

Project - 1: Deploying a Multi-Tier Website Using AWS EC2

The screenshot shows the AWS VPC console. The left sidebar contains navigation links for VPC dashboard, EC2 Global View, and various VPC resources. The main content area displays 'Your VPCs (1/1)' with a search bar and a filter for 'Name: Project-VPC'. A table lists the VPCs, showing 'Project-VPC' with ID 'vpc-0ebf7c97ea13d3bf5' in an 'Available' state. Below the table, the 'Details' tab for 'vpc-0ebf7c97ea13d3bf5 / Project-VPC' is selected, showing a grid of configuration details.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR
Project-VPC	vpc-0ebf7c97ea13d3bf5	Available	10.0.0.0/16	-

Details			
VPC ID	State	DNS hostnames	DNS resolution
vpc-0ebf7c97ea13d3bf5	Available	Disabled	Enabled
Tenancy	DHCP option set	Main route table	Main network ACL
Default	dopt-0bcd45852a53c2a7a	-	-
Default VPC	IPv4 CIDR	IPv6 pool	IPv6 CIDR (Network border group)
No	10.0.0.0/16	-	-

The screenshot shows the AWS EC2 console. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, and various EC2 resources. The main content area displays 'Instances (1/1)' with a search bar and a filter for 'Instance state = running'. A table lists the instances, showing 'EC2-Project' with ID 'i-0b939324d1a80392e' in a 'Running' state. Below the table, the 'Details' tab for 'Instance: i-0b939324d1a80392e (EC2-Project)' is selected, showing a grid of configuration details.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
EC2-Project	i-0b939324d1a80392e	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e

Instance summary		
Instance ID	Public IPv4 address	Private IPv4 addresses
i-0b939324d1a80392e (EC2-Project)	100.26.20.83 open address	10.0.1.243
IPv6 address	Instance state	Public IPv4 DNS
-	Running	-
Hostname type	Private IP DNS name (IPv4 only)	
IP name: ip-10-0-1-243.ec2.internal	ip-10-0-1-243.ec2.internal	

```

ubuntu@ip-10-0-1-243: ~
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.1-4build1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.


No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-10-0-1-243:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2023-08-01 11:32:34 UTC; 22s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 2350 (apache2)
    Tasks: 55 (limit: 1141)
   Memory: 4.9M
      CPU: 30ms
   CGroup: /system.slice/apache2.service
           └─2350 /usr/sbin/apache2 -k start
           └─2352 /usr/sbin/apache2 -k start
           └─2353 /usr/sbin/apache2 -k start

```



Ubuntu

Apache2 Default Page

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

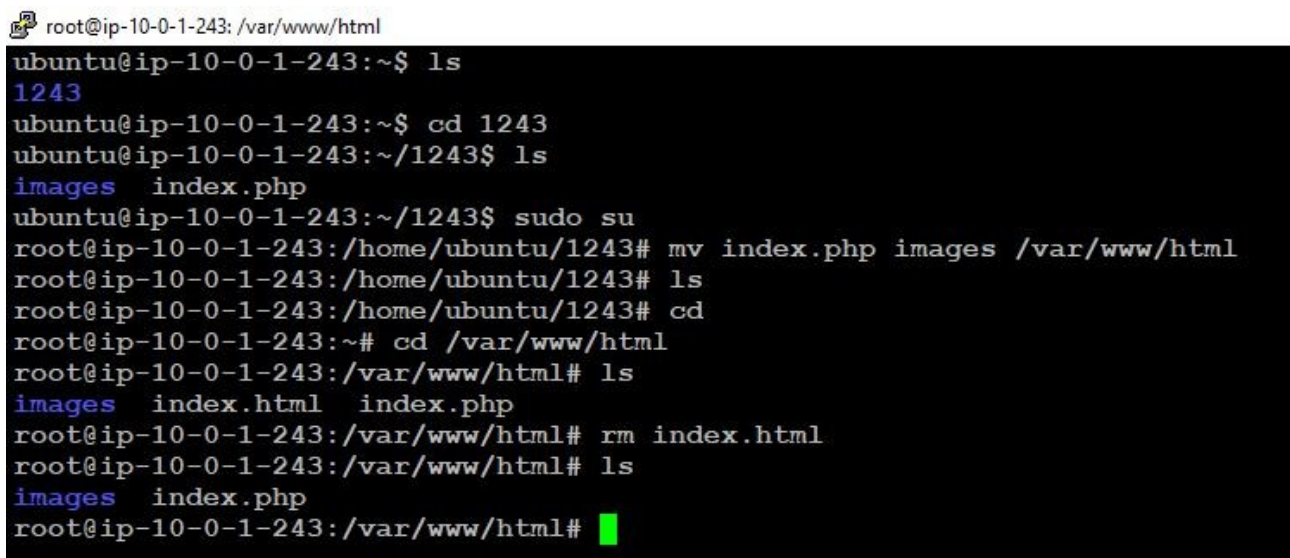
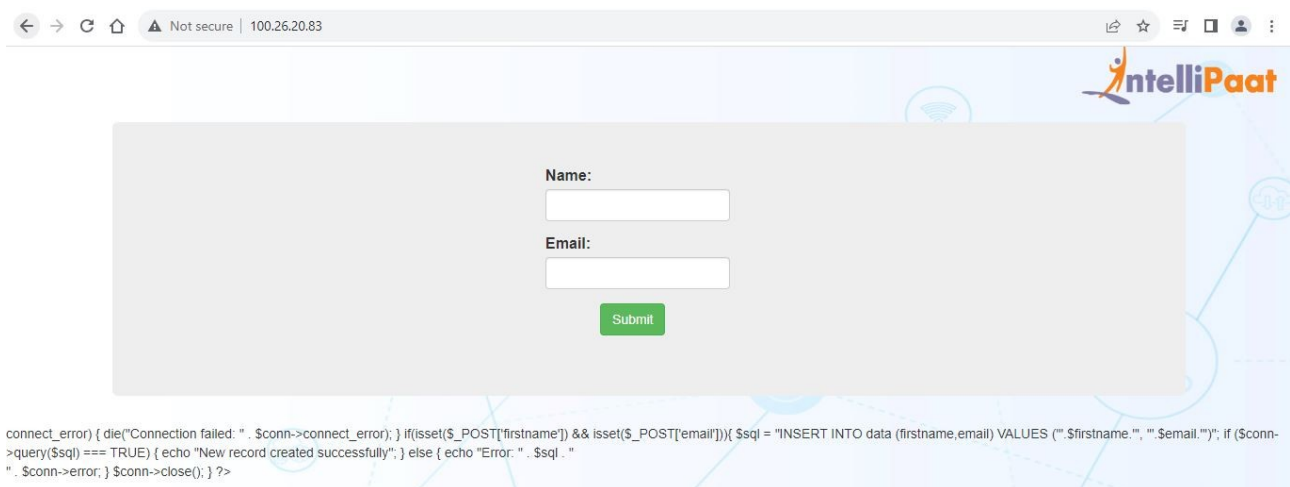
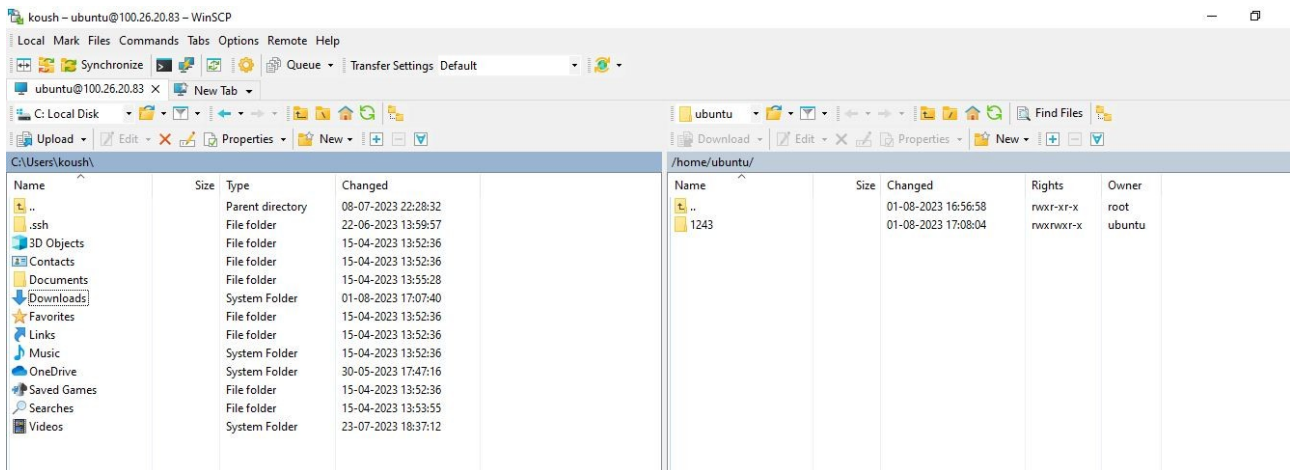
Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in `/usr/share/doc/apache2/README.Debian.gz`**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```

/etc/apache2/
|-- apache2.conf
|   `-- ports.conf
|-- mods-enabled
|   |-- *.Load
|   `-- *.conf
|-- conf-enabled

```



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RDS > Databases

Consider creating a Blue/Green Deployment to minimize downtime during upgrades
 You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (1) ☒ Group resources

DB identifier ▲	Status ▼	Role ▼	Engine ▼	Region & AZ ▼	Size ▼	Actions ▼	CPU ▼	Current activity ▼	Maintenance ▼
database-1	Available	Instance	MySQL Community	us-east-1e	db.t2.micro	-	-		none

```
ubuntu@ip-10-0-1-243: ~$ sudo add-apt-repository -y ppa:ondrej/php
PPA publishes dbgsym, you may need to include 'main/debug' component
Repository: 'deb https://ppa.launchpadcontent.net/ondrej/php/ubuntu/ jammy main'
Description:
Co-installable PHP versions: PHP 5.6, PHP 7.x, PHP 8.x and most requested extensions are included. Only Supported Versions of PHP (http://php.net/supported-versions.php) for Supported Ubuntu Releases (https://wiki.ubuntu.com/Releases) are provided. Don't ask for end-of-life PHP versions or Ubuntu release, they won't be provided.

Debian oldstable and stable packages are provided as well: https://deb.sury.org/#debian-dpa

You can get more information about the packages at https://deb.sury.org

IMPORTANT: The <foo>-backports is now required on older Ubuntu releases.

BUGS&FEATURES: This PPA now has a issue tracker:
https://deb.sury.org/#bug-reporting

CAVEATS:
1. If you are using php-gearman, you need to add ppa:ondrej/pkg-gearman
2. If you are using apache2, you are advised to add ppa:ondrej/apache2
3. If you are using nginx, you are advised to add ppa:ondrej/nginx-mainline
   or ppa:ondrej/nginx

PLEASE READ: If you like my work and want to give me a little motivation, please consider donating regularly: https://donate.sury.org/

WARNING: add-apt-repository is broken with non-UTF-8 locales, see
https://github.com/oerdnj/deb.sury.org/issues/56 for workaround:

# LC_ALL=C.UTF-8 add-apt-repository ppa:ondrej/php
More info: https://launchpad.net/~ondrej/+archive/ubuntu/php
Adding repository.
Adding deb entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/ondrej-ubuntu-php-jammy.list
Adding key to /etc/apt/trusted.gpg.d/ondrej-ubuntu-php.gpg with fingerprint 14AA40EC0831756756D7F66C4F4EA0AAE5267A6C
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [108 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy InRelease [23.9 kB]
```



```

ubuntu@ip-10-0-1-243: ~
Reading package lists... Done
ubuntu@ip-10-0-1-243:~$ sudo apt install php5.6 mysql-client php5.6-mysqli
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'php5.6-mysqli' instead of 'php5.6-mysqli'
The following additional packages will be installed:
  libapache2-mod-php5.6 mysql-client-8.0 mysql-client-core-8.0 mysql-common php-common php5.6-cli php5.6-common php5.6-json
  php5.6-opcache php5.6-readline
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php5.6 mysql-client mysql-client-core-8.0 mysql-client-core-8.0 mysql-common php-common php5.6 php5.6-cli php5.6-common
  php5.6-json php5.6-mysql php5.6-opcache php5.6-readline
0 upgraded, 13 newly installed, 0 to remove and 97 not upgraded.
Need to get 6930 kB of archives.
After this operation, 76.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-core-8.0 amd64 8.0.33-0ubuntu0.22.04.4 [280
2 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 mysql-common all 5.8+1.0.8 [7212 B]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 amd64 8.0.33-0ubuntu0.22.04.4 [22.7 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client all 8.0.33-0ubuntu0.22.04.4 [9348 B]
Get:5 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php-common all 2:93+ubuntu22.04.1+deb.sury.org+2 [16.6 kB]
Get:6 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-common amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1
767 kB]
Get:7 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-json amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1 [18
.8 kB]
Get:8 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-opcache amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1
[67.7 kB]
Get:9 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-readline amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1
[14.0 kB]
Get:10 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-cli amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1 [14
18 kB]
Get:11 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 libapache2-mod-php5.6 amd64 5.6.40-66+ubuntu22.04.1+deb.sur
y.org+1 [1360 kB]
Get:12 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6 all 5.6.40-66+ubuntu22.04.1+deb.sury.org+1 [268 kB]
Get:13 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy/main amd64 php5.6-mysql amd64 5.6.40-66+ubuntu22.04.1+deb.sury.org+1
158 kB]

```

```

root@ip-10-0-1-243: ~
root@ip-10-0-1-243:~# mysql -h database-1.cwiehgkezaie.us-east-1.rds.amazonaws.com -u intel -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 20
Server version: 8.0.33 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| intel |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

mysql> use intel;
Database changed
mysql> show tables;
Empty set (0.00 sec)


mysql> create table data(firstname varchar(20),email varchar(20));
Query OK, 0 rows affected (0.02 sec)

mysql> show tables;
+-----+
| Tables_in_intel |
+-----+
| data |
+-----+

```

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Name:

Email:

New record created successfully

```
mysql> select * from data;
Empty set (0.00 sec)

mysql> select * from data;
+-----+-----+
| firstname | email |
+-----+-----+
| Koushik   | koushik123@gmail.com |
| ram       | ram123@gmail.com     |
+-----+-----+
2 rows in set (0.00 sec)

mysql> █
```

root@ip-10-0-1-243: ~

```
mysql> show databses;  
ERROR 1064 (42000): You have an error in your SQL syntax; check the m  
syntax to use near 'databses' at line 1
```

```
mysql> show databases;  
+-----+  
| Database                |  
+-----+  
| information_schema      |  
| intel                   |  
| mysql                   |  
| performance_schema     |  
| sys                     |  
+-----+  
5 rows in set (0.00 sec)
```

```
mysql> use intel;  
Reading table information for completion of table and column names  
You can turn off this feature to get a quicker startup with -A
```

```
Database changed  
mysql> show tables;  
+-----+  
| Tables_in_intel         |  
+-----+  
| data                    |  
+-----+  
1 row in set (0.00 sec)
```

```
mysql> select * from data;  
+-----+-----+  
| firstname | email                               |  
+-----+-----+  
| Koushik   | koushik123@gmail.com              |  
| ram       | ram123@gmail.com                  |  
| ashok     | ashok32@gmail.com                 |  
+-----+-----+  
3 rows in set (0.00 sec)
```

```
mysql> █
```

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Services

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Owned by me

Find AMI by attribute or tag

1

Name	AMI ID	AMI name	Source	Owner
	ami-043198237945cd99f	AMI-Project	538868351340/AMI-Project	538868351340

AMI ID: ami-043198237945cd99f

DetailsPermissionsStorageTags

AMI ID	ami-043198237945cd99f	Image type	machine	Platform details	Linux/UNIX	Root device type	EBS
AMI name	AMI-Project	Owner account ID	538868351340	Architecture	x86_64	Usage operation	RunInstances
Root device name	/dev/sda1	Status	Pending	Source	538868351340/AMI-Project	Virtualization type	hvm

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EC2 > Launch templates

Launch templates (1/1) Info

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Create launch template

Filter by tags or properties or search by keyword

1

Launch template ID	Launch template name	Default version	La
lt-0a832beaf4dc0a6ae	LT-Project	1	1

LT-Project (lt-0a832beaf4dc0a6ae)

Instance detailsStorageResource tagsNetwork interfacesAdvanced details

AMI ID	ami-043198237945cd99f	Instance type	t2.micro	Availability Zone	-	Key pair name	Project_KP
Security groups	-	Security group IDs	sg-0f8d060be99f0c891				

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EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Launch configurations

Launch templates

Actions

Create Auto Scaling group

Search your Auto Scaling groups

1

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max
ASG-Project	LT-Project Version Default	2	-	2	2	4

Auto Scaling group: ASG-Project

Group details

Edit

Auto Scaling group name	ASG-Project	Desired capacity	2	Status	-	Amazon Resource Name (ARN)	arn:aws:autoscaling:us-east-1:538868351340:autoScalingGroup:16763091-8f8e-4810-94bd-87f6803e454b:autoScalingGroupName/ASG-Project
Date created	Tue Aug 01 2023 18:15:50 GMT+0530 (India Standard Time)	Minimum capacity	2				
		Maximum capacity					

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Instances (1/3) Info

Find instance by attribute or tag (case-sensitive)

VPC ID = vpc-0ebf7c97ea13d3bf5

Clear filters

< 1 >

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
<input checked="" type="checkbox"/>	-	i-0e98ea203cfd7a4b1	Running	t2.micro	Initializing	No alarms	us-east-1b
<input type="checkbox"/>	EC2-Project	i-0b939324d1a80392e	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e
<input type="checkbox"/>	-	i-073348bb2461409ea	Running	t2.micro	Initializing	No alarms	us-east-1e

Instance: i-0e98ea203cfd7a4b1

Instance ID

i-0e98ea203cfd7a4b1

IPv6 address

-

Hostname type

IP name: ip-10-0-3-199.ec2.internal

Answer private resource DNS name

-

Public IPv4 address

54.197.205.185 | open address

Instance state

Running

Private IP DNS name (IPv4 only)

ip-10-0-3-199.ec2.internal

Instance type

t2.micro

Private IPv4 addresses

10.0.3.199

Public IPv4 DNS

-

Elastic IP addresses

-

CloudShell

Feedback

Language

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