

# Test Project

## *IT Network Systems Administration Module C – Windows Environment*

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# Contents

Introduction .....	3
PART 1 – LKS ZONE .....	4
Part 2 – WSC ZONE .....	8
Part 3 – VPN .....	9
NETWORK DIAGRAM .....	11

# Introduction to Test Project

This Test Project proposal consists of the following document/file:

- LKSN2019\_ITNETWORK\_MODUL\_C.pdf

## Introduction

You are the IT consultant responsible for **LKSNSMK** in DIY. You have to build and configure the network for the LKSNSMK in DIY, which consists of a new domain **LKSNSMK.net**, implement features for the LKS and WSC, policies and file services.

This project several components, you need to:

1. Build a new domain (**LKSNSMK.net**)
2. Maintain connectivity and access to resources between the LKS and the WSC.
3. Setup a new site-to-site connection

### NOTE:

- Refer to the diagram on the last page for quick specification reference, as well as the configuration table.
- Please use the default configuration if you are not given the details
- All local and domain users on ALL machines should have a password of "**P@ssw0rd**" unless otherwise specified.
- Pre-supplied machines that the competitor needs to logon to will also be pre-configured with this password.

## Work Task all VMs

- Configure the hostname, network settings as per configuration table/network diagram.
- Modify the default Firewall rules to allow ICMP (ping) traffic.

## PART 1 – LKS ZONE

### Work Task LKS-SRV

#### Active Directory

- Configure this server as the initial domain controller for **LKSNSMK.net**

#### DHCP

- Configure DHCP for the clients
- Mode: Load balancer
- Partner Server: **LKS-FILES**
- State Switchover: 10 minutes
- Range **172.16.0.150-180**
- Set the appropriate scope options for both DNS servers and default gateway

#### DNS

- Configure DNS for **LKSNSMK.net**
- Create a reverse Zone for the **172.16.0.0/24** network
- Add static records for **LKS-SRV**, **LKS-FILES** and **LKS-RTR**.

#### Users/Groups

- Create OUs named "**Expert**", "**Competitor**", "**Manager**" and "**Visitor**"
- Create the following AD groups:
  - **LKS-Experts**
  - **LKS-Competitors**
  - **LKS-Managers**
  - **LKS-Visitors**
- Create the users from the CSV file **LKS-Users.csv** (c:\LKS-Users.csv) on LKS-SRV VM.
  - Fill up all fields in the Active Directory user object and add the users to the corresponding **LKS-xx** groups and OUs
- Create for every user a home drive in on **LKS-FILES d:\shares\users**.
- Connect the home drive automatically to drive  
**U: -> \\LKS-FILES.LKSNSMK.net\users\$\%username%**

#### NOTE:

- This is a required list of users, groups and OUs that have to be created in the domain. If you believe that you should create additional users/groups to perform the tasks you can create them.
- If you are unable to do import all the users from the Excel file create at least the following users manually

Username/Login	Password	Domain
test_expert	P@ssword	LKS-Experts
test_competitor	P@ssword	LKS-Competitors
test_manager	P@ssword	LKS-Managers
test_visitor	P@ssword	LKS-Visitors

## GPO

- Disable "first sign in Animation" on all Windows 10 Clients
- Members of the **LKS-Experts** group must be members of the local admin group on all Windows 10 computers in the domain
- Disable Recycle Bin on the Desktop for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Disable changing the screen saver for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Disable changing the background picture for all domain users except users in "**LKS-Experts**" Group and domain administrators
- Redirect (Folder redirection) only for all users in the Expert group "my Documents" and the "Desktop" to **LKS-FILES** -> **d:\shares\redirected**
  - share path: **\\LKS-FILES.LKSNSMK.net\redirected\%username%**
- Create a fine grained password policy required 7 character non-complex passwords for regular users, 8 characters complex password for members of the **LKS-Experts** group
  - Disable "enforce minimum password age"

## Work Task LKS-FILES

This will be the primary file server for the **LKSNSMK.net** domain, but will also provide redundancy for other network services, including DHCP.

### Install/Configure

- Add new disk **10 GB**, map it on drive **D:**
- Join to **LKSNSMK.net** domain

### Shares

- Create shares for departments (**Competitors, Experts and Managers**)
- on **LKS-FILES** → **d:\shares\departments**
  - **\\LKS-FILES\Experts** → **d:\shares\departments\Experts**
  - **\\LKS-FILES\Competitors** → **d:\shares\departments\Competitors**
  - **\\LKS-FILES\Managers** → **d:\shares\departments\Managers**

### DFS

- Create a Namespace with the name “**dfs**”
- Add **LKS-SRV** as the second server for this Namespace
- Create DFS links for the department shares (**Experts, Competitors, Managers**)
- Create a DFS Replication to implement a backup of the department shares on **LKS-SRV**. The shares should be replicated/backed up like this:
  - **LKS-FILES: D:\shares\departments\Experts** → **LKS-SRV: C:\backup\Experts**
  - **LKS-FILES: D:\shares\departments\Competitors** → **LKS-SRV: C:\backup\Competitors**
  - **LKS-FILES: D:\shares\departments\Managers** → **LKS-SRV: C:\backup\Managers**
- Map the department shares and have full access depending on the corresponding group (**LKS-Experts, LKS-Competitors, LKS-Managers**) to drive **G:** using the DFS Namespace

### DHCP

- Install and configure DHCP
- Mode: Load balancer
- Partner Server: **LKS-SRV**
- State Switchover time: 10 minutes

### Quota/Screening

- Set the quota to every home drives to 5GB
- Prevent storing .cmd and .exe files on the home drives. All other file extensions are allowed!

### Customized error messages

- Make sure that unauthorized users get the following error message, when they want to access one of the three department shares (Experts, Competitors and Managers) they are not allowed to!
  - Expert share:
    - Error message: “Access only for EXPERTS allowed”
  - Competitor share:
    - Error message: “Access only for COMPETITORS allowed”
  - Manager share:
    - Error message: “Access only for MANAGERS allowed”

## Work Task LKS-CLIENT

### Configure

- Join the client to the **LKSNSMK.net** domain
- Use this client for testing the GPO settings

## Part 2 – WSC ZONE

### Work Task WSC-SRV

This server is used for Published Applications in the **WSC** domain.

#### Active Directory

- Configure this server as the initial domain controller for **WSC.net**
- Create OU named **RDS** and two users **rds\_user1** and **rds\_user2**

#### DNS

- Create **www** and **rds** records for **WSC.net**

#### CA

- Install Enterprise Root CA
- Name: **WSC-ROOT-CA**
- Lifetime: **5** years
- Configure a template for all clients called "**Skills39\_WSC\_Clients**"
  - Set the "subject name format" to Common Name
  - Auto enroll this template to all **WSC.net** Windows 10 Clients
- Create the necessary certificates for the **WSC** websites on **WSC-SRV**

#### IIS

- Host **www.WSC.net** website
- Add index file to show "**Improving Our World with the Power of Skills**"
- This site should use https using certificate approved in **WSC CA**

#### Remote Desktop Services

- Install Remote Desktop Services
  - Do not install RD Licensing component.
- Configure web-access for terminal services.
- The RDS login page should be accessible by entering the URL **https://rds.WSC.net**
- On the **WSC-SRV** server, generate and use the corresponding SSL certificate for terminal services. Apply this certificate for all components of the terminal services. When connecting to the website **https://rds.WSC.net** from any computer in the **WSC** domain, the certificate must be trusted and valid (no certificate warning should be shown).
- Make sure, only users **rds\_user1** and **rds\_user2** are able to login via RDP.
- Publish Wordpad on the web-portal of RemoteApp for the domain user **rds\_user1**
- Publish Notepad on the web-portal of RemoteApp for the domain user **rds\_user2**



## Part 3 – VPN

In Part 3 you have to setup Site-to-Site VPN between **LKS** network and **WSC** network.

### Work Task WSC-RTR

#### Install/Configure

- Join to **WSC.net** domain
- Install RRAS service

#### Site-to-Site VPN

- Configure Site-to-Site VPN to **LKS-RTR**
- Use pre-shared key **P@ssw0rd** for the authentication
- Set the connection type to persistent connection
- All traffic bound for **LKS** will be placed in the VPN tunnel

### Work Task LKS-RTR

#### Install/Configure

- Join to **LKSNSMK.net** domain
- Install RRAS service

#### Site-to-Site VPN

- Configure Site-to-Site VPN to the **WSC-RTR**
- Use pre-shared key **P@ssw0rd** for the authentication
- Set the connection type to persistent connection
- All traffic bound for **WSC** will be placed in the VPN tunnel

#### Remote access VPN

- Configure VPN for client access.
- Use the IKEv2 protocol and make sure authentication is done by client certificate
- Use the IP range 192.168.0.50 – 192.168.0.79, DNS: 192.168.0.1
- The VPN clients should have access to all internal networks (**LKS** and **WSC**)

### Work Task COMPETITOR

#### VPN

- Configure the VPN client settings for all users on this computer
- Add a VPN connection name **WSC-VPN**
  - Connect the VPN using the public IP **WSC-RTR**
  - Use IKEv2 protocol with machine certificate authentication
- Use this client for testing with access to the https **www.WSC.net**
- Join to **WSC.net** domain

## CONFIGURATION TABLE

Hostname	Operation System	Domain	IP Address(es)	Gateway	OS Preinstalled
<b>WSC-SRV</b>	Windows Server 2016 <small>GUI</small>	<b>WSC.net</b>	192.168.0.1/24	192.168.0.254	Yes
<b>WSC-RTR</b>	Windows Server 2016 <small>no GUI</small>	<b>WSC.net</b>	192.168.0.254/24 1.1.1.2/24	N/A	Yes
<b>LKS-SRV</b>	Windows Server 2016 <small>GUI</small>	<b>LKSNSMK.net</b>	172.16.0.1/24	172.16.0.254	Yes
<b>LKS-FILES</b>	Windows Server 2016 <small>GUI</small>	<b>LKSNSMK.net</b>	172.16.0.2/24	172.16.0.254	Yes
<b>LKS-RTR</b>	Windows Server 2016 <small>no GUI</small>	<b>LKSNSMK.net</b>	172.16.0.254/24 1.1.1.1/24	N/A	Yes
<b>LKS-CLIENT</b>	Windows 10	<b>LKSNSMK.net</b>	DHCP	172.16.0.254	Yes
<b>COMPETITOR</b>	Windows 10	<b>WSC.net</b>	1.1.1.100/24	N/A	Yes

Machines indicated as being preinstalled with "**Yes**" will have the operating system installed.

# NETWORK DIAGRAM

