ITAS 233 Project 02

IIS Web Serving and Server Monitoring

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Introduction

Serving website and monitoring servers are one of the basic required tools that is required for all the network administrator. This project basically we study information about the Internet Information Service and setting up the different websites in the internet information service. Solar winds are one of the server monitors that is used by the most windows server network administrator. This is efficient software that scans a lot of application and service in the servers. It also provides us with all the alerts such as critical, warning and errors that are happening in the different servers.

Responsibility

The Project is completed as an individual project. Basically, we install, configure and produce different website using Internet Information Service(IIS). We install IIS server on the Hyper-V and configure the different websites with different features . We will be also installing serval monitors in one of the servers which will monitor all the servers that are under the domain controller. We will be scanning SQL server, Response time , volume usage , CPU usage etc. We will be setting up the CA certificate in this domain controller and make a secure ssl certificate signed by the domain controller.

PART 1: IIS Demonstration Aspects

On the part one, we will be making different sites with different features. Therefore, after the assignment we will be similar in making the different sites in the IIS server. We will be making a website, files with different authentication setup. We will be also making virtual directories for the different users where the users in that account can only access that account if there are logged on to the account.

Setting up the IIS Web Server

- Install Windows server 2016, on the server.
- In that server make sure you have the 2 Nic are added to the IIS webserver.
- Both the **Virtual Switch Nic** should be add to as external network drive .
  One external nic 192.168.0.0 – Port is external
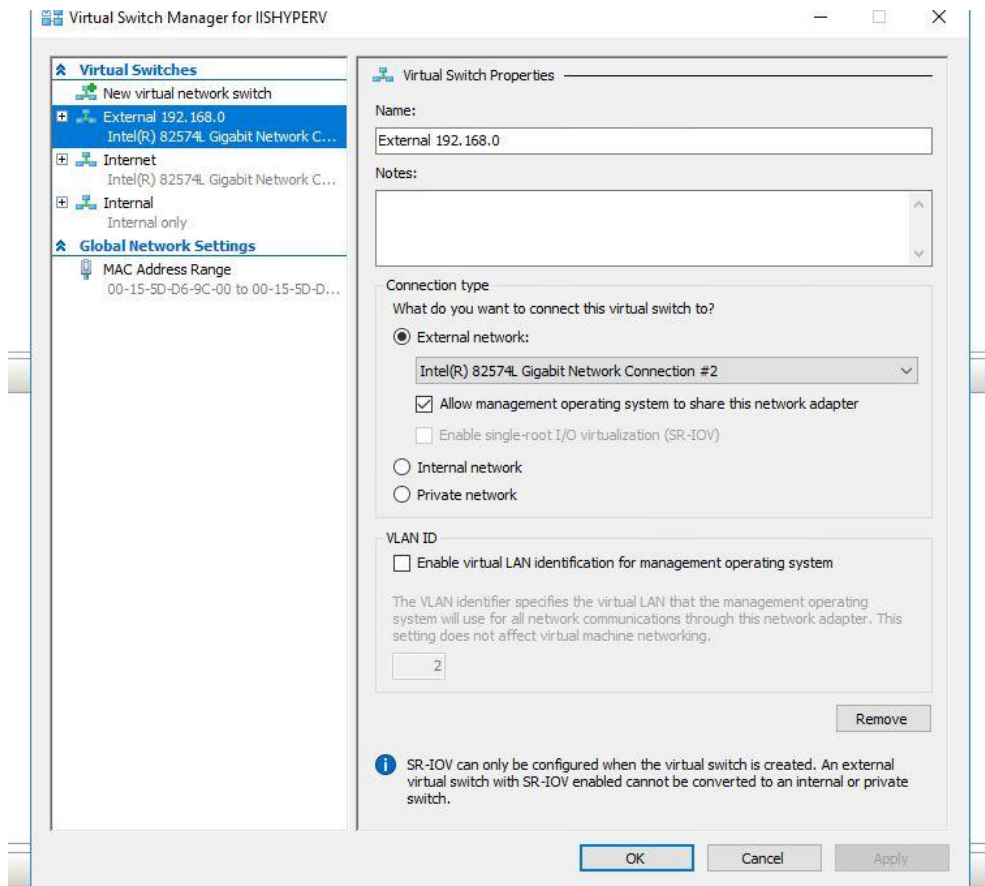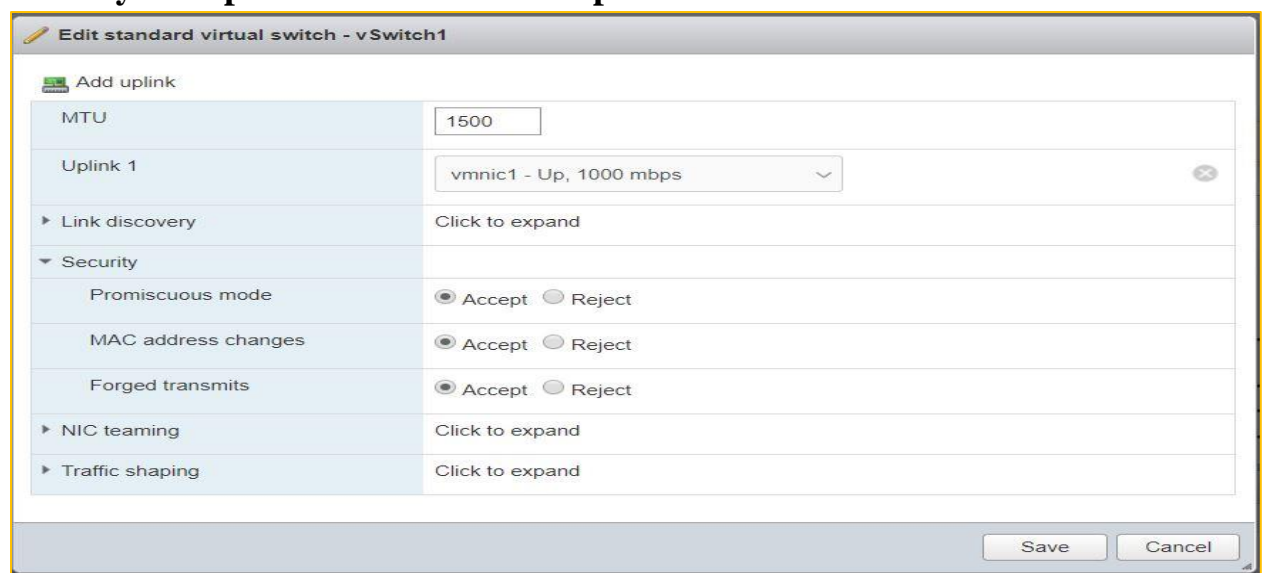 **One Internet Access –** Port is external connected to the VM network

Figure 1: External Switch

- **Note : If you notice any error in getting the internet, you could solve the problem by turning on the mode of the promiscuous mode on in the security tab option in the VMESXI option.**

- Set an IP address for the ethernet nic which is external to the nic,
  IP ADDRESS= 192.168.0.24
- Make sure that you are **domain connected** to the Ethernet Adapter.
- Make sure you can the ping the different domain servers from the Hyper-V installed.

Installation of the IIS Webserver Role

Step 1: Open the server manager, Go to **manage** toolbar options.

Step 2: Select the add roles and options option.

Step 3: After that, Choose the **server-based installation,** Click Next**.**

Step 4: Add the feature into the server pool.

Step 5: Choose Next, Add the IIS web server role from the feature.

Step 6: It is important to check all the check box of the IIS server in order to get the full functionality of the IIS web server.
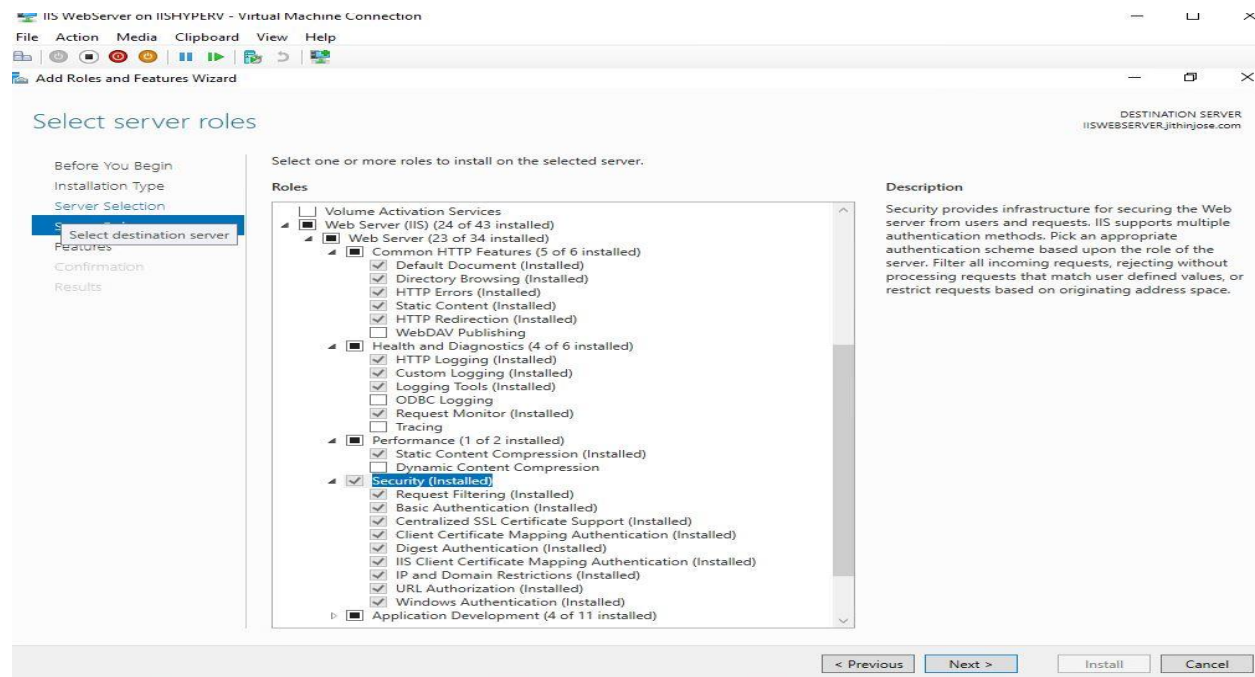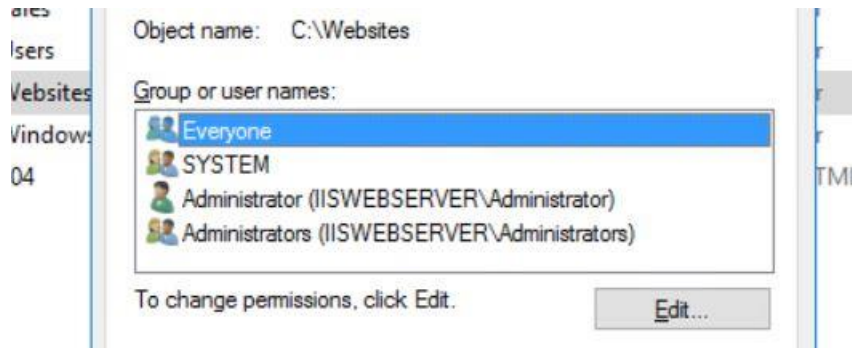

Figure 2: Checking all the functionality in the IIS server role features installation.

Step 7: Choose all Next, add the features that are required to install the IIS webserver

Step 8:Click next, Confirmation and install.

Setting up the Site 1

Step 1: Make a website folder in the c: drive and make sure that it is shared to everyone.

   Note: In the Website folder, make a different folder for the different sites, example **site1, site2, site3** and **site4**.

Step 2: Make a simple html file named index.html all the folder.

   Simple index.html file should look like:-

   <html>

   <head>

      <title>Website 1</title>

    </head>

   <body>

  <h1> Success ! Website 1 is working </h1>

 </body>

 </html>

Step 2: Open the IIS server role from the tools option in the server manager.

Step 3: In the left pane, under the **IIS** webserver, You see the sites options.

Step 4; Right click the **sites**, Choose a **add website** option.

 Step 5: Under the Site Name: <give an appropriate name>   example site1.jithinjose.com

 Step 6: On the physical path location , browse the site1 folder from the website folder that have been created above.
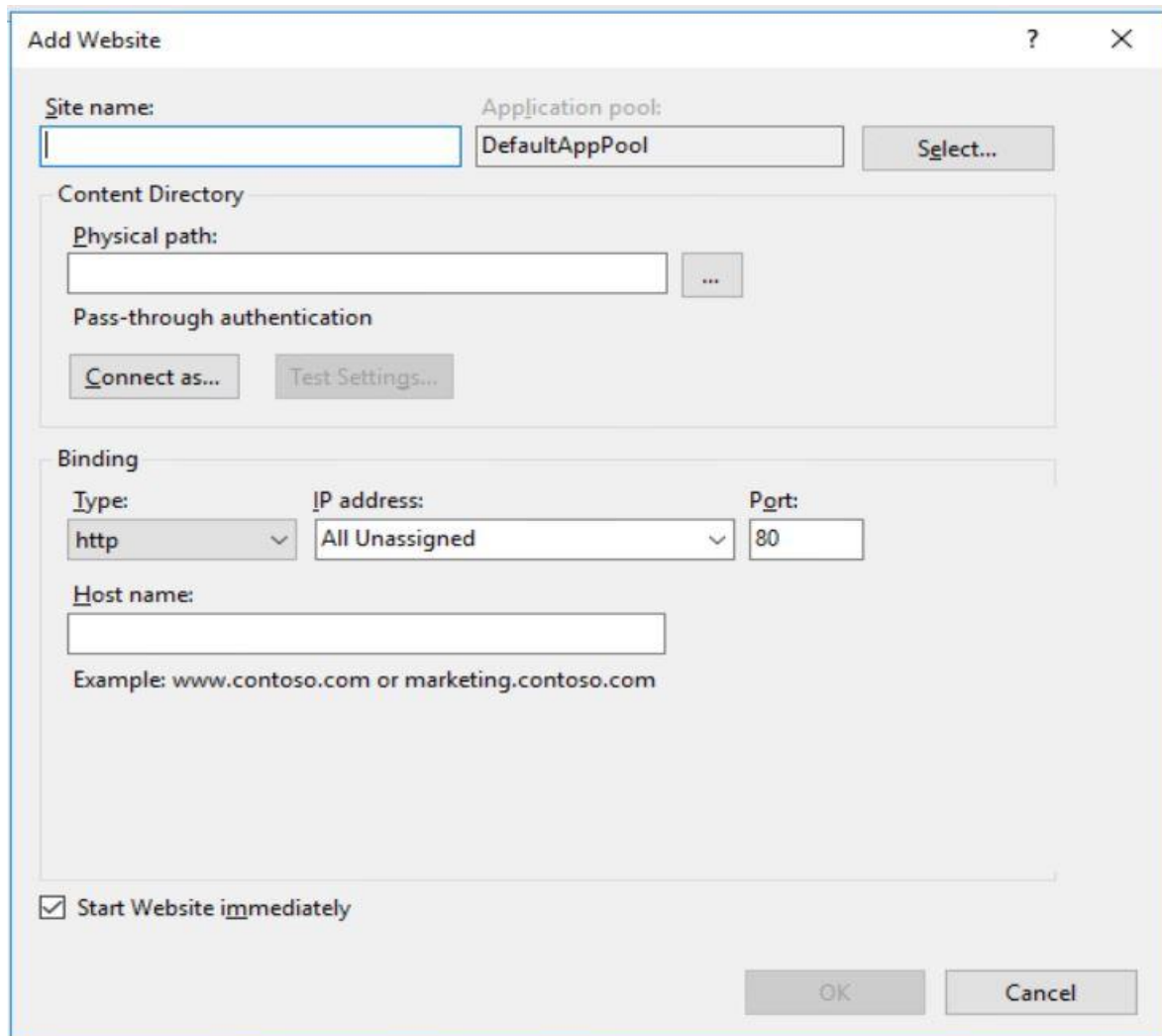
6

Note: There should be a simple index file inside the site1 folder.

Step 7: Under the binding tab, keep all the settings the same.

Step 8: Under the hostname, type the **site1.jithinjose.com**

Note: Check the Start Website Immediately

Step 9: Click ok, This will create the site 1 website.

Figure 3: The add website option will look similar as above.
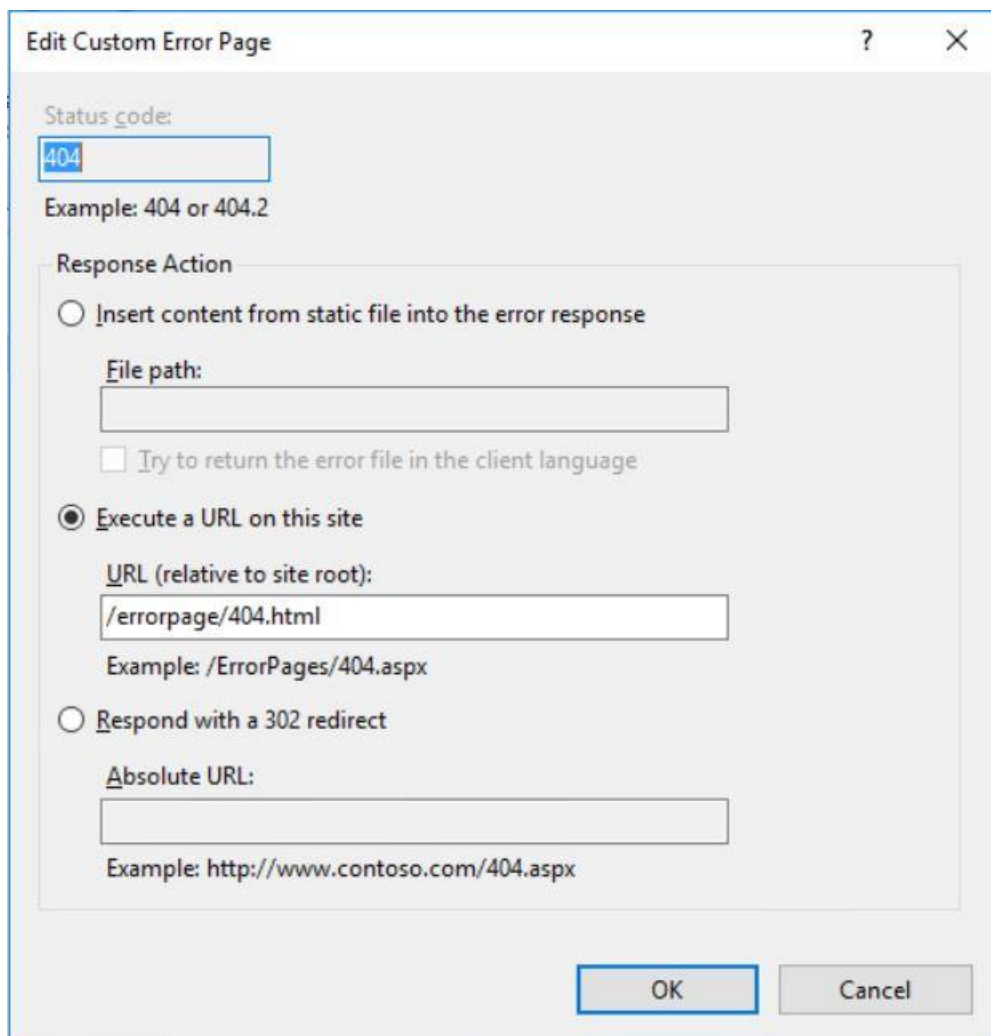
Creating a error page for the website 1

Step 1: Add a new folder named error page and make a simple html file inside the folder which prints the error page in the browser.

Step 2: Select **error pages option** from the dashboard.

Step 3: Select 404 error under the tab, Click **edit.**

Step 4:A pop-window comes up, Under the **execute url option.**

Step 5: On that option, **type** /errorpage/404.html

Edit Custom Error Page   ?   ✕

Status code:

404

Example: 404 or 404.2

Response Action

○ Insert content from static file into the error response

File path:

☐ Try to return the error file in the client language

◉ Execute a URL on this site

URL (relative to site root):

/errorpage/404.html

Example: /ErrorPages/404.aspx

○ Respond with a 302 redirect

Absolute URL:

Example: http://www.contoso.com/404.aspx

OK   Cancel

Figure 4 : This moves to this if there is error in the format of the page.

Setting up the Site 2

Step 1: Create two directories inside the site 3 named regular files and protected files.

Step 2: Add an index html file both the files inside the directories.

Step 3: Go the Domain Controller, make 2 users in the active Directory users.

Step 4: In the computer management , under the local users and group add 2 domain users in a group called family.
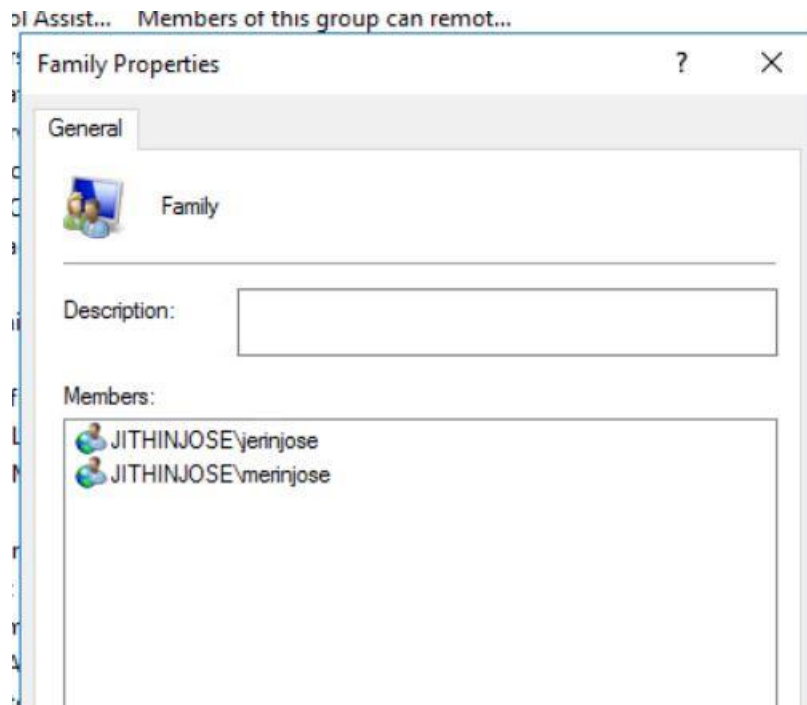
Figure 5: Adding two users in a group

Step 5:   Follow the same steps of **adding the site 1** from step 4 to the step 8.

   Note: Make sure that you have changed the hist name and site name into the site2.jithinjose.com and physical path the site 2 where you have made the new directories

Step 6: In the left-hand pane, Go the site2.jithinjose.com, When you expand , you see two directories. Go to the protect directory.

Step 7:Select the protect directory, in the dashboard of the protect directory

Step 8: you see the icon called Authorization rules.

 Step 9: In the authorization panel settings, on the right-hand side panel , you can add the **allow rule.** Add allow rule pop up windows looks like the figure below:-
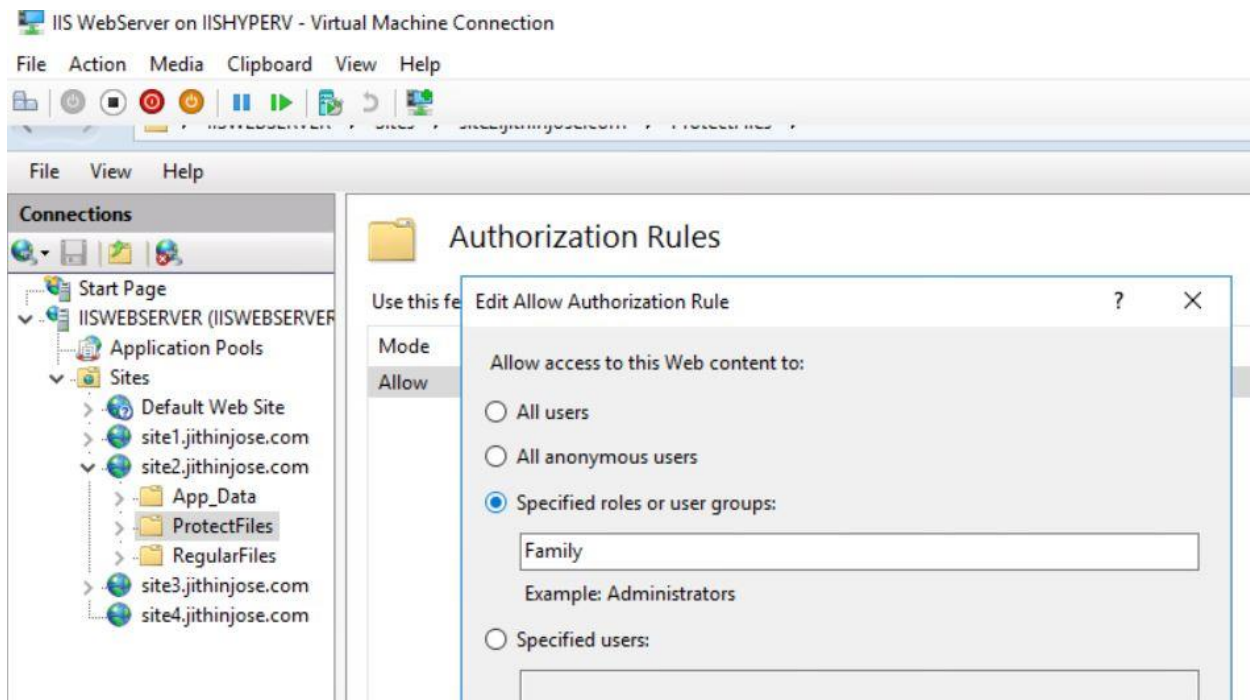
Figure 6: Adding a group named family into the authorization rules

Step 10: Choose the Specified roles or groups, In the group section add the group name family which has the 2 domain users.

Step 11: Click ok and restart the website.

Note : Make sure that the windows authentication is enabled in the authentication tab of the protect file dashboard.

Setting up the Site 3

Step 1: Go the domain Controller, Add two users each for the Accounting, Sales and Marketing group in the Active Directory users and groups .
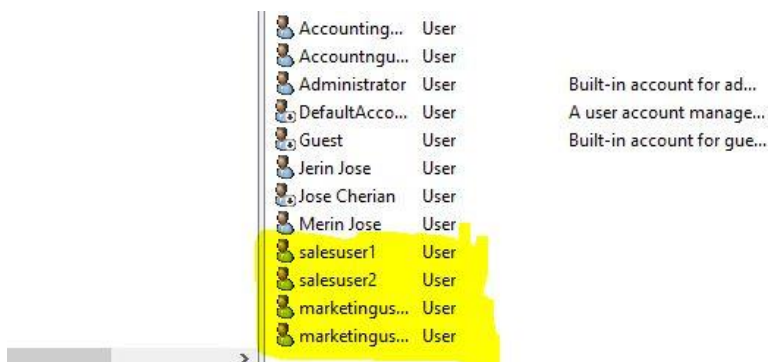
Figure 7: adding users for the different useraccount

Step 2: Create a group named sales, accounting and Marketing. All the groups under the security group.
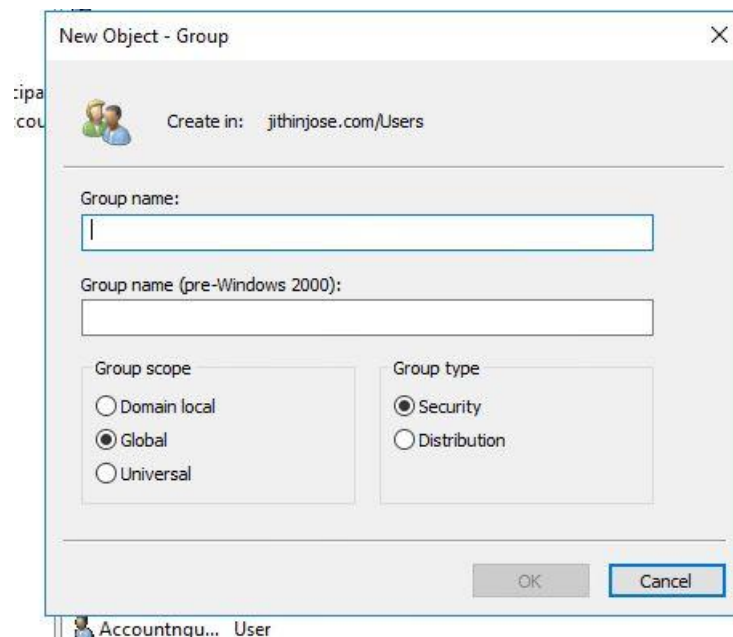
Figure 8:Making anew security group

Step 3: Go to back to IIS manager in the IIS web server.

Step 4:Follow the same steps for **adding the site 1** as mentioned above, Under the site and host name rename according to your site and host details.

Step 5: After adding the site, when you select the site name from the left panel, You could see virtual directories on the right panel as shown bellow :-
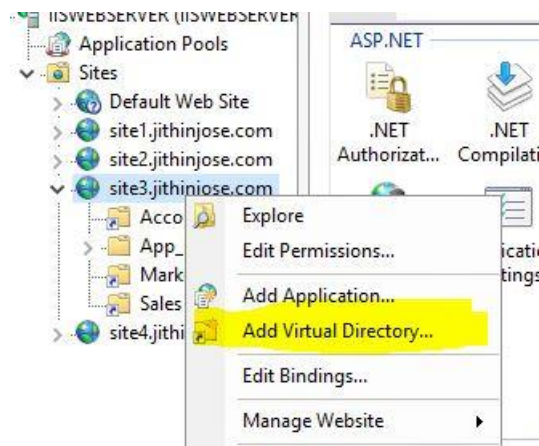
Figure 9: The place to add virtual directories.

Step 6: When you click the virtual directories **,** you will see 2 options on the **pop-up screen** where you can add the path and the physical location . The pop-up screen looks like the figure given below:-
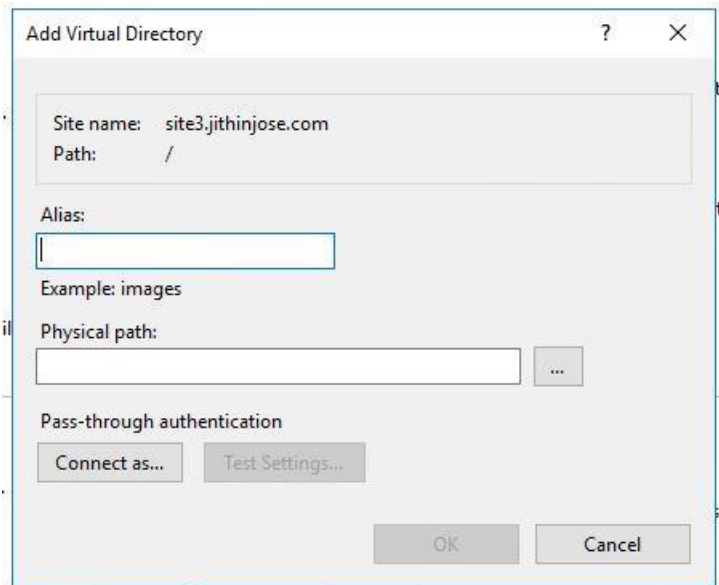
Figure 10: adding the new virtual directory

Step 6: After adding the virtual directories, we have to setup the authentication for the virtual directories that have been created .

Note: Before making the authorization rules are enabled , make sure you have enabled the windows authentication under the authentication tab.

Step 7: Make the authorization rules which only allows only the people in that security group will able to access the files.

Step 8: under the authorization tab, click on the rule that is already there and click edit on the right panel as shown the picture below:-

Figure 11:edit option in the right panel

Step 9: When you click the edit rule, you can choose the specified group or roles under the rule pop-ip window.

Step 10: under the specified role or group, type the name of the group that you must add. However, according to the assignment there three type of groups such as accounting, sales and marketing.

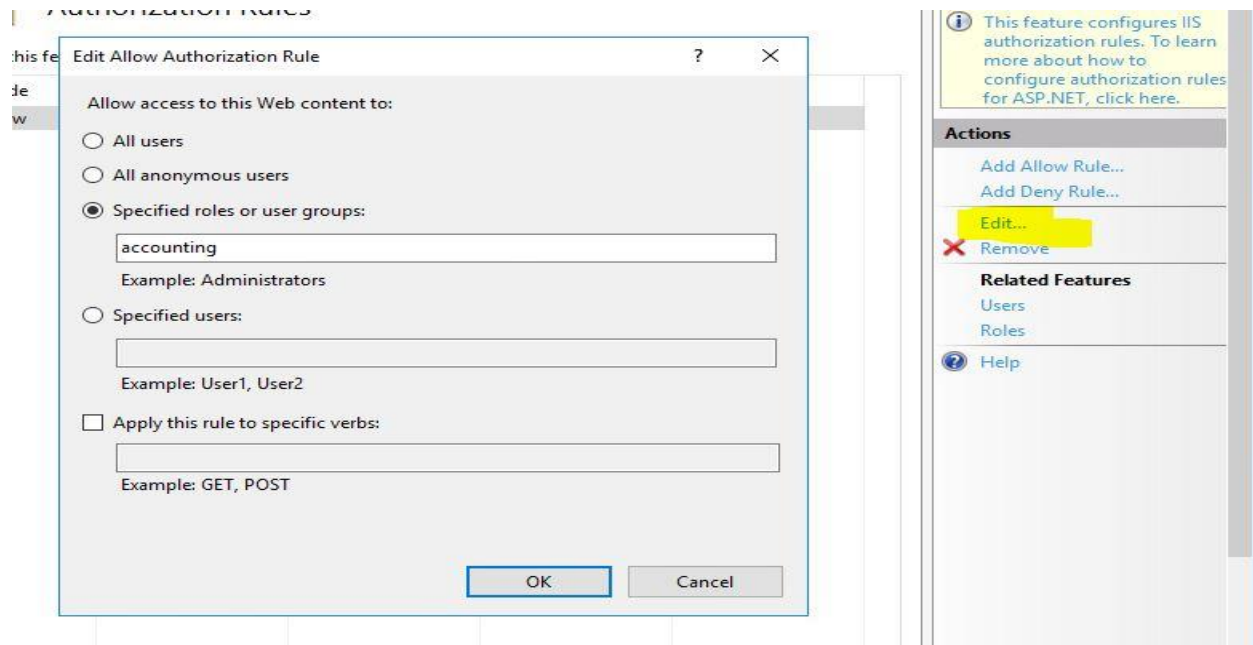Step 10: Restart the website, you have type the authenciation username and password inorder to access the things inside the folder

Step 11: The site 3 is complete.

Setting up the Site 4

Step 1:Make a default webssite like we made the **site 1.**

Note: Make sure that the site name should be given admin.jithinjose.com. This name should be configured correctly in your DNS server.

Create a CA certificate in your domain Controller

Step 1: Installation of the role named in the **Active Directory Certificate Controller.**

   Note: make sure you only select the Certificate Authority Check box during the installation .

Step 2: After the installation of the **Certificate Authority,** you get a **deployment screen** configuration screen on the notification bar.

Step 3: Select the deployment options

Step 4: Under the **Role service tab,** choose the **certificate authority** only**.**

   Note: If you check any other check box, you might need to install the other services to make it work.

Step 5: Under the setup type, Choose **Enterprise CA,** Click **Next.**
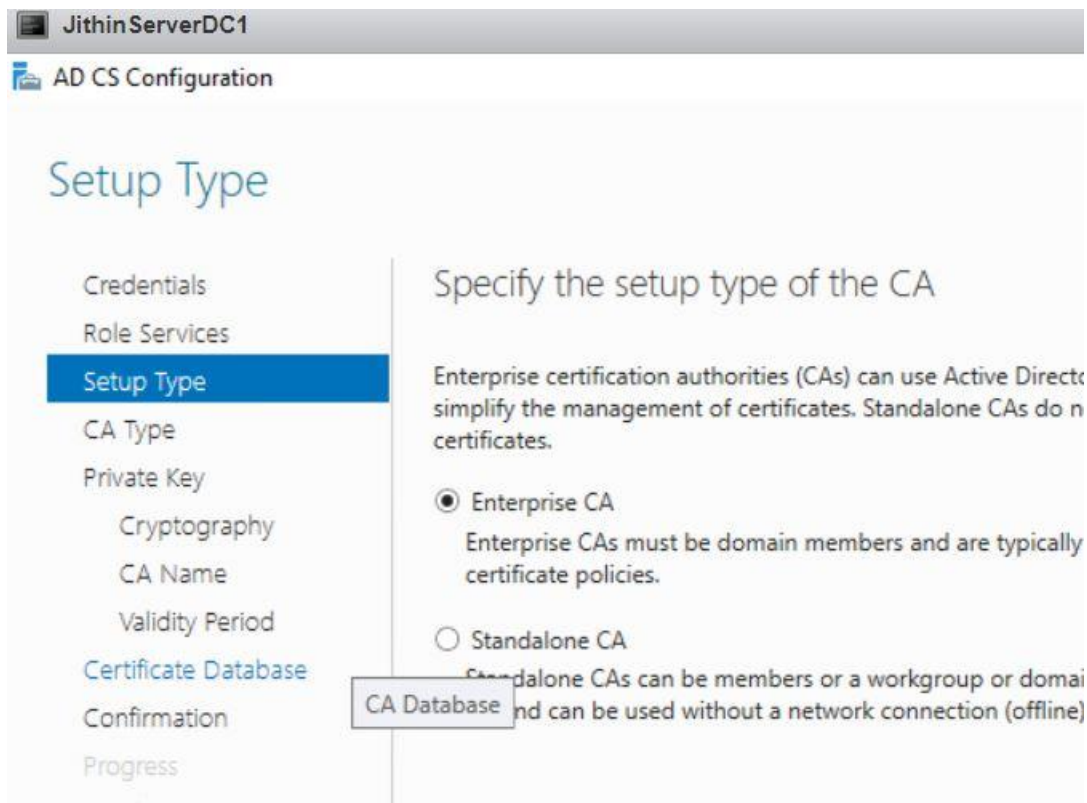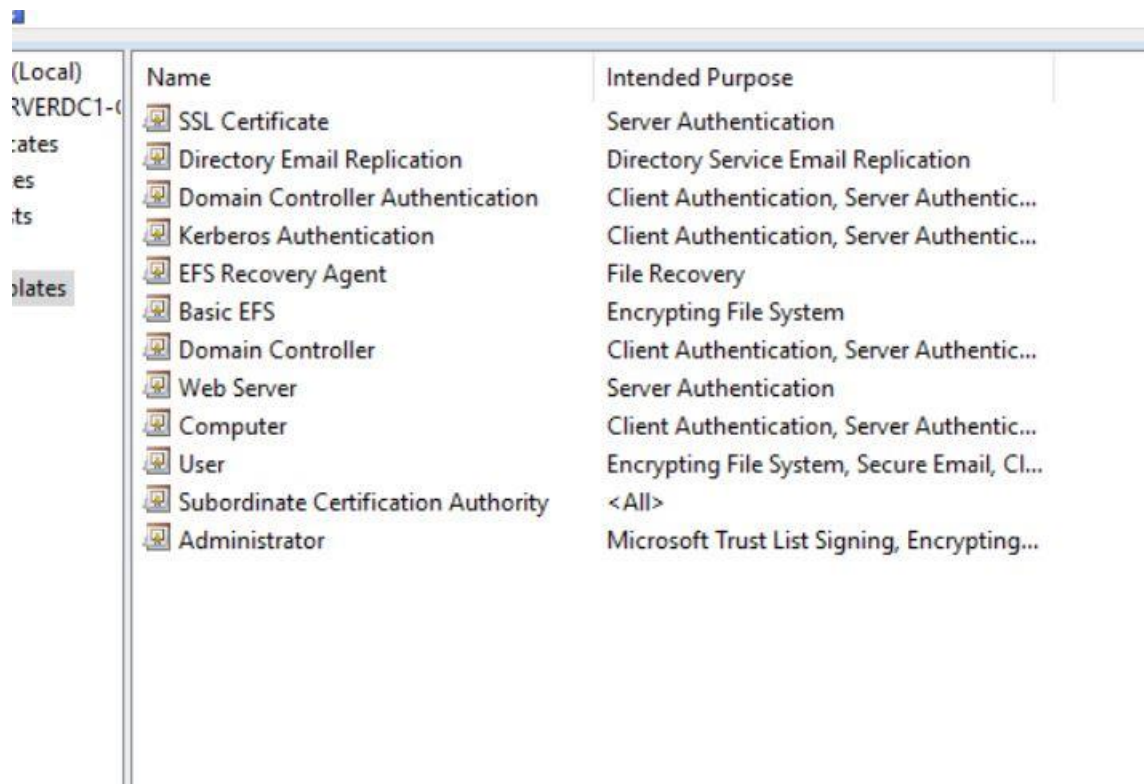

Figure 12: Enterprise CA Configuration CA

Step 6: Under the CA type tab, Choose **Root CA,** Click **Next.**

Step 7: Under the Cryptography, make sure you have selected SHA256 encryption file format.

Step 8: Rest of them should remain the same as before.

Step 9: Configure and finish up the configuration.

 Configuring an appropriate certificate template for SSL certificate

Figure 13: Certificate inside the Template Certificate

Step 1: Go to the certificate authority console in the Domain controller using the **tools** option in the   **server**   **manager.**
Step 2: Expand **Certificae Authority , right-click on Certificate Template**.

Step 3: Click on the **Manage** button, right-click the **web server** template.

Step 4:Choose **Duplicate template .**

Step 5:under the general tab, give an appropriate name such as **ssl certificate**

Step 6: under the **Security tab,** click **add** Under the **object type,** select **Computers** and then click OK. Under the **check name ,** type the name of the server where **iiswebserver** running.

.Step 7: Enroll **permission and click ok.**

Step 8: Under the **Subject Name ,** select **Build from the Active Directory Information and** set the subject name to the **common name**. Also under make sure you have checked **DNS name and cleared User princpal name (UPN)** checkbox under the **Includes this information in the alternate subject menu.**

Step 9: Under the **Cryptography tab,** Make sure you have the **Minimum Key Size** to 1024 OR HIGHER.
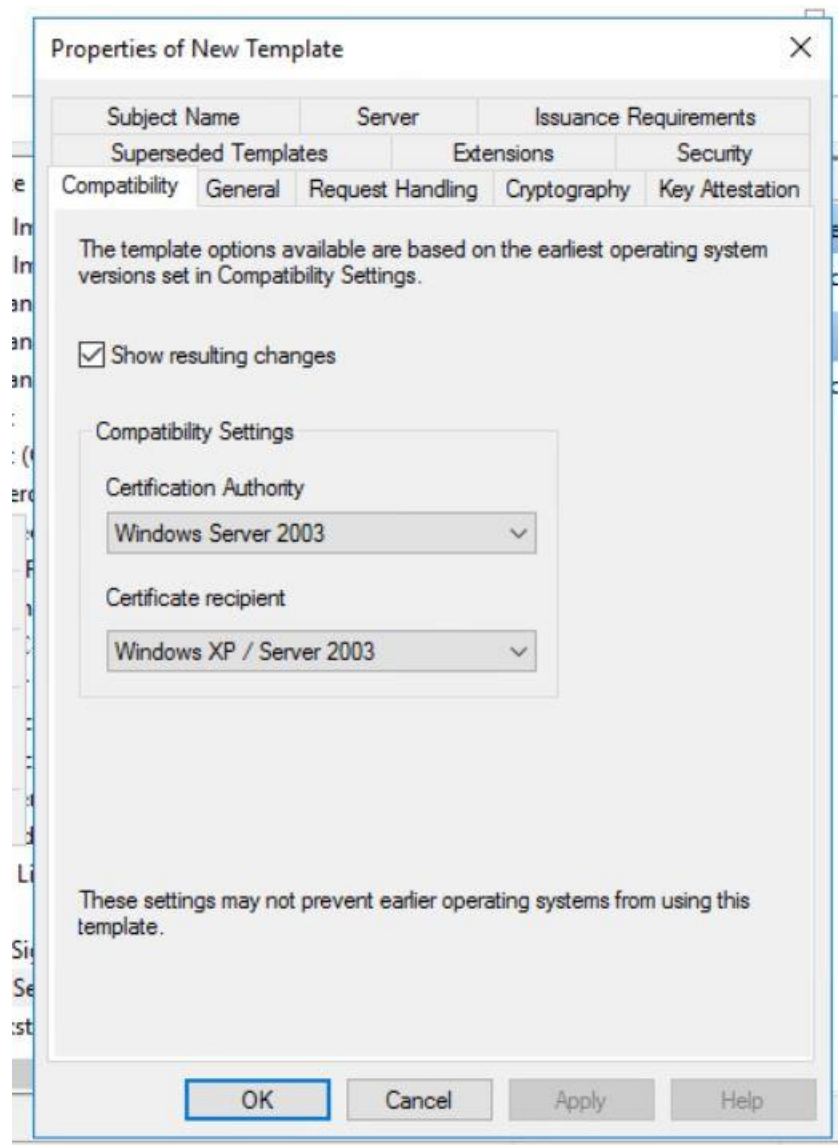
Figure 14: Properties of the templeate

Step 9: Under the certificate authority console, **reight-click the Certificate Template ,** click **NEW,** and then click **Certificate template to issue**

Step 10: Select the cerificate that you have created and click **OK.**

Note: make sure to restart thr server dc1 , it can sove serval issues in the next step.

Obtain a certificate for IIS using the certificate template

Step 1:Open up the IIS server using the hyper-v manager.

Step 2:Open the **MMC** from the IIS webserver

Step 3:Choose **Add/Remove Snap-in** from the **file** menu.

Step 4: From the list of the **Available snap-ins,** select thr certificate and click **add**

Step 5:Choose **Computer Account** and click **Next and Finish.**

Step 7: Right click on the **personal** by expanding the certificate

Step 8: Choose **Request new certificate** from **ALL task.**

Step 9: On the **Certificate Enrollment,** Click Next.

Step 10: From the **Select Certificate Enrollment Policy,** ensure you have selected the **Active Directory Enrollment History** and Click **Next.**

Step 11: Click **enroll** by selecting the certificate.
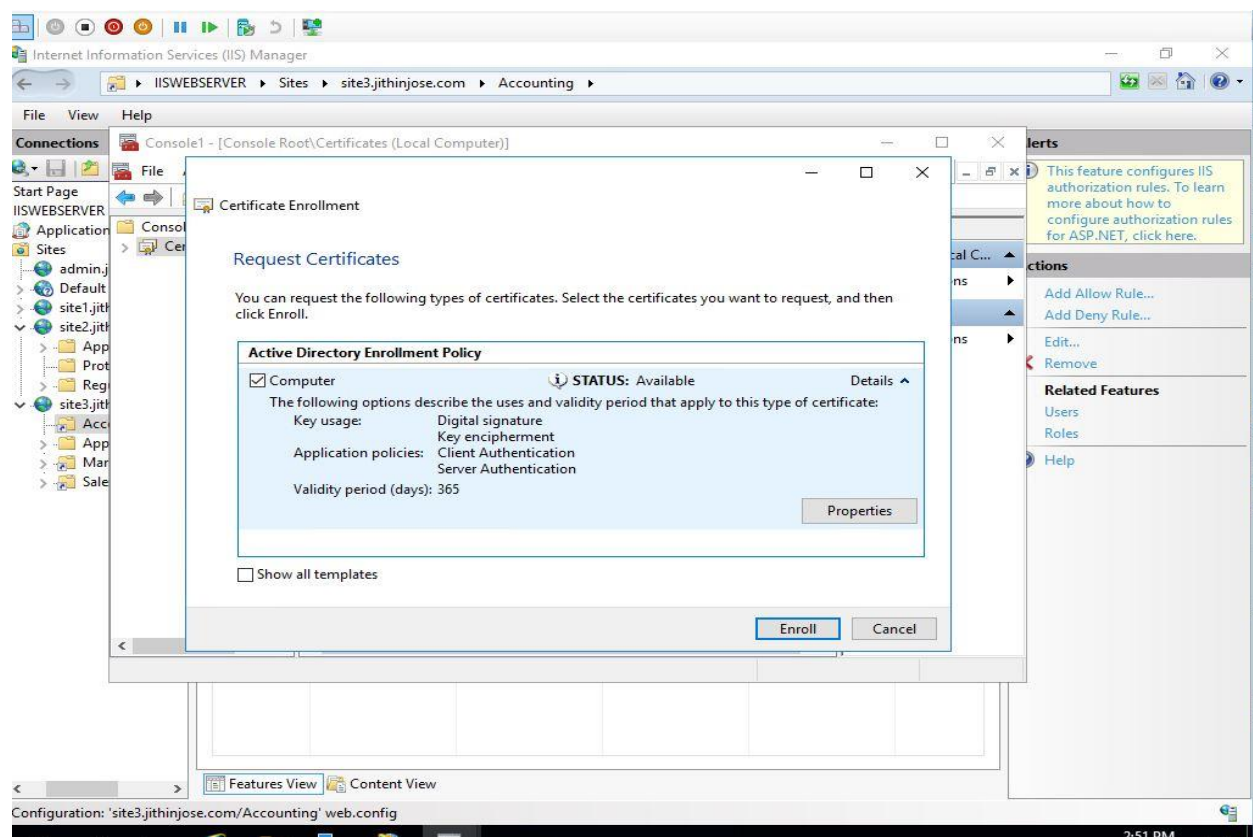
Figure 15: Certificate Enrollment

Configure HTTPS on the Default web Site

Step 1:Under the Information Service Manager on the **IIS Server.**

Step 2:Expand the Server and sites nodes until you can see the Default Web Site.

Step 3:Click **Default Web Site.**

Step 4:On the **Actions Pane ,** Click **Bindings**

Step 5:In **Site Bindings ,** Click **ADD** change the type of the bindings from the http to **https.**

Step 6:Under the ssl certifcate , choose the Certificate issued by the domain controller.

Figure 16: Domain certificate

Redirect http **to HTTPS**

Step 1: Download the URL Rewrite module

Step 2:Open the IIS Manager and choose the website that you like to redirect.

Step 3: Select the **URL** Rewrite Icon

Step 4: From the right-side menu, Click **Add Rule.**

Step 5: Select blank rule from the **inbound section** , and then press **OK.**

Step 6: Name the rule and on the **Match URL** under the **Matches the Pattern** under the **Requested URL** drop-down menu.

Step 7: Under the pattern type **(.*).**

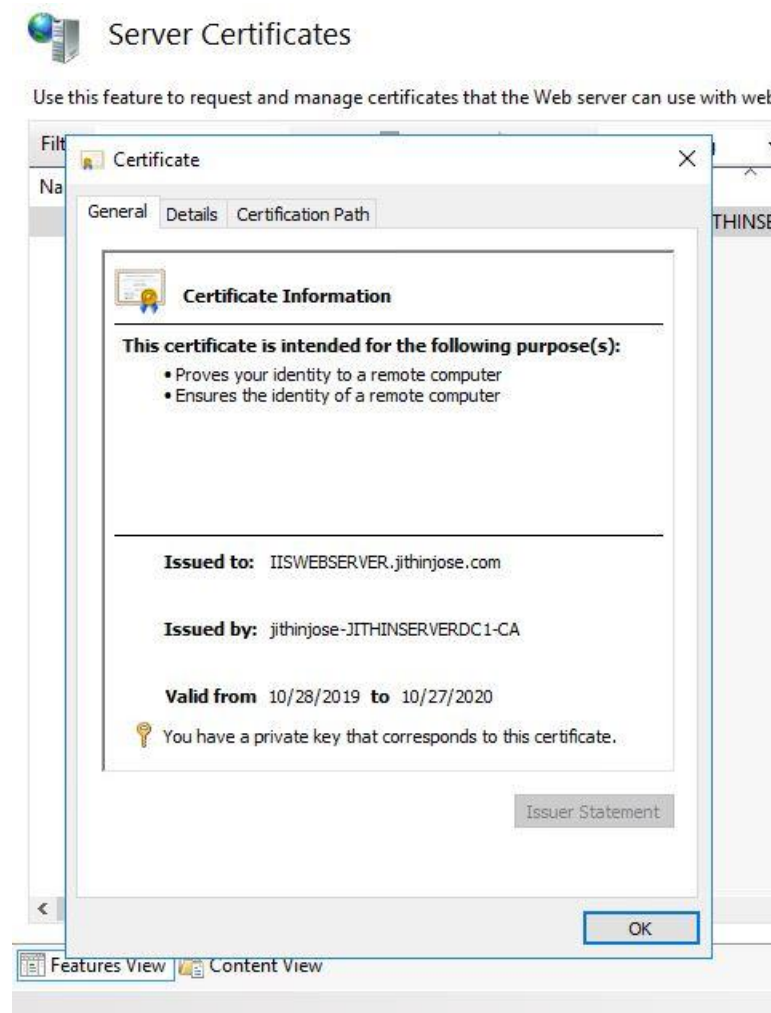Step 8: Under the **condition** Section, Select the **Match all** under the **Logical Grouping** drop-down menu and press **ADD.**
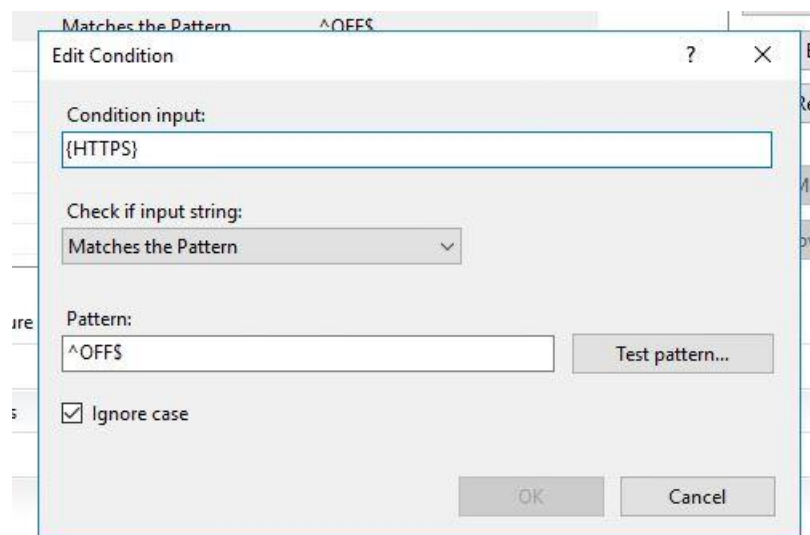
Figure 17: changing the settings of the logical grouping

Step 9: under the condition input, type **{HTTPS}.**

Step 10: On the Pattern Option type: **^OFF$**

   Note : make sure you have checked the ignore case

Step 11: In the **Action** Section, select **Redirect** as the action type and specify the following for redirect and under the **URL: https://admin.jithinjose.com**.

Step 12: uncheck the **Append query String** box and choose the redirect method to the permanent.

Step 12: This redirect all the http website into the https.

Part 2: Network and Server Monitoring

Solar winds server and application Moitor

This is a high-level server monitor that can be installed windows 2016 server. This application has serval features such as application monitor, server capacity planning , custom app planning application dependency monitoring and azure monitoring.

Installation of the Solar winds and server monitor

Step 1: To download the solar winds server monitoring software, we have to register the software from the solar winds server software. You will get a mail with the installation link. The link to register the solar winds server monitor is mentioned below : https://www.solarwinds.com/server-application-monitor/registration.

Step 2: After downloading the software , make sure that you have the minimum requirement to download the solar winds software, you at least require 20 gb free space to download the software.

Note: Sometimes the downloading stop at between and says it as completed. Make sure you have downloaded the file properly.

Step 3: Extract the software by double clicking the software, it may take few minutes and depends upon the specification upon the CPU.

Step 5: After the setup up pop-screen comes up, select the minimal version, You could also other features into the application such as ip Address manager, Log analyzer, patch manager , server configuration monitor and etc.

Step 6: During the installation there will be a system check and the system have to pass the system check in order to continue onto the next step.

Step 7: You can finish the installation by clicking next on every step as well as signing the EULA agreement.

Step 8: Installation may take about an half an hour to complete.

Setting up solar winds

Step 1: After the installation of the solar winds server monitor, go the browser type 127.0.0.1:8787

Note: 8787 *is the port number of the solar winds server.*

Step 2: Do the basic settings in the solar winds where you have set up the username and the password .

Step 3: After setting up the basic username and password, login into the Solar winds Dashboard page using the username and password that you gave it during the configuration,

Step 4: Click on the manage nodes in the dashboard .

Figure 18: manage nodes in the dashboard

Step 5: Click the add node button and you get the screen as shown below:

Step 6: Type the name of the server and under the pooling method where you have to select the Windows & unix/Linux Server.

Step 7: When you need to add the Vmware.esxi just choose vmware or hyoer-v from the pooling method.

Step 8: Under the credentials tab type the username and the password .

Step 9: Like that add all the servers such as serverdc1, backupserver, hyper-v and server monitor.

Setting up the Services in the soar winds

Step 1: By default, all the application, cpu, ram and load test will be initialized in the Solar winds.

Step 2: To add extra service in the solar winds , choose the node you wanted to add the service .

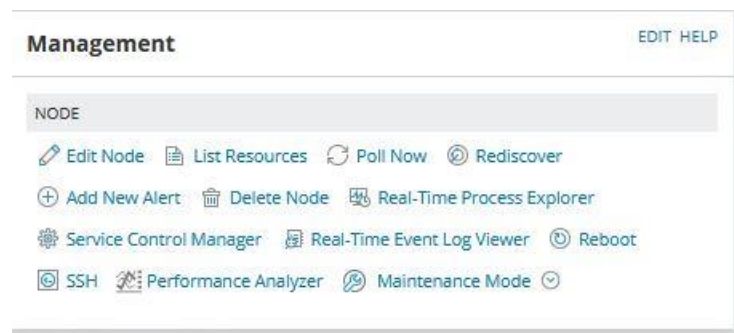Step 3: Under the list resources, you could add more resources into the server.

Figure 19: from this node settings you could add more features

Step 4: From the list resource option from the node management in the dashboard, you could choose to add any number of resources.

Scanning the node and node usage

Step 1: Select the node that you want . You will able to see a lot of service already running on the part of the software

Step 2: On the left-pane, you could able to select the different service that can give you detailed information such as vital source, brief and interface.

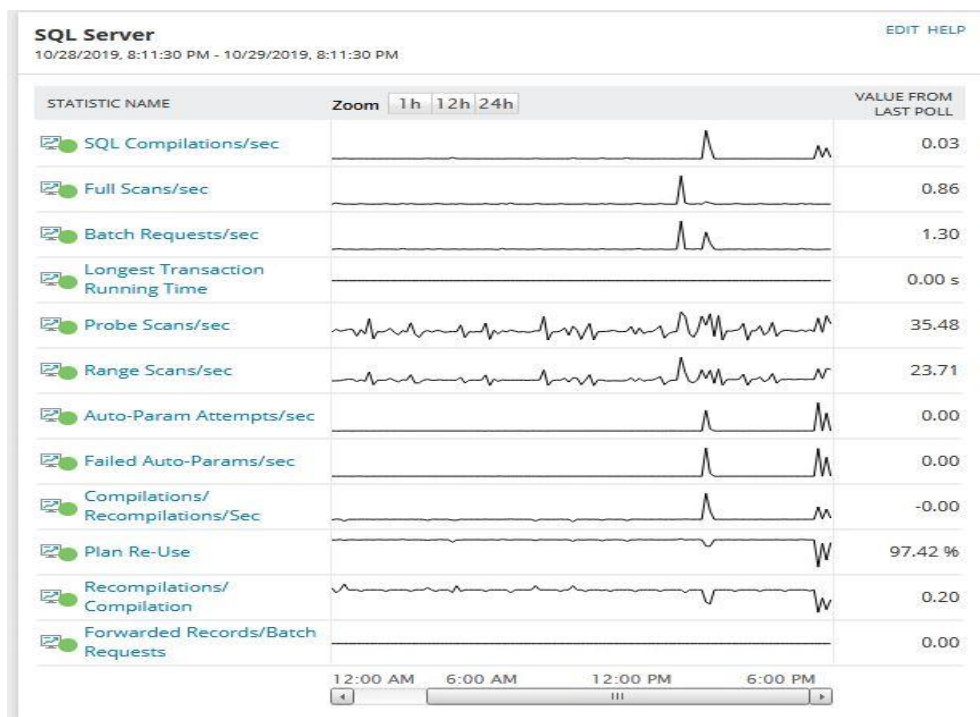## Screenshots of Monitoring Different Serval Service

SQL Server

Figure 20: SQL server Monitor

Sites Response Time

Figure 21: Response rime of the different sites
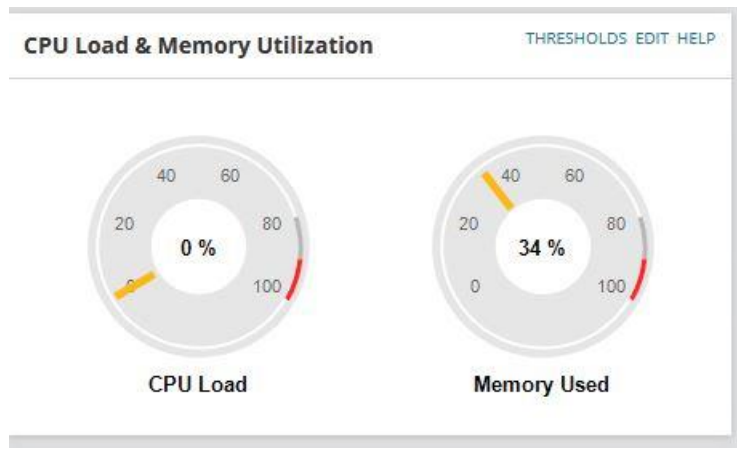
CPU load, Ram Usage

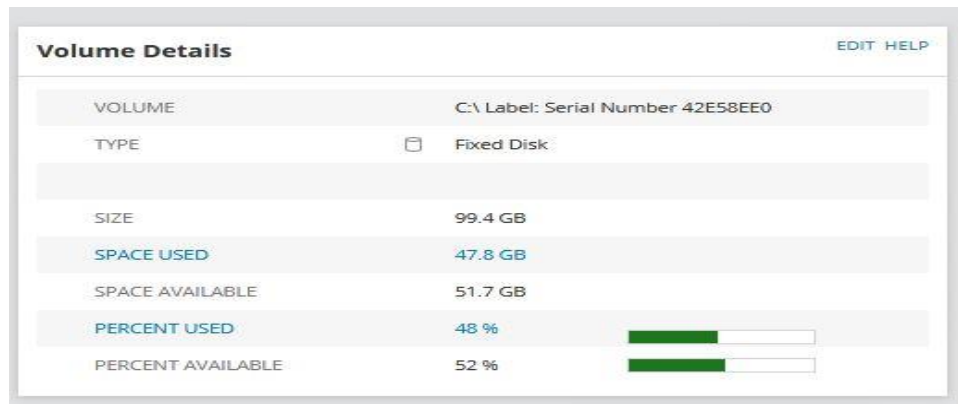*Figure 22: Cpu load and utlization*

Disk Usage

Figure 23: Volume Details

Setting up the notification in the solar winds

Step 1: Go the Settings, Select the manage alert.

Step 2:Under the manage alert, click **add** new alert. When you press that option, you will get a screen as shown below.

Add New Alert

PROPERTIES TRIGGER CONDITION RESET CONDITION TIME OF DAY TRIGGER ACTIONS RESET ACTIONS SUMMARY

1. Alert Properties

Name of alert definition (required)
Email or sms alert

Description of alert definition
Displayed on Manage alerts page.

Enabled (On/Off)
ON

Evaluation Frequency of Alert
Evaluate the trigger condition every 1   minutes
Event-based trigger conditions do not use the evaluation frequency.

Severity of alert
Critical

Alert Custom Properties (1)
Alert custom properties help you organize your created alerts. All created alert custom properties are listed below. To create a new custom property for your alerts go to » Manage Custom Properties

ResponsibleTeam:
The team responsible for the Alert

Alert Limitation Category
Restrict access to this alert to user accounts with the selected alert limitation
(No Limitation)

NEXT   CANCEL

Figure 24: alert windows

Step 3:Under the properties , type the name of the rule such as *rule1*.

Step 4: under the triger condition, Select the type of the alert that you are looking from the node.

Step 5: Click next, Select the time of the day that you want the alert.

Step 6: Under the Trigger action, you could choose Dial paging or SMS service, email service and other type of actions you prefer.

Step 7: Configure the type of the action you made.

Note: To make some action, you might require some server that supports that features.

Step 8: Click Next, till you reach the summary Screen and finish. It will enable the notification for the trigger action that you have made.

Advantage of using Solar Winds

- Good Server Monitor for the beginners.
- ALL the application and service are initialized by default.
- We could call all the domain controllers and domain members by giving an IP address range and the subnet mask.

- This server monitors all type of serval machines such as Linux , VMware, Hyper-v and all type of servers that are available here.
- It comes with several alert such as email, SMS and dialing and etc.

<u>Disadvantage of using Solar Winds</u>

- It is Expensive when we compared to another server monitor.
- The server should have at least 12GB of ram as well as good processor for smooth functionality of the Solar winds server monitor.
- Figuring out the errors in the solar winds are little bit difficult for beginners because we don't have the depth information of tools and the service inside the software.

<u>Conclusion</u>

The project war really a good aspect for learning an IIS role in the windows server 2016 .This project helped to figure out making different website using the IIs. In this project, we made four sites with different serval features which includes virtual directory, directory as well as domain signed certificate for the SSL . I learned how to monitor the different servers using the software named solar winds. I was able to monitor the SQL server, Volume usage, data usage and Response time of the different websites .

All I enjoyed in the project was dealing with the serval failures authentication for the different websites . It was so fun to go online and find the solution for the failures and setting up the service for the monitor. According to me, it is not reliable to set up the IIS server for the production mainly because of lack of scalability and reliability. The Solar winds is a good server monitor that can be used in the production environment.

Reference

 "How to install IIS server [Accessed 21 October 2019]
https://www.howtogeek.com/112455/how-to-install-IIS-8-on-windows-8/ "

"Set up Custom Error PAge [Accessed 22 October 2019]
https://www.bruceclay.com/blog/microsoft-iis-custom-404-error-page-configuration/"

"Set up the Authorization rules [Accessed 22 October 2019]
https://hostadvice.com/how-to/how-to-configure-authentication-and-iis-7-0-url-authorization/"

"Installation of the Enterprise CA certificate [Accessed 27 October 2019]
   https://www.msptechs.com/how-to-install-enterprise-ca-on-windows-server-2016/"

"Setting up the CA certificate on Domain Controller and IIS Web Server [Accessed 27 October 2019]
  https://social.technet.microsoft.com/wiki/contents/articles/12485.configure-ssltls-on-a-web-site-in-the-domain-with-an-enterprise-ca.aspx"

"Rewrite Rule from http to https[Accessed 25 October 2019]
https://www.namecheap.com/support/knowledgebase/article.aspx/9953/38/iis-redirect-http-to-http

"Installation of the solar winds[Accessed 24 October 2019]
https://www.youtube.com/watch?v=gZ2Qd2o7fVk"

"**Setting up the solar winds [Accessed 25 October 2019]**

https://www.youtube.com/watch?v=7XvODWliBPw "