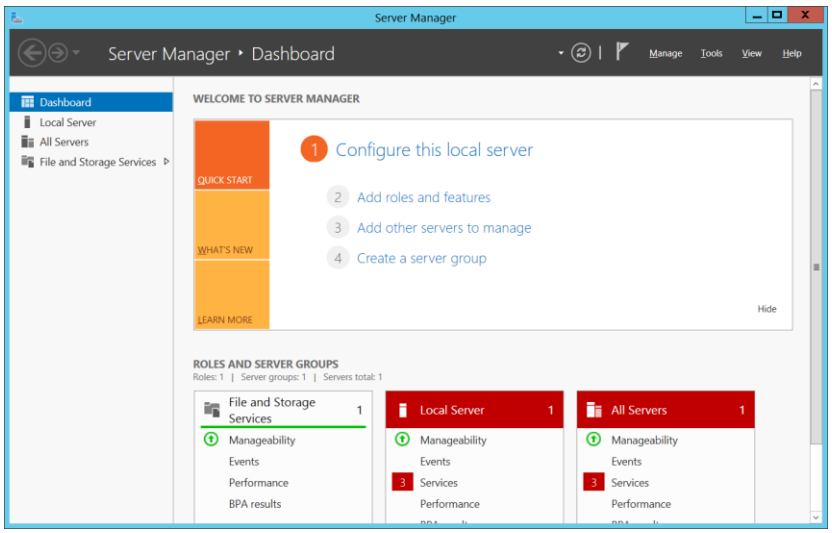
Homework 5 – Active Directory and Group Policy Objects

- This is an individual assignment and is worth 20 points.
- The due date and time is Monday, March 6, 2022 at 2:30 (sec01) / 5:30 (sec 75).
- Follow the usual naming convention (initials of first and last).
- Zoom in your screenshots to avoid a penalty.

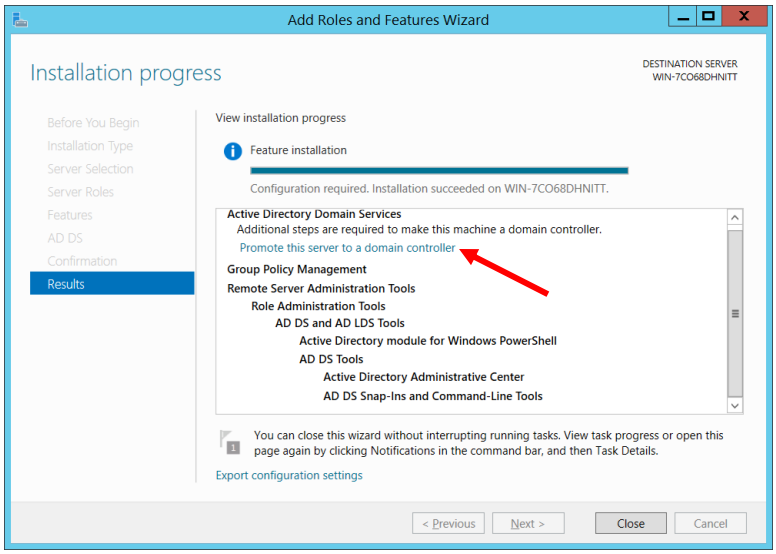
Installing the Active Directory Domain Services role[1]

- Logon to Windows Server 2012 VM on the Proxmox or on your local machine.



- In **Server Manager**, **Dashboard** > **(2) select Add Roles and Features** > On the **Add Roles and Features** Wizard, click Next.
- On the **Select Installation Type** page, select the **Role-Based or Feature-Based Installation** option > Next.
- On the **Select Destination Server** page, choose **Select a server from the pool** (we have only one server) > Next.
- On the **Select Server Roles** page, select the **Active Directory Domain Service** role > **Add Features**.
- On the **Select Features** page, click Next > On the **Active Directory Domain Services** page, click Next > On the **Confirm Installation Selections** page, click **Install**.
- After the installation of the role, a **Promote This Server to A Domain Controller link** is shown. Do not close the wizard.

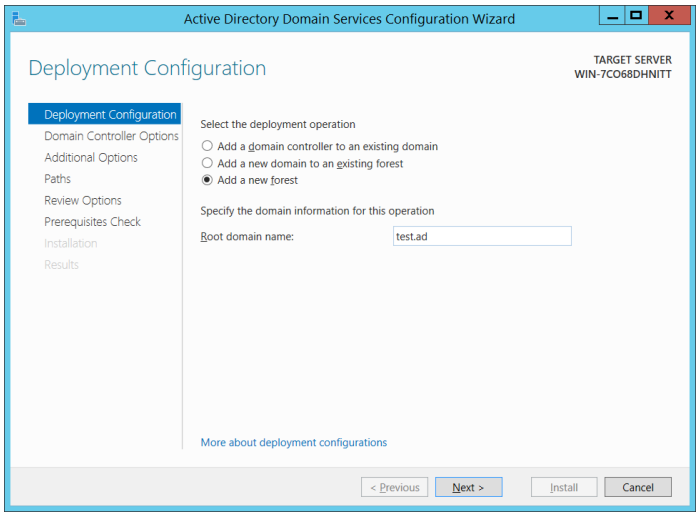
[1] Installing and Configuring Windows Server 2012 R2 by Craig Zacker



Creating a new forest

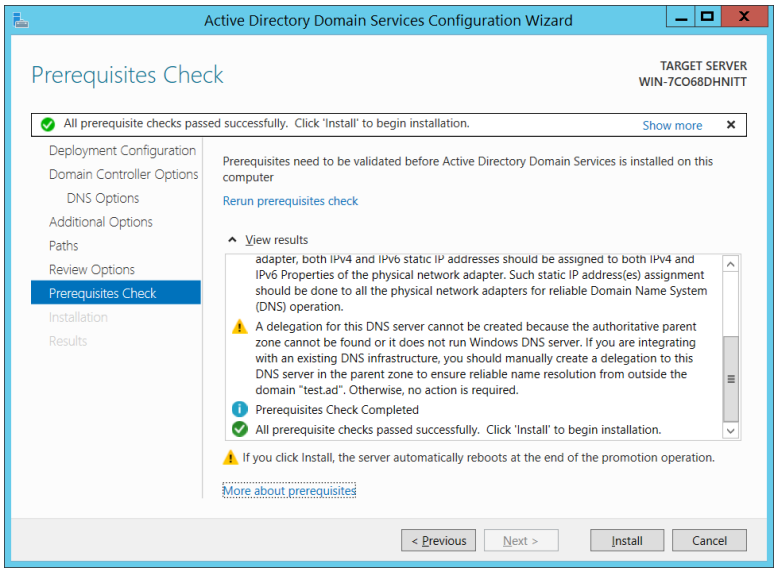
For a new AD DS installation, we should create a new forest, by creating the first domain in the forest (forest root domain).

- On the **Installation Progress** page, click the **Promote This Server to A Domain Controller** hyperlink.
- On the **Deployment Configuration** page, select the **Add a new forest** option > Type "**test.ad**" as shown below > Next.

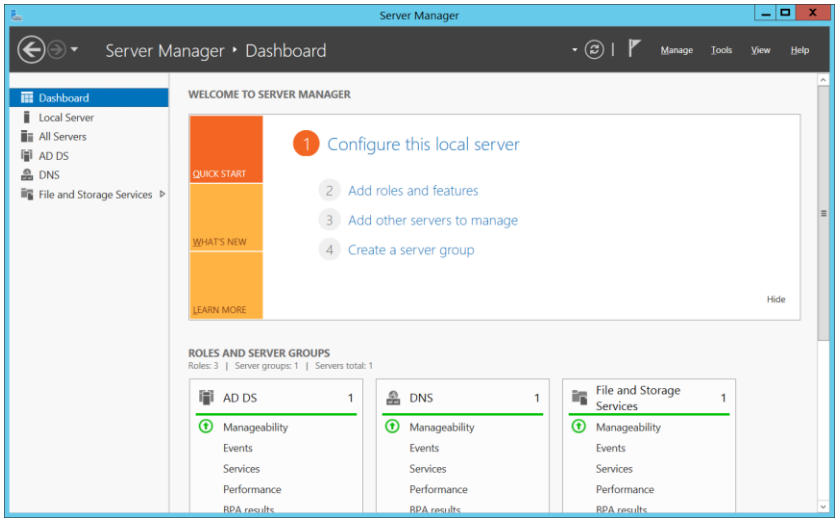


- On the **Domain Controller Options** page, type the password "**CISDBSec1!**" for Directory Services Restore Mode (DSRM) > Next.
- We see a warning message about a delegation for the DNS server > Next.
- The **Additional Options** page shows the NetBIOS domain name which is equivalent of the domain name you specified > Next.
- On the **Paths** page, click Next.
- On the **Review Options** page, click Next.

- On the **Prerequisites Check** page, we see the wizard conducting a series of environment tests to evaluate whether the workstation can become a domain controller.
- You should see "**All prerequisites passed successfully**" > Install > A new forest is created and the server is configured to function as a domain controller.



- Restart the computer. When you need to change the password, make sure you change it systematically so that you can remember the new one. I recommend the following: "**CisSecWin2@**".



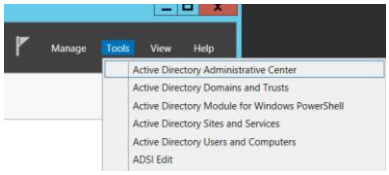
Create and manage Active Directory groups and organizational units (OUs)

Creating OUs

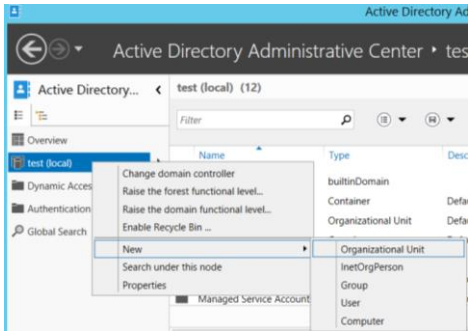
- FYI: How to delete an OU from Windows Server 2012 Domain Controller:

  https://www.manageengine.com/products/active-directory-audit/kb/how-to/how-to-delete-organizational-units-ous-in-active-directory-2012.html

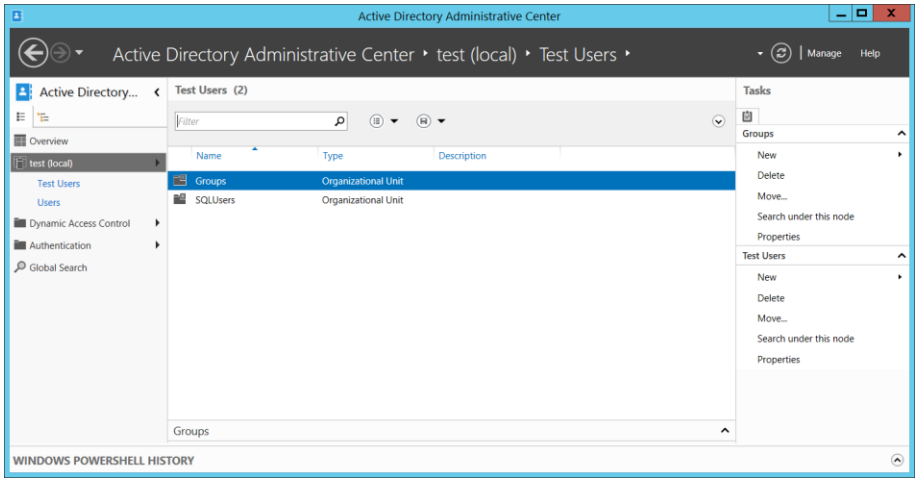
- In **Server Manager**, go to **Tools** > **Active Directory Administrative Center**.



- Right-click on **test (local)** > **New** > **Organizational Unit**.

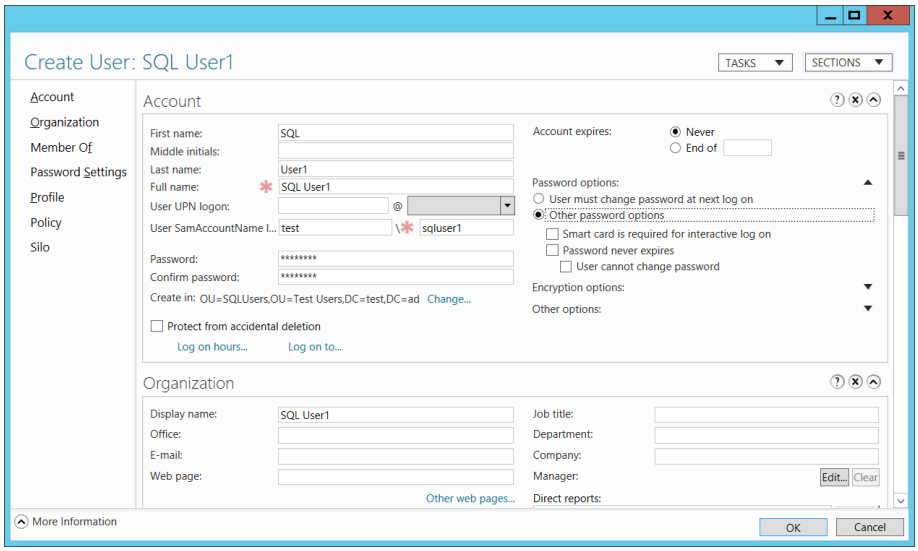


- Create the Organizational Unit "**Test Users**".
- Within the Test Users OU, create two OUs: **SQLUsers** and **Groups**.

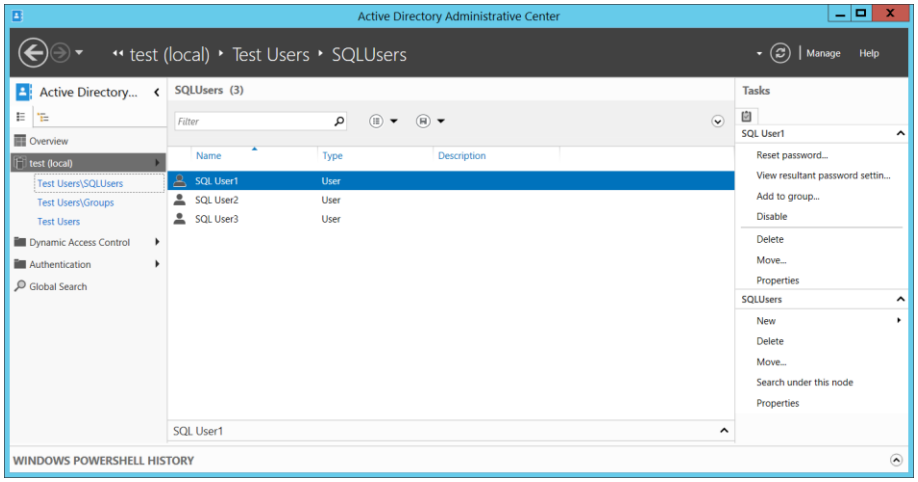


Creating Users

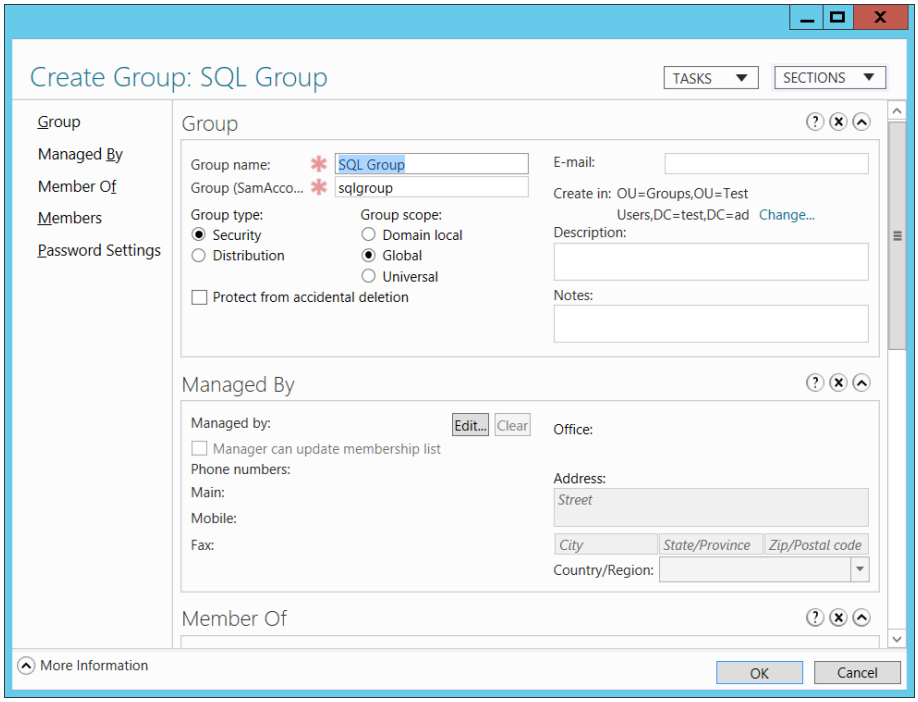
- Within the **SQLUsers** OU, create a user: **sqluser1**. When you create a new user, uncheck "**User must change password at next logon**". For convenience, type the password "**Pa$$w0rd**".



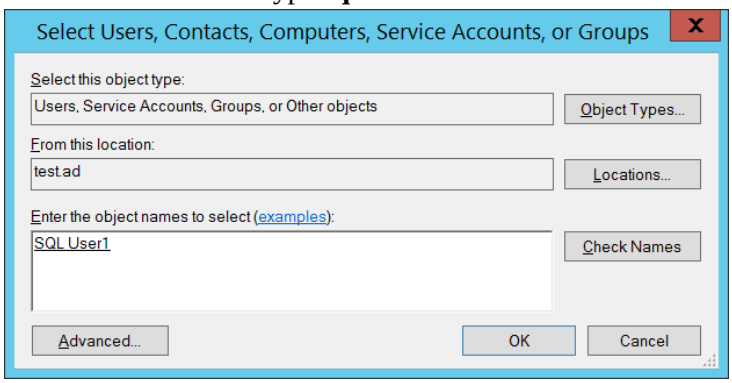
- Repeat the above step to create **sqluser2** and **sqluser3**.



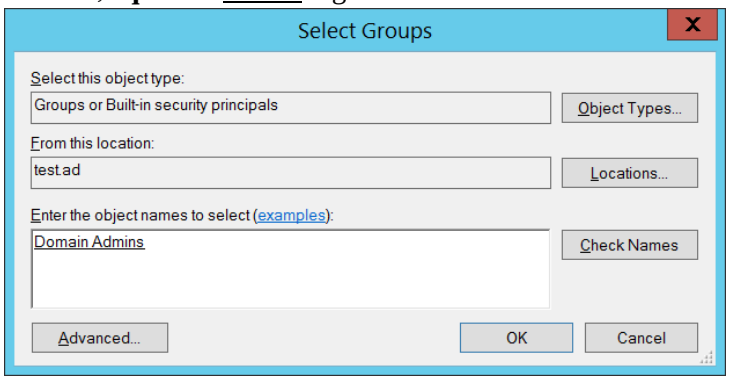
- Within the **Groups** OU, create a group (not user): **sqlgroup**. Accept the default for Group scope and Group type.



- Click **Members** on the same screen, add **sqluser1** to the **sqlgroup** group. For this, click **Add…** on the Members screen. Type **sqluser1** in the box and click **Check Names**.



- Go to **sqluser1** and add it to the group **Domain Admins**. If you do not add sqluser1 to Domain Admins, **sqluser1** cannot logon to this domain controller.

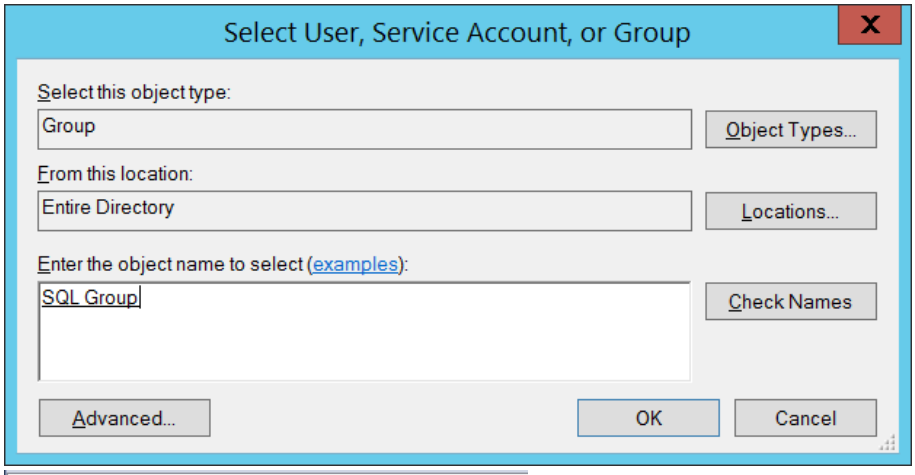


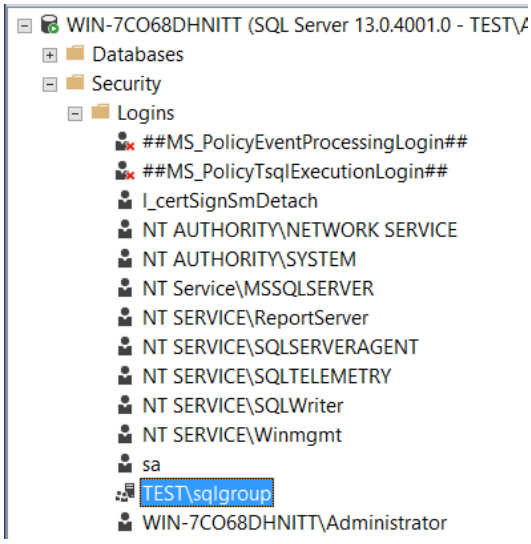
- (**Task 1**) Show in a screenshot that the three domain users (sqluser1, sqluser2, sqluser3) are created in **SQLUsers** OU. Also show in a screenshot that **sqlgroup** is created in the **Groups** OU.

- (**Task 2**) Go to sqluser1 properties and show in a screenshot that sqluser1 is a member of **Domain Admins** and **sqlgroup**.

Creating sqlgroup Login in SQL Server

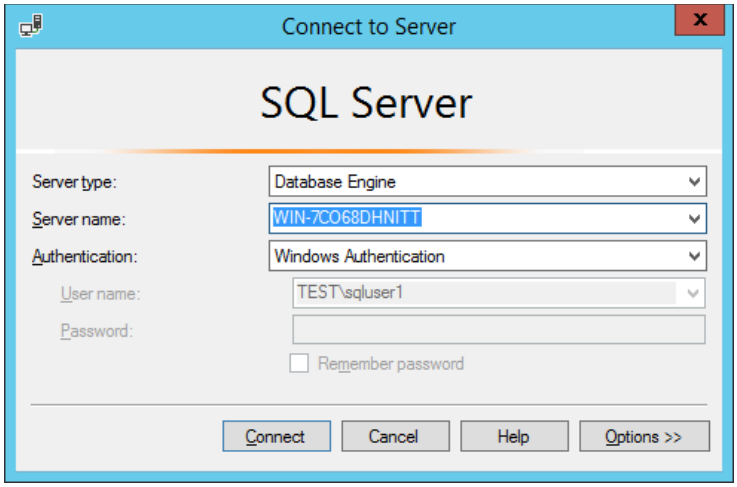
- Login to SQL Server with Windows Authentication. To login to SQL Server, you have to **start SQL Server service** using Configuration Manager.
- Go to **Security** > Right-click on **Logins** > **New Login**…
- On **Login – New** screen, click on **Search**… (located on the top-right)
- On **Select this object type** screen, click on **Object Types**... > Check **Groups** and uncheck the others.
- Enter **sqlgroup** in the box and click on **Check Names**. Save the setting and make sure "**TEST\sqlgroup**" is included in **Logins**.





- Exit the SQL Server.
- Log off Windows 2012 completely and log back on with **sqluser1** domain admin account. For this you should switch user on the Windows logon screen.

- Logon to SQL Server with Windows Authentication. You have to have Windows Authentication with the username "**TEST\sqluser1**".
- If you cannot find SQL Server, go to Search and try "studio" for SQL Server. Also, go to Search and try "configuration" for configuration manager.
- When you logon to SQL Server, make sure you **re-start SQL Server service** using Configuration Manager. (Note: Your SQL Server name must be different.)



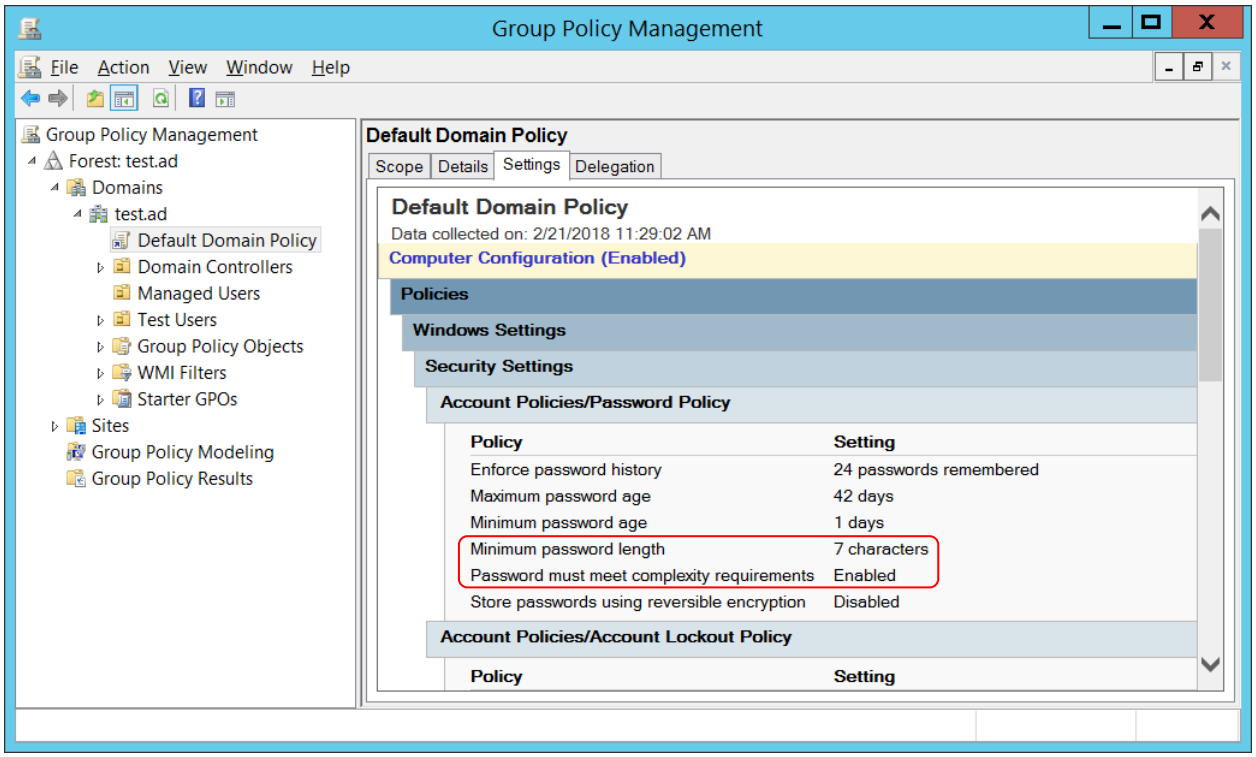
- (**Task 3**) Run the following query on SQL Server and show in a screenshot that you indeed logged-on with sqluser1.

```
SELECT SUSER_NAME()
```

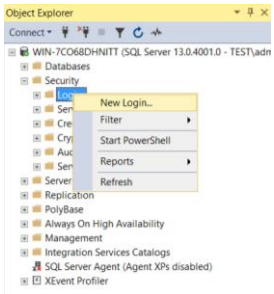
- Restart Windows 2012 Server with the **Administrator** (domain admin account).

Applying GPOs to SQL Server

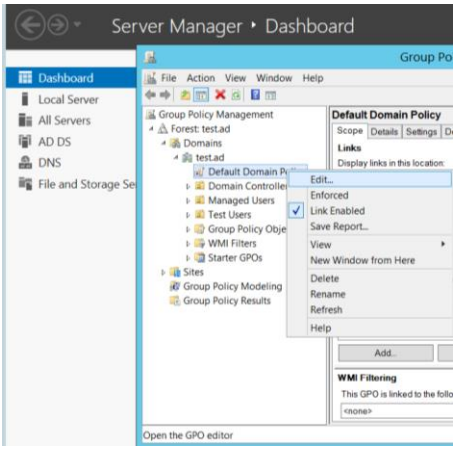
- We are going to apply a GPO – password policy – to SQL Server.
- In Server Manager, go to **Tools** > **Group Policy Management** > **Forest** > **Domains** > **test.ad** > **Default Domain Policy**.
- On the right screen, click on **Settings**. Remember the two conditions **minimum password length** and **password complexity**.



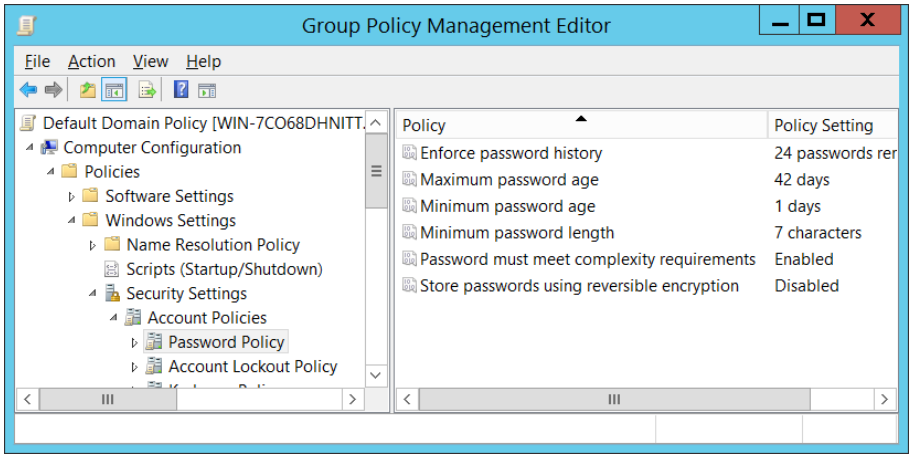
- (**<u>Task 4</u>**) Logon to SQL Server. Create a login "**Cardinal1**". Select **SQL Server authentication**. Enter the password "1234567", and show in a screenshot that the login <u>cannot</u> be created. Explain why?



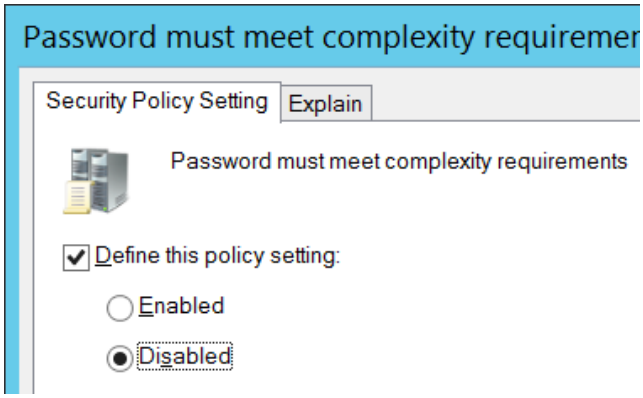
- Exit SQL Server.
- Go to Server Manager > Right-click **Default Domain Policy** > Click on **Edit**…



- You will see **Group Policy Management Editor**.
- Go to **Computer Configuration > Policies > Windows Settings > Security Settings > Account Policies > Password Policy**.



- Disable the **password complexity requirement policy**.



- Restart SQL Server.
- (**Task 5**) Create a login "**Cardinal2**". Select **SQL Server authentication**. Enter the password "1234567", and show in a screenshot that the login is created. Explain why this was possible. Explain also the relationship between the GPO and the SQL Server password policy.

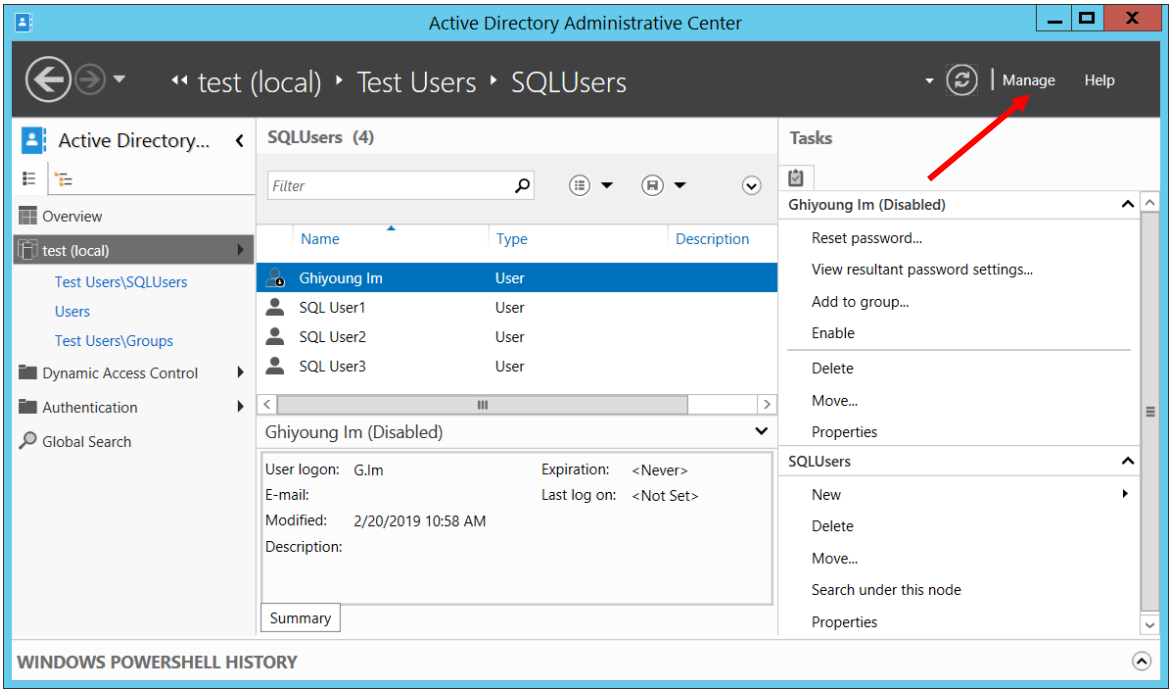
- Delete the SQL Server **logins** you have created.
- Enable the **password complexity requirement policy**.
- Now you can add clients (e.g., Windows 7 workstations) to the domain.

Creating a new AD user using PowerShell

- You are going to create a new AD user using PowerShell. First, you need to read the following document: *Netwrix Windows PowerShell Tutorial for Beginners.pdf*.

- (**Task 6**) Create a new AD account using the command **New-ADUser** explained on pp 12-13. Refresh after running the command. Show in a screenshot that the account is indeed created (example below). Also, attach a screenshot that displays the PowerShell execution.
- The account has the following attributes:
    - Name: *your full name*
    - Given Name: *your given name*
    - Surname: *your surname*
    - Account Name: *first_initial.last_name* (e.g., G.Im)
    - User Principal Name: *first_initial.last_name@test.ad (e.g., G.Im@test.ad)*
    - Path: *OU=SQLUsers,OU=Test Users,DC=test,DC=ad*

  When you run the command, make sure you place the entire command in one single line.



FOLKS, GREAT JOB!! YOU DID IT!!