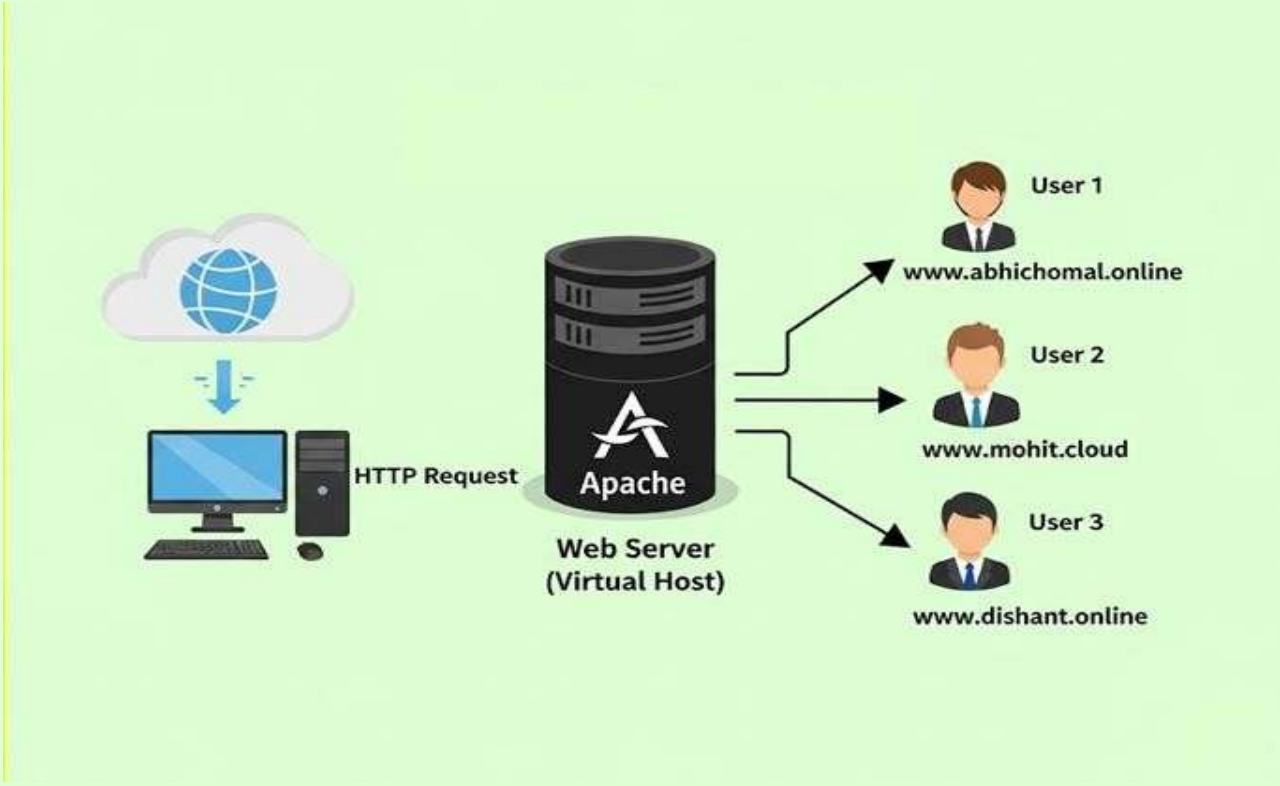
# VIRTUAL HOSTING



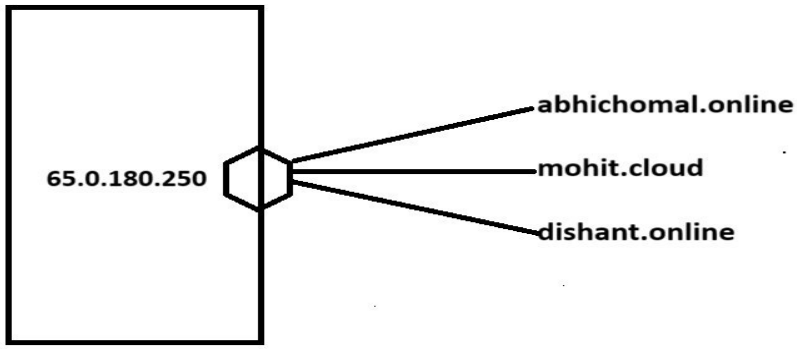

By Abhishek Chomal

# Apache Multi-Domain Virtual Hosting with custom dns

**Virtual Hosting allows a single Apache web server to host multiple domains on the same machine.**

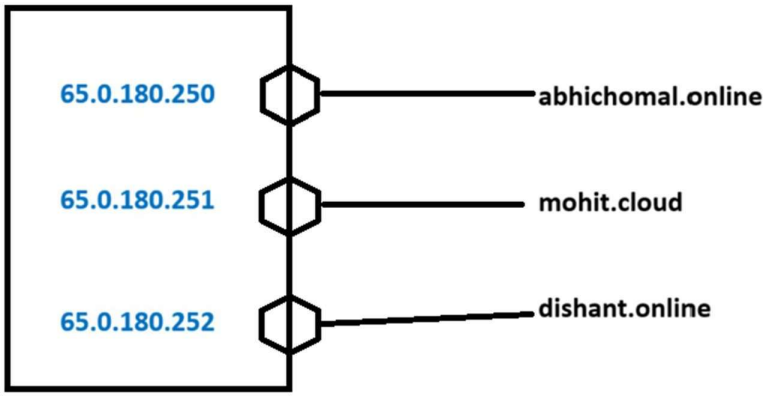
- **Types of Virtual Hosting**

1. **NameBased Virtual Hosting**




- **Name-based hosting is a method of hosting multiple websites on a single IP address.**

2. **IPBased Virtual Hosting**




- **IP-based hosting is a method where each website is assigned a unique IP address.**

**In this guide, we will configure three domains using Name-Based hosting.**

- **abhichomal.online**
- **mohit.cloud**
- **dishant.online**

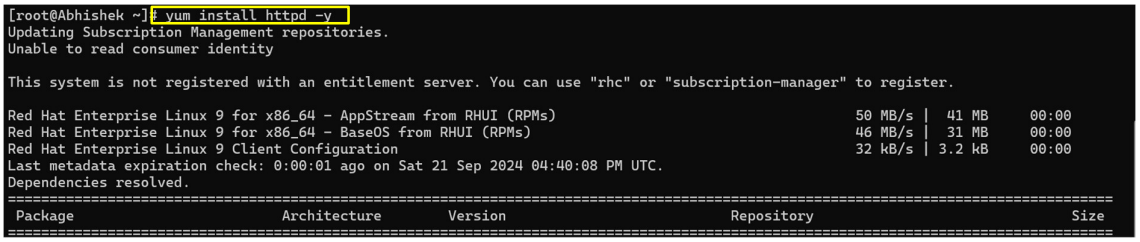
**We're using a Cloud Service for our setup, which includes two instances. The first instance is a web server, and the second one is a DNS server.**

| Aws Cloud Instance | Private IP | Public IP | Configured For |
|---|---|---|---|
| Web-Server | 172.31.84.162 | 65.0.180.250 | Web |
| DNS Server | 172.31.40.241 | 3.108.238.196 | DNS |

## ➢ Installation of Apache Server

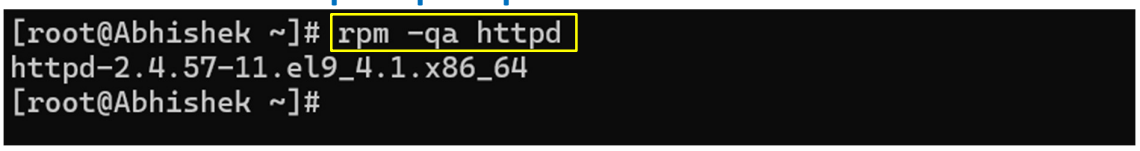
### Step 1: Install the Packages using yum

- Package name: **httpd**
- Command: **yum install httpd -y**



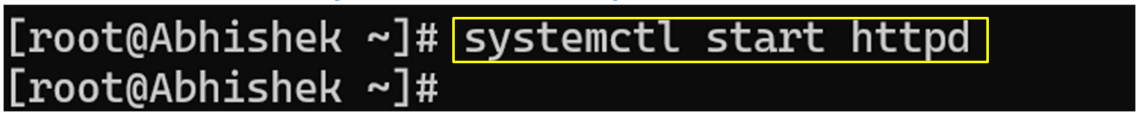

### Step 2: Verify that the packages were installed correctly

- Command: **rpm -qa httpd**




### Step 3: Start the apache service after installation

- Service name: **httpd.service**
- Command: **systemctl start httpd**



**Step 4: To Ensure apache start automatically on boot.**

- Command: **systemctl enable httpd**

```
[root@Abhishek ~]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@Abhishek ~]# systemctl status httpd
● httpd.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
```

## ➢ Create Directories for Each Domain

**Step 1: Create Directory for abhichomal.online domain**

- Command: **mkdir /var/www/abhichomal.online**

```
[root@Abhishek ~]# mkdir /var/www/abhichomal.online
[root@Abhishek ~]#
```

**Step 2: Create Directory for mohit.cloud domain**

- Command: **mkdir /var/www/mohit.cloud**

```
[root@Abhishek ~]# mkdir /var/www/mohit.cloud
[root@Abhishek ~]#
```

**Step 3: Create Directory for dishant.online domain**

- Command: **mkdir /var/www/dishant.online**

```
[root@Abhishek ~]# mkdir /var/www/dishant.online
[root@Abhishek ~]#
```

**Step 4: Verify all domain directories**

- Command: **mkdir /var/www/dishant.online**

```
[root@Abhishek ~]# ls -l /var/www/
total 0
drwxr-xr-x. 2 root root 6 Feb 11 06:37 abhichomal.online
drwxr-xr-x. 2 root root 6 Feb 11 06:39 dishant.online
drwxr-xr-x. 2 root root 6 Feb 11 06:37 mohit.cloud
```

## ➢ Create a Sample index.html File for Each Domain

**Step 1: Create sample page for abhichomal.online domain**

**echo "<h1>Welcome to abhichomal.online</h1>" > /var/www/abhichomal.online/index.html**

```
[root@Abhishek ~]# echo "<h1>Welcome to abhichomal.online</h1>" > /var/www/abhichomal.online/index.html
[root@Abhishek ~]#
```

**Step 2: Create sample page for mohit.cloud domain**

**echo "<h1>Welcome to mohit.cloud</h1>" > /var/www/mohit.cloud/index.html**

```
[root@Abhishek ~]# echo "<h1>Welcome to mohit.cloud</h1>" > /var/www/mohit.cloud/index.html
[root@Abhishek ~]#
```

**Step 3: Create sample page for dishant.online domain**

**echo "<h1>Welcome to dishant.online</h1>" > /var/www/dishant.online/index.html**

```
[root@Abhishek ~]# echo "<h1>Welcome to dishant.online</h1>" > /var/www/dishant.online/index.html
[root@Abhishek ~]#
```

## ➢ Create Virtual Host Configuration Files

**Step 1: Virtual Host for abhichomal.online domain**

- Command: **vim /etc/httpd/conf.d/abhichomal.online.conf**

```
<VirtualHost *:80>
    ServerName abhichomal.online
    DocumentRoot /var/www/abhichomal.online/
</VirtualHost>
```

**Note: * Means Listen on all IP addresses for HTTP requests on port 80.**

**Step 2: Virtual Host for mohit.cloud domain**

- Command: **vim /etc/httpd/conf.d/mohit.cloud.conf**

```
<VirtualHost *:80>
    ServerName mohit.cloud
    DocumentRoot /var/www/mohit.cloud/
</VirtualHost>
```

**Step 3: Virtual Host for dishant.online domain**

- Command: **vim /etc/httpd/conf.d/dishant.online.conf**

```
<VirtualHost *:80>
    ServerName dishant.online
    DocumentRoot /var/www/dishant.online/
</VirtualHost>
```

➢ **Restart Apache to Apply Changes**

**Step 1: Virtual Host for mohit.cloud domain**

- Command: **systemctl restart httpd**

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

**Step 2: Check the configuration for errors**

- Command: **httpd -t**

```
[root@Abhishek ~]# httpd -t
Syntax OK
```

➢ **Setup DNS Server**

**The DNS server is already set up. Now, we'll connect to it using PowerShell and update the configuration as needed.**

**Step 1: Edit the configuration file**

- Configuration file: **named.conf**
- Open the named configuration file using vim **(/etc/named.conf)**
- Command: **vim /etc/named.conf**

```
[root@DNSServer ~]# vim /etc/named.conf
[root@DNSServer ~]#
```

```
//
// named.conf
//
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS
// server as a caching only nameserver (as a localhost DNS resolver only).
//
// See /usr/share/doc/bind*/sample/ for example named configuration files.
//

options {
        listen-on port 53 { 127.0.0.1; };
        listen-on-v6 port 53 { ::1; };
        directory       "/var/named";
        dump-file       "/var/named/data/cache_dump.db";
        statistics-file "/var/named/data/named_stats.txt";
        memstatistics-file "/var/named/data/named_mem_stats.txt";
        secroots-file   "/var/named/data/named.secroots";
        recursing-file  "/var/named/data/named.recursing";
        allow-query     { localhost; };
```

- Clear all the existing entries by typing→**:%d**
- After clearing the entries in **named.conf**, start defining the **DNS zones**.
- Add the following entries to define the **DNS options** and **your zone**.

```
options{
        directory "/var/named";
        recursion no;
};


zone    "abhichomal.online" IN{
        type master;
        file "abhi";
};


zone    "mohit.cloud" IN{
        type master;
        file "mohit";
};


zone    "dishant.online" IN{
        type master;
        file "dishant";
};
```

- Save and close file using→**:wq**

**Step 2: Verify the configuration file**

- Check the syntax of configuration file.
- Command: **named-checkconf /etc/named.conf**

```
[root@DNSServer ~]# named-checkconf /etc/named.conf
[root@DNSServer ~]#
```

- If no output display in terminal it means syntax ok

**Step 3: Create Zone Files for Each Domain**

- Navigate the zone file directory **/var/named**
- Use **named.empty** as a template to create zone files.
- Command: **cp –p named.empty < zonefile name >**

➢ For **abhichomal.online**

```
[root@DNSServer named]# cp -p named.empty abhi
[root@DNSServer named]#
```

➢ For **mohit.cloud**

```
[root@DNSServer named]# cp -p named.empty mohit
[root@DNSServer named]#
```

➢ For **dishant.online**

```
[root@DNSServer named]# cp -p named.empty dishant
[root@DNSServer named]#
```

**Step 4: Edit Zone Files for Each Domain**

- Now, edit each zone file and add **DNS records** and **web server ip**.

➢ For **abhichomal.online**

```
$TTL 1M
@       IN SOA  @ rname.invalid. (
                                        0       ; serial
                                        1D      ; refresh
                                        1H      ; retry
                                        1W      ; expire
                                        3H )    ; minimum

abhichomal.online.      IN      NS      ns1.abhichomal.online.
abhichomal.online.      IN      NS      ns2.abhichomal.online.
ns1                     IN      A       3.108.238.196
ns2                     IN      A       3.108.238.196
abhichomal.online.      IN      A       65.0.180.250
```

➢ For **mohit.cloud**

```
$TTL 1M
@       IN SOA  @ rname.invalid. (
                                        0       ; serial
                                        1D      ; refresh
                                        1H      ; retry
                                        1W      ; expire
                                        3H )    ; minimum

mohit.cloud.        IN      NS      ns1.abhichomal.online.
mohit.cloud.        IN      NS      ns2.abhichomal.online.
ns1                 IN      A       3.108.238.196
ns2                 IN      A       3.108.238.196
mohit.cloud.        IN      A       65.0.180.250
```

➢ For **dishant.online**

```
$TTL 1M
@       IN SOA  @ rname.invalid. (
                                        0       ; serial
                                        1D      ; refresh
                                        1H      ; retry
                                        1W      ; expire
                                        3H )    ; minimum

dishant.online.     IN      NS      ns1.abhichomal.online.
dishant.online.     IN      NS      ns2.abhichomal.online.
ns1                 IN      A       3.108.238.196
ns2                 IN      A       3.108.238.196
dishant.online.     IN      A       65.0.180.250
```

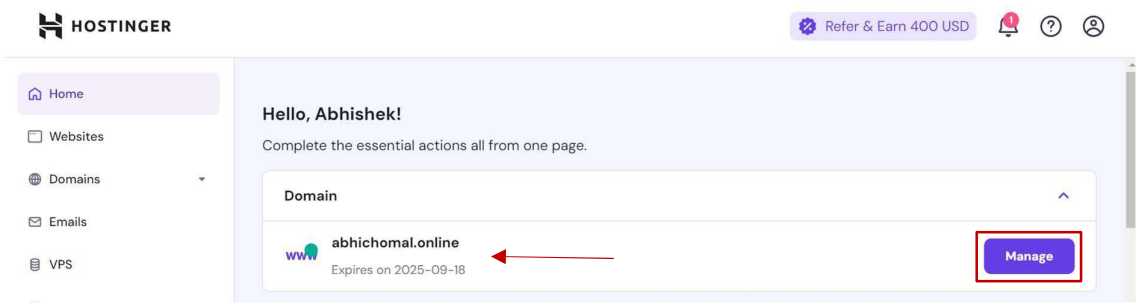
**Step 5: Restart the named service after changes in file**

- Service name: **named**
- Command: **systemctl restart named**

```
[root@DNSServer ~]# systemctl restart named
[root@DNSServer ~]#
```

## ➢ Configure Hostinger's Child Name Server for abhichomal.online

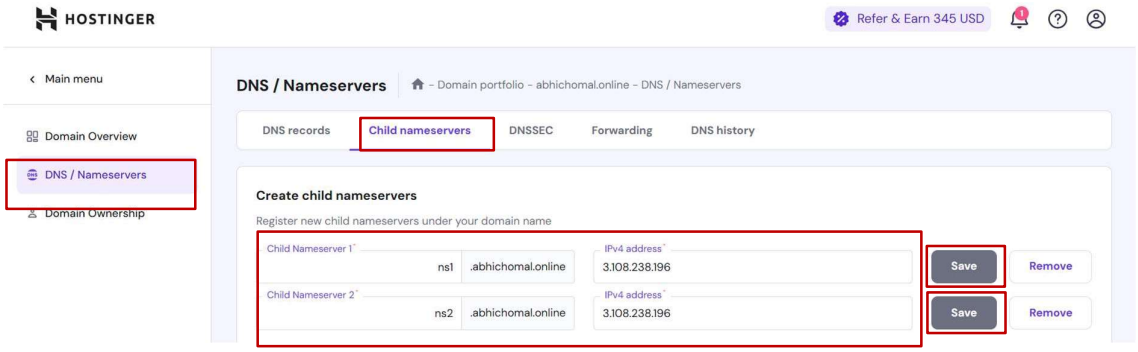
### Step 1: Open Your Domain Name Registrar where abhichomal domain is registered (e.g., GoDaddy, Namecheap, Hostinger).and click on manage for your domain




### Step 2: Add Childnameservers entries

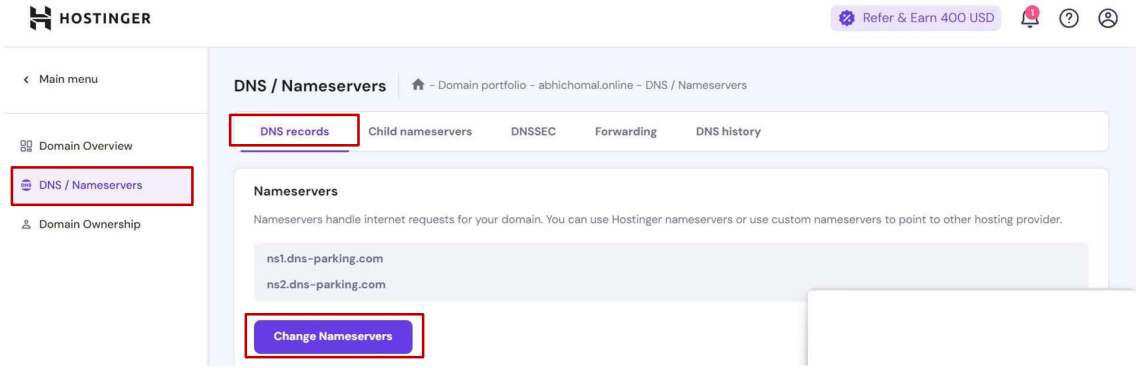
- Click on the **DNS/Nameservers** section.
- Select **Child nameservers** tab.
- Add the following entries.

| Child Nameserver | DNS Server Public IP |
|---|---|
| ns1.abhichomal.online | 3.108.238.196 |
| ns2.abhichomal.online | 3.108.238.196 |



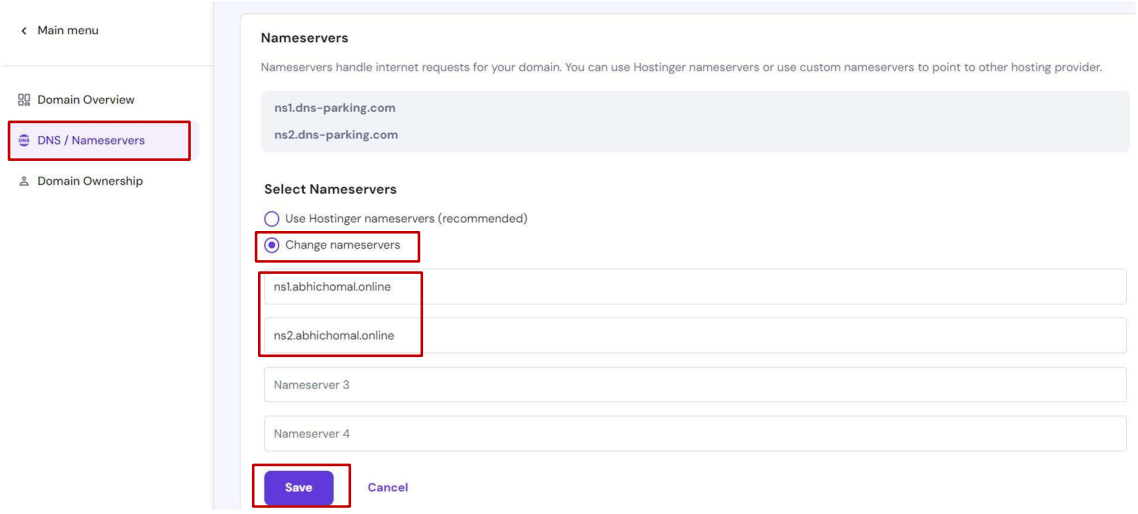
## Step 3: Update Nameservers

- After adding the **Child Nameserver entries**, go to **DNS Records Section**, where click on **Change Nameservers**.

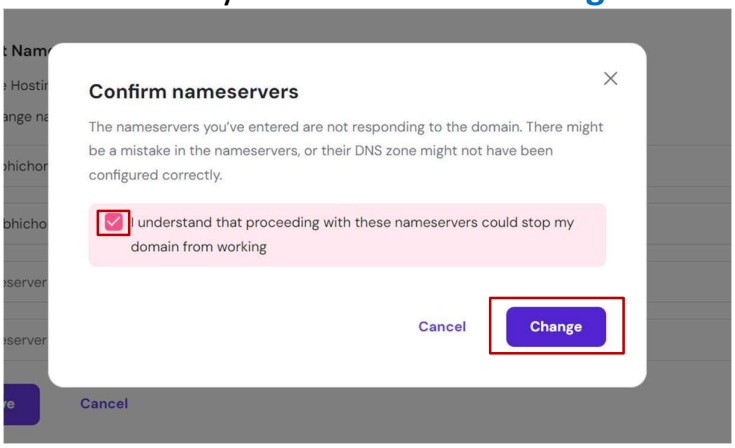



- Replace the existing nameservers with the newly created ones (**ns1.abhichomal.online** and **ns2.abhichomal.online**).

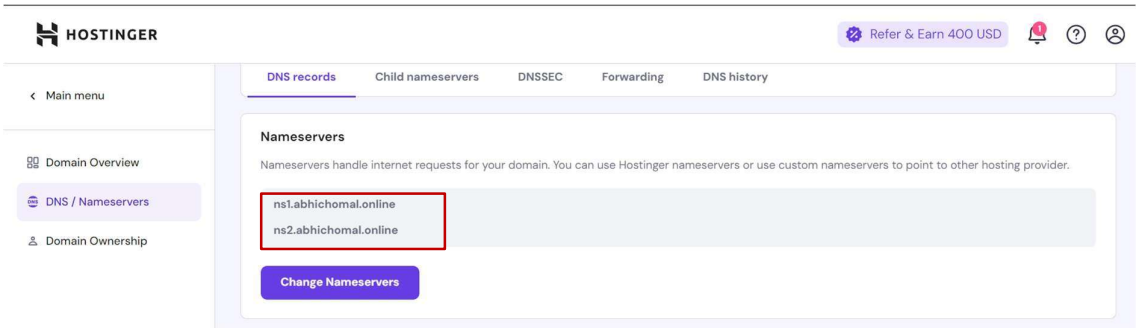
- Click "**Save**" to apply the changes.




- **Confirm** that your **nameserver changes** have been saved.



- Now **your name server** change.




- wait for **DNS propagation**.
  **Note:** Wait for some time to update the DNS cache with the updated configuration.

## ➢ Use Custom Name Server for Other Domains

### Step 1: Login to Domain Registrars

- Log in to the registrar of **mohit.cloud**
- Log in to the registrar of **dishant.online**

### Step 2: Update Name Servers

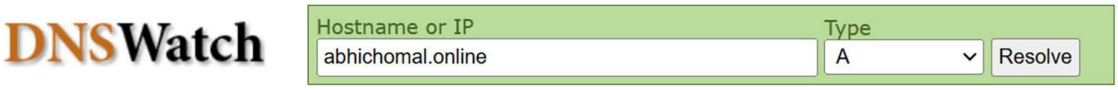
| Domain | Nameserver 1 | Nameserver 2 |
|---|---|---|
| mohit.cloud | ns1.abhichomal.online | ns2.abhichomal.online |
| Dishant.online | ns1.abhichomal.online | ns2.abhichomal.online |

- Save & apply the changes.

## ➢ Verify the DNS changes

- After Propagation, verify the DNS configuration using tools like DNSWatch (**https://dnswatch.info**) or by running the **nslookup command** in a terminal.
- Ensure the **nameservers** reflect the **updated information**.

➢ For **abhichomal.online**



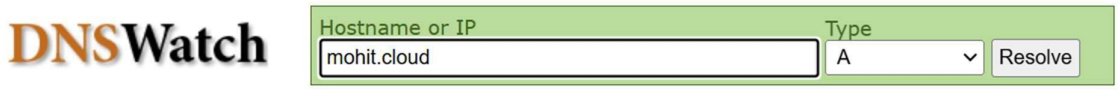

DNSWatch > DNS Lookup for abhichomal.online

Searching for abhichomal.online. A record at H.ROOT-SERVERS.NET. [198.97.190.53] ...took **6 ms**
Searching for abhichomal.online. A record at b.nic.online. [185.24.64.54] ...took **97 ms**
Searching for abhichomal.online. A record at ns1.abhichomal.online. [3.108.238.196] ...took **134 ms**

A record found: 65.0.180.250

| Domain | Type | TTL | Answer |
|---|---|---|---|
| abhichomal.online. | NS | 3600 | ns1.abhichomal.online. |
| abhichomal.online. | NS | 3600 | ns2.abhichomal.online. |
| abhichomal.online. | A | 60 | 65.0.180.250 |

➢ For **mohit.cloud**




DNSWatch > DNS Lookup for mohit.cloud

Searching for mohit.cloud. A record at A.ROOT-SERVERS.NET. [198.41.0.4] ...took **7 ms**
Searching for mohit.cloud. A record at ns01.trs-dns.com. [64.96.1.1] ...took **7 ms**
  Searching for ns2.abhichomal.online. A record at H.ROOT-SERVERS.NET. [198.97.190.53] ...took **7 ms**
  Searching for ns2.abhichomal.online. A record at a.nic.online. [194.169.218.54] ...took **7 ms**
  Searching for ns2.abhichomal.online. A record at ns1.abhichomal.online. [3.108.238.196] ...took **131 ms**
Searching for mohit.cloud. A record at ns2.abhichomal.online. [3.108.238.196] ...took **131 ms**

A record found: 65.0.180.250

| Domain | Type | TTL | Answer |
|---|---|---|---|
| mohit.cloud. | NS | 900 | ns2.abhichomal.online. |
| mohit.cloud. | NS | 900 | ns1.abhichomal.online. |
| mohit.cloud. | A | 60 | 65.0.180.250 |

➢ For **dishant.online**

DNSWatch

Hostname or IP: dishant.online | Type: A | Resolve

DNSWatch > DNS Lookup for dishant.online

Searching for dishant.online. A record at J.ROOT-SERVERS.NET. [192.58.128.30] ...took **30 ms**
Searching for dishant.online. A record at a.nic.online. [194.169.218.54] ...took **6 ms**
Searching for dishant.online. A record at ns2.abhichomal.online. [3.108.238.196] ...took **131 ms**

A record found: 65.0.180.250

| Domain | Type | TTL | Answer |
|---|---|---|---|
| dishant.online. | NS | 3600 | ns1.abhichomal.online. |
| dishant.online. | NS | 3600 | ns2.abhichomal.online. |
| dishant.online. | A | 60 | 65.0.180.250 |

➢ **Verify Everything is Working**

- Open a web browser and visit:

**http://abhichomal.online**


**Welcome to abhichomal.online**

**http://mohit.cloud**


**Welcome to mohit.cloud**

**http://dishant.online**


**Welcome to dishant.online**