# LOMBA KOMPETISI SISWA (LKS)
# SEKOLAH MENENGAH KEJURUAN
# TINGKAT PROVINSI JAWA TENGAH TAHUN 2024

## TEST PROJECT MODUL C
## CLIENT SERVER ENVIRONMENT



## Bidang Lomba
## IT NETWORK SYSTEMS ADMINISTRATION

**PEMERINTAH PROVINSI JAWA TENGAH**
# DINAS PENDIDIKAN

Jalan Pemuda No.134, Sekayu, Kec. Semarang Tengah, Kota Semarang
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# Introduction

## Login credentials

**Debian 12**

Username  : root/user

Password  : P@ssw0rd


**Windows Server 2022**

Username  : Administrator

Password  : P@ssw0rd


## System environments

**utara.site**

Region/Timezone : Asia/Makassar


**selatan.site**

Region/Timezone : Asia/Jakarta

# Instructions to the Competitor

## Part 1. Utara Site

Configure the system environment timezone, and hostname, IP address according to the appendix

### DHCP Server

- Configure the DHCP service in FW-UTARA by referring to the below table

| Option | Value |
|---|---|
| Subnet | /24 |
| Range | 192.168.10.100 - 192.168.10.200 |
| Domain Name Server | 192.168.10.11 |
| Domain Name | utara.site |
| Gateway | 192.168.10.1 |

- Configure static DHCP IP Address for LINSRV2 192.168.10.12

### DNS Server

- Set up the utara.site domain on LINSRV1 using Bind9
    - The server works as the master DNS server.
    - Add domain records.

| Type | Record | Value |
|---|---|---|
| NS | utara.site | ns1.utara.site |
| | | ns2.utara.site |
| A | ns1 | 192.168.10.11 |
| | ns2 | 192.168.10.12 |
| | LINSRV1 | 192.168.10.11 |
| | LINSRV2 | 192.168.10.12 |
| | www | 103.10.70.110 |
| | file | 192.168.10.12 |
| MX | utara.site | 10, mail.utara.site |

- Configure name server forwarder so can resolve domain selatan.site
    - The target address is "103.10.70.120"
- Set up the utara.site domain on LINSRV2
    - The server works as the slave DNS server from LINSRV1

## Certificate Authority

- Set up root certificate authority on LINSRV2 using OpenSSL on directory /root/ca.
- Create Root Certificate cacert.pem and cacert.key with attributes should be set as follows.
  - Country Code: ID
  - Organization: LKS Jawa Tengah
  - Common Name: Jateng 2024 CA
- Create additional certificate

| Issued Certificate | Note |
|---|---|
| CN = mail.utara.site | Mail Server |
| CN = www.utara.site | Web |
| CN = file.utara.site | Web |
| CN = www.selatan.site | Web |

## WEB Server

- Configure web server on LINSRV1 using apache2
  - Create a virtual host HTTP only for serving www.utara.site
    - The website page should display "Hello World from utara site"
    - Add the HTTP header "X-Served-By" with the server hostname as the value
- Configure web server on LINSRV2 using nginx
  - Create a virtual host HTTP only for serving www.utara.site
    - The website page should display "Hello World from utara site"
    - Add the HTTP header "X-Served-By" with the server hostname as the value
  - Create a virtual host on LINSRV2 for serving file.utara.site
    - Enable HTTPS using the Certificate Authority from Jateng 2024 CA
    - Redirect all HTTP requests to HTTPS.
    - This virtual host is set as a file server for directory /data/file/
    - Add basic authentication using username rahasia with password Skills39s
    - Make sure LINCLT can access without any warning

## Email Server with SMTP and IMAP

- Install and configure Postfix and Dovecot on LINSRV1
  - Use the domain utara.site so that email can be sent to user@utara.site email address.
  - Enable SMTP with negotiable TLS on port 25
  - Enable IMAP with negotiable TLS on port 143
  - Use certificates from Jateng 2024 CA
- Enable web-based email using Roundcube
  - Make it accessible using the domain mail.utara.site.
  - Enable HTTPS access using a certificate Jateng 2024 CA
  - Make sure LINCLT can access the web-based email Roundcube
- Create two mail users: admin@lks.id and user@lks.id with password Skills39s
  - Send a test mail from user@lks.id to admin@lks.id.
- Create email alias contact@lks.id should be received by admin@lks.id
  - Send a test mail from user@lks.id to contact@lks.id

## SSH

- Install and configure the SSH Server on LINSRV2
  - Create a user file with the password Skills39s and set the home directory to /data/file/
  - Make sure to configure the file user not to be able to use sudo and become root
- Configure the user "user" in LNXCLT SSH to file@linsrv2.utara.site without a password and use key-based SSH authentication
- Change SSH port default to 2024

### Load Balancer HAProxy

- Configure HTTP/HTTPS load balancer for www.utara.site, which is hosted by LINSRV1 and LINSRV2
  - User certificate from Jateng 2024 CA
  - Use round-robin as an algorithm
- Make sure LINCLT can access without any warning

### Firewall

- Make sure that the firewall operates in stateful mode
- Configure DNAT for DNS using external IP.
- Configure utara.site can ping to 103.10.70.120

# Part 2. Selatan Site

Configure the system environment timezone, and hostname, IP address according to the appendix. Enable WINSRV pingable.

### Active Directory

- Configure this server as the initial domain controller (new forest) for selatan.site

### DNS Server

- Configure DNS for selatan.site
- Create a reverse Zone for the 172.16.20.0/24 network
  - Add domain records.

| Type | Record | Value |
|------|--------|-------|
| NS | selatan.site | ns.selatan.site |
| A | ns | 172.16.20.11 |
| | www | 103.10.70.120 |
| | manager | 172.16.20.11 |

- Configure name server forwarder so can resolve domain utara.site
  - The target address is "103.10.70.110"

### Web Server

- Install IIS web service
- Create web for host www.selatan.site
  - Path C:\inetpub\wwwroot
  - The website page should display "Hello World from selatan site"
- Create internal web with host manager.selatan.site
  - Path C:\inetpub\manager
  - The website page should display "Hello Managers !"
  - Enable basic authentication and allow user 'manager' with password 'Skills39s'

### Windows Backup

- Create folder C:\backups
- Create a backup job to backup folder C:\inetpub\wwwroot at 4 PM daily.
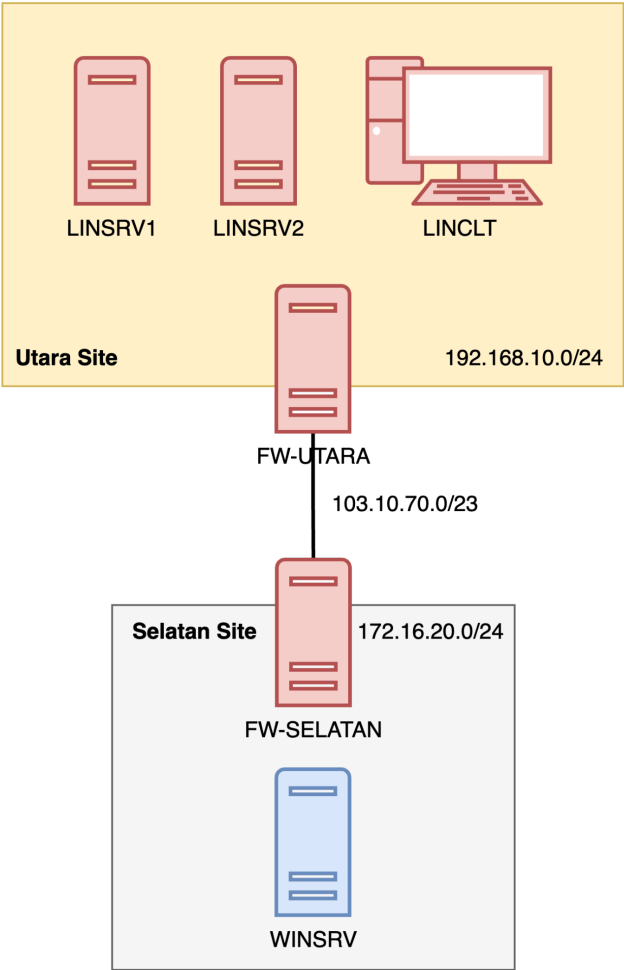
### Load Balancer Nginx

- Configure HTTP/HTTPS reverse proxy for www.selatan.site, hosted by WINSRV
  - User certificate from Jateng 2024 CA
  - Make sure LINCLT can access without any warning

### Firewall

- Make sure that the firewall operates in stateful mode
- Configure DNAT for DNS using external IP.
- Configure selatan.site can ping to 103.10.70.110

# Appendix

## Topology



## System Table

| Device | IP | OS |
|---|---|---|
| LINCLT | DHCP | Debian 12 GUI |
| LINSRV1 | 192.168.10.11/24 | Debian 12 CLI |
| LINSRV2 | 192.168.10.12/24 (DHCP static) | Debian 12 CLI |
| FW-UTARA | 192.168.10.1/24<br>103.10.70.110/23 | Debian 12 CLI |
| FW-SELATAN | 172.16.20.1/24<br>103.10.70.120/23 | Debian 12 CLI |
| WINSRV | 172.16.20.11/24 | Windows Server 2022 Desktop |