

Display WireShark Using Cygwin

Goal: We will display the WireShark application on Windows using Cygwin when we pressSniff Packets

which actually runs WireShark on the Linux LANforge machine. The native display protocol for Linux (and Unix) is the X Display Protocol. The Cygwin.org project provides Linux software that runs natively on Windows. You can run an X display server on Windows that accepts connection from LANforge. We will walk through setting up Cygwin and configuring an X display.



1. Installing Cygwin and the X display components

2. We will start at Cygwin.org and download the Cygwin installer.



Current Cygwin DLL version

The most recent version of the Cygwin DLL is <u>2.6.1</u>. Install it by running <u>setup-x86_exe</u> (32-bit installation) or <u>setup-x86_64.exe</u> (64-bit installation).

Use the setup program to perform a fresh install or to update an existing installation.

Note that individual packages in the distribution are updated separately from the DLL so the Cygwin DLL version is not useful as a general Cygwin distribution release number.

3. Download setup-x86.exe or setup-x86_64.exe as appropriate. Go to your *Downloads* folder and double start the program.



	Cygwin Net Release Setup Program
	This setup program is used for the initial installation of the Cygwin environment as well as all subsequent updates. Make sure to remember where you saved it.
6	The pages that follow will guide you through the installation. Please note that Cygwin consists of a large number of packages spanning a wide variety of purposes. We only install a base set of packages by default. You can always run this program at any time in the future to add, remove, or upgrade packages as necessary.
	Setup.exe version 2.877 (32 bit)
	http://www.cyqwin.com/
	< Back Next > Cancel
Cygwin Setup - Choose li	nstallation Directory – 🗆
Select Root Install Direct Select the directory where installation parameters.	tory e you want to install Cygwin. Also choose a few
Select Root Install Direct Select the directory where installation parameters.	tory a you want to install Cygwin. Also choose a few
elect Root Install Direct Select the directory where installation parameters. Root Directory C:\cygwin Install For	tory e you want to install Cygwin. Also choose a few Browse DED)
Select Root Install Direct Select the directory where installation parameters. Root Directory CNCygwin Install For (a) All Users (RECOMMEND Cygwin will be available (b) Just Me Cygwin will still be availa Installer information are of	be to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack
Select Root Install Direct Select the directory where installation parameters. Root Directory C:Vcygwin Install For All Users (RECOMMEND Cygwin will be available Just Me Cygwin will still be available Installer information are of Administrator privileges of	be to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs.
Select Root Install Direct Select the directory where installation parameters. Root Directory CNcygwin Install For (All Users (RECOMMEND Cygwin will be available) Just Me Cygwin will still be availa Installer information are of Administrator privileges of	tory e you want to install Cygwin. Also choose a few Browse DED) to all users of the system. ble to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs. < Back
Select Root Install Direct Select the directory where installation parameters. Root Directory CNCygwin Install For (a) All Users (RECOMMEND Cygwin will be available (b) Just Me Cygwin will still be availa Installer information are of Administrator privileges of	tory e you want to install Cygwin. Also choose a few Browse DED) to all users of the system. ble to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs.
Select Root Install Direct Select the directory where installation parameters. Root Directory CNcygwin Install For (All Users (RECOMMEND Cygwin will be available) Just Me Cygwin will still be available Installer information are of Administrator privileges of Cygwin Setup - Select Loo	tory e you want to install Cygwin. Also choose a few Browse DED) to all users of the system. ble to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs.
Select Root Install Direct Select the directory where installation parameters. Root Directory CNcygwin Install For (a) All Users (RECOMMEND Cygwin will be available (b) Just Me Cygwin will still be available (c) Just Me Cygwin setup - Select Loc Select Local Package Di Select a directory where y downloads. The directory	tory e you want to install Cygwin. Also choose a few Image: Comparison of the system. DED) to all users of the system. ble to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs. Image: Comparison of the system of the system of the system of the specific needs. cal Package Directory — Image: Comparison of the system of the system of the system of the system of the system. cal Package Directory — Image: Comparison of the system of the system of the system of the system of the system. cal Package Directory — Image: Comparison of the system of the system. cal Package Directory — Image: Comparison of the system of the syste
Select Root Install Direct Select the directory where installation parameters. Root Directory Note: Note: Note: Root Directory Select Local Package Di Select a directory where y downloads. The directory Local Package Directory Select Package Directory Select Package Directory Root Direct	tory e you want to install Cygwin. Also choose a few Image: Comparison of the system. DED) to all users of the system. ble to all users, but Desktop Icons, Cygwin Menu Entries, and important only available to the current user. Only select this if you lack or if you have specific needs. Image: Comparison of the system of the system of the system of the system. cal Package Directory — — rectory — — you want Setup to store the installation files it y will be created if it does not already exist. Image: Comparison of the system.

< Back

Next >

Cancel

5. Next

6. Next

7. Choose a mirror that might be close to you, click Next

🗲 Cygwin Setu	o - Choose Download Site(s)			-		×
Choose A Doo Choose a si	wnload Site e from this list, or add your own sites to the list				l	
	Available Download Sites:					
	http://cygwin.mirror.constant.com http://cygwin.mirrors.hoobly.com http://mirrors.koehn.com http://mirrors.koehn.com http://mirrors.wetapeer.com http://cygwin.parentingamerica.com http://cygwin.garentingamerica.com http://cygwin.skazkaforyou.com ftp://mirrors.xmission.com http://mirrors.xmission.com http://mirrors.avnission.com http://tip.gtib.gatech.edu					
User URL:				Add		
	<	Back	Ne	xt >	Car	ncel

8. Now you see a the software selection screen, sorted by category. Some of these entries appear two or more times, because they belong to multiple categores. Try using the search box in upper middle above the software list to search for the packages listed below.

E Cygwin Setup - Select Packages	-		×
Select Packages Select packages to install		1	
View Category Vearch Clear Keep	Current	t () Tes	t
Category Current New	Bin? S	irc? Size	^
🖂 All 🚯 Default			
🗄 Accessibility 🚯 Default			
🗄 Admin 🚯 Default			
⊞ Archive III Default			
🗄 Audio 🚯 Default			
🗄 Base 🚯 Default			
🗄 Database 😯 Default			
🗄 Debug 😯 Default			
⊡ Devel III Default			
⊞ Doc � Default			
⊞ Editors 😌 Default			
🗄 Games 🚯 Default			
⊞ GNOME III Default			
⊞ Graphics III Default			
Interpreters			
KDE OF Default			
🗄 Libs 🕀 Default			
🕀 Lua 😌 Default			
E LXDE Default			
III Mail 🖓 Default		>	×
< Back N	ext >	Cano	el

- 9. The items you want to search for are
 - openssh
 - xorg-server
 - xinit
 - rxvt

- xlaunch
- A. Search for openssh and click the Skip property once to change it to the most recent version to set it to install.

E Cygwin Setup - Select Packages	– – ×
Select Packages Select packages to install	E
View Category V Search openssh Qear	<u>◯K</u> eep
Category New Bin? Src? Siz	lize Package
 All ◆ Default Debug ◆ Default Net ◆ Default ◆ 7.4p1-1 ▲ X11 ◆ Default 	755k openssh: The OpenSSH server and client programs
Click 'S	Skip'
	>
I Hide obsolete packages	
	< <u>B</u> ack <u>N</u> ext > Cancel

B. xorg-server provides the X display system

<u>V</u> iew	Catego	ory 🗸 🗸 🗸	Search xo	g	(<u>D</u> lear		
Cate	egory	New			Bin?	Src?	Size	Package
ΞA	ll 🚯 Del	fault						
Œ	l Debug	Default						
Œ	Devel	🗘 Default						
Œ	l Doc 🕄	Default						
Œ	l Utils 🕄	Default						
E	I X11 0	Default						
		🔿 Skip			n/a	n/a	8k	xorg-scripts: Xorg miscellaneous scripts
		01.19.1-1			\times		1,413k	xorg-server: X.Org X servers
		1.19.1-1			\times		26k	xorg-server-common: X.Org X server common data

C. xinit helps the X system launch

1	<u>V</u> iew Catego	ny ~	<u>S</u> earch xinit	9	<u>C</u> lear			
	Category	New		Bin?	Src?	Size		Package
	🗆 All 😯 Def	ault						
	∃ Debug	🛈 Default						
	🗆 🛛 🛛 🖯	Default						
		O 1.3.4-14		\times			54k	xinit: X.Org X server launcher

D. xlaunch is what you will drag to your task bar to launch your Cygwig X server

1	/iew Catego	ry ~ <u>S</u> earch	xlaunch	<u>C</u> lear		
	Category	New	Bin?	Src?	Size	Package
	🗆 All 😯 Defa	ault				
	🗄 Debug -	😯 Default				
	🗆 X11 🗘	Default				
		20160530-1	\boxtimes		121k	xlaunch: GUI tool for configuring and starting the XWin X server

E. rxvt and rxvt-unicode are more useful terminals than the minterm program that Cygwin provides by default.

1	<u>/</u> iew Category ~	<u>S</u> earch xvt		<u>C</u> lear			
	Category New		Bin?	Src?	Size		Package
	🗆 All 📀 Default						
	🗉 Debug 😯 Default						
	🗆 Shells 😯 Default						
	2.7.10-1		\times			125k	rxvt: Lightweight VT102 terminal emulator
	9.22-1		\times			690k	rxvt-unicode: An improved version of rxvt with Unicode support

10. Click *Next* and let the installer finish the installation of the Cygwin packages. You will see a Cygwin Terminal icon appear on your desktop and new Cygwin icons in your Start menu.



11. Next we will **right-click** on the Cygwin Terminal icon and select *Open File Location*



12. In the Explorer window, scroll to find xlaunch.exe, and drag it to the Task Bar

=			rdesktop - ares				
-	8					~	
0	Recycle Bin					jdk-8-win	
[]]							
0	CONFIG						
	Configure		Application Tools bin			- 🗆 X	
		File Home Share	e View Manage			× 🔞	
		← → ~ ↑ 🛄 > TH	nis PC → Local Disk (C:) → cygwin → bin	5 v		٩	
D'N	E		Name		Гуре	Size	
		📌 Quick access	📋 xzless	11/8/2015 10:13 PM F		2 KB	
		📃 Desktop 🛛 🖈	🗋 xzgrep	11/8/2015 10:13 PM F	File		
		👃 Downloads 🛛 🖈	🗟 xzfgrep			1 KB	
0/	-00	Documents 🖈	🗟 xzegrep			1 KB	
		Pictures 🔹	🗋 xzdiff			7 KB	
E	4		xzdec.exe	11/8/2015 10:14 PM A		15 KB	
	npp.6.9.Inst	mingw-bibits *	🚳 xzcmp	1/31/2017 8:29 PM S		1 KB	
		pub 🖈	🚳 xzcat	1/31/2017 8:29 PM S			
	GUID	Music	xz.exe	11/8/2015 10:14 PM A		72 КВ	
		📕 tank_temp	💽 xwin-xdg-menu.exe				
\sim		Videos	XWin.exe				
b	LANforge	C O Dia	📧 xterm.exe			484 KB	
5	Pin to Taskbar	Chebrive	🗋 xsubpp	1/15/2017 4:53 AM F	File	6 KB	
	CEDUER	This PC	📧 xrdb.exe			23 KB	
	SERVER		🗋 xorg-backtrace		File	2 KB	
		Network	Xorg.exe	1/16/2017 10:16 AM		1,889 KB	
	Start	•4 Homegroup	📧 xmodmap.exe	1/29/2016 1:11 PM A		31 KB	
	LANforge		📧 xmllint.exe	8/26/2016 12:47 PM		57 KB	
			📧 xmlcatalog.exe	8/26/2016 12:47 PM		18 KB	
			🗙 xlaunch.exe	5/30/2016 7:05 AM		262 KB	
			📧 xkbcomp.exe	1/29/2016 12:49 PM A	Application	193 KB	
	Mozilla		iii xinit.exe	9/19/2016 7:20 AM A	Application	18 KB	
4:2 [] >			📧 xdg-user-dirs-update.exe	11/26/2014 7:11 PM A	Application	20 KB	
0.000014			🗋 xdg-user-dir	11/26/2014 7:11 PM F	File	1 KB	
8:36 PM	R	and the second	xauth.exe	8/10/2014 1:31 PM	Application	36 KB	
1/31/2017			xargs.exe	3/11/2016 1:16 PM	Application	63 KB	
	Cvawin	SEO House Although the		1/01/0017 0.00 084	Sunkaun Alla		
\Box		330 items 1 item selecte	201 ND				

13. Click the xlaunch icon on the task bar, and click Next

X XLaunch - Display	settings			×				
Select display settings Choose how the X server displays programs								
Multiple windows	Constant and the second s		× ·					
One window		One window without titlebar	*					
Display number	0							
	< Back	Next >	Cancel Help					

14. Next

🗙 XLaunch - Session type	×
Select how to start clients	
● Start no dient	
This will just start the X server. You will be able to start dients later.	
⊖ Start a program	
This will start a local or remote program which will connect to the X server. You will be able to start clients later too. Remote programs are started using SSH.	
Open session via XDMCP	
This will start a remote XDMCP session. Starting local clients later is limited. This option is not available with the "Multiple windows" mode.	
< Back Next > Cancel Help	

15. Check Disable Access Control and add the option: -listen tcp. Click Next

X XLaunch - Extra settings	×
Extra settings	
✓ Clipboard Start the integrated clipboard manager	
Native OpenGL Use the native windows OpenGL library (WGL). Make sure to export the LIBGL_ALWAYS_INDIRECT environment variable.	
Disable access control (Not recommended) Use this when you want the X server to accept connections from all clients.	
Additional parameters for X server	1
	1
< Back Next > Cancel Help	

16. Firewall, Click *Allow Access*

P Windows Security Alert									
🔮 Windo	ws Firewal	l has blocked some features of this app							
Windows Firewall has blocked some features of xwin.exe on all public and private networks.									
X	Name: Publisher:	xwin.exe							
	Path: C:\cygwin\bin\xwin.exe								
Allow xwin.exe to a	communicate on orks, such as m	these networks: Iy home or work network							
Public netwo because the	rks, such as the se networks off	en in airports and coffee shops (not recommended en have little or no security)							
What are the risks of allowing an app through a firewall?									
		Allow access Cancella Cance	el						

17. If the LANforge Messages window reports 'No Access', you might need to use **xhost.exe** to grant X11 access.

🕌 LANforge Messages (10.41.0.1:4002)						_		×
******* Thu Nov 08 14:06:06 PST 2018 Important message from card: Shelf: 1, Card: 1 -:ERR specified (wireshark:28704): Gtk-WARNING **: canno	OR: wireshark -i b' ot open display: 10.4	1000 -k -l -S fa 1.1.26:0 :-	iled with e	rror: 1, output: Au	thorization require	ed, but no auth	norization	protocc
	Pause	Close		Save File				

A. Open a CMD window



18. Now your X display service is running. You can check that it's running by clicking into the System Tray and seeing if the icon is there.



19. Launch the LANforge GUI from your desktop. Select a port from the *Port Mgr* tab. Notice how the **Disp** field has your laptop's LAN address. This is the display address the remote machine will display the Wireshark window to.

🛓 LANforge Manager Version(5.3.5) — 🗖													
<u>C</u> ontrol <u>R</u> eporting <u>T</u> ear-Off <u>I</u> nfo <u>P</u> lugins													
						S	Stop All	Restar		Refresh	HELP		
Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr VAP Stations Messages													
Status		Layer-J	L3 Enups						lageudon	want		terruators	
Disp: 192.168.100.234:0.0 Sniff Packets 1 Clear Counters Reset Port Delete									Delete				
RptTimer: medium (8 s) V Apply					Ţ <u>V</u> ie	ew Details	Cr <u>e</u> a	Cr <u>e</u> ate Mo <u>d</u> ify		atch Modify]		
All Ethernet Interfaces (Ports) for all Resources.													
Port	Phan	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0			192.168.100.26	0	eth0		5,441,405,190	5,584,160	19	78,436	417,094,300	1,697,238	25
1.1.1			10.26.0.1	0	eth1		12,045,067	48,944	0	70	62,252	829	0
1.1.103			0.0.0.0	0	wiphy1		3,186,000	14,830	0	0	10,977	70	0
1 1 104			0 0 0 0	0	winhv2		0	0	0	0	0	0	0

20. You will see WireShark



- 21. Resources and other Documentation:
 - A. http://unix.stackexchange.com/questions/227889/cygwin-on-windows-cant-open-display
 - B. https://www.cs.virginia.edu/~csadmin/wiki/index.php/Using_Cygwin_for_X11_Forwarding
 - C. http://www.arsc.edu/arsc/knowledge-base/ssh-and-x11-forwarding-us/index.xml

Candela Technologies, Inc., 2417 Main Street, Suite 201, Ferndale, WA 98248, USA www.candelatech.com | sales@candelatech.com | +1.360.380.1618