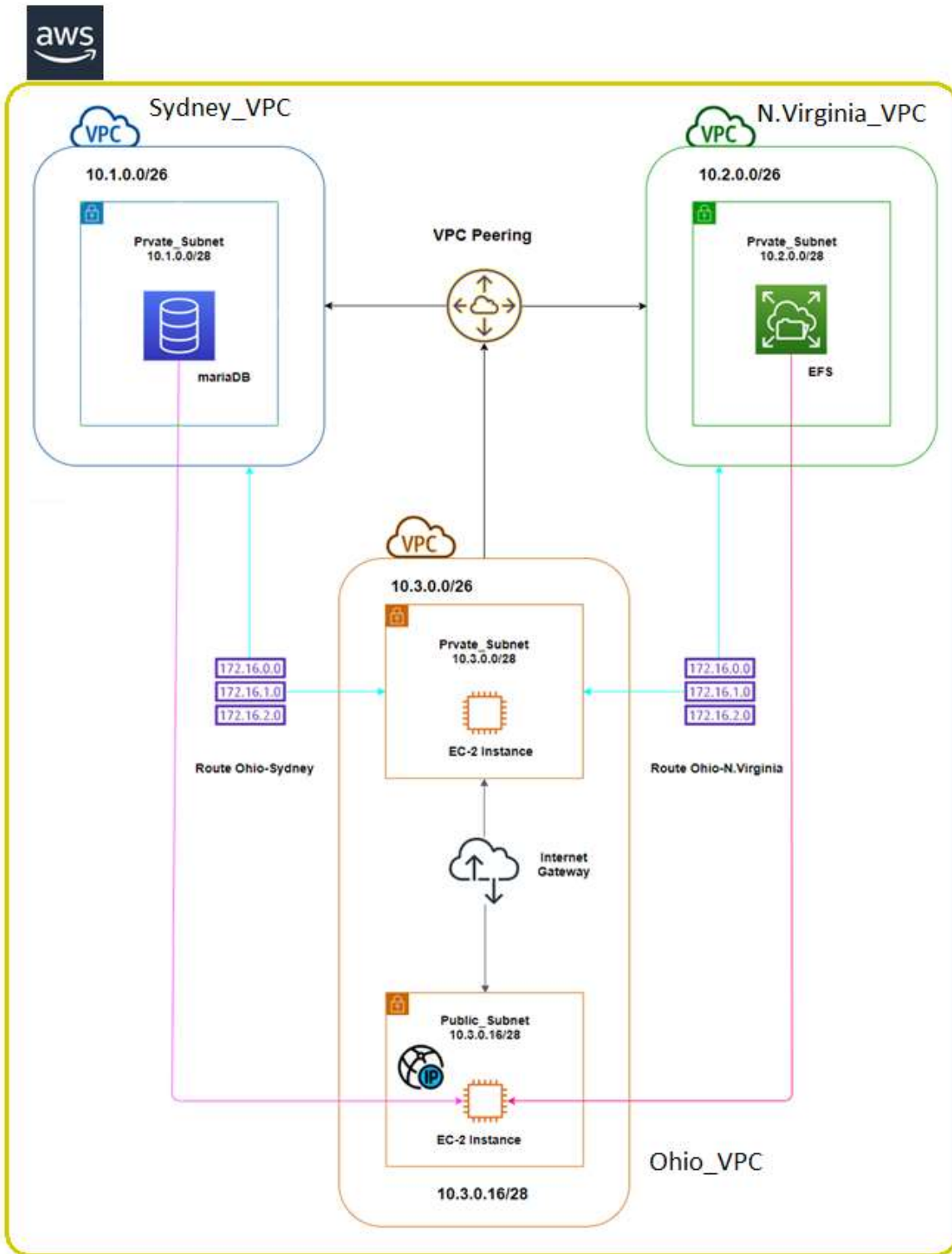


10. DOCEMENTAION INVOLVED IN THIS PROJECT



ARCHITECTURAL DIAGRAM OF THE LAMP SERVER ON AWS CLOUD

1. Login into your AWS Account by filling up your registered email-id and password go to <https://console.aws.amazon.com/console/home>.



Root user sign in ⓘ

Email: gurjeetbhari@gmail.com

Password

[Forgot password?](#)

.....

Sign in

[Sign in to a different account](#)

[Create a new AWS account](#)

2. Now, you're on AWS Console where you can see all the services provided by the AWS.
3. Open three tabs in your browser with different Regions i.e. Ohio, N.Virginia and Sydney.
4. Access the VPC management console <https://console.aws.amazon.com/vpc/>.
5. Create three different VPCs and provide different IP's

- Sydney Region : 10.1.0.0/26
- N.Virginia Region : 10.2.0.0/26
- Ohio Region : 10.3.0.0/26

- **Configuration of Sydney Region.**

1. Open Sydney Region and create a new VPC

[VPCs](#) > Create VPC

Create VPC

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. You must specify an IPv4 address range for Domain Routing (CIDR) block; for example, 10.0.0.0/16. You cannot specify an IPv4 CIDR block larger than /16. You can optionally associate an Amazon

Name tag Sydney_VPC_10.1 ⓘ

IPv4 CIDR block* 10.1.0.0/26 ⓘ

IPv6 CIDR block ☒ No IPv6 CIDR Block ⓘ
☐ Amazon provided IPv6 CIDR block

Tenancy Default ⓘ

* Required

[Cancel](#)

[Create](#)

2. After you created VPC then create subnets in the same region. We need to create three subnets under this VPC.

[Subnets](#) > Create subnet

Create subnet

Specify your subnet's IP address block in CIDR format; for example, 10.0.0.0/24. IPv4 block sizes must be between a /16 netmask and /28 netmask, and can be the same as a /64 CIDR block.

Name tag ⓘ

VPC* ⓘ

VPC CIDRs	CIDR	Status	Status Reason
	10.1.0.0/26	associated	

Availability Zone ⓘ

IPv4 CIDR block* ⓘ


* Required


[Cancel](#) [Create](#)


9. Open <https://aws.amazon.com/rds/> and click on create database. Here I am going to use the MariaDB.


Engine options


Engine type [Info](#)


☐ Amazon Aurora


☐ MySQL


☒ MariaDB


☐ PostgreSQL


☐ Oracle


☐ Microsoft SQL Server


Version [Info](#)

MariaDB 10.2.21 ▼

10. Configure it according to your requirements. Provide a unique name for your database, admin credentials etc. Select the Ohio_VPC that one we recently created.
11. During setting up the database don't forget to add it into the Private Subnet.

- **Configuration of N.Virginia Region**

1. Open N.Virginia Region and create a new VPC

VPCs > Create VPC

Create VPC

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. You must specify an IPv4 address range for your VPC. You cannot specify an IPv4 CIDR block larger than /16. You can optionally associate an Amazon-provided IPv6 CIDR block with the VPC to support a dual-stack architecture.

Name tag: ⓘ

IPv4 CIDR block*: ⓘ

IPv6 CIDR block: ☒ No IPv6 CIDR Block ⓘ
☐ Amazon provided IPv6 CIDR block

Tenancy: ⓘ

* Required

Cancel Create

2. Now, create the subnets in this VPC as well so that we can add our EFS Volume to it.

Subnets > Create subnet

Create subnet

Specify your subnet's IP address block in CIDR format; for example, 10.0.0.0/24. IPv4 block sizes must be between a /16 netmask and /28 netmask, and can be the same size as your VPC's IPv4 CIDR block.

Name tag: ⓘ

VPC*: ⓘ

VPC CIDRs	CIDR	Status	Status Reason
	10.2.0.0/26	associated	


Availability Zone: ⓘ

IPv4 CIDR block*: ⓘ

* Required

Cancel Create

3. Create new EFS after accessing the <https://aws.amazon.com/efs/>



Amazon Elastic File System (EFS)

Scalable, elastic, fully managed cloud-native NFS file system for \$0.08/GB*. [Learn more](#) ↗

* pricing in US East (N. Virginia) region, assumes 80% of your storage in EFS IA

[Create file system](#)

[Getting started guide](#)

- **Configuration of Ohio Region**

The Ohio Region contain the backbone of the whole project, we need to configure it very carefully so that our project can run without an error. Here we are going to use the following

- VPC Peering
- Network Address Translation
- Internet Gateway
- EC-2 Instance
- Route to all other VPCs
- And a Public IP.

1. Open <https://console.aws.amazon.com/vpc/> and create a VPC in Ohio Region.

VPCs > Create VPC

Create VPC

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. You must specify an IPv4 address range for you Domain Routing (CIDR) block; for example, 10.0.0.0/16. You cannot specify an IPv4 CIDR block larger than /16. You can optionally associate an Amazon-p

Name tag ⓘ

IPv4 CIDR block* ⓘ

IPv6 CIDR block ☒ No IPv6 CIDR Block ⓘ
☐ Amazon provided IPv6 CIDR block

Tenancy ⓘ

* Required

Cancel

Create

2. Create Two Subnet groups into Ohio VPC, Public and Private.

- **Public Subnet**

Subnets > Create subnet

Create subnet

Specify your subnet's IP address block in CIDR format; for example, 10.0.0.0/24. IPv4 block sizes must be between a /16 netmask and /28 netmask, and can be the same size as you be a /64 CIDR block.

Name tag ⓘ

VPC* ⓘ

VPC CIDRs	CIDR	Status	Status Reason
	10.3.0.0/26	associated	

Availability Zone ⓘ

IPv4 CIDR block* ⓘ

* Required

Cancel

Create

- **Private Subnet**

[Subnets](#) > Create subnet

Create subnet

Specify your subnet's IP address block in CIDR format; for example, 10.0.0.0/24. IPv4 block sizes must be between a /16 netmask and /28 netmask, and can be the same size as a /64 CIDR block.

Name tag ⓘ

VPC* ⓘ

VPC CIDRs	CIDR	Status	Status Reason
	10.3.0.0/26	associated	

Availability Zone ⓘ

IPv4 CIDR block* ⓘ

* Required

[Cancel](#) [Create](#)

The benefit of using Public and Private Subnets is that we can connect all the private subnets of different regions and in public we can just launch an EC-2 instance configured.

3. Now we're going to create the Peering Connection Ohio VPC and we'll add Sydney_VPC And N.Virginia VPC into peering list

- **Peering from Ohio to Sydney**

[Peering Connections](#) > Create Peering Connection

Create Peering Connection

✓ Success

A VPC peering connection (pcx-070b386a2cb17dbc0) has been requested.
Remember to change your region to **ap-southeast-2** to accept the peering connection.

Requester VPC owner	751385203281 (This account)	Accepter VPC owner	751385203281 (This account)
Requester VPC ID	vpc-001a2b445c9bf18f2	Accepter VPC ID	vpc-0af05ba8ad8b6b278
Requester VPC Region	us-east-2	Accepter VPC Region	ap-southeast-2
Requester VPC CIDRs	10.3.0.0/26	Accepter VPC CIDRs	-

[OK](#)

- **Accept the Peering Request at Sydney_VPC**

Accept VPC Peering Connection Request

Are you sure you want to accept this VPC peering connection request (pcx-070b386a2cb17dbc0)?

Requester Account ID	751385203281 (This account)	Accepter Account ID	751385203281 (This account)
Requester VPC ID	vpc-001a2b445c9bf18f2	Accepter VPC ID	vpc-0af05ba8ad8b6b278
Requester VPC Region	us-east-2	Accepter VPC Region	ap-southeast-2
Requester VPC CIDR	10.3.0.0/26	Accepter VPC CIDR	-

[Cancel](#) [Yes, Accept](#)

- Configure the Routing Table on Ohio_VPC. Add Sydney_VPC IP address and select the corresponding target.

[Route Tables](#) > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.3.0.0/26	local	active	No
10.1.0.0/24	lgw-090430c3f664fd0e6		No

[Add route](#)

* Required

[Cancel](#) [Save routes](#)

- **Peering from Ohio to N.Virginia**

[Peering Connections](#) > Create Peering Connection

Create Peering Connection

Success
 A VPC peering connection (pcx-0a852a83e326580ba) has been requested.
 Remember to change your region to **us-east-1** to accept the peering connection.

Requester VPC owner	751385203281 (This account)	Accepter VPC owner	751385203281 (This account)
Requester VPC ID	vpc-001a2b445c9bf18f2	Accepter VPC ID	vpc-01d9fa8b43aff9f25
Requester VPC Region	us-east-2	Accepter VPC Region	us-east-1
Requester VPC CIDRs	10.3.0.0/26	Accepter VPC CIDRs	-

[OK](#)

- **Accept the Peering request at N.Virginia_VPC**

Accept VPC Peering Connection Request
✕

Are you sure you want to accept this VPC peering connection request (pcx-0a852a83e326580ba)?

Requester Account ID	751385203281 (This account)	Accepter Account ID	751385203281 (This account)
Requester VPC ID	vpc-001a2b445c9bf18f2	Accepter VPC ID	vpc-01d9fa8b43aff9f25
Requester VPC Region	us-east-2	Accepter VPC Region	us-east-1
Requester VPC CIDR	10.3.0.0/26	Accepter VPC CIDR	-

[Cancel](#) [Yes, Accept](#)

Now, as we Successfully created peering between Ohio_VPC to N.Virginia_VPC, both are connected to each other. The last thing to do is to provide the route between these two VPCs. Go to

VPC>RT>Create Route>and insert all the details like IP Addresses and Target point.

- Configure the Routing Table between both of the VPCs

Route Tables > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.3.0.0/26	local	active	No
10.2.0.0/24	lgw-090430c3f564f90e6		No

Add route

* Required

Cancel Save routes

Now all the peering is done among all the VPCs, its time to create NAT and Provide a Public IP to our Public_Subnet. Select the Internet Gateway on the RoutingTable afterwards if you don't have any public IP then u can assign an IP at the same time while configuring the internet gateway.

Route Tables > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.3.0.0/26	local	active	No
0.0.0.0/0			No

Add route

* Required

Cancel Save routes

Egress Only Internet Gateway

Instance

Internet Gateway

NAT Gateway

Network Interface

Peering Connection

Transit Gateway

Virtual Private Gateway

- Goto <https://aws.amazon.com/ec2/> and select Launch Instance.
- Select AMI of any type, here I a selecting Amazon Linux 2. You can select Ubuntu, CentOS, Windows Server machine etc.
- Select the Ohio_VPC and the Public Subnet then launch the EC-2 instance.
- After Successfully launching of EC-2 then copy the command to launch it and paste on your linux terminal

The command given in the example field you need to use that to get the access to your EC-2.

Connect To Your Instance

I would like to connect with

☒ A standalone SSH client ⓘ

☐ EC2 Instance Connect (browser-based SSH connection) ⓘ

☐ A Java SSH Client directly from my browser (Java required) ⓘ

To access your instance:

1. Open an SSH client. (find out how to [connect using PuTTY](#))

2. Locate your private key file (key.pem). The wizard automatically detects the key you used to launch the instance.

3. Your key must not be publicly viewable for SSH to work. Use this command if needed:

```
chmod 400 key.pem
```

4. Connect to your instance using its Public DNS:

```
ec2-52-14-59-36.us-east-2.compute.amazonaws.com
```

Example:

```
ssh -i "key.pem" ec2-user@ec2-52-14-59-36.us-east-2.compute.amazonaws.com
```

Please note that in most cases the username above will be correct, however please ensure that you read your AMI usage instructions to ensure that the AMI owner has not changed the default AMI username.

If you need any assistance connecting to your instance, please see our [connection documentation](#).

Close

- Connect to your EC-2 using SSH. And the user-interface in the terminal would look like:

```
[root@DESKTOP-E41EQI1 Downloads]# ssh -i "new.pem" ec2-user@ec2-18-218-5-31.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-18-218-5-31.us-east-2.compute.amazonaws.com (18.218.5.31)' can't be established.
ECDSA key fingerprint is SHA256:+aV6/y0tKdRUc5990Ggt1AW6dsKGZDVMf3cDs3azXBU.
ECDSA key fingerprint is MD5:1a:a5:89:19:e1:fb:ea:0e:1c:5f:6a:7e:96:95:71:b4.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added 'ec2-18-218-5-31.us-east-2.compute.amazonaws.com,18.218.5.31' (ECDSA) to the list of known hosts.

  _ | _ | _ )
 _ | ( _ /   Amazon Linux 2 AMI
 _ |\_|_|_|

https://aws.amazon.com/amazon-linux-2/
16 package(s) needed for security, out of 27 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-10-3-0-4 ~]$ clear

[ec2-user@ip-10-3-0-4 ~]$
[ec2-user@ip-10-3-0-4 ~]$
[ec2-user@ip-10-3-0-4 ~]$
```

4. Now the main part of setting up a LAMP server starts from here, mount to EFS volume on your EC-2 instance, and follow the procedure as given below:

```
[ec2-user@ip-10.3.0.4~]# sudo yum install httpd php php-mysql php-fpm php-cli php-xml  
php-common php-gd php-imap php-mbstring wget -y
```

Download osticket ticket

```
[ec2-user@ip-10.3.0.4 /efs~]# wget https://github.com/osTicket/osTicket-1.8/releases/download/v1.9.9/osTicket-v1.9.9-1-gbe2f138.zip  
[ec2-user@ip-10.3.0.4 /efs ~]# ls  
anaconda-ks.cfg  osTicket-v1.9.9-1-gbe2f138.zip
```

An upload directory gets created after unzipping osTicket zip file

```
[ec2-user@ip-10.3.0.4 /efs~]# ls  
anaconda-ks.cfg  upload  osTicket-v1.9.9-1-gbe2f138.zip
```

Apache Server Setup:

Copy all data from upload directory to osticket directory in default document root

```
[ec2-user@ip-10.3.0.4 /efs~]# sudo cp -rv upload/* /var/www/html/osticket/
```

Change ownership of Sub Files and Directory's to apache

```
[ec2-user@ip-10.3.0.4 /efs ~]# sudo chown -R apache /var/www/html/osticket/
```

Create ost-config.php which is a copy of ost-sampleconfig.php file in the same directory i.e. /var/www/html/osticket/include

```
[ec2-user@ip-10.3.0.4 /efs~]# sudo cp -rv /var/www/html/osticket/include/ost-sampleconfig.php  
/var/www/html/osticket/include/ost-config.php
```

Give full permission to file ost-config.php

```
[ec2-user@ip-10.3.0.4 /efs~]# sudo chmod -R 666 /var/www/html/osticket/include/ost-config.php
```

Add following lines in httpd.conf file to host www.osticket.local site

```
[ec2-user@ip-10.3.0.4 /efs~]# sudo vim /etc/httpd/conf/httpd.conf  
<VirtualHost *:80>  
ServerName www.osticket.local  
DocumentRoot /efs  
</VirtualHost>  
[ec2-user@ip-10.3.0.4 /efs~]# sudo setenforce 0
```

Put following entry for www.osticket.local in /etc/hosts

```
[ec2-user@ip-10.3.0.4 /efs~]# sudo cat /etc/hosts  
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4  
18.218.5.31  www.osticket.local
```

5. Go to Web-browser and access the osTicket homepage by using your EC-2 public IP. Then a webpage would open look like below enter the details regarding to your account,
6. Add the RDS database that we created in Sydney_VPC, use the public dns name of the database. Then press continue.

Your primary administrator account - you can add more users later.

First Name:
Gurjeet

Last Name:
Singh

Email Address:
gurjeet@mylocal.com

Username:
guri

Password:

Retype Password:

Database Settings

Database connection information

MySQL Table Prefix:
sydney-db1


MySQL Hostname:
localhost

MySQL Database:
sydney-db1.cqimj6qyflns.ap-southeast-2.rds.amazonaws.c

MySQL Username:
admin

MySQL Password:

7. When the database is connected with the osTicket then you'll see a Congratulations page.



Installing osTicket v1.9.9-1-gbe2f138
Installation Guide — Get Professional Help — Contact Us

Congratulations!

Your osTicket installation has been completed successfully. Your next step is to fully configure your new support ticket system for use, but before you get to it please take a minute to cleanup.

Config file permission:

Change permission of ost-config.php to remove write access as shown below.

- CLI:**
`chmod 0644 include/ost-config.php`
- Windows PowerShell:**
`icacls include/ost-config.php /reset`
- FTP:**
Using WS_FTP this would be right hand clicking on the file, selecting chmod, and then remove write access
- Cpanel:**
Click on the file, select change permission, and then remove write access.

Below, you'll find some useful links regarding your installation.

Your osTicket URL:
<http://www.osticket.local/>

osTicket Forums:
<http://osticket.com/forum/>

PS: Don't just make customers happy, make happy customers!

Your Staff Control Panel:
<http://www.osticket.local/scp>

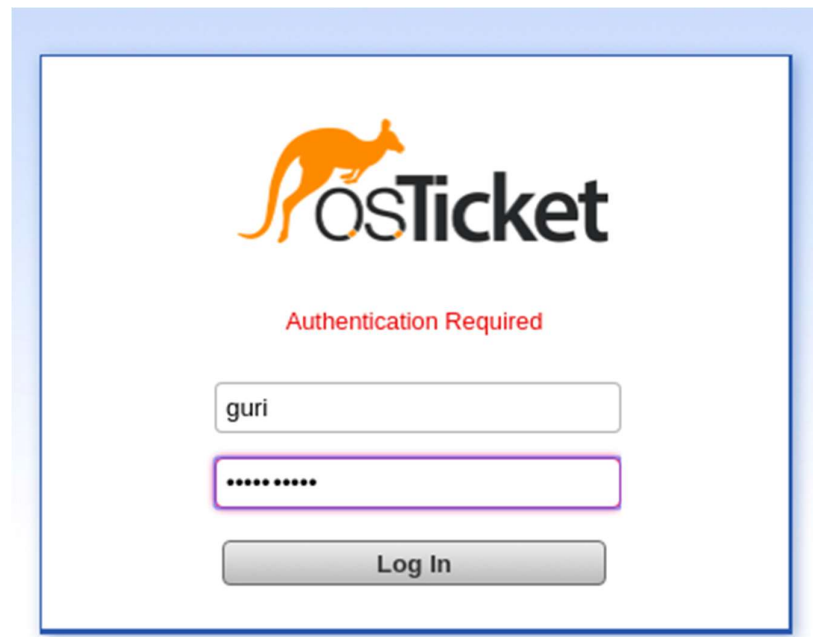
osTicket Community Wiki:
<http://osticket.com/wiki/>

What's Next?

Post-Install Setup: You can now log in to [Admin Panel](#) with the username and password you created during the install process. After a successful log in, you can proceed with post-install setup. For complete and upto date guide see [osTicket wiki](#)

Commercial Support Available: Don't let technical problems impact your osTicket implementation. Get guidance and hands-on expertise to address unique challenges and make sure your osTicket runs smoothly, efficiently, and securely. [Learn More!](#)

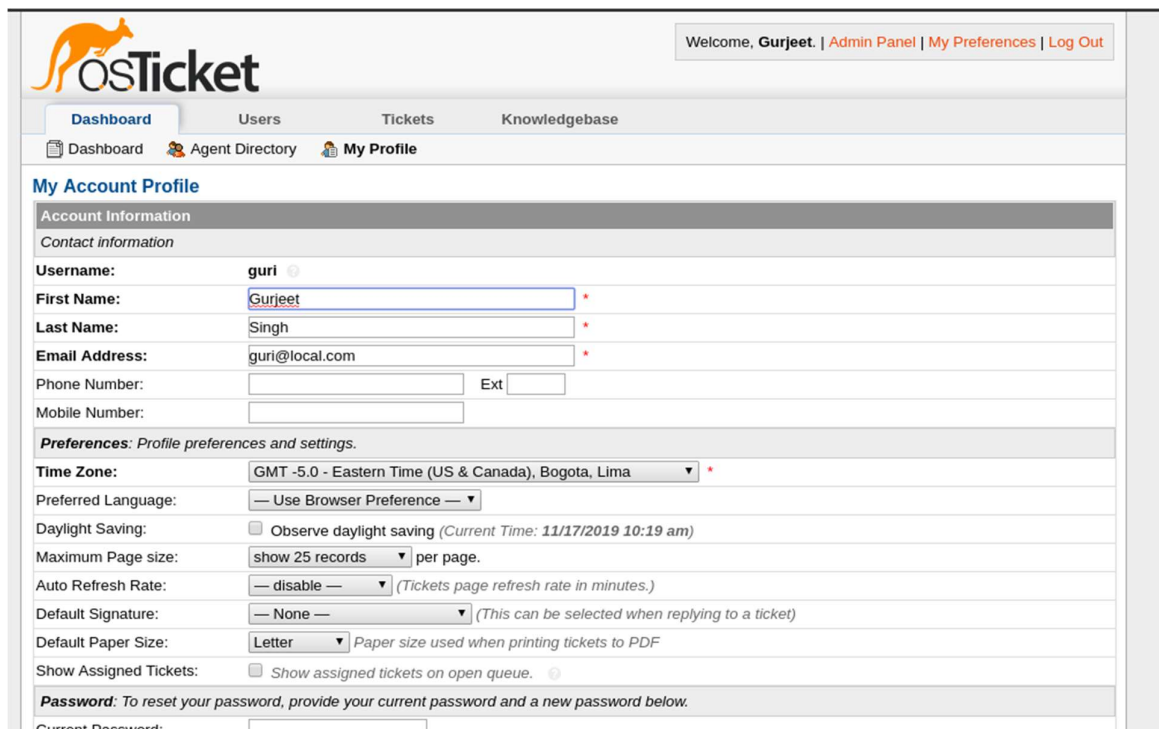
8. Goto <https://www.18.218.5.31/scp> and login with your administrative credentials.



The image shows the OSTicket login interface. At the top is the OSTicket logo, which consists of an orange kangaroo silhouette and the text "OSTicket". Below the logo, the text "Authentication Required" is displayed in red. There are two input fields: the first contains the username "guri", and the second contains masked characters "*****". Below these fields is a grey "Log In" button.

Copyright © [osTicket.com](https://www.18.218.5.31/scp)

9. When you logged in successfully then you will see a different page where you can manage all the details regarding your staff and can generate tickets/tokens for customer and also could be able to add the agents that are working for your firm.



The image shows the OSTicket Admin Dashboard. At the top left is the OSTicket logo. At the top right, a welcome message says "Welcome, Gurjeet." followed by links for "Admin Panel", "My Preferences", and "Log Out". Below this is a navigation bar with tabs for "Dashboard", "Users", "Tickets", and "Knowledgebase". Under the "Dashboard" tab, there are links for "Dashboard", "Agent Directory", and "My Profile". The "My Account Profile" section is active, showing account information and preferences. The account information includes fields for Username (guri), First Name (Gurjeet), Last Name (Singh), Email Address (guri@local.com), Phone Number, and Mobile Number. The preferences section includes fields for Time Zone (GMT -5.0 - Eastern Time (US & Canada), Bogota, Lima), Preferred Language (Use Browser Preference), Daylight Saving (Observe daylight saving), Maximum Page size (show 25 records per page), Auto Refresh Rate (disable), Default Signature (None), Default Paper Size (Letter), and Show Assigned Tickets (Show assigned tickets on open queue). At the bottom, there is a section for Password reset, with a note: "Password: To reset your password, provide your current password and a new password below." and a field for Current Password.

10. REFERENCES

Websites:

1. **AWS Official Documentaion** <https://docs.aws.amazon.com/>
2. **osTicket** <https://osticket.com/>
3. **mariaDB** <https://mariadb.com/kb/en/library/documentation/>
4. **CentOS7** <https://www.centos.org/>

Books:

1. **Amazon Web Services in Action** by Andrea Wittig and Michael Wittig
2. **AWS Solution Architecture** John Stamper, Sean Senior, Kevin E. Kelly and others.