2. VMware AVI Global Server Load-Balancer

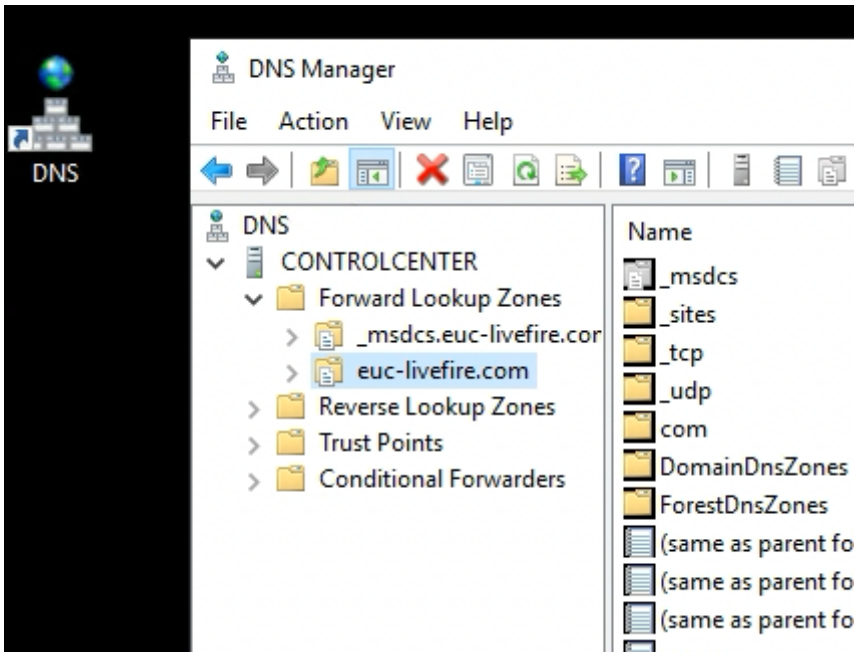
This is possibly one of the most undocumented integrations in our Horizon Stack. And we look forward to sharing this exciting lab with you.

Part 1 Setting up Global DNS

Adding DNS Entries.
In this section, we will create DNS Entries for both Site1 and Site2.
These DNS Entries will be used as VIP in AVI GSLB Configurations later.

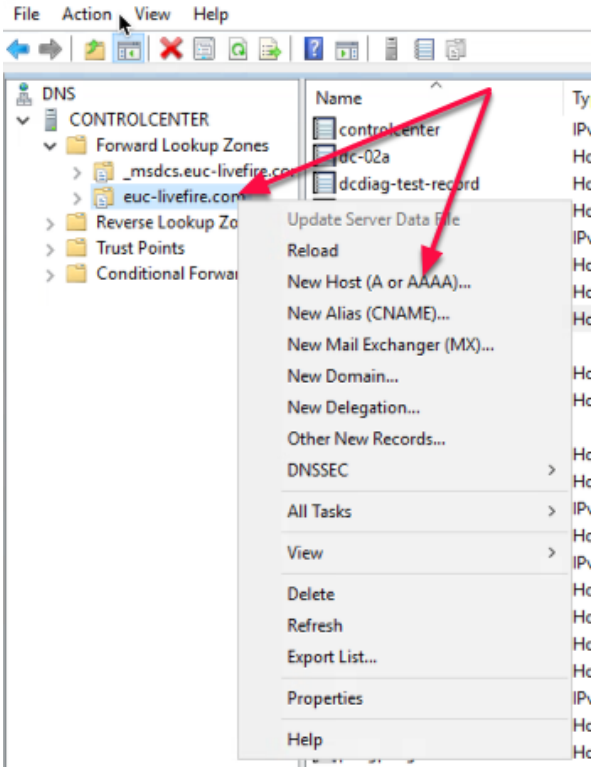
Part 1: Section 1: Setting up DNS Entries

Corp DNS Eritres	Entity Description	IP Address
dns-a.euc-livefire.com	Corp DNS for Site1	172.16.20.101
dns-b.euc-livefire.com	Corp DNS for Site2	172.16.50.101

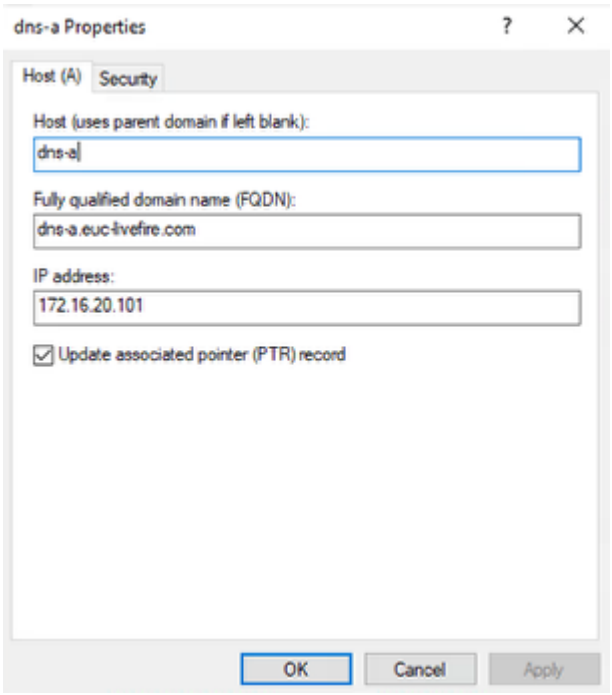


1. On your ControlCenter server

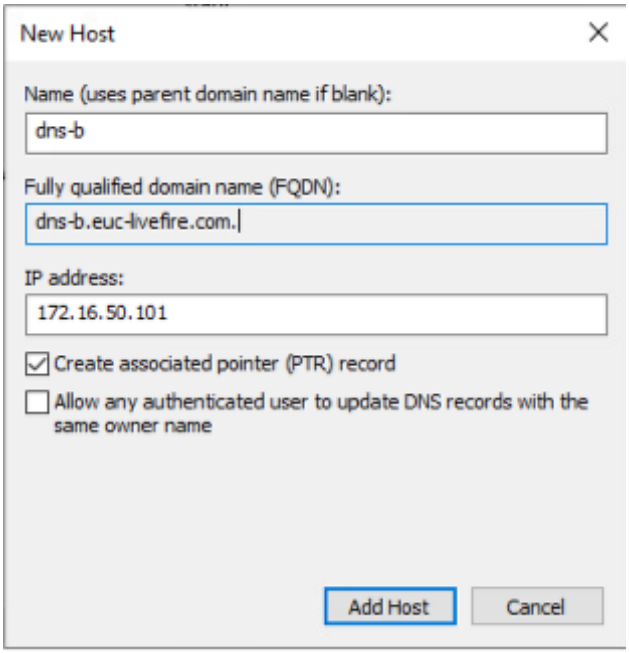
- From the desktop Shortcut or TaskBar,
  - Launch **DNS**
    - From the **DNS Manager**
      - Expand **Forward Lookup Zones** on the left hand side of DNS Menu
        - Expand **euc-livefire.com**



2. In the DNS Manager Window
   - **Right Click** on **euc-livefire.com**
     - Select **New Host (A or AAAA)...**

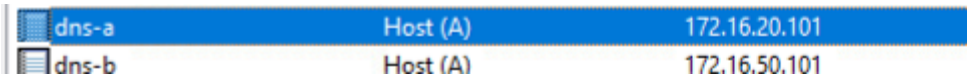


3. In the New Host Window
    - In the **Name**
        - **Type dns-a**
            - In the IP address:
                - Type **172.16.20.101**
                    - Click **Add Host**



4. Repeat the steps to add **Worker Node** for **Site-1** in the DNS Record
    - In the New Host Window
        - In the **Name**
            - **Type dns-b**

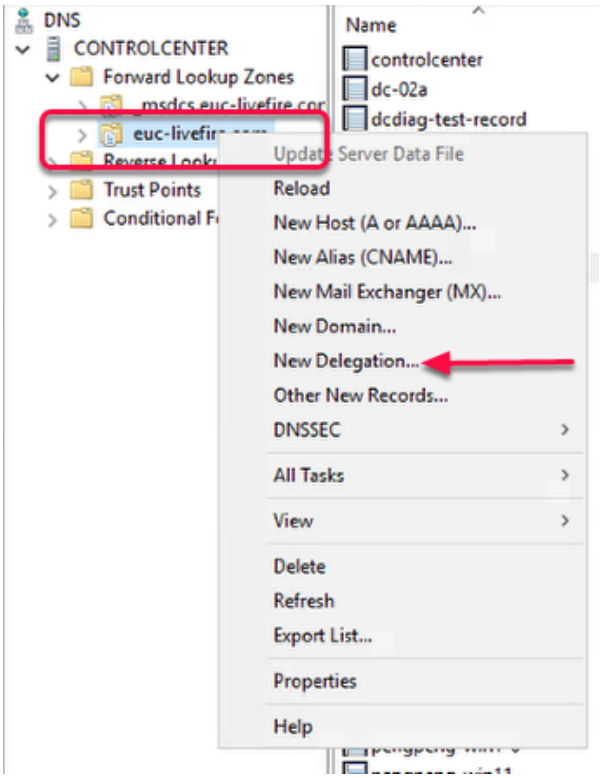
- In the IP address:
  - Type **172.16.50.101**
    - Click **Add Host**
      - Close the new host window.



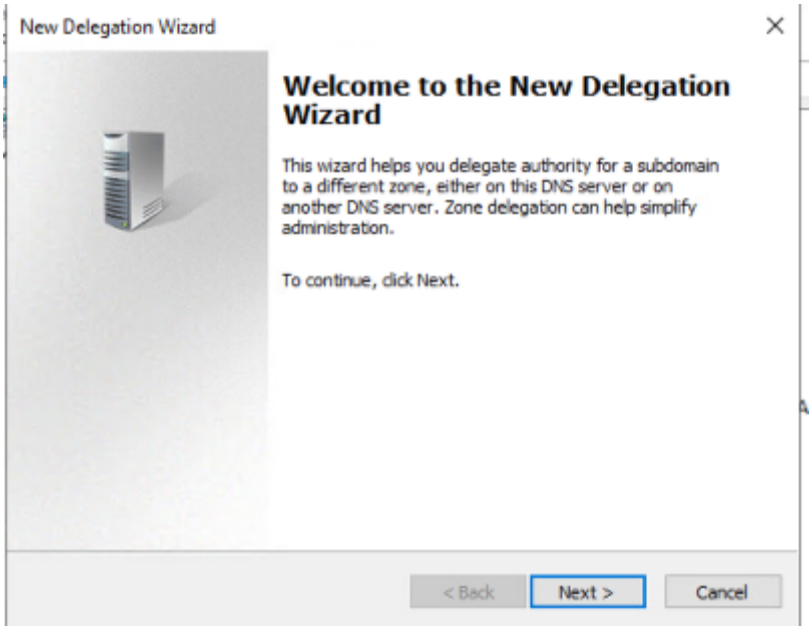
5. In the DNS Manager Console
   - Verify the following
     - That all entries are added in the DNS record as shown in the image above.
       - That your entries are created in the **euc-livefire.com** Forward Lookup Zones

Creating Delegation.
In this section, we will create Delegation using the DNS created in Section 1 for Site1 and Site2

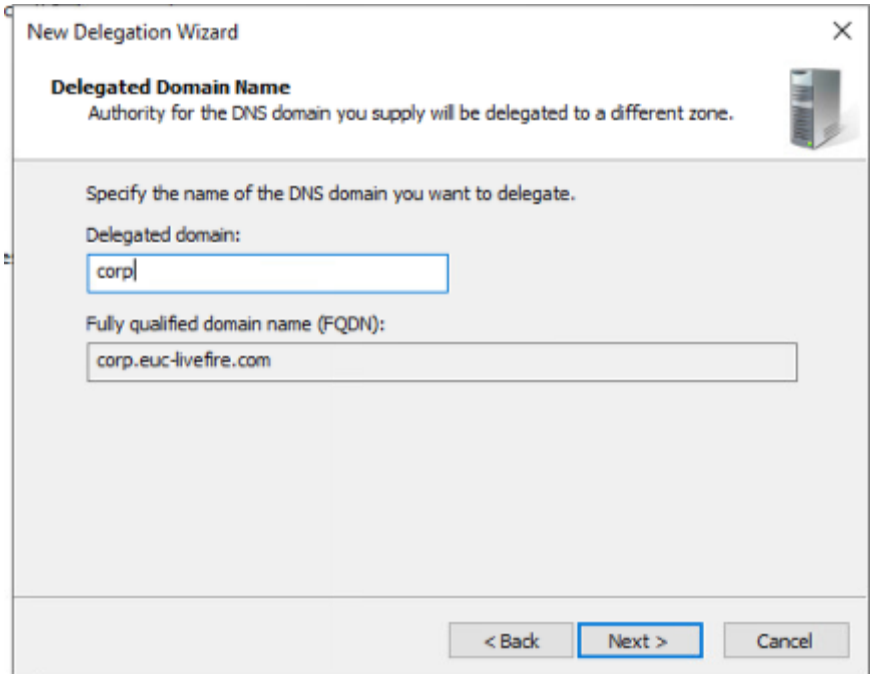
Part 1: Section 2: Setting up Zone Delegation



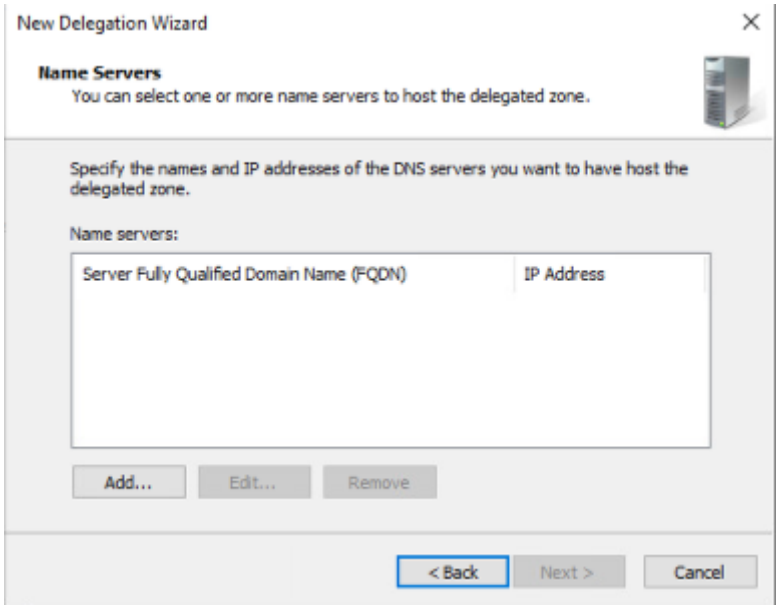
1. In the DNS Manager Window
   - **Right Click** on **euc-livefire.com**
     - Select **New Delegation...**



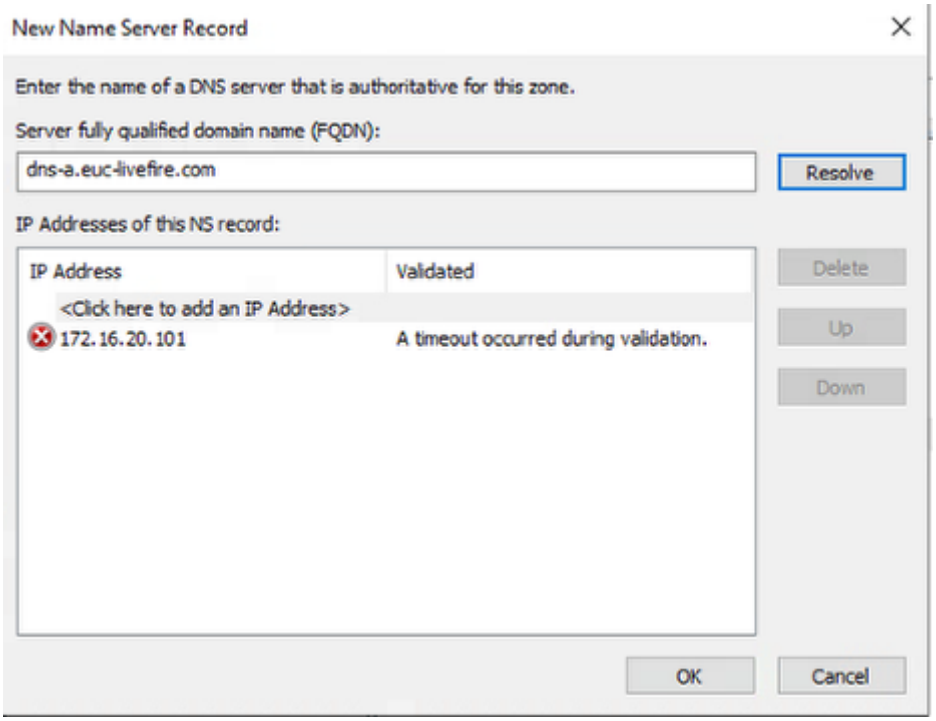
2. In the **New Delegation** Wizard
   - Click **Next**



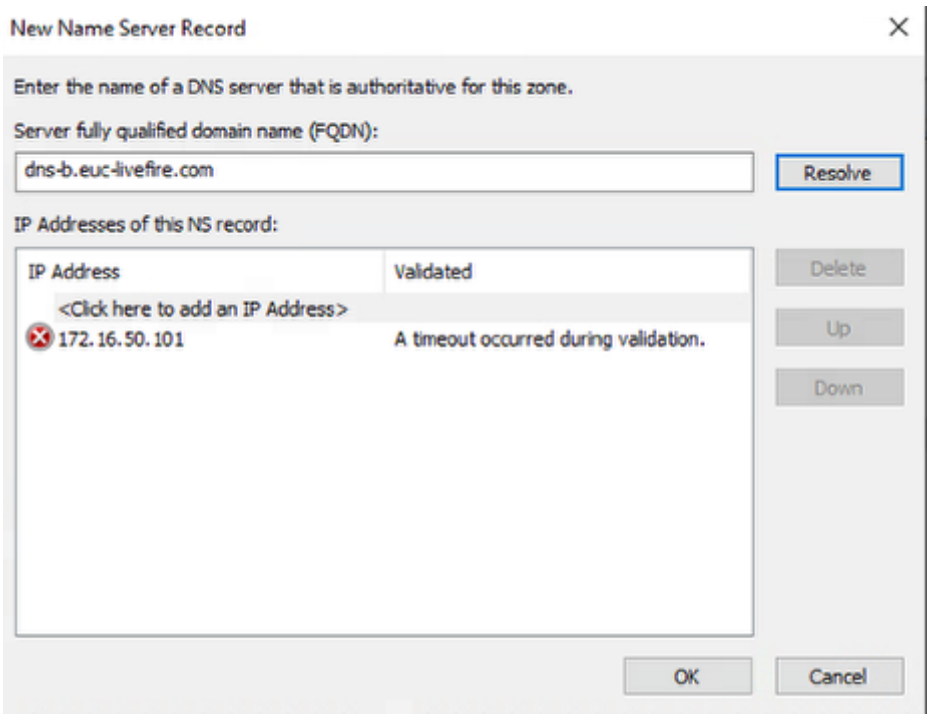
3. In the **New Delegation Wizard**
   - Under Delegated domain
     - **Type**
       - **corp**
         - Fully qualified domain name (FQDN), should show:
           - **corp.euc-livefire.com**
             - Click **Next**



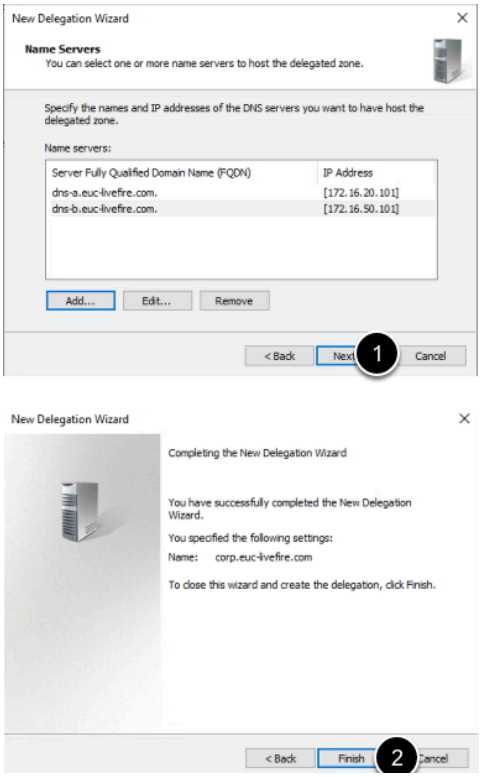
4. In the **Name Servers**
   - Click **Add**



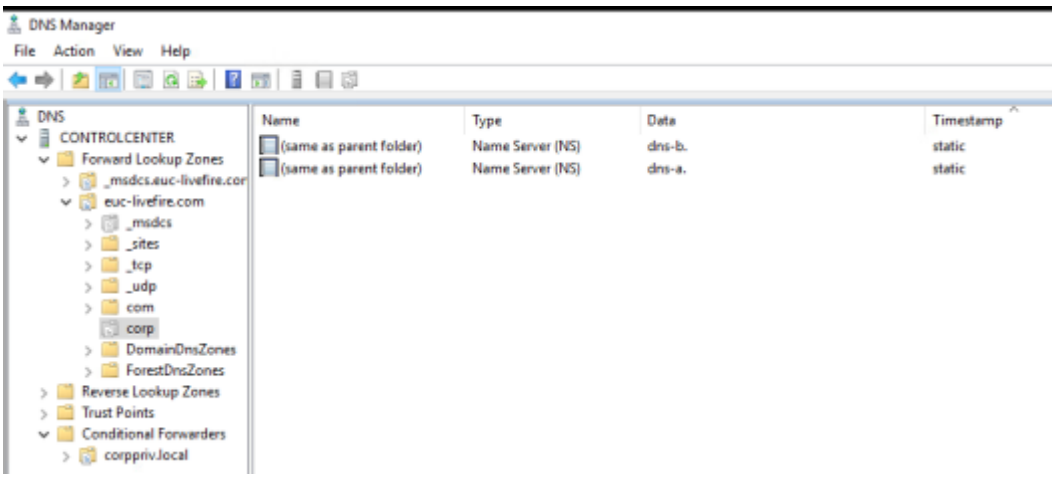
5. In Server fully qualified domain name (FQDN):
   - Type
     - **dns-a.euc-livefire.com**
       - Click **Resolve**
       - **Note: It will NOT resolve unless we create the GSLB**
         - **Click OK**



6. In the **Name Servers**
    - **Click Add Again**
        - In Server fully qualified domain name (FQDN):
            - Type
                - **dns-b.euc-livefire.com**
                - **Note: It will NOT resolve unless we create the GSLB**
                    - Click **Resolve**
                        - **Click OK**



7. In New Delegation Wizard
    - Click **Next**
        - Click **Finish**

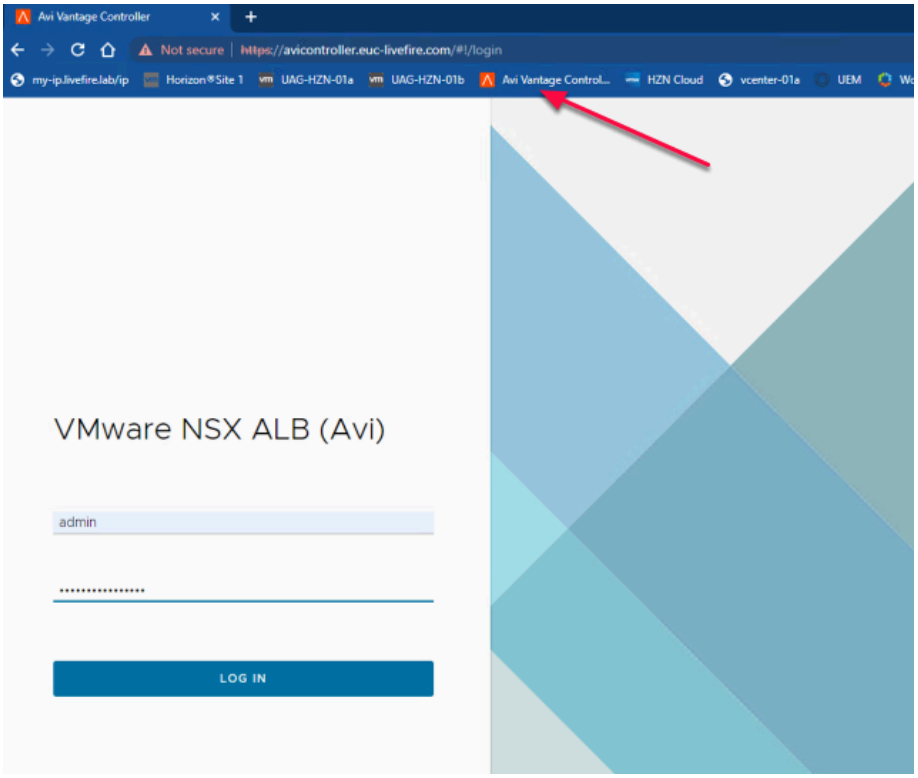


8. The **Corp Delegation** should look like shown in the picture above

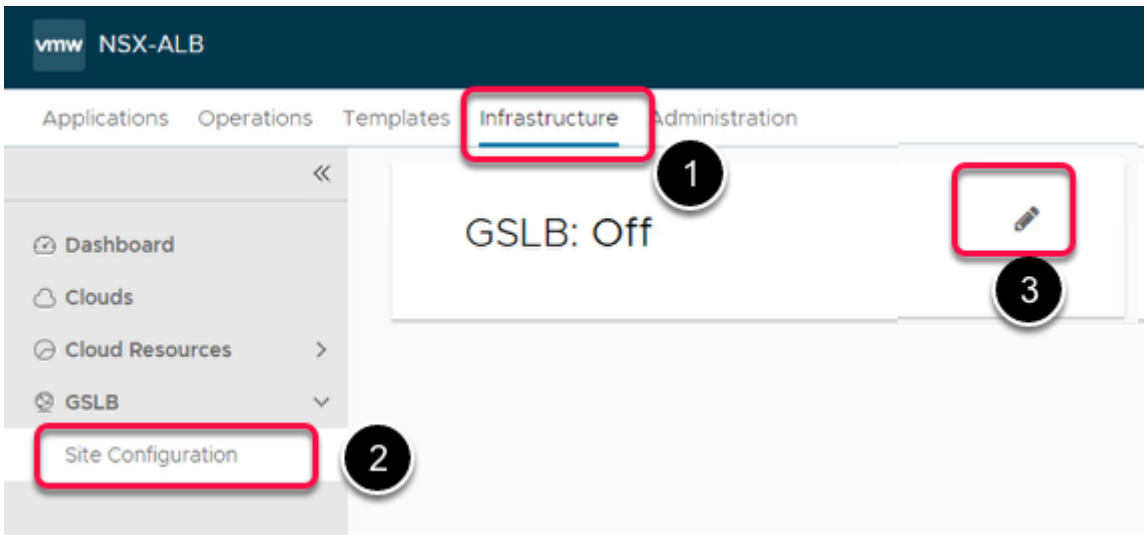
Part 2 Setting Up AVI GSLB

Site Configuration.
In this section, we do Site Configuration in AVI

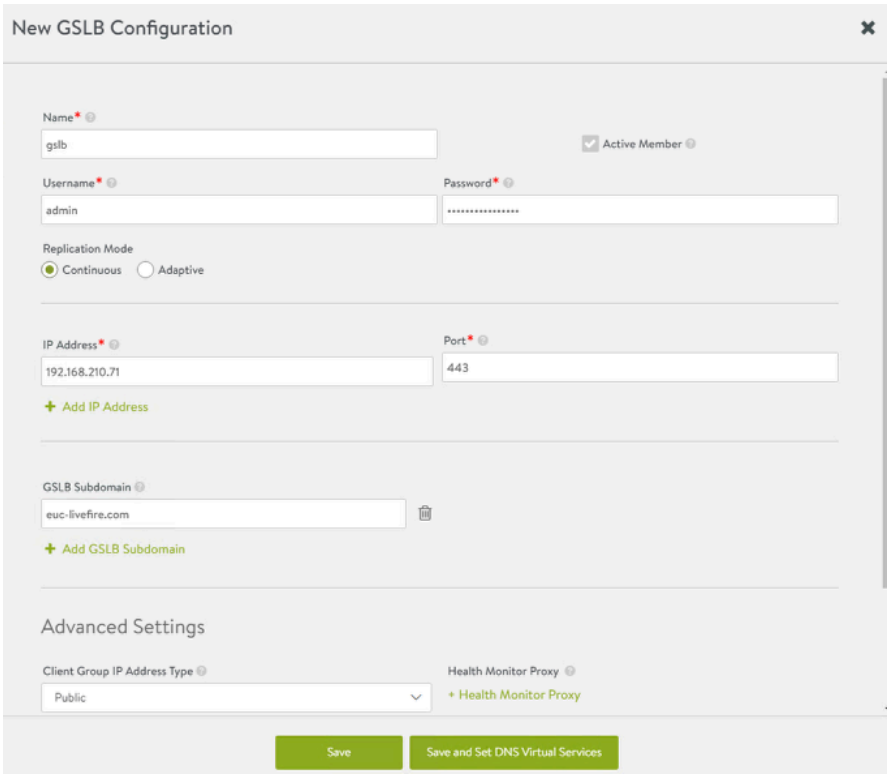
Part 2: Section 1: Site Configuration on AVI Controller



1. On your ControlCenter Server
   - Open your **Chrome Browser for Site-1**
     - In the **Address bar,** Enter or browse from the bookmark
       - To **https://avicontroller.euc-livefire.com**
         - Under Username, enter **admin** and **VMware1!VMware1!** as the password
           - Click **Login**

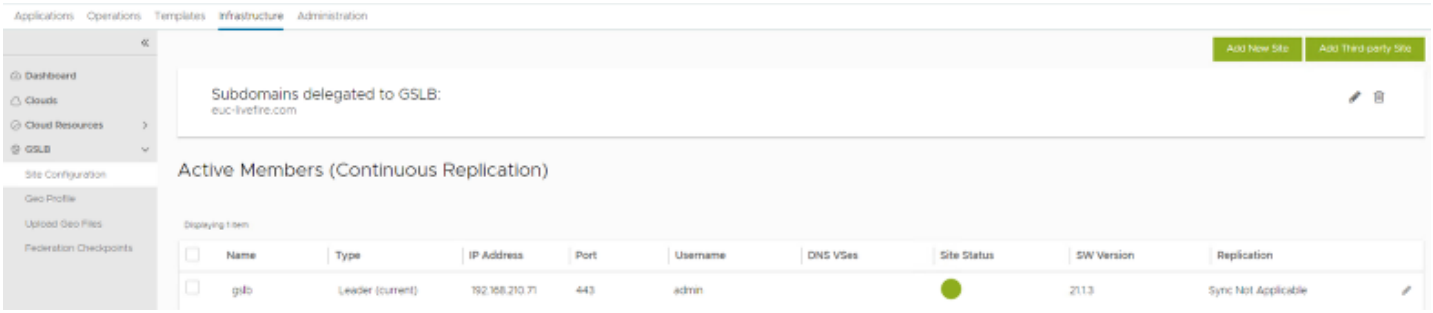


2. In the **NSX-ALB** Console
   - Navigate to **Infrastructure** > **GSLB** > **Site Configuration**
   - **Click on the Pen symbol on the right to enable GSLB**



4. In the **New GSLB Configuration** Window
   - **Name: GSLB**
   - **Username: admin**
   - **Password: VMware1!VMware1!**
   - **IP Address: 192.168.210.71 (Default)**
   - **Port: 443 (Default)**
   - **GSLB Subdomain: euc-livefire.com**
   - **Client Group Ip Address Type : Public (Default)**

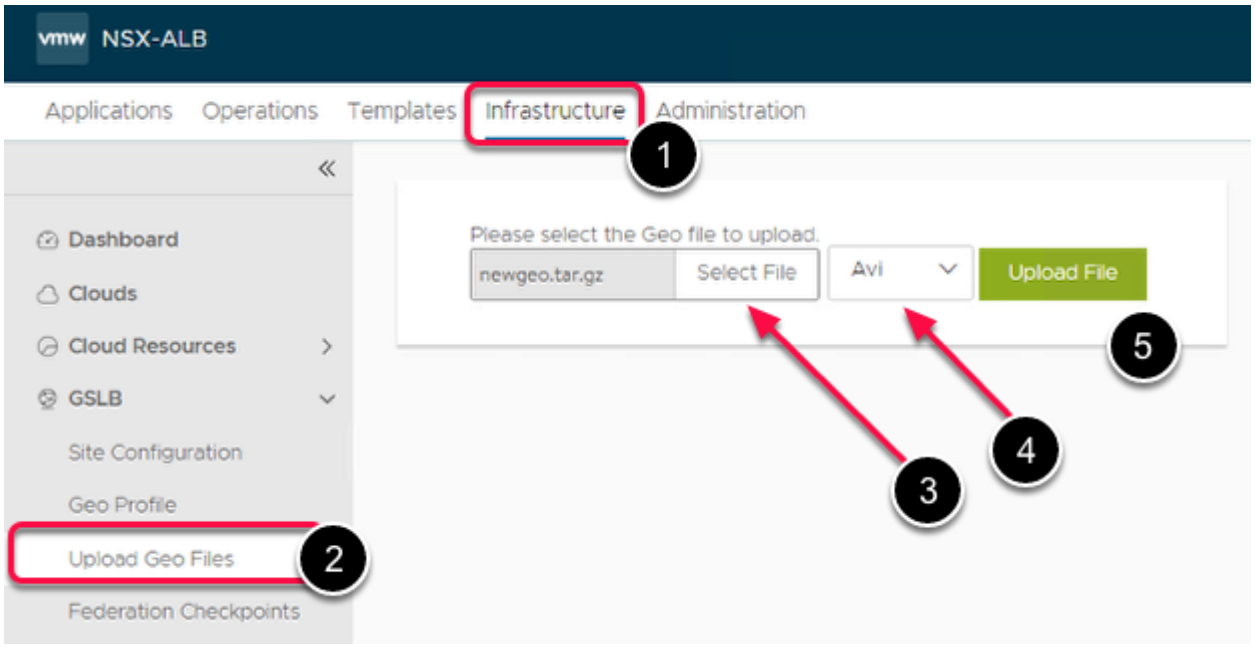
- **Click Save**



5. The **Site Configuration** should look as shown in the pic above.

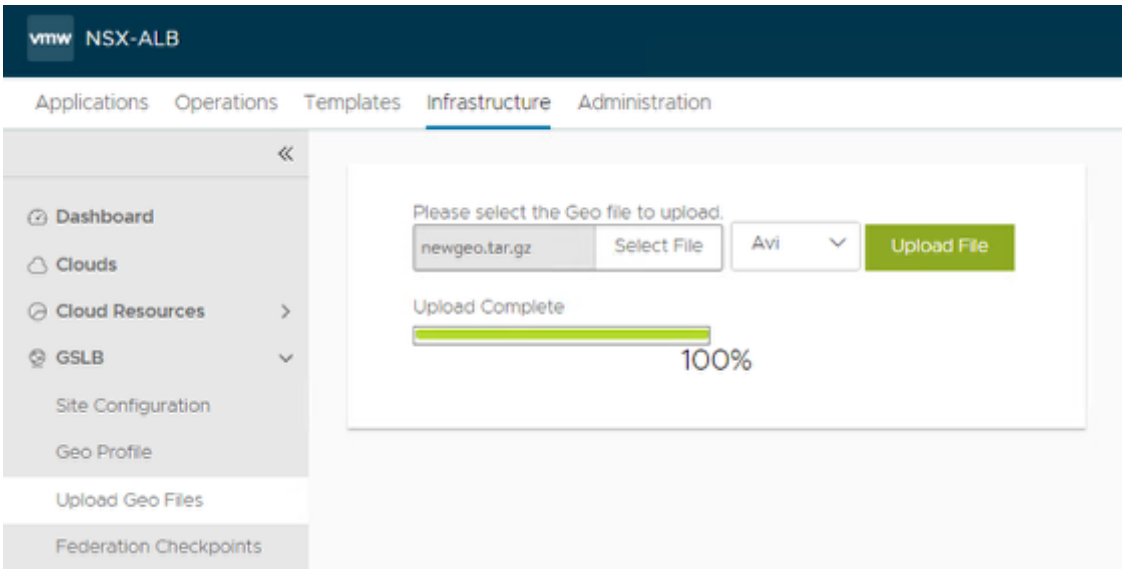
Configure Geo Profile.
Since our Multi-Site lab is in same physical location, we need to update the AVI GEO DB with a custom configuration file so that client request coming from Site1 should be denoted as Bangalore and client request coming from Site 2 as Seattle.

Part 2: Section 2: Geo Profile configuration on AVI

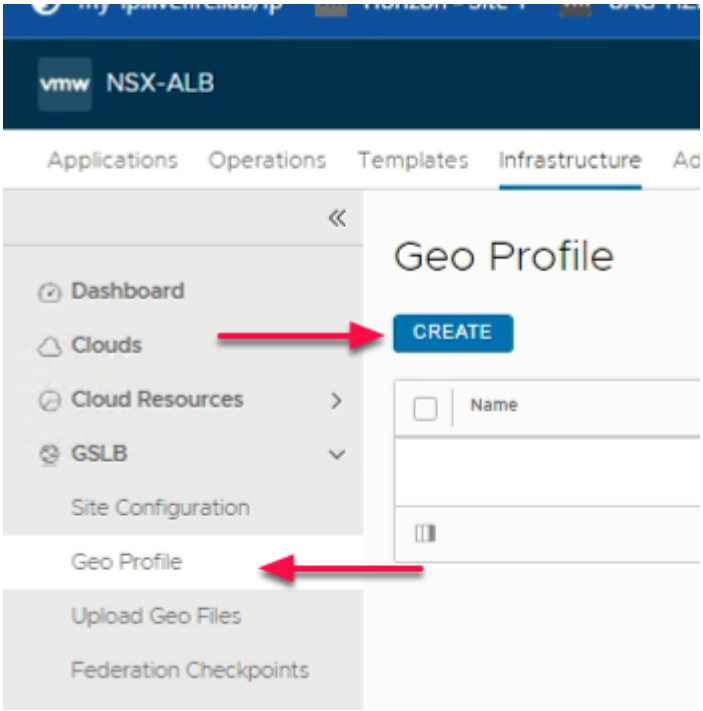


1. In the AVI admin page
   - Go to
     - **Infrastructure > Upload Geo Files**
     - Under **Please select the Geo files to upload**
       - Click **Select Files**
         - Navigate to **Desktop** > **Software** >**AVI**

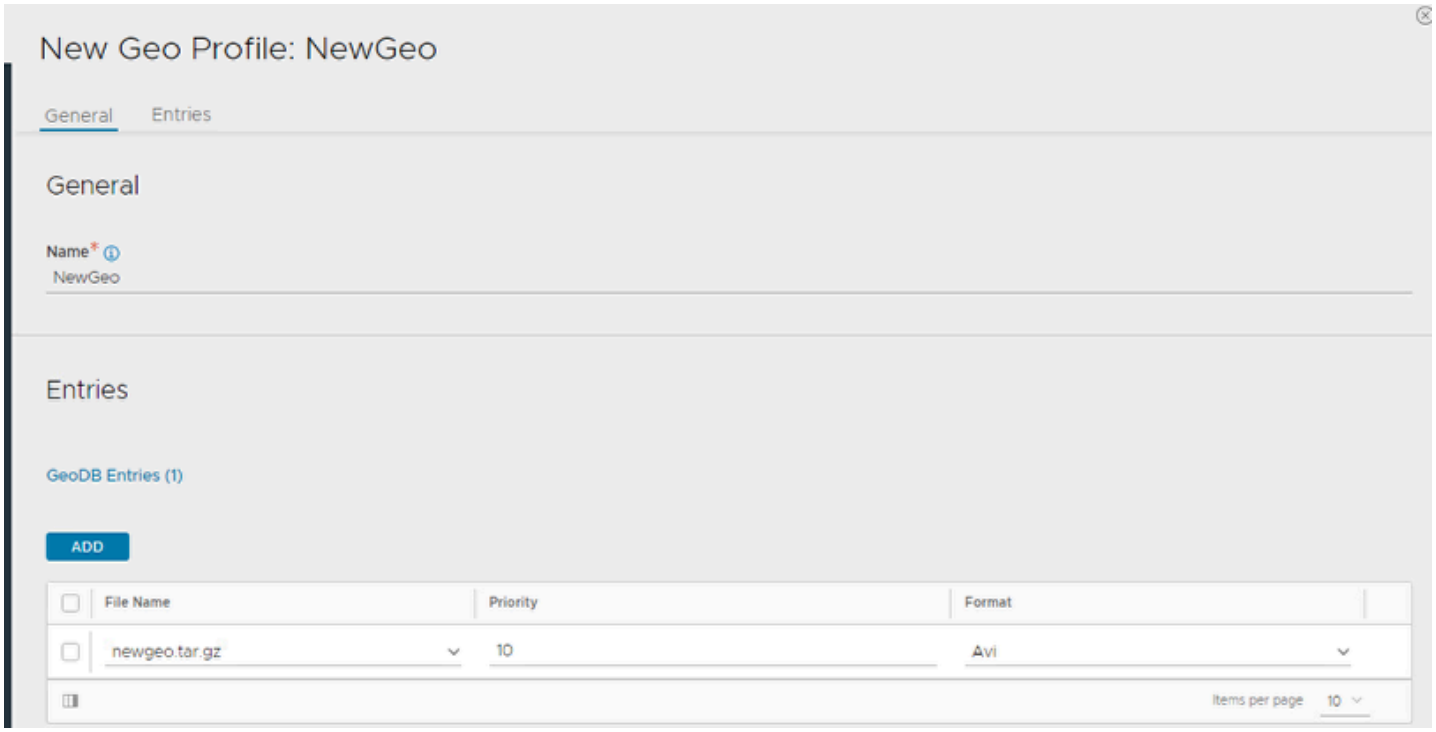
- **Select** **newgeo.tar.gz** file
- Click **Open** to upload the file
- From the **dropdown** menu
- Select **AVI** as a format as shown in the **Button 4**
- Click **Upload File**



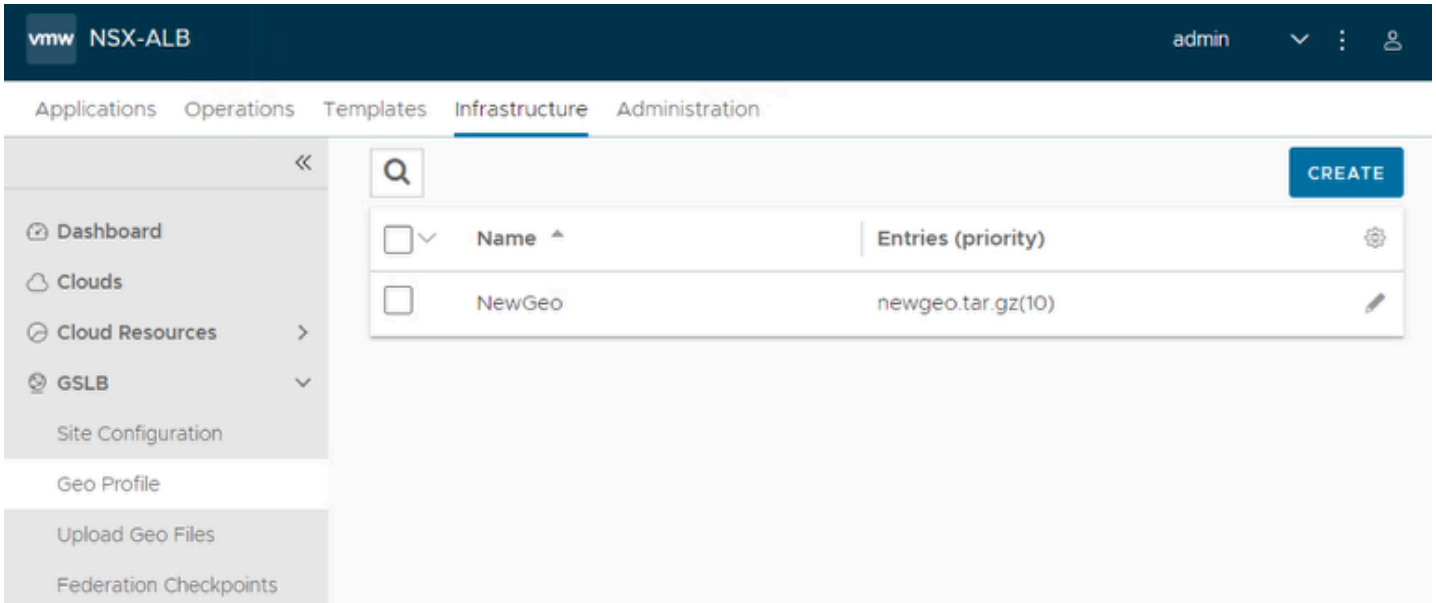
2. Once the upload is complete
   - It should denote as **Upload Complete 100%**



3. Under **Infrastructure**
   - Navigate to **Geo Profile**
     - In the **Geo Profile** tab
       - Click **CREATE**



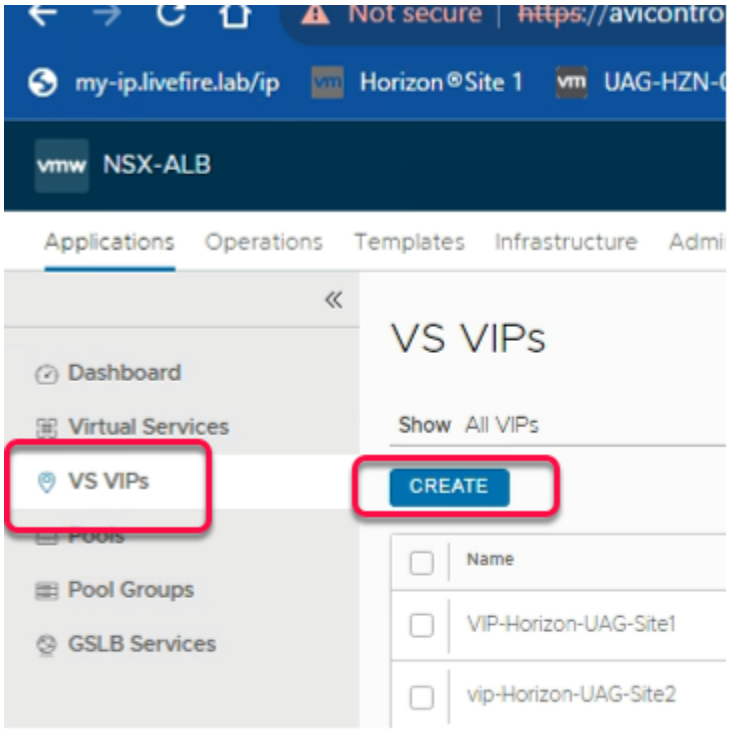
4. In **New Geo Profile** window
   - Under **General**
     - Name : **NewGeo**
   - Under **Entries**
     - From **File Name** Dropdown
       - **Select** **newgeo.tar.gz** file which we uploaded in Part 2: Section 2: Step 1
       - **Priority** : **10 (Default)**
       - **Format**: **AVI (Default)**
       - **Click SAVE**



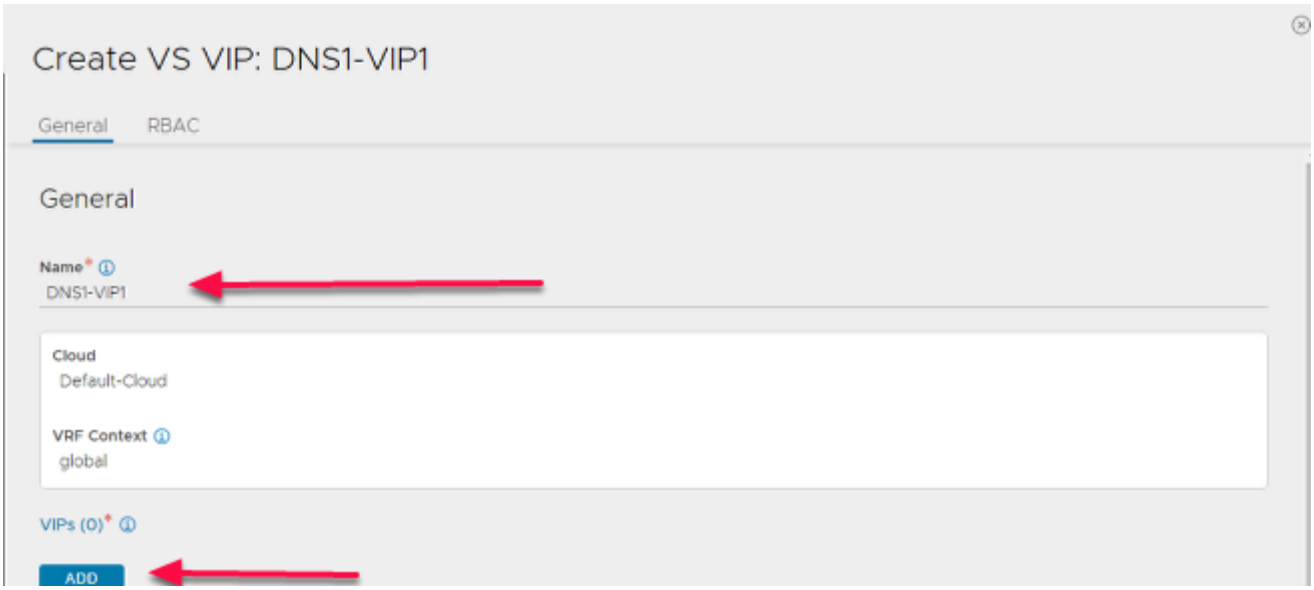
5. Once the Geo Profile is saved
    - It should look as shown in the Pic Above

Create VIP using the IPs we configured in Part 1 for Site 1 and Site 2

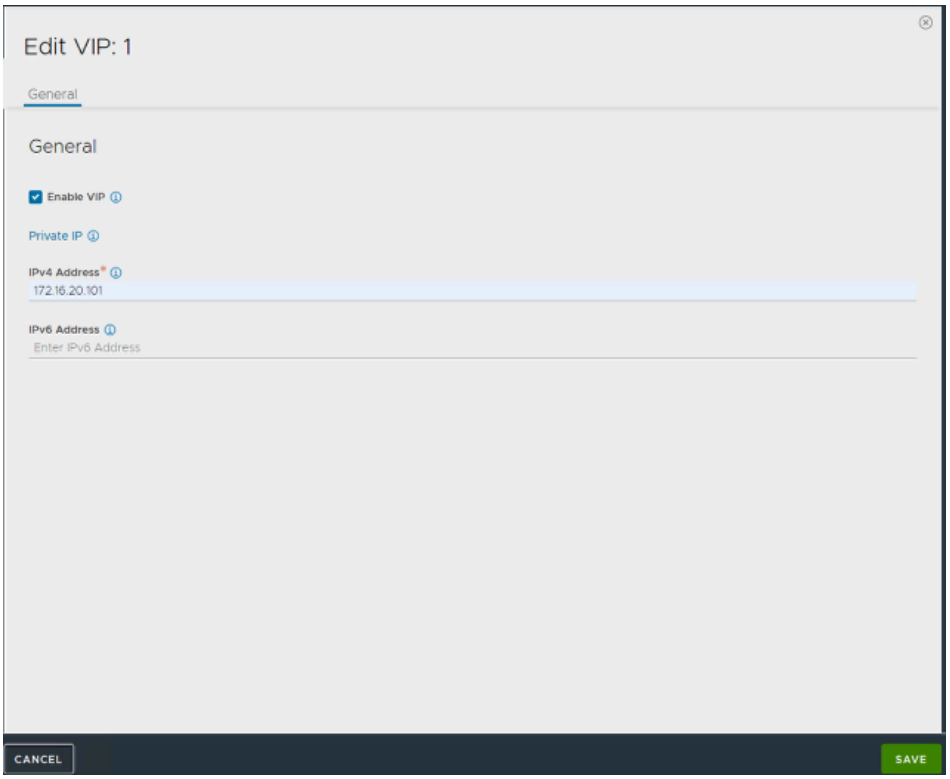
Part 2: Section 3: Creating VIPs for GSLB



1. In the AVI Admin Page
    - Go to **Application** > **VS VIPs**
    - **Click CREATE** to create DNS VIP for Site1

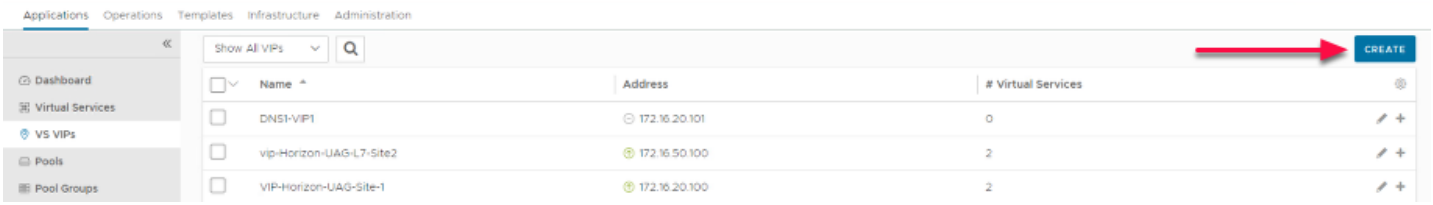


2. In the **Create VS VIP** Page
   - Under **General** type
     - **Name** : **DNS1-VIP1**
   - **Click ADD**

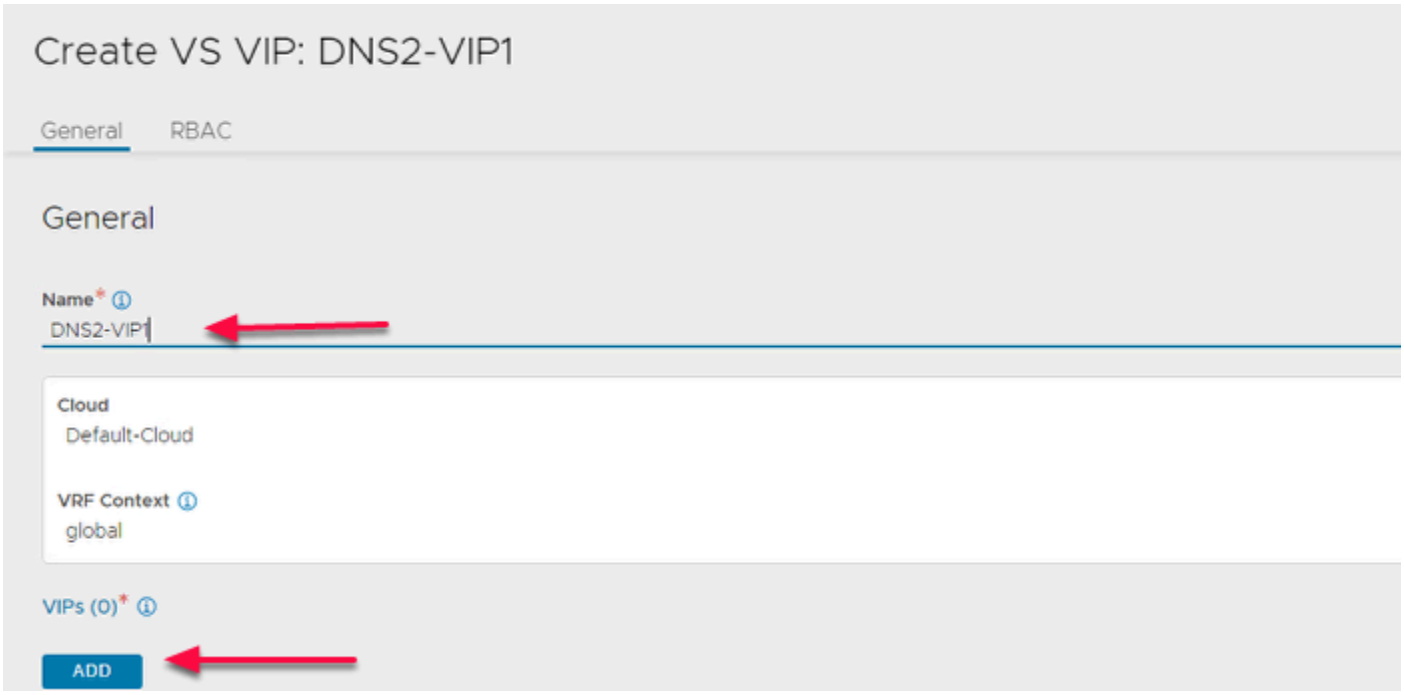


3. In Edit VIP: 1
   - Under **General**
     - validate **Enable VIP** checkbox is **checked**
     - **Private IP : 172.16.20.101**
     - **Click SAVE**

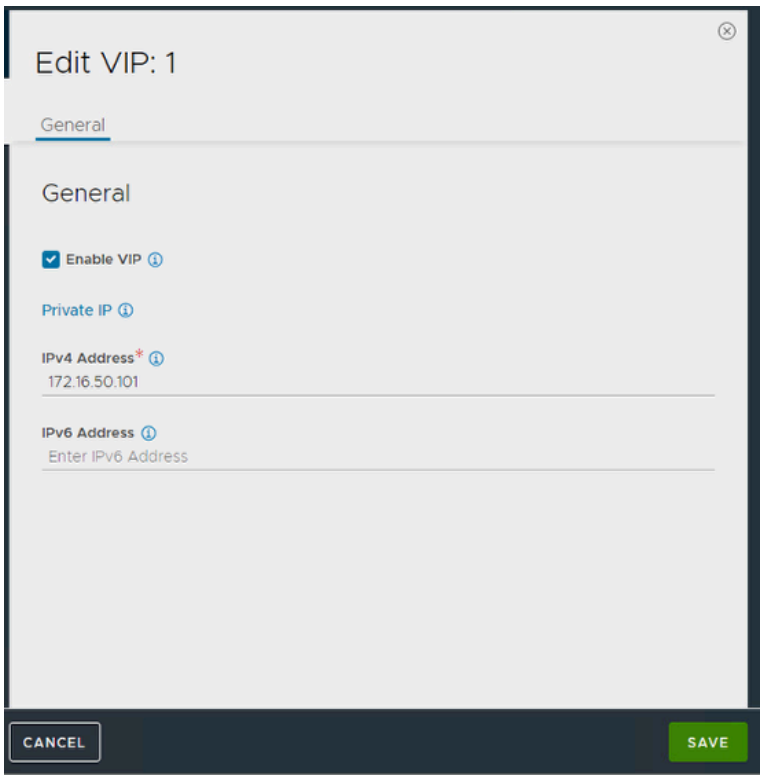
- **Click SAVE** again in the **Create VS VIP Page**



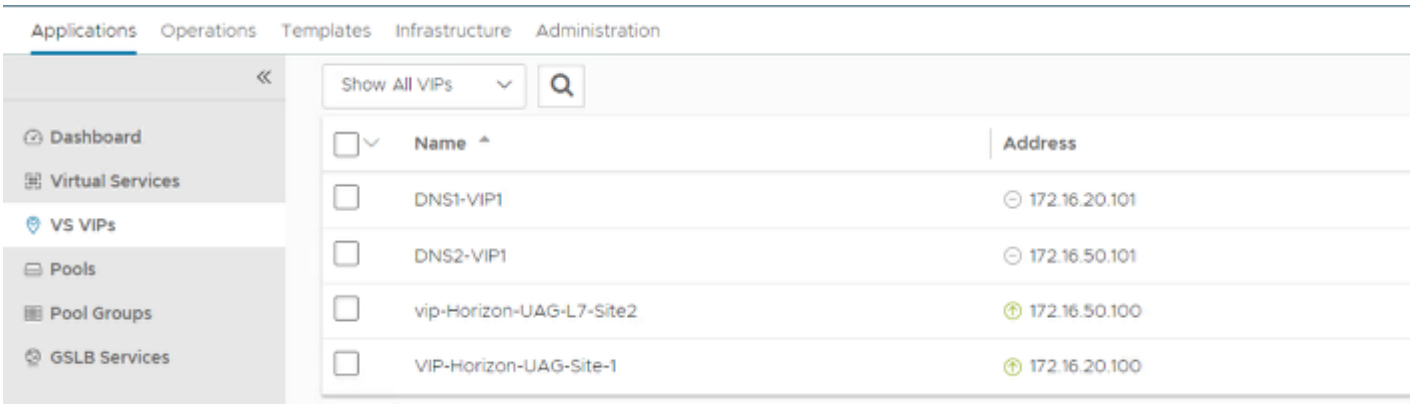
4. In the VS VIPs, page
   - Click **CREATE** to create DNS VIP for Site2



5. In the **Create VS VIP** Page
   - Under **General type**
     - **Name** : **DNS2-VIP1**
   - **Click ADD**



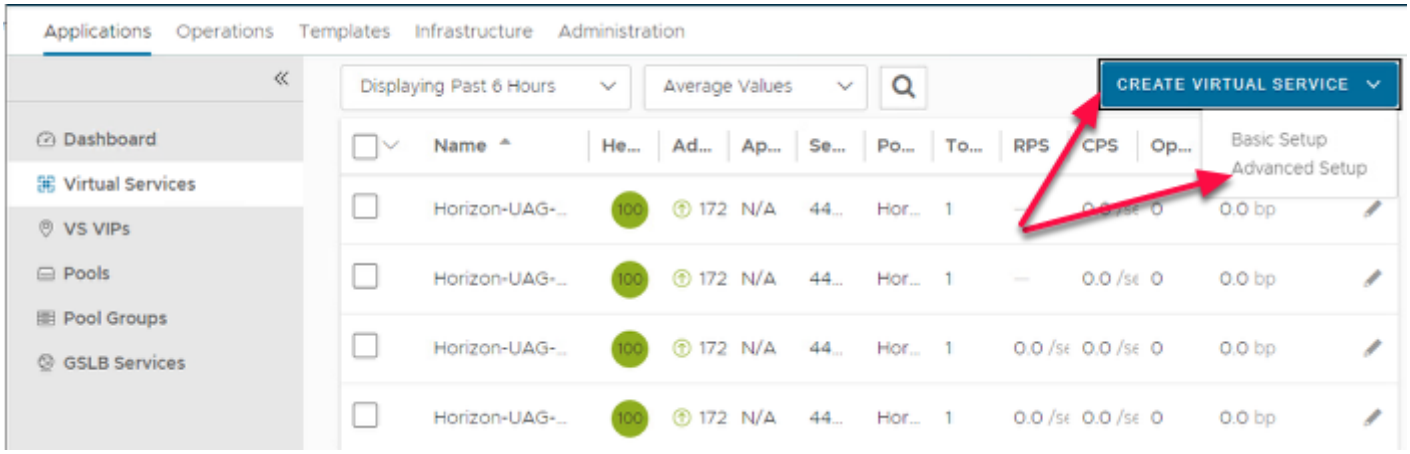
6. In Edit VIP: 1
   - Under **General**
   - **Enable VIP** checkbox
   - **Private IP : 172.16.50.101**
   - **Click SAVE**
   - **Click SAVE** again in the **Create VS VIP Page**



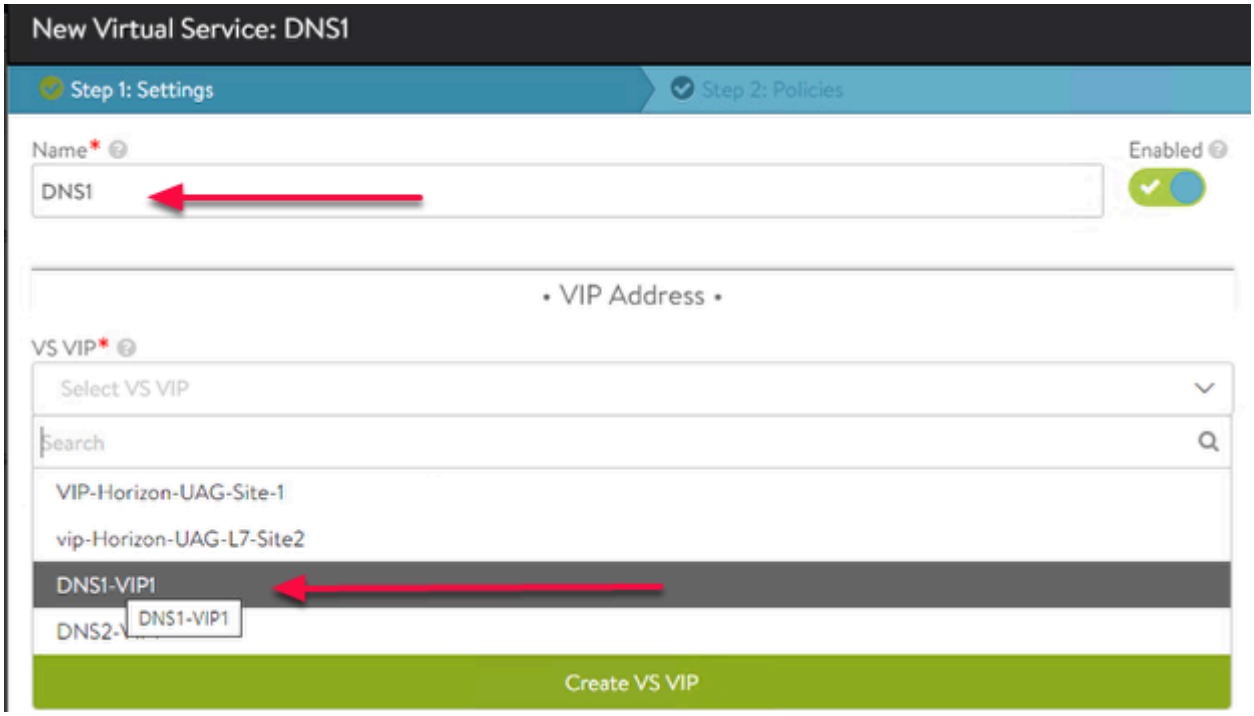
7. The **VS VIPs** Page should look as shown in the pic above

In this section we create Virtual Service for Site1

Part 2: Section 4: Creating Virtual Service for Site 1

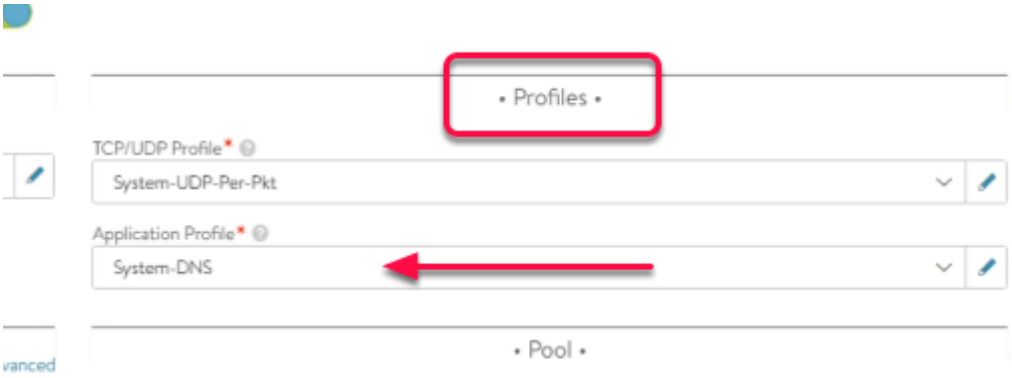


1. In the **NSX-ALB** Console
   - Navigate to **Applications** > **Virtual Services**
   - In the **Virtual Services** area
   - To the top right, select **CREATE VIRTUAL SERVICE**
   - Select **Advanced Setup**.

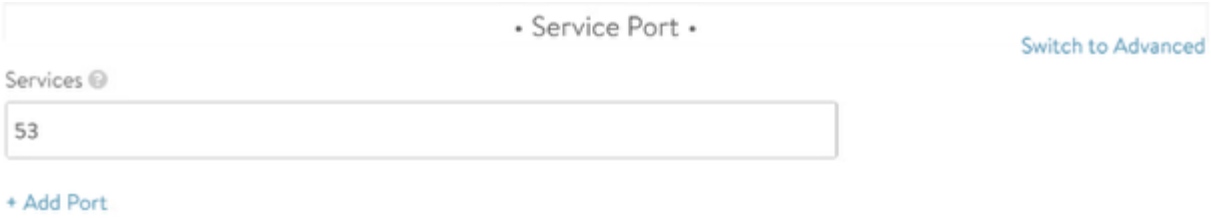


2. In the **New Virtual Service** wizard
   - **Step 1: Settings** area
     - Enter the following under:
       - **Name***
         - type **DNS1**

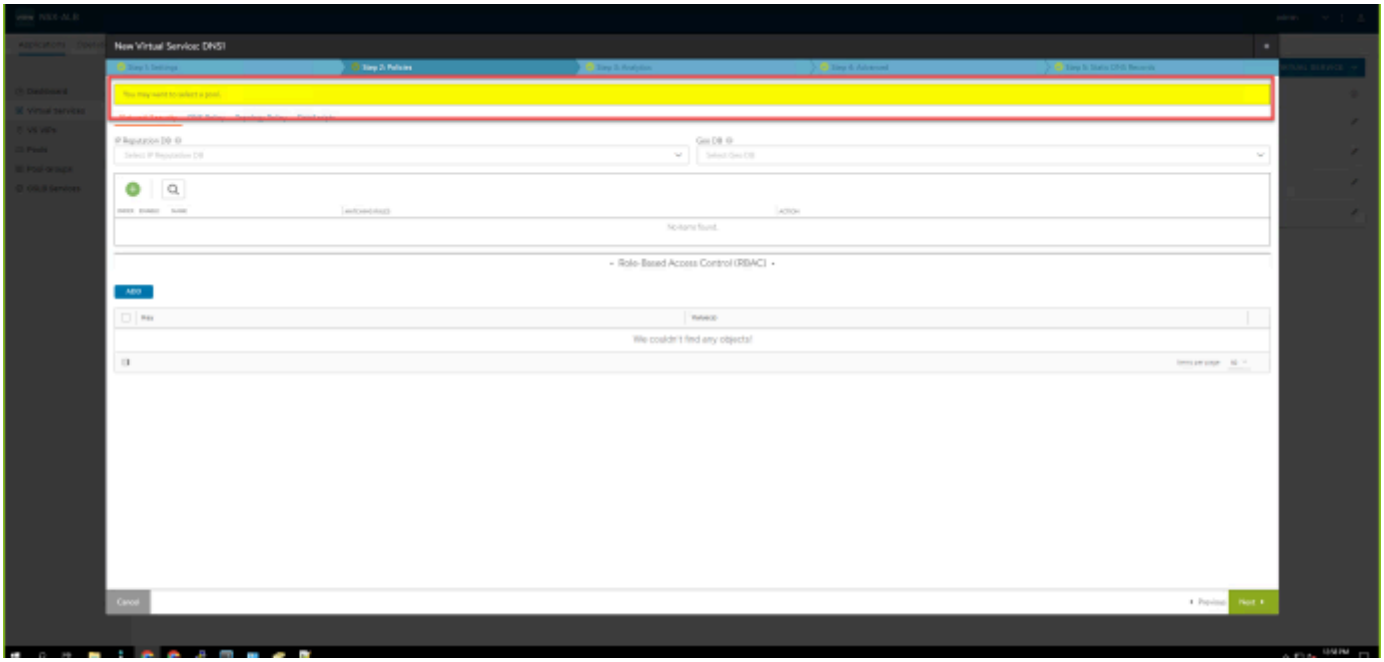
- **VS VIP ***
  - Select the **dropdown**,
    - Select **DNS1-VIP1**



3. To the **Right** of VIP Address
   - Under **Profile**
     - **Application Profile : System-DNS**
     - **Note:**
       - You will notice, **TCP/UDP Profile** automatically changes to **System-UDP-Per-pkt**



4. Under **Service Port**
   - Confirm Services is set to **53**



5. In the Virtual Service
   - The warning message shows as
     - **You may want to select pool**
     - Ignore the message and proceed forward.

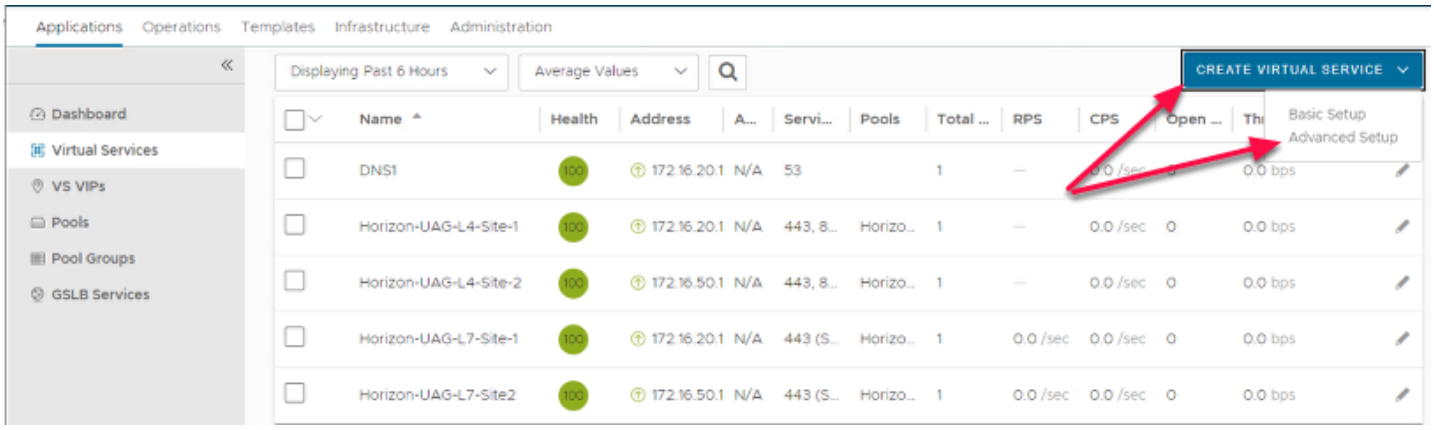
6. Leave the **Pool** Drop Down as Blank
   - Click **Next**
   - Under **Step 2: Polices**
     - Leave it **default** and **Click Next**
   - Under Step 3 : Analytics
     - Leave it **default** and **Click Next**
   - Under **Step 4: Advanced**

- Leave it **default** and **Click Next**

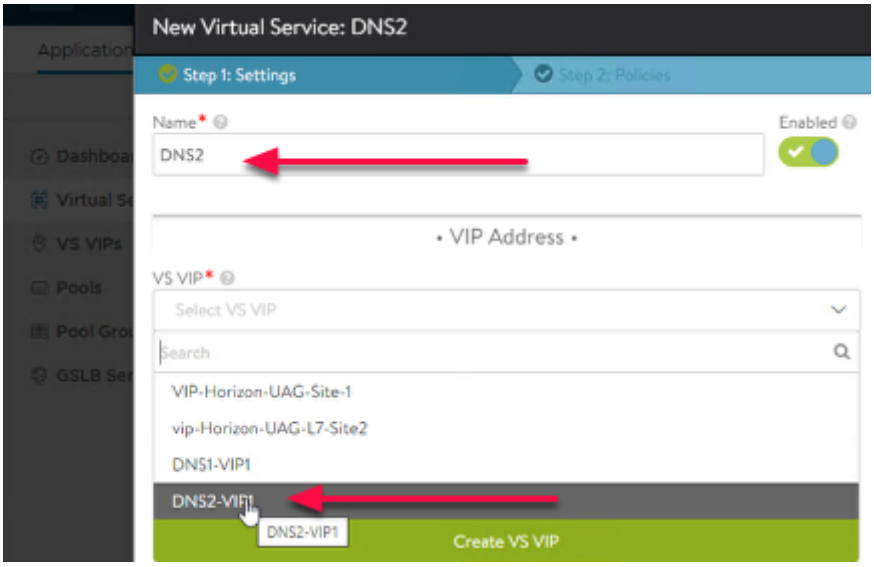
- Under **Step 5 : DNS Records**
  - Leave it **default** and **Click SAVE**

In this section we create Virtual Service for Site 2

Part 2: Section 5 : Creating Virtual Service for Site 2

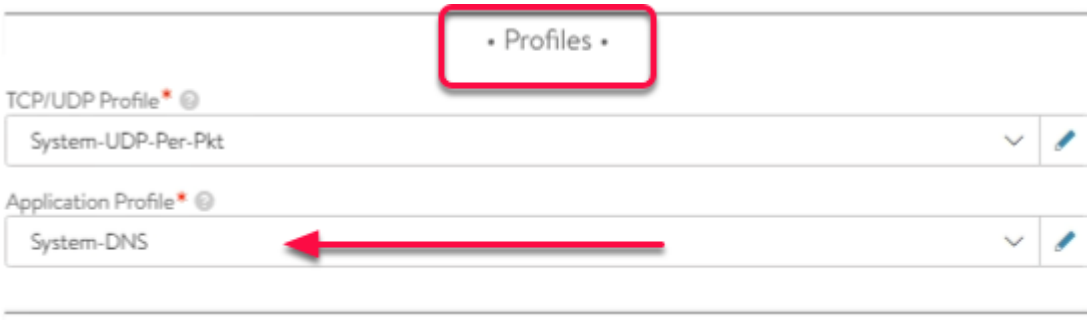


1. In the **NSX-ALB** Console
   - Navigate to **Applications** > **Virtual Services**
   - In the **Virtual Services** area
   - To the top right, select **CREATE VIRTUAL SERVICE**
   - Select **Advanced Setup**.

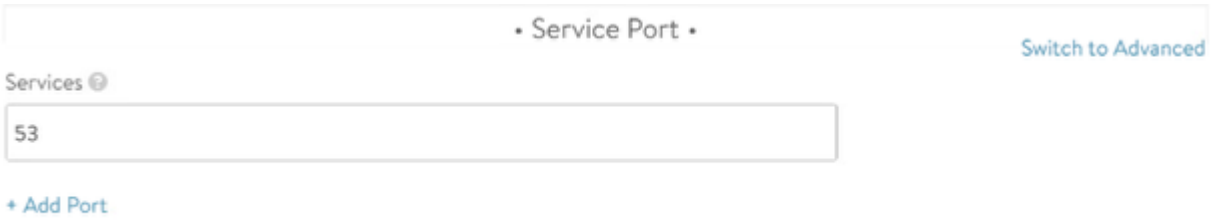


2. In the **New Virtual Service** wizard
   - **Step 1: Settings** area

- Enter the following under:
  - **Name***
    - type **DNS2**
  - **VS VIP ***
    - Select the **dropdown**,
      - Select **DNS2-VIP1**

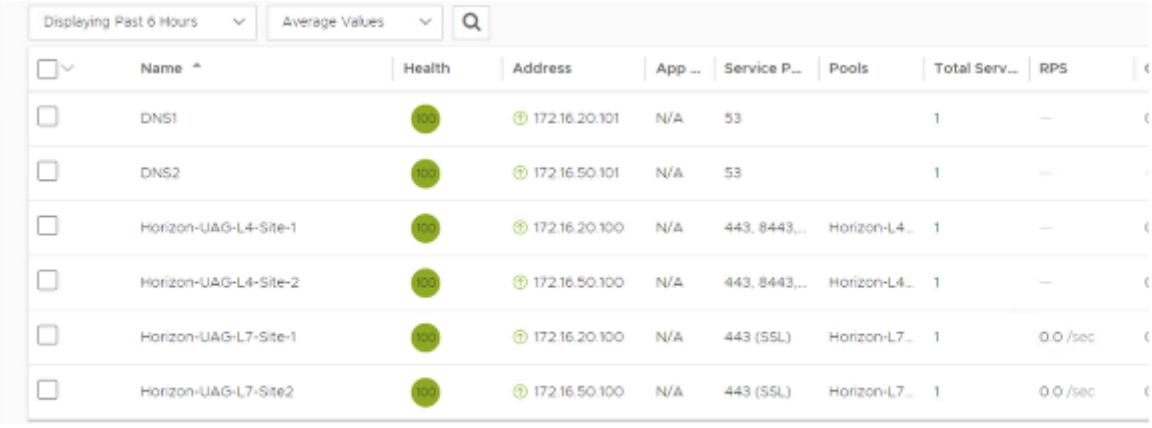


3. To the **Right** of VIP Address
   - Under **Profile**
     - **Application Profile : System-DNS**
     - **Note:**
       - You will notice, **TCP/UDP Profile** automatically changes to **System-UDP-Per-pkt**



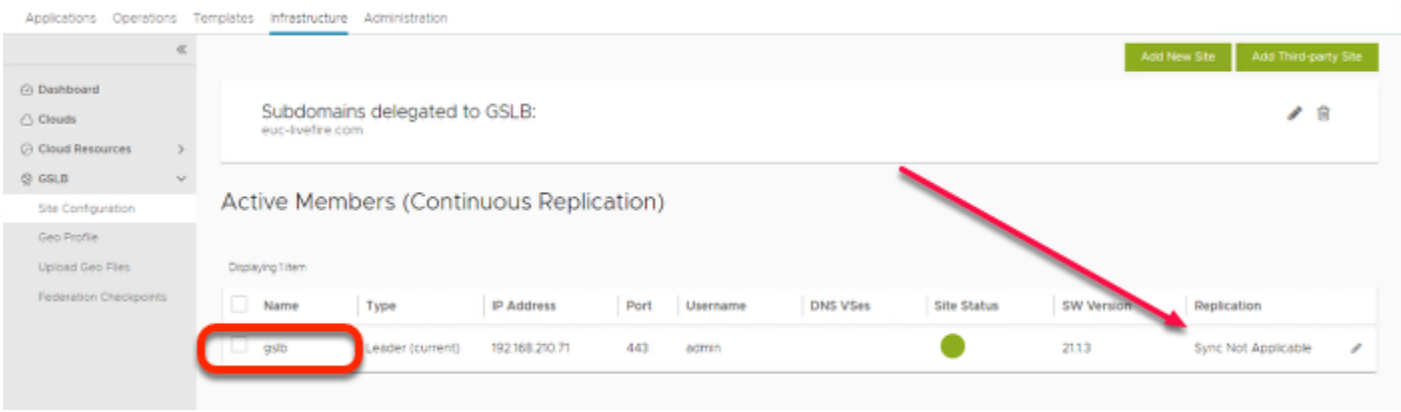
4. Under **Service Port**
   - Confirm Services is set to **53**

5. Leave the **Pool** Drop Down as Blank
   - Click **Next**
   - Under **Step 2: Polices**
     - Leave it **default** and **Click Next**
   - Under Step 3 : Analytics
     - Leave it **default** and **Click Next**
   - Under **Step 4: Advanced**
     - Leave it **default** and **Click Next**
   - Under **Step 5 : DNS Records**
     - Leave it **default** and **Click SAVE**

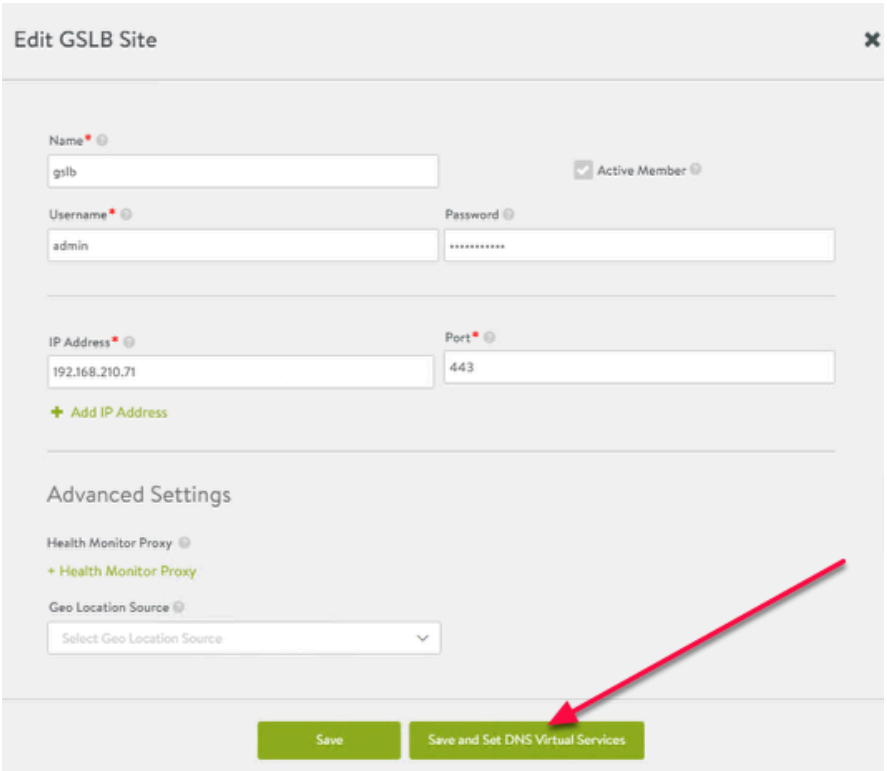


6. Once both **DNS1** and **DNS2** are configured
   - The Virtual Services Should look as shown in the Pic above

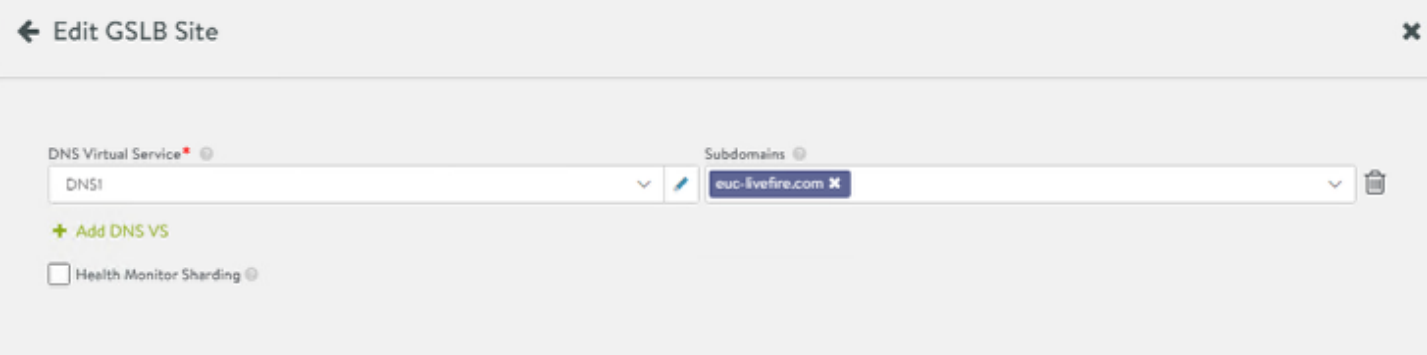
Part 2: Section 6: Integrating Virtual Service with GSLB Site



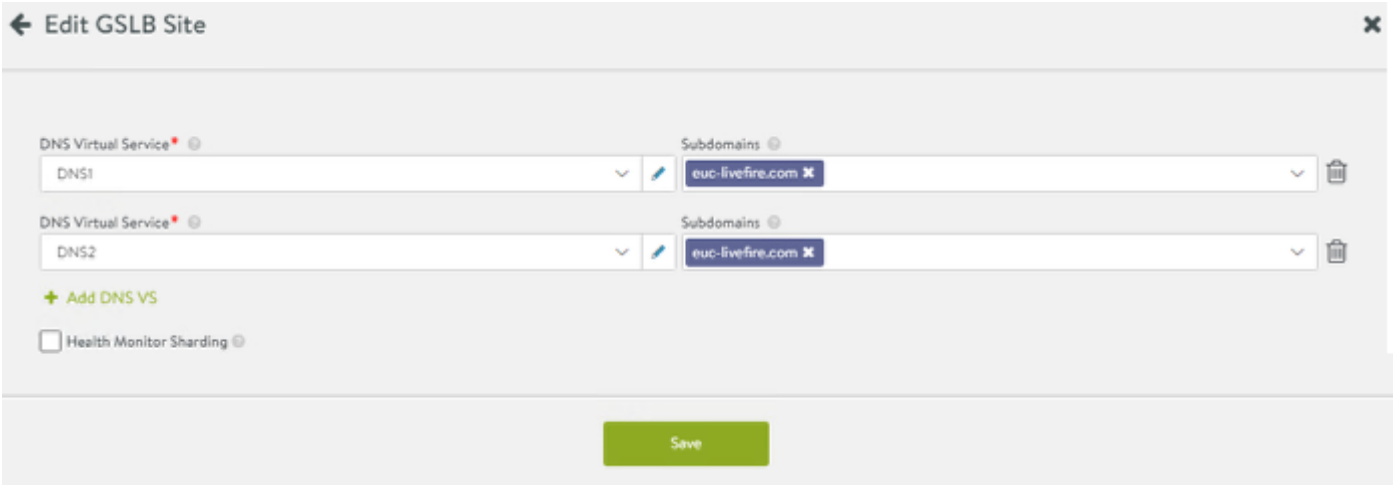
1. In the AVI-ALB Console
   - Go to **Infrastructure** > **expand**
     - **select Site Configuration**
   - Under **Active Members (Continuous Replication)**
     - Next to **gslb** we created earlier section
       - Click on **Pen Icon** to edit the **GSLB**



2. In the **Edit GSLB Site** Page
   - Click on **Save and Set DNS Virtual Services**
   - It will redirect you to **Edit GSLB Site** to link **DNS Virtual Service** to **Subdomains**



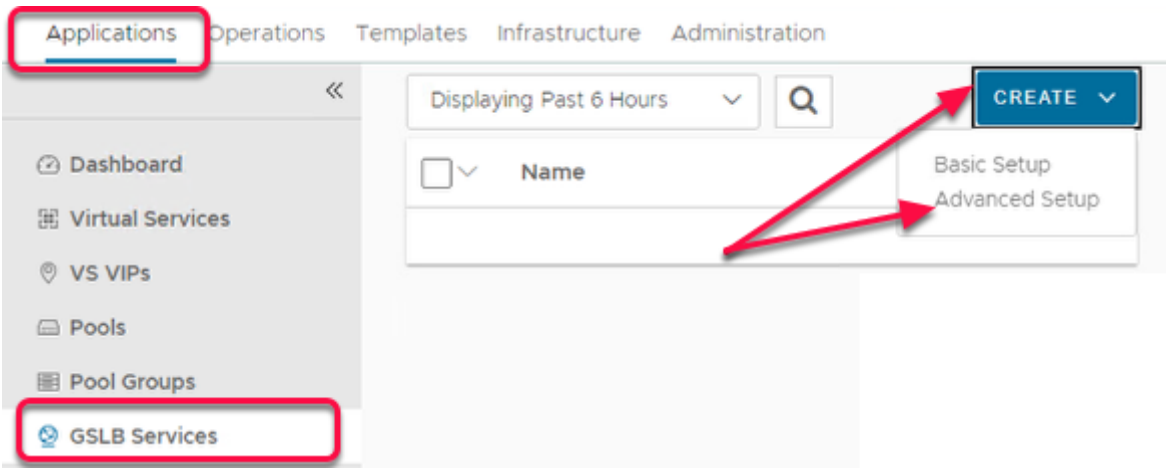
3. In the **Edit GSLB Site** Page
   - **DNS Virtual Service : DNS1**
   - **Subdomains : euc-livefire.com**
   - Click **+ Add DNS VS** to add Site2 DNS



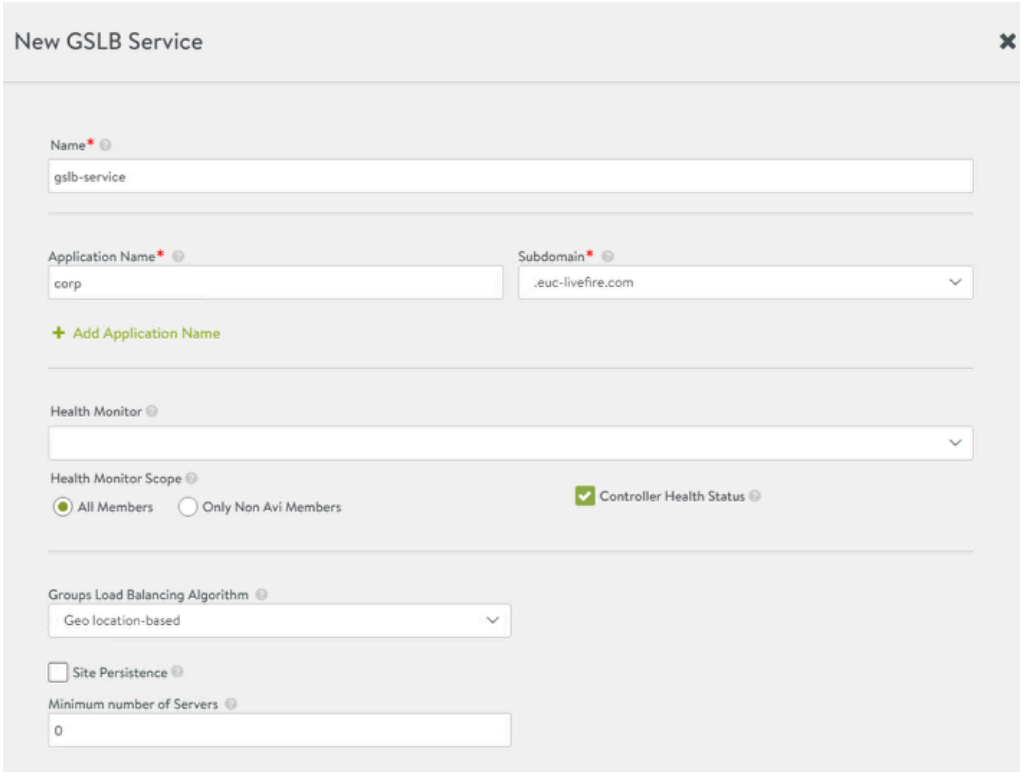
4. **In the Edit GSLB Site Page**
   - **DNS Virtual Service : DNS2**
   - **Subdomains : euc-livefire.com**
   - **Click Save**

In this section we create GSLB Services

Part 2: Section 7: Creating GSLB Services

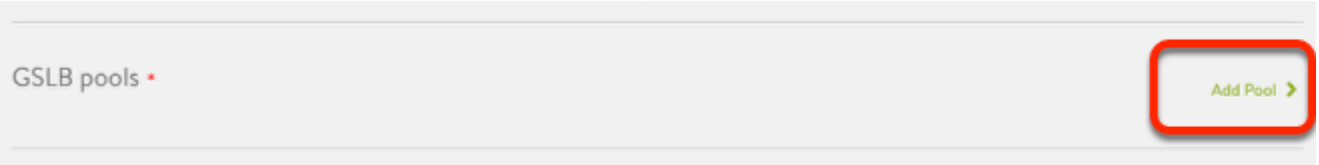


1. In the **NSX-ALB** Console
   - Navigate to **Applications** > **GSLB Services**
   - In the **GSLB Services** area
   - To the top right, select **CREATE**
   - Select **Advanced Setup**.

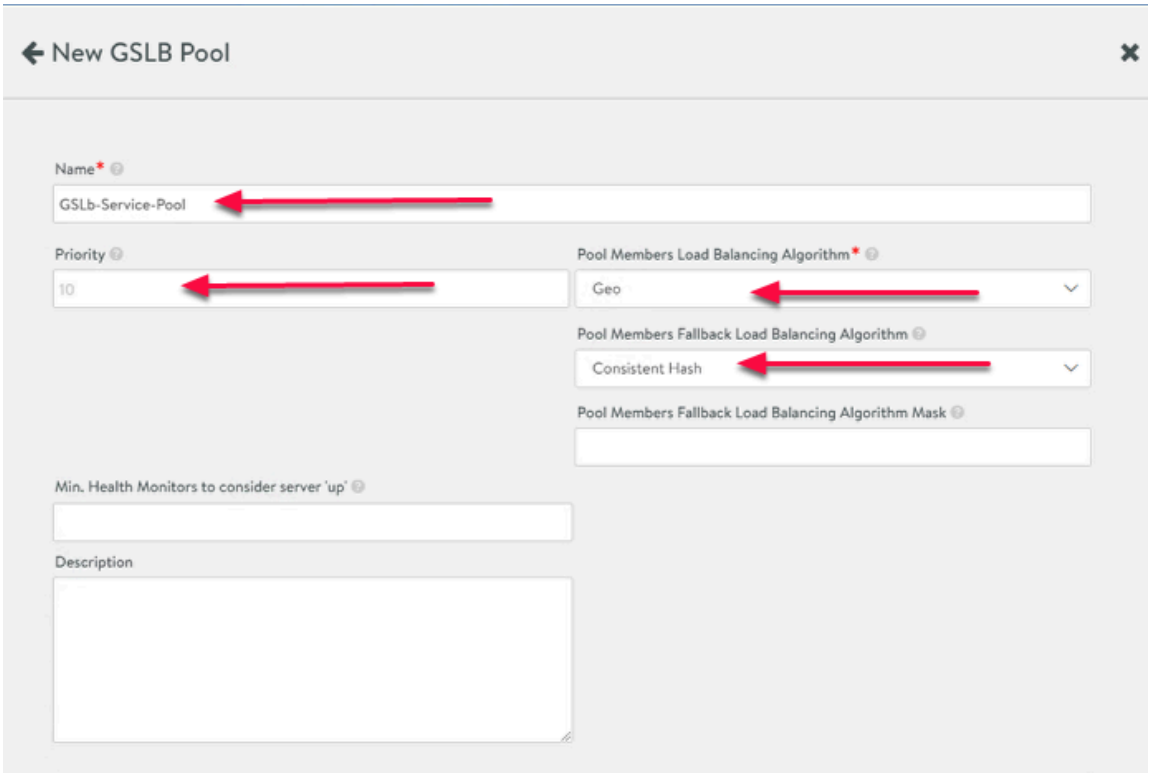


2. In the **New GSLB Service** area configure
   - **Name : gslb-service**
   - **Application Name : corp**
   - **Subdomain : .euc-livefire.com (default)**

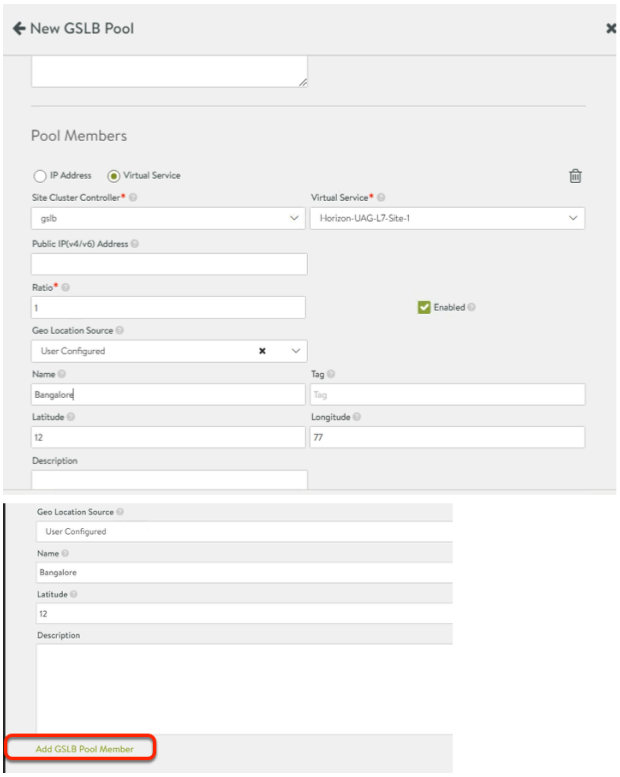
- **Groups Load Balancing Algorithm : Geo location-based**



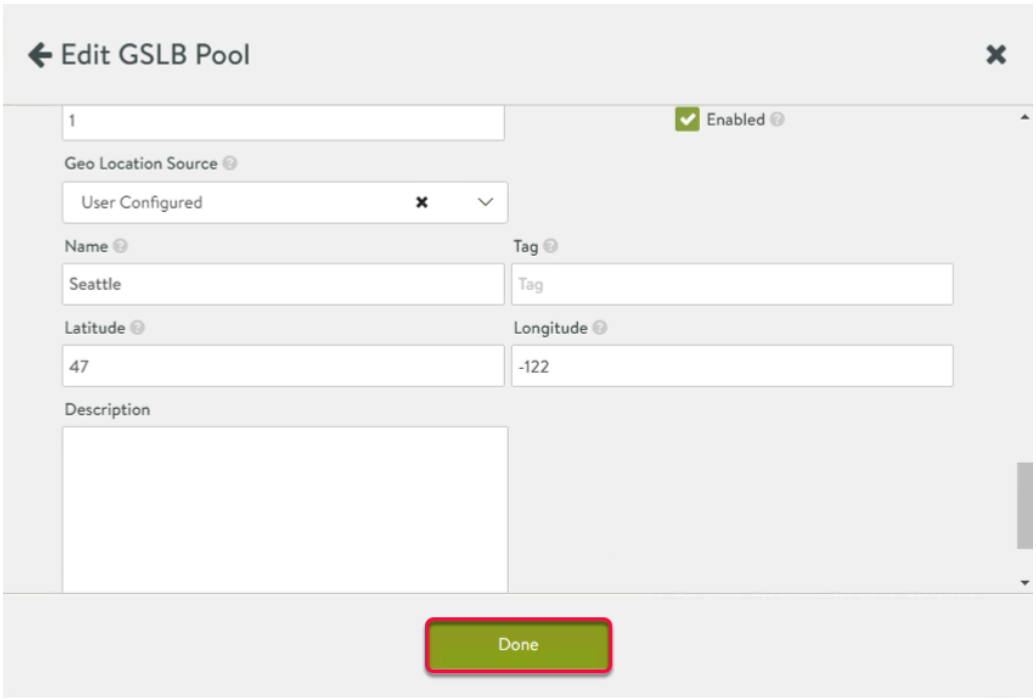
3. In the **New GSLB Service** Page
   - Scroll down to **GSLB Pools**
   - **To the right**
     - **Click Add Pool >**
       - It opens **New GSLB Pool** window



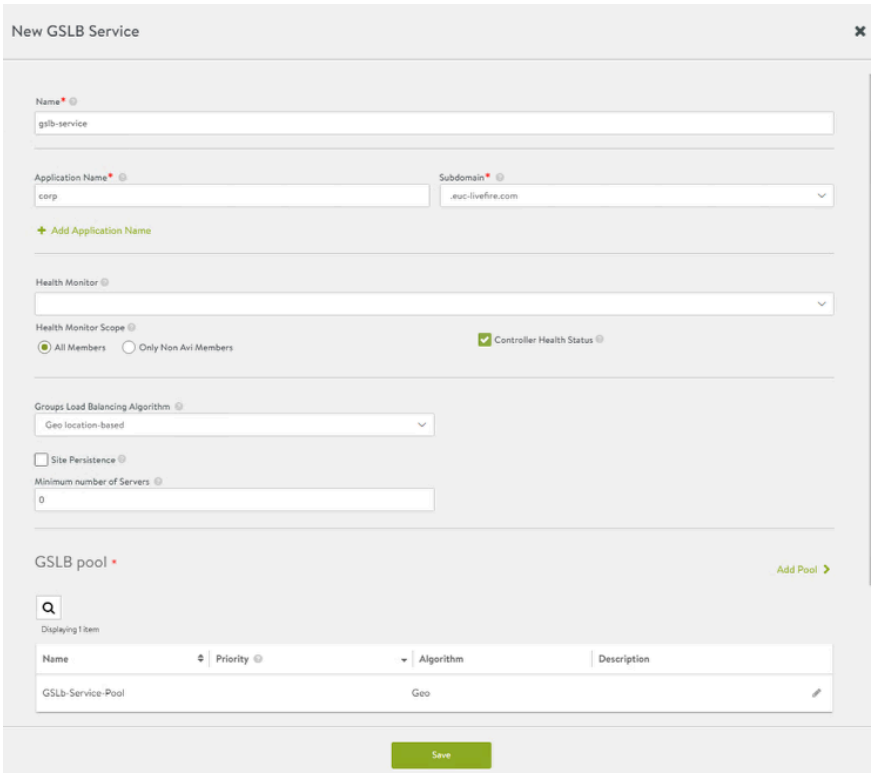
4. In the **New GSLB Pool** Window
   - **Enter the follow**
     - **Name : GSLb-Service-Pool**
     - **Priority : 10 (default)**
     - **Pool Members Load Balancing Algorithm : Geo**
     - **Pool Members Fallback Load Balancing Algorithm : Consistent Hash**
     - Leave everything else as **default**
   - **scroll down** to **Pool Member**



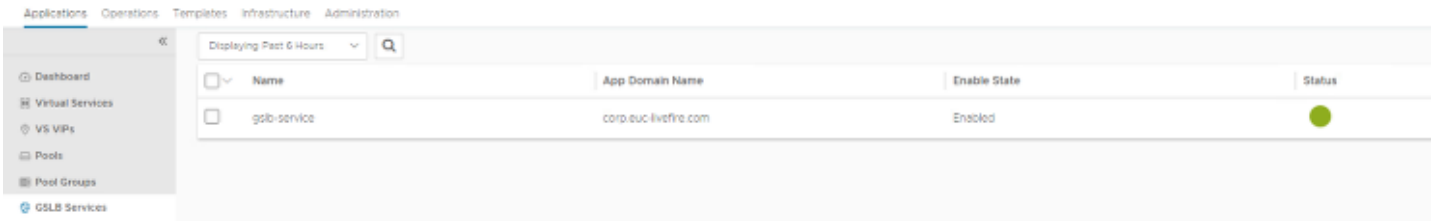
5. In the **New GSLB Pool** Window
   - Under **Pool Member**
     - Ensure **Virtual Service radio button** is **selected**
     - **Site Cluster Controller : gslb**
     - **Virtual Service : Horizon-UAG-L7-Site-1**
     - **Ratio: 1 (default)**
     - **Geo Location Source : User Configured**
     - **Name : Bangalore**
     - **Latitude 12**
     - **Longitude : 77**
       - Leave everything else as Default
       - Ensure the settings matches as per screenshot above
   - To add **Site2**
     - Click **Add GSLB Pool Member**



6. In the **New GSLB Pool** Window
   - Under **Pool Member**
     - Ensure **Virtual Service** checkbox is **selected**
     - **Site Cluster Controller : gslb**
     - **Virtual Service : Horizon-UAG-L7-Site-2**
     - **Ratio: 1 (default)**
     - **Geo Location Source : User Configured**
     - **Name : Seattle**
     - **Latitude : 47**
     - **Longitude : -122**
     - Leave everything else as **Default**
     - Ensure the settings matches as per screenshot above
     - Click **Done**



7. Ensure All the settings matches as per the screenshot above
    - Click **Save**

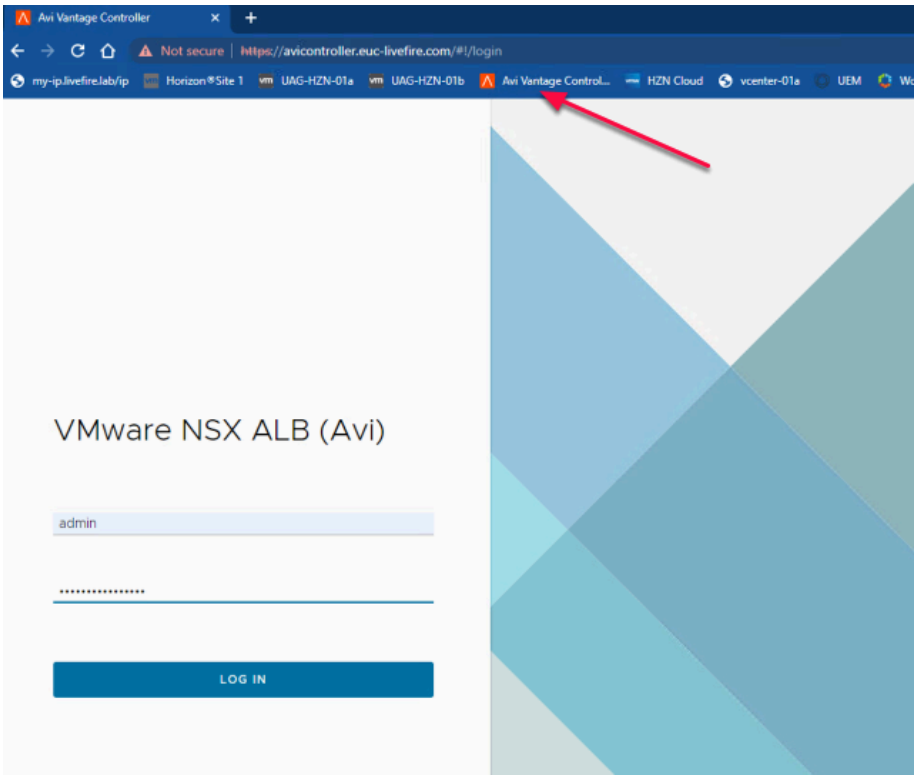


8. Settings should match as per the screenshot above
    - To Show the status as **Green**, it would take 2 to 3 minutes

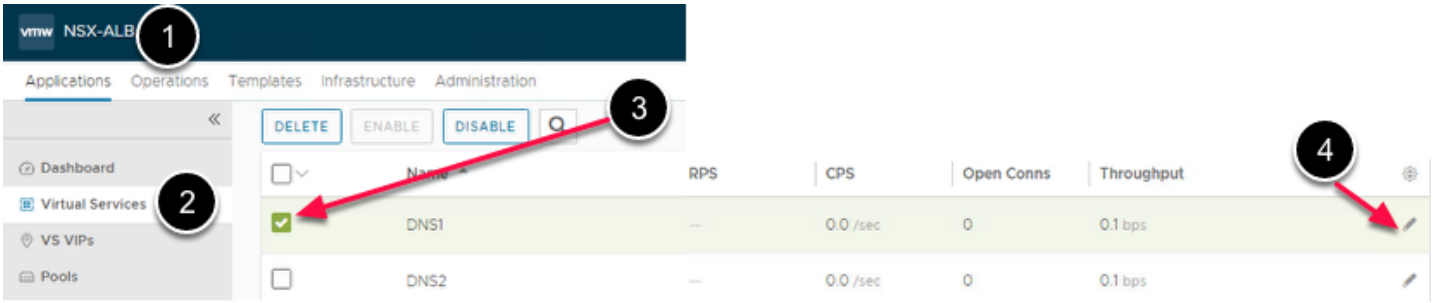
Part 3 Testing the GSLB

Validate the configurations by enabling advance logging in AVI

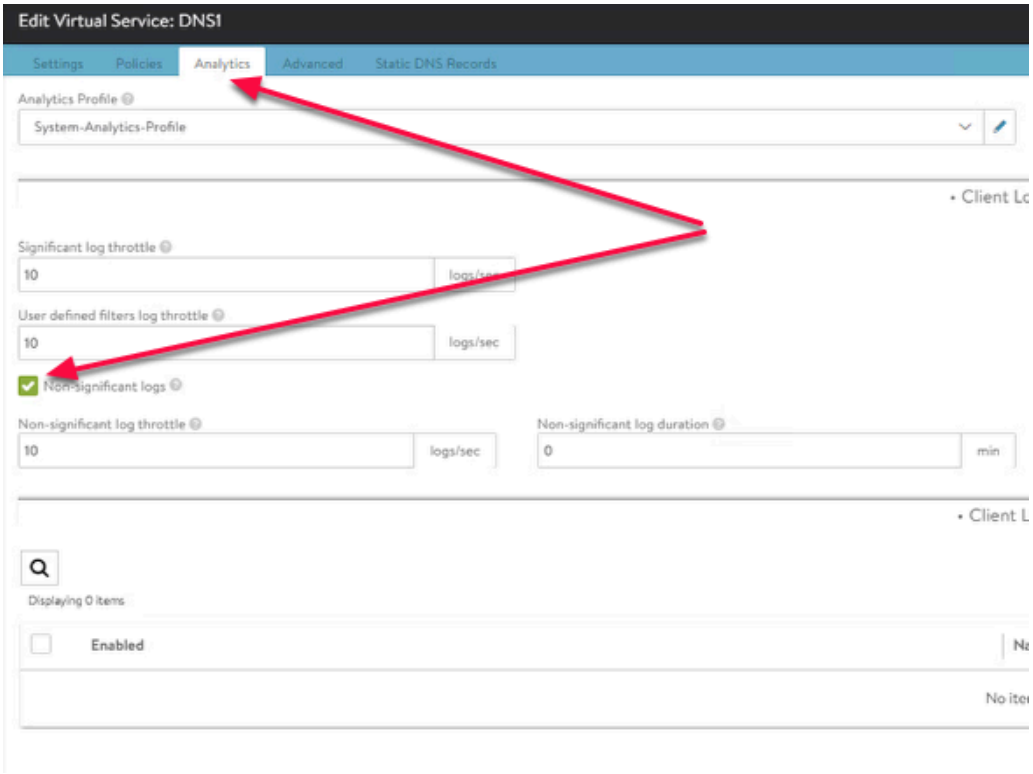
Part 3: Section 1: Enabling advance logging in AVI



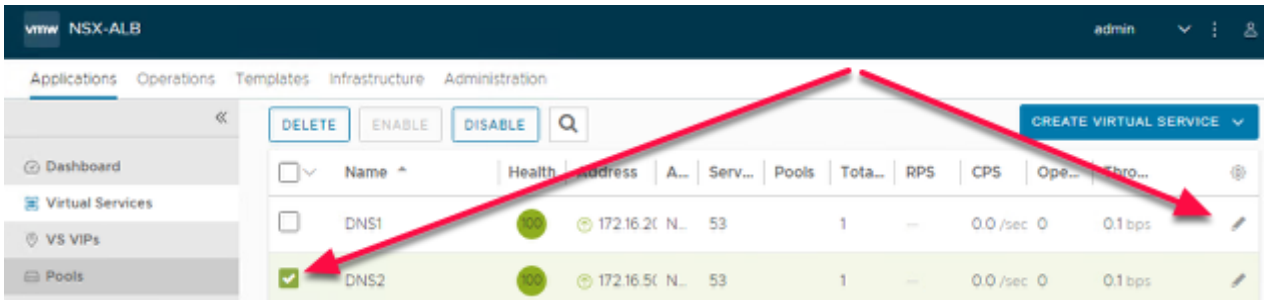
1. If required login to NSX-ALB Console
    - On your ControlCenter Server
        - Open your **Chrome Browser for Site-1**
            - In the **Address bar,** Enter or browse from the bookmark
                - To **https://avicontroller.euc-livefire.com**
                    - Under Username, enter **admin** and **VMware1!VMware1!** as the password
                        - Click **Login**



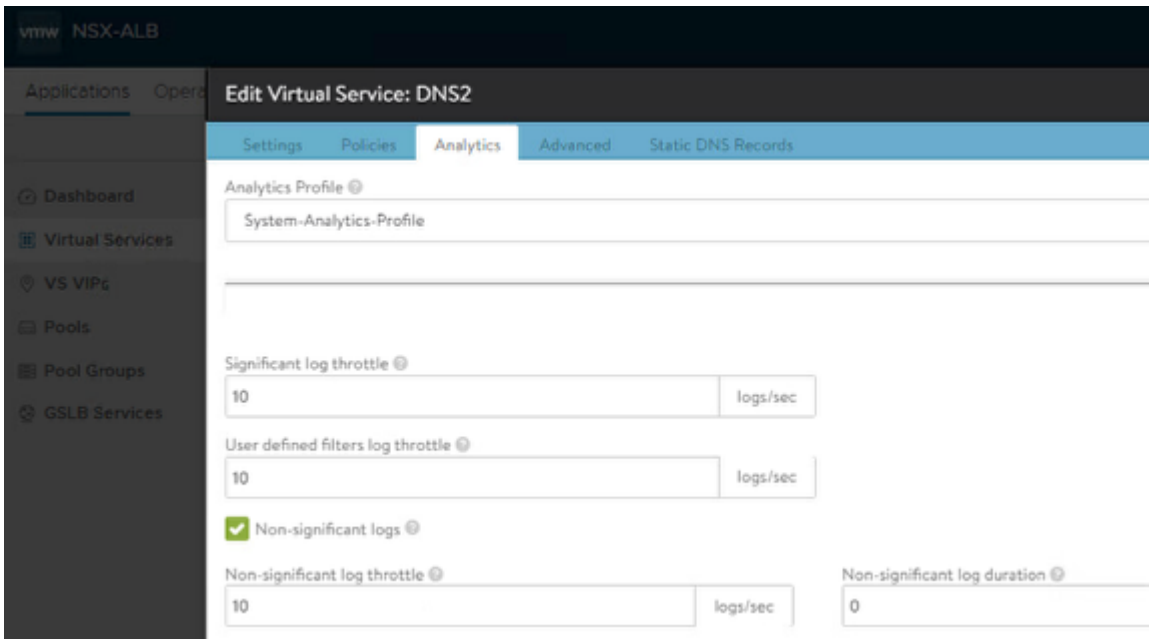
2. In the NSX-ALB Console
    - Navigate to **Applications** > **Virtual Services**
        - To the left of **DNS1**, select the **checkbox.**
            - On the right hand side of **DNS1**.
                - Click the **pencil** icon to edit the **DNS1**.



3. In **Edit Virtual Service: DNS1**
   - Go to **Analytics**
     - **Enable Non-significant logs**
     - **Click Save**



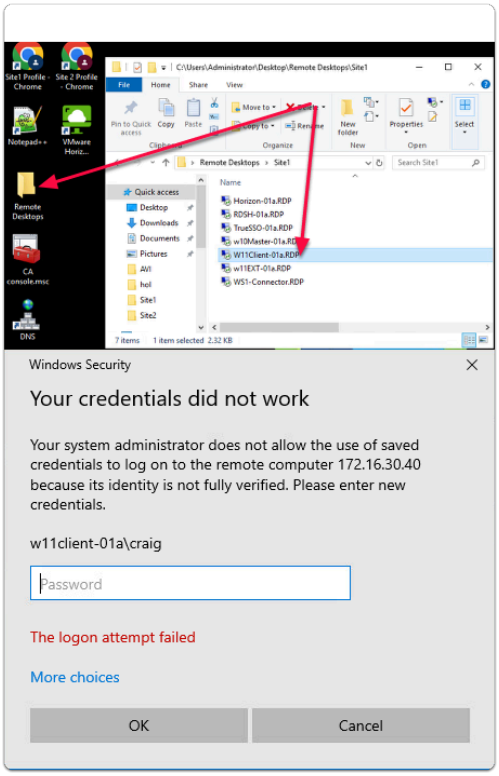
4. In the NSX-ALB Console
   - Navigate to **Applications** > **Virtual Services**
     - To the left of **DNS2**, select the **checkbox.**
       - On the right hand side of **DNS2**.
         - Click the **pencil** icon to edit the **DNS2**.



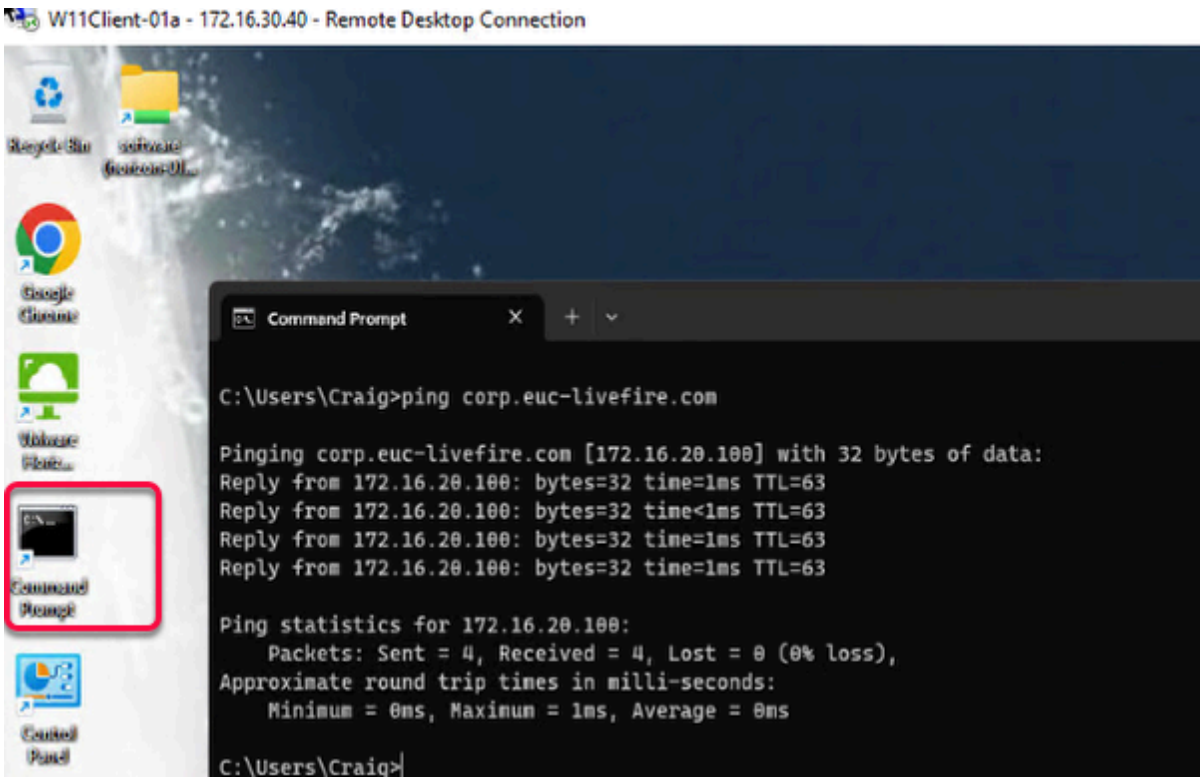
5. In **Edit Virtual Service: DNS2**
   - Go to **Analytics**
     - **Enable Non-significant logs**
     - **Click Save**

In the lab environment you have two sites. Each site has 3 separate vlans. There is an Internal, DMZ and External VLAN for each site. In Site 1, Windows 11 Client Desktop are configured with 192.168.110.10 DNS server address.

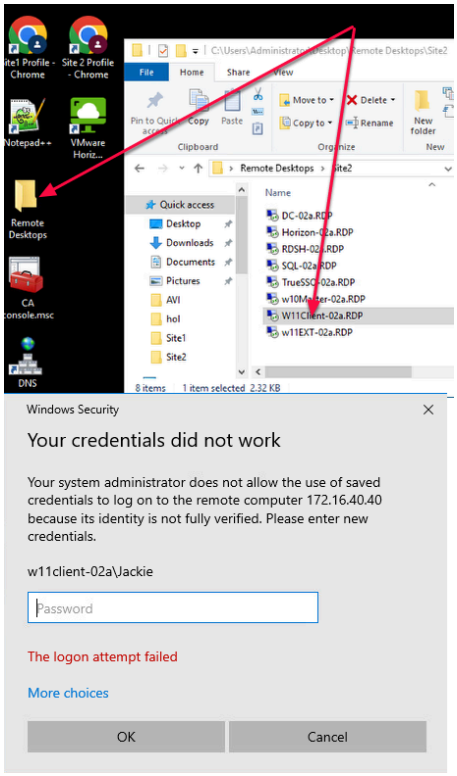
Part 3: Section 2: Testing GSLB



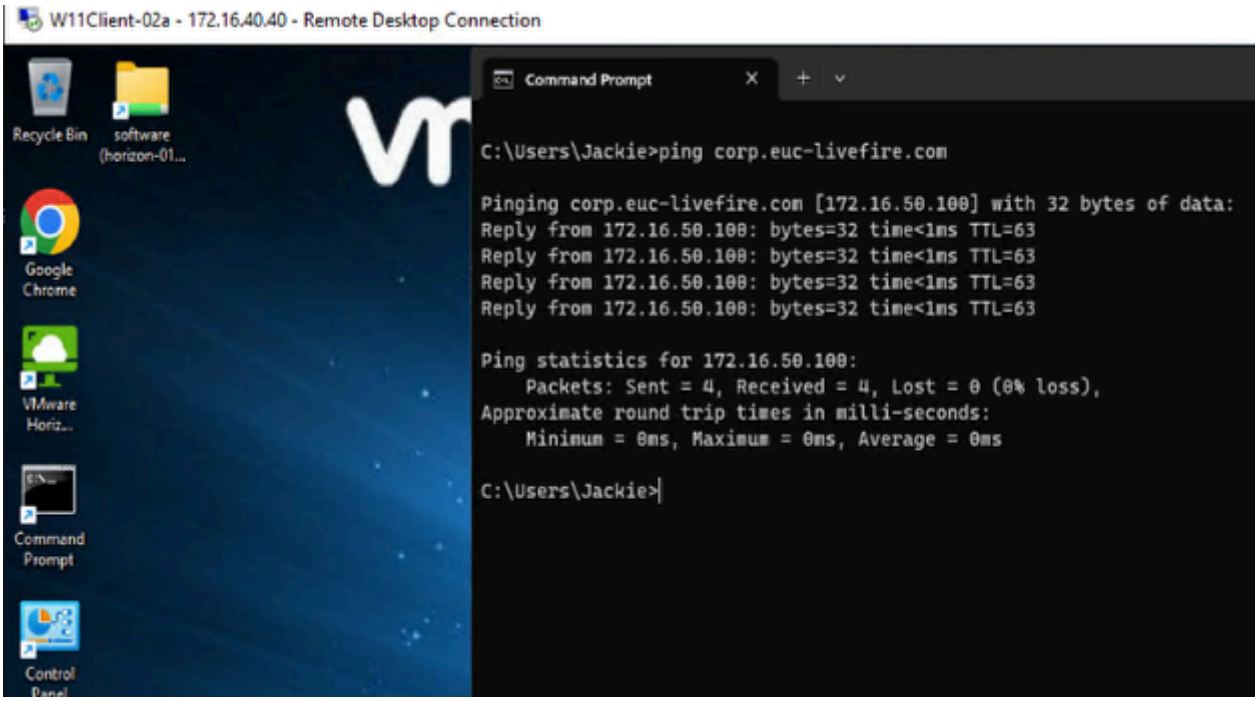
1. On your **ControlCenter server**
   - On the Desktop
     - Open the **Remote Desktops** Folder
       - Open **Site1**
         - Launch **W11Client-01a.rdp**
         - Login as **craig**
           - With the password **VMware1!**



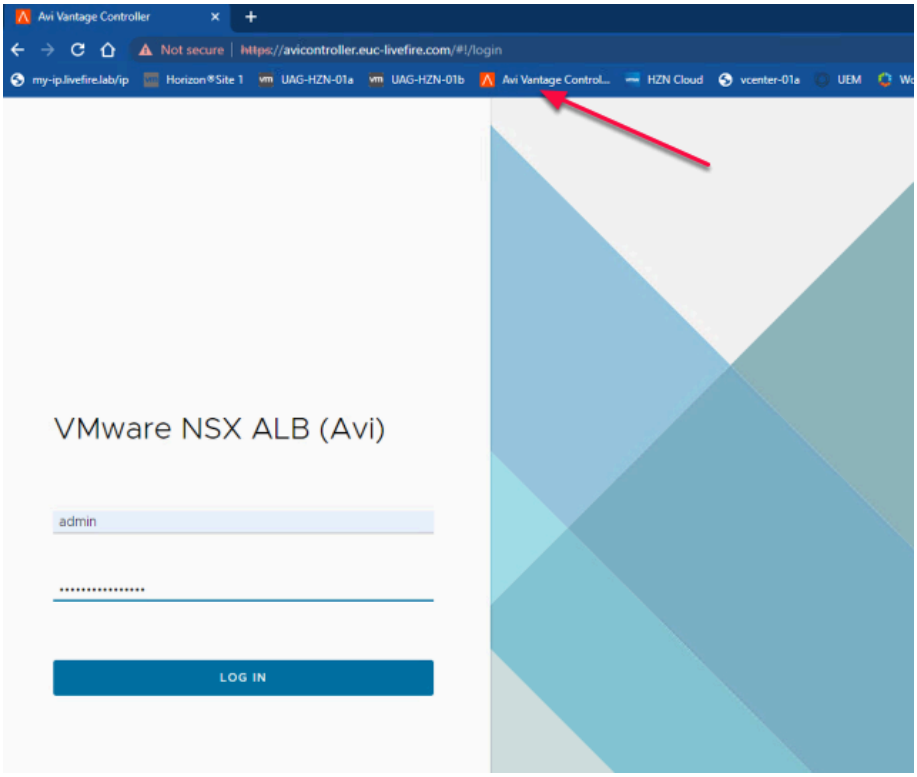
2. In **W11Client-01a**
   - **Open Command Prompt from desktop**
     - In the Command Prompt, type
       - **ping corp.euc-livefire.com** and press enter
         - You would notice the response from **172.16.20.100**
           - The above IP is the VIP for Site-1
   - Once the ping is complete, minimize **W11Client-01a** RDP Session
   - Return to **Control Center** Desktop



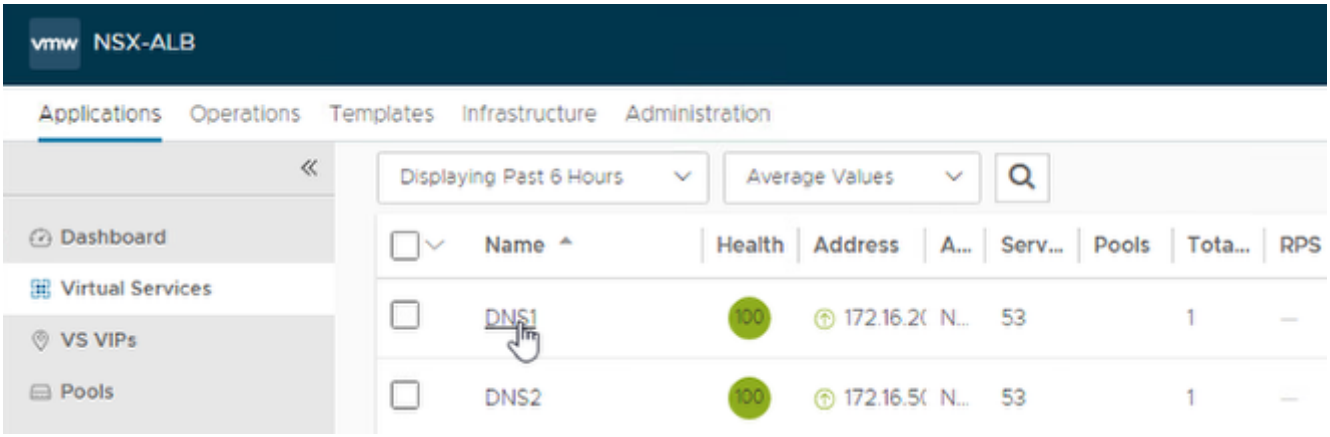
2. On your **ControlCenter server**
    - On the Desktop
        - Open the **Remote Desktops** Folder
            - Open **Site2**
                - Launch **W11Client-02a.RDP**
                - Login as **Jackie**
                    - With the password **VMware1!**



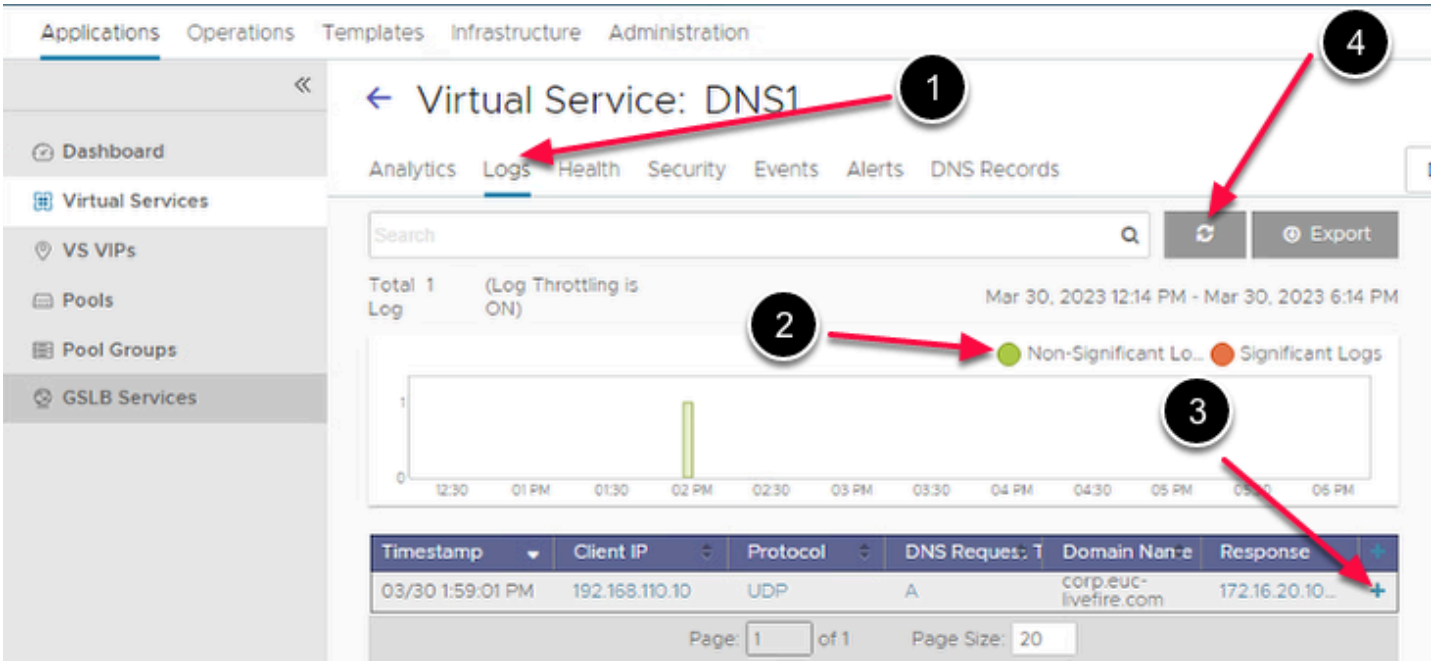
3. In **W11Client-02a**
   - **Open Command Prompt from desktop**
     - In the Command Prompt, type
       - **ping corp.euc-livefire.com** and press enter
         - You would notice the response from **172.16.50.100**
           - The above IP is the VIP for Site-2
   - Once the ping is complete, minimize **W11Client-02a** RDP Session
   - Return to **Control Center** Desktop



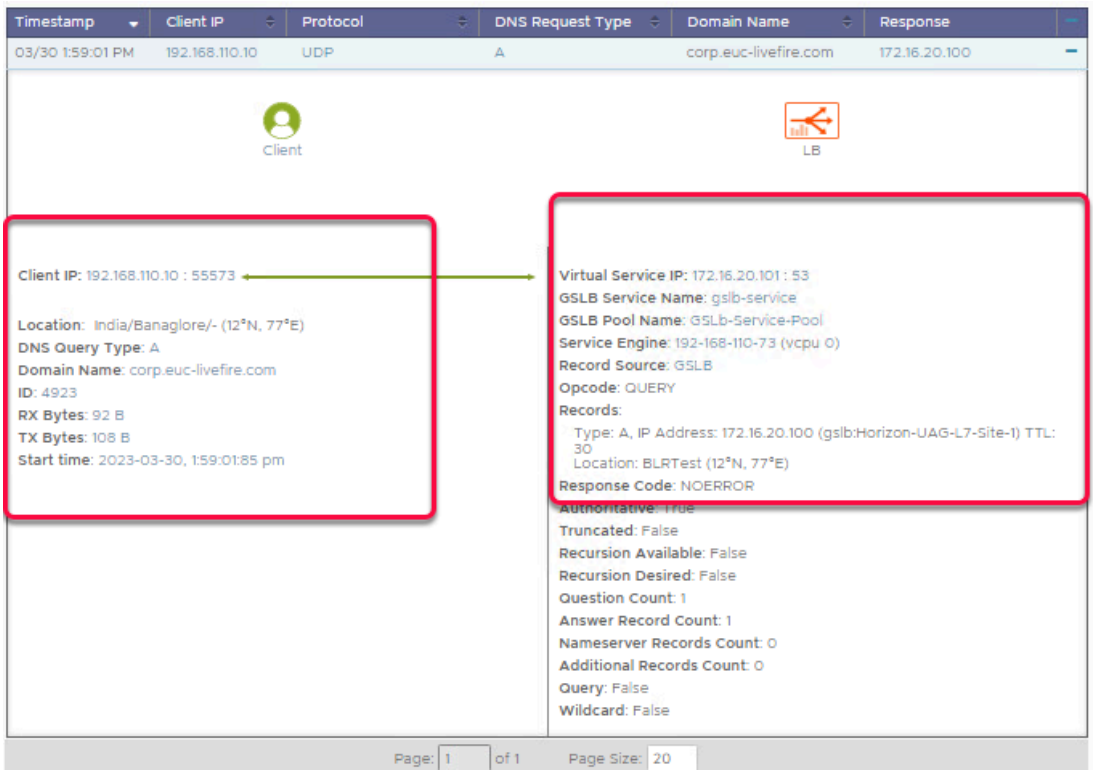
4. If required, login to **NSX-ALB** Console
   - On your ControlCenter Server
     - Open your **Chrome Browser for Site-1**
       - In the **Address bar,** Enter or browse from the bookmark
         - To **https://avicontroller.euc-livefire.com**
           - Under Username, enter **admin** and **VMware1!VMware1!** as the password
             - Click **Login**



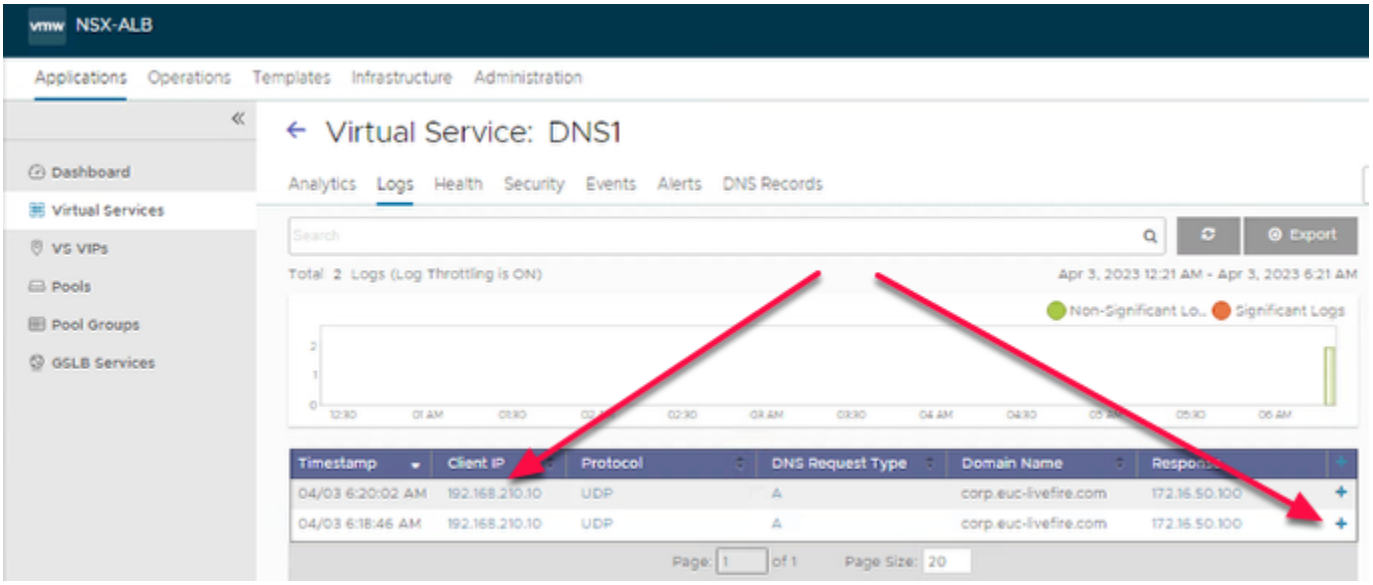
5. In the NSX-ALB Console
   - Navigate to **Applications** > **Virtual Services**
     - Click on **DNS1**



6. In Virtual Service: DNS1 window
   - Go to **Logs** tab
     - Click on **Non-Significant Logs** as shows in **2**
     - **Note: I**f the logs are not seen, Click the **refresh** button as shown in **4**
     - Verify the Client IP
     - It should match the DNS Server IP of **Site 1**
       - **192.168.110.10**
       - Expand the **+ (Plus)** Symbol as shown in **3**

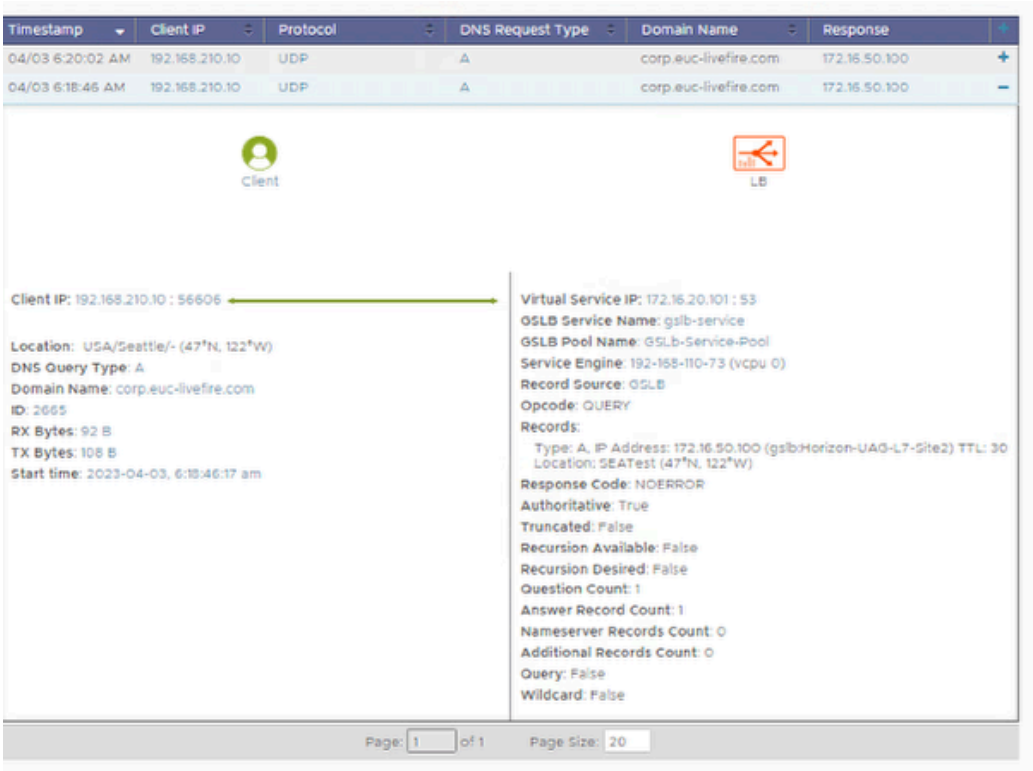


7. Notice the following:
   - **Client IP**
   - **Location**
   - **Virtual Sevice IP**
   - **GSLB Pool Name**
   - **Service Engine**



8. Look the IP of DNS Server for **Site2**
   - **192.168.210.10**
   - **Note: I**f the logs are not seen, Click the **refresh** button.

- Expand the **+ (Plus)** Symbol to the extreme right



9. Notice the following:
   - **Client IP**
   - **Location**
   - **Virtual Sevice IP**
   - **GSLB Pool Name**
   - **Service Engine**

This is the end of the GSLB Lab. Hope it helpful.