5.Create a new Azure Firewall and configure rules to control inbound and outbound traffic.

Create a resource group

- Sign in to the Azure portal. On the Azure portal menu, select Resource groups or search for and select Resource groups from any page, then select Add. Enter or select the following values:
    - Subscription Select your Azure subscription.
    - Resource group Enter- TestFwRg
    - Region Select a region. All other resources that you create must be in the same region.
- Select Review + create.
- Select Create.

Create a VNet

This VNet will have two subnets.

- On the Azure portal menu or from the Home page, select Create a resource.
  Select Networking.
  Search for Virtual network and select it.
  Select Create, then enter or select the following values:
    - Subscription Select your Azure subscription.
    - Resource group -Select TestFwRg
    - Name Enter TestFwVn
- Region Select the same location that you used previously.
- Select Next: IP addresses.
- For IPv4 Address space, accept the default 10.0.0.0/16.
- Under Subnet, select default.
- For Subnet name change the name to AzureFirewallSubnet.
- The firewall will be in this subnet, and the subnet name must be AzureFirewallSubnet.
- For Address range, type 10.0.1.0/26.
- Select Save.
- Next, create a subnet for the workload server.
- Select Add subnet.
- For Subnet name, type Workload-SN.
- For Subnet address range, type 10.0.2.0/24.
- Select Add.
- Select Review + create.Select Create.

Create a virtual machine

Now create the workload virtual machine, and place it in the Workload-SN subnet.

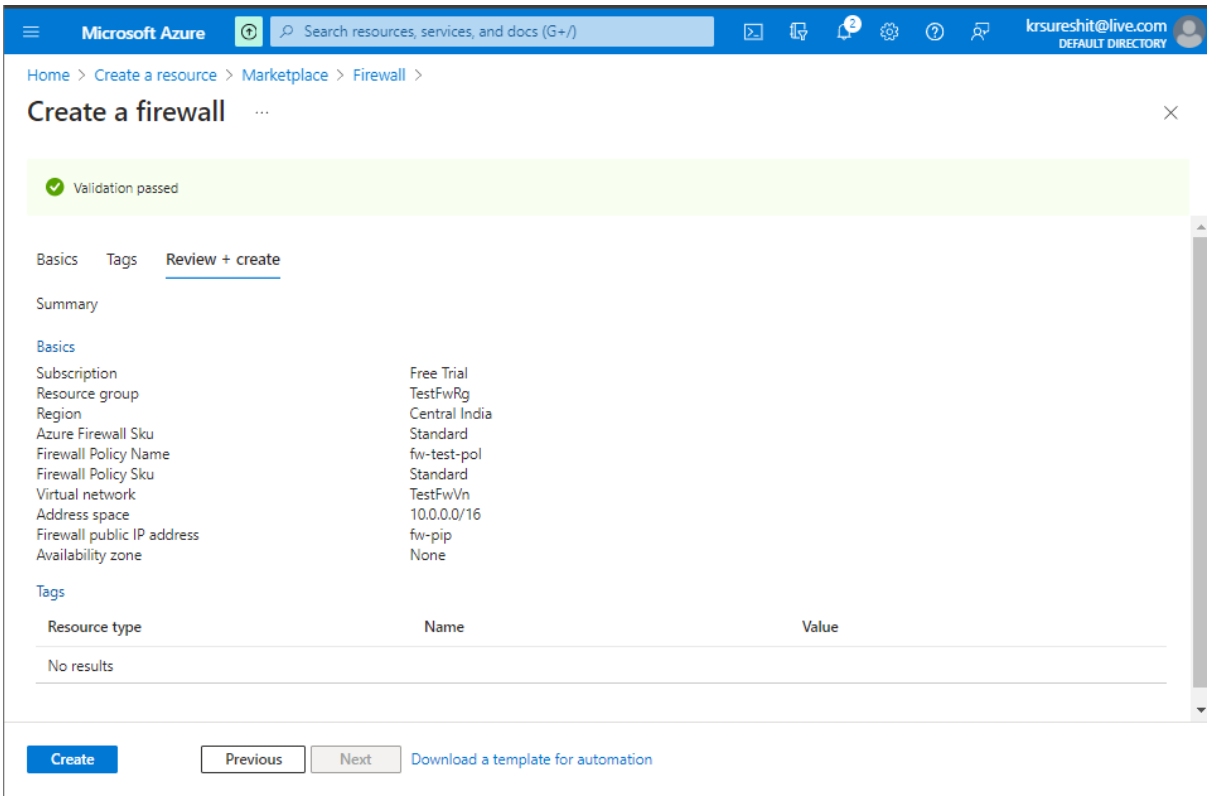
- On the Azure portal menu or from the Home page, select Create a resource.
- Select Windows Server 2019 Datacenter.
- Enter or select these values for the virtual machine:

- Setting Value
  - Subscription Select your Azure subscription.
  - Resource group Select TestFwRg
  - Virtual machine name Enter Srv-Work.
  - Region Select the same location that you used previously.
  - Username Enter a username.
  - Password Enter a password.
- Under Inbound port rules, Public inbound ports, select None.
- Accept the other defaults and select Next: Disks.
- Accept the disk defaults and select Next: Networking.
- Make sure that Test-FW-VN is selected for the virtual network and the subnet is Workload-SN.
- For Public IP, select None.
- Accept the other defaults and select Next: Management.
- Select Disable to disable boot diagnostics. Accept the other defaults and select Review + create.
- Review the settings on the summary page, and then select Create.
- After the deployment completes, select the Srv-Work resource and note the private IP address for later use- 10.0.2.4

Deploy the firewall and policy

- Deploy the firewall into the VNet
- On the Azure portal menu or from the Home page, select Create a resource.
- Type firewall in the search box and press Enter.
- Select Firewall and then select Create.
- On the Create a Firewall page, use the following table to configure the firewall:
  - Subscription Select your Azure subscription.
    Resource group Select TestFwRg.
    Name Enter Test-FW01.
    Region Select the same location that you used previously.
  - Firewall management Select Use a Firewall Policy to manage this firewall.
  - Firewall policy Select Add new, and enter fw-test-pol.
  - Select the same region that you used previously.
  - Choose a virtual network Select Use existing, and then select TestFwVn.
  - Public IP address Select Add new, and enter fw-pip for the Name.
- Accept the other default values, then select Review + create.
  Review the summary, and then select Create to create the firewall.

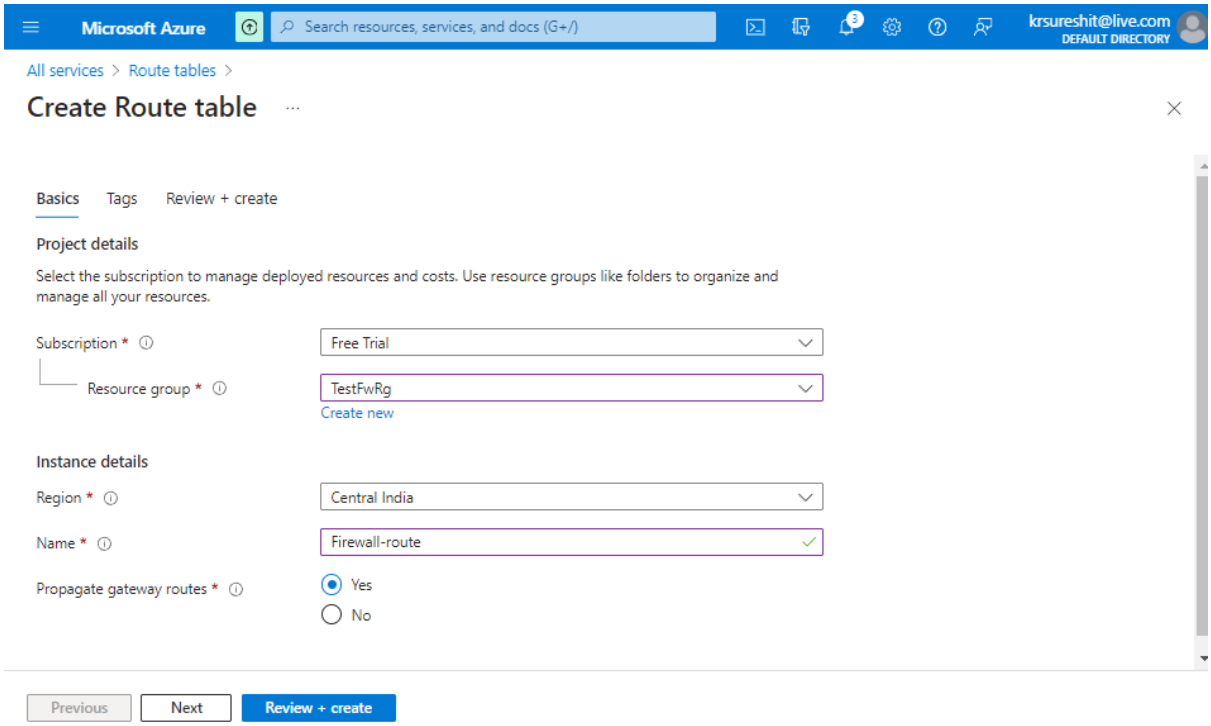
- This will take a few minutes to deploy.
- After deployment completes, go to the TestFwRg resource group, and select the Test-FW01 firewall.
- Note the firewall private and public IP addresses. You'll use these addresses later.
  20.198.114.243 10.0.1.4



Create a default route

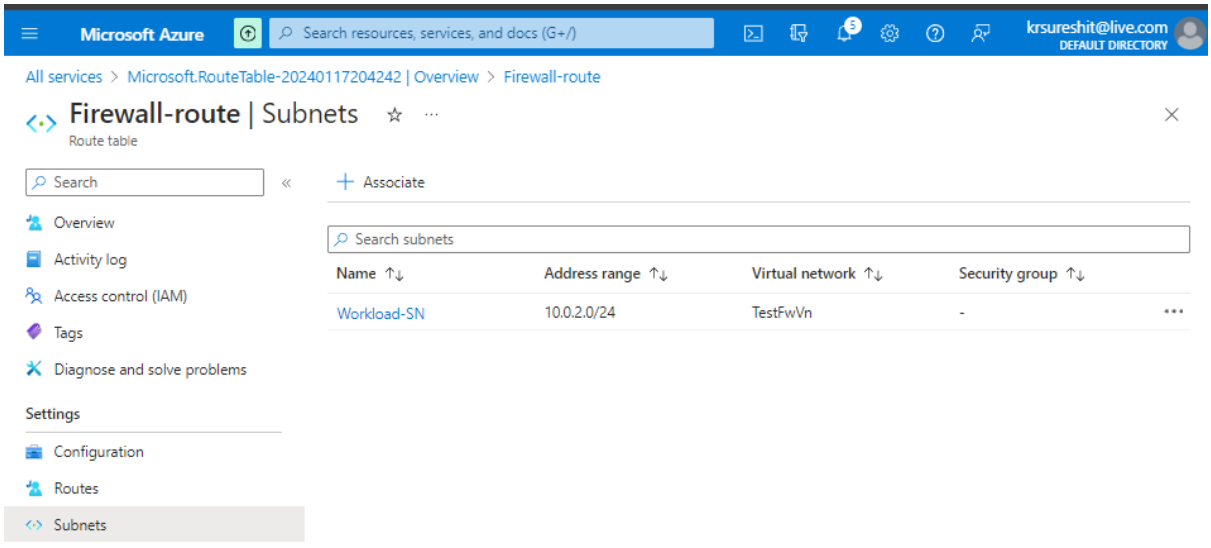
For the Workload-SN subnet, configure the outbound default route to go through the firewall.

- On the Azure portal menu, select All services or search for and select All services from any page.
- Under Networking, select Route tables.
- Select Create, then enter or select the following values:
  - Subscription Select your Azure subscription.
  - Resource group Select TestFwRg.
  - Region Select the same location that you used previously.
  - Name Enter Firewall-route.
- Select Review + create.
- Select Create.



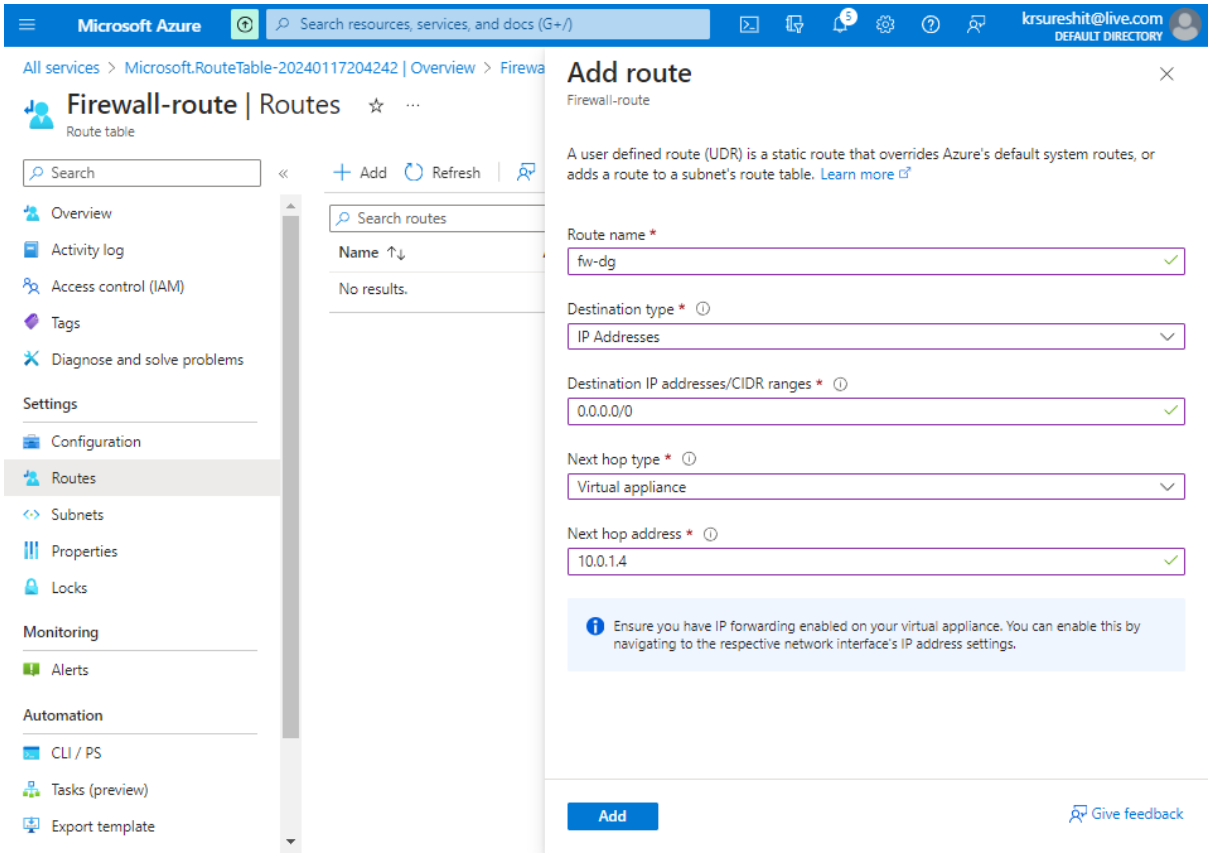
After deployment completes, select Go to resource.

- On the Firewall-route page, select Subnets and then select Associate.
- Select Virtual network > TestFwVn
- For Subnet, select Workload-SN. Make sure that you select only the Workload-SN subnet for this route, otherwise your firewall won't work correctly.
- Select OK.



- Select Routes and then select Add.
- For Route name, enter fw-dg.
- For Address prefix, enter 0.0.0.0/0.

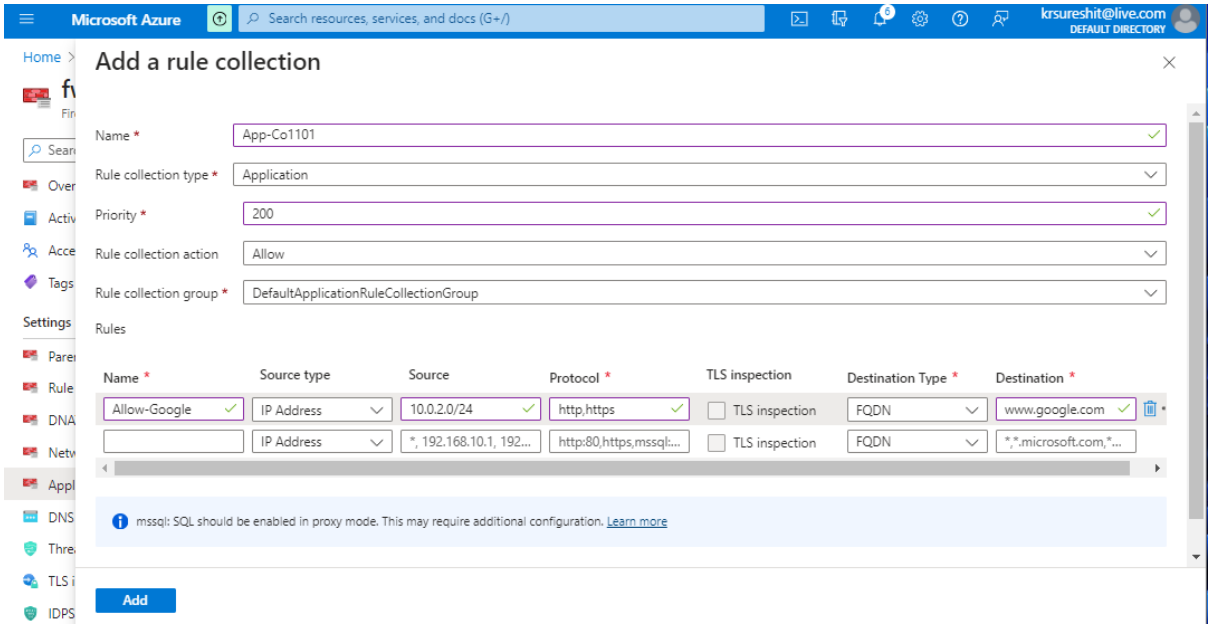
- For Next hop type, select Virtual appliance. Azure Firewall is actually a managed service, but virtual appliance works in this situation.
- For Next hop address, enter the private IP address for the firewall that you noted previously.
- Select OK.



Configure an application rule

This is the application rule that allows outbound access to www.google.com.

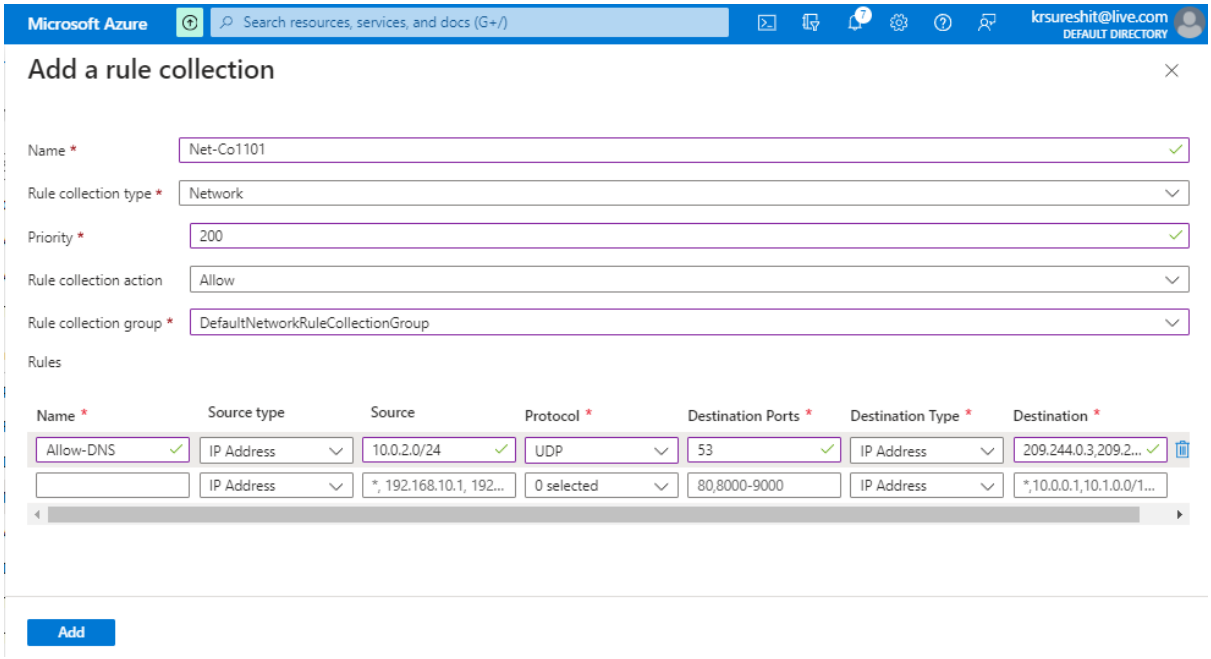
- Open the TestFwRg resource group, and select the fw-test-pol firewall policy.
- Select Application rules.
- Select Add a rule collection.
- For Name, enter App-Coll01.
- For Priority, enter 200.
- For Rule collection action, select Allow.
- Under Rules, for Name, enter Allow-Google.
- For Source type, select IP address.
- For Source, enter 10.0.2.0/24.
- For Protocol:port, enter http, https.
- For Destination Type, select FQDN.
- For Destination, enter www.google.com
- Select Add.



Configure a network rule

This is the network rule that allows outbound access to two IP addresses at port 53 (DNS).

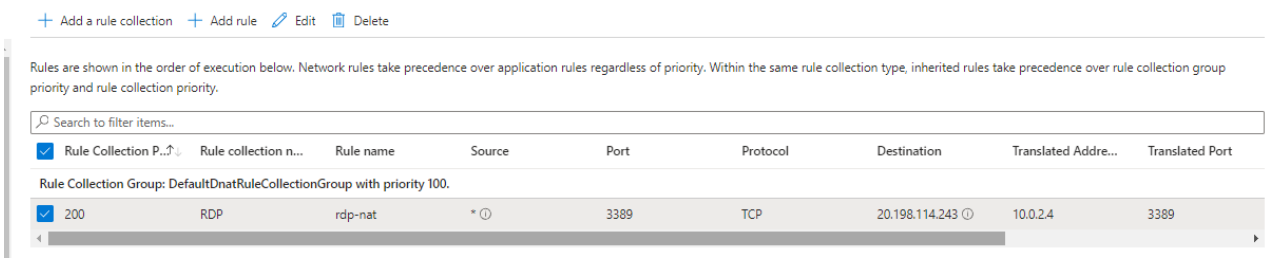
- Select Network rules.
- Select Add a rule collection.
- For Name, enter Net-Coll01.
- For Priority, enter 200.
- For Rule collection action, select Allow.
- For Rule collection group, select DefaultNetworkRuleCollectionGroup.
- Under Rules, for Name, enter Allow-DNS.
- For Source type, select IP Address.
- For Source, enter 10.0.2.0/24.
- For Protocol, select UDP.
- For Destination Ports, enter 53.
- For Destination type select IP address.
- For Destination, enter 209.244.0.3,209.244.0.4.
- These are public DNS servers operated by CenturyLink.



Configure a DNAT rule

This rule allows you to connect a remote desktop to the Srv-Work virtual machine through the firewall.

- Select the DNAT rules.
- Select Add a rule collection.
- For Name, enter rdp.
- For Priority, enter 200.
- For Rule collection group, select DefaultDnatRuleCollectionGroup.
- Under Rules, for Name, enter rdp-nat.
- For Source type, select IP address.
- For Source, enter *.
- For Protocol, select TCP.
- For Destination Ports, enter 3389.
- For Destination Type, select IP Address.
- For Destination, enter the firewall public IP address.
- For Translated address, enter the Srv-work private IP address.
- For Translated port, enter 3389.
- Select Add.

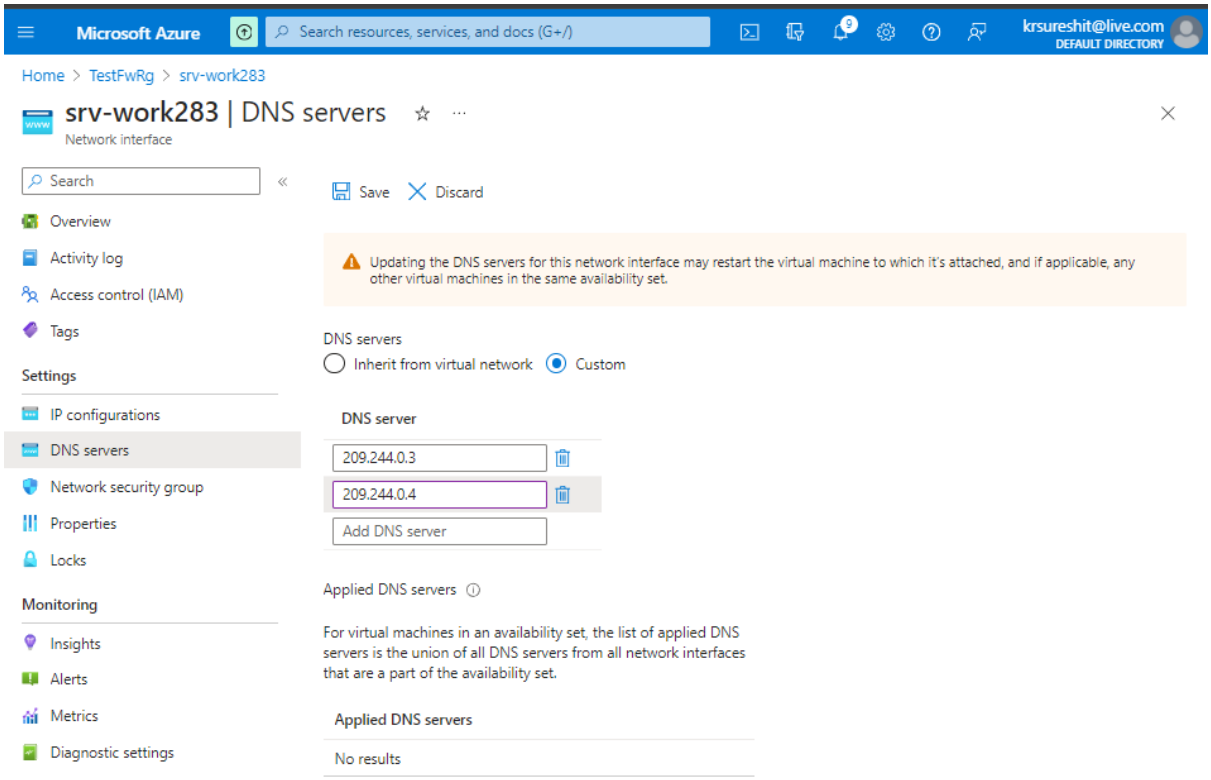


Change the primary and secondary DNS address for the Srv-Work network interface

For testing purposes, configure the server's primary and secondary DNS addresses.

On the Azure portal menu, select **Resource groups** or search for and select *Resource groups* from any page. Select the TestFwRg resource group.

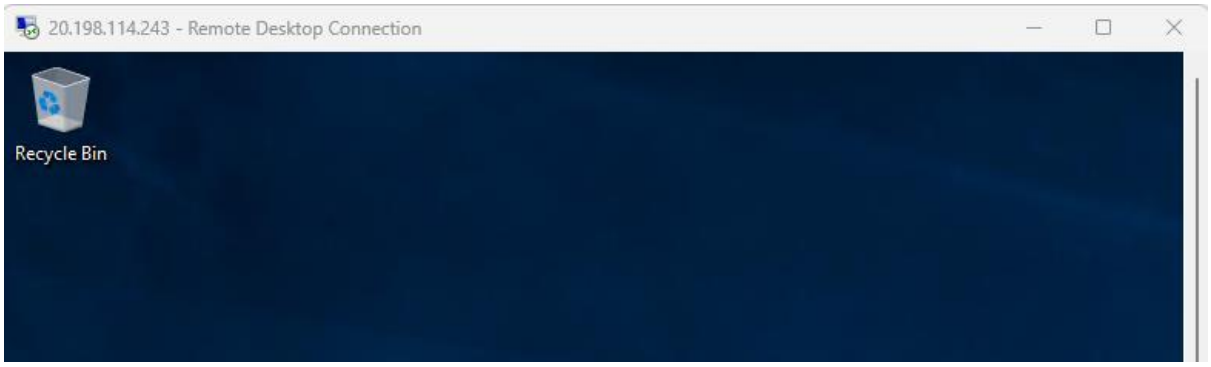
- Select the network interface for the **Srv-Work** virtual machine.
- Under **Settings**, select **DNS servers**.
- Under **DNS servers**, select **Custom**.
- Enter *209.244.0.3* in the **Add DNS server** text box, and *209.244.0.4* in the next text box.
- Select **Save**.
- Restart the **Srv-Work** virtual machine.



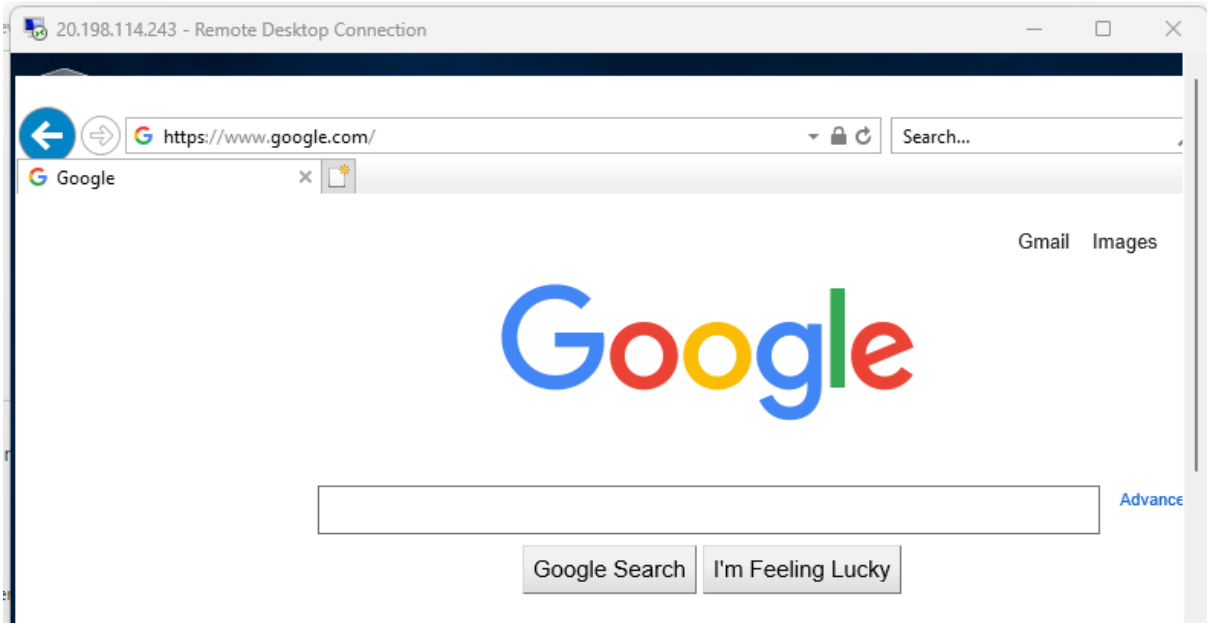
Test the firewall

Now, test the firewall to confirm that it works as expected.

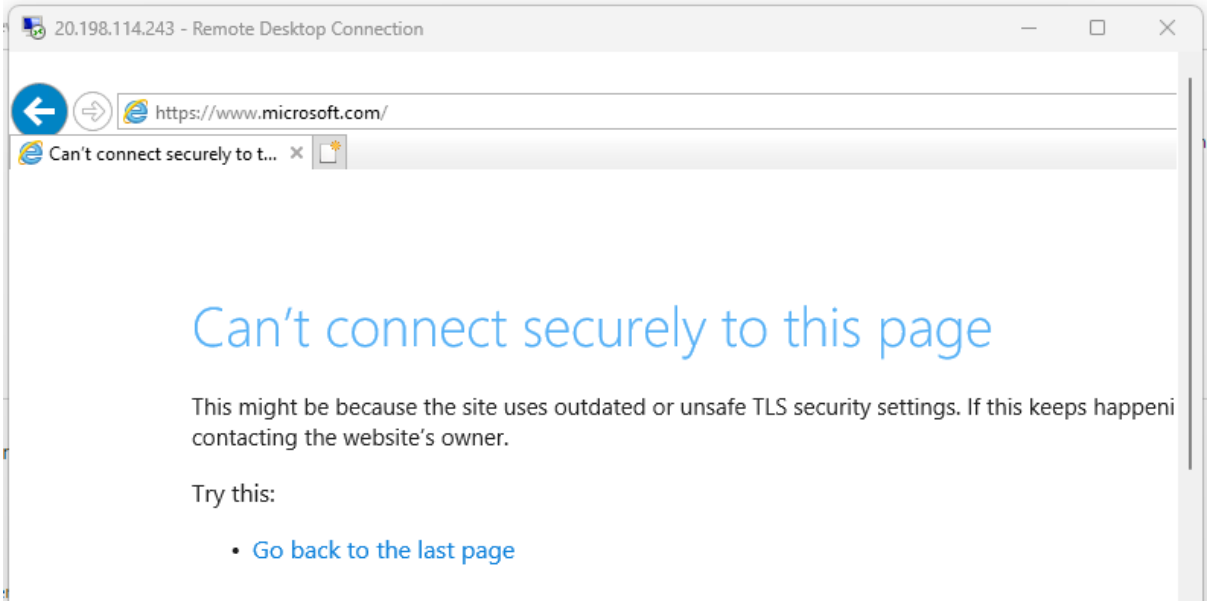
- Connect a remote desktop to firewall public IP address(20.198.114.243) and sign in to the Srv-Work virtual machine.



- Open Internet Explorer and browse to https://www.google.com.
- Select OK > Close on the Internet Explorer security alerts.
- You should see the Google home page.



- Browse to https://www.microsoft.com.
- You should be blocked by the firewall.
-



So now you've verified that the firewall rules are working:

- You can browse to the one allowed FQDN, but not to any others.
- You can resolve DNS names using the configured external DNS server