

Homework 1

Install FreeBSD & WireGuard

stchang

國立陽明交通大學資工系資訊中心

Computer Center of Department of Computer Science, NYCU

Requirements

- Basic (15%)
 - Install FreeBSD 13.0-RELEASE or other allowed operating systems
 - Apply security patches (latest: patch 4)
- Root on ZFS (15%)
 - Zpool name : zroot
- Add a user and a group
 - User should also be in the "wheel" group
 - Use this user to do this homework instead of root (using sudo)
- Add a user called "judge" for Online Judge
 - User should also be in the "wheel" group
 - Please Using "sh" as default shell (10%)
 - This user needs to **run sudo without password** (15%)

Requirements (Cont.)

- Set your machine to current time zone and adjust current time (10%)
 - CST
- Enable sshd (20%)
 - Install this public key to your `/home/judge/.ssh/` for Online Judge.

```
$ fetch https://nasa.cs.nctu.edu.tw/sa/2021/nasakey.pub  
$ cat nasakey.pub >> /home/judge/.ssh/authorized_keys
```

- You can use Fingerprint to check "nasakey.pub"

```
$ ssh-keygen -l -f nasakey.pub  
2048 SHA256:FKznGEAAy6gcVC4x+JpiTo34zbaHRYIc9WShzqR+yF4 no comment (RSA)
```

Requirements (Cont.)

- Login into [NASA Online Judge](#).
- There are some information in your [profile](#)
 - ID
 - Your IP in WireGuard is 10.113.0.ID
 - WG_PRIVATE_KEY
 - Using this private key to connect WireGuard Server
 - WG_SERVER_PUBLIC_KEY
 - Using this public key to connect WireGuard Server

Requirements (Cont.)

- Install WireGuard ([Installation Guide](#))
 - Server Address
 - nasa.nycucs.org:51821
 - Using this information to connect Online Judge's WireGuard Server :
 - 10.113.0.ID
 - WG_PRIVATE_KEY
 - WG_SERVER_PUBLIC_KEY
 - You can install WireGuard with pkg or port

Requirements (Cont.)

- WireGuard Config Example

```
[Interface]
Address = 10.113.0.ID/32
PrivateKey = [WG_PRIVATE_KEY]

[Peer]
PublicKey = [WG_SERVER_PUBLIC_KEY]
AllowedIPs = 10.113.0.0/16
Endpoint = nasa.nycucs.org:51821
PersistentKeepalive = 25
```

wg0.conf

Requirements (Cont.)

- You can use "ping -c 3 10.113.0.254" to test whether you have connected to WireGuard Server
- Online judge server can ping your server (15%)

```
$ ping -c 3 10.113.0.254
PING 10.113.0.254 (10.113.0.254): 56 data bytes
64 bytes from 10.113.0.254: icmp_seq=0 ttl=64 time=1.879 ms
64 bytes from 10.113.0.254: icmp_seq=1 ttl=64 time=1.996 ms
64 bytes from 10.113.0.254: icmp_seq=2 ttl=64 time=1.915 ms

--- 10.113.0.254 ping statistics ---
3 packets transmitted, 3 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 1.879/1.930/1.996/0.049 ms
```

Requirements (Cont.)

- Online judge system is designed for FreeBSD 13.0-RELEASE and CentOS 8-Stream only
- Doing your homework with other OS may not pass online judgement

Requirements (Cont.)

- **BACKUP** your server before judge **EVERY TIME**
 - We may do some things bad when judging.
- TAs reserve the right of final explanations
- **Start from 9/24 12:00**
- **Deadline 10/13 23:59**



Hints

- Virtual machine is good for doing homeworks
 - Easy to install and backup
- Try to make your VM hardware configuration better
 - Disk controller
 - IDE → SATA, NVMe, ...
 - NIC: paravirtualized net, ...

Sign Up CS Account

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Requirements

- CS account
 - Sign up your own account at CSCC account system
 - <https://account.cs.nctu.edu.tw/>
 - Active your account in EC320
- Try to login to Git.cs using CS account
 - We will using Git in the next homework.
 - <https://git.cs.nctu.edu.tw/>
- **SIGNUP CS ACCOUNT EARLY!**
 - We will not grade in this stage
 - If you aren't major in CS, you need to get Teachers/Professor's signature to activate your CS account!

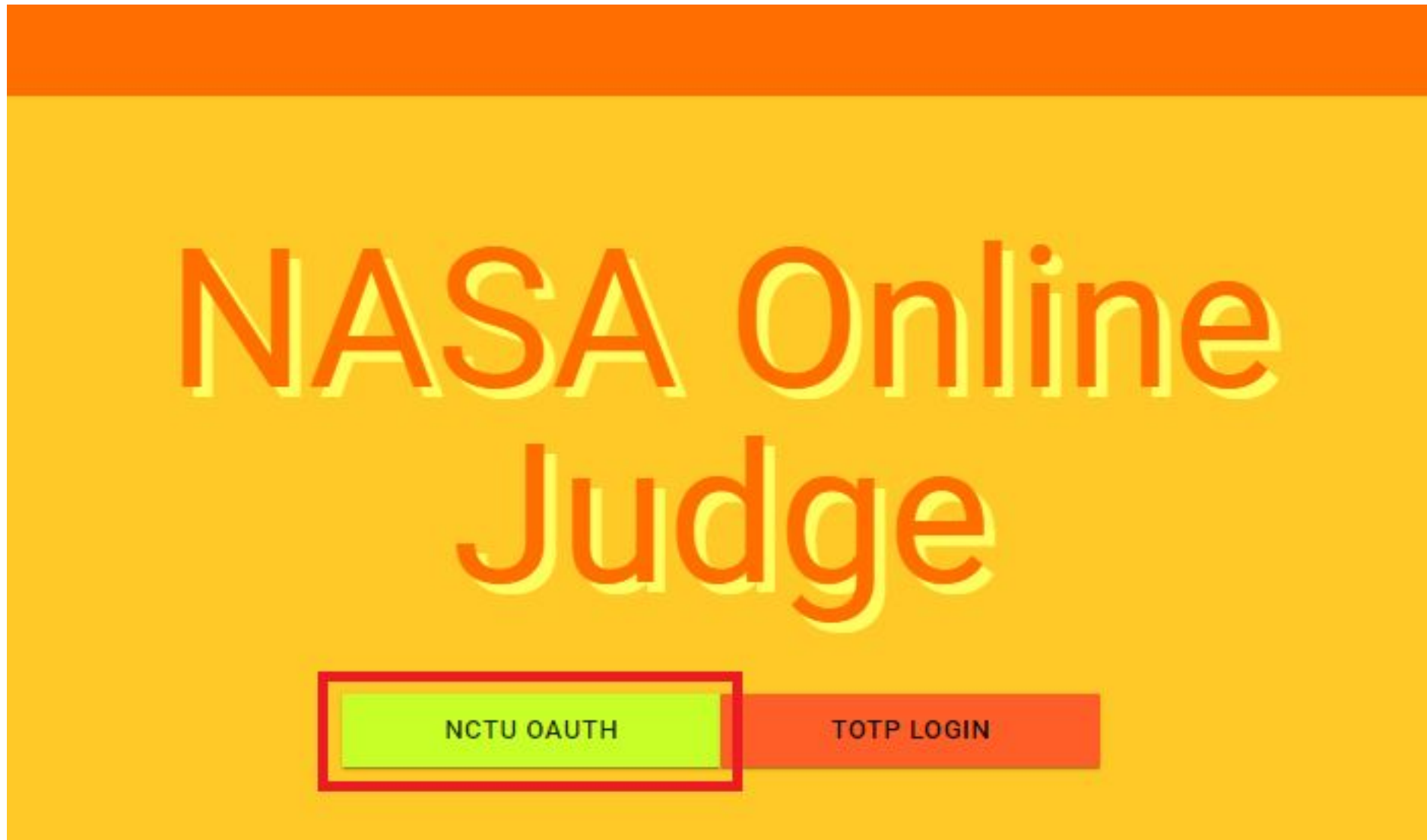
How to use Online Judge

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Online Judge


- <https://nasa.nycucs.org>





Profile


- <https://nasa.nycucs.org/profile>

NASA Online Judge LOGOUT


 Profile

 Problem




 Submission

 Ping

Basic Info


 Email : fuyuanli.cs08g@nctu.edu.tw
Username : 0856013


Attribute List


Key	Value	Description
ID	10 	Your ID (index). Peer IP: 10.113.0.ID
WG_PRIVATE_KEY	2IPFE1i4sWH' 	Your WireGuard Private key
WG_SERVER_PUBLIC_KEY	GBFLbs15Hge 	VPN Server public key VPN Server public key


Problem

NASA Online Judge LOGOUT



 Profile








 **Problem**

 Submission

 Ping

Problems

Id	Title	Score	
1	HW1	NULL	 

-  Profile
-  Problem
-  Submission
-  DNS Setting
-  Ping
-  DNSSEC
-  Mail

HW1

[BACK](#)[SUBMIT](#)**Released At**

2021/09/24 12:00 GMT+8 (4 hours ago)

Start Scoring At

2021/09/24 12:00 GMT+8 (after 19 hours)

Deadline

2021/10/13 23:59 GMT+8

Description

SA HW1, for FreeBSD 13 and CentOS Stream 8

Check Points

Title	Score
Ping: ping your BSD	15
SSH: SSH into your BSD	20
Check: Shell	10
Check: OS	15
Check: sudo	15
Check: Timezone	10
Check: ZFS	15

Help!

- Join NCTUNASA google group
 - If you have any question, you can post your problem in this group, TAs and Students will help you.
 - <https://groups.google.com/g/nctunasa>
- UNIX 常見指令教學
 - <https://csc.ccs.nctu.edu.tw/unix-basic-commands>
- How To Ask Questions The Smart Way
 - <https://github.com/ryanhanwu/How-To-Ask-Questions-The-Smart-Way>