

Configuration Manual

MSc Research Project
Cloud Computing

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Project Submission Sheet
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Programme:	Cloud Computing
Year:	2020
Module:	MSc Research Project
Supervisor:	Mr. Vikas Sahni
Submission Due Date:	17/08/2020
Project Title:	Configuration Manual
Word Count:	808
Page Count:	11

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Configuration Manual

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1 System Overview

Allocation and Sharing of Compute Resources via Social Network based on Social Cloud.

1.1 Software Requirement

- Operating System: Windows 10
- OSSN: Version 5.2
- MySQL: 8.0.21
- Apache Tomcat: Version 8
- XAMPP Control Panel: Apache and MySQL Manager
- PHP: Version 5.5
- BOINC Manager: Version 7.0.2

1.2 Hardware Requirement

- Processor: Intel Core i5-7200U CPU @ 2.50GHz 2.70GHz
- Memory: 8GB
- HDD: 1 TB
- System Type: 64-bit Operating System, x64-based processor

1.3 Cloud Requirement

- VM: Azure VM
- Azure Cloud Storage: File Share

Azure Virtual Machine	
Parameters	Specification
VM Size	127 GB
RAM	8GB
Virtual CPU	2
Data Disk	1

2 Installations

2.1 Installation of XAMPP Control Panel

- Step 1: Download XAMPP control panel from the link¹
Step 2: Once the downloaded is completed, double-click to start the installation.
Step 3: Follow the instruction on the installation wizard.

2.2 Installation of OSSN 5.2

- It is an open-source platform and is compatible with Windows and Linux.
Step 1: Download OSSN v5.2 from the link ²
Step 2: Once the download is completed, Unzip the downloaded file.
Step 3: Copy the OSSN folder and paste to following path: C: < xampp < htdocs

2.3 Installation of Tomcat 8

- Step 1: Download the Apache Tomcat 8 from the link ³
Step 2: Once the download is completed double-click to start the installation process.
Step 3: Follow the instructions in installation wizard.

2.4 Installation of MySQL

- Step 1: Download the MySQL from the link⁴
Step 2: Double-click the downloaded file and proceed with the installation wizard.
Step 3: Select Developer Mode in installation wizard.
Step 4: Click on execute button and then press finish.

2.5 Installation of BOINC Manager

- Step 1: Download the BOINC manager for the link⁵
Step 2: Double-click the downloaded file.
Step 3: Follow the instruction and setup BOINC projects.

¹<https://www.apachefriends.org/download.html>

²<https://www.opensource-socialnetwork.org/download>

³<https://tomcat.apache.org/download-80.cgi>

⁴<https://dev.mysql.com/downloads/windows/installer/8.0.html>

⁵<https://boinc.berkeley.edu/download.php>

3 Configuration

This section consist of the configuration that is needed to execute this project.

3.1 Table Creation in MYSQL

Create following tables in MYSQL shell:

```
MySQL 127.0.0.1:3306 ssl SQL > show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sakila |
| sys |
| thesis |
| world |
+-----+
7 rows in set (0.0023 sec)
MySQL 127.0.0.1:3306 ssl SQL > 
```

Figure 1: Select the database

```
MySQL 127.0.0.1:3306 ssl thesis SQL > show tables;
+-----+
| Tables_in_thesis |
+-----+
| boinc_node |
| cloud |
| process |
| rdp |
+-----+
4 rows in set (0.0013 sec)
```

Figure 2: Create 4 tables

```
MySQL 127.0.0.1:3306 ssl thesis SQL > desc boinc_node;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| nid            | int           | YES  |     | NULL    |       |
| nodeName      | varchar(600)  | YES  |     | NULL    |       |
| nodeBio       | varchar(600)  | YES  |     | NULL    |       |
| RAM           | varchar(600)  | YES  |     | NULL    |       |
| Process       | varchar(600)  | YES  |     | NULL    |       |
| TaskCompleted | varchar(600)  | YES  |     | NULL    |       |
| BOINCNodeAlloted | int          | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.0073 sec)
```

Figure 3: Created table boinc_node

```
MySQL 127.0.0.1:3306 ssl thesis SQL > desc cloud;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| cid           | int           | YES  |     | NULL    |       |
| ProcessAllocation | varchar(600)  | YES  |     | NULL    |       |
| ProcessRAM    | varchar(600)  | YES  |     | NULL    |       |
| CSession     | varchar(600)  | YES  |     | NULL    |       |
| CViolation    | varchar(600)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.0029 sec)
```

Figure 4: Created table cloud

```
MySQL 127.0.0.1:3306 ssl thesis SQL > desc process;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| pid           | int           | YES  |     | NULL    |       |
| PName        | varchar(600)  | YES  |     | NULL    |       |
| PMem         | varchar(600)  | YES  |     | NULL    |       |
| PTime       | varchar(600)  | YES  |     | NULL    |       |
| PCompection  | varchar(600)  | YES  |     | NULL    |       |
| PSuspend    | varchar(600)  | YES  |     | NULL    |       |
| isexecuted   | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.0030 sec)
```

Figure 5: Created table process

```
MySQL 127.0.0.1:3306 ssl thesis SQL > desc rdp;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RSession      | varchar(600)  | YES  |     | NULL    |       |
| RAccessKey    | varchar(600)  | YES  |     | NULL    |       |
| RVaildationTime | varchar(600)  | YES  |     | NULL    |       |
| RSuspend     | varchar(600)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0022 sec)
```

Figure 6: Created table rdp

3.2 Configuration of XAMPP Control Panel

For Configuration of localhost:

1. Open the XAMPP control panel > Apache

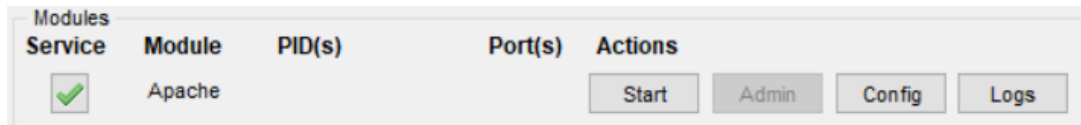


Figure 7: Apache Configuration Module

2. Select phpMyAdmin (config.inc.php)

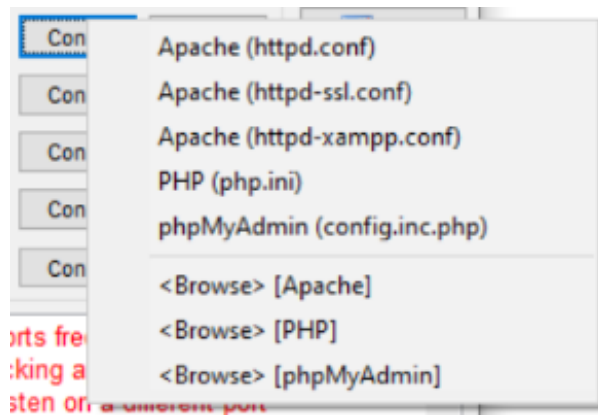


Figure 8: Apache phpmyadmin

3. Insert the User, Password, and Host information to connect the PHP and Host server.

```
/* Authentication type and info */
$cfg['Servers'][$i]['auth_type'] = 'config';
$cfg['Servers'][$i]['user'] = 'root';
$cfg['Servers'][$i]['password'] = '';
$cfg['Servers'][$i]['extension'] = 'mysqli';
$cfg['Servers'][$i]['AllowNoPassword'] = true;
$cfg['Lang'] = '';

/* Bind to the localhost ipv4 address and tcp */
$cfg['Servers'][$i]['host'] = '127.0.0.1';
$cfg['Servers'][$i]['connect_type'] = 'tcp';

/* User for advanced features */
$cfg['Servers'][$i]['controluser'] = 'pma';
$cfg['Servers'][$i]['controlpass'] = '';
```

Figure 9: Apache phpmyadmin

3.3 Configuration of Azure VM with Storage

To connect the Azure VM, Start the VM > Connect > RDP > Credentials.

NOTE: All the configuration and setup of this project is done in Azure VM.

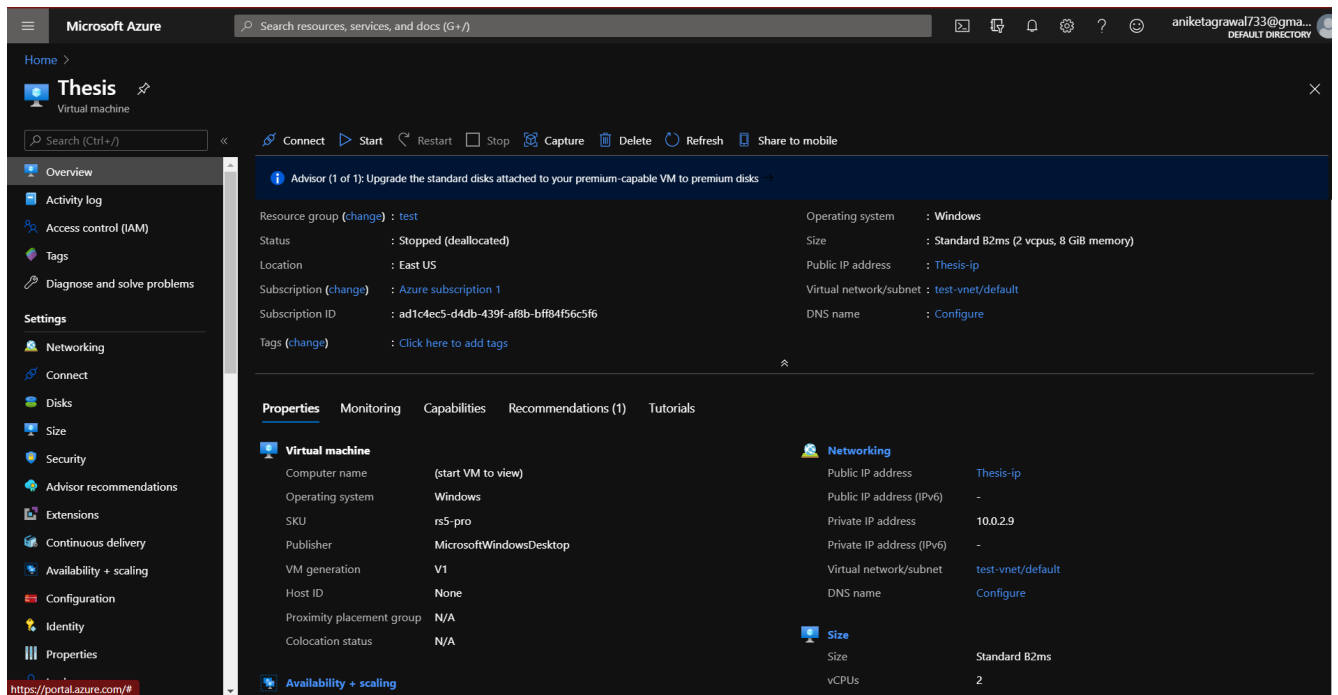


Figure 10: Azure Platform with VM

To connect Azure storage to Cloud as well as local machine, for data security during PCoIP(RDP) sharing of resources: Open Azure Storage > File Share > Create New File Share > Allocate Quota. To connect, run the script in Powershell.

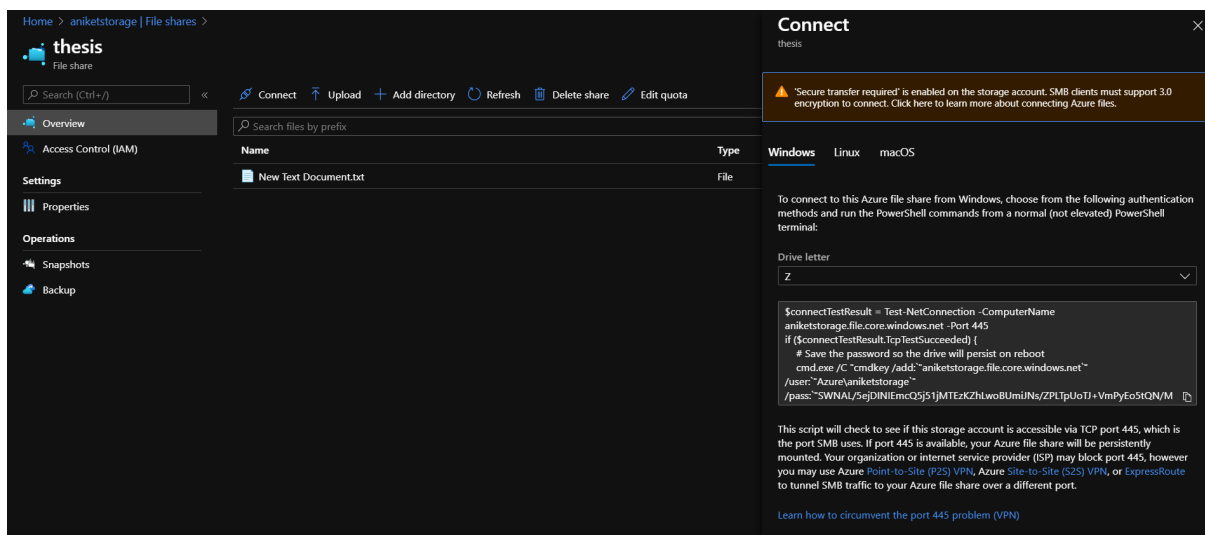


Figure 11: Azure Storage

4 Configuration of OSSN

To configure the OSSN, first start the MYSQL and Apache tomcat server from XAMPP control panel.

Step 1: Open Chrome, Enter `http://localhost:80/ossn`

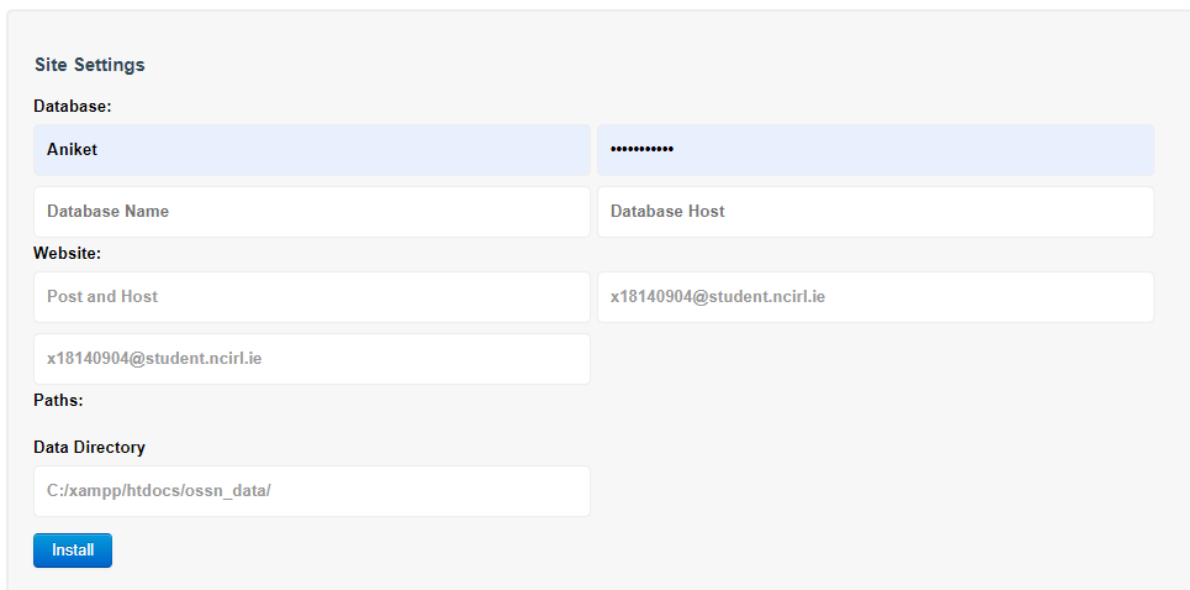
Step 2: Enter the database username and password.

Step 3: Enter the Database Name created in MYSQL.

Step 4: Database Host is the localhost.

Step 5: Data Directory is created in PHPMYADMIN and the new folder `ossn_data` should be created at `C:/xampp/htdocs/ossn_data/`

Step 6: In Figure 13, Signup to create Admin account for admin access.



Site Settings

Database:

Aniket

.....

Database Name

Database Host

Website:

Post and Host

x18140904@student.ncirl.ie

x18140904@student.ncirl.ie

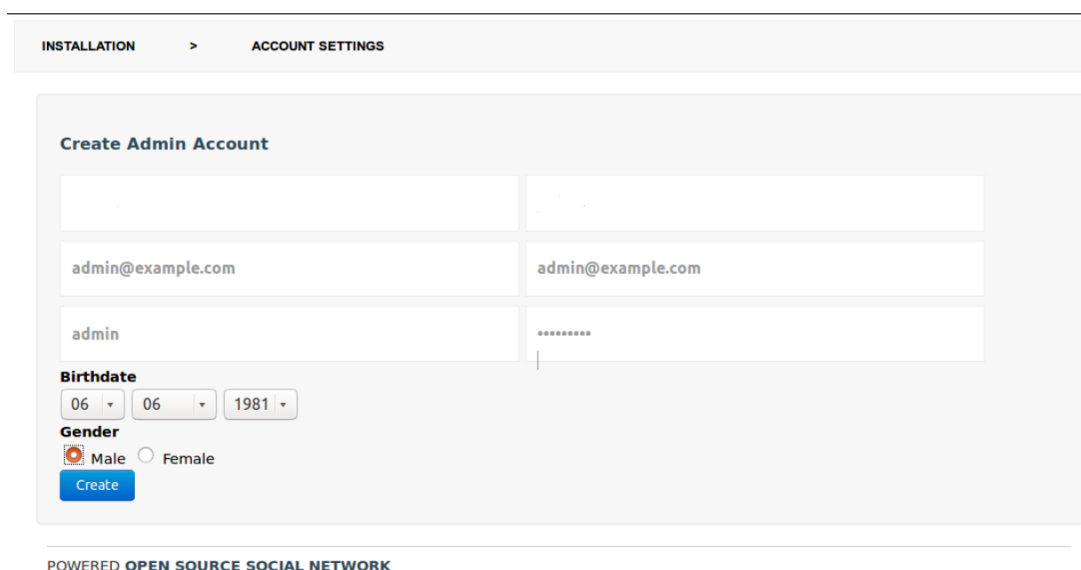
Paths:

Data Directory

C:/xampp/htdocs/ossn_data/

Install

Figure 12: OSSN Setup Page



INSTALLATION > ACCOUNT SETTINGS

Create Admin Account

admin@example.com

admin@example.com

admin

.....

Birthdate

06 06 1981

Gender

Male Female

Create

POWERED OPEN SOURCE SOCIAL NETWORK

Figure 13: Admin Setup Page

5 Using this System

This Section shows the functionality of the system.

1. Open the browser and enter the `http://localhost:80/ossn/Post&Host`
2. Login/Signup page will appear as in figure below:

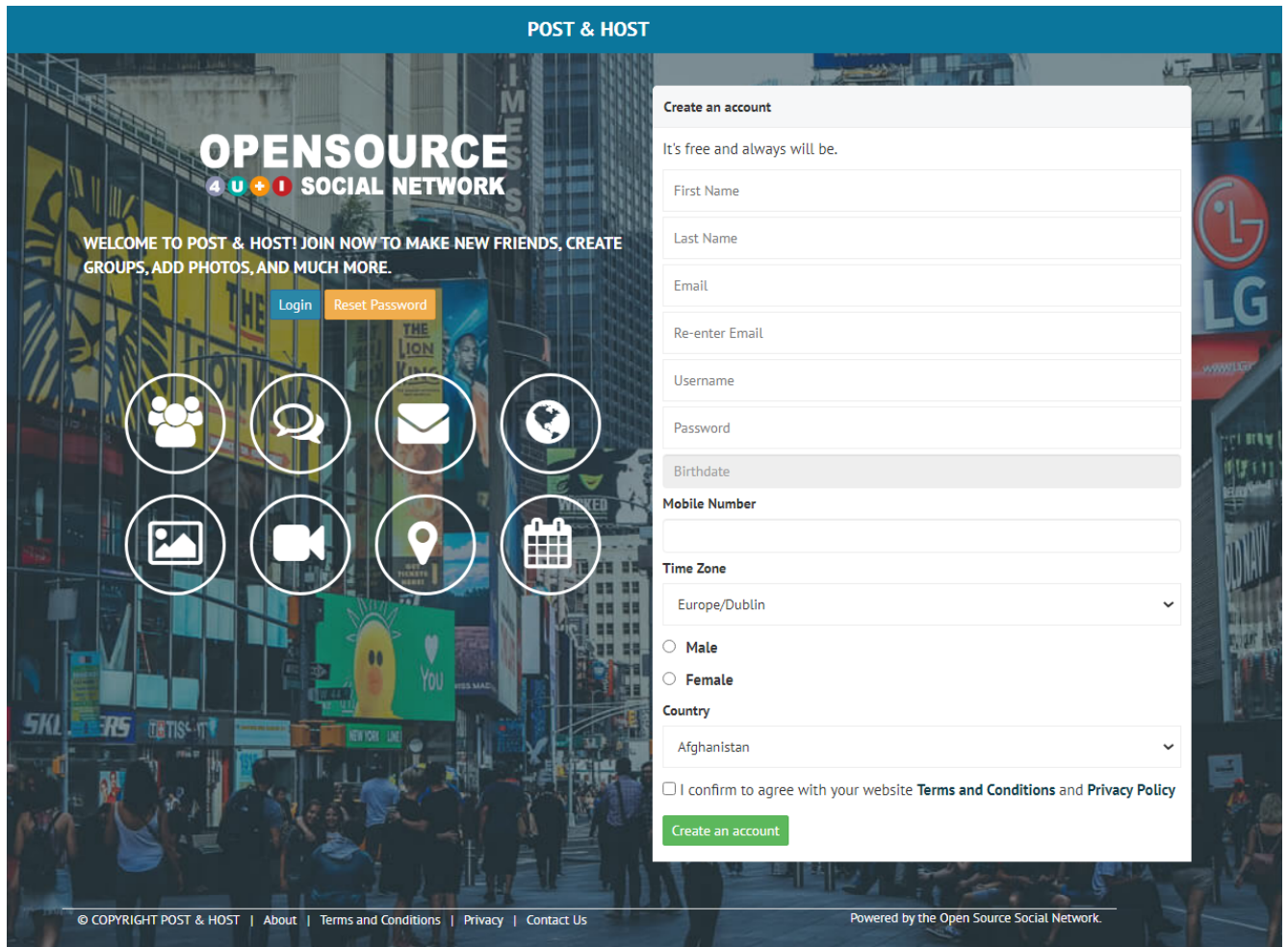


Figure 14: Login/Signup Page

3. The Home page will appear after the Login/Signup as mentioned in figure 15. If User wishes to share system for Volunteer purpose, they need to press on the BOINC logo present on the HOME page and BOINC setup terminal will open. Figure 16 shows the BOINC terminal. To login in BOINC server, use the username and password that is used to access the webpage in figure 15.

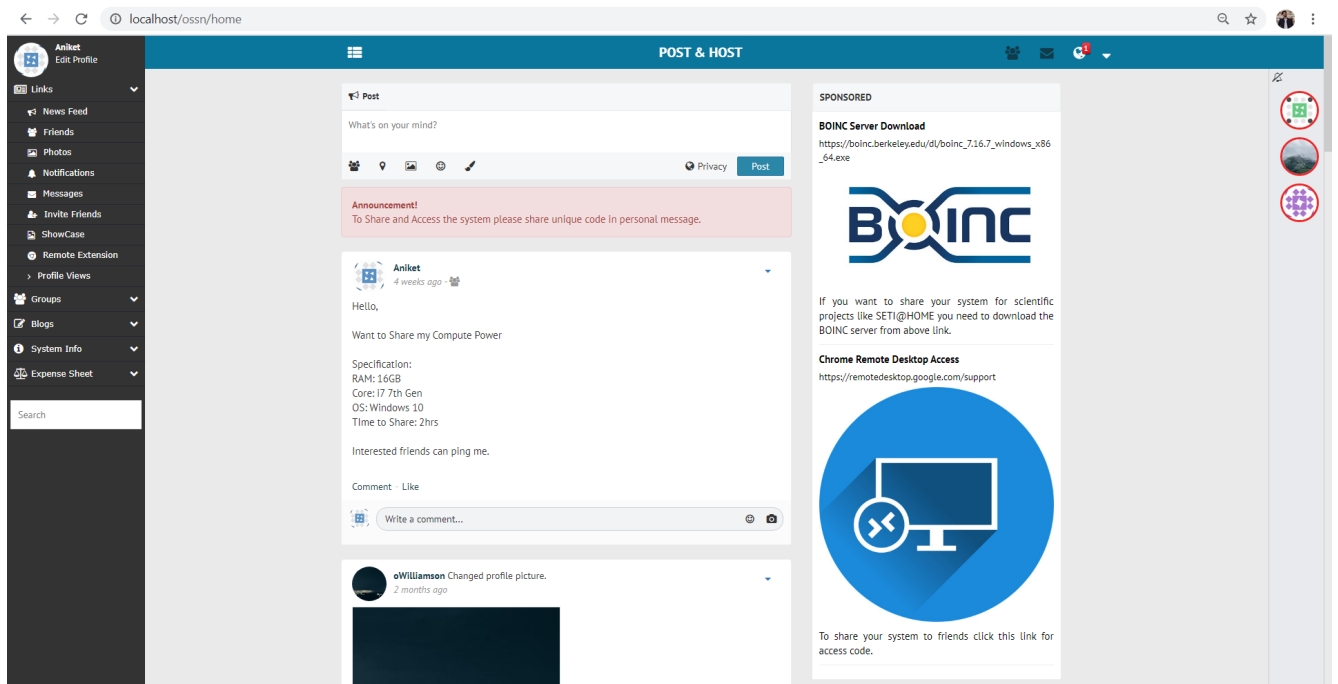


Figure 15: Home Page

4. Figure 16, shows the node manager, where user can create virtual nodes and process and share them to different projects.

Project	Account	Team	Work do...	Avg. wor...	Resource share		Status
nanoHUB_at_home	ANIKET		2	0.20	100	(33.33%)	Commu...
SETI@home	ANIKET		0	0.00	100	(33.33%)	Schedul...
yoyo@home	ANIKET		0	0.00	100	(33.33%)	

Figure 16: BOINC Terminal on Social Platform

5. If user want to share the system to the friend, they first need to create a VM image in VMWare workstation as mention in the figure 17. Later, they need to go to the social website and click the PCoIP button present in the social platform Figure 15(Blue RDP Logo). It will generate a unique code(Figure 18) which will be valid for 5 minutes. That code can be shared via chatbot present in the platform to the another user. The unique code can be used by the receiver in the same PCoIP access code section(figure 19).

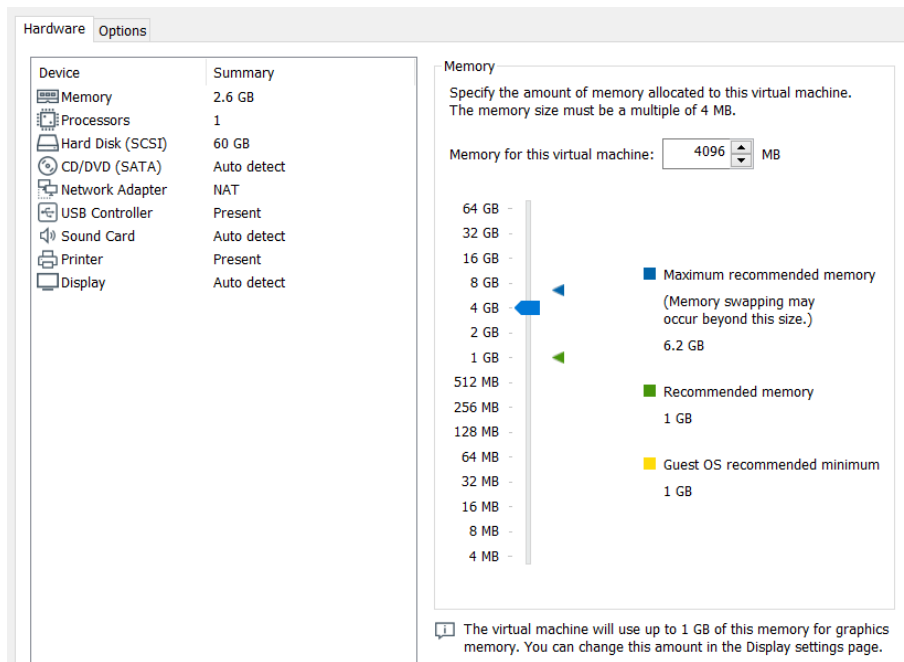


Figure 17: VM Configuration

To let someone else access this computer, generate a one-off access code and share it with them.



Figure 18: Code Generation from Webpage

To connect to and access a remote computer, enter the one-off access code from the user.



Figure 19: Code Insertion to Connect

Note: If the user logout from social platform, then the PCoIP remote session will disconnect automatically.

References

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