Petunjuk Penggunaan HPC Server FTMD ITB – Node LINUX

v0.1.

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1 Intro

Server HPC FTMD ITB dapat diakses secara jarak jauh melalui internet dengan dua cara, *command line interface (CLI)* dan *graphic user interface (GUI)*. Pada dokumen ini akan ditunjukkan langkah-langkah untuk mengakses server HPC OS Linux menggunakan OS Windows.

Terdapat dua perangkat lunak yang perlu diinstall untuk mengakses server HPC:

- 1. PuTTY (untuk mengakses SSH).
- 2. Xming (untuk mirror User Interface dari HPC).

Untuk mengakses HPC dengan CLI cukup menggunakan program PuTTY, sedangkan untuk mengakses GUI diperlukan program Xming. Fitur GUI hanya tersedia di HPC Node 1 – Ubuntu.

Pada bagian berikutnya adalah cara untuk instalasi perangkat lunak serta cara penggunaan HPC.

2 Pengaturan PuTTY

Aplikasi PuTTY berfungsi untuk membuat sambungan SSH dengan HPC Server ITB. Untuk mengunduh program PuTTY dapat mengikuti tautan berikut:

https://www.putty.org

Apabila program PuTTY sudah terinstall, maka yang perlu dilakukan hanyalah pengaturan untuk pilihan alamat IP serta mencentang pilihan X11 forwarding. Masuk ke menu SSH -> X11

🕵 PuTTY Configuratio	1	? ×
Category:		
Category: 	Options controlling SSH X11 forwarding Enable X11 forwarding X display location Remote X11 authentication proto MIT-Magic-Cookie-1	K11 forwarding
Bugs More bugs	,	
About H	elp <u>O</u> per	<u>C</u> ancel

1. Centang kotak bertulisakan Enable X11 forwarding. Agar tidak perlu mencentang pilihan tersebut setiap kali akan mengakses server, maka sebaiknya dibuat profil baru. Setelah mencentang pilihan, masuk lagi ke menu Session (paling atas).

🕵 PuTTY Configurati	ion		? ×
Category:			
Session	^	Basic options for your PuTTY see	ssion
Logging		Specify the destination you want to connect	ct to
		Host Name (or IP address)	Port
Keyboard		167.205.57.59	22
Features		Connection type:	
⊡ · Window		O Raw O Telnet O Rlogin ● SSH	○ Serial
Appearance			
Behaviour		Load, save or delete a stored session	
···· Translation		Saved Sessions	
Selection		HPCFIMD	
Colours		Default Settings	Load
Data		HPCFIMD	
Proxy			Sa <u>v</u> e
Telnet			<u>D</u> elete
Rlogin			
SSH		·	
Kex		Close window on exit:	
Host keys		○ Always ○ Never ● Only on cl	ean exit
H- Auth	~		
:			
About	<u>H</u> elp	<u>O</u> pen	<u>C</u> ancel

2. Biarkan Port tetap berisi 22. Masukkan Host Name sesuai alamat Node HPC FTMD ITB. Berikut adalah tabel alamat IP tiap Node Ubuntu:

NO	SEVER	OS	IP	NETMASK	GATEWAY
1	NODE - 1	Ubuntu Desktop	167.205.57.59	255.255.255.0	167.205.57.1
2	NODE - 2	Ubuntu CLI	167.205.57.60	255.255.255.0	167.205.57.1
3	NODE - 3	Ubuntu CLI	167.205.57.61	255.255.255.0	167.205.57.1

3. Masukkan nama di kotak isian di bawah Saved Sessions, lalu klik Save. Profil tersebut telah disimpan di PuTTY, dan selanjutnya hanya tinggal mengklik profil tersebut untuk mengatur PuTTY agar dapat menggunakan SSH dengan X11 forwarding.

3 Akses HPC Node LINUX Menggunakan CLI

- 1. Jalankan program OpenVPN dengan pengaturan untuk masuk ke VPN ITB. Untuk lebih jelasnya terkait OpenVPN dapat mengikuti langkah-langkah yang ada pada tautan berikut:
- → <u>https://ditsti.itb.ac.id/instalasi-dan-konfigurasi-openvpn-itb/</u>

🙄 OpenVPN Connection (itb-vista) —	🔁 OpenVPN Connection (itb-vista) — 🗆 🛛 🕹				
Current State: Connecting					
Wed Feb 03 17:22:50 2021 OpenVPN 2.4.0 x86_64-w64-mingw32 [SSL (OpenSSL)] [LZO] [L Wed Feb 03 17:22:50 2021 Windows version 6.2 (Windows 8 or greater) 64bit Wed Feb 03 17:22:50 2021 Management of 6.2 (Windows 8 or greater) 64bit Wed Feb 03 17:22:50 2021 MANAGEMENT: TCP Socket listening on [AF_INET]127.0.0.1:25 Wed Feb 03 17:22:50 2021 N Wed Feb 03 17:22:50 2021 N Wed Feb 03 17:22:50 2021 N Wed Feb 03 17:22:50 2021 M Password: Save password OK Cancel	Z4] [PKCS11 5340 40] [AE			
<		>			
Disconnect	Hide				

2. Buka aplikasi PuTTY

All Apps Documents Web	More 🔻	R
Best match		
PuTTY App		
Apps		PuTTY
PuTTYgen	>	App
Documents - This PC		
B putty - in formats	>	□ ⁻ Open
B putty - in formats	>	🗟 Run as administrator
📓 putty - in formats	>	Den file location
B putty - in formats	>	-🗁 Pin to Start
Search work and web		-⇔ Pin to taskbar i Uninstall
PuTTY - See work and web results	>	

3. Pilih profil koneksi yang telah dibuat sebelumnya, lalu klik tombol Load.



4. Masukkan username dan password yang sudah diberikan



5. Tampilan akan menjadi seperti berikut apabila sudah berhasil login.

🗬 ftmd@ftmd: ~	_	- 🗆	×
<pre># # Please read the instructions carefully # # # # # # # # # # # # # # # # # #</pre>			^
* * **********************************	*****	******	****
The instructions: 1. You can only use 100GB of harddrive, please use additions and the second secon	onal c	loud rep	osit
ory by your own. 2. The server will be upgraded and restarted on the first at 00:00:01 am. Thus, please, save your work before that! 3. Please use parallel processing libraries (e.g. openMP)	day o	n each m	onth
 9. Fields use parameter processing infairles (e.g. openne, p.org/) with the appropriate number of cores. 4. Don't be hasitate to contact us at hpc@ftmd.itb.ac.id id if you have a problem. 	or hpc	ftmd@itb	.ac.
************************* Have a nice day! ************************************	**		
Last login: Wed Dec 30 15:34:39 2020 from 103.107.7.250			
ftmd@ftmd:~\$			\sim

4 Instalasi Xming

Xming adalah aplikasi yang berfungsi untuk menampilkan tampilan layar dari server HPC ke layar komputer. Aplikasi tersebut dapat diunduh dari scourgeforge dengan alamat berikut:

→ <u>https://sourceforge.net/projects/xming/</u>

Setelah mengunduh aplikasi Xming, ikut langkah-langkah berikut untuk meng-install dan mengatur Xming.

ightarrow Xming X Server for Window $ imes$	+				
C 88 B sourceforge.net/projects/xming/					
	SOURCE FORGE				
	Open Source Software	Business Software	Resources		
			/XmingXServer for Windows		
	X Wind Brough	ning X S low System Server for V it to you by: colinharrisc		r Windows	
	Downloads: 10,225	This Week			
		Get Up	dates Share This		
	Windows				
	Summary		Files	Reviews	

Xming is the leading X Window System Server for Microsoft Windows 8/7/Vista/XP (+ server 2012/2008/2003). It simple to install and because it is standalone native Microsoft Windows, easily made portable (not needing a machi

🐹 Setup - Xming			×
Select Components Which components should be installed?			\mathbf{X}
Select the components you want to install; clear the components you d install. Click Next when you are ready to continue.	o not w	vant to	
Full installation		、 、	1
Xming binary		4.1 ME	3
Non US Keyboard support		3.4 ME	3
XLaunch wizard - frontend for Xming		1.0 ME	3
Run utility - start programs with hidden console window		0.1 ME	3
Normal PuTTY Link SSH client		0.3 ME	3
Portable PuTTY Link SSH client - use with Portable PuTTY Don't install an SSH client		0.3 ME	3
Current selection requires at least 9.3 MB of disk space.	>	Car	

1. Pilih menu Full installation saat meng-install Xming. Klik Next untuk melanjutkan proses instalasi.

💥 Setup - Xming	—		×
Select Start Menu Folder Where should Setup place the program's shortcuts?			\mathbf{X}
Setup will create the program's shortcuts in the following Star	t Menu	folder.	
To continue, click Next. If you would like to select a different folder, cl	ick Bro	wse.	
Xming	E	Browse	
Don't create a Start Menu folder			
< <u>B</u> ack <u>N</u> ex	t >	Ca	ncel

2. Pilih tempat Start Menu tempat Xming akan ditaruh. Klik Next untuk melanjutkan proses instalasi.

💥 Setup - Xming	—		×
Select Additional Tasks Which additional tasks should be performed?			\mathbf{X}
Select the additional tasks you would like Setup to perform while inst click Next.	talling Xmir	ng, then	
Additional icons:			
Create a desktop icon for Xming			
Create a desktop icon for XLaunch			
Create a Quick Launch icon for Xming			
Create a Quick Launch icon for XLaunch			
Other tasks:			
Associate XLaunch.exe with the xlaunch file extension			
< <u>B</u> ack <u>N</u> e	ext >	Car	ncel

3. Centang kotak tempat icon akan ditaruh. Pada contoh ini tidak dipilih sama sekali untuk menambahkan icon. Klik Next untuk melanjutkan proses instalasi.

🐹 Setup - Xming	– 🗆 X
	Welcome to the Xming Setup Wizard
	This will install Xming 6.9.0.31 on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	<u>N</u> ext > Cancel

4. Layar untuk memulai instalasi Xming akan muncul. Klik Next untuk melanjutkan proses instalasi, lalu tunggu hingga proses instalasi selesai. Xming telah diinstal di komputer.

5 Akses HPC Node Ubuntu Menggunakan GUI

Untuk Node 1 – Ubuntu, pengguna dapat mengakses HPC dengan sistem grafis antarmuka (GUI). Berikut adalah langkah-langkahnya.

1. Jalankan program OpenVPN dengan pengaturan untuk masuk ke VPN ITB. Untuk lebih jelasnya terkait OpenVPN dapat mengikuti langkah-langkah yang ada pada tautan berikut:

+ https://ditsti.itb.ac.id/instalasi-dan-konfigurasi-openvpn-itb/

DenVPN Connection (itb-vista)	_		\times
Current State: Connecting			
Wed Feb 03 17:22:50 2021 OpenVPN 2.4.0 x86_64-w64-mingw32 [SSL (OpenSSL)] [L] Wed Feb 03 17:22:50 2021 Windows version 6.2 (Windows 8 or greater) 64bit Wed Feb 03 17:22:50 2021 Manay Versions: OpenSSL 10.2 a 22 Sep 2016, LZO 2.09 Wed Feb 03 17:22:50 2021 MANAGEMENT: TCP Socket listening on [AF_INET]127.0. Wed Feb 03 17:22:50 2021 M OpenVPN - User Authentication (itb-vista) 9 Wed Feb 03 17:22:50 2021 M Ved Feb 03 17:22:50 2021 M Password: Save password OK Cancel	ZO] [LZ4] [0.1:25340 1:25340	PKCS11]	[AE
<			>
Disconnect	ł	Hide	

2. Setelah sambungan dengan VPN ITB berhasil dibuat, jalankan program Xming yang telah di-*install* dan di-*setup*.



3. Jalankan program PuTTY, lalu pilih profil yang telah dibuat untuk mengakses HPC.

ategory:		
Session Logging Terminal Keyboard Bell Fatures Window	^	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) Port 167.205.57.59 22 Connection type: Raw Raw Telnet Rlogin
		Load, save or delete a stored session Saved Sessions HPCFTMD Default Settings HPCFTMD Save Delete
⊡ · SSH Kex Host keys Cipher 	~	Close window on exit: Always Never Only on clean exit

4. Klik Open. Setelah SSH tersambung akan muncul layar terminal CLI.

67.205.57.61 - PuTTY	-	\times
ogin as: ftmd tmd@167.205.57.61's password: 🧧		-

5. Masukkan username dan password. Setelah itu akan masuk ke home CLI.

P	ftmd@ftmd: ~	_		×
# # # #	Please read the instructions carefully			^
+ +++ ++	*****	*****	*****	##
The ory	: instructions: 1. You can only use 100GB of harddrive, please use additional / by your own.	cloud	repos	it
at	 The server will be upgraded and restarted on the first day 00:00:01 am. Thus, please, save your work before that! Please use parallel processing libraries (e.g. openMP, http 	on ea	ch mon ww.ope	th nm
p.o id	org/) with the appropriate number of cores. 4. Don't be hasitate to contact us at hpc@ftmd.itb.ac.id or hp if you have a problem.	pcftmd	@itb.a	c.
* *	********************** Have a nice day! ************************************			
Las ftm	ut login: Wed Dec 30 15:34:39 2020 from 103.107.7.250 ud@ftmd:~\$			~

6. Buka aplikasi yang diinginkan dengan mengetik nama aplikasi tersebut. Di sini sebagai contoh menggunakan nautilus.

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Aplikasi akan muncul di layar komputer setelah beberapa saat, tergantung dari kondisi koneksi internet. Harap diingat bahwa untuk memunculkan GUI membutuhkan bandwith yang cukup besar, sehingga terdapat lag yang cukup signifikan antara input dan luaran pada layar server.