



**LOMBA KETERAMPILAN SISWA
SEKOLAH MENENGAH KEJURUAN
TINGKAT KODYA MEDAN KE XXIII – TAHUN 2014
MEDAN, 08 - 11 Oktober 2014
BIDANG LOMBA : IT Network Systems Administration**



PROJECT DESCRIPTION AND DETAIL TASKS

You work as a Network Technician for senior high schools. The school "SMK" has ordered you for the project "**Networking Competition 2014**". You have already received the specifications for the project. The school has assigned you to design, setup, configure and secure all the network installation and resources to support the project.

You need to configure the system, so only student who have a specific IP Address can access the system. You need to synchronize a time client with server. The student also can send email and files, access internet public and also access files admin's PC.

SECTION 1 – PC ASSEMBLY

Part 1 – Data of PC Server's Component

1. Before assembly PC Server, please identify the specification of components below (if available).

No.	Component Name	Vendor Description	Description
1	Casing	Manufacturer =	Model =
2	Video Display Adapter	Manufacturer =	Model =
3	Motherboard	Manufacturer =	Model =
4	Microprocessor	Manufacturer =	Speed =
5	RAM	Manufacturer =	Size = GB
6	Hard disk	Manufacturer =	Size =GB
7	CD/DVD ROM	Manufacturer =	Speed =
8	External LAN Card	Manufacturer =	Model =
9	Mouse	Manufacturer =	
10	Keyboard	Manufacturer =	
11	Monitor	Manufacturer =	Size = inch

2. Refer to ESD (Electric Static Discharge) handling guidelines, list three important things that have to be done related to the process of assembly the computer.

Answer :

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SECTION 2 – WORK TASK SERVER, ROUTER AND CLIENT

Part 2 – PC Router Assembly and BIOS Information

1. Assembling all components of PC Router and PC Server. Observe the booting process. Please follow the safety procedures.
2. Setup the BIOS completely ready to install the **Server Operating System**.
3. Set BIOS supervisor and user password. **Note: The password will be given during competition.**
4. **If there is a problem with the PC component or peripherals, please call Technician to check it is a hardware problem or not.**
5. Please fill in the table below based on information in **of PC Router's BIOS**:

HDDGB
RAMGB
Processor SpeedGHz
BIOS version

Part 3 – Wireless Access Point Configuration (2 unit)

Configure the Wireless Access Point as follows:

- Set IP address of Access Point.
- Set WPA-PSK authentication.
- Set SSID.
- Set SSID broadcast “**disable**”.

Note: The IP address, WPA-PSK authentication, and SSID will be given during competition.

Part 4 – PC Router Operating System Setup

1. Setup PC Router with operating system Linux Debian 6.0 or Ubuntu10.xx or newer version. Ensure that all components needed are correctly installed.
2. Use DVD (s) as installation source. All software packages will be gathered from DVD (s). **Don't install graphical user interface (GUI) such as KDE, GNOME, etc.**
3. Set Host name, Root password, and IP Address of external LAN card.
Note: Host name, Root password, and IP Address of external LAN card will be given during competition.

Part 5 – PC Server Operating System Setup

1. Setup PC Server with the operating system is same as operating system for PC Router. Ensure that all components needed are correctly installed.
2. Use DVD (s) which used to setup PC Router as installation source. All software packages will be gathered from DVD (s). **Don't install graphical user interface (GUI) such as KDE, GNOME, etc.**
3. Set Host name, Root password, and IP address of external LAN card.



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Note: Host name, Root password, and IP Address of external LAN card will be given during competition.

Part 6 – Laptop Client Operating System Setup

Setup Laptop Client using Operating System Linux Debian 6.0 or Ubuntu 10.xx or newer version. Ensure that all components needed are correctly installed.

1. Create 3 formatted partitions as follows:
 - C: 100 GB using Linux partition
 - D: 50 GB using for DATA partition
 - F: 60 GB using for Data_Backup partition
2. Install network card driver
3. Please configure Laptop client as follows:
 - Company name : LKS_SMK2014_xx
 - Computer name : Student_xx
 - Set **admin_xx** for user name and **admin_lks_xx** for password
xx is the competitor's number, example: Laptop-01

Note: IP address of LAN and WLAN will be given during competition.

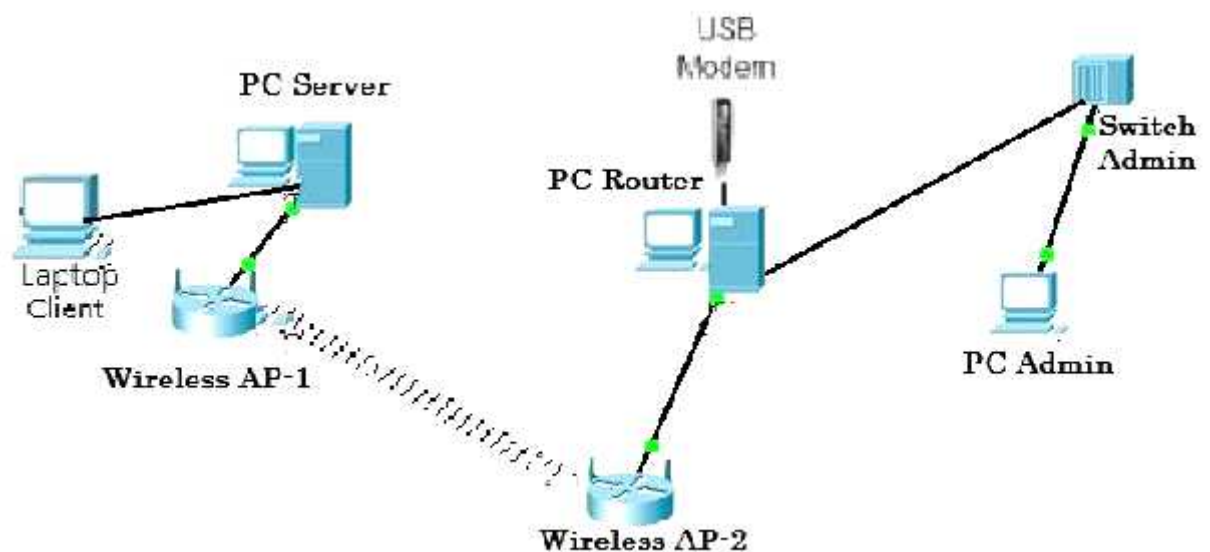
SECTION 3 – WORK TASK NETWORKING

Part 7 – UTP Cabling

1. Make **2 (two) straight cables** and **1(one) cross cable** with ± 2.5 meters long then give label "CC-xx" near to each connector (xx is competitor's number) according to **standard T568B**
2. Make a straight through cable with length according to distance from competitor's PC Router and switch admin, then give label " ST-xx" near to each connector (xx is competitor's number) **standard T568A**

Part 8 – Network Installation

Setup network according to the figure below:





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Part 9 – Time Synchronization

1. Install NTP server services to PC Server. Use local clock as time server source
2. Synchronize PC Laptop time with the NTP Server time in PC Server

SECTION 4 – SERVER AND ROUTER CONFIGURATION

Part 10 – PC Router Configuration

1. Configure PC Router to connect Wireless AP, PC Server and Internet by using USB Modem
2. **Laptop Client, PC Server and PC Admin** can access Internet Public via this PC Router
3. **PC Admin** can access the Web Server, FTP and Mail Server via this PC Router

Part 11 – DHCP Server Configuration

1. Configure DHCP Server in PC Server with valid available IP address which needed to connect to Laptop Client.
2. Write the modification or configuration you have done in the paper given by Judge.

Part 12 – DNS Server Configuration

1. Configure DNS Server with domain: **http://xxx.ac.id** (xxx is name of SMK)
2. Write the modification or configuration you have done in the paper given by Judge

Part 13 – FTP Server Configuration

1. Configure FTP Server with domain: **ftp://ftp.xxx.ac.id** (xxx is name of SMK)
2. Write the modification or configuration you have done in the paper given by Judge

Part 14 – Web Server Configuration

Configure Web Server in PC Server as follow:

- support.html
- support.php
- index.html: **“Welcome to SMK Network System Admin Competition-2014”** (index.html has to be a valid html file)
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Part 15 – Proxy Server Configuration

1. Configure PC Router as **Internet Proxy Server** and then will block the prohibited websites. Use the ACL (access control list) to achieve this.

Note: List of prohibited websites will be given during competition.

2. Configure Squid to network in transparent mode using IPTABLES. Use NAT to configure NIC client to use the proxy. All network clients will use the proxy automatically.



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Part 16 – Firewall Configuration

1. Configure iptables firewall to **allow DHCP, DNS, HTTP, SMTP, IMAP, POP3, FTP, TELNET** and Squid ports – **deny all other services**
2. Configure iptables firewall to allow only valid IP Address range for student – **deny all other services**
3. Write the modification or configuration you have done in the paper given by Judge

Note : Range of IP address will be given during competition.

Part 17 – Mail Server Configuration

1. Configure Mail Server in PC Server as follows:
 - Postfix
 - SMTP no relay
 - Create user client
 - Create 5 email users account
 - IMAP/POP3
 - Block xxx@domain.com or IP address for send mail spammers?

Note: User_name and password for users client and e-mail address will be given during competition

2. Test attached file and then send it from email Laptop Client

Part 18 –Web Mail Server Configuration

1. Configure Web Server in PC Server as follows:
 - Squirrel Mail
 - Domain name is: <http://webmail.xxx.ac.id> (xxx is name of SMK)

SECTION 5 – NETWORK TROUBLESHOOTING

Part 19 – Fixing Network Connection

Something in Linux installed in Laptop Client or PC Router or PC Server can be changed or modified by Judge, so that Laptop Client cannot connect to PC Server or Internet. **Please fix this problem. !**

Note:

Judge can modify configurations if needed.

~~~~good luck.....  
Irw-2014