using Bash on Windows and helping us identify the issues we need to fix in order to deliver a great experience.*

Prerequisites

Your PC must be running (at a minimum) a 64-bit version of Windows 10 with the Anniversary Update. The Creator's Update is recommended.

To find your PC's CPU architecture and Windows version/build number, open Settings>System>About. Look for the System Type and Version fields respectively, as shown in the screenshot below.


Settings
Home
Find a setting
System
Display
Notifications & actions
Power & sleep
Storage
Tablet mode
Multitasking
Projecting to this PC
Shared experiences
About
About
Windows 10
PC name
[redacted]
Rename this PC
Organization
WORKGROUP
Connect to work or school
Edition
Windows 10 Pro
Version
1703
OS Build
15063.332
Product ID
[redacted]
Processor
AMD Ryzen 7 1700X Eight-Core Processor
3.89 GHz
Installed RAM
16.0 GB
System type
64-bit operating system, x64-based processor
Pen and touch
No pen or touch input is available for this display

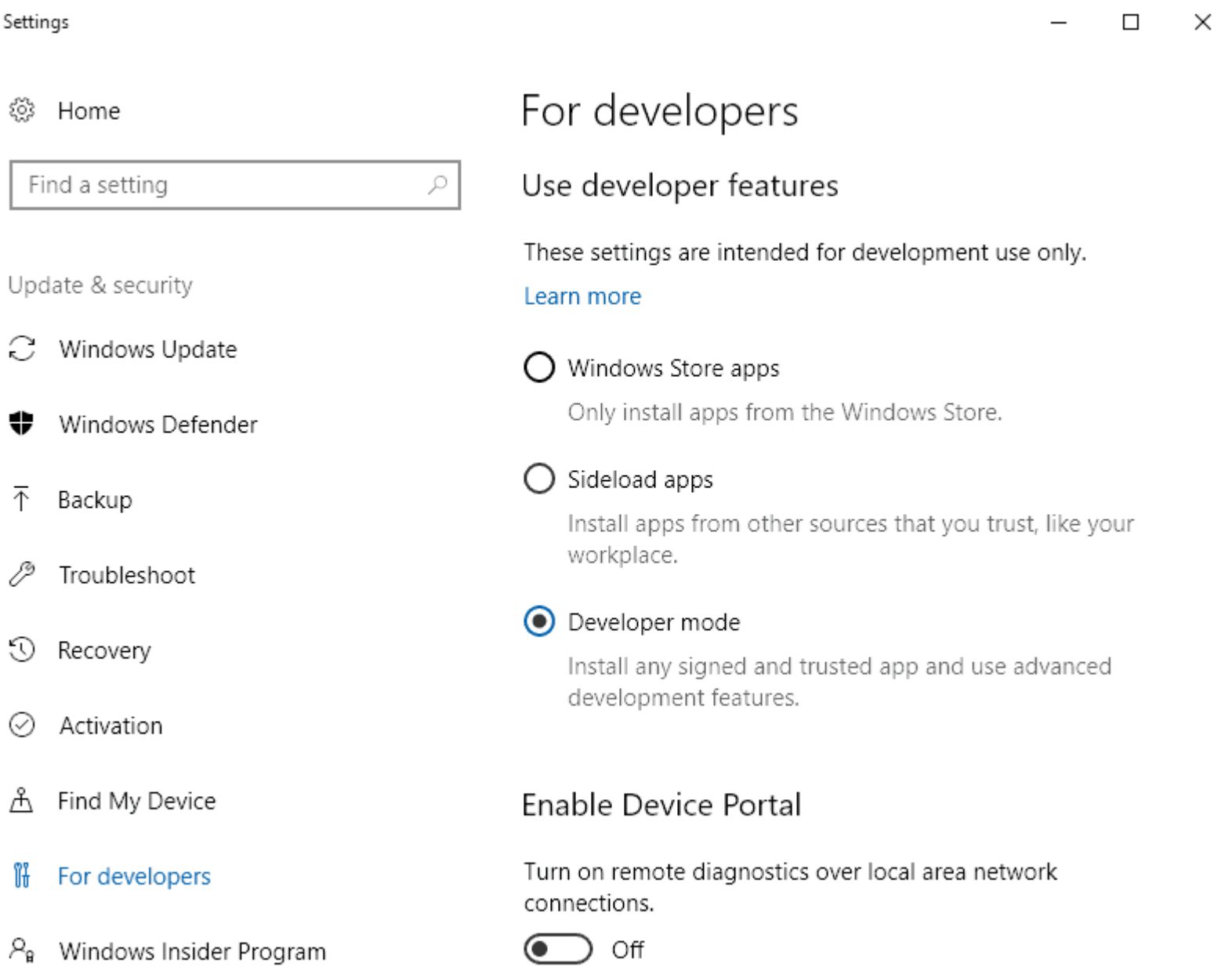
If your build is below 14393, try checking for updates.

In order to run Bash on Windows, you will need to manually:

1. Turn on Developer Mode
2. Enable the “Windows Subsystem for Linux (beta)” feature via the GUI or the command-line

Turn on Developer Mode

1. Open Settings -> Update and Security -> For developers
2. Select the Developer Mode radio button

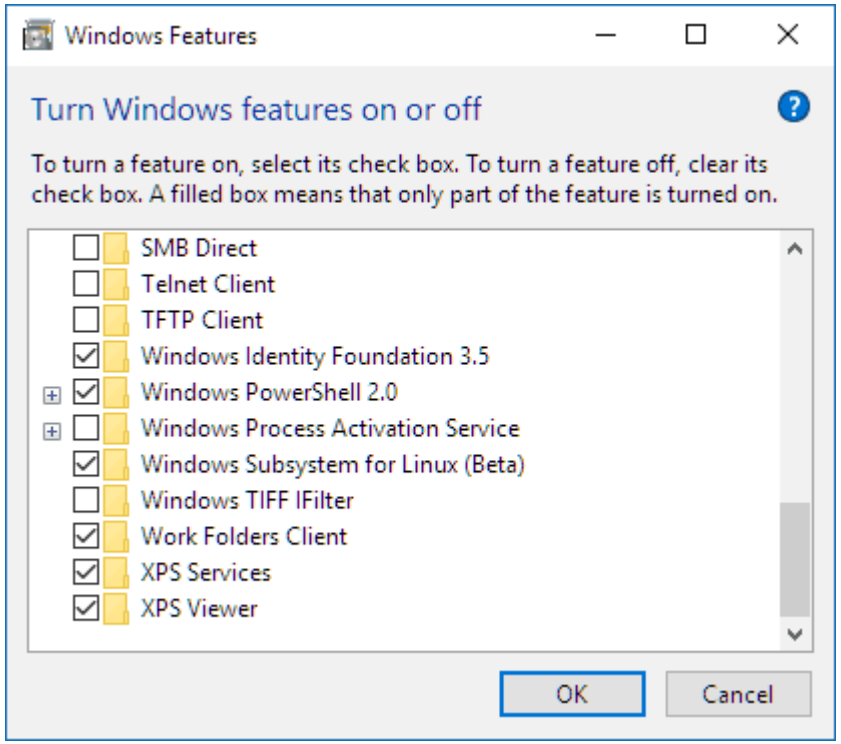


Enable the Windows Subsystem for Linux feature

You can enable the feature using a GUI or command-line interface.

GUI Method

1. From the Start Menu, search for “Turn Windows features on or off” (type ‘turn’)
2. Select Windows Subsystem for Linux (beta)



3. Click OK

Command-line Method

Open a PowerShell prompt as administrator and run:

```
Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux
```

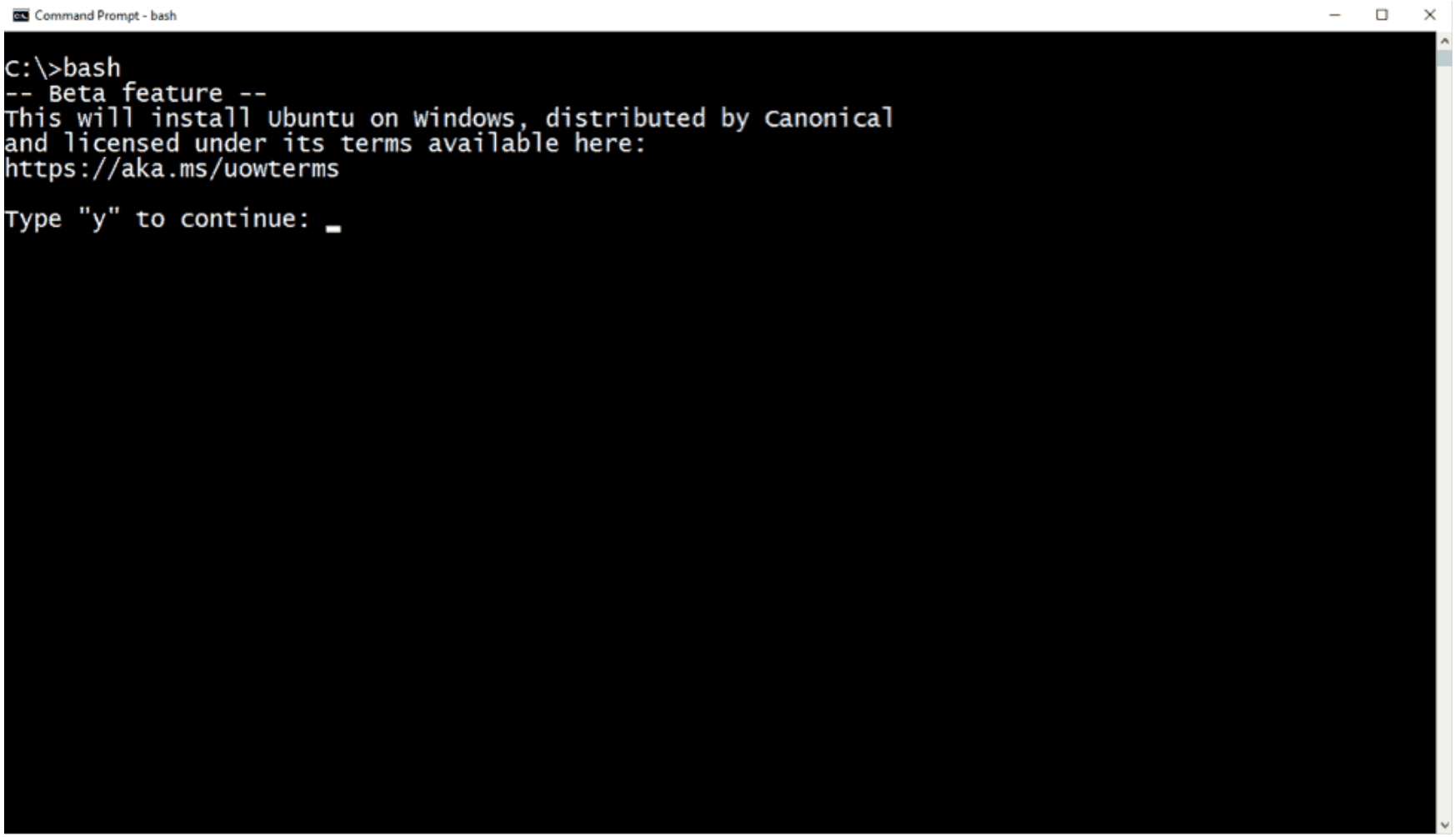
After enabling Windows Subsystem for Linux

Restart your computer when prompted.

> *It is important that you DO restart when prompted as some of the infrastructure which Bash on Windows requires can only be loaded during Windows' boot-up sequence.*

Install Bash on Ubuntu on Windows

1. Open a command prompt as your normal user
2. Run `bash`



After you have accepted the license, the Ubuntu user mode image will be downloaded, and a “Bash on Ubuntu on Windows” shortcut will be added to your Start Menu.

To launch Bash on Ubuntu Windows, either run `bash` at a cmd/PowerShell command prompt, or use the Start Menu shortcut.

After installation your Linux distribution will be located at: `%localappdata%\lxss\` This directory is marked as a hidden system folder for a very good reason:

> *Avoid creating and/or modifying files in this location using Windows tools and apps! If you do, it is likely that your Linux files will be corrupted and data loss may occur. Please read this blog post for more information.*

Create a UNIX user

The first time you install Bash on Ubuntu on Windows, you will be prompted to create a UNIX username and password.

This UNIX username and password has no relationship to your Windows username and password, and it can be different.

Use the same username that you use on remote Linux/UNIX systems, so you won't need to specify it in individual configuration files, or every time you run commands like `ssh`. Read more.

Updating Ubuntu

After you have set up your user, update Ubuntu.

You can update the installed packages just like any other Ubuntu installation:

```
sudo apt-get update && sudo apt-get upgrade -y && sudo apt-get upgrade -y && sudo apt-get dist-upgrade -y && s
```

Graphical Applications

In order to run Linux GUI applications on Bash On Ubuntu on Windows, you must:

1. Install a X server for Windows
2. Configure bash to tell GUIs to use the local X server

Install VcXsrv

In order to run graphical Linux applications, you'll need an X server.

VcXsrv is the only fully open source and up-do-date native X server for windows.

1. Download and run the latest installer
2. Locate the VcXsrv shortcut in the Start Menu
    1. Right click on it
    2. Select More>Open file location
    3. Copy the VcXsrv shortcut file
3. Paste the shortcut in `%appdata%\Microsoft\Windows\Start Menu\Programs\Startup`
4. Launch VcXsrv for the first time

You may receive a prompt to allow it through your firewall. Cancel/deny this request! Otherwise, other computers on your network could access the server.

A X icon will appear in your system tray.

Configure bash to use the local X server

1. In bash run:
   ```
   echo "export DISPLAY=localhost:0.0" >> ~/.bashrc
   ```
2. To have the configuration changes take effect, restart bash, or run:
   ```
   . ~/.bashrc
   ```

Test a graphical application

1. Install `x11-apps`
   ```
   sudo apt-get install x11-apps
   ```
2. Run `xeyes`

A new window will open, containing a pair of eyes that will follow your mouse movements.

Reference: Official install guide from Microsoft

How-to Guides
bash, Linux, Ubuntu, Windows, Windows 10, X
< WannaCry ransomware analysis: Samples date back to at least early February 2017
> How to install YARA and write basic YARA rules to identify malware

17 thoughts on “How to run graphical Linux applications on Bash on Ubuntu on Windows 10”

Sergio Starkloff
August 6, 2017 at 4:14 pm | Reply

I followed all the steps, but when I start VcXsrv, it finish suddenly
A fatal error has occurred and VcXsrv will now exit

Cannot move old log file...

Please open xxxxx\VCXsrv.0.log for more information

This is the content of that log

Welcome to the VcXsrv X Server
Vendor: The VcXsrv Project
Release: 1.19.2.0

OS: Windows NT 6.2 build 9200 (64-bit)
Contact: marha@users.sourceforge.net

LoadPreferences: C:\Users\Sergio\AppData\Roaming\.XWinrc not found
LoadPreferences: Loading C:\Program Files\VcXsrv\system.XWinrc
Warning: Locale not supported by X, falling back to 'C' locale.
(II) AIGLX: enabled GLX_MESA_copy_sub_buffer
(II) AIGLX: enabled GLX_SGI_swap_control
(II) 103 pixel formats reported by wglGetPixelFormatAttribivARB
(II) GLX: Initialized Win32 native WGL GL provider for screen 0
winClipboardThreadProc – DISPLAY=127.0.0.1:0.0
OS maintains clipboard viewer chain: yes

Utkarsh Gupta
October 9, 2017 at 4:45 pm | Reply

Great article. I was actually looking for way to plot octave graphs in nice separate windows instead of the terminal. This solution is much more general that what I was searching for.

Pila
October 17, 2017 at 2:58 pm | Reply

This worked like a charm for tkinter, thanks!

knoffel
November 22, 2017 at 6:39 am | Reply

Worked great for X forwarding from a Linux machine to Windows over SSH. Thank you very much.

Wesley
December 1, 2017 at 6:28 pm | Reply

Worked here in surface pro 3. Thankss

Almer
January 5, 2018 at 3:19 am | Reply

i forget password, how to change?

Artem
February 17, 2018 at 5:34 am | Reply

Worked here, thank you! □

love
February 27, 2018 at 6:06 pm | Reply

when I entered gedit command it’s shoes this please help to find the solution

Failed to connect to Mir: Failed to connect to server socket: No such file or directory
Unable to init server: Could not connect: Connection refused

rsilbers
February 28, 2018 at 12:33 am | Reply

seems to work perfectly for me

Saqib
March 10, 2018 at 10:43 pm | Reply

Worked like a champ!

Aditya Shekhar
March 11, 2018 at 5:37 pm | Reply

thanks it wordked

Chris K
March 22, 2018 at 5:58 pm | Reply

Worked perfectly — thanks so much!

Ramani
March 29, 2018 at 4:57 pm | Reply

Hi I am trying to open graphical softwares over SSH. It works locally however when I try to connect to another server I get “Error: can’t open display: localhost:0.0”. Is there ant way to solve that?

Sean Whalen
April 22, 2018 at 4:08 am | Reply

When connecting to the remote server, be sure to add the -X switch to the ssh command.

Nuno
April 4, 2018 at 11:51 pm | Reply

Thank you □

Good Luck
April 5, 2018 at 4:56 pm | Reply

What a great article!!!
Thanks.

RobL
April 24, 2018 at 2:51 pm | Reply

Worked like a charm on my Windows 10.

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