|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Student Name |  | Student Number | |  |
| Unit Code/s & Name/s | ICTNWK536 Plan, implement and test enterprise communication solutions | | | |
| Cluster Name  *If applicable* | N/A | | | |
| Assessment Name | Portfolio | Assessment Task No. | | 2 of 2 |
| Assessment Due Date |  | Date submitted | | / / |
| Assessor Name |  | | | |
| **Student Declaration:** I declare that this assessment is my own work. Any ideas and comments made by other people have been acknowledged as references. I understand that if this statement is found to be false, it will be regarded as misconduct and will be subject to disciplinary action as outlined in the TAFE Queensland Student Rules. I understand that by emailing or submitting this assessment electronically, I agree to this Declaration in lieu of a written signature. | | | | |
| Student Signature |  | | Date | / / |

|  |  |
| --- | --- |
| **Instructions to Student** | The candidate is installing, and testing the software identified in AT 1. (In assessment AT1 you were tasked with developing a communications solution for Daydream travel. To complete this assessment, you are now to download your chosen software and install to your testing environment.)  This task is designed to assess your knowledge and skills for configuring and testing an enterprise communication solution. You will be advised by your instructor when to take this assessment.  This assessment has four parts:  1. Use the template to create an Implementation plan  2. Download and install software  3. Use the Implementation plan to configure communication solution  4. Use the template to create a testing plan and test solution. |

|  |  |
| --- | --- |
|  | First you will read the case study provided. It is advised that you take note of important points. Your first objective is to create an implementation plan for a chosen communication software.  You will then configure the TAFE’s information technology Lab prior to installing the software.  Follow the instructions in the assessment tasks to complete the configuration of the software.  After the installation and configuration, you will be asked to develop a testing plan for your installation. This will test all services and check logs for performance issues.  When you have completed the testing, you will need to do any rectification work to solve any problems that you found while testing.  Your submission will be reviewed by your instructor, and you will receive feedback and suggestions on the design. Do not proceed to the next portfolio task until you have received this feedback.  **Materials to be supplied:**  These templates will be provided by your instructor on the day:  ICTNWK536\_AT2\_Implementation Plan Template  ICTNWK536\_AT2\_Test Plan Template  **Work, Health and Safety:**  Students will need to follow normal classroom WHS with the addition of any covid 19 requirements.  **Assessment Criteria:**  To achieve a satisfactory result, your assessor will be looking for your ability to demonstrate the following key skills/tasks/knowledge to an acceptable industry standard:  The assessment criteria can be found in the associated document  ICTNWK536\_AT2\_MC (This is the marking criteria document)  **Number of Attempts:**  You will receive up to two (2) attempts at this assessment task. Should your 1st attempt be unsatisfactory (U), your teacher will provide feedback and discuss the relevant sections / questions with you and will arrange a due date for the submission of your 2nd attempt. If your 2nd submission is unsatisfactory (U), or you fail to submit a 2nd attempt, you will receive an overall unsatisfactory result for this assessment task. Only one re-assessment attempt may be granted for each assessment task, with the exception of Apprentices or Trainees who are permitted an additional supplementary assessment. **For more information, refer to the Student Rules.** |
| **Submission details** (if relevant) | Insert your details on page 1 and sign the Student Declaration. Include this form with your submission.  The due date will b provided by your instructor prior to the assessment.  Items to be submitted:  Implementation plan  Completed testing plan  Signed marking criteria  Assessment to be submitted via   * TAFE Queensland Learning Management System (Connect): [*https://connect.tafeqld.edu.au/d2l/login*](https://connect.tafeqld.edu.au/d2l/login) * Username; 9 digit student number * For password resets go to: [*https://passwordreset.tafeqld.edu.au/default.aspx*](https://passwordreset.tafeqld.edu.au/default.aspx) |
| **Instructions to Assessor** | To be judged competent in this assessment item the student is required to demonstrate competence in all indicators shown in the marking guide.  A minimal amount of assistance can be provided to the student.  To demonstrate skills, students must work in a workplace or a simulated environment with ICT devices.  ICT devices must have the capability of:  Installing application  Network server  Email system  Content management system  Collaboration tools  Antivirus, antispam, and anti-phishing controls  Workstations, switch, WAN point  stakeholders |
| **Note to Student** | An overview of all Assessment Tasks relevant to this unit is located in the Unit Study Guide. |

## Business Case Study:

|  |  |
| --- | --- |
| CaseStudy-01 | Case study - Daydreams Travel Agency |
| Daydreams Travel Agency employs eight staff members and operates on a $2,000,000 annual budget. At present they operate out of a single small building in a suburban neighbourhood. They have had success in the first three years of operation and now would like to expand by opening three new offices around the city. The CEO understands that their future success depends on their ability to capitalise on emerging technology and the ability to collaborate on projects to satisfy their client’s needs, but she knows very little about technology herself. She has been advised by her IT team that the company will need a whole new communications and collaboration software as they move to the future.  You have been tasked with the research to locate an adequate program that will be capable of, email, video conferencing, VoiP, collaboration tools and file sharing.  The current structure of the business is:   |  |  | | --- | --- | | CEO | Sharon Webb | | Office Manager | Karen Fells | | Receptionist | Margret Baker | | Senior Sales Rep | John Kennedy | | Sales Rep | Mitchel Brown | | Sales Rep | Coney Smith | | Sales Rep | Alice Watson | | IT Technician | Peter Webb | | |

Each of the staff will need to be set up in the new system and with the appropriate permissions.

## Assessment Tasks:

The candidate is installing, and testing the software identified in AT 1. (In assessment AT1 you were tasked with developing a communications solution for Daydream travel. To complete this assessment, you are now to download your chosen software and install to your testing environment.)

### Task 1: Implementation plan

* For this practical assessment you will first need to make an implementation plan for the installation and configuration of your enterprise communication solutions. Use the template provided for this task.

Implementation plan:  
The implementation plan for DayDream Travel Agency, following the same steps as AT 1 (ICTNWK 536\_537 AT1). With it’s introduction of discord as it’s primary solution for technological communications around the workplace.

To Create the implantation plan, the primary functions must be listed.

These are:  
 Primary function is to create a discord server

* Assign hierarchical object roles inside discord
* Create access points to the discord server on company devices
* Integrate an email system into discord.

Have required peripherals connected to ensure all mediums of communication are supported

* Supporting hardware for above services, preferably cisc compatible devices that support windows.
* Microphone, video camera, Network, Monitor, power, computer/phone/landline.

Now, lets move onto specific details inside the primary function.

Action: Create discord server

Attributes:

Name: DayDream Ltd.

Level 3 discord server, 14 server boosts

Custom URL: [discord.gg/daydream](http://www.discord.gg/daydream)

Action: Company computer devices

Attributes:

10 PCs, 8 users.

Devices:

| **Category** | **Details** |
| --- | --- |
| Processor | 12th Gen Intel Core i7-12700T (12 cores, 20 threads) |
| Operating System | Windows 11 Pro, English |
| Memory | 16 GB DDR4 (1 x 16 GB) |
| Storage | 512 GB M.2 PCIe NVMe SSD (Class 35) |
| Wireless Connectivity | Intel Wi-Fi 6E AX211, Bluetooth |
| Chassis Options | OptiPlex 7000 Micro with 35W CPU |
| RAID Options | RAID0 for M.2 NVMe SSD (Selectable) |
| Keyboard | Dell Wired Keyboard KB216 Black (English) |
| Mouse | Dell USB Optical Mouse-MS116 (Black) |
| Software & Security | Microsoft Office, McAfee Business Protection, Foxit PDF Editor, etc. |
| Warranty | Basic Onsite Service with Hardware Support, 36 Months |
| Estimated Shipping | Between 5/9/2023 and 6/9/2023 |
| Online Price | $1,617.00 (Includes GST and Delivery) |
| Order Code | on7000mffo03au\_vp |

Quantity 8

| **Component** | **Details** |
| --- | --- |
| **Processor** | Dual Intel Xeon Gold 6240R 2.4GHz 24-Core Processors |
| **Operating System** | Windows Server 2022 Datacenter Edition |
| **Memory (RAM)** | 256 GB ECC DDR4 3200MHz RAM (8 x 32GB) |
| **Storage** | RAID 10 configuration with four 1.92TB NVMe SSDs for performance and redundancy |
| **Network Connectivity** | Dual 10 Gigabit Ethernet ports |
| **Expansion Slots** | Three PCIe 3.0 x16 slots for potential expansion cards |
| **Redundancy** | Hot-swappable drives, redundant 1100W power supplies |
| **Remote Management** | Integrated Dell Remote Access Controller (iDRAC) |
| **Form Factor** | 2U Rack-Mounted Server |
| **Warranty and Support** | 5-year ProSupport Plus with 24/7 technical assistance |

Networking:

Router/Firewall – cisco 1941/fortinet

Switch – Cisco 2940

AccessPoints – RJ45 CAT7 ethernet/ wireless TP-Link adapters with external satellite support

Exchange server (2019) – Windows Server (2019)

Features of this plan have already been stated, however here is the reiteration of that.

* - Servers: congregations of discrete collections of channel called servers, they are called guilds backend.

- Channel types channel can be used for either voice chat/ streaming/ instant messaging, file sharing.

Amongst other interface features such as:

# Features

Not yet followed by anyone

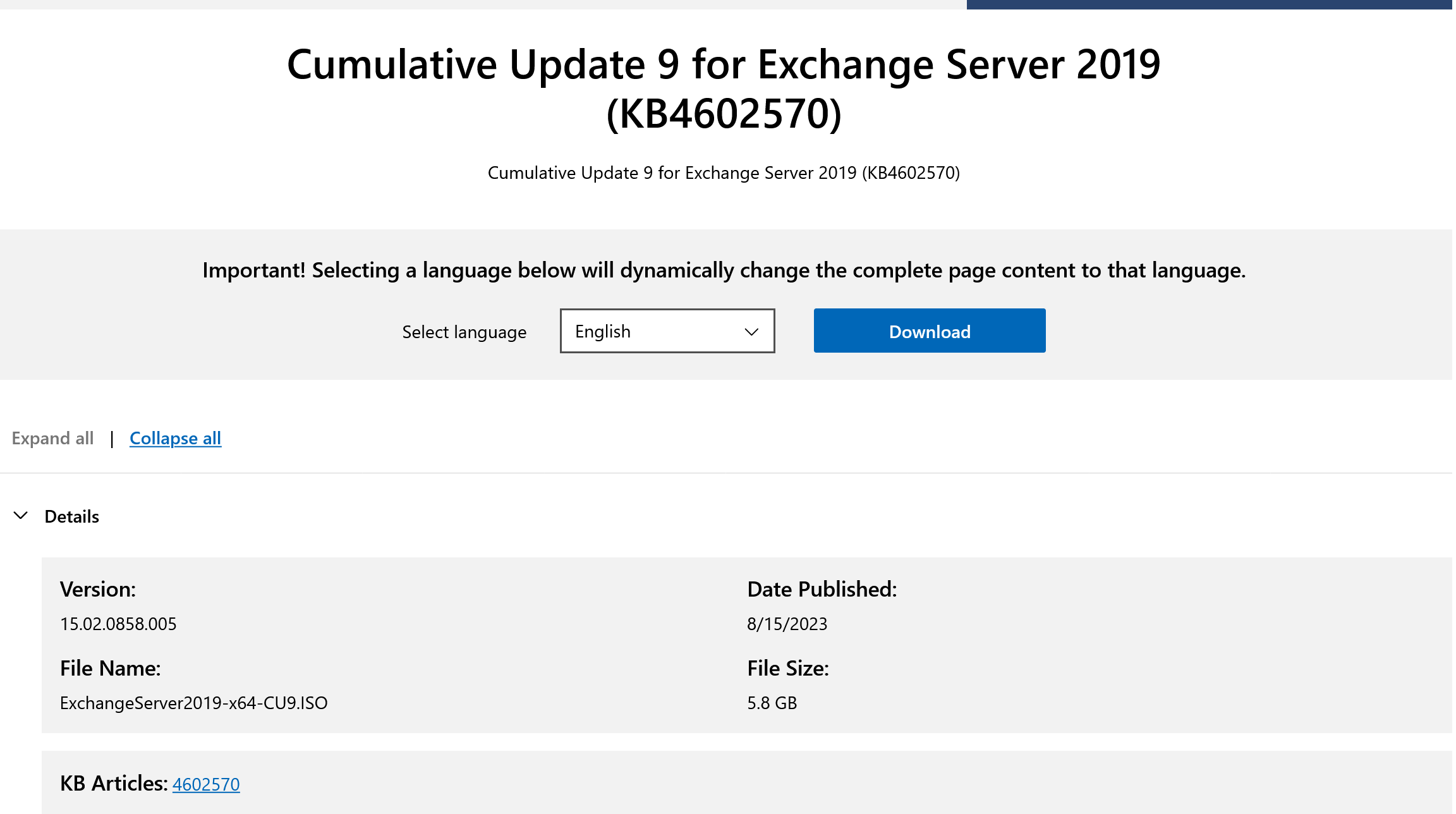
* [Clips](https://support.discord.com/hc/en-us/articles/16861982215703-Clips)
* [Remix FAQ](https://support.discord.com/hc/en-us/articles/15145601963031-Remix-FAQ)
* [Voice Messages](https://support.discord.com/hc/en-us/articles/13091096725527-Voice-Messages-)
* [Soundboard FAQ](https://support.discord.com/hc/en-us/articles/12612888127767-Soundboard-FAQ)
* [Video Codec FAQ](https://support.discord.com/hc/en-us/articles/12158692510743-Video-Codec-FAQ)
* [Age-Restricted Commands](https://support.discord.com/hc/en-us/articles/10123937946007-Age-Restricted-Commands)
* [Using a Screen Reader on Discord](https://support.discord.com/hc/en-us/articles/7180791233559-Using-a-Screen-Reader-on-Discord)
* [Video Backgrounds](https://support.discord.com/hc/en-us/articles/4413490191127-Video-Backgrounds)
* [Find Your Friends FAQ](https://support.discord.com/hc/en-us/articles/360061878534-Find-Your-Friends-FAQ)
* [[Mobile] Screenshare FAQ](https://support.discord.com/hc/en-us/articles/360058862134--Mobile-Screenshare-FAQ)
* [Slash Commands FAQ](https://support.discord.com/hc/en-us/articles/1500000368501-Slash-Commands-FAQ)
* [Keyboard Navigation FAQ](https://support.discord.com/hc/en-us/articles/1500000056121-Keyboard-Navigation-FAQ)
* [Video & Screenshare Updates - Multistream and More!](https://support.discord.com/hc/en-us/articles/360045784891-Video-Screenshare-Updates-Multistream-and-More-)
* [Tabs to Android!](https://support.discord.com/hc/en-us/articles/360042584732-Tabs-to-Android-)
* [Video Calls](https://support.discord.com/hc/en-us/articles/360041721052-Video-Calls)
* [Reduced Motion Setting](https://support.discord.com/hc/en-us/articles/360040613412-Reduced-Motion-Setting)
* [Go Live and Screen Share](https://support.discord.com/hc/en-us/articles/360040816151-Go-Live-and-Screen-Share)
* [Custom Status](https://support.discord.com/hc/en-us/articles/360035407531-Custom-Status)
* [Server Folders 101](https://support.discord.com/hc/en-us/articles/360030853132-Server-Folders-101)
* [Channel Following FAQ](https://support.discord.com/hc/en-us/articles/360028384531-Channel-Following-FAQ)
* [Server Discovery](https://support.discord.com/hc/en-us/articles/360023968311-Server-Discovery)
* [Spellcheck in Discord](https://support.discord.com/hc/en-us/articles/360000877191-Spellcheck-in-Discord)
* [Server Ownership - The Crown Icon](https://support.discord.com/hc/en-us/articles/360000516572-Server-Ownership-The-Crown-Icon)
* [Spotify FAQ](https://support.discord.com/hc/en-us/articles/360000434772-Spotify-FAQ)
* [Listening Along with Spotify](https://support.discord.com/hc/en-us/articles/115003966072-Listening-Along-with-Spotify)
* [Spotify Auto Pause](https://support.discord.com/hc/en-us/articles/115002872212-Spotify-Auto-Pause)
* [Game Invites and Detailed Status (Rich Presence)](https://support.discord.com/hc/en-us/articles/115001557452-Game-Invites-and-Detailed-Status-Rich-Presence-)
* [What is Server Indexing?](https://support.discord.com/hc/en-us/articles/115000414847-What-is-Server-Indexing-)
* [Intro to Webhooks](https://support.discord.com/hc/en-us/articles/228383668-Intro-to-Webhooks)
* [Using Discord's XSplit Streamkit Overlay](https://support.discord.com/hc/en-us/articles/223499048-Using-Discord-s-XSplit-Streamkit-Overlay)

Ref.( <https://support.discord.com/hc/en-us/sections/201110577-Features>)

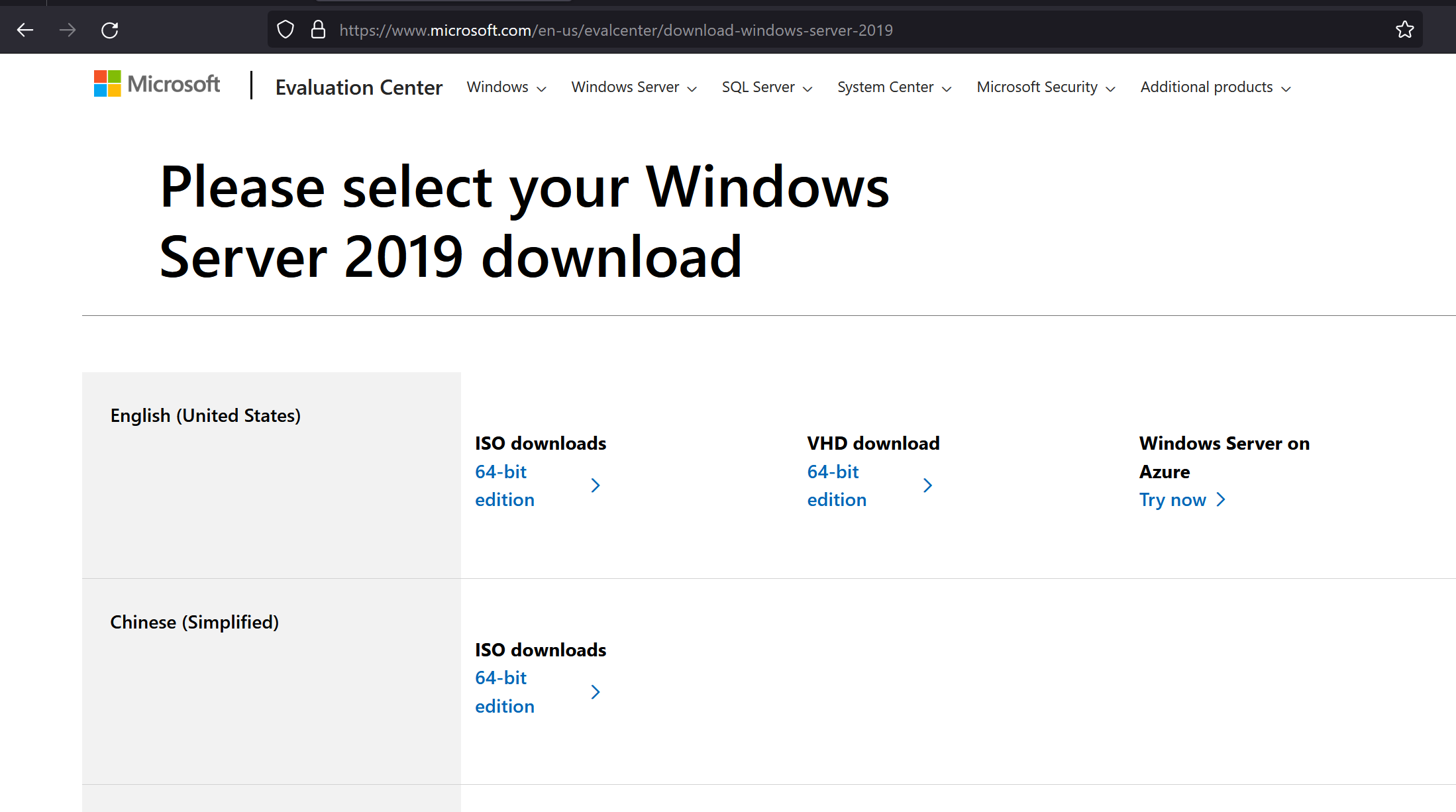
* Using the TAFE’s information technology Lab prepare the test environment, making sure that the existing networks are ready for installation and that you have the correct number of servers, switches, and workstations installed along with namespace and server roles.
* Listing your recommended software and services according to the organisational requirements of each stakeholder, advising them from the cost, features, time frame, personnel requirement, user frequency.

### Task 2: Download and install

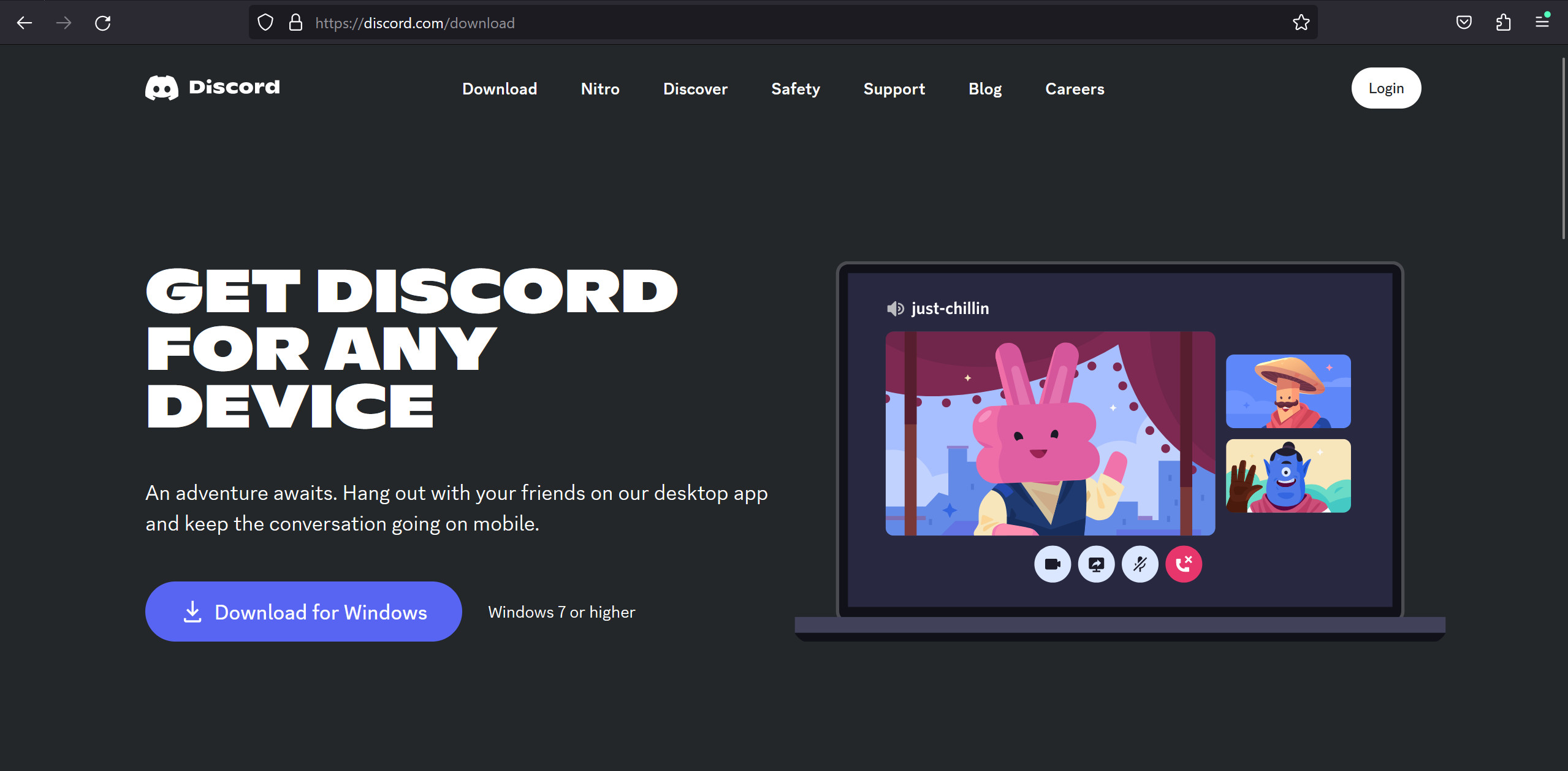
In assessment AT1 you were tasked with developing a communications solution for Daydream travel. You are now to download your chosen software and install to your testing environment. Your communication solution must contain email system, content management system and collaboration tool.

<https://download.microsoft.com/download/d/7/b/d7bcf78a-00d2-4a46-a3d2-7d506116bcd2/ExchangeServer2019-x64-CU9.ISO> 

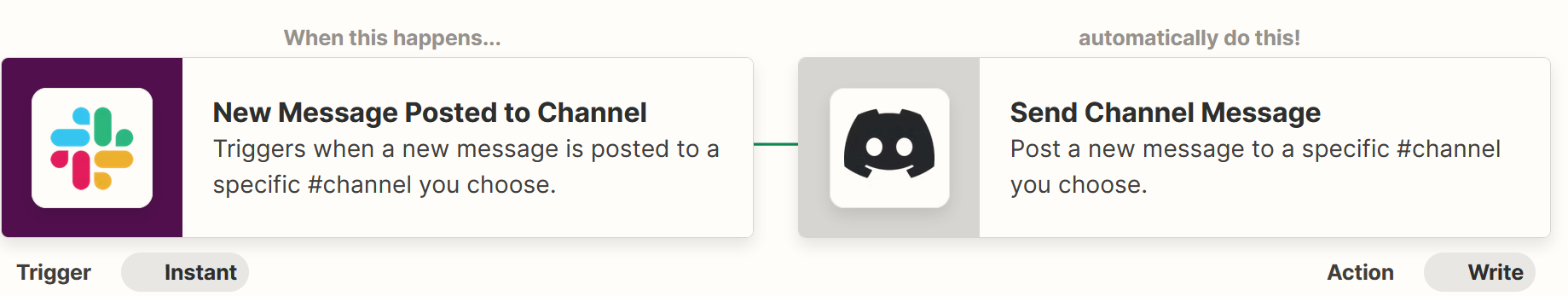
<https://www.microsoft.com/en-us/evalcenter/download-windows-server-2019>



<https://discord.com/api/download?platform=win>



Other features that should be included:



<https://zapier.com/apps/discord/integrations/slack/60846/send-matching-discord-channel-messages-for-new-messages-posted-to-slack-channels>

### Task 3: Configuration

Now you will need to follow your implementation plan and configure the communication solution.

Once you have the network configured and the software installed it is time for the next part of the assessment, you will need to configure the following services:

1. Configuring access, security, network infrastructure and customisations

2. Email:

a) Users and mailboxes

b) Remote email access

c) Address lists, distribution lists

d) Message integrity and antispam controls, antivirus controls and anti-phishing

e) VOIP

* 1. Download Windows 2019 server iso: <https://www.microsoft.com/en-us/evalcenter/download-windows-server-2019>
  2. Complete setup.
  3. Create a new AD Domain with DNS configured

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Device (.daydream.com) | IP address /24 | Default Gateway |
| Sharon Webb | CEO | 192.168.0.3 | 192.168.0.1 |
| Karen Fells | OfficeManager | 192.168.0.5 | 192.168.0.1 |
| Margret Bakerc | Reception | 192.168.0.6 | 192.168.0.1 |
| John Kennedy | SeniorSalesRep | 192.168.0.7 | 192.168.0.1 |
| Mitchell Brown | SalesRep1 | 192.168.0.8 | 192.168.0.1 |
| Coney Smith | SalesRep2 | 192.168.0.9 | 192.168.0.1 |
| Alice Watson | SalesRep3 | 192.168.0.10 | 192.168.0.1 |
| Peter Webb | ITTech | 192.168.0.4 | 192.168.0.1 |

* 1. Install redistributable dependencies.
     1. [NET Framework 4.8](https://download.visualstudio.microsoft.com/download/pr/014120d7-d689-4305-befd-3cb711108212/0fd66638cde16859462a6243a4629a50/ndp48-x86-x64-allos-enu.exe)
     2. [Visual C++ Redistributable Package for Visual Studio 2012](https://www.microsoft.com/download/details.aspx?id=30679)
     3. [Unified Communications Managed API 4.0 Runtime](https://www.microsoft.com/en-us/download/details.aspx?id=34992)
     4. Powershell
        + Install-WindowsFeature AS-HTTP-Activation, Desktop-Experience, NET-Framework-45-Features, RPC-over-HTTP-proxy, RSAT-Clustering, RSAT-Clustering-CmdInterface, RSAT-Clustering-Mgmt, RSAT-Clustering-PowerShell, Web-Mgmt-Console, WAS-Process-Model, Web-Asp-Net45, Web-Basic-Auth, Web-Client-Auth, Web-Digest-Auth, Web-Dir-Browsing, Web-Dyn-Compression, Web-Http-Errors, Web-Http-Logging, Web-Http-Redirect, Web-Http-Tracing, Web-ISAPI-Ext, Web-ISAPI-Filter, Web-Lgcy-Mgmt-Console, Web-Metabase, Web-Mgmt-Console, Web-Mgmt-Service, Web-Net-Ext45, Web-Request-Monitor, Web-Server, Web-Stat-Compression, Web-Static-Content, Web-Windows-Auth, Web-WMI, Windows-Identity-Foundation
     5. Windows PowerShell:
        + PowerShell
        + Install-WindowsFeature RSAT-ADDS
     6. Mount the drive
        + Cmd
          - Setup.exe /PrepareSchema /IAcceptExchangeServerLicenseTerms
     7. Prepare Active Directory for Exchange (cmd)
        + Setup.exe /PrepareAD /OrganizationName:”daydream” /IAcceptExchangeServerLicenseTerms
     8. Setup all the user accounts

Use cmdlet to create accounts in Active Directory

$users = @(

@{

FirstName = "Sharon"

LastName = "Webb"

Title = "CEO"

SamAccountName = "sharon.webb"

IPAddress = "192.168.0.3"

},

@{

FirstName = "Karen"

LastName = "Fells"

Title = "OfficeManager"

SamAccountName = "karen.fells"

IPAddress = "192.168.0.5"

},

@{

FirstName = "Margret"

LastName = "Bakerc"

Title = "Reception"

SamAccountName = "margret.bakerc"

IPAddress = "192.168.0.6"

},

@{

FirstName = "John"

LastName = "Kennedy"

Title = "SeniorSalesRep"

SamAccountName = "john.kennedy"

IPAddress = "192.168.0.7"

},

@{

FirstName = "Mitchell"

LastName = "Brown"

Title = "SalesRep1"

SamAccountName = "mitchell.brown"

IPAddress = "192.168.0.8"

},

@{

FirstName = "Coney"

LastName = "Smith"

Title = "SalesRep2"

SamAccountName = "coney.smith"

IPAddress = "192.168.0.9"

},

@{

FirstName = "Alice"

LastName = "Watson"

Title = "SalesRep3"

SamAccountName = "alice.watson"

IPAddress = "192.168.0.10"

},

@{

FirstName = "Peter"

LastName = "Webb"

Title = "ITTech"

SamAccountName = "peter.webb"

IPAddress = "192.168.0.4"

}

)

Import-Module ActiveDirectory

foreach ($user in $users) {

$displayName = $user.FirstName + " " + $user.LastName

$userPrincipalName = $user.SamAccountName + "@daydream.com"

$password = ConvertTo-SecureString "Pa$$w0rd69" -AsPlainText -Force # Set the desired password

$userParams = @{

Name = $displayName

GivenName = $user.FirstName

Surname = $user.LastName

Title = $user.Title

SamAccountName = $user.SamAccountName

UserPrincipalName = $userPrincipalName

Enabled = $true

ChangePasswordAtLogon = $true

Password = $password

Write-Host “User account $($UserParams.Name) has successfully been created

}

New-ADUser @userParams

Set-ADUser $user.SamAccountName -Replace @{extensionAttribute1 = $user.IPAddress}

}

Write-Host "All DayDream Users have been created successfully! :)>”

Configure the remote desktop users group for each user on each of the 8 machines so everyone can login to eachothers pcs remotely if given access.

$usersToAdd = @(

"Sharon Webb",

"Karen Fells",

"Margret Bakerc",

"John Kennedy",

"Mitchell Brown",

"Coney Smith",

"Alice Watson",

"Peter Webb"

)

$groupName = "Remote Desktop Users"

$gatewayIP = "192.168.0.1"

foreach ($user in $usersToAdd) {

$userDevice = (Get-ADUser -Filter "Name -eq '$user'").SamAccountName

$userIPAddress = (Get-ADUser -Filter "Name -eq '$user'").IPAddress

$userGateway = $gatewayIP

Add-LocalGroupMember -Group $groupName -Member $user

Write-Host "Added $user to $groupName on $userDevice ($userIPAddress), Gateway: $userGateway"

}

3. Collaboration tools:

a) Namespace and server roles

Pinning messages, channels for all team members to communicate in

b) User access, security, network infrastructure and customisations

Login with business email: [user@daydream.com](mailto:user@daydream.com)

Security: WPA3 wireless security for wireless access amongst the network.

Use cisco secure email to protect and safeguard inboxes. Features of this include:  
 Cisco Secure Endpoint

Cloud Mailbox

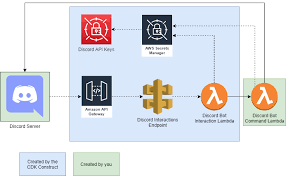
Cisco SecureX

These will aim to protect against most malicious and forged

c) Providing high availability and disaster recovery

Discord automatically has multiple servers globally and since it’s all in the cloud, high availability is naturally integrated and there is disaster recovery available.

<https://discordstatus.com/>

 However, discord bots can be effected by natural disasters and other issues as they are not backed by discord’s servers and require third party hosting. So for the discord bot DayDream, it will be hosted on AWS and configured such like this. 

### Task 4: Testing and documentation

* Use the template provided to create a test plan so you can test your completed installation. Make sure all services are listed on the test plan.
* Next, use your test plan to test that all required services are working according to the companies’ requirements. List any problems that need rectification.
* Continue with your testing by monitoring the system and checking event logs for problems and performance issues.
* Modify system setting and configuration to address any problems or performance issues found.
* In your test plan you will need to record any problems that showed up during testing and discus the rectification you took to fix these issues.
* Finally, does this system meet the enterprises requirements or is there still components that will need to be added or configured differently?

Testing the exchange system:  
  
  
Commands (/cmdlets):

$Services='DNS','DFS Replication','Intersite Messaging','Kerberos Key Distribution Center','NetLogon',’Active Directory Domain Services’

ForEach ($Service in $Services) {Get-Service $Service | Select-Object Name, Status}

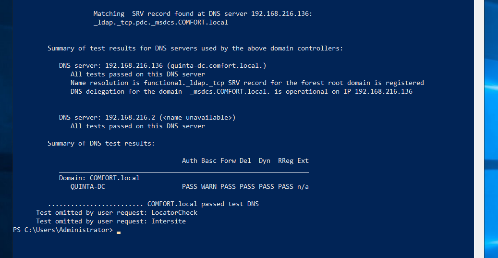
Checks the health of NetLogon server and ADDS(NTDS) to see if the services are running.

DCDiag – diagnose a domain controller through performing a series of tests

Comprehensive testing of the domain controller using this command:

dcdiag /s:daydream.com /v /e /c

Example figure below:



Detect unsecure LDAP binds

We are testing this to ensure the server doesn’t have any unsecure ldap binds which could be used to create escalations/ permissions issues when intercepting cleatext unsigned SASL LDAP binds and inject and capture the packets and change them to their liking. So to counter this the command below is ran:

Get-WinEvent -FilterHashtable @{

LogName = 'Security'

ID = 2889

}

Get-WinEvent -FilterHashtable @{

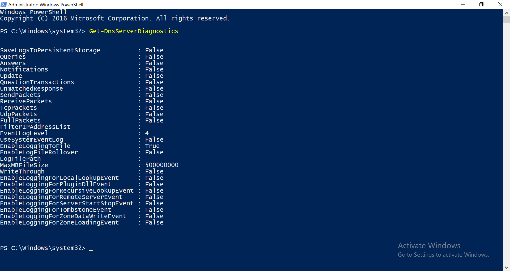
LogName = 'Security'

ID = 2887

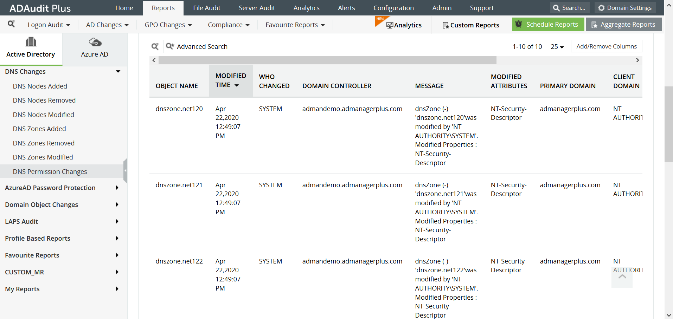
}

DNS Server diagnostics to see if the DNS server has any issues this command gets current config and checks it.

Get-DnsServerDiagnostics|Export-Csv -Path "C:\DayDreamDiag\DNS\Logs\DnsServerDiagnostics.csv" -NoTypeInformation

Example output figure below:  


Sample report (Has ADAudit Plus wrapper)



Monitor any suspicious processes using this powershell cmdlet

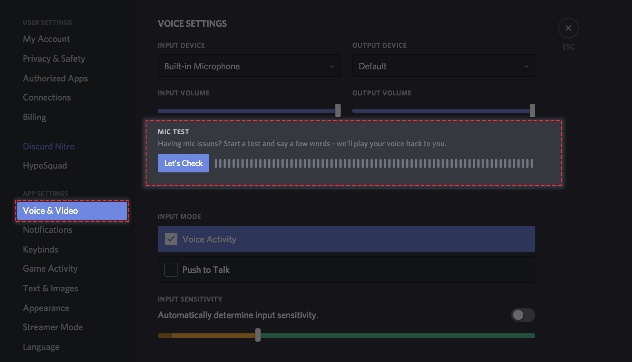
$ProcessName = 'SuspiciousDaydreamapplication'

Get-Process -Name $ProcessName

Out-File -FilePath C:\DayDreamDiag\Logs\Report.csv\

Discord:  
Go to **User Settings > Voice & Video > MIC TEST**

Click on the button **Let’s Check**



Input audio will be inverted to the speakers, check to see if you can hear yourself and/or the green bar fluctuates at all. This will be checked in daydream incase there are any faulty microphones or speakers with the devices.

If Daydream decides to create their own discord bot, pytest will be used in order to test if the bot works and functions correctly around the daydream discord server.

To complete this assessment, student must submit the following portfolio documents:

* Implementation plan
* Test plan