**Practical: 1**

**Aim: Managing Hyper-V Environment with SCVMM 2012**

**Step 1:** Creation of Virtual Machine (Windows Server 2016)

Open VMware Workstation Pro and Click on Create a New VM

**Step 2:** Select Custom (advanced)

**Step 3:** Keep the Hardware Compatibility as default and click on Next

**Step 4:** Click on the Browser and select the Windows Server iso file from the directory.

**Step 5:** Leave this Windows Server as default pop-up open click on ok and click Next.

**Step 6:** Name the Virtual Machine**: Rahulk**  and **click on Next.**

**Step 7:** Select Firmware Type **BIOS** and click on Next.

**Step 8:** Leave Processor Configuration as default and click on Next.

**Step 9:** Change the RAM to **4096 MB** and click on Next.

**Step 10:** Select Network Type **NAT** and click on Next.

**Step 11:** Select **LSI Logic SAS** and click on Next.

**Step 12:** Keep the default **NVMe** and click on Next.

**Step 13:** Select a **create a new virtual disk** and click on Next.

**Step 14:** Keep the default and click on Next.

**Step 15:** Leave it as default and click on Next.

**Step 16:** click on finish.

**Step 17:** Before Power on the virtual machine :

* Click on the **Edit Virtual Machine Settings**

In Virtual Machine Setting go to **Hardware** and click on **Floppy** and **uncheck the connect at power** **on.**In Hardware click on **Processors**

* In Virtualization engine check **Virtualize Intel VT -x/EPT or AMD-V/RVI**
* And also check **Virtualize CPU performance counters**
* In Virtual Machine Setting click on **options**
* Within **options** click on **General**
* In **General** click on **version** and select **Hyper-V (unsupported)** and click on **Ok**

**Step 18:** Now Power on the virtual machine.

**Step 19:** Leave it as default and click on Next

**Step 20:** click on Install Now

**Step 21:** Select **Windows Server 2016 Datacenter Evaluation (Desktop Experience x 64)**And click on Next

**Step 22:** click on **I accept the license term** and click on Next.

**Step 23:** On type of installation Select **Custom: Install Windows only (advanced)**

**Step 24:** Leave it as Default and click on Next.

**Step 25:** It will start installation

**Step 26:** Set your password and click on finish

**Step 27:** your windows server successfully created.

**Step 28:** Within Windows Server open **Server Manager**

**Step 29: Installing Hyper-V**

* Within Server Manager **Click on Add roles and features**
* **Click On Next**
* In Installation Type Select **Role-based or feature-based installation**
* Keep default setting and **click on Next**
* Select **Hyper-V** and **Click Add Features and Click Next**
* Select **Failover Clustering** and click on **add feature** and click **Next**
* Make sure **Group Policy Management** also selected
* **Click Next**
* In Network adapters: check **Ethernet0** and click **Next**
* Select **Allow this server to send and receive live migrations of virtual machines**

And **Click Nex**

* Keep default and **click on Next**
* Click **install** after installation of hyper-v restart the virtual machine.

**Step 30:** Now Adding **Active Domain Directory Services**

* Within Server Manager click on **add roles and features**
* Keep default and **click on Next**
* In installation type select: **Role-based or feature-based installation**
* **Click on Next**
* Keep default Settings and **click on Next**

In Server Roles Click on **Active Directory Domain Services** **a pop-up will appear Click Add Features**

* In features selection select **.NET Framework 3.5 Features** and **click on Next**
* **Click Next**
* **Click on install**
* Feature installation start after installation restart virtual machine.

**Step 31:** Change **Server Name**

* Open Server Manager **Click on Local Server**
* In System Properties Click on **Computer Name** and click **change**



* Click on **Computer name:** **At the Computer Name/Domain Changes** window enter a name for your computer Here it is **“RahulServer”** and click on **OK.**
* Then click on **“Apply”** button at the **System Properties window**.
* Then VM require restart.



**Step 32:** Disable Firewall

* Within Server Manager **click on Local Server** and **click on Firewall**
* Click **Turn Windows Firewall On or Off** and Select **Turn off windows Firewall for both Public and Private.** Then Click **OK**

**Step 33: Domain Creation**

* After the restart open Server Manager. Go to the Notification flag as it will be showing a warning sign.
* In the **Post-deployment configuration notification** click on the given link **“Promote this server to a domain controller”**
* This opens the **Active Directory Domain Services Configuration Wizard**, Select **Add a** **forest option,** enter a name for the new domain (here it is **RAHUL.COM**) and **Click Next**



* Enter a password for the domain (keep it same as the administrator password, recommended). **Click on Next**
* At DNS Options **click on Next**
* At Additional Options Keep the default options and **click on Next**
* At paths option Keep the default options and **click on Next**
* **Click on Next**
* At **Pre-requisites Check**. **It should pass all prerequisites check** and warning are acceptable
* **Click on install**
* After the Completion of installation the VM will restart for the changes take effect
* **Log in as Administrator**

**Step 34:** Installing and Configuration SQL Server

* Drag and drop the required file for the practical into the VM
* Mount the SQL Server iso file
* **Click on Setup**

The **SQL Server Installation Center** Open **Click on Installation**.

Within **Installation** Select **New SQL Server stand-alone installation or add features to an existing installation**

* Leaves it as default and **click on Next**
* Select **Accept license and terms** and **Click Next**
* **Click On Next**
* **Install Rules** which should pass with only a few warnings and **click on Next**
* In Feature Selection select the features given below:

**1.Database Engine Services**

**2. Reporting Services – Native**

**3. Reporting Services SharePoint**

**4. Reporting Services Add-in for SharePoint products**

**5. Client Tools Connectivity**

* After Feature Selection **Click on Next**
* Select **Default instance** and **Click on Next**
* Keep the default value and **click on Next**
* In **Database Engine Configuration**, Select **Mixed Mode** and enter the same password as set while creating the VM
* **Click on Add Current User**, it should display the current Domain User and **Click Ok** and **click on Next**
* Keep the default setting and **click on Next**
* **Click on install**
* It will start installation
* **Click On Next**
* It show installation Succeeded and **click on clos**

**Step 35:** Installing **ADK-setup 2016** (Windows Toolkit)

* **run the ADK setu**
* Keep it as default setting and **click on Next**

Select **No** and **click on Next**

* For License Agreement **Click on Accept**
* Select the following feature:
* **Deployment Tools**
* **Windows Preinstallation Environment (Windows PE)**
* **Windows Performance Toolkit**
* **Click on install**
* Installation of feature will start

**Step 36: Installing SQL Server Management Studio**

* **Run the SSMS setup**
* **Click on install**
* Installation of feature will start
* **Click on Restart**

**Step 37:** Creation of User

* Open **Server Manager** Click on **Tools** Within **Tools** Select **Active Directory Users and Computer**



* Now Right Click on **Managed Service Accounts** and Select **New**
* Within New Select **User**
* New Object-User
* Enter a Username **(Here it is Username is VMMService)** on both **First name** and **User logon name** and **click on Next**
* In this Step Enter a **Password for user same as the admin** and select **Password never** expires **in the option** And **Click Next**
* **Click on Finish**
* Now **VMMService** will show up under **Active Directory Users and Computer**
* Now Right-Click on **VMMService** and Select **Add to a Group**



* At the Select Groups window type the initial letters of Administrators user and click on “Check Names” window. The “Administrators” user is displayed, click on “OK” button.
* The **user is added to the group**. Close Active Directory Users and Computers window.

**Step 38:** Connecting SQL Server to Window Server

* Launch SQL Server Management Studio.



* Keep default value and Click on **Connect**
* Within **Object Explorer** Click on **Security** and right click on **Logins** and Select **New Login**
* At the **Login – New** Window type **Login name: (VMMService) and click on “Search” button.**
* At the **Select User, Service Account, or Group** window type the (**VMMService**) and click on “**Check Names**” window.
* The **username with the domain name** to which it belongs is displayed and click on “**OK**” button.
* Click on **Server Roles** In Server roles **public** selected by default.
* Select three more Server Roles:
* **dbcreator**
* **processadmin**
* **securityadmin**
* Then Click on **Ok** and Close **SSMS**

**Step 39: Creating Object in ADSI Edit**

* Open Server Manager **Click on Tools**🡪**ADSI Edits**
* At the **ADSI Edit** window go to **Action** and click on **Connect to….**
* In Connection Settings Keep the Default Values and **Click Ok** and a default value is created
* At **ADSI Edit** window expand **Default naming context by** double clicking on it in the left pane.
* Right Click on the **DC=RAHUL,DC=COM** Folder and **Click on New** and Select **Object**
* At the **Create Object** Window **Select the container class** and click on **Next**
* Enter the value for the object (Here it is **VMMObjectContainer**) and **click on Next**
* At the final window click on **finish**
* Double Click on **DC=RAHUL** and Right Click on the **CN=VMMObjectiContainer** Folder and Select **Properties**
* Within **Properties Click on distinguishedName** and **Click on View**
* Copy the **distinguishedName** onto a Notepad as it is needed for the **SCVMM setup**
* **{The distinguishedName of object created in ADSI Edit (my system’s): CN=VMMObjectContainer,DC=RAHUL,DC=COM}**
* Close the **ADSI setup**

**Step 40:** SCVMM Setup

* **From your CM Folder and Mount the SCVMM Setup file.**
* **Click on Next**
* Select **I** **accept the agreement** and **click on Next**
* Keep default setting and **Click on Next**
* **Click on Extract**
* It Will Extract the file
* Go to your **Local Disck (C:)**🡪**System Center Virtual Machine Manager**🡪**setup**
* **Double click on setup**
* **System Center 2019 VMM window open**
* **Click on Install**
* Select **VMM management server** and **VMM console** get auto selected and **click on Next**
* Keep default setting and **click on Next**
* Select **I have read and accept the license agreement** and **Click Next**
* **Click Next**
* For Microsoft Update **Click on off** and **Click Next**
* Keep default Setting and **click on Next**
* Now in database configuration, type the same user and domain which was created (In this case its **VMMService**) and keep the **instance name as default MSSQLSERVE**
* Here in service account configuration, Select Domain Account and type in the User and Password (**For VMMService**)
* Select **Store my keys in Active Directory** and paste the **distinguishedName** that we have saved from before
* Keep **default setting** and **click Next**
* Keep **default setting** and **click Nex**
* **Click on Install**
* After installation **Click on Close**
* At **VMM’s Connect to Server** window select “**Specify credentials**” option. Enter the **Administrator username with the domain name and give the administrator password**. Click on “**Connect**” button.
* The main window of Virtual Machine Manager (VMM) looks like…

**Step 41:** Creation Logical Network

* **Click on Fabric**
* **Click on Networking**
* Within **Networking** right **click on Logical Network** and **Select Create Logical Network**
* Specify a name and description for the logical network Here **Name is Subnet**
* **Click Next**
* Select **One connected network** within Select **Create a VM network with the same name to allow virtual machines to access this logical network directly**
* **Click Next**
* **In Network Sites and Click Add**
* **Click on All hosts**
* **Click on Insert Now and Type 1 in VLAN and a sample IP (Here it is 192.168.29.0/24) and Click Next**
* **Confirm the Settings** and **Click on Finish**

**Step 42:** Creating IP Pools

* Now in SCVMM on the Top Click on **Create**
* Within Create Click on **Create IP Pool**
* Specify the IP address pool name and logical network Here **Name is Pool**
* And Make Sure **Logical Network is Subnet**
* **Click on Nex**
* Keep default values and **Click Next**
* In **IP Address Range** change the **Starting IP Address to 192.168.29.100 and Ending IP Address Range to 192.168.29.110**
* **Click Next**
* In Gateway,
* Within Default Gateways **Click on Insert**
* Type the Gateway Address as **192.168.29.1** and Keep the metric as Automatic
* **Click Next**
* **In DNS,** within **DNS server address in the order of use** **Click on Insert** Type in the **IP address 192.168.29.9**
* In **DNS Suffix** type your **Domainname.Online** i.e in this case it is **RAHUL.ONLINE**
* **Click Next**

In **WINS Server** Keep it as is and **Click Next**

* View the Summary and **Click Finish**

**Step 43:** Create IP Port Profile

* In SCVMM **Click on Fabric**
* Within **Fabric Click on Networking**
* Within **Networking Right Click on Port Profiles** and Select **Create Hyper-V Port Profile**
* Call this **Profile** and **Click Next**
* Make Sure **Virtual network adapter port profile also selected**
* **In Offload Setting Select the following options:**
* **Enable virtual machine queue**
* **Enable IPSec task offloading**
* **Click on Next**
* In **Security Settings** Select **Allow MAC spoofing** and **Click Next**
* Keep the default value and **Click on Next**
* Review the Summary and **Click On Finis**
* New Port Profile called **Profile** is created



**Step 44:** Create Logical Switches

* In SCVMM **Click on Fabric**
* Within Fabric **Click on Networking**
* Within **Networking Right-Click on Logical Switches and Select Create Logical Switch**
* **Click on Next**
* **Call it Switch** and **Click Next**
* Keep default values and **Click Nex**
* Keep default values and **Click Next**
* **In Virtual Port Click Add**
* In Port Classification Select **Medium Bandwidth**
* **Click on Include a Hyper-V Virtual Network adapter port profile in this virtual port and Select Medium Bandwidth**
* **Click On OK**
* **On Virtual Port Click Next**
* On **Uplink Click on Add**
* Select New **Uplink Port Profile**
* **In Name type Uplink**
* **Select the Subnet\_0**
* Review the Summary and **Click on Finish**

**Step 45:** Create Hyper-V Hosts and Clusters

* In SCVMM **Click on Fabric**
* Right Click on **All Hosts** and Select **Add Hyper-V Hosts and Clusters**
* Keep Default Setting and **Click on Next**
* In Credentials Select **Manually enter the credentials and Enter user name and Password (Here user name is RAHUL\ADMINISTRATOR)**
* **Click on Next**
* In Computer names Specify your **computer name** **(Here it is RahulServer)**
* **Click on Next**
* In Target Resources Check Computer Name **(Here it is rahulserver.rahul.com)**
* After Check on computer name **pop-up window open click on OK**
* **Click on Next**
* Keep Default value and **Click on Next**
* **View the Summary and Click on Finish**
* In SCVMM **Click on VMs and Services**
* In VMs and Service Right-Click on Cloud Select **Create Cloud**
* Specify a name for the cloud **(Here it is cloud)** and **Click on Next**
* In Resources Tick **All Hosts** and **Click on Next**
* In **Logical Networks** Tick **localdomain** and **Click on Next**
* In **Load Balancers Select Microsoft Network Load Balancer** and **Click on Next**
* Keep Default and **Click on Next**
* In **Port Classification Select Medium bandwidth** and **Click on Next**
* In Storage Select **Local Storage** and **Click on Next**
* In Library browse stored VM path and select **MSSCVMMLibrary** and **Click Ok**
* Keep the Default Value and **Click on Next**
* In Capability Profiles **Select Hyper-V** and **Click Next**
* Keep Default Value and **Click on Next**
* Keep Default Value and **Click on Next**
* View Summary and **Click on Finish**
* **Cloud Created**

**Step 46:** Add Windows iso to SCVMM

* In SCVMM **Click on Library**
* Within Library **Click on Library Servers**
* Within Library Servers **Click on Domain Name (Here it is RahulServer.Rahul.COM)**
* Within that **Click on MSSCVMMLibrary**
* **On Top Click the Import Physical Resource**
* In Import **Physical Resource Click on Add resource and Select the Windows 7 iso file on your Desktop**
* In Select Library Server **Click Browse and Select MSSCVMMLibrary** and **Click Import**

**Aim: Installing and Enabling Host Guardian in a Cloud**

**Step 1:** Adding the Host Guardian Role in Roles and Features

* Open **Server Manager** and **Click on Add Roles and Features**
* **Click Nex**
* **Keep default values and Click Next**
* **Keep default values and Click Next**
* **Select Host Guardian Service and Click Add Features**
* **Select the following feature** and **Click on Nex**
* **Click Next**
* **Click Nex**
* **Click Next**
* **Select the following features** and **Click on Next**

**Click on Install**

* **installation process start**
* **After the installation of features click on close**
* After restarting **open the System Center 2019 Virtual Machine Manager Select Use current Microsoft Windows session identity and Click on Connect**
* On the dashboard **Click on Settings** andSelect **Host Guardian Service Settings**
* **Within Host Guardian Service Settings Enter your custom domain name followed by Attestation and Repeat the same for Key Protection.**
* **(Here it is http://hgs.EDTECH.COM/Attestation and http://hgs. EDTECH.COM /KeyProtection)**
* After entering details **Click on Finish**
* Pre-requisite: **Create a Cloud and Create a Server on a Host Group (Here it is EDTECH)**
* **Now within your Host Group Right-Click on EDTECH and Select Properties**
* Within propertiesSelect **Host Guardian Service and Select Enable Host Guardian Hyper-V Support and use the URLs configured as global settings in VMM and Click Ok**
* **Pop up open click on yes**

**Step 2: Creating the pfx file for the HGS Server**

* **Open Windows Powershell as Administrator**
* **$certificatePassword = Read-Host –AsSecureString –Prompt ‘Enter a password for the PFX file’**

**Practical: 2**

**Aim: Deploy Service Manager and SQL Server Reporting Services for a 2 Computer Scenario.**

**Step 1:** We have to establish a connection with a Domain Controller and a User ( SQL SERVER)



**Step 2:** Installing SQL Server 2016 in VM 2

Within your Cloud Management Server Click on SQL Server 2016 iso.

* Double Click Setup to start the installer
* Click on **Installation** and Click on **New SQL Server standalone installation**
* Keep default values and Click **Next**
* Select **I accept the license terms** and Click **Next**
* Keep default values and Click **Next**
* Click **Next**
* Click **Next**
* Select the features given below:
  + **SQL Server Replication**
  + **Full Text and Semantic Extractions for Search**
  + **Analysis Service**
  + **Reporting Service –Native**
  + **Reporting Service –Sharepoint**
  + **Reporting Service add-in for Sharepoint Products**
  + And Click **Next**
* Select **Named Instance** and type **MSSQLSERVER** and Click **Next**
* Keep default values and Click **Next**
* Select **Mixed Mode** and Set a password (Here it is admin@123) and Click on **Add Current User** and Click **Next**
* Click on **Add Current User** and Click **Next**
* Keep default values and Click **Next**
* Click on **Install**
* SQL Files will start installing
* SQL Server has finished installing and Click **Close**

**Step 3**: Installing SSMS (SQL Server Management Studio)

* Click on the **SSMS** setup
* Click **Install**
* SSMS will start installing
* After the components are Installed you will have to restart your VM. Click on **Restart**

**Step 4:** Connect SQL Server to SSMS

* Open **SSMS**
* **Click on Microsoft SQL Server Management**
* Click on **Connect**

**Step 5:** Install System Center Service Manager 2019

* Click on the **SCSM\_2019** setup
* Click on **Run**
* Click **Next**
* Select **I accept the agreement** and Click **Next**
* Keep default path and Click **Next**
* Click on **Extract**
* **Click on Finis**
* After extracting open the SCSM 2019 file in your C: Directory and Click on **Setup**
* Click on **Service Manager Management Server**
* Select **Install as Evaluation Edition** and Select **I have read and understood the above agreement** and Click **Next**
* Keep default values and Click **Next**
* Setup following hardware or software prerequisites on this computer
* **Microsoft Report Viewer**
* **Microsoft SQL Server 2014**
* **Microsoft .NET 3.5 framework**
* install the Analysis Management Objects (AMO) 2014.
* **Click on Setup file**
* Click **Next**
* Select **I accept the terms of this agreement** and Click **Next**
* Click on **Install**
* Install **Microsoft Report Viewer**

**To install Microsoft Report Viewer Click on Given Link Install Microsoft Report Viewer Redistributable**

* Install **Microsoft .NET 3.5 framework**
* **Go to the RahulVm2->Server Manager**
* **Click on Add roles and features**
* **Click on Next**
* **Click on Next**
* **Keep Default Setting and Click on Next**
* **Click on Next**
* Select **.NET Framework 3.5 features** and **Click on Next**
* **Click on Next**
* Select the following features and **Click on Next**
* Select the following features and **Click on Next**
* **Click on Instal**
* **Installation Process Start**
* After the Installation **Click on Close**
* **After the Installation Following Setup:**
* **Microsoft Report Viewer**
* **Microsoft SQL Server 2014**
* **Microsoft .NET 3.5 framework**
* **Click on Check pre-requisites again,** the error will be solved and **Click** **Next**
* Enter your SQL Server name (In this case it is WIN-DFHKO8DGB38) and Click **Next**
* Enter a management group name (Here it is SMGROUP) and Click on **browse** and within the text field type **RAHUL0\ADMINISTRATOR** and Click **Ok**
* Select the following **Click on Ok**
* **Click On**
* **Click Next**
* Select **Domain Account** and Enter the details of the **Domain Controller** and Click **Test Credentials** and Click **Next**
* Click **Next**
* Select **I do not want Microsoft Updates** and Click **Next**
* **Click Install**
* Service Management Server will start installing
* The service management server is successfully created.

**Step 6:** Installing SQL Server Reporting Services

* Click on the **SQLSERVERREPORTINGSERVICES** installer
* **Click on Install Reporting Services**
* **Keep Default Setting Click on Next**
* **Click on I accept the License term**
* **Click on Next**
* **Click Next**
* **Installation Process Start**
* After completion Click on **Configure Report Server**
* Keep default values and Click on **Connect**
* Select **Service Account**, within service account in **Use built-in account** Select **Network Service** and Click **Apply**
* Select **Web Service URL**, Change the Virtual Directory Value to **ReportServer1** and Click **Apply**
* Select **Database** and Click on **Change Database**
* Keep default values and Click **Next**
* Keep default values, Click on **Test Connection**
* **Click on OK**
* **Click on Next**
* Change Database name to **ReportServer1** and Click **Next**
* Keep default values and Click **Next**
* **Click on Next**
* Database configuration will install, after installation Click on **Finish**
* Select **Web Portal URL** and keep a copy of the **url** on which your reports will be shown.
* Within your VM’s Directory create a new folder named **Backup**
* Select **Encryption Keys** and Click on **Backup**
* **Click on Backup**
* Give File name **mscitbackupkey** and **Click on Save**
* Browse the folder that you just created and save a new file under any name (Here it is ReportServer1) and give it a password and Click **Ok**
* Now go back to the SCSM setup and continue from Encryption Key Backup, Click **Next**
* Keep default values and Click **Next**
* **Click on Browser**
* Select **mscitbackupkey.snk folder** and **Click on Open**
* **Click Next**
* **Click on Yes**
* Enter the password and Click **Next**
* **Click on Finish**
* Now within your SSMS you can see the new database that has been created

**Practical: 3**

**Practical 3A: Installing System Centre Orchestrator**

**­­­­­**

**Pre-requisites:**

Using the two Computer scenario same as practical 2 we can use the Same Domain Controller and SQL instance in this practical

Feature require:

* **System Centre Orchestrator 2019**

**Step 1: Installing System Center Orchestrator 2019**

* **Click on SCO\_2019**
* **Click on Run**
* **Click on Next**
* Select **I accept the agreement** and **Click Next**
* **Keep the default value and Click on Next**
* **Click on Extra**
* It will start extracting the necessary files to the destination folder
* **Click on Finish**
* Now go to Your Local Disk (C:) Within Local Disk **Click on System Center Orchestrator 2019**
* Within System Center Orchestrator 2019Double **Click on SetupOrchestrator**
* **Click on Install**
* Type a name under organization **(Here it is Masters)** and **Click Next**
* **Select I accept the license terms** and **Click Next**
* **Click on Next**
* **Keep default values** and **Click Next**
* **Select Activate IIS/.NET features/roles and Click Next**
* **It will start the installing prerequisites**
* **After installing pre-requisites Click on Nex**
* In Configure Service Account Type the credentials of the domain you have selected and Test it,If the Test is successful **Click Next**
* Enter your SQL Database server name and Test the database server connection.If the Test is successful **Click Next**
* Select New Database and Enter the name as **Orchestrator** and **Click Next**
* **Keep default values and Click Next**
* **Click on Next**
* **Select Off and Click on Next**
* **Select No, I am not willing to participate and Click Next**
* **Check the summary of your features and Click on Install**
* **It will start installing the features**
* **Click on Close**
* **After installation is complete the Runbook Designer will start**

**Step 2: : Installing Sliverlight\_x64**

* **In your New Folder Click on the Silverlight\_x64 application**
* **Click on Install Now**
* **It will start the installation**
* **Click Next**
* **Click Close**

**Practical 3-B: Creating & Testing a monitor Runbook**

**Aim: Creating and Testing a Monitor Runbook**

* **Name the folder and again Right-Click on the Folder and Select Runbook**
* **New Runbook Created**

Now within the Runbook created we have to show a workflow being executed. On the left side in Activites Select the following Items:

**Monitoring: Get Service Status -> Notifications: Send Event Log Message-> System: Restart System**

* **Now with these three features link them to each other as shown below:**
* Double-Click on **Get Service Status,** within it type a computer name **(Here it is MASTERS.COM)** and in Service select **DHCP Client**
* Select Securityand **Click on this account** and **enter your credentials** and **Click on Finish**
* Double-Click on **Send-Event-Log Message,** within that type the computer name **(Here it is MASTERS.COM)** and Enter a Message i.e **(DHCP SERVER HAS STOPED WILL RESTART AFTER 30 SEC)** and **Select Error in Severity**
* Select Security and **Click on this account** and enter your credentials and **Click on Finish**
* Double-Click on Restart System, within that type the computer name **(Here it is MASTERS.COM)** and Enter a Message i.e (DHCP SERVER STOPEDd WILL RESTART AFTER 30 SEC)
* Select Security and **Click on this account** and enter your credentials and **Click on Finish**
* **Click on Runbook Tester**
* **Within Runbook Test Click on Run**
* **The Logs should show three successful tasks**
* **Now if we go back to our domain controller we will see this message and will restart your Domain Controller**

**Practical: 4**

* **Aim:** **Deploy and Manage SDN infrastructure using SCVMM 2019.**

**Pre-requisites:**

* SCVMM from practical 1

**4-A: Deploying Network Controller**

**Step 1: Create a Logical Network**

* Open SCVMM and **Click on the Fabric Tab** and Select **Networking, within Networking Right-Click on Logical Network** and Select **Create Logical Network**

And Specify a name for the logical Network **(**Here it is: **Logical\_Network)** and **Click on Next**

* Select **One-connected network** and **Tick both Allow new VM networks created on the logical network to use network virtualisation** and **Click on Next**
* **Click on Add** and Select **Hostgroup** and **Click on Insert Now** and type in the **VLAN number** and an **IP Address** and **Click on Next**
* **Click on Finish**

**Step 2: Creating IP Pools**

* Right-**Click on Logical Network and Select Create IP Pool**
* Name it Pool and Make sure the Logical Network you just created has been selected and **Click on Next**
* Keep the default valueand **Click on Next**
* In IP Address range Change the Starting IP Address to **192.168.29.100** and Ending IP Address Range to **192.168.29.110** and **Click 0n Next**
* Within Default Gateway **Click on Insert** and Enter the IP Address **192.168.29.1** and Keep the metric as Automatic and **Click on Next**
* In DNS, within DNS Server address in the order of use **Click on Insert** and Type in the IP Address 192.168.29.9 and **Click on Next**
* **Click on Finish**

**Step 3: Creating Logical Switch**

* In **Networking, Right-Click on Logical Switch** and Select **Create Logical Switch**
* **Click on Next**
* Name the Switch and Select **No Uplink Team** and **Click on Next**
* **Keep the default Setting and Click on Next**
* **Keep the default Setting and Click on Next**
* **Click on Add,** in port classification Select **Medium bandwidth** and **Select Include a Hyper-V virtual network adapter port profile in this virtual port** and Select Medium bandwidth adapter and **Click on Ok**
* **Click on Next**
* **Click on Add** Give the Name **(**Here it is **Uplink)** and In **Network sites: Check Logical\_ Network\_0** and then **Click on New virtual network adapter**
* **Name your virtual network adapter and Keep majority of the settings default and Select Medium bandwidth in Port Profile and Click Next**
* **Click on Finish**

**Step 4: Setting up the Security Certificate**

* In your Windows Run type in **certlm.msc** and **Click On Ok**
* **Now Click on Personal** and **Select Certificate** and within **Certificate, Right-Click on EDTECH.EDTECH.COM** and **msstrgsvc** and **Click All tasks** and **Click Export**
* **Click Next**
* **Select Yes, export the private key** and **Click on Next**
* Keep default values and **Click on Next**
* Give it a file name and **Click on Next**
* **Click on Finish**
* Now Right-Click on the certificate again and **Click on Export**
* **Click On Next**
* Select **No, do not export the private key** and **Click On Next**
* **Select Base-64-encoded X.509 (.CER)** and **Click On Next**
* Give it a path and **Click On Next**
* **Click Finish**

**Step 5: Set up Service Template**

* In SCVMM Select the **Library Tab** and **Click on Import Template**
* In Select Package Open Run Window and then Type **IP address of the WinServ(New) (Here it is** [**\\192.168.149.200**](file:///\\192.168.149.200)**) Click on Ok**
* Within **MSSCVMMLibrary Select NC Folder** and then **Copy the Path**
* Now again Go to the Select Package window **Click on Browse**
* Now paste the path for NC and then **Click on Enter**
* Within NC Folder Select **Network Controller Production Generation 2** and then **Click on Ok**
* **Click on Next**
* Within Configuration References **Click on WinServer.vh** and then **Click on Edit**
* **Within Type: VHDX Select Blank Disk – Large.vhdx** and **Click on OK**
* Now again within Configure Reference **Click on NCSetup.cr** and then **Click on Edit**
* Select **NCSetup.cr** and **Click on Ok**
* **Click on Next**
* **Click on import**
* Here we successfully import template
* Within Service Templates **Right-Click on Network Controller Production 1.0** and then **Click on Configure Deployment**
* Give it a name and Select you management as your **Logical Network** and **Click Ok.**
* This is the deployment of the Network Controller Service Template

**4-B:** **Deploying Software Load Balancer**

**Step 1:** Create a Logical Network

* **Create a new logical network** by Selecting the **Fabric Tab** in SCVMM and **Right-Click on Logical Networks** and Select **Create a Logical Network**
* Give Name for your Logical Network **(**Here it is: **SLB\_LOGICAL NETWORK)**

And then **Click on Next**

* Select **One-connected network** and **Tick both Allow new VM networks created on the logical network to use network virtualisation** and **Click on Next**
* Within Network Site **Click on Add Select All Hosts** and then **Click on Insert row** Enter VLAN and IP address Here it is: **192.168.10.0/24** and then **Click on Next**
* **Click on Finish**

**Step 2: Create IP Pool**

* **Right-Click on SLB\_LOGICAL NETWORK** and then Select **Create IP Pool**
* Specify the IP address pool name and logical network **(**Here it is: **SLB POOL)** and then **Click on Next**
* Keep the default Value and **Click on Next**
* Keep the Starting IP address as **192.168.10.10** and the Ending IP Address as **192.168.10.110** and **Click Next**
* Enter a Default gateway address **192.168.10.1** and Keep the Metric as **Automatic** and **Click on Next**
* Enter a DNS IP Address **(Here it is 192.168.10.2)** and a DNS Suffix which is yourDOMAIN\_NAME.ONLINE **(Here it is RAHUL.ONLINE) and Click on Next**
* **Click on Next**
* **Click on Finish**

**Step 3: Creating an SLB Service Template**

* Select the Library Tab and **Click on Import Template**
* In Select Package Open Run Window and then Type **IP address of the WinServ(New) (Here it is** [**\\192.168.149.200**](file:///\\192.168.149.200)**) Click on Ok**
* Within **MSSCVMMLibrary Select SLB Folder** and then **Copy the Path**
* Now again Go to the Select Package window **Click on Browse**
* Now paste the path for SLB and then **Click on Enter**
* Within SLB Folder Select Network **SLB Production Generation 2 VM** and then **Click on Open**
* **Click on Next**
* Within Configuration References **Click on WinServer.vhdx** and then **Click on Edit**
* **Within Type: VHDX Select Blank Disk – Large.vhdx** and **Click on OK**
* In **NCCertificate, Click on the Custom Resource NCCertificate.cr** and **Click Ok**
* **Click on Next**

**Click on Import**

**Step 4: Deploying the SLB Service Template**

* Within Service Templates **Right-Click on SlbMuxServiceTemplate** and then **Click on Configure Deployment**
* Type in the name **(**Here it is **SLB\_DEPLOY)** and in the **Transit** and **Management Network** Select the newly created Logical Network **(Here it is SLB\_LOGICI NETWORK)** and **Click on Ok**
* **Now in Settings Select the Following:**
* **localAdmin: NT AUTHORITY\Local Service**
* **ManagementNetwork: SLB\_LOGI NETWORK**
* **MgmtDomainAccount: NT AUTHORITY\LocalService**
* **MgmtDomain FQDN: EDTECH.EDTECH.COM**
* **SelfSignedCertificate: True**
* **TransitNetwork: SLB\_LOGI NETWORK**

**Step 4: Deploying the GRE Service Template**

**Step 1:** Create a Logical Network

* **Create a new logical network** by Selecting the **Fabric Tab** in SCVMM and **Right-Click on Logical Networks** and Select **Create a Logical Network**
* Give Name for your Logical Network **(**Here it is: **GW\_LOGICAL)**

And then **Click on Next**

* Select **One-connected network** and **Tick both Allow new VM networks created on the logical network to use network virtualisation** and **Click on Next**
* Within Network Site **Click on Add Select All Hosts** and then **Click on Insert row** Enter VLAN and IP address Here it is: **192.168.20.0/24** and then **Click on Next**
* **Click on Finish**

**Step 2: Create IP Pool**

* **Right-Click on GW\_LOGICAL** and then Select **Create IP Pool**
* Specify the IP address pool name and logical network **(**Here it is: **GW\_POOL)** and then **Click on Next**
* Keep the default Value and **Click on Next**
* Keep the Starting IP address as **192.168.20.100** and the Ending IP Address as **192.168.20.110** and **Click Next**
* Enter a Default gateway address **192.168.20.1** and Keep the Metric as **Automatic** and **Click on Next**
* Enter a DNS IP Address **(Here it is 192.168.20.1)** and a DNS Suffix which is yourDOMAIN\_NAME.ONLINE **(Here it is RAHUL.ONLINE) and Click on Next**
* **Click on Next**
* **Click on Finish**

**Step 3: Creating a GW Service Template**

* Select the Library Tab and **Click on Import Template**
* In Select Package Open Run Window and then Type **IP address of the WinServ(New) (Here it is** [**\\192.168.149.200**](file:///\\192.168.149.200)**) Click on Ok**
* Within **MSSCVMMLibrary Select GW Folder** and then **Copy the Path**
* Now again Go to the Select Package window **Click on Browse**
* Now paste the path for GW and then **Click on Enter**
* Within GW Folder Select Network **EdgeServiceTemplate\_Generation 2 VM** and then **Click on Open**
* **Click on Next**
* Within Configuration References **Click on WinServer.vhdx** and then **Click on Edit**
* **Within Type: VHDX Select Blank Disk – Large.vhdx** and **Click on OK**
* **Click on EdgeDeployment Windows Server Gateway** and then Select **EdgeDeployment.cr** and **Click on Ok**
* **Click on Next**
* **Click on Import**

**Step 4: Deploying the GW Service Template**

* Within Service Templates **Right-Click on EdgeServiceTemplate** and then **Click on Configure Deployment**
* Type in the name **(**Here it is **GW DEPLOY)** and in the **Transit** and **Management Network** Select the newly created Logical Network **(Here it is GW\_LOGICI)** and **Click on Ok**
* **Here enter the following:**
* **AdminAccount: NT AUTHORITY\LocalService**
* **MangementNetwork: GW\_LOGICAL**
* **MgmtDomainAccount: NT AUTHORITY\Local Service**
* **MgmtDomainFQDN: EDTECH.EDTECH.COM**

**Practical: 5**

**Aim: Install and Deploy DPM.**

**5A: Installing DPM**

**Pre-requisites:**

* **Domain Controller (**Here Domain Controller Name **Winser (New))**
* **User Containing SQL Server (**Here User Name **SQLPRACTICAL5)**

**Step 1:** We will be using the same Domain Controller created in Practical 2 and only have to create a new User VM.

* Open VMware Workstation and **Click on Create a New Virtual Machine.**
* Select **Custom** and **Click on Next**
* **Keep default** **values** and **Click Next**
* **Select** Installer disc image file (iso): **Click on Browser** and **Select Windows Server 2016 and Click on Next**
* **Click Yes** and **Click on Next**
* **Give Virtual Machine Name (**Here it is **SQLPRACTICAL5)** and **Click on Next**
* **Select BIOS** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Change the RAM value to 10084 MB and Click Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**

**Keep default values** and **Click on Next**

* **Click on Finish**
* Your **Virtual Machine** Has Been Created

**Step 2:** Before **Power on this virtual machine** a few change need to be in this **virtual machine settings.**

* **Click on Edit virtual machine settings**
* **Within virtual machine settings Select Floppy and Un-Click Connect on Power On** and **Click on OK**
* **Now Power On your virtual machine**
* **Click on Next**
* **Click on Install Now**
* **Select Window Server 2016 Datacenter Evaluation (Desktop Experience)** and **Click on Next**
* **Select I accept the license** and **Click on Next**
* **Keep default settings** and **Click on Next**
* **Windows Server will begin installing**
* **After installation type in a password for the Windows Server and Click Finish**
* Your Windows Server has now been successfully created

**Step 3:** Establishing a connection with the User VM and Domain Controller by connecting the User VM to the Domain Controller’s Workgroup

* Open **Control Panel** and **Click on Network and Internet**
* **Click on Network** and **Sharing Center**
* **Click on Change adapter settings**
* Right **Click on Ethernet0** and **Select Properties**
* Within **Ethernet0 Status Click on Properties**
* **Click on Internet Protocol Version 4**
* **Click on Advanced**
* **Click on DNS**
* **Click on Add**
* **Add** the IP Address of the Domain Controller and **Click Ok**
* Now Exit out of **network settings** and **Click on Server Manager**
* Within **Server Manger Click on Local Server** and **Select Workgroup**
* **Click on Change**
* **Click on Domain**
* Type the **Domain name (here it is EDTECH.COM**) and **Click Ok**
* **Enter the credentials of the Domain Controller and Click on Ok**
* The User VM is now in the same Domain as the Domain Controller and the system will require a restart for the changes to take effect

**Step 4:** Creation of **User (SCDPM)**

* To create a **User** first we require the **Active Directory Domain Service** which can be added through the **Server Manager**
* **Open Server Manager** and **Click on Add Roles and Features**
* **Click on Next**
* Select **Role-based or Feature-based installation** and **Click Next**
* **Keep default settings** and **Click on Next**
* **Select Active Directory Domain Service** and **Click on Add Feature** and **Click on Next**
* **Select** the following featureand **Click on Next**
* **Click on Nex**
* **Click on Next**
* **Click on Nex**
* **Click on Next**
* **Click on Install**
* **Installation Process Start**
* **After Installation Click on Close**
* After installation, within **Server Manager Click on Tools** and **Select Active Directory User and Computers**
* Within **Active Directory Users and Computers, Click on Action** and **Select Change Domain**
* **Click on Browse** and **Select** the **Domain Controller (**Here it is **EDTECH.COM)** and **Click Ok**
* **Click on OK**
* Now the **Domain Controller** will be added, **Click on the Domain Controller** and **Click on User**
* Right **Click on Users** and **Click New** and **User**
* **Type in a new User name (**here it is **SCDPM)** and **Click Next**
* **Type in a password** and **Select Password never expires** and **Click Next**
* **Click on Finish**
* **Add** the **User** to the **Domain Group, Right Click on SCDPM and Select Add to a group**
* Enter your credentials for an account with permissions for **EDTECH.EDTECH.COM**
* Type in **Administrator** and **Click on Check Names** and **Click on Ok**
* **Click on OK**
* **Now Login as SCDPM**

**Step 5: Installing SQL Server**

* Now Open the SQL 2016 setup file from your folder

**Note:** This has to take place within **SCDPM User** and not **Administrator**

* **Enter Credential for admin**
* **Select Installation** and **Click on New SQL Server Stand-alone installation**
* **Click on Specify a free edition** and **Select Evaluation** and **Click on Next**
* **Accept the license** and **Click on Next**
* **Click on Next**
* **Click on Next**

**Note: Windows Firewall Warning accept**

Select the following Features:

* **Database Engine Service**
* **Reporting Service-Native**
* **Click on Next**
* **Keep the Default Setting** and **Click on Next**
* Change the Account Name for **SQL Server Agent, Database Engine and Reporting Services** to the **Users Account** and Ensure the **Start-up type** is **Automatic** and **Click Next**
* **Click on Add Current User (**Ensure it is **SCDPM** and not the **Administrator)** and **Click Next**
* **Select Install and configure** and **Click on Next**
* **Click on Install**
* **Installation Process start**
* After the installation of feature **Click on Close**
* Now Open **SSMS Setup** from your folder
* **Click on Install**
* **SSMS** will start installing onto your system
* After the installation **Click on Restart**
* **Open SQL Server Management Studio 18**
* **SQL Server Management Studio Window Open**
* **Keep the Default Setting** and **Click on Connect**

**Step 6:** Installing **Data Protection Manager**

* Open **SCDPM\_2019** from your folder
* **Click on Run**
* **Click on Next**
* **Accept the agreement** and **Click on Next**
* **Keep the default setting** and **Click on Next**
* **Click on Extract**
* **Extracting the necessary the file**
* **Click on Finish**
* Now In you **C: Directory Click on the System Center Data Protection Manager folder** and **Click on Setup**
* **Click on Data Protection Manager**
* **Accept the license**
* **Extracting the Necessary file**
* **Click on Next**
* **Select Use Stand-alone SQL Server** and Enter the **Server Name** and **Click on Check** and **Install**
* **It will start Checking Prerequisites**
* After the checks are completed **Click Next**
* **Enter User name: RAHUL DPM** and **Company Name: RD NATIONAL** and **Click on Next**
* **Keep default setting** and **Click on Next**
* **Click on** I do not want to use Microsoft Update and **Click on Next**
* **Click on Install**
* **DPM will start installing**
* **After the Installation of DPM Click on Close**

**Step 7:** Creating and initializing **iSCSI Disk Storage**

The following steps have to be executed in the Domain Controller:

* Open **Server Manager** and **Click on File and Storage Services**
* Within **File and Storage Services Click on iSCSI and Click on To install iSCSI Target Server, Start the Add Roles and Features Wizard**
* **Select the following feature** and **Click on Next**
* **Select the following feature** and **Click on Next**
* **Click on Install**
* **Starting Installation**
* **After the Installation Click on Close**
* **Click on To create an iSCSI virtual disk, start the New iSCSI Virtual Disk Wizard**
* **Select Type a Custom path** and **Click on Browse**
* **Create New Folder** and **Give Name DPM**
* **Select DPM Folder**
* **Click on Next**
* **Give iSCSI Virtual Disk Name (**Here it is **Storage 1)** and **Click on Next**
* **Give iSCSI Virtual Disk Size: 10 GB** and **Select Fixed size** and **Click on Next**
* **Select New iSCSI target** and **Click on Next**
* **Enter Target Name** and **Access (**Here it is **EDTECH.EDTECH.COM)** and **Click on Next**
* **In Access Server Click on Add**
* **Click on Browse**
* **Type EDTECH** and **Click on Check Names** and **Click on OK**
* **Click on OK**
* **Click on Next**
* **Keep Default Setting** and **Click on Next**
* **Click on Create**
* After iSCSI virtual disk created **Click on Close**

**Note:** The following steps are for the SCDPM VM instance, where we will initialize the iSCSI instance created in the domain controller. Ensure that both VM are running

* Open Server Manager
* Within **Server Manager Click on Tools** and **Select iSCSI Initiator**
* **Click on Yes**
* Within **iSCSI Initiator Click on Configuration**
* **Click on Change**
* **After Click on Change** and **paste IQN value from the Domain Controller** and **Click Ok**
* Now **Click on Targets and Enter the Target Name (**Here it is **EDTECH.COM) Domain Controller and Click on Quick Connect**
* **It show Login Succeeded.**
* **Confirm the connection on the iSCSI Server on the Domain Controller**
* **It Show Virtual Disk Target Connected.**

**Step 8:** Creating Disk Storage in SCDPM

* There are a few modification that need to be made to the SCDPM VM
* Shutdown the VM
* **Click on Edit virtual machine settings**
* **Now within Edit virtual machine settings Click on Add**
* **Select Hard Disk and Click Next**
* **Select SCSI and Click Next**
* **Keep default values and Click Next**
* **Select Store virtual disk as a single file and Click Next**
* **Click on Finish**
* **Click on Ok and Check if the hard is detected by the VM**
* **Now Turn On the VM and Open Server Manager Click on Tools**

Note: This is to be done in the Administrator and not as SCDPM

* **In Tools Click on Computer Management**
* **Click on Disk Management**
* **Right Click on Disk 1 and Select Online**
* **Again Right Click on Disk 1 and Select Initialise Disk**
* **Select GPT and Click Ok**
* **Right-Click on the storage of Disk 1 and Click on Create new simple volume**
* **Click on Next**
* **Keep default values and Click on Next**
* **Keep default values and Click on Next**
* **Keep default values and Click on Next**
* **Click on Finish**
* After the volume is created **change** the **user back** to **SCDPM** and **Run SCDPM**
* **Click on Management and Select Disk Storage**
* **Click on Add**
* **Select volume E and Click Add, then Name the Storage (**Here it is **SCDPM VOLUME)** and **Click Ok**
* **It will start Adding disk storage**
* **The Storage has been created**

**5B: Deploy Protection Agent**

**Step 9:** Creating a Production Server

* Within **Management Click on Production Servers** and **Click on Add**
* **Select Windows Server** and **Click on Next**
* **Select Install Agents** and **Click Next**
* **Select EDTECH** and **Click Add and then Click on Next**
* **Type** in the **credentials** and **Click on Next**
* **Select No, I will restart the selected computers later** and **Click Next**
* **Click on Install**

**Note:** If there is an error 313 or 319 then Disable the firewalls of both the Domain Controller and SCDPM. You can also refer to Step 11 for the cmd commands for allowing particular files in the firewall

* **Protection agent deploy successfully.**

**5C: Deploy Protection Groups**

**Step 10:** Creating aProtection Group in SCDPM

* **Click on Protection and Click on New**
* **Click on Next**
* **Select Server** and **Click on Next**
* **Keep the default values** and **Click on Next**
* **Keep the default values** and **Click on Next**
* **Keep the default values** and **Click on Next**
* **Keep the default values** and **Click on Nex**
* **Select Automatic** and **Click on Next**
* **Keep the default values** and **Click on Next**
* **Click on Create Group**
* **Protection Group has been successfully created**
* **Protection Group has been successfully created**

**5D: Configure Firewall Settings**

**Step 11: Run firewall commands in command prompt**

* **netsh advfirewall firewall add rule name="DCOM TCP 135" dir=in action=allow protocol=TCP localport=135**
* **netsh advfirewall firewall add rule name="DCOM Dynamic Ports" dir=in action=allow protocol=TCP localport=1024-65535**
* **netsh advfirewall firewall add rule name="DPM Agent Coordinator 5718" dir=in action=allow protocol=TCP localport=5718**
* **netsh advfirewall firewall add rule name="DPM Protection Agent 5719" dir=in action=allow protocol=TCP localport=5719**
* **netsh advfirewall firewall add rule name="DNS UDP 53" dir=in action=allow protocol=UDP localport=53**
* **netsh advfirewall firewall add rule name="Kerberos UDP 88" dir=in action=allow protocol=UDP localport=88**
* **netsh advfirewall firewall add rule name="Kerberos TCP 88" dir=in action=allow protocol=TCP localport=88**
* **netsh advfirewall firewall add rule name="LDAP TCP 389" dir=in action=allow protocol=TCP localport=389**
* **netsh advfirewall firewall add rule name="LDAP UDP 389" dir=in action=allow protocol=UDP localport=389**
* **netsh advfirewall firewall add rule name="NetBIOS UDP 137" dir=in action=allow protocol=UDP localport=137**
* **netsh advfirewall firewall add rule name="NetBIOS UDP 138" dir=in action=allow protocol=UDP localport=138**
* **netsh advfirewall firewall add rule name="NetBIOS TCP 139" dir=in action=allow protocol=TCP localport=139**

**Practical: 6**

**Aim: Manage Orchestrator Servers.**

**6A:** **Manage Orchestrator Servers-1**

**Note:** Establishing a connection with the User VM and Domain Controller by connecting the User VM to the Domain Controller’s Workgroup

**6A-1: Runbook permissions**

Runbook access permissions are set through the Runbook Designer. By default, only users in the Orchestrator Users Group have full access to a runbook. Here We Add additional User and give access to additional users to run, start, stop, view, and change runbooks at either the folder level or the individual runbook level.

**Pre-requisites:**

**Domain Controller** (Here Domain Controller Name **Winser (New)**)

User Server (Here User Name **SCO\_PRAC6**)

**Step 1:** Creation Of User **(SCO\_PRAC6)**

* To create a **User** first we require the **Active Directory Domain Service** which can be added through the **Server Manager**
* **Open Server Manager** and **Click on Add Roles and Features**
* **Click on Next**
* Select **Role-based or Feature-based installation** and **Click Next**
* **Keep default settings** and **Click on Next**
* **Select Active Directory Domain Service** and **Click on Add Feature** and **Click on Next**
* **Select** the following featureand **Click on Next**
* **Click on Next**
* **Click on Next**
* **Feature installation Processes start**
* After the installation **Click on Close**
* After installation, within **Server Manager Click on Tools** and **Select Active Directory User and Computers**
* **Click on Ok**
* Within **Active Directory Users and Computers, Click on Action** and **Select Change Domain**
* **Click on Browse** and **Select** the **Domain Controller (**Here it is **EDTECH.COM)** and **Click Ok**
* **Click on Ok**
* Now the **Domain Controller** will be added, **Click on the Domain Controller** and **Click on Users**
* Right **Click on Users** and **Click New** and **User**
* **Type in a new User name (**here it is **SCO)** and **Click Next**
* **Type in a password** and **Select Password never expires** and **Click Next**
* **Click on Finish**
* **Add** the **User** to the **Domain Group, Right Click on SCDPM and Select Add to a group**
* Type in **Administrator** and **Click on Check Names** and **Click on Ok**
* **Click on OK**

**Step 2:** View or modify the permissions of a runbook

* Open **Runbook Designer**
* Runbook Designer Window Open
* In the **Runbook Designer,** in the Connections pane, **select** the **Runbooks folder.**
* In the **Runbook Designer Design workspace**, **right-click** the tab for a **runbook to select Permissions.**
* **To give another user or security group access to the runbook, select the Add button.**
* **select the user or security group from the local computer or from the domain.**
* Here in Window Type **SCO** and **Click on Check Names**
* **Click on Ok**
* Here We Can See **new user SCO** Added to the **Runbook.**
* Now this user has access to run, start, stop, view, and change runbooks at either the folder level or the individual runbook level.
* To close the Permissions for Runbook dialog and save any changes, **select OK**

**6A-2: Create a benchmark runbook**

**Step 3:** Create a runbook that can be used to benchmark your Orchestrator environment

* **Create a New Runbook**
* **Add** a **Compare Values activity** from the **Standard Activity palette.**
* **Double-click** the **activity** to **configure** it**.**
* **Select** the **General tab** and configure this **activity** to **compare strings (**the **default value).**
* **Select** the **Details tab,** enter the value **STRING** in the **Test box** and **select** is **empty.**
* **Keep the default setting.**
* **Select Finish** to save the updates to the **activity.**
* **Right-click** the **activity** and **select Looping.**
* **Select** the **Enable checkbox** and enter the number **0 (zero)** for Delay between attempts**.**
* **Select** the **Exit tab** and **Click on Compare Values**
* check the **Show Common Published Data** checkbox,and **select Loop: Number of attempts.**
* **Select OK** to save this change.
* **Click on equals value**
* **Enter the number 10.**
* **Select OK to save this change.**
* **Select Finish to save these updates.**
* **Add a Delate Line and Insert Line activity from the Standard Activity palette.**
* **Click on Delate Line**
* **Select the Details Tap Within Details Click on File Select SCO-TEXT.txt From Desktop.**
* **Click on File encoding Select ASCII**
* **Within Delete Enter the line number of the text that you want to delete from the SCO-TEXT.txt file (**Here line number **2)**
* **Keep the default value**
* **Keep the default value and Click on Finish to Save the Changes to the Delete Line Activity.**
* **Click on Insert Line**
* **Select the Details Tap Within Details Click on File Select SCO-TEXT.txt From Desktop.**
* **Click on File encoding Select ASCII**
* **Within Insert Enter the text that you want to insert into the file** (Here New Text line is: **THIS IS NEW TEXT LINE)**
* **Within Insert Enter the line number where the text will be inserted** (Here line number: 2) and **Click on Finish to save the changes to the Insert activity.**
* Now Connect the activity through the smart Link
* **Click on Runbook Tester**
* **Click on Run**

**6A-3: Optimize performance of .NET activities**

**Improve assembly load time**

When a runbook containing an activity that references the .NET assemblies executes, the job process has to load the referenced assembly when such an activity is executed. Any subsequent execution of the same activity or other activities from the assembly will reuse the loaded assembly.

Loading an assembly may cause a delay of up to 30 seconds. This delay can also occur when a runbook is started on a computer without Internet access, because Windows can't verify the Microsoft Authenticode signature for the .NET assemblies.

To remove the delay you can either deactivate **generatePublisherEvidence** in **PolicyModule.exe,** or you can create a profile for the service account.

**Step 4:** Deactivate **generatePublisherEvidence** in **policymodule.exe.config.**

* **Locate the file C:\Program Files (x86)\Microsoft System Center\Orchestrator\Runbook Server\policymodule.exe.config** on the runbook server that executes runbookscontaining an activity referencing a .NET assembly.
* Open **policymodule.exe.config File on Notepad**.
* Add the following code to **policymodule.exe.config:**

**6B:** **Manage Orchestrator Servers-2**

**6B-1: recover web components**

When you use the Database Configuration utility to modify the Orchestrator database, the tool won’t modify the Web Service database reference (only the installer performs this task). You will need to manually modify it after updating with the database configuration utility.

**Step 5:** **Modify the Web Service database**

Decrypt the connection string

* Open a **Command Prompt** using **Run as administrator.**
* Execute the following command (assuming the default installation path):
* **Decryption of Connection String Succeeded**
* Open **Server Manager Click on Tools** Within **Tools Select Internet Information Services (IIS) Manager**
* **Click on Sites Within Sites Click on Orchestrator2012**
* **Double Click on Connection Strings**
* **Right-Click on OrchestratorContext** and **Click on Edit**
* **Open SQL Server Manager Within Database Create a New Database and Give Name rahul\_data**
* **Click on SQL Server Enter SQL Server Name (**Here Server Name: **WIN-BFN7GTBLDD6) and Database Name (**Here Database Name: **rahul\_data)**
* **Click on Ok**
* **In Connection String Server Name Database Name**
* **re-encrypt the connection strings, you can execute the following command at the command prompt:**
* **Here we Can Encryption of Connecting Strings Succeeded.**

**6B-2: Add an integration pack**

**Step 6: Install System Center (SC) 2016**

* After the Installation System Center 2016 Go to the SQL Folder and Double Click on SC2016\_Ips
* **Click on Run**
* **Click on Ok**
* **Click on Deployment Manager**
* **Deployment Manager Window Open**

**Step 7: Register Integration Pack**

* **Right-Click on Integration Pack and Select Register IP with Orchestrator Management Server**
* Integration Pack Registration Wizard Open
* **Click on Next**
* In the Select Integration Packs or Hotfixes dialog, select Add.
* Within SCO **Select SC2016\_Integration\_Pack\_for\_Data\_Protection and Click on Open**
* **Click on Next**
* **In the Completing the Integration Pack Wizard dialog, select Finish.**
* **On the End User Agreement dialog, read the Microsoft Software License Terms, and select Accept.**

**Step 8: deploy an integration pack**

* **right-click Integration Packs, select Deploy IP to Runbook or Runbook Designer.**
* **Click on Next**
* **Click on Check-box And Click on Nex**
* **Enter Computer Name (**Here Computer Name: **WIN-BFN7GT8LDD6) After Enter Computer Name Click Add**
* **Click on Nex**
* **Keep default values and Click on Next**
* **In the Completing Integration Pack Deployment Wizard dialog, select Finish.**
* **When the integration pack is deployed, the Log Entries dialog displays a confirmation message.**

**6B-3: Change Orchestrator user groups**

**Step 9: We can change the Orchestrator Users group by using the PermissionsConfig tool, which is located on the management server in <InstallDir>\Management Server.**

* **Open Management Server File On CMD**

**Type Following Code:**

* **PermissionsConfig.exe**
* **PermissionsConfig -OrchestratorUsersGroup Administrator -OrchestratorUser SCO [-remote]**
* **PermissionsConfig.exe -help**

**6B-4: Computer groups**

**Step 10: Add a computer group**

* **Open Runbook and then Right-Click on Computer Groups and Click on New then Select Computer Groups**
* In the New Computer Group dialog box, on the General tab, in the Name and Description boxes, type a **EDTECH\_SCO**
* **Click on Contents tab and then Click on Add**
* **Enter the name of the computer that you are adding (**Here Computer Name **WIN-BFN7GT8LDD6). Click OK to add the computer.**
* **Click on Finish**
* **We Successfully Add New Computer Groups**

**Practical: 7**

**Aim: Protect Workloads Using Data Protection Manager.**

**Pre-requisites:**

**Hyper-V**

**Domain Controller (**Here Domain Controller Name is: **prac5)**

**User (**Here User Name is: **SQLPRACTICAL)**

**Step 1: Installing Hyper-V**

* open **Server Manager**
* Within Server Manager **Click on Add roles and features**
* **Click On Next**
* In Installation Type Select **Role-based or feature-based installation**
* Keep default setting and **click on Next**
* Select **Hyper-V** and **Click Add Features and Click Next**
* Select **Failover Clustering** and click on **add feature** and click **Next**
* Make sure **Group Policy Management** also selected
* **Click Next**
* In Network adapters: check **Ethernet0** and click **Next**
* Select **Allow this server to send and receive live migrations of virtual machines**

And **Click Next**

* Keep default and **click on Next**
* Click **install** after installation of hyper-v restart the virtual machine.

**Step 2: Back up Hyper-V virtual machines**

* Open **Server Manager**
* Within **Server Manager Click on Hyper-V** and **Click on Tools**
* Within Tools **Click on Hyper-V Manager**
* Hyper-V Manager Window Open
* **Right-Click on EDTECH** and **Click on New** and **Select Virtual Machine**
* **Click Next**
* Specify Name For Your Virtual Machine (Here Virtual Machine Name: **Rahul\_hyper-v**)
* **Click Next**
* **Select Generation 1**
* **Click Next**
* **Keep Default Setting** and **Click on Next**
* **Within Connection Select Intel® 82574L Gigabit Network Connection-Virtual Switch**
* **Click Next**
* **Specify Disk Size 40GB** and **Click on Next**
* **Click on Install an operating system from a bootable CD/DVD-ROM**
* **Within Media Click on Image file (.iso)**
* **Click on Browse**
* **Select Windows 7 Home Basic SP1 (64 Bit) and Click on Open**
* **Click Next**
* **Click on Finish**
* **New Virtual Machine Created**
* **Right-Click on Rahul\_hyper-v and Click on Start**
* **Virtual Machine Start**

**Step 3:** Within User Server Click on System Center Data Protection Manager (DPM)

* **Click on Protection**
* **Click on New to Create Protection Group**
* **Click on Next**
* Select **Server** and **Click on Next**
* On the Select Group Members page, **Click on EDETCH** and **Click on HyperV** Within **HyperV** select the **RCT\Rahul\_hyper-v VM** to protect from the **Hyper-V host servers** on which they're located.
* **Click on Next**
* **Type Protection group name (**Here Protection group name: **Rahul\_hyper-v)**
* **Click on Next**
* **Keep the default values and Click on Next**
* **Click on Next**
* **Keep the default setting and Click on Next**
* **Keep the default setting and Click on Next**
* **Click on Create Group**
* **It will start creation of protection group**
* **Creation of Protection Group Succeeded**
* **Click on Close**
* **Here we can see Replica creation Rahul\_hyper-v in progress**
* **Replication created**

**Step 3: Back up SQL Server with DPM**

* **Open SQL Server Manager Studio**
* **Click on Connec**
* **Right-Click on Database and Select New Database**
* **Type Database Name (**Here Database Name: **Rahul\_DB)**
* **Click on Ok**
* **Database Created**
* **Click on New to Create Protection Group**
* **Click on Next**
* Select **Server** and **Click on Next**
* Select Group Members, select the SQL Server instances on the server you want to Protect **Here Click on EDTECH and Click on ALL SQL Servers Within ALL SQL Servers Select Rahul\_DB.**
* **Click on Next**
* **Type Protection group name (**Here Protection group name: **Rahul\_DB)**
* **Click on Next**
* **Keep the default values and Click on Next**
* **Click on Next**
* **Keep the default setting and Click on Next**
* **Keep the default setting and Click on Next**
* **Click on Create Group**
* **It will start creation of protection group**
* **Creation of Protection Group Succeeded**
* **Click on Close**
* **Here we can see Replica creation in progress**

**Step 4: Backup system state**

* **Click on New to Create Protection Group**
* **Click on Next**
* Select **Server** and **Click on Next**
* In **Select Group Members,** expand the **System Protection** and select **System State.**
* **Click on Next**
* **Type Protection group name (**Here Protection group name: **System Center)**
* **Click on Next**
* **Keep the default values and Click on Next**
* **Click on Next**
* **Keep the default setting and Click on Next**
* **Keep the default setting and Click on Next**
* **Click on Create Group**
* **It will start creation of protection group**
* **Here we can see Replica of System State Created**

**Step 5: Back up file data with DPM**

* **Open SQL Server Manager Studio**
* **Click on Connect**
* **Right-Click on Database and Select New Database**
* **Type Database Name (**Here Database Name: **Rahul\_DB)**
* **Click on Ok**
* **Database Created**
* **Click on New to Create Protection Group**
* **Click on Next**
* Select **Server** and **Click on Next**
* Select Group Members, select the SQL Server instances on the server you want to Protect **Here Click on EDTECH and Click on ALL SQL Servers Within ALL SQL Servers Select Rahul\_DB.**
* **Click on Next**
* **Type Protection group name (**Here Protection group name: **Rahul\_DB)**
* **Click on Next**
* **Keep the default values and Click on Next**
* **Click on Next**
* **Keep the default setting and Click on Next**
* **Keep the default setting and Click on Next**
* **Click on Create Group**
* **It will start creation of protection group**
* **Creation of Protection Group Succeeded**
* **Click on Close**
* **Here we can see Replica creation of EDTECH\Rahul\_DB in progress**

**Step 6: Backup and restore VMware servers**

* Open **Server Manager**
* Within **Server Manager Click on Hyper-V** and **Click on Tools**
* Within Tools **Click on Hyper-V Manager**
* Hyper-V Manager Window Open
* **Right-Click on EDTECH** and **Click on New** and **Select Virtual Machine**
* **Click Next**
* Specify Name For Your Virtual Machine (Here Virtual Machine Name: **Rahul\_Vmware**)
* **Click Next**
* **Select Generation 1**
* **Click Next**
* **Keep Default Setting** and **Click on Next**
* **Within Connection Select Intel® 82574L Gigabit Network Connection-Virtual Switch**
* **Click Nex**
* **Keep Default Setting** and **Click on Next**
* **Click on Install an operating system from a bootable CD/DVD-ROM**
* **Within Media Click on Image file (.iso)**
* **Click on Browse**
* **Select VMware-VMvisor-Insaller-7** and **Click on Open**
* **Click Next**
* **Click on Finish**
* **Right-Click on Rahul\_VMware and Click on Start**
* **Virtual Machine Start**

**Step 7:** Within User Server Click on System Center Data Protection Manager (DPM)

* **Click on Protection**
* **Click on New to Create Protection Group**
* **Click on Next**
* Select **Server** and **Click on Next**
* On the Select Group Members page, **Click on EDETCH** and **Click on HyperV** Within **HyperV** select the **RCT\Rahul\_Vmware** to protect from the **Hyper-V host servers** on which they're located.
* **Click on Next**
* **Type Protection group name (**Here Protection group name: **Rahul\_Vmware)**
* **Click on Next**
* **Keep the default values and Click on Next**
* **Click on Next**
* **Keep the default setting and Click on Next**
* **Keep the default setting and Click on Next**
* **Click on Create Group**
* **It will start creation of protection group**
* **Creation of Protection Group Succeeded**
* **Click on Close**
* **Here we can see Replica creation of Rahul\_Vmware in progress**

**Practical: 8**

**Aim: Managing Services with Configuration manager and Designing a Hierarchy of sites using Microsoft End Point Configuration Manager**

**­­­­­**

**Pre-requisites:**

**Domain Controller** (Here Domain Controller Name: **Winser (New)**)

**User Server** (Here User Server Name: **SCCM\_USER PRACTICAL 8**)

**System Center Configuration Manager**

**SQL Server 2016**

**MS SQL Management Studio**

**Windows ADK 1903 and Windows PE add-on**

**Step 1:** Step 1: We will be using the same Domain Controller created in Practical 2 and only have to create a new User VM.

* Open VMware Workstation and **Click on Create a New Virtual Machine.**
* Select **Custom** and **Click on Next.**
* **Keep default** **values** and **Click Next**
* **Select** Installer disc image file (iso): **Click on Browser** and **Select Windows Server 2016 and Click on Nex**
* **Click Yes** and **Click on Next**
* **Give Virtual Machine Name (**Here it is **SCCM\_USER PRACTICAL 8)** and **Click on Next**
* **Select BIOS** and **Click on Next**
* **Keep default values** and **Click on Nex**
* **Change the RAM value to 4096 MB and Click Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* Select **SCSI** and **Click on Nex**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Keep default values** and **Click on Next**
* **Click on Finish**
* Your **Virtual Machine** Has Been Created

**Step 2:** Before **Power on this virtual machine** a few changes need to be in this **virtual machine settings.**

* **Click on Edit virtual machine settings**
* **Within virtual machine settings Select Floppy and Un-Click Connect on Power on** and **Click on OK**
* **Click on Processors Within Virtualization engine Check following features and Click on Ok**
* **Now Power On your virtual machine**
* **Click on Next**
* **Click on Install Now**
* **Select Window Server 2016 Datacenter Evaluation (Desktop Experience)** and **Click on Next**
* **Select I accept the license** and **Click on Next**
* **Keep default settings** and **Click on Next**
* **Windows Server will begin installing**
* **After installation type in a password for the Windows Server and Click Fin**
* Your Windows Server has now been successfully created

**Step 3:** Establishing a connection with the User VM and Domain Controller by connecting the User VM to the Domain Controller’s Workgroup

* Open **Control Panel** and **Click on Network and Internet**
* **Click on Network** and **Sharing Center**
* **Click on Change adapter settings**
* Right **Click on Ethernet0** and **Select Properties**
* Within **Ethernet0 Status Click on Properties**
* **Click on Internet Protocol Version 4**
* **Click on Advanced**
* **Click on DNS**
* **Click on Add**
* **Add** the IP Address of the Domain Controller and **Click Ok**
* **Click on Ok**
* Now Exit out of **network settings** and **Click on Server Manager**
* Within **Server Manger Click on Local Server** and **Select Workgroup**
* **Click on Chang**
* **Click on Domain**
* Type the **Domain name (here it is EDTECH.COM**) and **Click Ok**
* **Enter the credentials of the Domain Controller and Click on Ok**
* The User VM is now in the same Domain as the Domain Controller and the system will require a restart for the changes to take effect

**Step 4:** Creation of **User (SCCM\_USER PREACTICAL 8)**

* To create a **User** first we require the **Active Directory Domain Service** which can be added through the **Server Manager**
* **Open Server Manager** and **Click on Add Roles and Feature**
* **Click on Next**
* Select **Role-based or Feature-based installation** and **Click Next**
* **Keep default settings** and **Click on Next**
* **Select Active Directory Domain Service** and **Click on Add Feature** and **Click on Next**
* **Select** the following featureand **Click on Next**
* **Click on Next**
* **Click on Next**
* **Click on Next**
* **Click on Next**
* **Click on Install**
* **Installation Process Start**
* **After Installation Click on Close**
* After installation, within **Server Manager Click on Tools** and **Select Active Directory User and Computers**
* Within **Active Directory Users and Computers, Click on Action** and **Select Change Domain**
* **Click on Browse** and **Select** the **Domain Controller (**Here it is **EDTECH.COM)** and **Click Ok**
* **Click on OK**
* Now the **Domain Controller** will be added, **Click on the Domain Controller** and **Click on Users**
* Right **Click on Users** and **Click New** and **User**
* **Type in a new User name (**here it is **SCCMUSER)** and **Click Next**
* **Type in a password** and **Select Password never expires** and **Click Next**
* **Click on Finish**
* **Add** the **User** to the **Domain Group, Right Click on SCCMUSER and Select Add to a group**
* Enter your credentials for an account with permissions for **EDTECH.EDTECH.COM**
* Type in **Administrator** and **Click on Check Names** and **Click on Ok**
* **Click on OK**
* **Now Login as SCCMUSER**
* **Now Right-Click on Users** and **Select Delegate Control**
* **Click on Next**
* **Click on Add**
* **Type SCCMUSER** and **Click on Check Names**
* **Click on Ok**
* **Click on Next**
* **In the Task to Delegate, select Create a custom task to delegate click Next.**
* In the Active Directory Object Typeselect **This folder, existing objects in this folders, and creation of new objects in this folder** and **click Next.**
* Tick on the 3 permissions **General, Property-specific and Creation/deletion of specific child objects. Under Permissions tick on Full Control** and **click Next.**
* **Click Finish** to close the wizard.

**Step 5:** **Extending Active Directory Schema for SCCM\_USER PRACTICAL 8**

* Open you **SCCM Folder** and **Select the sccm setup Folder**
* Open **SMSSETUP**
* **Click on BIN**
* **Within BIN Select the x64 folder, Now within the x64 folder Select Extadsch.exe**
* **Type CMD**
* **Open the file using command prompt**
* **To confirm the extension, go to your C: Directory and Open the ExtADSch.txt file**
* **when you open ExtADSch file, you’ll find the line: Successfully extended the Active Directory schema.**

**Step 6: Upgrade your current user with Administrative Rights**

* Open **Control Panel** and **Click on User Account**
* **Click on Add**
* **Enter User Name Here User Name Type SCCM**
* **Enter Domain Name Here Domain Name EDTECH.COM**
* **Click on Next**
* **Click on Finish**

**Note: After Upgrade your current user with Administrative Rights login with EDTECH.COM\SCCMUSER**

**Step 7: Configure Windows Firewall**

* Open **Windows Firewall with Advanced Security**
* **Click on Inbound Rules**
* **Right-Click on Inbound Rule and Select New Rule**
* **Select Port** and **Click on Next**
* In the Protocol and Ports dialog box, **select TCP.** Select Specific local ports, and then type port numbers **1433** for SQL Server default instance and **4022** for Inter-site communications use the SQL Server Service Broker. **Click Next.**
* In the Action dialog box, select **Allow the connection,** and then **click Next.**
* In the Profile dialog box, **select Domain** and then **click Next.**
* In the Name dialog box, type a profile name,like **SQL ports for ConfigMgr** and then **click Finish.**

**Step 8: Install Web Server (IIS) Role and other Features**

* Open **Server Manager** and then **Click on Add roles and feature**
* **Click Next**
* Select **Role-based or Feature-based installation** and **Click Next**
* **Keep default values** and **Click Next**
* **Select Web Server (IIS)** and **Click Add Feature** and **Click Next**
* **Select .NET Framework 3.5** and **Background Intelligent Transfer Service (BITS)** and **Remote Differential Compression Click Next**
* **Click Next**

**In the Web Server Role (IIS) > Role Services select the following:**

**Web Server (IIS)**

**Web Server**

* **Common HTTP Features:** Default Document, Directory Browsing, HTTP Errors Static Content, HTTP Redirection
* **Health and Diagnostics:** HTTP logging, Logging tools, Request Monitor Tracing, Tracing
* **Performance:** Static Content Compression
* **Security:** Windows Authentication
* **Application Development:** .NET Extensibility 3.5, .NET Extensibility 4.7, ASP.NET 3.5, ASP.NET 4.7, ISAPI Extensions, ISAPI Filters

**Management Tools**

* **IIS Management Console**
* **IIS 6 Management Compatibility: IIS 6 Metabase Compatibility, IIS 6 WMI Compatibility**
* **IIS Management Scripts and Tools**

In the **Add Roles and Feature Wizard > Confirm installation selection page, review the Roles and Features selected:**

* **NET Framework 3.5 Features**
* **.NET Framework 4.7 Features**
* **Background Intelligent Transfer (BITS)**
* **Remote Differential Compression**
* **Web Server (IIS)**

**After Selecting Above Feature Click on Next**

* **Click Install**
* **After the Installation of feature Click on Close**

**Step 9: Installing and Configuring SQL Server 2016**

* Open your **sql 2016 folder**
* **Click on setup**
* **Click on Installation** and **Select New SQL Server stand-alone installation**
* **Select Specify a free edition** and **Click on Evaluation** and **Click Next**
* **Select I accept these license terms** and **Click Next**
* **Click Next**
* **Click Next**
* **In Feature Selection Click on Database Engine Services** and **Click Next**
* **Keep default values and Click Next**
* **Type in the credentials of your User account** (Here User account name: **EDTECH.COM\SCCMUSER**) **and Click Next**
* **Click on Add Current User** and **Click Next**
* **Click Install**
* **Installation start**
* **Click Close**

**Step 10: Installing SQL Server Management Studio 18**

* **Within Your SCCM Folder Double-Click on SSMS-Setup-ENU**
* **Click Install**
* **It will start installing necessary file**
* **Click on Restart**
* **Open Microsoft SQL Server Management Studio 18**
* **After restarting the system Launch SQL Server Management Studio 18 and Click Connect**
* **Right-click on the WIN-UFIBT9NM6MT (SQL Server)** and **select Properties.**
* **Select Memory and Edit the Minimum Server Memory to 2048 MB and the Maximum Server Memory to 4096 MB and Click Ok**

**Step 11: Windows ADK Installation**

* Open SCCM Folder and then **Double-Click on adksetup**
* **Click on Run**
* **Click on Next**
* **Select No and then Click on Next**
* **Click on Accept** and then **Click Next**
* Select the Following features **(Deployment Tools, Imaging and Configuration Designer, Configuration Designer and User State Migration Tool)** and **Click Install**
* It will start installing features
* You’ll get the Welcome screen to Windows 10 ADK once the installation is completed. **Click** **Close to finish the installation.**

**Step 12: Installing Windows PE add-on**

* Open SCCM Folder and then **Double-Click on adkwinpesetup**
* **Click Run**
* **Click Next**
* **Select No** and then **Click Next**
* **Click Accept**
* **Click on Install**
* It will start installing features
* **Click on Close**

After Setting up Click **Install,** Once the installation is complete Click on **Close**

Now it show on the SCCM Dashboard