DIY Lab Operations Manual v1.0

INTERNAL USE ONLY

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December 2017

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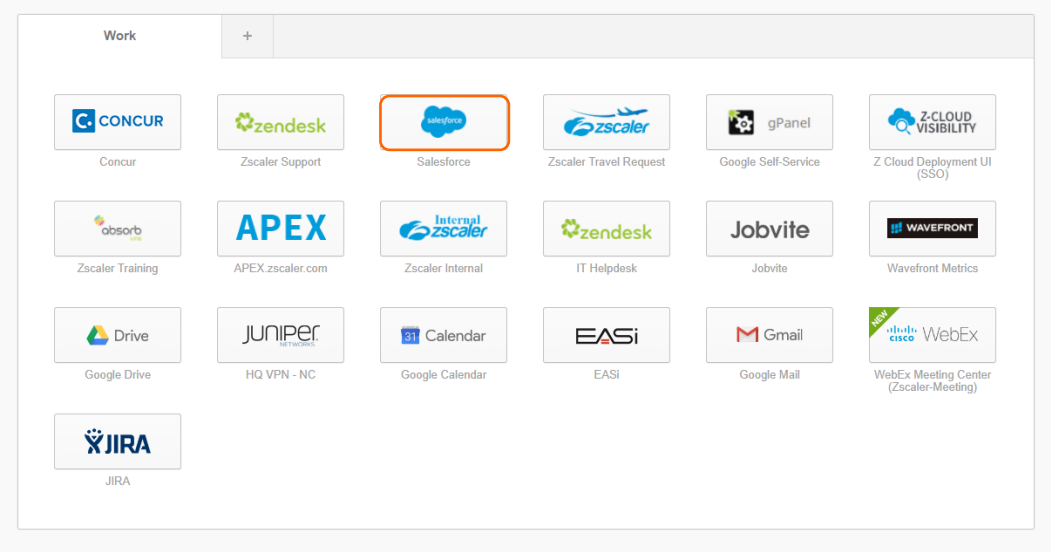
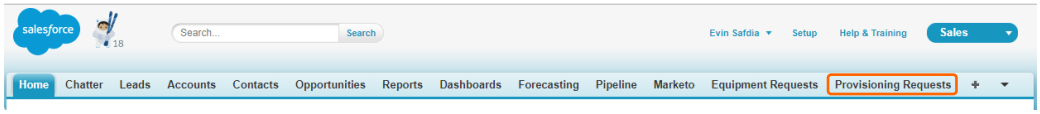
Request Zscaler Provisioning

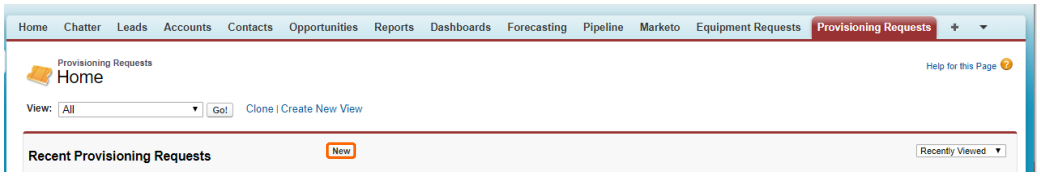
1. Log in to Zscaler Corporate Okta: https://zscaler.okta.com
2. Click **Salesforce**:



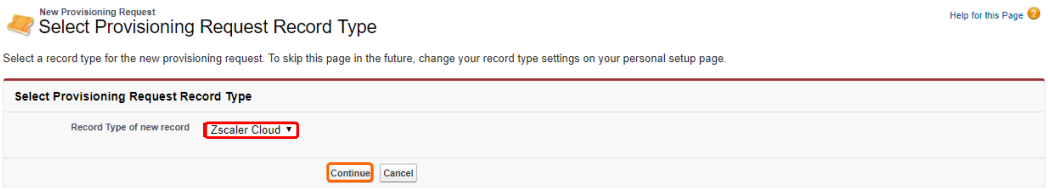
3. Okta will launch Salesforce in a new tab. From the Salesforce interface, click **Provisioning Requests**.



4. On the Provisioning Request page, click **New**.

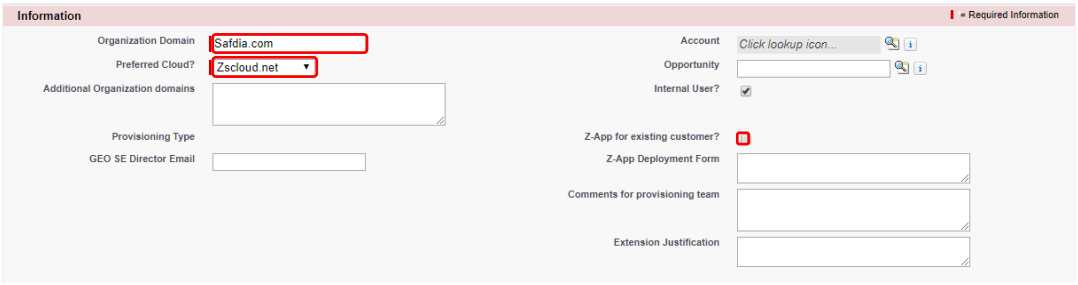


5. On the Select Provisioning Request Record Type, ensure **Zscaler Cloud** is selected and click **Continue.**



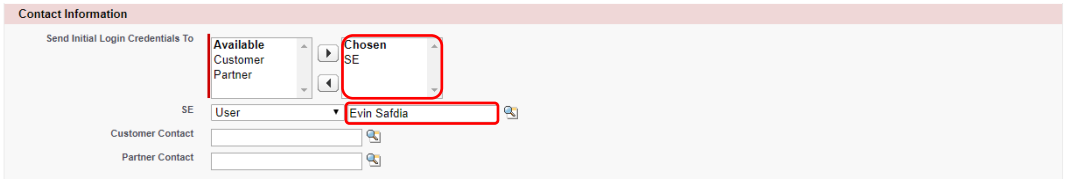
6. In the **Information** section of the provisioning request, fill out the following fields:

Organization Domain	Must be unique, example: Safdia.com
Preferred Cloud	Mandatory, contact SE Leader/Buddy for Insight
Internal User	Please ensure this is checked

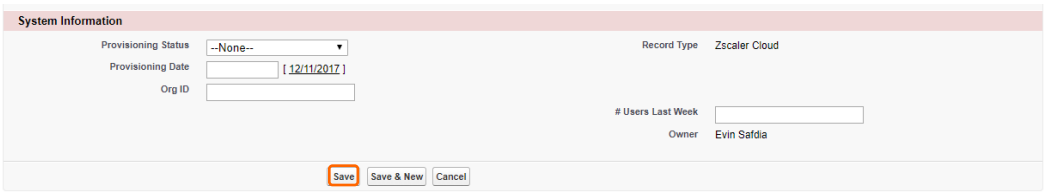


7. In the **Contact Information** section, fill out these fields:

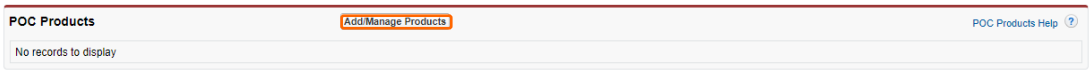
Send Initial Login Credentials To	Ensure SE is Added to the Chosen Column
SE	Click the Magnifying Glass and Search for Yourself



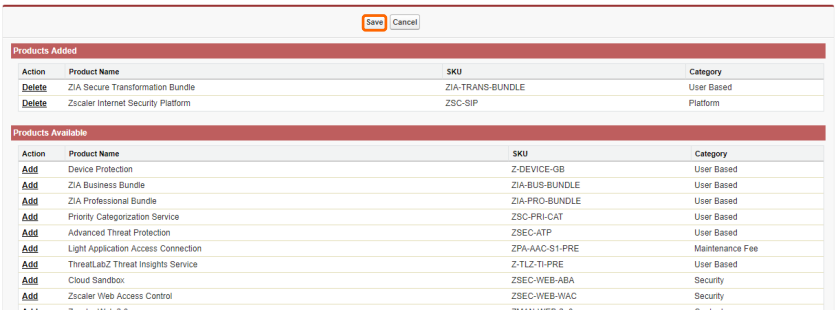
8. Scroll to the bottom and click **Save**.



9. The provisioning request will be created and displayed. Scroll to the **POC Products** section and click **Add/Manage Products**.



10. On the Add/Manage Products Page, add the relevant items and click **Save**. See your buddy / SE Leader if you need more information.



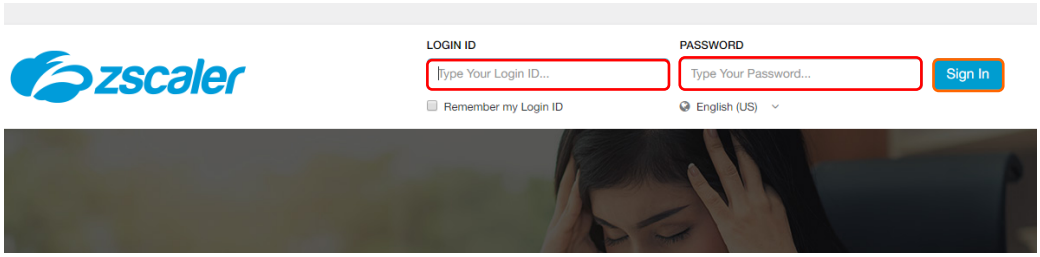
11. Your provisioning request is now complete. You will receive an email with login information, you can check status from the Provisioning Requests tab at any time.

Traffic Forwarding

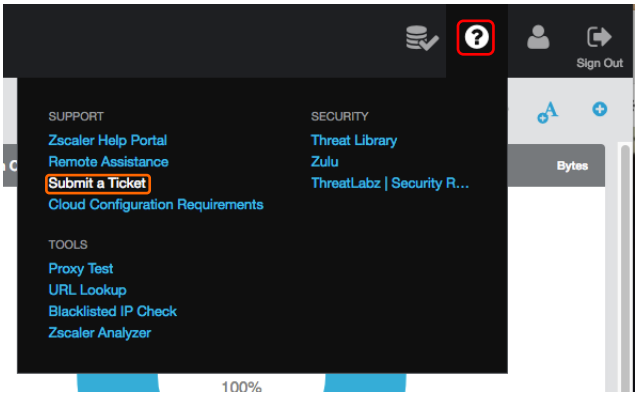
GRE Tunnel

Tunnel Provisioning

1. Log in to the Zscaler Cloud Portal using your admin credentials.

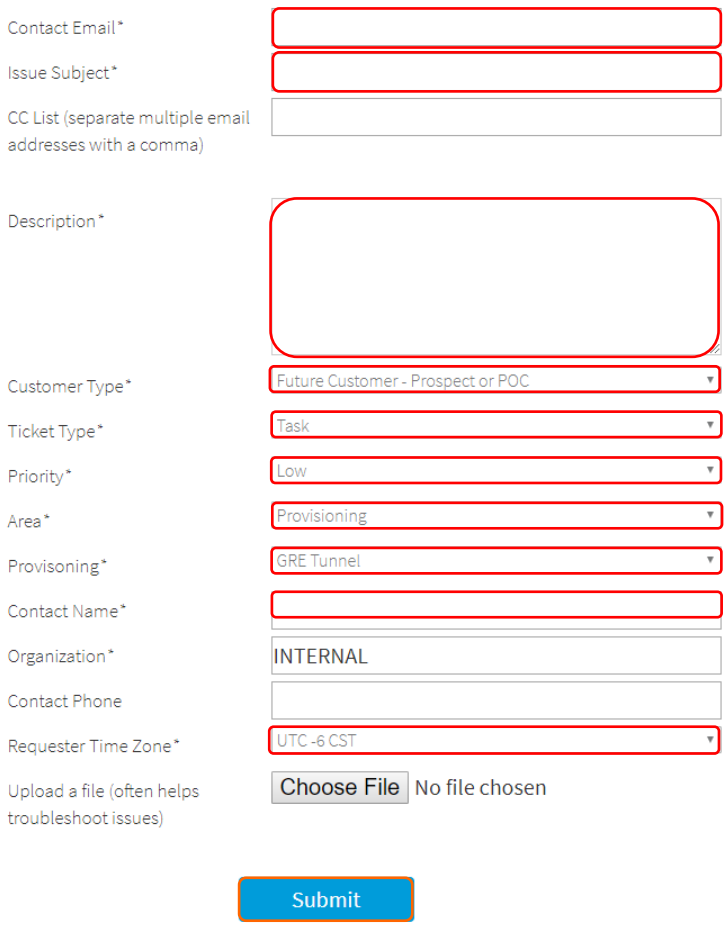


2. Hover over the **?** in the top right and then click **Submit a Ticket**.



3. On the Submit a Ticket Page, enter the required information and click **Submit**.

Contact Email	Your email address
Issue Subject	GRE Provisioning
Description	Please include your Public IP Address and Physical Location.
Customer Type	Future Customer – Prospect or POC
Ticket Type	Task
Priority	Low
Area	Provisioning
Provisioning	GRE Tunnel
Contact Name	Your name
Requestor Time Zone	Your time zone



4. Your GRE provisioning request is now submitted. You will receive a reply shortly (usually 24-48 hours) from Zscaler Support with the required information.

Creating a GRE Tunnel on Ubiquiti ER-X

1. Use Terminal (OSX) or Putty (Windows) to SSH into your Ubiquiti ER-X
2. Enter the following commands to provision a GRE Tunnel to Zscaler. You can use tab to auto complete.

	Command	Notes
1.	configure	Enables configuration mode
2.	set interfaces tunnel tun0 encapsulation gre	tun0 is the name of the created tunnel
3.	set interfaces tunnel tun0 local-ip x.x.x.x	This is the IP address of switch0 on your ER-X
4.	set interfaces tunnel tun0 remote-ip x.x.x.x	This is the Primary Destination IP provided to you by support.
5.	set interfaces tunnel tun0 address x.x.x.x/24	IP picked at random from RFC6598
6.	commit	
7.	exit	

Alternatively, you can use the Config Tree to create the tunnel. If you load the dashboard, you should see tun0 is connected, but no traffic is being passed:

tun0	tun0	tunnel	100.64.205.1/24	1476	0 bps	0 bps	Connected

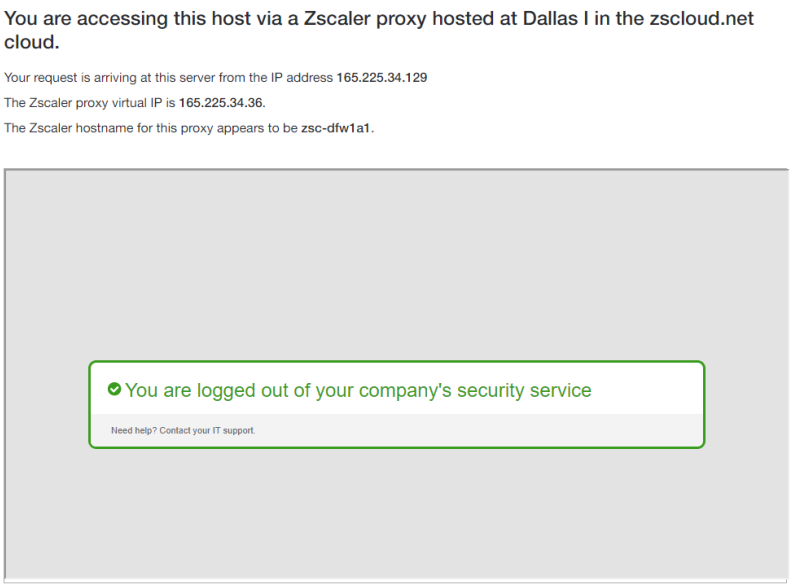
Creating a Firewall Rule for Sending Traffic to GRE Tunnel on Ubiquiti ER-X

	Command	Notes
1.	configure	Enables configuration mode
2.	set protocols static table 1 interface-route 0.0.0.0/0 next-hop-interface tun0	
3.	set firewall modify vzen-gre rule 10 action modify	Creates Firewall Rule vzen-gre
4.	set firewall modify vzen-gre rule 10 modify table 1	
5.	set firewall modify vzen-gre rule 10 source address x.x.x.x-x.x.x.x	IP range of traffic you want to send through the GRE tunnel
6.	set interfaces switch switch0 firewall in modify vzen-gre	
7.	commit	
8.	exit	

Now that this rule has been created and committed, you should see traffic flowing through the tunnel (assuming you have an active client on the source IP range you specified).

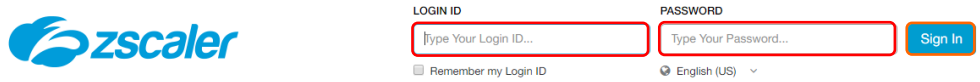
Open a web browser from a machine in the IP range being sent through the tunnel and navigate to https://ip.zscaler.com

If everything is working properly, you should see a screen like below:

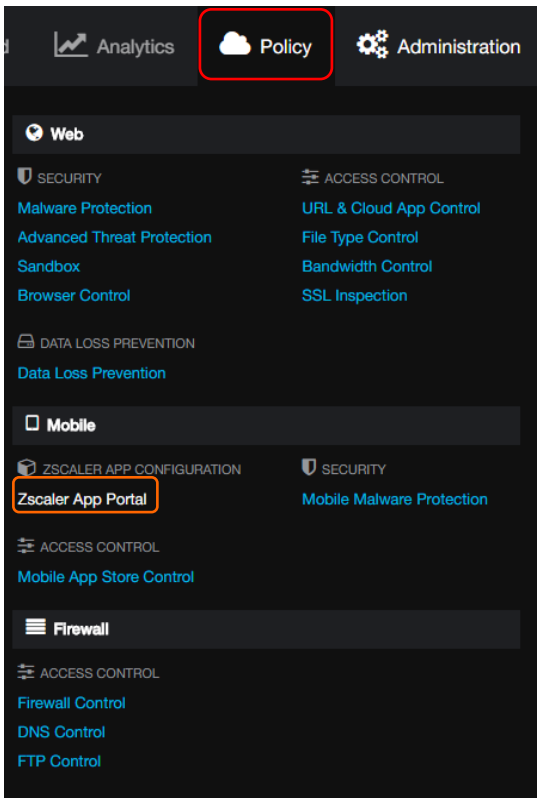


Using the Zscaler App

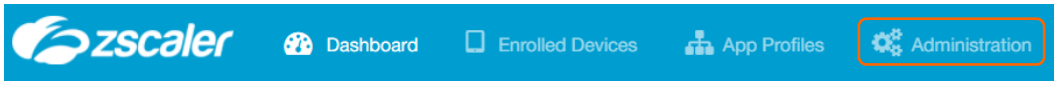
1. Login to your Zscaler cloud portal.



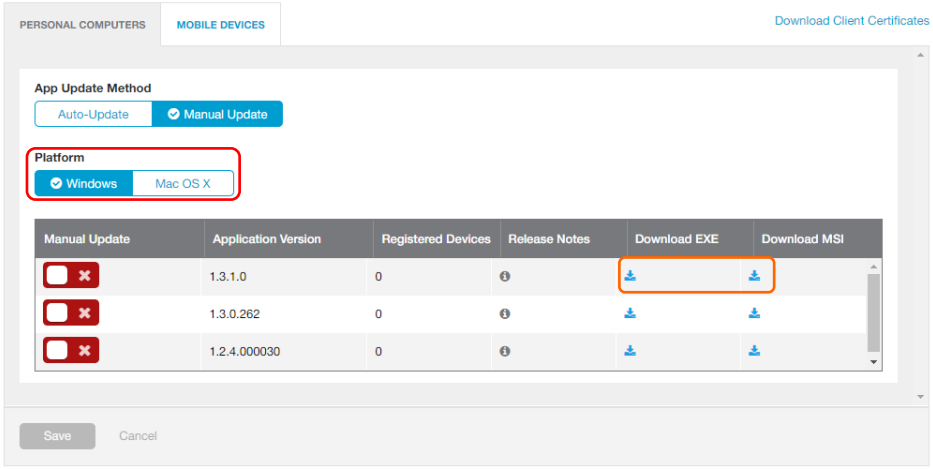
2. Hover over Policy and click **Zscaler App Portal**.



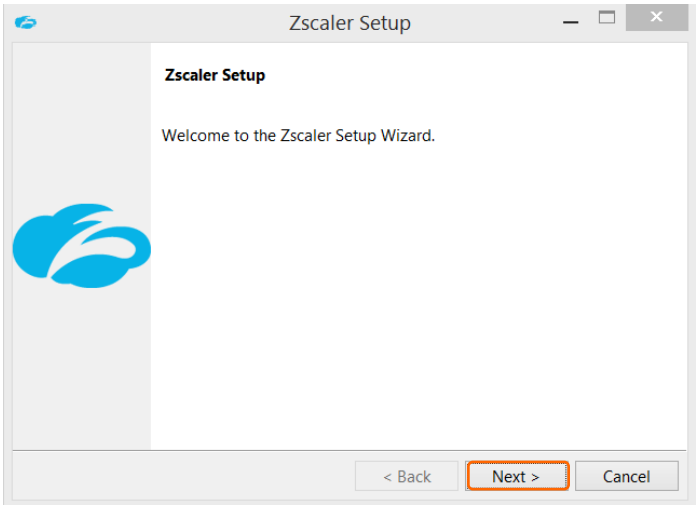
3. From the Zscaler App Portal, click **Administration**.



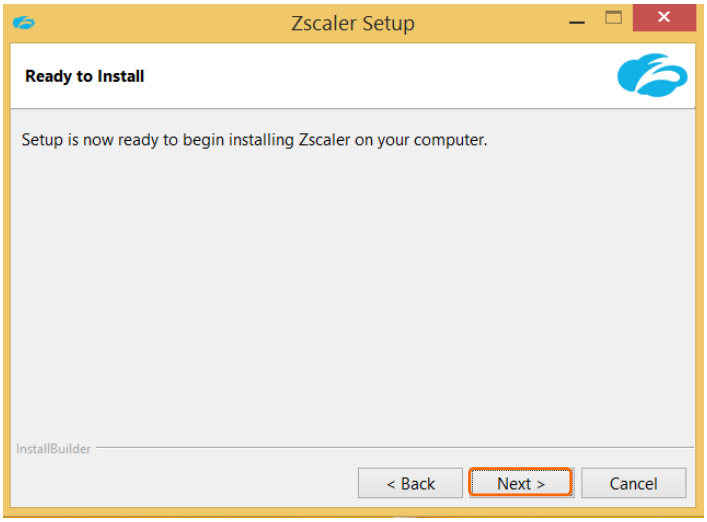
4. Download the latest version of the application for the operating system you want to install it on.



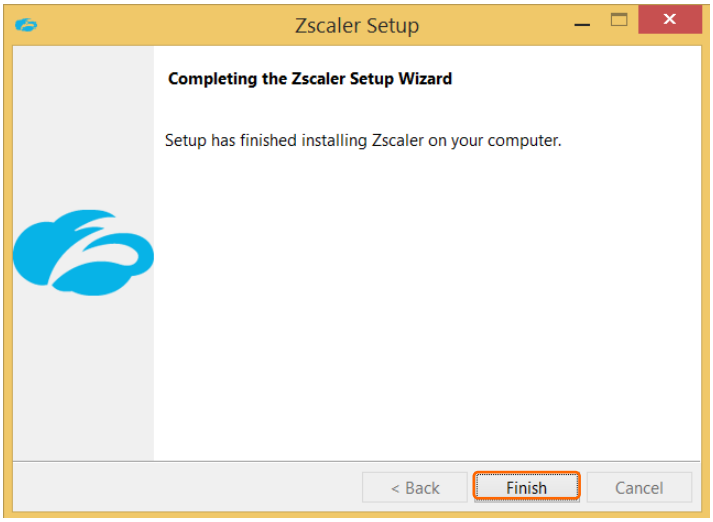
5. Launch the installer on your desired client machine. Click **Next**.



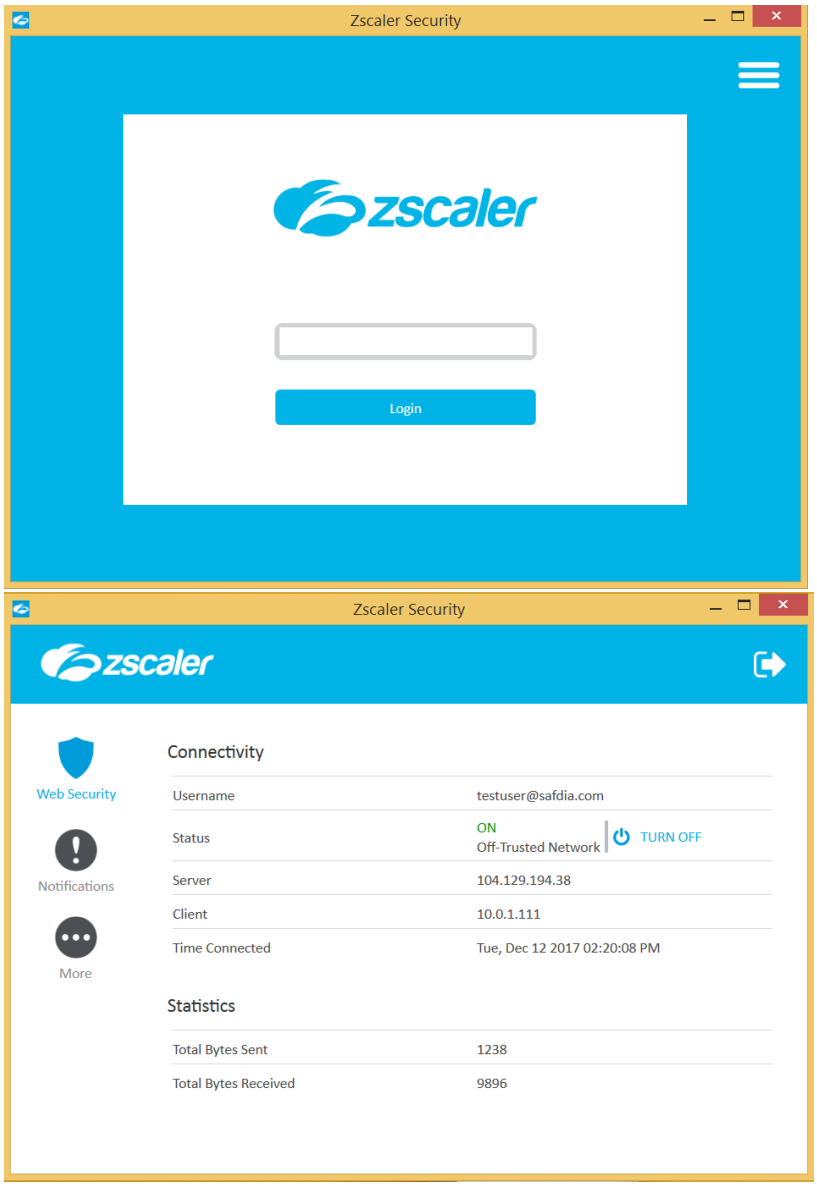
6. Click **Next** on the ready to install screen.



7. Wait for installation to complete and click **Finish**.



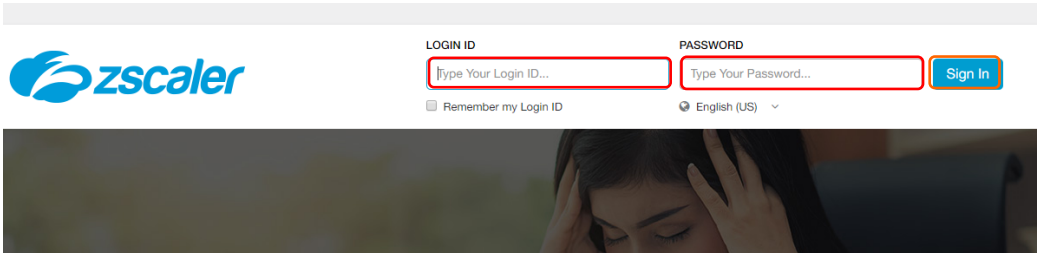
8. The Zscaler App launches automatically. Authenticate with a user that you have added to the hosted database or via a configured authentication method to connect and begin sending traffic to Zscaler. See the Authentication section for more information.



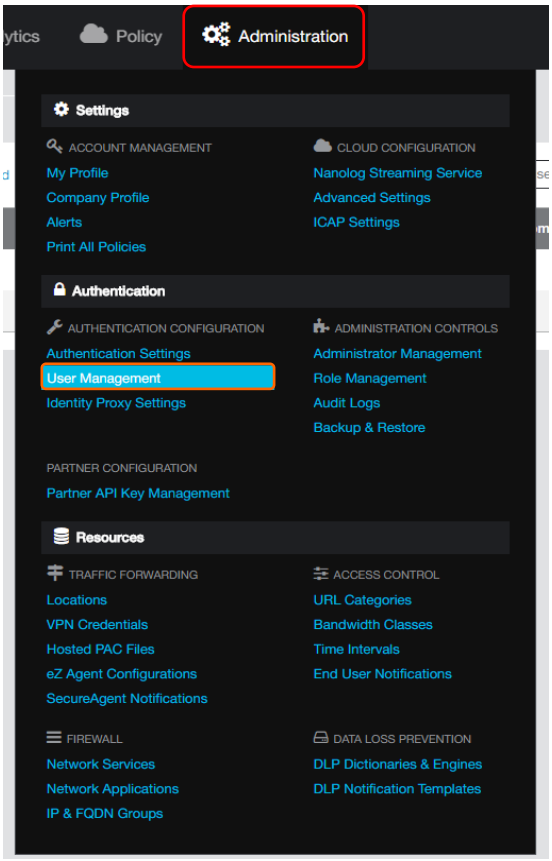
Authentication

Hosted Database

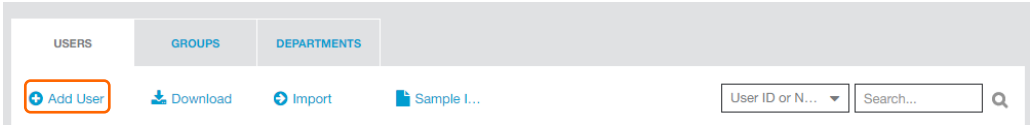
1. Login to the Zscaler Cloud Portal using your admin credentials.



2. Hover over Administration and click **User Management**.



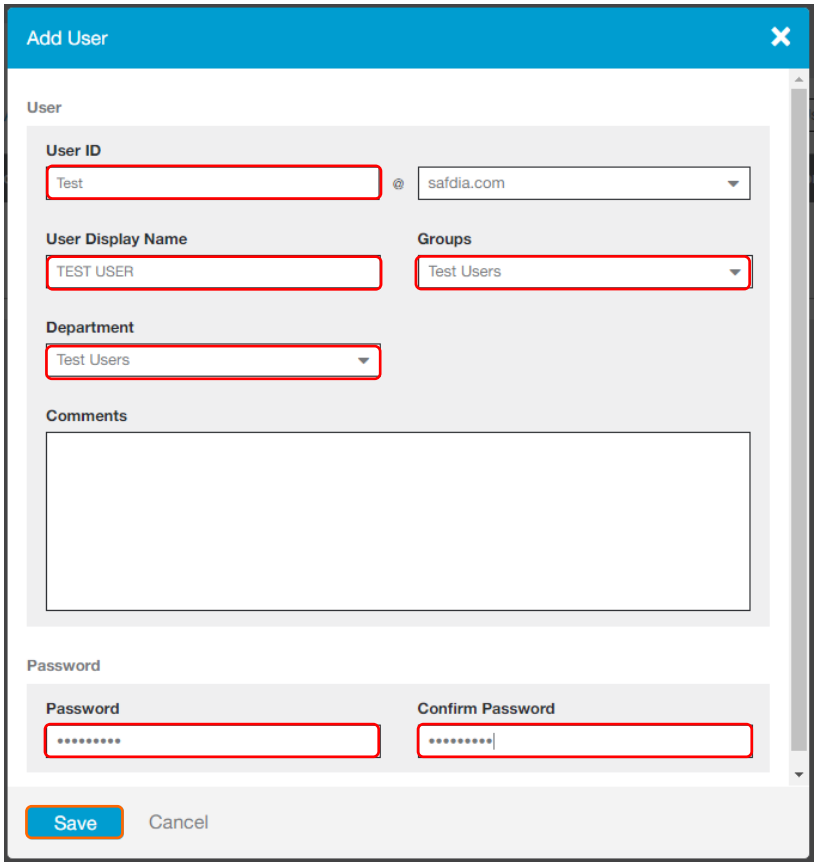
3. Click **Add User.**



4. Enter the following information and click **Save.**

User ID	Desired Username
User Display Name	

Groups	You can create new groups with the +
Department	You can create new departments with the +
Password	
Confirm Password	



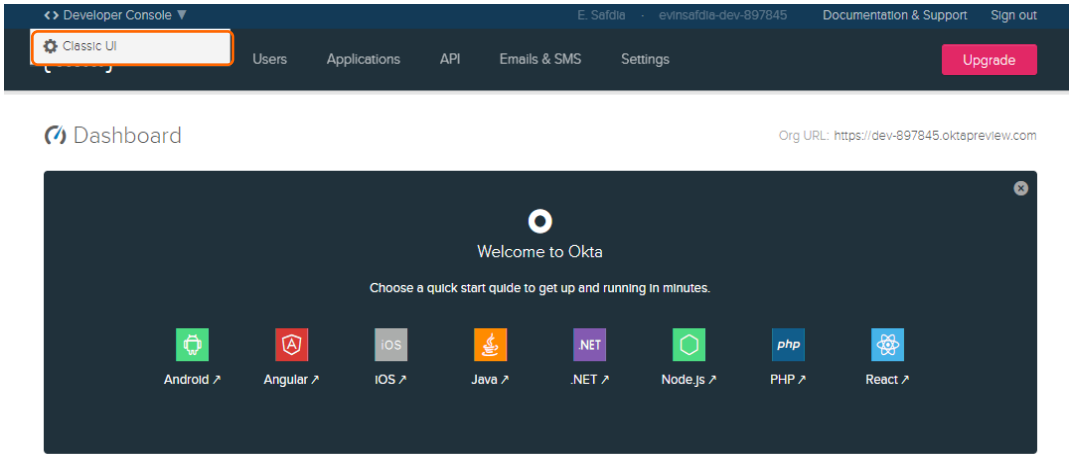
5. You have now created a user that can authenticate to the Zscaler cloud you are provisioned on.

Okta

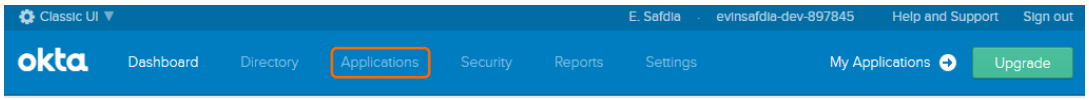
SAML Configuration for Zscaler

Note: An Okta developer account is required, see Appendix II for details. Optionally, an Active Directory Server is used to synchronize users, for help setting one up, see Appendix III.

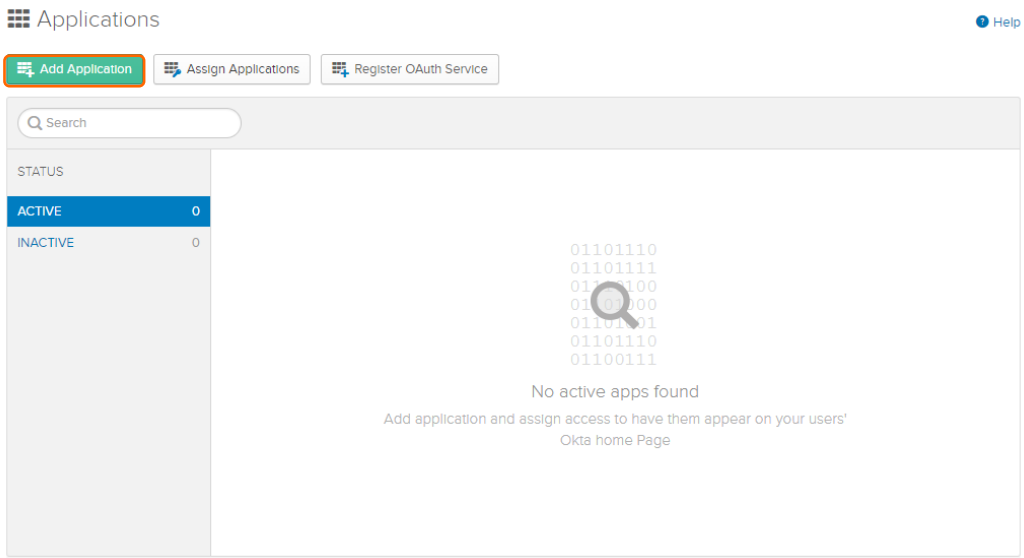
1. Login to your Okta developer instance (https://dev-######.admin.oktapreview.com)
2. From the Dashboard, hover over Developer Console at the top left and click **Classic UI**.



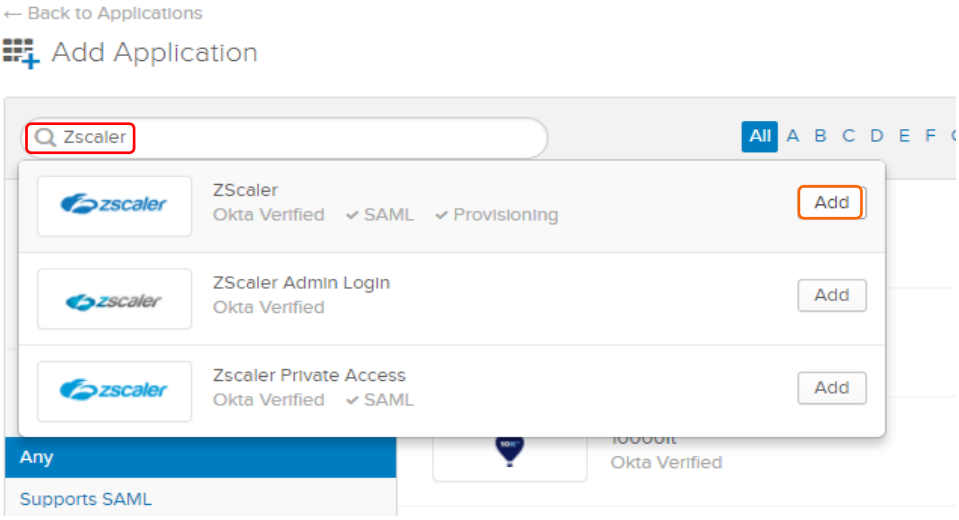
3. From the Classic UI Dashboard click **Applications**.



4. From the applications page click **Add Application**.

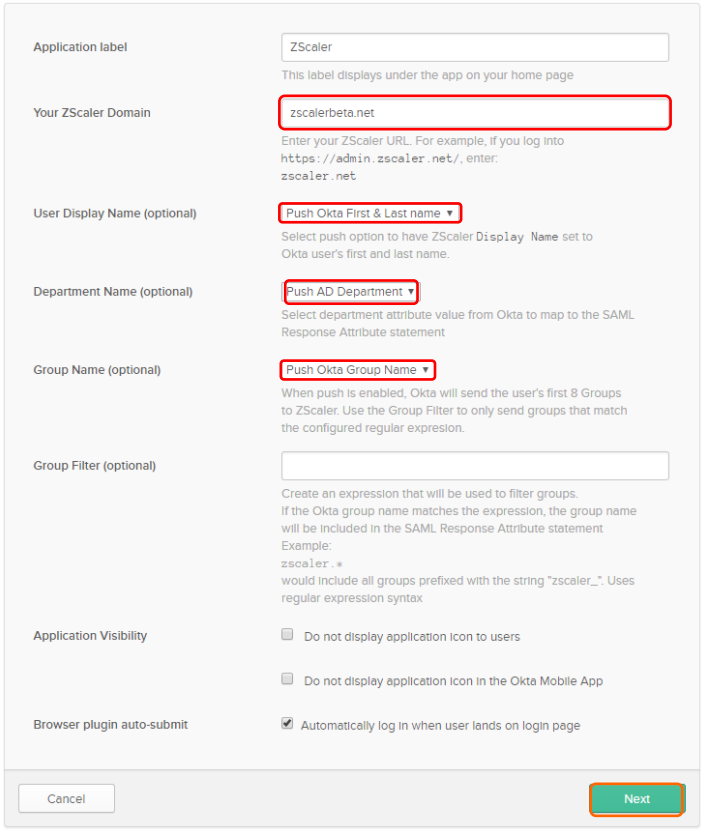


5. In the search box type in “**Zscaler**” and then click **Add** next to the first Zscaler option.

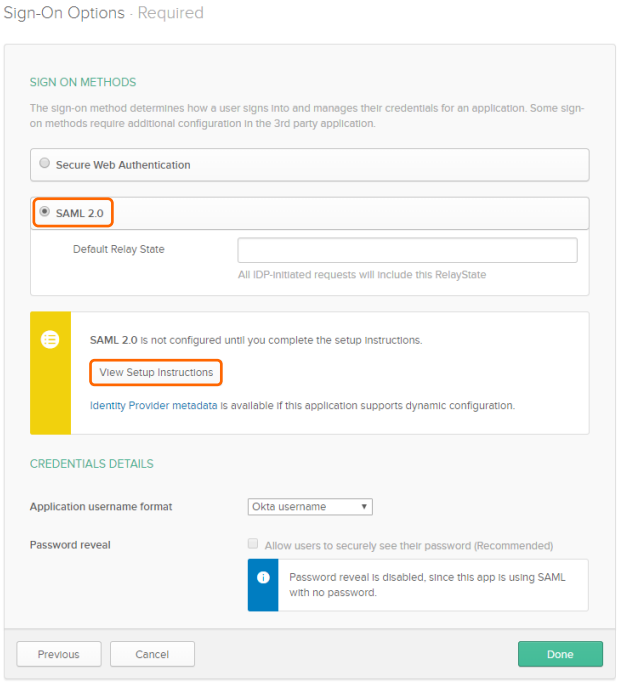


6. Fill in the following fields and click **Next**. Leave other fields at default values.

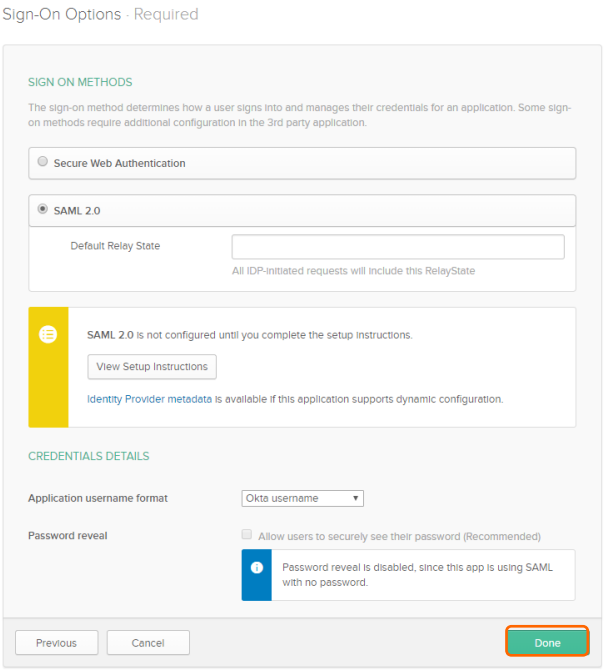
Your Zscaler Domain	The Zscaler Domain your account is provisioned one (zscloud, zscalertwo, etc.)
User Display Name	Push Okta First & Last name
Department Name	Push AD Department
Group Name	Push Okta Group Name



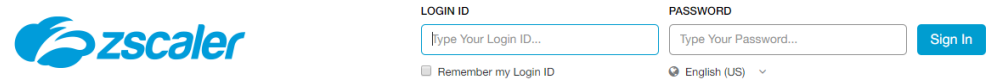
7. On the Sign-On options page, select **SAML 2.0** and the click **View Setup Instructions**.



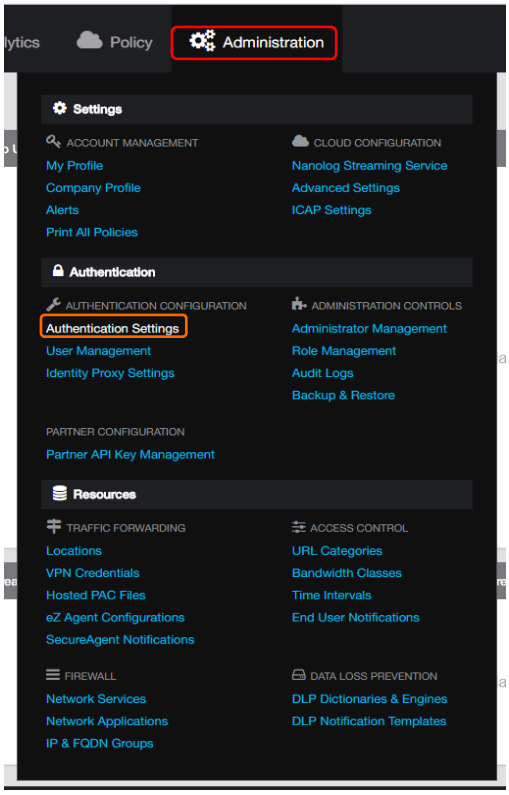
8. The SAML 2.0 instructions will open in a new tab, keep these open for later use. Switch back to the main Okta tab and click **Done**.



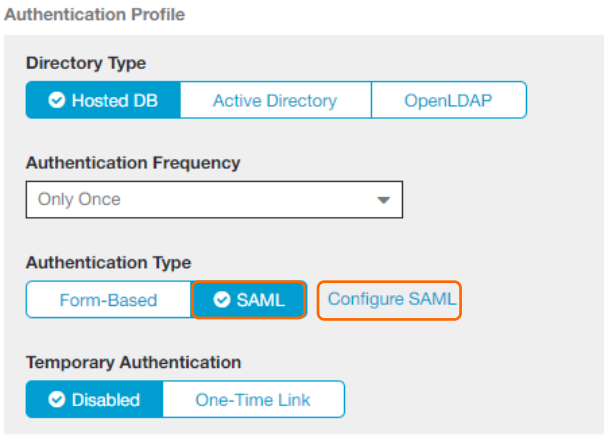
9. Open a new browser tab and navigate to the Cloud portal for your Zscaler instance. (admin.zscloud.net, admin.zscalertwo.net, etc) Sign in with your admin credentials.



10. Hover over **Administration** and click **Authentication Settings**.

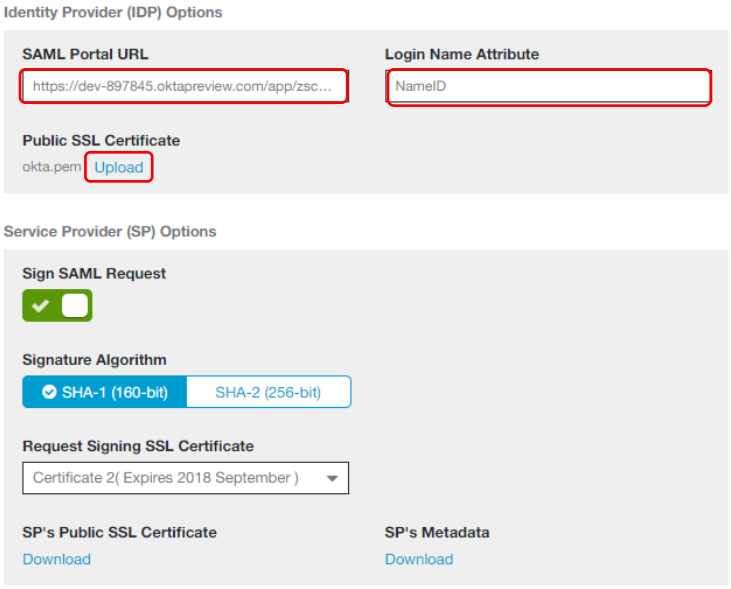


11. Under Authentication Profile, click **SAML** and then click **Configure SAML**.



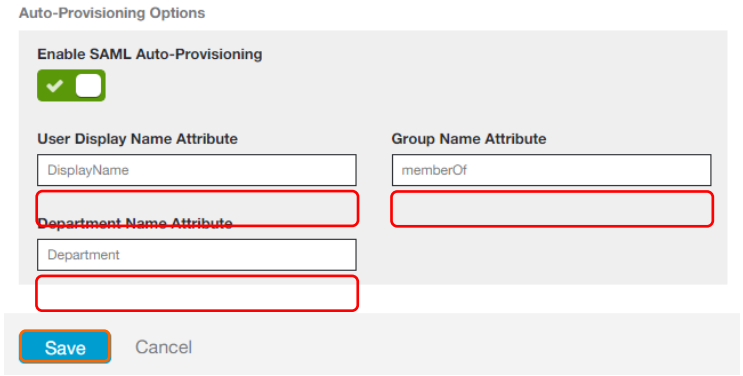
12. Configure the options as pictured below. SAML Portal URL and the Public SSL certificate are available from the Okta instructions tab we opened earlier Set Login Name Attribute to NameID.

When finished, scroll down to configure Auto-Provisioning options

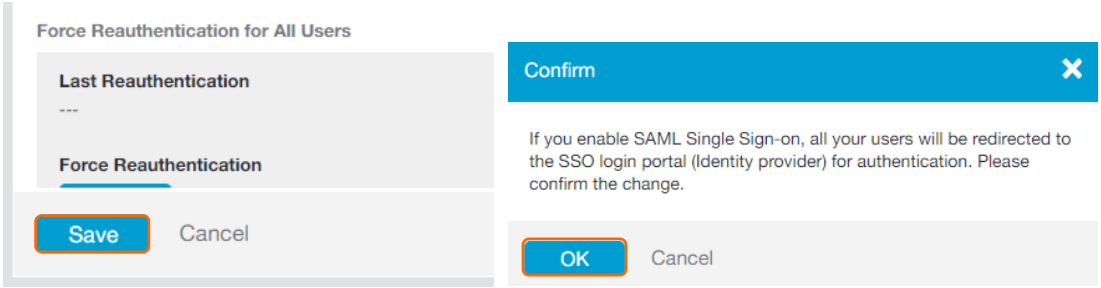


13. **Enable** SAML Auto-Provisioning and enter the following attributes, then click **Save**.

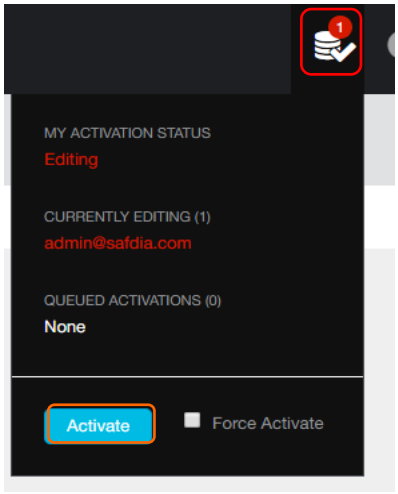
User Display Name Attribute	DisplayName
Group Name Attribute	memberOf
Department Name Attribute	Department



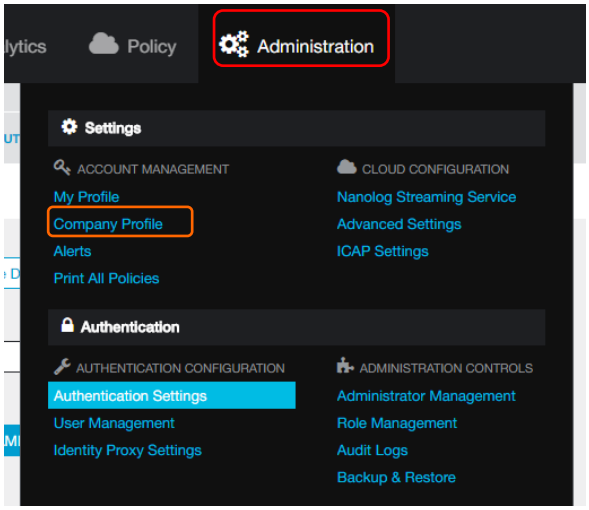
14. Click **Save** at the bottom of the Authentication Settings Page, then click **OK** in the confirmation dialog.



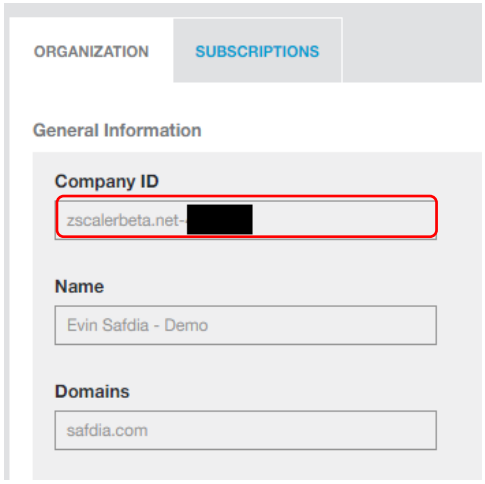
15. Activate your changes by hovering over the activation icon at the top right of the console and click **Activate.**



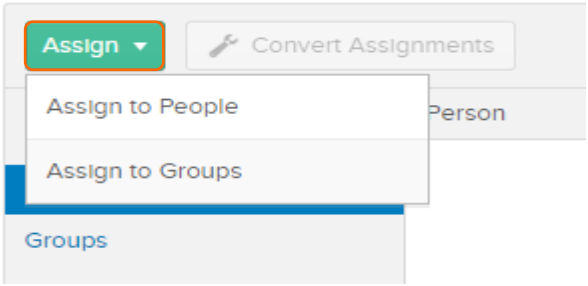
16. Hover over administration and select **Company Profile**.



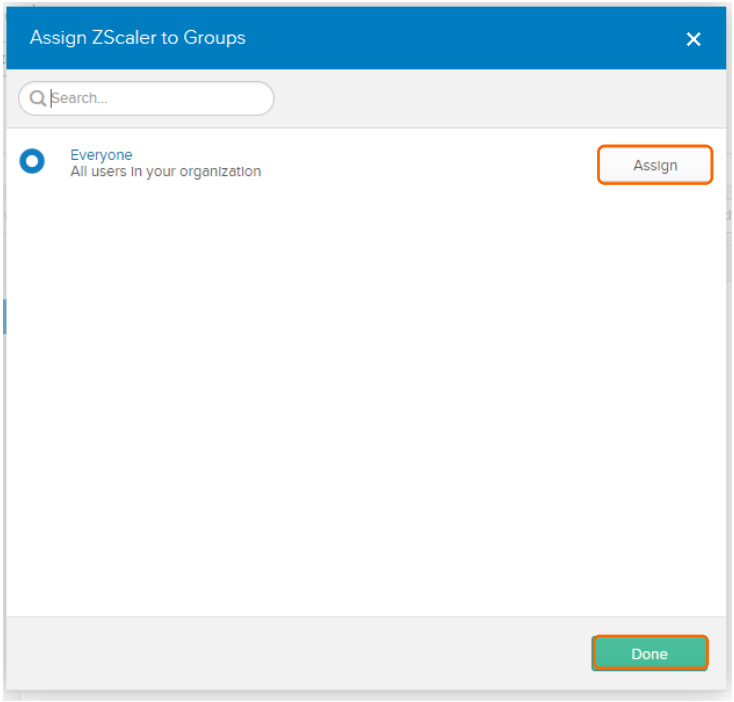
17. Under General Information copy the Company ID, we will need this a few steps later in the Okta portal.



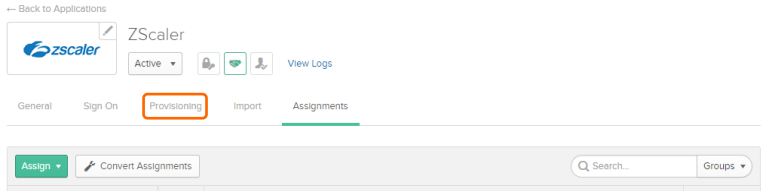
18. Return to the Okta console, you should be on the Assignments page for the Zscaler Application you created. Click **Assign > Assign to Groups**.



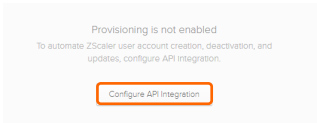
19. Click **Assign** next to the Everyone group and then click **Done**.



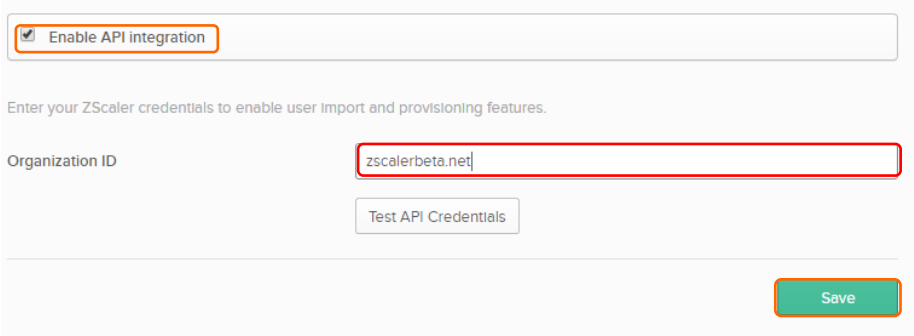
20. Click **Provisioning.**



21. Click **Configure API Integration**.



22. Check the box next to **Enable API integration**, paste the organization ID we copied earlier and then click **Save**.

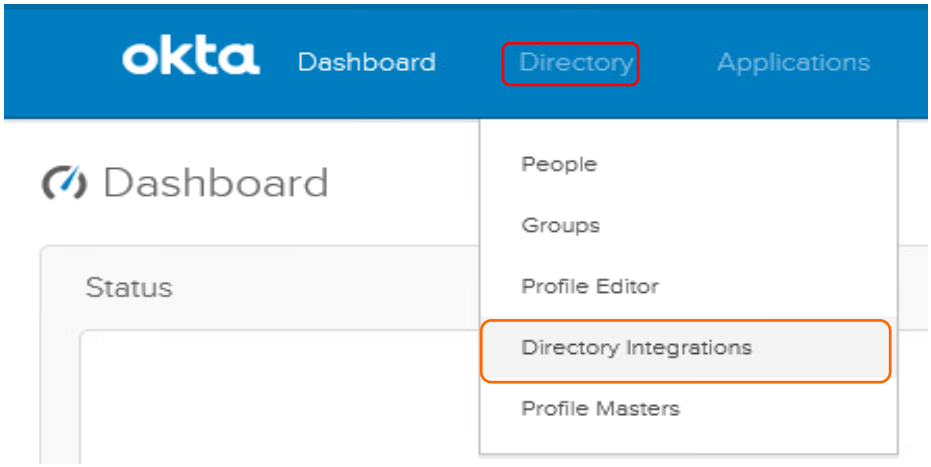


23. You have successfully configured Okta Authentication via SAML 2.0 for Zscaler.

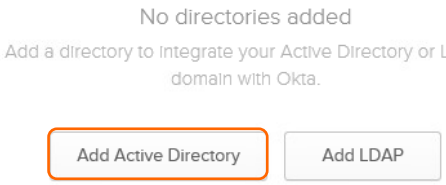
Active Directory Integration

Note: For the sake of simplicity, your Active Directory Domain should match your Zscaler organization domain.

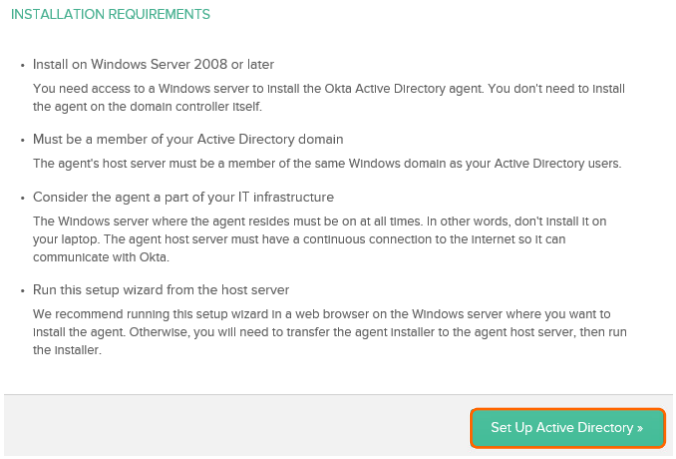
1. From the desktop of your Active Directory VM, login to the Okta portal. (Ensure IE ESC is disabled from Server Manager). Hover over Directory from the top menu and click **Directory Integrations**.



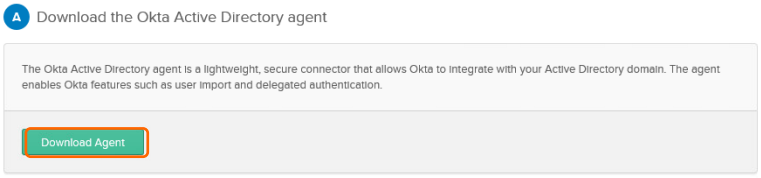
2. Click **Add Active Directory**.



3. Review the installation requirements, scroll down and click **Set Up Active Directory**.

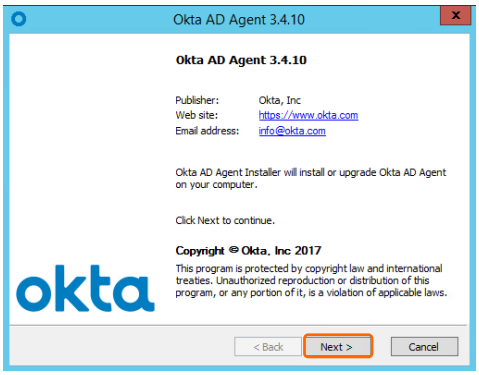


4. Click **Download Agent**.

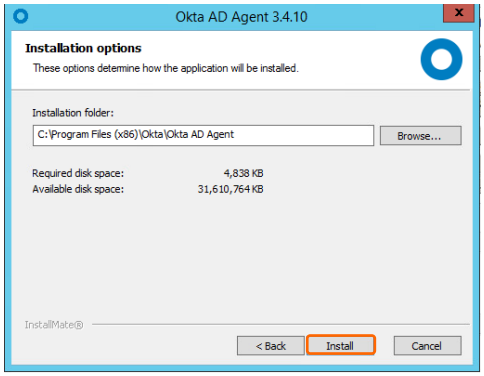


5. On the Internet Explorer download prompt, click **Run**.

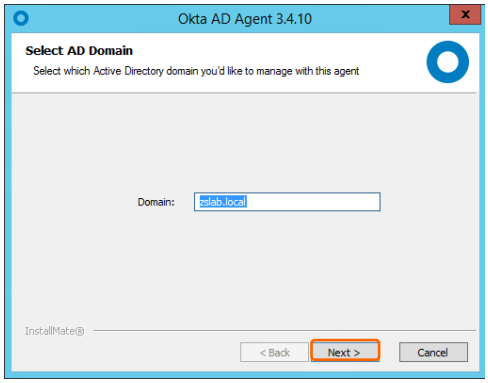
6. The Okta AD Agent will open, click **Next**.



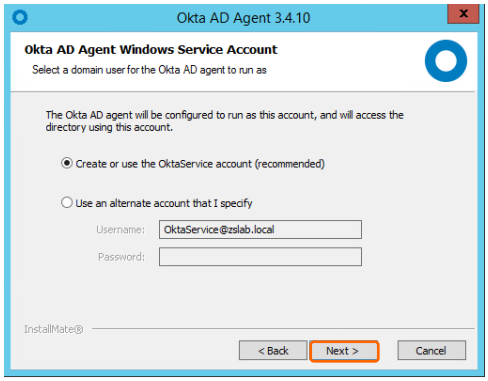
7. Accept the default installation location and click **Install**.



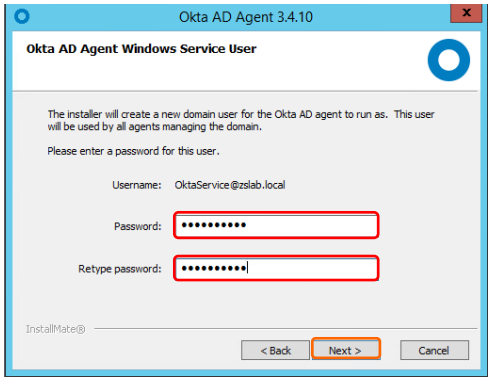
8. Ensure your domain name is listed in the Domain field and click **Next**.



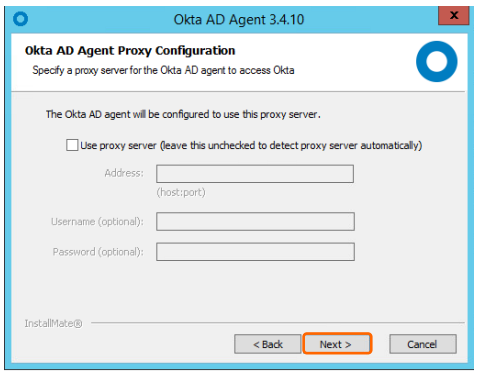
9. On the Service Account page, either allow the installer to create an account or specify one to use. Click **Next**.



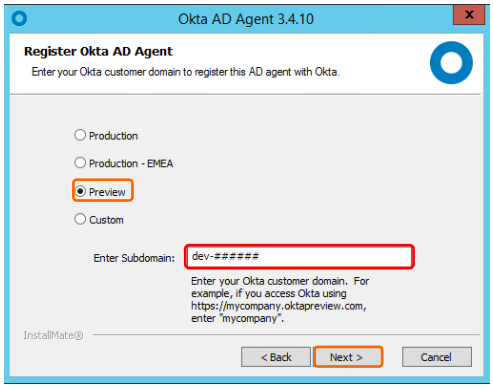
10. If you selected to allow the creation of the OktaService account, you will be prompted to specify a password. Enter a password in both fields and click **Next**.



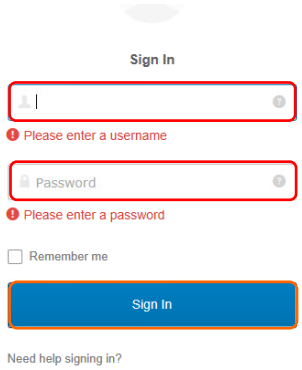
11. Click **Next** on the Proxy Configuration screen.



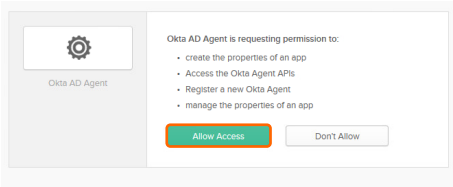
12. Select **Preview** and enter your subdomain name, it should be listed on the Okta page in Internet Explorer. Click **Next.**



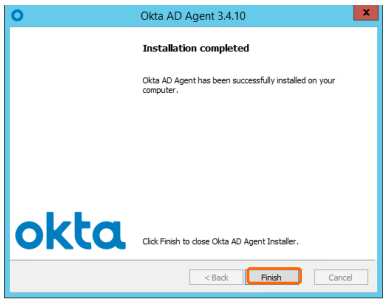
13. Sign In with your Okta Developer admin account.



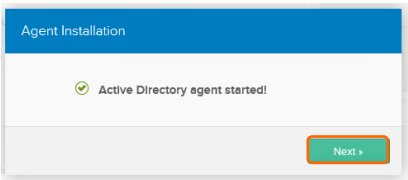
14. Click **Allow Access**.



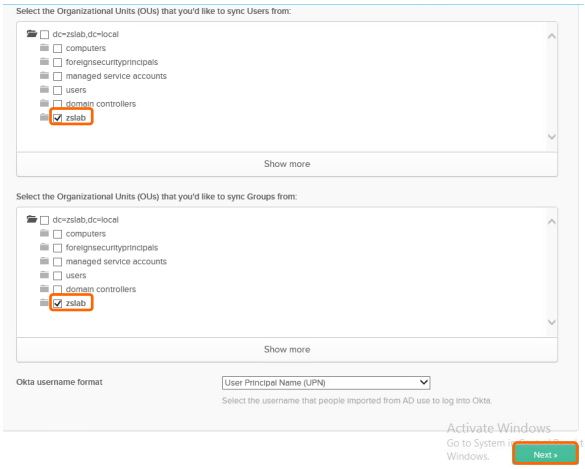
15. Installation will complete. Click **Finish**.



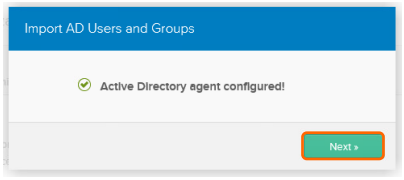
16. Return to Internet Explorer and the Okta page should show confirmation that the Agent has started. Click **Next**.



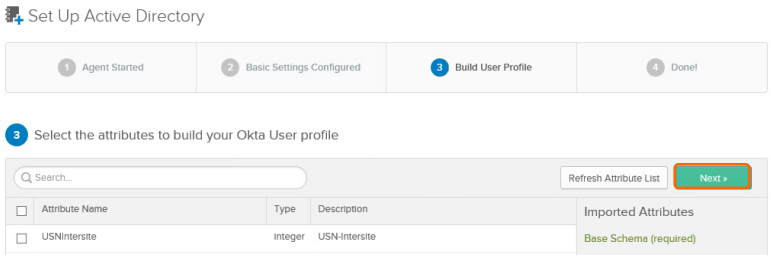
17. Select the Organizational Units you would like to sync users and groups from and click **Next**.



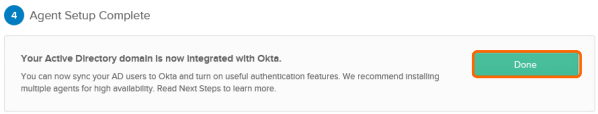
18. Click **Next** on the configuration confirmation.



19. On the attributes page click **Next** to use the default values.

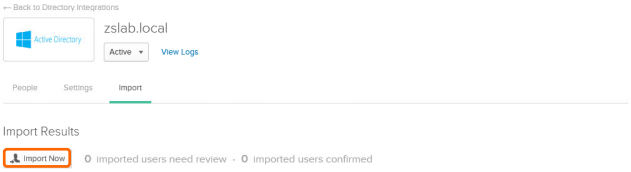


20. Click **Done**.

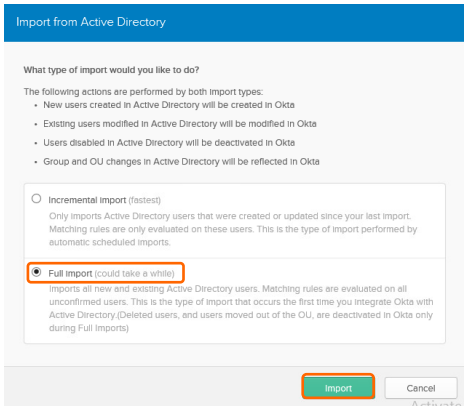


21. Click **Import** at the top.

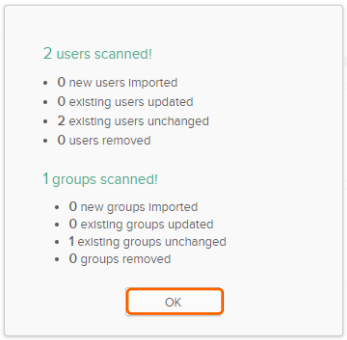
22. On the Import page, click **Import Now**.



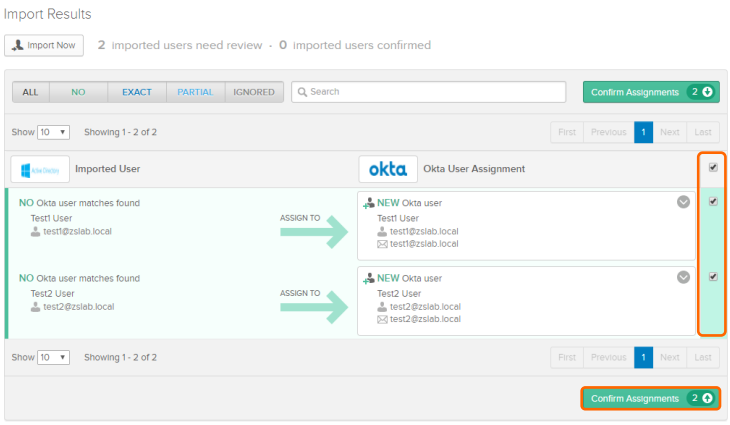
23. Select **Full Import** and click **Import**.



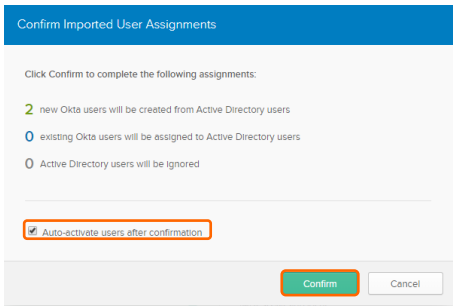
24. Import will complete and discover your users and groups. Click **OK**.



25. On the Import Results page, select the account you want to import and click **Confirm Assignments**.



26. On the confirmation dialog, check the box for **Auto-activate users after confirmation** and then click **Confirm**.



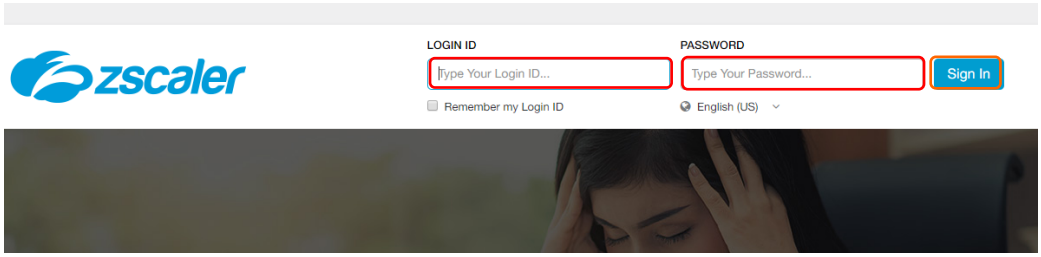
27. Active Directory integration is now complete, you may want to configure scheduled import or periodically import manually.

Nanolog Streaming Service (NSS)

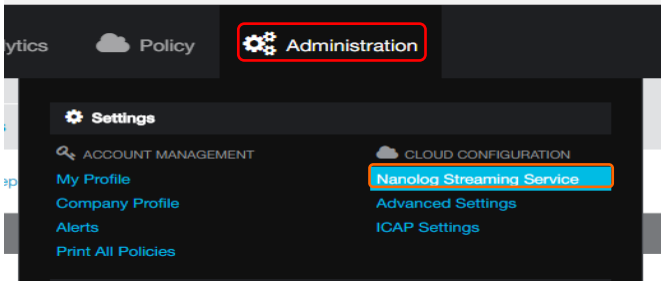
NSS is used to pull log data from the cloud and send it to a customer's SIEM product. Ensure that you have NSS provisioned on your Zscaler instance, if you do not have it in your cloud portal, submit a provisioning request or support ticket to add it.

Deploying a NSS Server – Virtual Appliance on ESXi

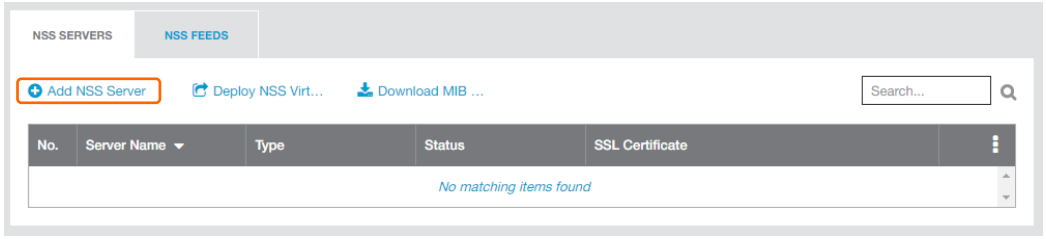
1. Login to the Zscaler Cloud Portal using your Admin credentials.



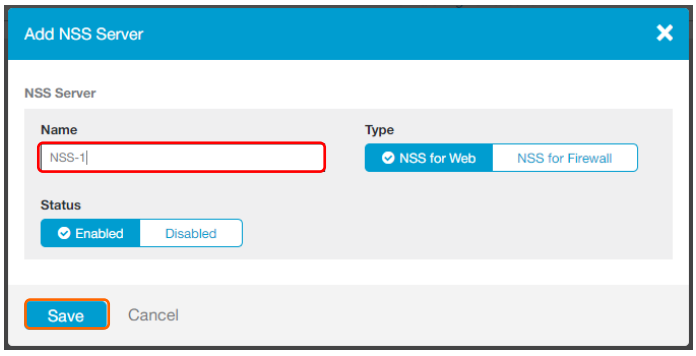
2. Hover over Administration and click **Nanolog Streaming Service**.



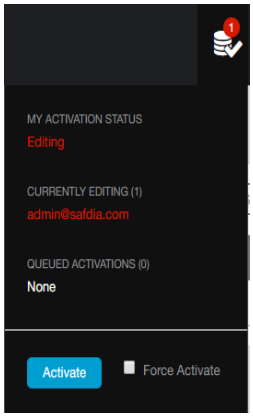
3. From the NSS Page, click **Add NSS Server**.



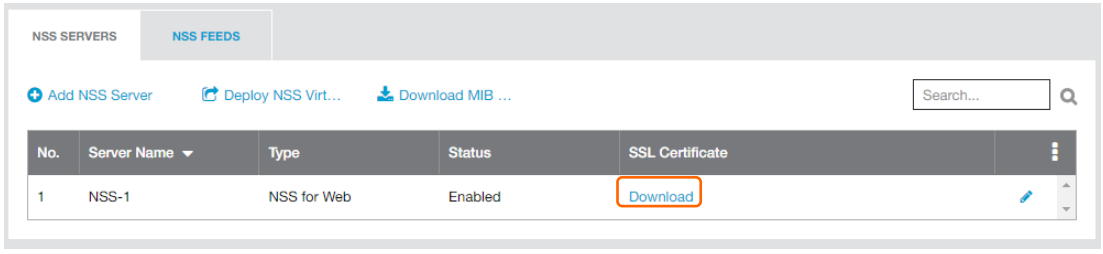
4. Enter a name for the server and select the type of logs it will be used for. Click **Save**.



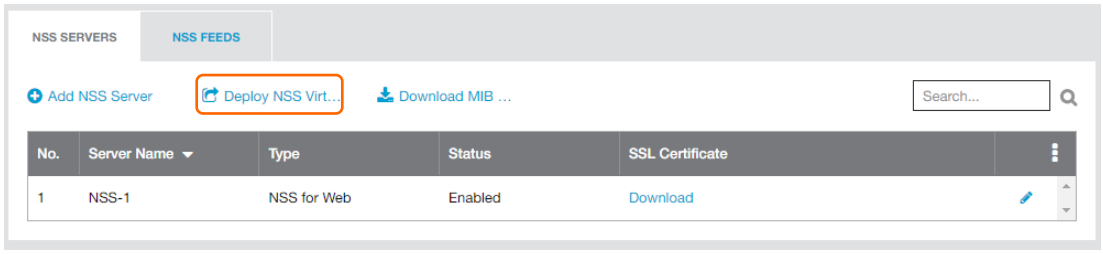
5. Don’t forget to activate your changes.



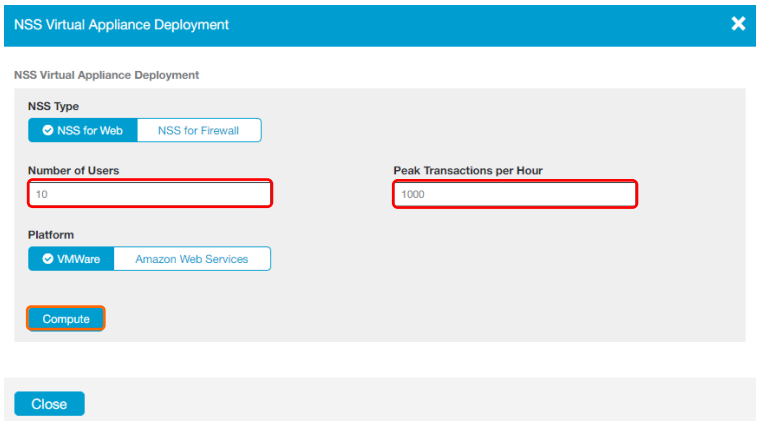
6. Now that the server is added, click **Download** under SSL Certificate. Save this certificate for later, it will be installed on the NSS Virtual Appliance to allow it to authenticate to the Zscaler cloud.



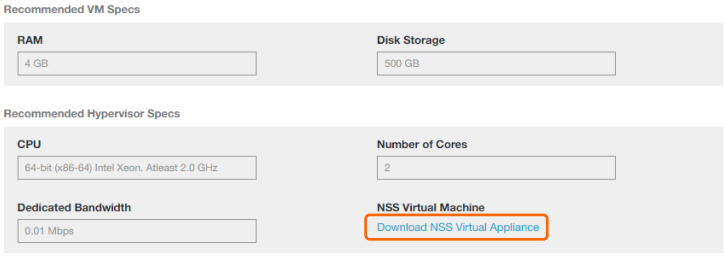
7. Click **Deploy NSS Virtual Appliance**.



8. On the NSS Virtual Appliance Deployment dialog, select NSS type and enter numbers for Users and Peak Transactions per hour. Since this is for a Lab you can use small numbers. Click **Compute.**

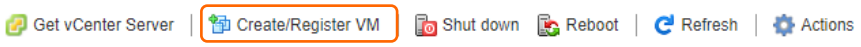


9. Click **Download NSS Virtual Appliance**.

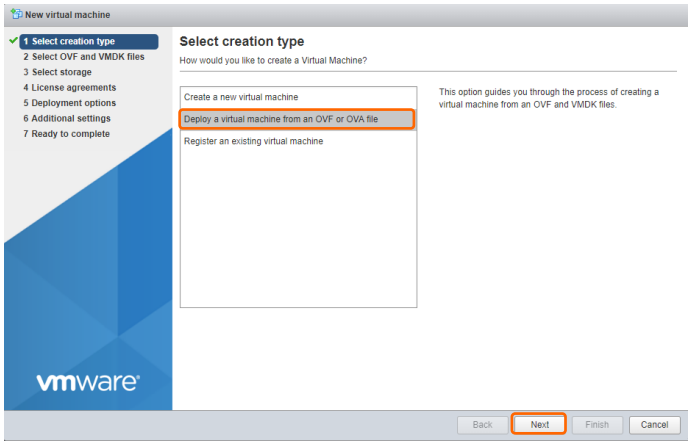


10. The NSS appliance will download in OVA format. Click **Close**.

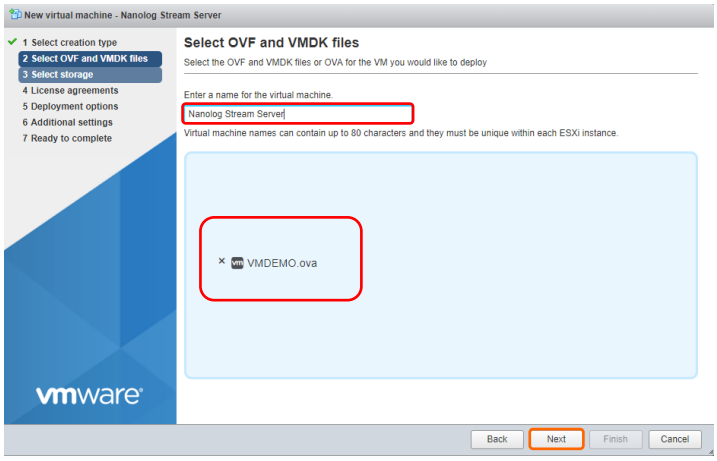
11. When the Virtual Appliance finishes downloading, login to your ESXi console and click **Create/Register VM** from the top menu.



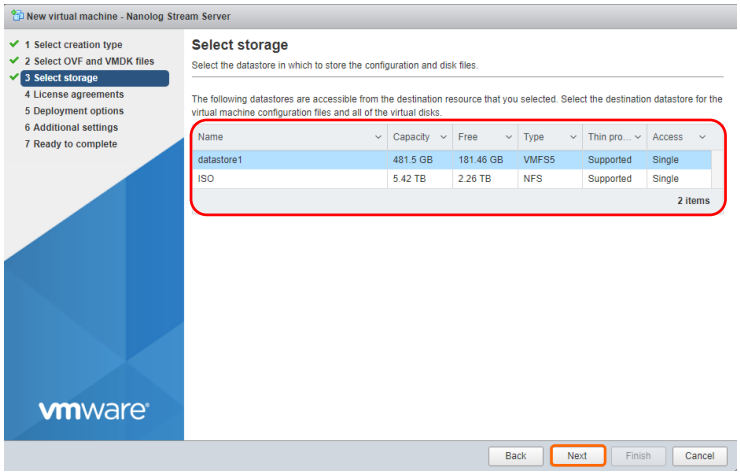
12. On the Select creation type screen, select **Deploy a virtual machine from an OVF or OVA file** and click **Next**.



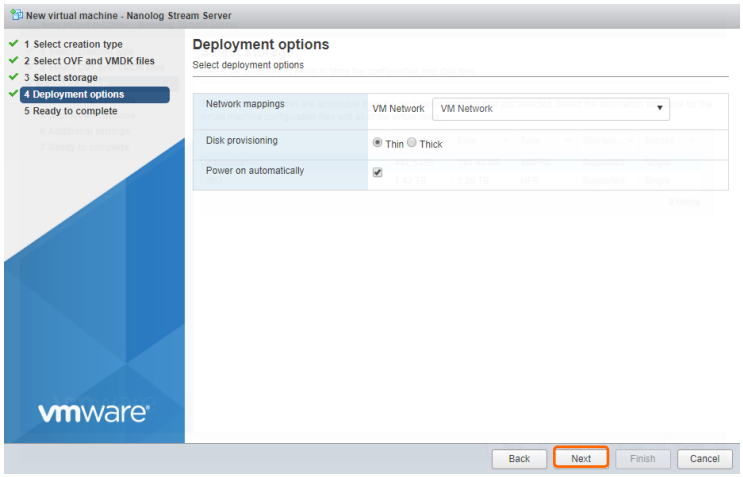
13. Enter a name for your NSS Virtual Appliance and select the NSS OVA file that you downloaded. Click **Next**.



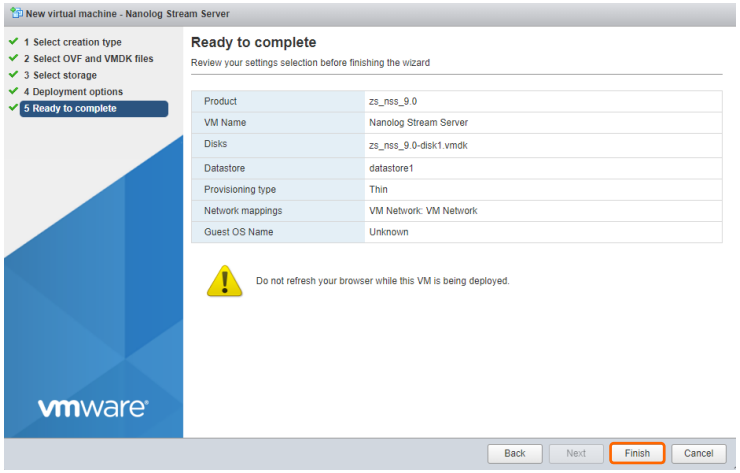
14. Select datastore for the Virtual Appliance and click **Next**.



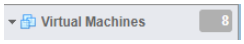
15. Click **Next** on the deployment options screen.



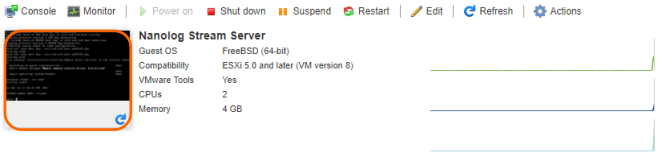
16. Review your settings and click **Finish**.



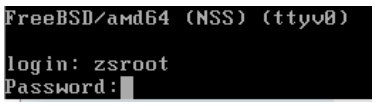
17. The Virtual Appliance will be imported. Once imported, you can access it from the **Virtual Machines** menu option.



18. Open the NSS Virtual Appliance console.

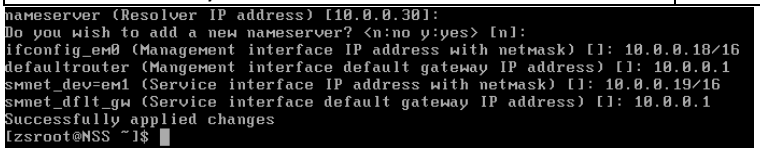


19. Login to NSS with the Username: zsroot and the password zsroot. It is recommended that you change the default password with the passwd command.

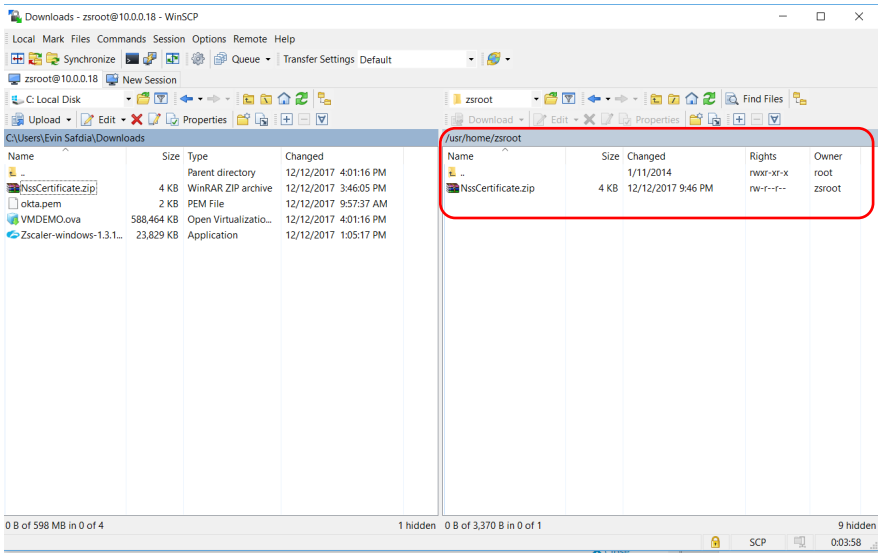


20. Type in **sudo nss configure** to configure network settings.
You will configure the following settings:

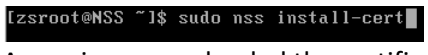
DNS Server IP Address	x.x.x.x
Management Interface IP Address with CIDR netmask	x.x.x.x\16
Default Gateway for Management IP	x.x.x.x
Service IP Address with CIDR netmas	x.x.x.x\16
Default Gateway for Service IP	x.x.x.x



21. Using a utility like WinSCP or CyberDuck, upload the NssCertificate.zip file to the management IP of the NSS VM.



22. Return to the NSS console and enter the command **sudo nss install-cert**



23. Assuming you uploaded the certificate bundle to /usr/home/zsroot; enter **/usr/home/zsroot/NssCertificate.zip** and press the **Enter** key. The console should display the

message “Certificates Successfully Installed.”

```
[zsroot@NSS ~]$ sudo nss install-cert
Password:
Please enter complete path to the certificate bundle(.zip): /usr/home/zsroot/Nss
Certificate.zip
Certificates successfully installed
[zsroot@NSS ~]$
```

24. Check your configuration by running the command **sudo nss dump-config**.

```
[zsroot@NSS ~]$ sudo nss dump-config
Configured Values:
        CloudName:zscalerbeta.net
        nameserver:10.0.0.30
        Mgmt IP:10.0.0.18/16
        Default gateway for Mgmt IP:10.0.0.1
        Service IP:10.0.0.19/16
        Default gateway for Service IP:10.0.0.1
[zsroot@NSS ~]$
```

25. Next we will download the NSS binaries. Enter the command **sudo nss update-now** and press the **Enter** key.

```
[zsroot@NSS ~]$ sudo nss update-now
Connecting to server...
Downloading latest version
Installing build /sc/smcdsc/nss_upgrade.sh
Dec 12 17:35:37 NSS Zscaler: Update [1693] sucessfully disabled upgrade
Dec 12 17:35:37 NSS Zscaler: Update [1693] Sudo is ok!
Dec 12 17:35:37 NSS Zscaler: Update [1693] No migration of sc.conf required
Finished installation!
[zsroot@NSS ~]$
```

26. Finally, run the command **sudo nss start** to start the NSS service. You can enable automatic start on reboot with the command sudo nss-enable-autostart.

```
[zsroot@NSS ~]$ sudo nss start
Password:
em1: allocated ZSCOMM 0xffffff8000df8000 of 1246976 bytes
em1: started for 1882: err=0, cur=1
NSS service running with pid 1882
[zsroot@NSS ~]$
```

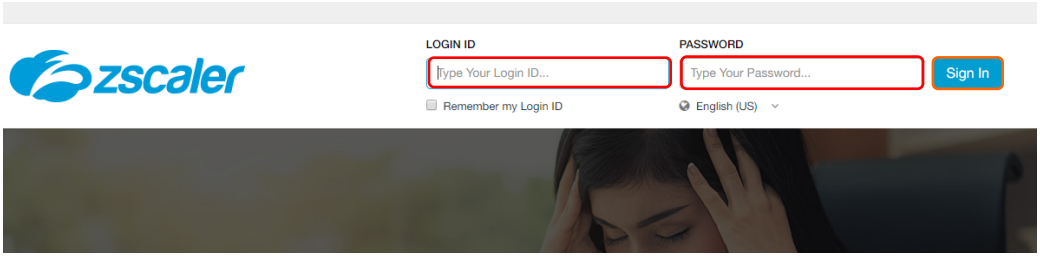
27. Your NSS VM should now be configured and connected to the Zscaler cloud. You can verify your configuration with the command **sudo nss troubleshoot netstat|grep tcp**.

```
[zsroot@NSS ~]$ sudo nss troubleshoot netstat|grep tcp
Password:
//+SHARED MEMORY KEY 17 (/sc/)
tcp         0(  0%)      133(  0%) 10.0.0.19.3324         104.129.193.101.9422
 ESTABLISHED
[zsroot@NSS ~]$
```

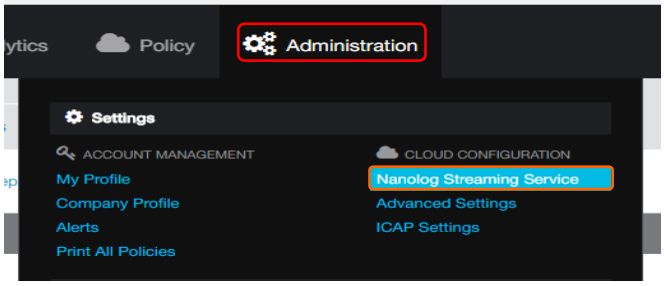
Creating a NSS Feed – Splunk Enterprise

For information on downloading and installing Splunk Enterprise, see Appendix III.

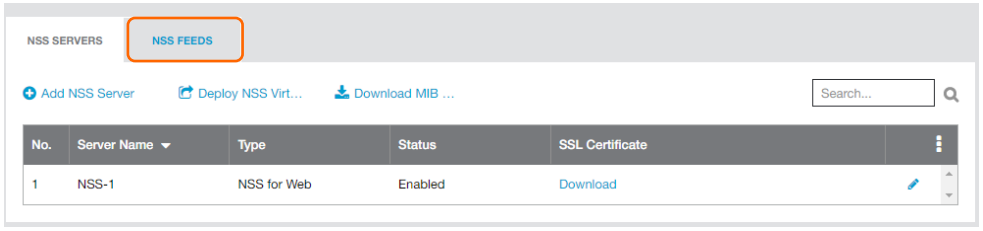
1. Login to the Zscaler Cloud Portal using your Admin credential.



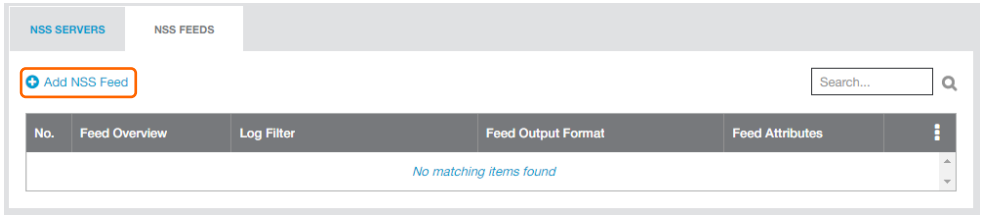
2. Hover over Administration and click **Nanolog Streaming Service**.



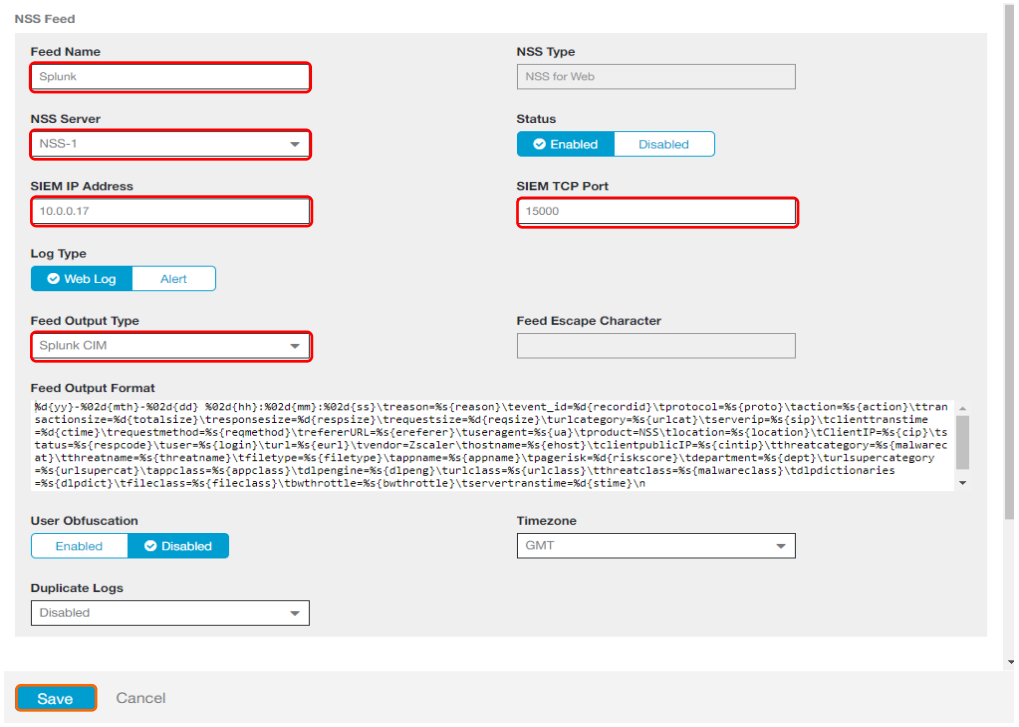
3. Click **NSS Feeds.**



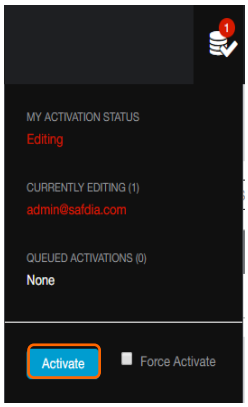
4. On the NSS Feeds page, click **Add NSS Feed.**



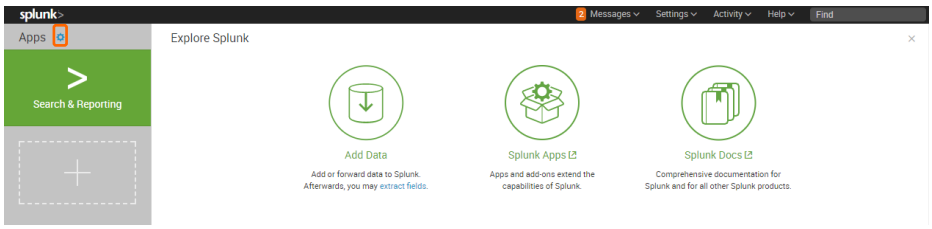
5. Enter a **Feed Name**, the **SIEM IP Address** and a **SIEM TCP Port**. Select **Splunk CIM** from the Feed Output Type dropdown and your **NSS Server** from the NSS Server dropdown. The SIEM IP address is the local IP address that the NSS Virtual Appliance will use to communicate with the SIEM server, the SIEM TCP port is a port you have selected to use to communicate Zscaler logs to the SIEM, we will configure this in Splunk later. Click **Save**.



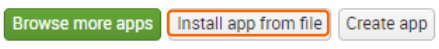
6. Activate your changes.



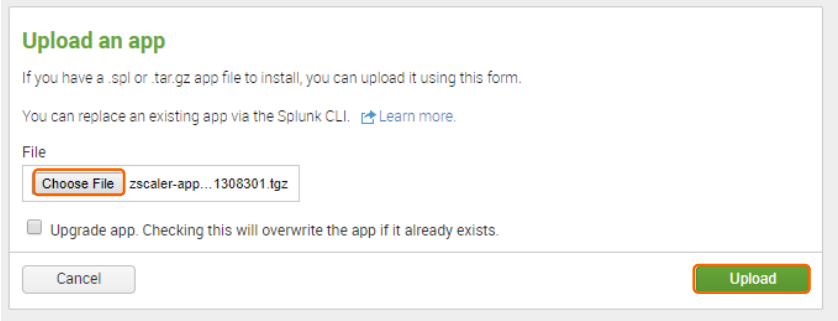
7. Switch back to the Splunk console, either on the desktop of your VM or in your web browser and click the **Cog** next to Apps.



8. Click **Install app from file**.



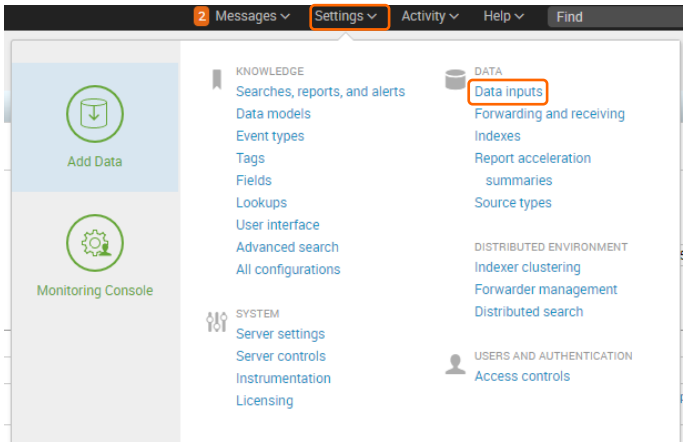
9. Click **Choose File** and browse to the Zscaler Splunk app file. For information on downloading, see Appendix II. Click **Upload**.



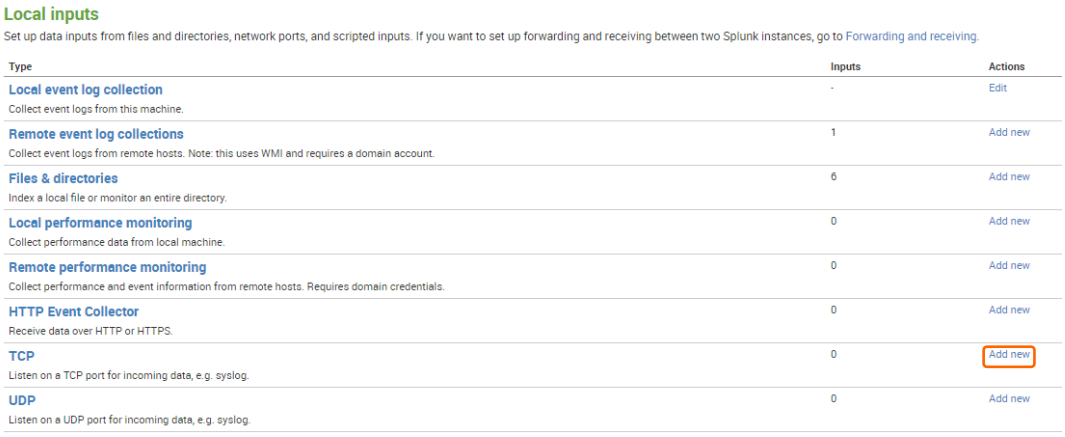
10. The Zscaler App is now installed and will show in the App list.

Name	Folder name	Version	Update checking	Visible	Sharing
SplunkForwarder	SplunkForwarder		Yes	No	App | Permissions
SplunkLightForwarder	SplunkLightForwarder		Yes	No	App | Permissions
Zscaler App for Splunk	ZscalerAppForSplunk	4.1M-201308301	Yes	Yes	App | Permissions

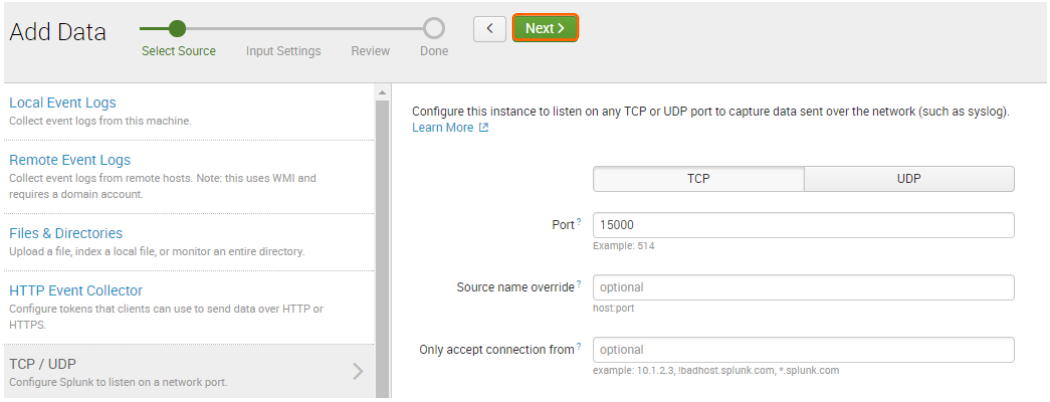
11. At the top right, click **Settings** and then **Data inputs**.



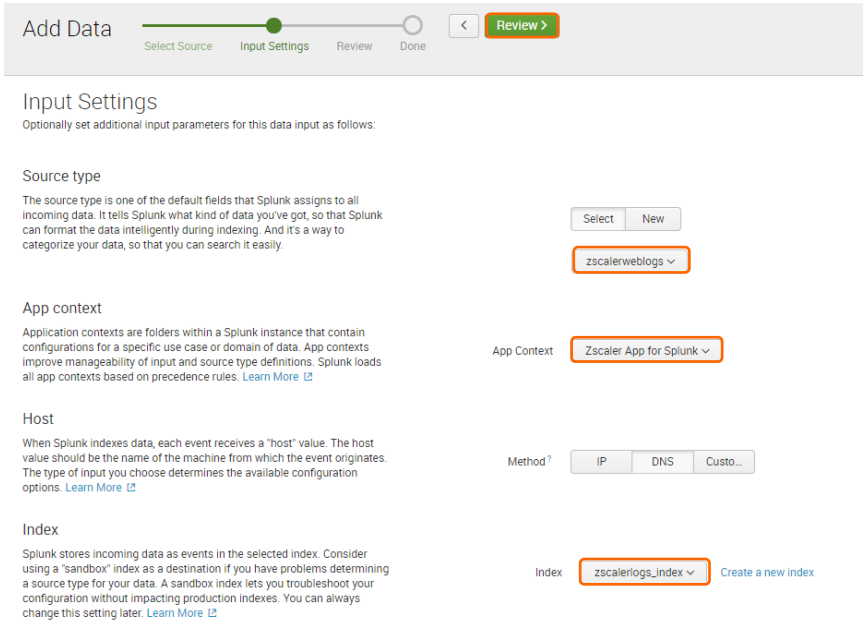
12. Click **Add new** next to TCP under the Local inputs section.



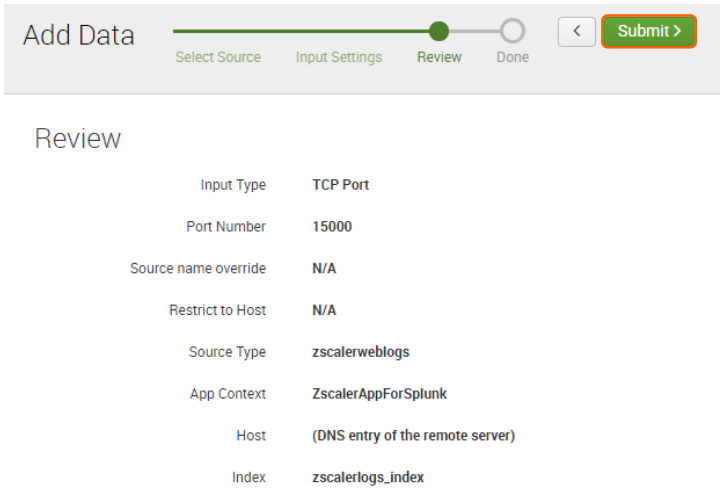
13. Enter the port you used when you created your NSS feed and click **Next**.



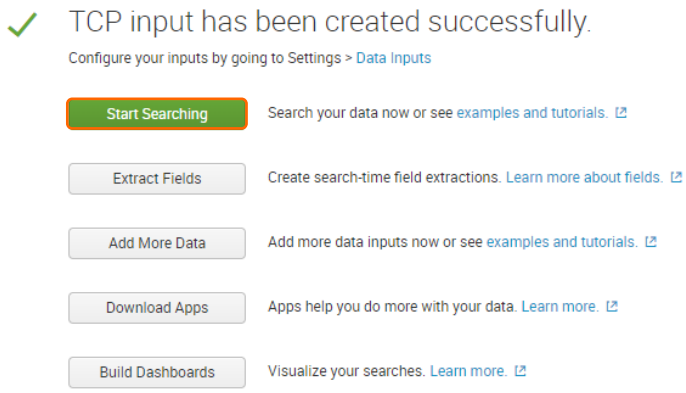
14. Select **Uncategorized > zscalerweblogs** for Source Type, **Zscaler App For Splunk** for app context and **zscalerlogs_index** for Index. Click **Review**.



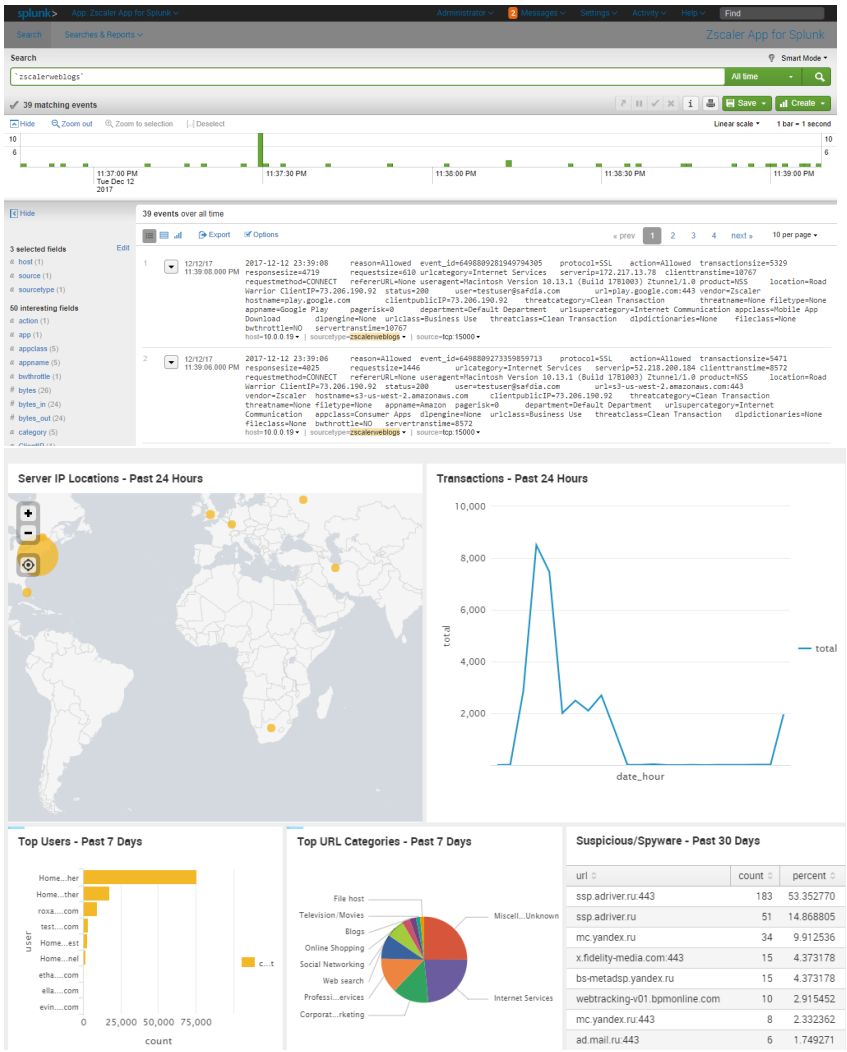
15. Review your settings and click **Submit**.



16. Your TCP data input has been created successfully. You can click **Start Searching** or return to the home screen and click the Zscaler App to see your data.



17. Assuming you have traffic flowing through Zscaler, you should see events when you search. You can use Splunk to build a dashboard to display this information graphically.



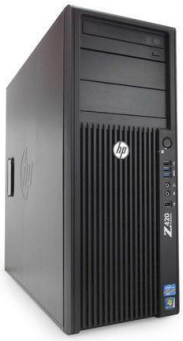
Virtual ZEN (VZEN)

Open a support ticket to request a VZEN for internal user. Be sure to specify if you want Small, Medium or Large.

Zscaler Private Access (ZPA)

Appendix I - Hardware

The Ubiquiti EdgeRouter-X is a cost effective solution for creating GRE/IPSEC tunnels to the Zscaler cloud.
https://www.amazon.com/Ubiquiti-Networks-ER-X-Router/dp/B0144R449W/ref=sr_1_1?ie=UTF8&qid=1513003584&sr=8-1&keywords=ubiquiti+ER_x



In order to leverage features like NSS, ZPA, VZEN, etc, it is ideal to have you own ESXi host server in order to run the necessary virtual machines. While ESXi can be difficult to use on non-approved hardware, HP Z420 is approved and affordable. You can pick up one with 32-64GB of RAM and an eight-core Xeon for around $400. I added a 1TB SSD to mine to speed things up.

https://www.ebay.com/sch/i.html?_from=R40&_trksid=p2380057.m570.l1313.TR12.TRC2.A0.H0.XHP+Z420.TRS0&_nkw=HP+Z420&_sacat=0

Appendix II – Software

ESXi

https://my.vmware.com/en/web/vmware/evalcenter?p=free-esxi6

Splunk Enterprise

https://www.splunk.com/en_us/download/splunk-enterprise.html

Zscaler App for Splunk (A New Version is in Development)

https://splunkbase.splunk.com/app/1580/

Okta Developer

https://developer.okta.com/signup/

Rufus

https://rufus.akeo.ie/

Putty

http://www.putty.org/

WinSCP
https://winscp.net/eng/download.php

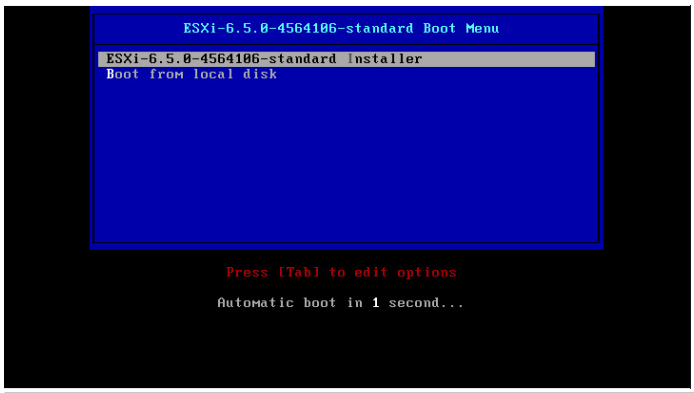
CyberDuck

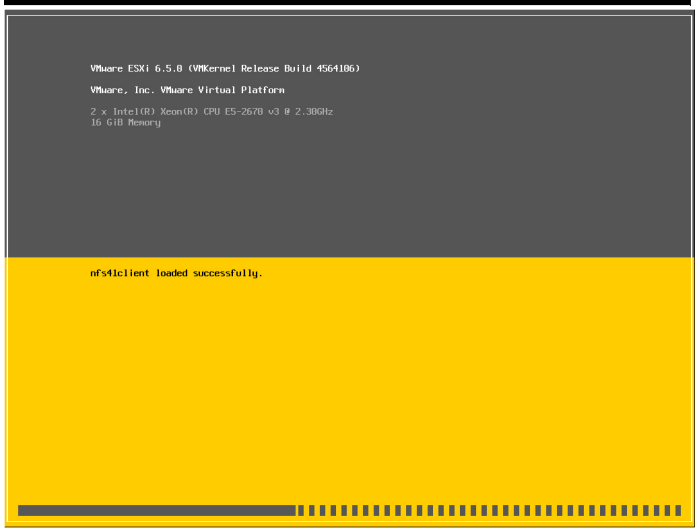
https://cyberduck.io/?l=en

Appendix III – Additional Guidance

Installing VMware ESXi 6.5

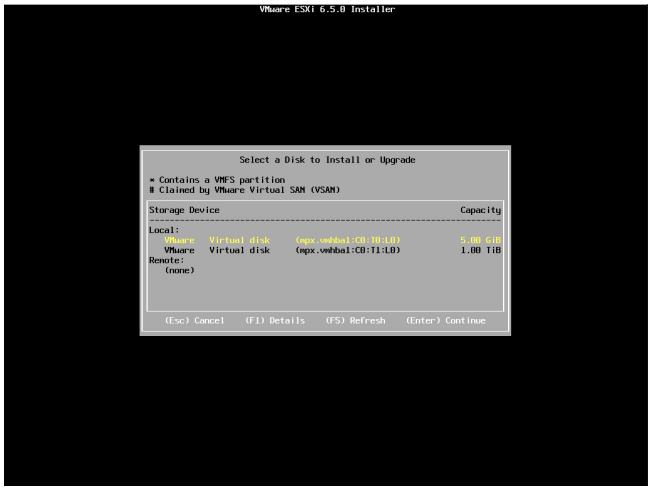
1. Either burn the ESXi ISO file to a disc or make a bootable USB using Rufus.
2. Boot the USB/Disc on your compatible hardware, see list: https://www.vmware.com/resources/compatibility/search.php



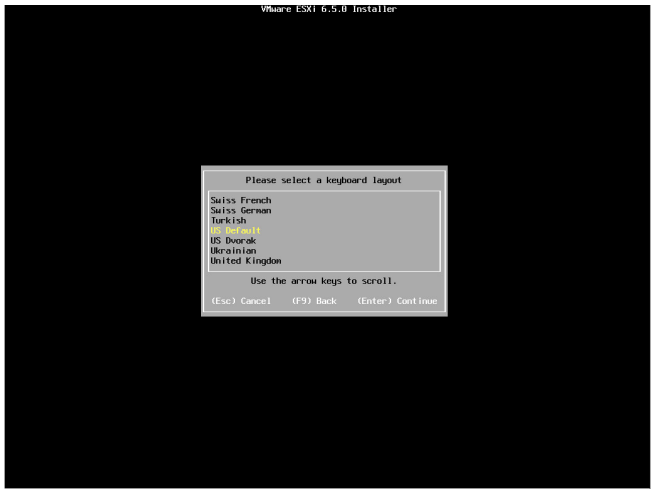


3. The installer will begin with the welcome message:

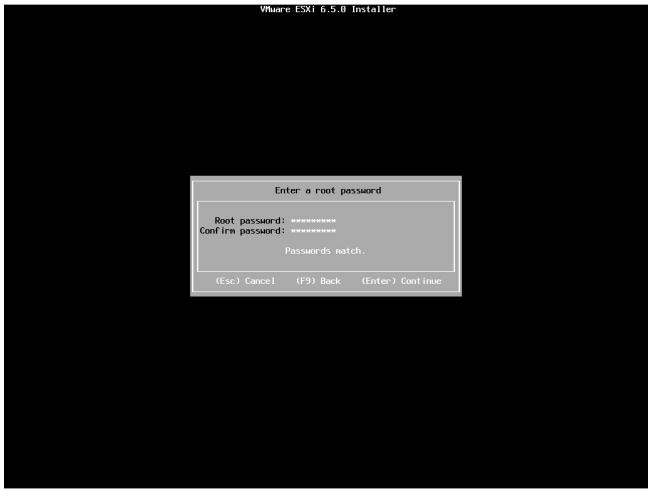
4. Press the enter key and then select the disk to install to:



5. Choose your language:



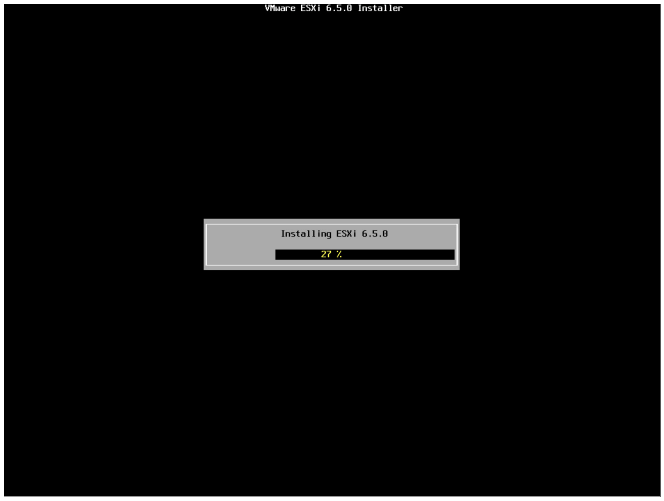
6. Set a root password:



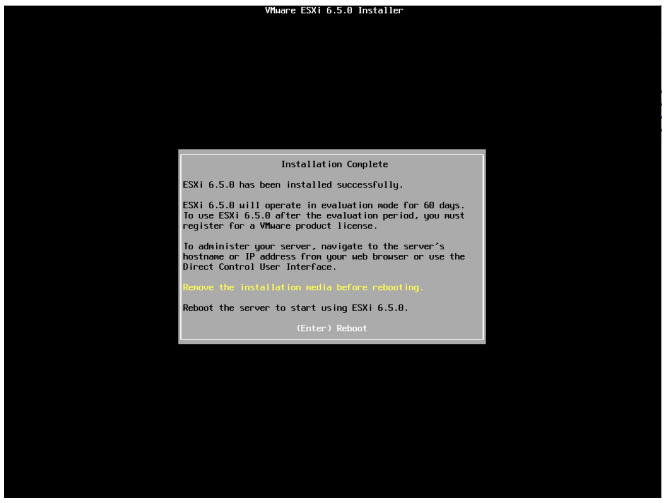
7. Now scanning for components will complete:

8. Press **F11** to repartition the disk and begin installation:

9. Wait for installation to complete:



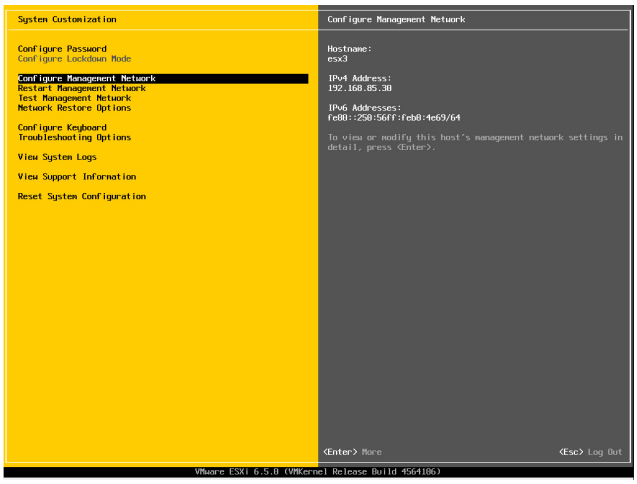
10. Once installation completes, press the **Enter Key** to reboot:



11. The host will reboot:

12. Once the host reboots, the DCUI splash screen will be displayed:

13. Press the **F2 Key** to customize system settings:

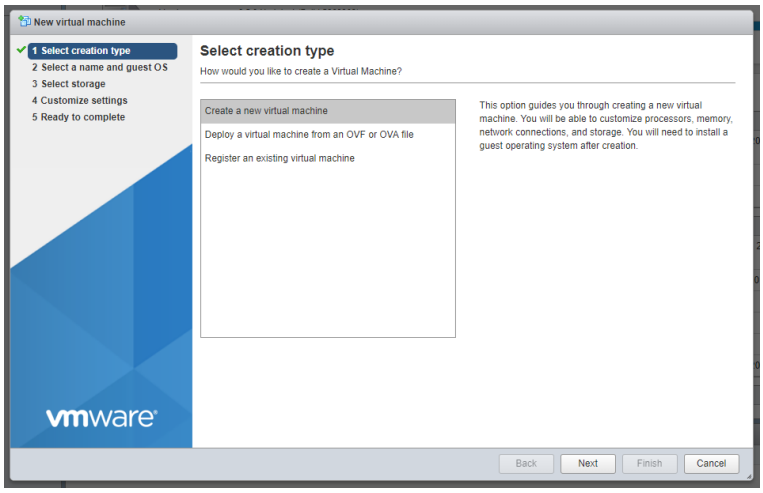


14. Once networking has been configured, you can navigate to the ESXi web console and begin to create Virtual Machines or configure additional settings.

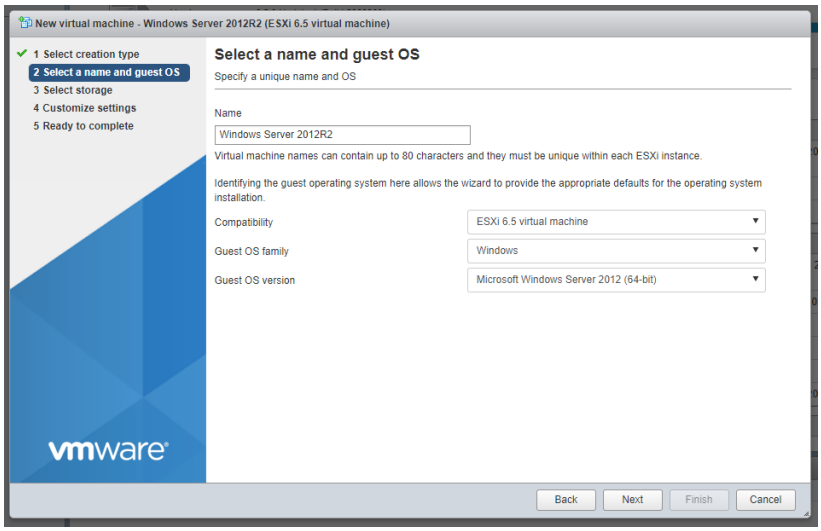
Creating a Windows Server 2012R2 Virtual Machine

1. From the ESXi Web Console, click **Create / Register VM**:

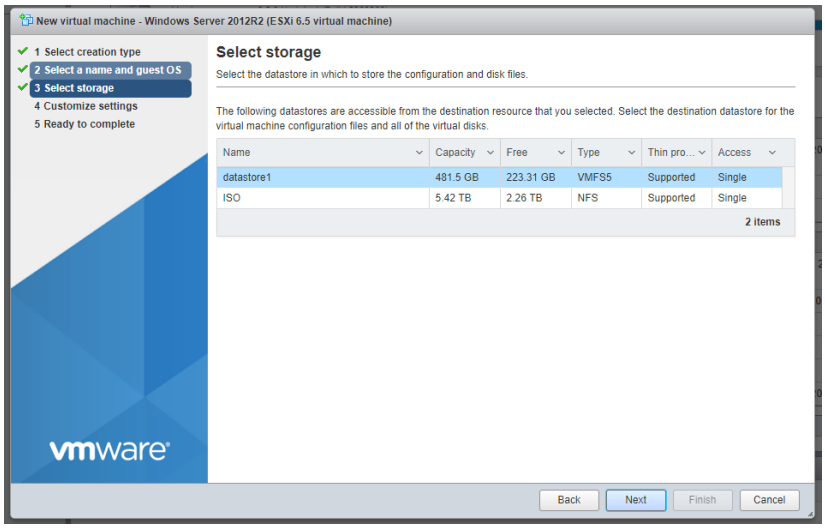
2. On the select creation type screen select **Create a new virtual machine** and click **Next**.



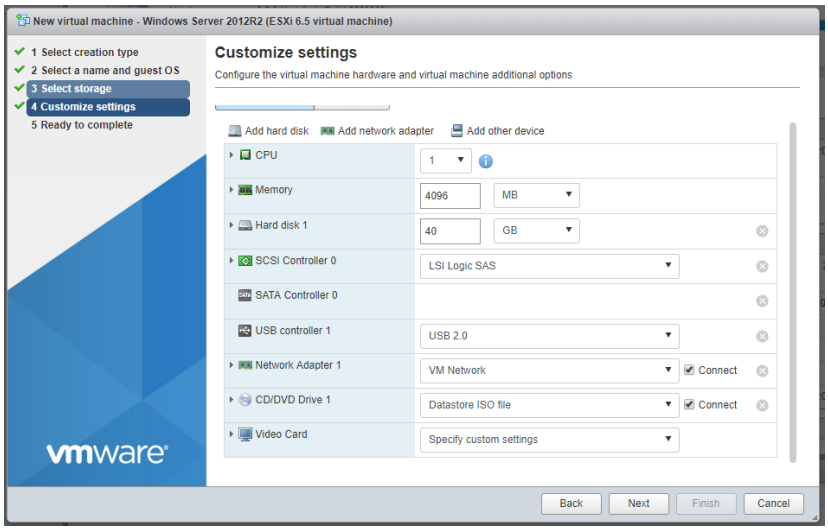
3. Enter a name for your Virtual Machine, select **Windows** and **Microsoft Windows Server 2012** from the appropriate dropdown boxes:



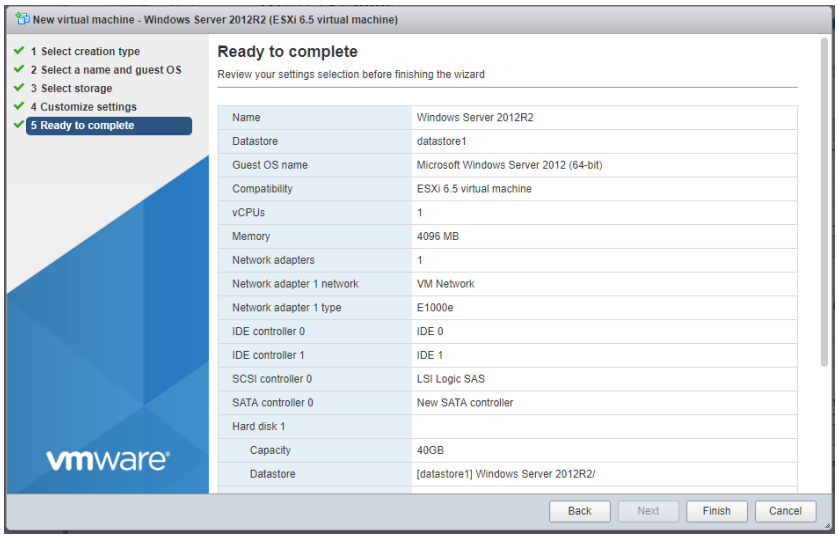
4. Select a storage location from your configured datastores and click **Next**.



5. Customize hardware settings or leave defaults and click **Next**. Please note that CD/DVD Drive can be set to host device if you have a physical 2012R2 installation disk in the host machine's optical drive or you can select an appropriate ISO datastore if you have configured one.

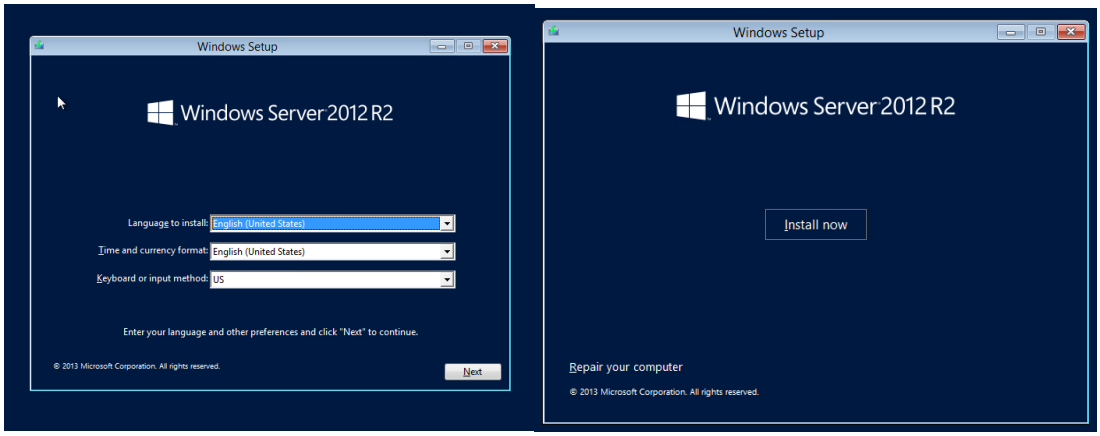


6. Verify all options and click **Finish** to create the VM.

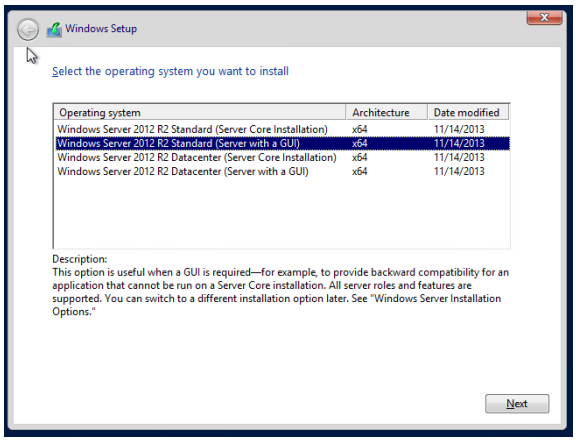


7. The VM will be created, power it on to begin installing Server 2012R2:

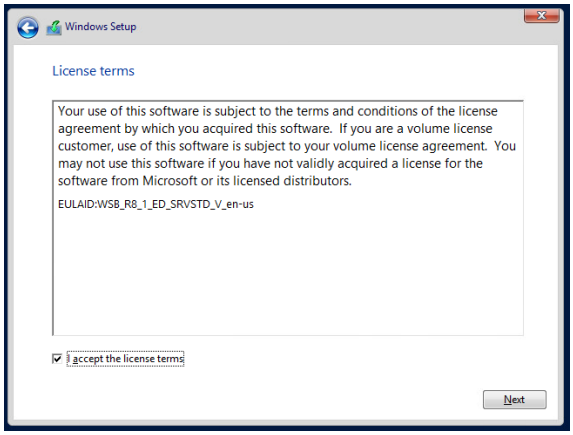
8. On the Setup screen click **Next** and then **Install Now**.



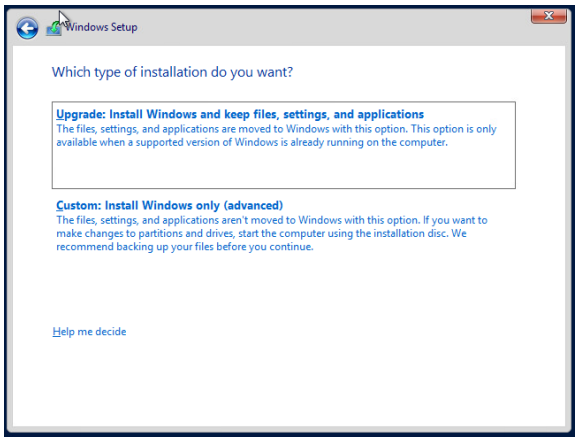
9. Wait for setup to initialize, select "**Windows Server 2012 Standard (Server with GUI)"** and click **Next**.



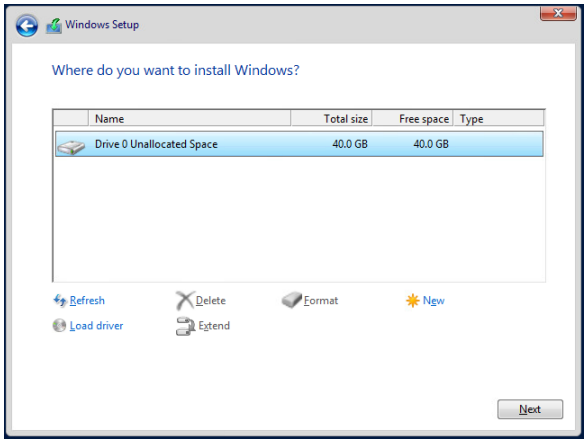
10. Read and respond to the license agreement, then click **Next**.



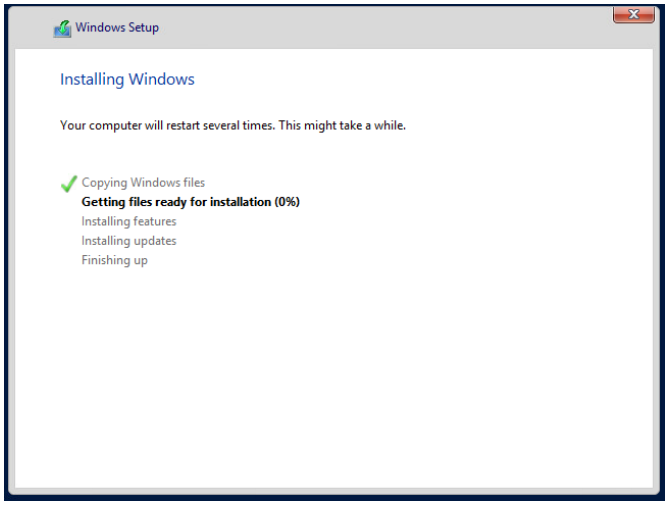
11. Select "**Custom: Install Windows only (advanced)**"



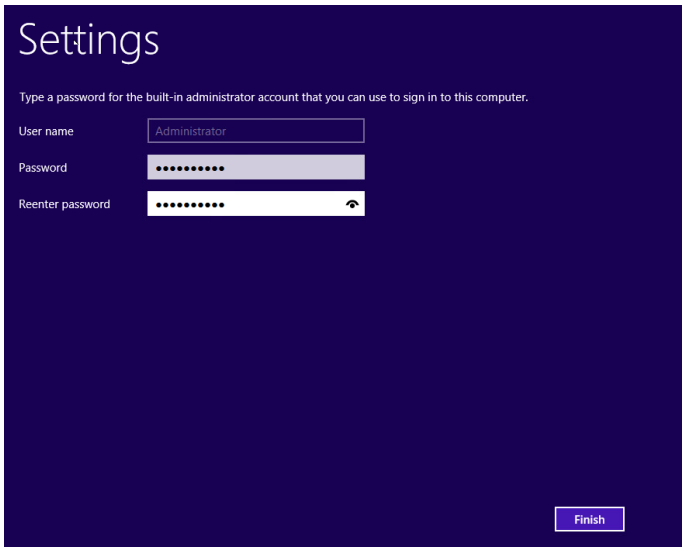
12. Click **Next** on the installation target page:



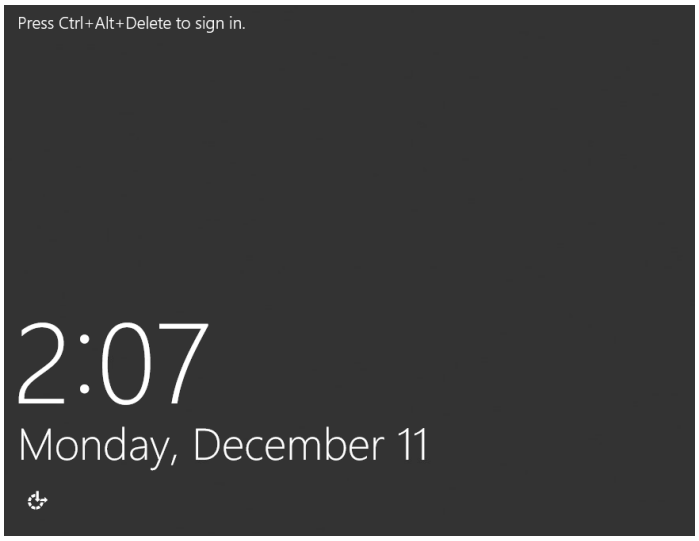
13. Wait for installation to complete:



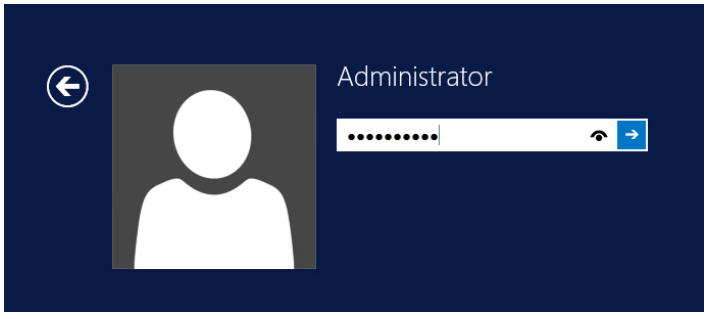
14. When setup is complete, the VM will reboot and prompt you to create a password for the built-in administrator account. Enter a password and click **Finish**.



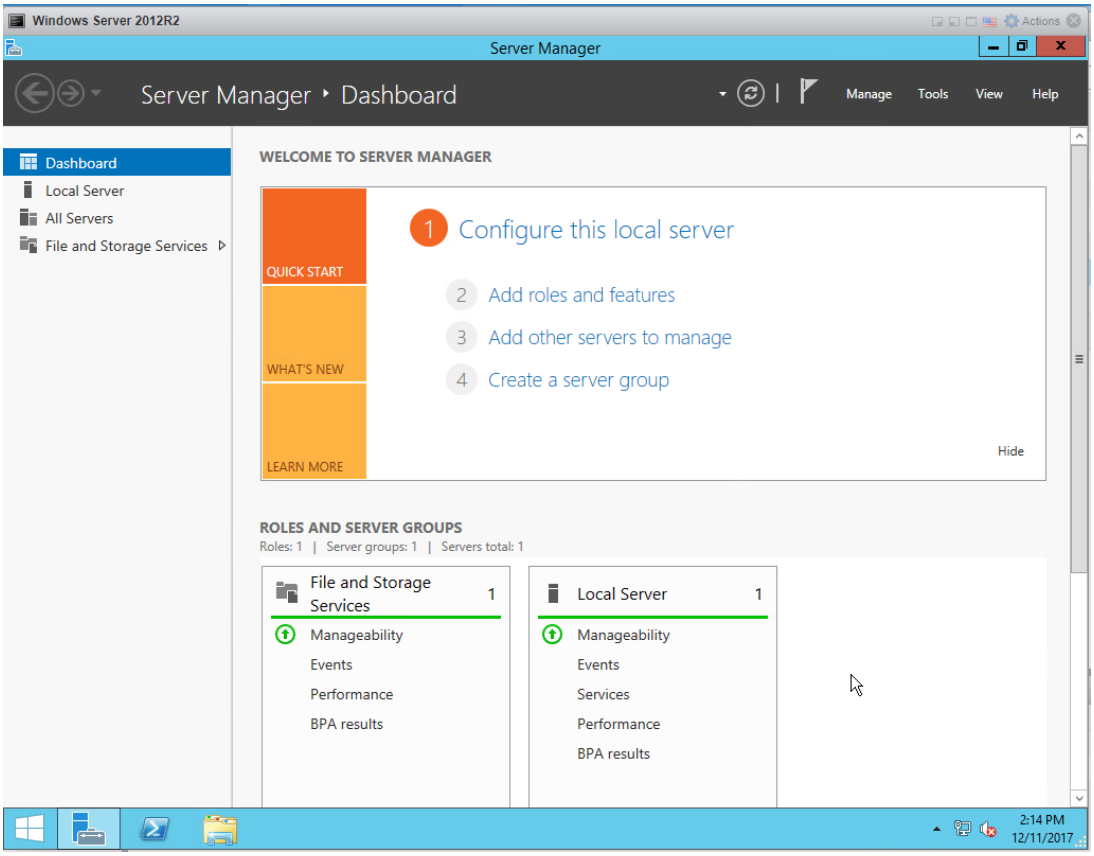
15. Select actions at the top right of the virtual console and hover over Guest OS > Send Keys and click **Ctrl-Alt-Del**.



16. Type in your password and press the **Enter** key.

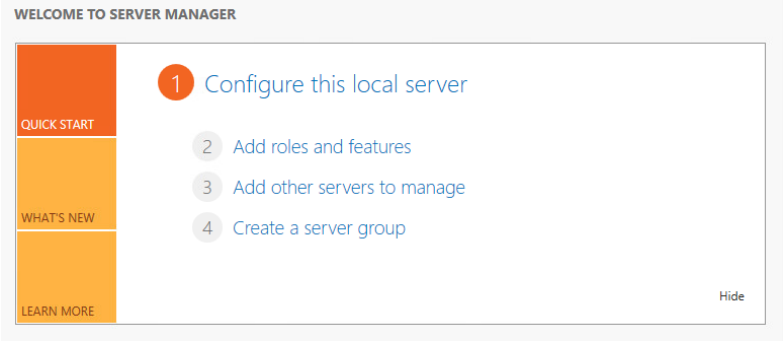


17. You have successfully created a Server 2012R2 Virtual Machine. Please name the machine, configure networking and apply a license key before proceeding. Also, don't forget to install the VMware tools from the Actions > Guest OS Menu.

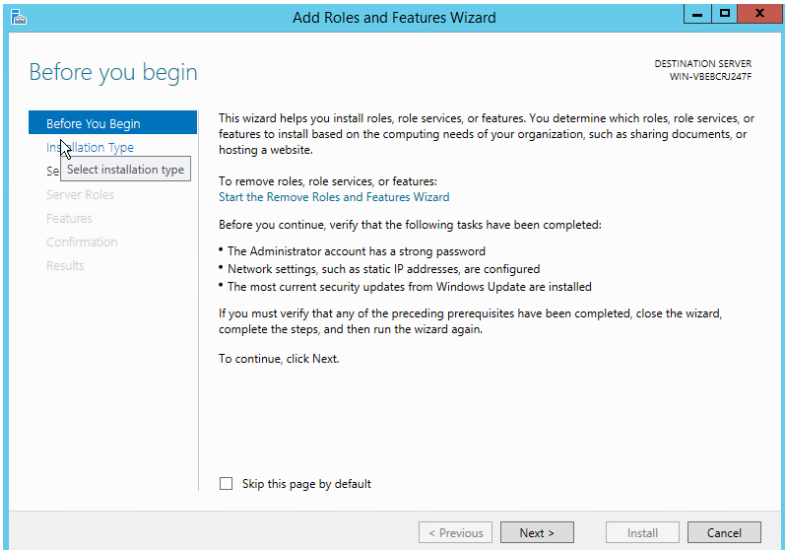

Windows Server 2012R2
Actions
Server Manager
Server Manager ▸ Dashboard
Manage
Tools
View
Help
Dashboard
Local Server
All Servers
File and Storage Services
WELCOME TO SERVER MANAGER
QUICK START
WHAT'S NEW
LEARN MORE
1 Configure this local server
2 Add roles and features
3 Add other servers to manage
4 Create a server group
Hide
ROLES AND SERVER GROUPS
Roles: 1 | Server groups: 1 | Servers total: 1
File and Storage Services 1
Manageability
Events
Performance
BPA results
Local Server 1
Manageability
Events
Services
Performance
BPA results
2:14 PM
12/11/2017

Installing Active Directory Domain Services

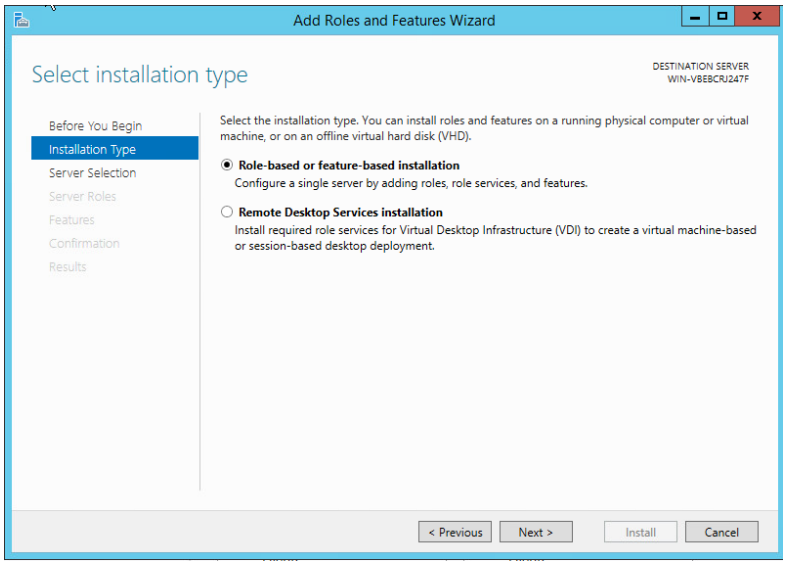
1. Select **Add roles and features** from the server manager dashboard.



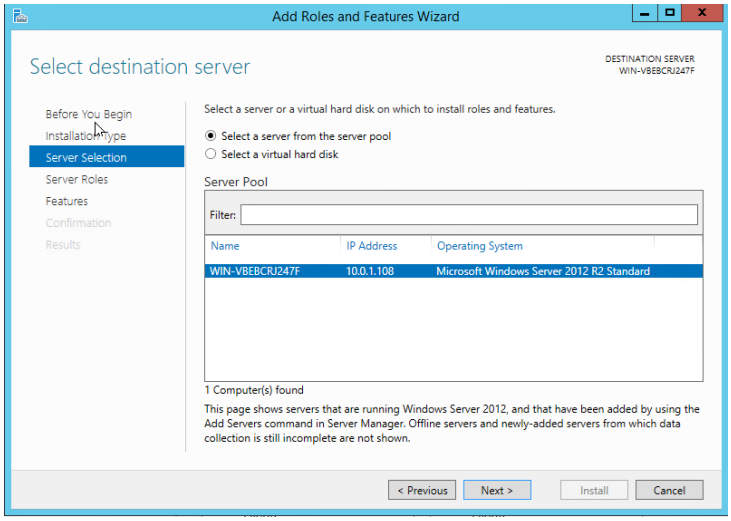
2. Click **Next** on the before you begin page.



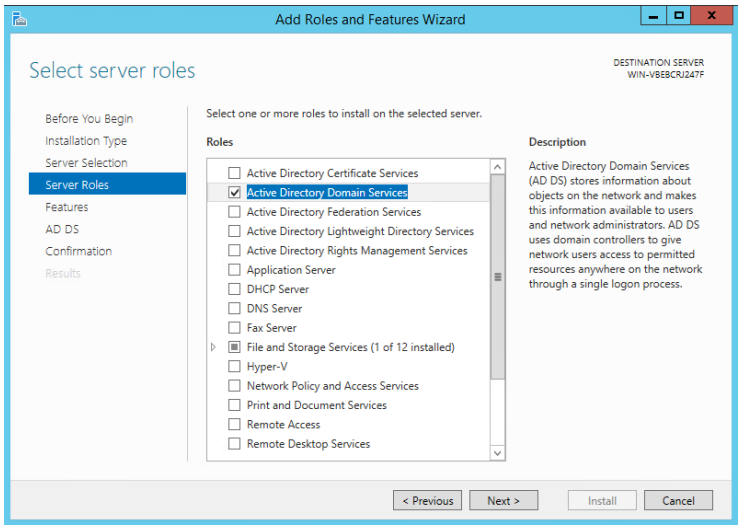
3. Click **Next** on the select installation type page.



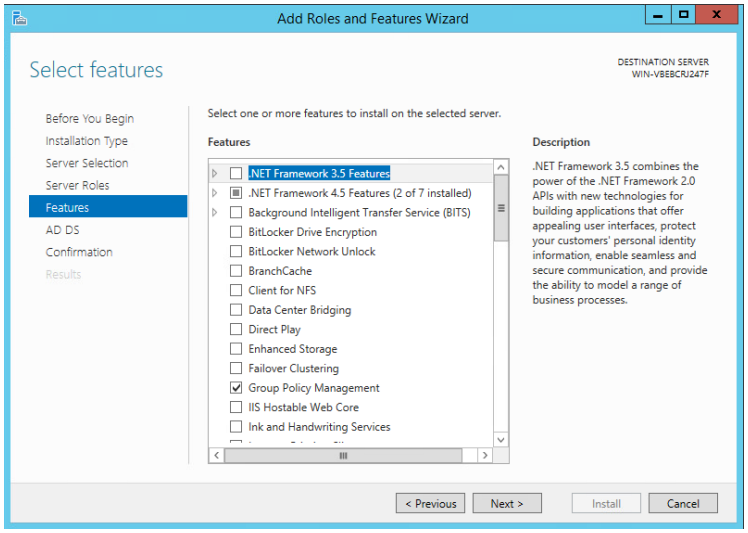
4. Click **Next** on the select destination server page.



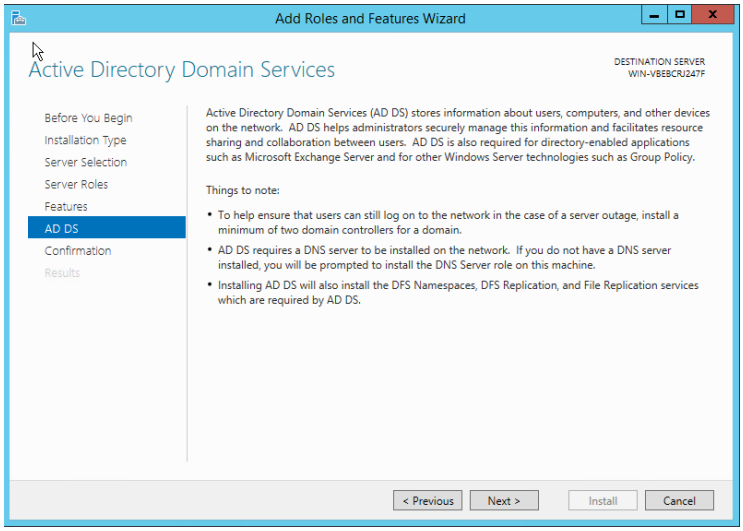
5. On the select server roles page, check the box next to **Active Directory Domain Services**. Click **Next**.



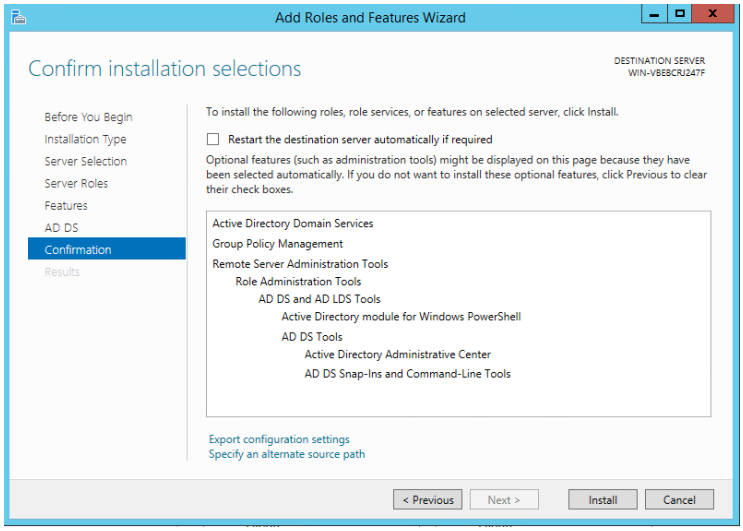
6. On the select features page, click **Next.**



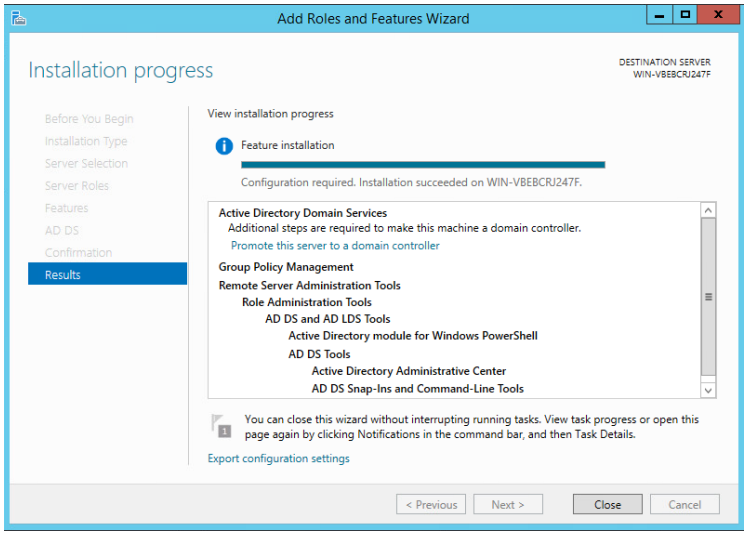
7. Click **Next** on the AD DS Page.



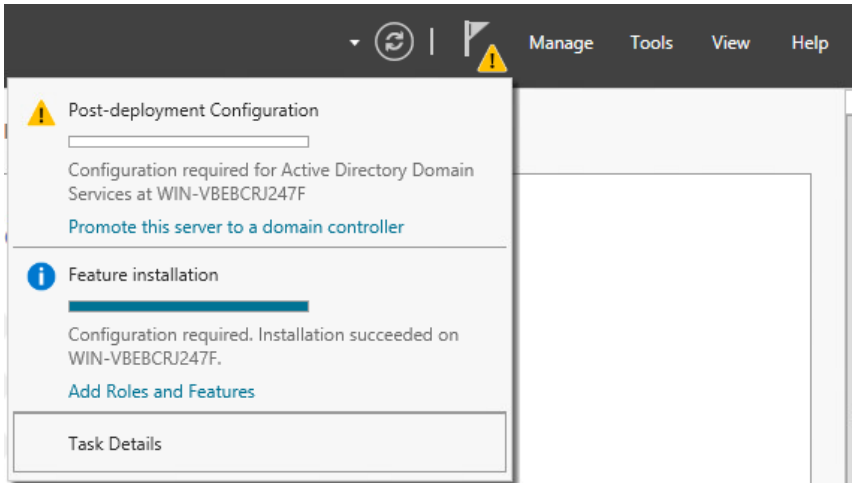
8. Review the confirmation page and click **Install**.



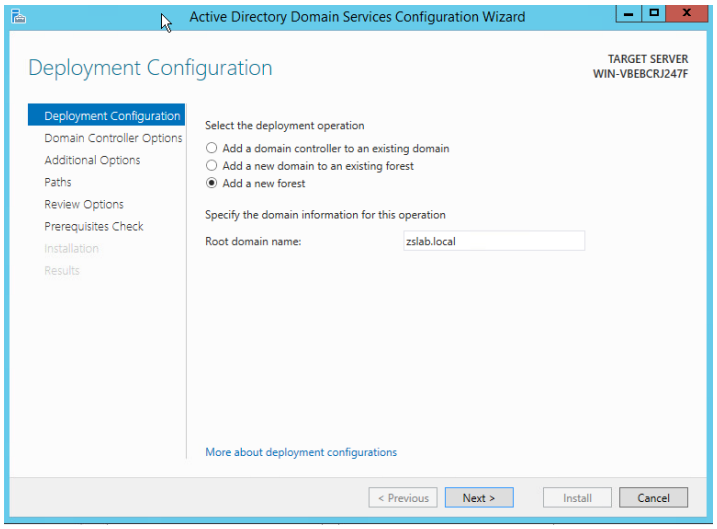
9. When installation is complete, click **Close**.



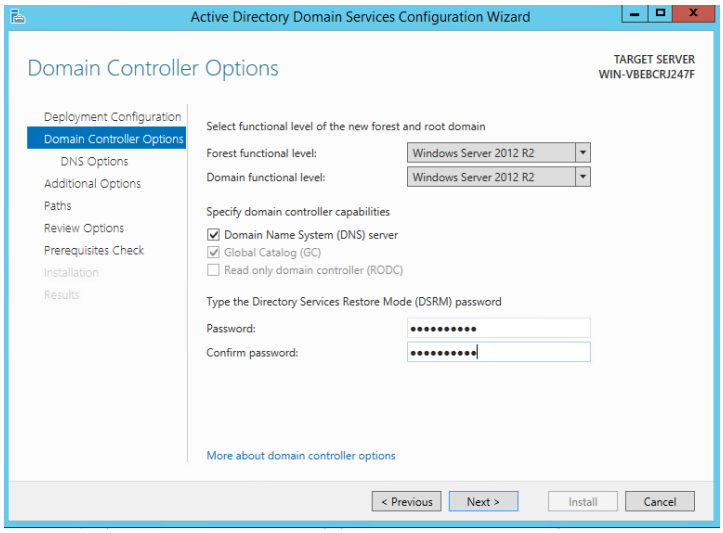
10. In the Server Manager window, click the **Notifications Icon** and the click **Promote this server to a domain controller**.



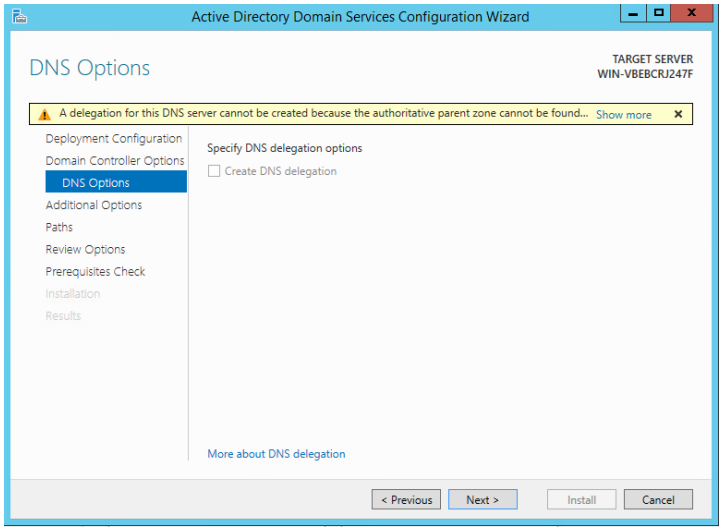
11. On the deployment configuration page, select **Add a new forest** and type in a root domain name and click **Next**.



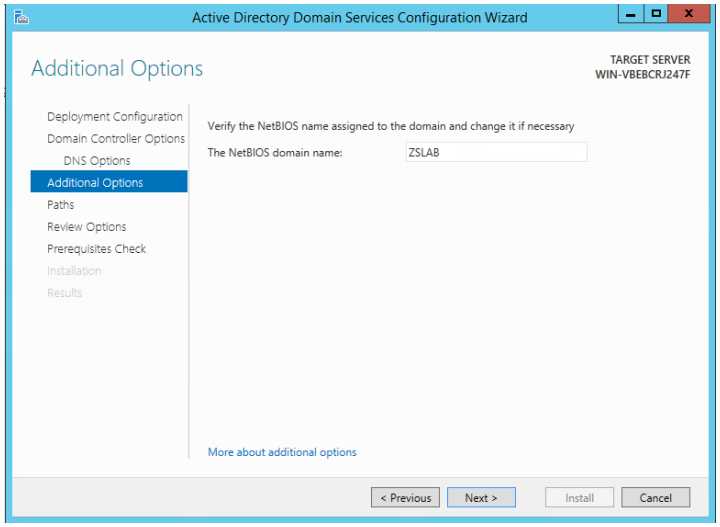
12. Type in a DSRM Password and click **Next**.



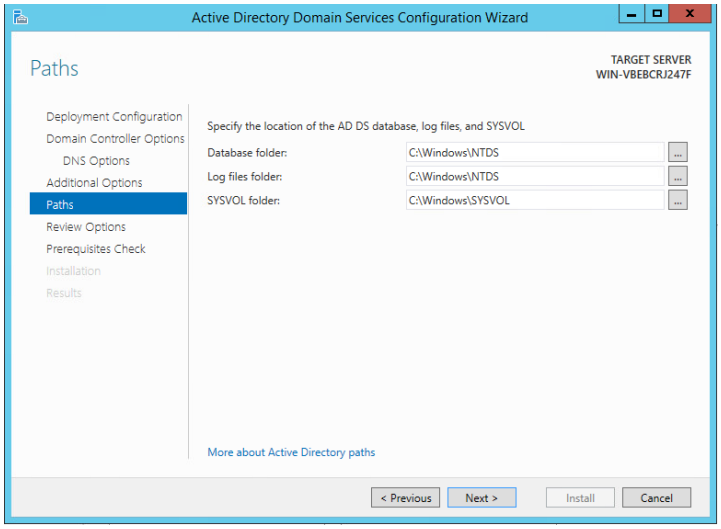
13. Click **Next** on the DNS Options page.



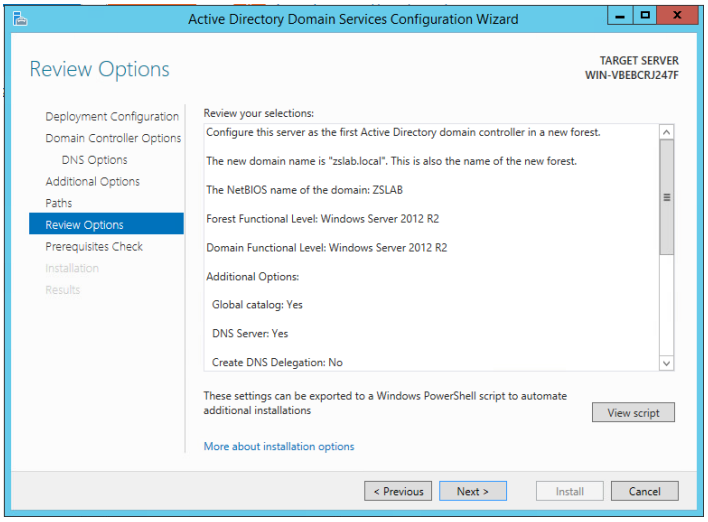
14. Click **Next** on the Additional Options page.



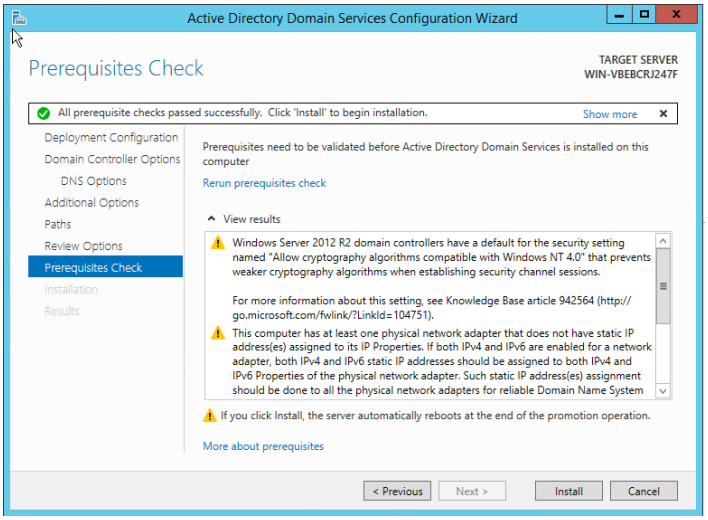
15. Click **Next** on the Paths page.



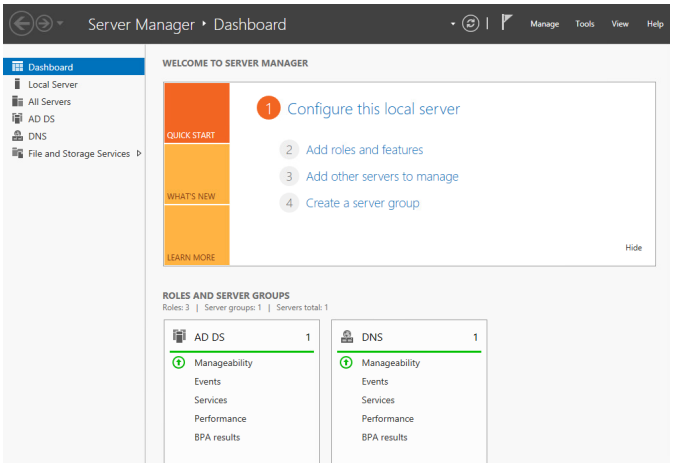
16. Review your selections and click **Next**.



17. Wait for the Prerequisite Check to complete and click **Install**.

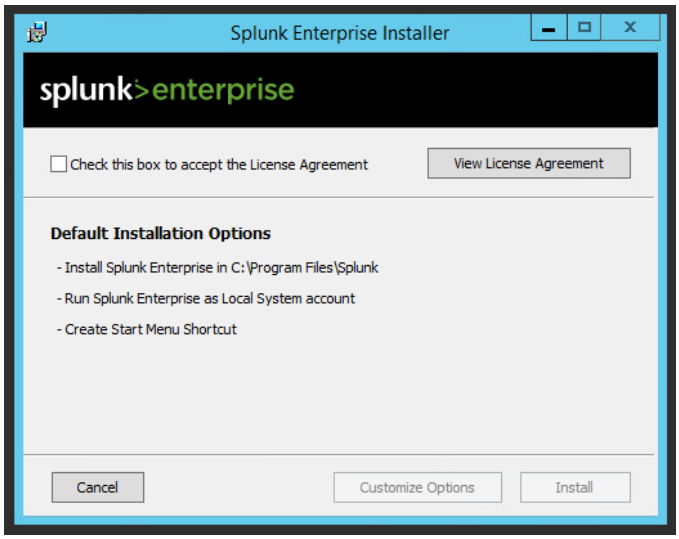


18. The VM will automatically restart. Select Actions > Guest OS > Send Keys > **Ctrl-Alt-Del**. Enter the administrator password to login.
19. You have successfully installed AD DS and promoted your VM to domain controller. Select **Active Directory Users & Computers** from the Tools menu to create test users and groups.

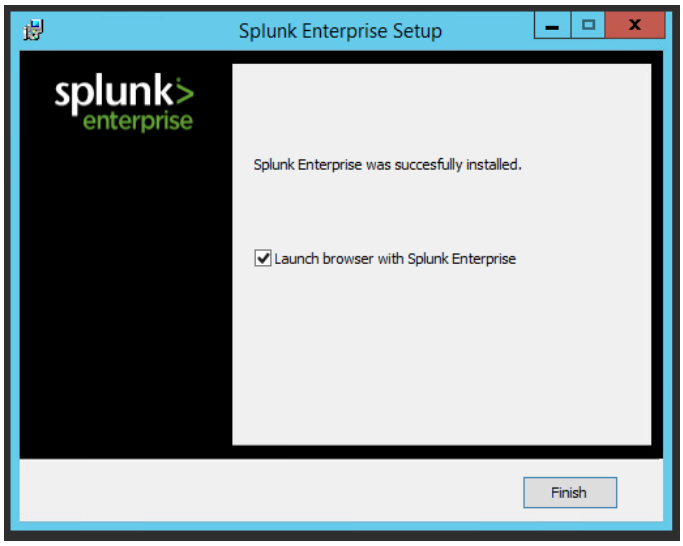


Installing Splunk Enterprise

1. Download the Splunk Enterprise installer, see Appendix II for more information.
2. From your desired virtual machine, launch the Splunk Installer, read and respond to the license agreement and click **Install**.



3. Wait for Splunk installation to complete and click **Finish**.



4. Splunk is now installed and will launch in the browser. Login and select the free license option. Splunk is now ready to use.