Report Project Part 3

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420-635-AB-Network Installation and Administration

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April 27th, 2025

Table of Contents

1-Multi-Process Module (MPM)

-On the AlmaLinux machine

Creating the new root directory that will be used for this project part

```
[root@server10 ~]# mkdir /var/www/html_project3
```

Ensure proper permissions are set

```
[root@server10 ~]# chmod -R 755 /var/www/html_project3
```

Creating the main html file for the website

```
root@server10 ~]# vim /var/www/html_project3/master_project3.html
```

```html
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE HTML>
<html lang="en">
    <head>
        <title>Project Part 3 - Welcome Page</title>
        <link rel="stylesheet" media="all" href="noindex/common/css/styles.css"/>
    </head>
    <body>
    <h1>Project Part 3</h1>
    <h1>-------------------------------------------</h1>
    <h1>Task 2</h1>
    <p class="lead"><a href="http://192.168.50.10/server-status">To view the server status</a></p>
    <p class="lead"><a href="http://192.168.50.10/server-information">To view the server information</a></p>
    <hr />
    <h1>Task 3</h1>
    <p class="lead"><a href="http://192.168.50.10/cgi-bin/script.pl">To execute the CGI script</a></p>
    <hr />
    <h1>Task 4</h1>
    <p class="lead"><a href="http://192.168.100.1/php">To execute the PHP script using 192.168.100.1</a></p>
    <p class="lead"><a href="http://192.168.50.10/php">To execute the PHP script using another subnet</a></p>
    <hr />
```

```html
    <h1>Task 5</h1>
    <p class="lead"><a href="http://192.168.50.10/employees">To list the employees mysql table</a></p>
    <hr />
    <h1>Task 6</h1>
    <p class="lead"><a href="https://server10">To view the website in SSL</a></p>
    <hr />
</script>
    <section class="row">
    <div class="col-md-6">
    </footer>
    </body>
</html>
```

Changing the configuration file for apache to load the website and setting the MPM settings

```
[root@server10 ~]# vim /etc/httpd/conf/httpd.conf
```

```
DocumentRoot /var/www/html_project3
```

```
<Directory "/var/www/html_project3">
    Options Indexes FollowSymLinks
    DirectoryIndex master_project3.html
    AllowOverride none
    Require all granted
    Require ip 192.168.50.10
</Directory>
```

```
<IfModule mpm_prefork_module>
    StartServers 12
    MinSpareServers 6
    MaxSpareServers 12
    MaxRequestWorkers 180
    ListenBacklog 100
    MaxKeepAliveRequests 50
    KeepAliveTimeout 20
    TimeOut 55
</IfModule>
```

Restarting the httpd service

```
[root@server10 ~]# systemctl restart httpd
```

-On the Ubuntu machine

Test to see if the website is accessible

Project Part 3 - Welcome Pa... +

Not Secure http://192.168.50.10

Project Part 3

Task 2

To view the server status

To view the server information

Task 3

To execute the CGI script

Task 4

To execute the PHP script using 192.168.100.1

To execute the PHP script using another subnet

Task 5

To list the employees mysql table
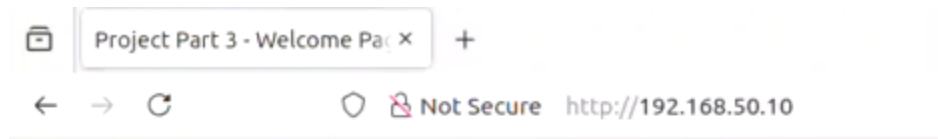
Task 6

To view the website in SSL

2-Apache Server Monitoring

-On the AlmaLinux machine

Configuring ExtendedStatus and the two hyperlinks to only be accessible from a specific subnet

-On the Ubuntu machine

Testing the links for Task 2

Apache Server Status for 192.168.50.10 (via 192.168.50.10)

Server Version: Apache/2.4.62 (AlmaLinux)
Server MPM: event
Server Built: Jan 10 2025 00:00:00

Current Time: Thursday, 24-Apr-2025 13:38:26 EDT
Restart Time: Thursday, 24-Apr-2025 13:35:48 EDT
Parent Server Config. Generation: 1
Parent Server MPM Generation: 0
Server uptime: 2 minutes 38 seconds
Server load: 0.00 0.00 0.00
Total accesses: 7 - Total Traffic: 138 kB - Total Duration: 2
CPU Usage: u0 s.03 cu0 cs0 - .019% CPU load
.0443 requests/sec - 894 B/second - 19.7 kB/request - .285714 ms/request
1 requests currently being processed, 0 workers gracefully restarting, 74 idle workers

Slot	PID	Stopping	Connections			Threads		Async connections			
			total	accepting	busy	graceful	idle	writing	keep-alive	closing
0	5808	no	0	yes	0	0	25	0	0	0
1	5809	no	0	yes	0	0	25	0	0	0
2	5810	no	0	yes	1	0	24	0	0	0
Sum 3		0	0		1	0	74	0	0	0

```
                              W
_____...........................................
.................................................................
.................................................................
.................................................................
.................................................................
.................................................................
.................
```

Scoreboard Key:
"_" Waiting for Connection, "s" Starting up, "R" Reading Request,
"W" Sending Reply, "K" Keepalive (read), "D" DNS Lookup,

Apache Server Information

Subpages:
Configuration Files, Server Settings, Module List, Active Hooks, Available Providers

Sections:
Loaded Modules, Server Settings, Startup Hooks, Request Hooks, Other Hooks, Providers

Loaded Modules

core.c, event.c, http_core.c, mod_access_compat.c, mod_actions.c, mod_alias.c, mod_allowmethods.c, mod_auth_basic.c, mod_auth_digest.c, mod_authn_anon.c, mod_authn_core.c, mod_authn_dbd.c, mod_authn_dbm.c, mod_authn_file.c, mod_authn_socache.c, mod_authz_core.c, mod_authz_dbd.c, mod_authz_dbm.c, mod_authz_groupfile.c, mod_authz_host.c, mod_authz_owner.c, mod_authz_user.c, mod_autoindex.c, mod_brotli.c, mod_cache.c, mod_cache_disk.c, mod_cache_socache.c, mod_cgid.c, mod_data.c, mod_dav.c, mod_dav_fs.c, mod_dav_lock.c, mod_dbd.c, mod_deflate.c, mod_dir.c, mod_dumpio.c, mod_echo.c, mod_env.c, mod_expires.c, mod_ext_filter.c, mod_filter.c, mod_headers.c, mod_http2.c, mod_include.c, mod_info.c, mod_lbmethod_bybusyness.c, mod_lbmethod_byrequests.c, mod_lbmethod_bytraffic.c, mod_lbmethod_heartbeat.c, mod_log_config.c, mod_logio.c, mod_lua.c, mod_macro.c, mod_mime.c, mod_mime_magic.c, mod_negotiation.c, mod_proxy.c, mod_proxy_ajp.c, mod_proxy_balancer.c, mod_proxy_connect.c, mod_proxy_express.c, mod_proxy_fcgi.c, mod_proxy_fdpass.c, mod_proxy_ftp.c, mod_proxy_hcheck.c, mod_proxy_http.c, mod_proxy_http2.c, mod_proxy_scgi.c, mod_proxy_uwsgi.c, mod_proxy_wstunnel.c, mod_remoteip.c, mod_reqtimeout.c, mod_request.c, mod_rewrite.c, mod_setenvif.c, mod_slotmem_plain.c, mod_slotmem_shm.c, mod_so.c, mod_socache_dbm.c, mod_socache_memcache.c, mod_socache_redis.c, mod_socache_shmcb.c, mod_status.c, mod_substitute.c, mod_suexec.c, mod_systemd.c, mod_unique_id.c, mod_unixd.c, mod_userdir.c, mod_version.c, mod_vhost_alias.c, mod_watchdog.c,

Server Settings

Server Version: Apache/2.4.62 (AlmaLinux)
Server Built: Jan 10 2025 00:00:00
Server loaded APR Version: 1.7.0
Compiled with APR Version: 1.7.0
Server loaded APU Version: 1.6.1
Compiled with APU Version: 1.6.1
Server loaded PCRE Version: 8.44 2020-02-12
Compiled with PCRE Version: 8.44 2020-02-12
Module Magic Number: 20120211:134

3-CGI

-On the AlmaLinux machine

Configure the cgi-bin directory for apache

```
<IfModule alias_module>
ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"
</IfModule>

<Directory "/var/www/cgi-bin">
    Options +ExecCGI
    AddHandler cgi-script .pl
    Require all granted
</Directory>
```

Creating the perl script

```
[root@server10 ~]# vim /var/www/cgi-bin/script.pl
```

```
#!/usr/bin/perl

print "content-type: text/html\n\n";
print "<html><body><h1>This is Task 3 (CGI)</h1></body></html>";
```

Giving the script execute permissions

```
[root@server10 ~]# chmod +x /var/www/cgi-bin/script.pl
```

Restarting the httpd service

```
[root@server10 ~]# systemctl restart httpd
```

-On the Ubuntu machine

Testing the Task 3 link

Project Part 3

Task 2

To view the server status
To view the server information

Task 3

To execute the CGI script

This is Task 3 (CGI)

4-PHP

-On the AlmaLinux machine

Creating the new directory for the PHP script

```
[root@server10 ~]# mkdir /var/www/html_project3/q4
```

Installing the PHP package

```
[root@server10 ~]# dnf install -y php
```

Creating the PHP file in the new directory

```
[root@server10 ~]# vim /var/www/html_project3/q4/index.php
```

```php
<?php
$client_ip = $_SERVER['REMOTE_ADDR'];
$subnet = '192.168.100';
if (substr($client_ip, 0, strlen($subnet)) === $subnet) {
echo "Hello, my friend!";
} else {
echo "Hello, stranger!";
}
?>
```

Adjusting the config for the directory index and script alias

```
[root@server10 ~]# vim /etc/httpd/conf/httpd.conf
```

```
ScriptAlias /php/ "/var/www/html_project3/q4/index.php"
```

```
DirectoryIndex index.html index.php
```

Restarting the httpd service

```
[root@server10 ~]# systemctl restart httpd
```

-On the Ubuntu machine

Testing the Task 4 links
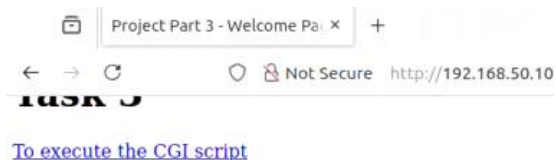
Project Part 3 - Welcome Pa × +

← → C   ○ 🔒 Not Secure http://192.168.50.10

Task 5

To execute the CGI script

Task 4

To execute the PHP script using 192.168.100.1
To execute the PHP script using another subnet

Hello, my friend!

Hello, stranger!
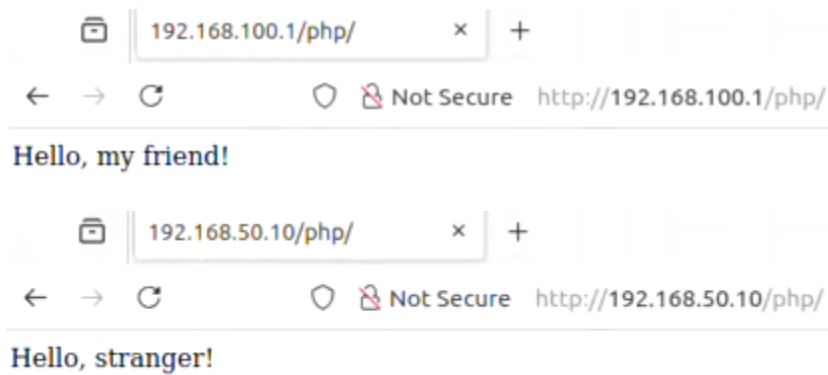
5-MYSQL/PHP

-On the AlmaLinux machine

Make the new directory for the next PHP script

```
[root@server10 ~]# mkdir /var/www/html_project3/q5
```

Install the mysql-server package

```
[root@server10 ~]# dnf install -y mysql-server
```

Enable mysqld

```
[root@server10 ~]# systemctl enable --now mysqld
Created symlink /etc/systemd/system/multi-user.target.wants/mysqld.service → /usr/lib/systemd/system/mysqld.service.
[root@server10 ~]# systemctl status mysqld
• mysqld.service - MySQL 8.0 database server
     Loaded: loaded (/usr/lib/systemd/system/mysqld.service; enabled; preset: disabled)
     Active: active (running) since Fri 2025-04-25 16:28:19 EDT; 7s ago
```

Connect to the mysql interface as root

```
[root@server10 ~]# mysql -u root
```

Create a database named company and check the databases for verification

```
mysql> create database company;
Query OK, 1 row affected (0.01 sec)
```

```
mysql> create database company;
Query OK, 1 row affected (0.01 sec)

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

Creating a table named employees with id as the primary key and two fields title name and salary

```
mysql> create table employees(
    ->  id int not null auto_increment,
    ->  name varchar(100) not null,
    ->  salary varchar(100) not null,
    ->  primary key (id)
    -> );
```

Inserting several records into the table and checking contents

```
mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Jacob", "1000");
Query OK, 1 row affected (0.02 sec)

mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Julia", "1000")
    -> ;
Query OK, 1 row affected (0.00 sec)

mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Jordan", "25000")
    -> ;
Query OK, 1 row affected (0.00 sec)
```

```
mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Jacob", "25000")
    -> ;
Query OK, 1 row affected (0.00 sec)

mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Julia", "25000");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> insert into employees
    -> (name, salary)
    -> values
    -> ("Linda", "50000");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from employees
    -> ;
+----+--------+--------+
| id | name   | salary |
+----+--------+--------+
|  1 | Jacob  | 1000   |
|  2 | Julia  | 1000   |
|  3 | Jordan | 25000  |
|  4 | Jacob  | 25000  |
|  5 | Julia  | 25000  |
|  6 | Linda  | 50000  |
+----+--------+--------+
6 rows in set (0.00 sec)
```

Create the root user with the alma password

```
mysql> create user 'root'@'server10' identified by 'alma'
    -> ;
Query OK, 0 rows affected (0.00 sec)
```

Granting all privileges to this new user

```
mysql> grant all privileges on *.* to 'root'@'server10' with grant option;
Query OK, 0 rows affected (0.00 sec)
```

Applying the privilege changes

```
mysql> flush privileges
    -> ;
Query OK, 0 rows affected (0.00 sec)
```

Exiting mysql

```
mysql> exit;
Bye
```

Installing the connector for PHP and mysql

```
[root@server10 ~]# dnf install -y php-mysqlnd
```

Restarting the PHP service

```
[root@server10 ~]# systemctl restart php-fpm
```

Adjust SElinux to allow network connection 1

```
[root@server10 ~]# setsebool -P httpd_can_network_connect 1
```

Creating the new index.php file for the database on the website

```
[root@server10 ~]# vim /var/www/html_project3/q5/index.php
```

```php
<?php
// To debug
ini_set('display_errors', 1);
ini_set('display_startup_errors', 1);
error_reporting(E_ALL);
// Variables
$servername = "192.168.50.10";
$username = "root";
$password = "alma";
$dbname = "company";
// Create the connexion
$conn = new mysqli($servername, $username, $password, $dbname);
// Verify the connexion
if ($conn->connect_error) {
die("Connection failed: " . $conn->connect_error);
}
$sql = "SELECT * FROM employees";
$result = $conn->query($sql);
if ($result->num_rows > 0) {
// Results
while($row = $result->fetch_assoc()) {
echo "Name: " . $row["name"]. " - Salary: " .
$row["salary"]."$". "<br>";
}
} else {
echo "0 results";
}
$conn->close();
?>
```

Configuring ScriptAlias for the new index.php
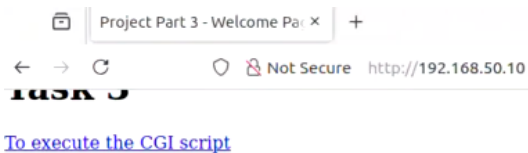
```
ScriptAlias "/employees" "/var/www/html_project3/q5/index.php"
```

Restarting the httpd service

```
[root@server10 ~]# systemctl restart httpd
```

-On the Ubuntu machine

Testing the Task 5 link on the website

Project Part 3 - Welcome Pa ×   +
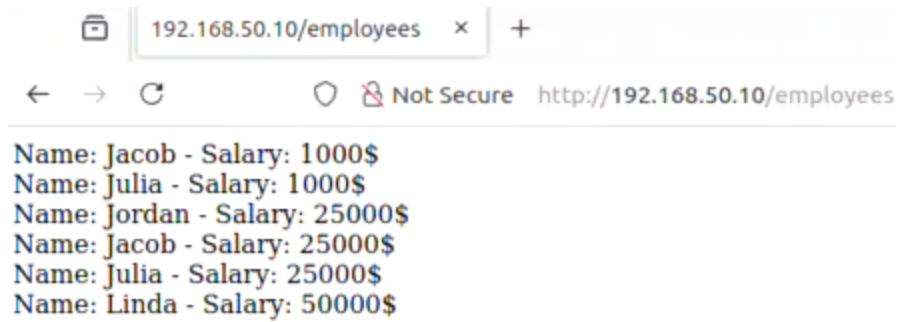
← → C   ○ & Not Secure http://192.168.50.10

IdSK J

To execute the CGI script

Task 4

To execute the PHP script using 192.168.100.1

To execute the PHP script using another subnet

Task 5

To list the employees mysql table

```
192.168.50.10/employees        ×        +

←    →    C              ○    🛡 Not Secure   http://192.168.50.10/employees
```

Name: Jacob - Salary: 1000$
Name: Julia - Salary: 1000$
Name: Jordan - Salary: 25000$
Name: Jacob - Salary: 25000$
Name: Julia - Salary: 25000$
Name: Linda - Salary: 50000$

6-SSL

-On the AlmaLinux machine

Install the SSL module package

```
[root@server10 ~]# dnf install -y mod_ssl
```

Generating a private key and SSL certification with OpenSSL

```
[root@server10 ~]# openssl req -x509 -nodes -days 365 -newkey rsa:2048 -keyout /etc/pki/tls/private/httpd.key -out /etc/pki/tls/certs/httpd.crt
```

Configuring the SSL configuration file

```
[root@server10 ~]# vim /etc/httpd/conf.d/ssl.conf
```

```
SSLEngine on
SSLCertificateFile /etc/pki/tls/certs/httpd.crt
SSLCertificateKeyFile /etc/pki/tls/private/httpd.key
```

Ensuring the include optional directive is there

```
[root@server10 ~]# vim /etc/httpd/conf/httpd.conf
```

```
IncludeOptional conf.d/*.conf
```

Restarting the httpd service

```
[root@server10 ~]# systemctl restart httpd
```

Testing the website's Task 6 link on the AlmaLinux machine

← → C ⛨ 🔒 192.168.50.10

🔆 AlmaLinux 🔆 Documentation 🔆 Blog 🔆 Bug t⌄

Task 6

To view the website in SSL

← → C ⚿ Not Secure https://server10 ☆

🔆 AlmaLinux 🔆 Documentation 🔆 Blog 🔆 Bug tracker 🔆 GitHub organization
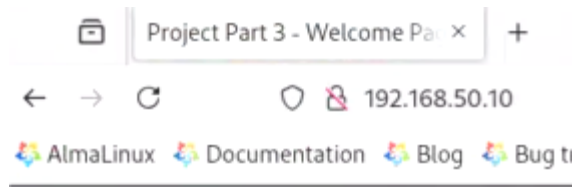
⚠ **Warning: Potential Security Risk Ahead**

Firefox detected a potential security threat and did not continue to **server10**. If you visit this site, attackers could try to steal information like your passwords, emails, or credit card details.

What can you do about it?

The issue is most likely with the website, and there is nothing you can do to resolve it.

If you are on a corporate network or using antivirus software, you can reach out to the support teams for assistance. You can also notify the website's administrator about the problem.

Learn more…

[Go Back (Recommended)] Advanced…

Someone could be trying to impersonate the site and you should not continue.

Websites prove their identity via certificates. Firefox does not trust server10 because its certificate issuer is unknown, the certificate is self-signed, or the server is not sending the correct intermediate certificates.

Error code: SEC_ERROR_UNKNOWN_ISSUER

View Certificate

[Go Back (Recommended)] [Accept the Risk and Continue]
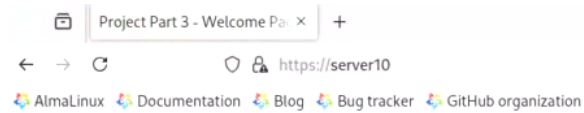
Project Part 3

Task 2

To view the server status
To view the server information
_____

Task 3

To execute the CGI script
_____

Task 4

To execute the PHP script using 192.168.100.1
To execute the PHP script using another subnet
_____

Task 5

7-Creating a Compressed File

-On the AlmaLinux machine

Use the tar command to name the file and provide all directories to go inside the file

Copy the compressed file over to a connected share folder

This will allow the host machine to gain access to this newly compressed file

Sort   View   •••

Name	Date modified	Type	Size
Jacob_Chedore_Report_P1	2025-04-18 5:44 PM	Microsoft Edge P...	3,132 KB
Jacob_Chedore_Report_P2	2025-04-21 11:19 PM	Microsoft Edge P...	1,262 KB
jacob_project1	2025-04-18 5:35 PM	Compressed Archi...	4 KB
jacob_project2	2025-04-21 11:17 PM	Compressed Archi...	6 KB
jacob_project3	2025-04-25 6:27 PM	Compressed Archi...	3 KB