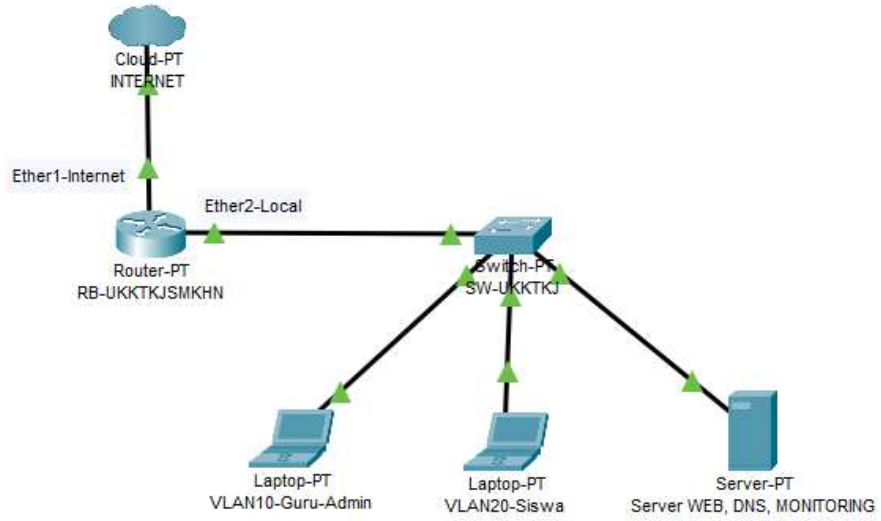
MODUL

UJI KOMPETENSI KEAHLIAN TAHUN PELAJARAN 2025/2026



KONFIGURASI ROUTER MENGGUNAKAN CLI (via Terminal):

1. Mengganti Identity Router

```
[admin@MikroTik] > system identity set name=RB-UKKTKJ_SMKHN
[admin@RB-UKKTKJ_SMKHN] >
```

2. Menambahkan User baru dan Disable user default

```
[admin@RB-UKKTKJ_SMKHN] > user add name=ukktkj group=full password=1234
[admin@RB-UKKTKJ_SMKHN] > user disable admin
```

3. Merename Interface ether1, ether2 dan ether5 (ether1-WAN, ether2-Local, ether5-Managemen)

```
[admin@RB-UKKTKJ_SMKHN] > interface set name=ether1-WAN numbers=0
[admin@RB-UKKTKJ_SMKHN] > interface set name=ether2-Local numbers=1
[admin@RB-UKKTKJ_SMKHN] > interface set name=ether5-Managemen numbers=4
```

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4. Menambahkan DHCP-Clien pada ether1-WAN untuk mendapatkan IP Address Internet

```
[admin@RB-UKKTKJ_SMKHN] > ip dhcp-client add interface=ether1-WAN add-default-route=no
[admin@RB-UKKTKJ_SMKHN] > ip dhcp-client enable numbers=0
```

5. Menambahakn DNS Server (IP DNS Disesuaikan dengan DNS Server)

```
[admin@RB-UKKTKJ_SMKHN] > ip dns set servers=192.168.30.10 allow-remote-requests=yes
```

6. Menambahkan IP Route (Gateway Internet), IP Route disesuaikan dengan Gateway Internet yang diberikan ISP, dalam contoh ini Gateway 192.168.1.1

```
[admin@RB-UKKTKJ_SMKHN] > ip route add gateway=192.168.1.1
```

7. Menguji koneksi Router ke Internet dengan ping 8.8.8.8

```
[admin@RB-UKKTKJ_SMKHN] > ping 8.8.8.8
  SEQ HOST                                     SIZE TTL TIME  STATUS
    0 8.8.8.8                                    56 117 4ms
    1 8.8.8.8                                    56 117 3ms
    2 8.8.8.8                                    56 117 3ms
```

8. Menambahkan NAT agar ip local menjadi IP public pada Interface Internet atau memungkinkan komputer LAN(IP Private) bisa mengakses internet

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall nat add chain=srcnat out-interface=ether1-WAN action=masquerade
```

9. Menambahakan interface VLAN pada ether2-Local (VLAN10-Guru-Admin, VLAN20-Siswa, dan VLAN30-Server)

```
[admin@RB-UKKTKJ_SMKHN] > interface vlan add name=VLAN10-Guru-Admin vlan-id=10 interface=ether2-Local
[admin@RB-UKKTKJ_SMKHN] > interface vlan add name=VLAN20-Siswa vlan-id=20 interface=ether2-Local
[admin@RB-UKKTKJ SMKHN] > interface vlan add name=VLAN30-Server vlan-id=30 interface=ether2-Local
```

10. Menambahkan IP Address VLAN

    VLAN10-Guru-Admin = 192.168.1xx.1/24 (xx adalah nomor absen) disesuaikan
    VLAN20-Siswa = 192.168.2xx.1/24 (xx adalah nomot absen) disesuaikan
    VLAN30-Server = 192.168.30.1/24 (harus satu segmen jaringan dengan Server)

```
[admin@RB-UKKTKJ_SMKHN] > ip address add address=192.168.101.1/24 interface=VLAN10-Guru-Admin
[admin@RB-UKKTKJ_SMKHN] > ip address add address=192.168.201.1/24 interface=VLAN20-Siswa
[admin@RB-UKKTKJ_SMKHN] > ip address add address=192.168.30.1/24 interface=VLAN30-Server
```

11. Menambahak DHCP-Server untuk VLAN10-Guru-Admin dan VLAN20-Siswa

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a. DHCP-Server VLAN10-Guru-Admin

```
[admin@RB-UKKTKJ_SMKHN] > ip dhcp-server setup
Select interface to run DHCP server on

dhcp server interface: VLAN10-Guru-Admin
Select network for DHCP addresses

dhcp address space: 192.168.101.0/24
Select gateway for given network

gateway for dhcp network: 192.168.101.1
Select pool of ip addresses given out by DHCP server

addresses to give out: 192.168.101.2-192.168.101.254
Select DNS servers

dns servers: 192.168.1.1,192.168.30.10
Select lease time

lease time: 10m
```

b. DHCP-Server VLAN20-Siswa

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```
[admin@RB-UKKTKJ_SMKHN] > ip dhcp-server setup
Select interface to run DHCP server on

dhcp server interface: VLAN20-Siswa
Select network for DHCP addresses

dhcp address space: 192.168.201.0/24
Select gateway for given network

gateway for dhcp network: 192.168.201.1
Select pool of ip addresses given out by DHCP server

addresses to give out: 192.168.201.2-192.168.201.254
Select DNS servers

dns servers: 192.168.1.1,192.168.30.10
Select lease time

lease time: 10m
```

12. Limitasi Bandwidth VLAN10-Guru-Admin dan VLAN20-Siswa dengan Queue

```
[admin@RB-UKKTKJ_SMKHN] > queue simple add name=VLAN10 target=VLAN10-Guru-Admin max-limit=10M/10M limit-at=10M/10M
[admin@RB-UKKTKJ_SMKHN] > queue simple add name=VLAN20 target=VLAN20-Siswa max-limit=20M/20M limit-at=20M/20M
```

13. Mengaktifkan Fitur RoMON supaya Router dan Switch bisa remote bersamaan

```
[admin@RB-UKKTKJ_SMKHN] > tool romon set enabled=yes secrets=ukktkj2026
```

14. Memasang Tools Netwatch untuk memantau status Server

```
[admin@RB-UKKTKJ_SMKHN] > tool netwatch add host=192.168.30.10
```

15. Mengaktifkan fitur SNMP untuk memonitoring secara real time

```
[admin@RB-UKKTKJ_SMKHN] > snmp set enabled=yes
```

16. Memblokir Service dari VLAN20-Siswa ke VLAN10=Guru-Admin

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall filter add chain=forward action=drop src-address=192.168.201.0/24 dst-address=192.168.101.0/24
 comment=BLOKIR_VLAN20-Siswa_ke-VLAN10-Guru-Admin
```

17. Mengizinkan akses VLAN30-Server ke VLAN10-Guru-Admin

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```
[admin@RB-UKKTKJ_SMKHN] > ip firewall filter add chain=forward action=accept src-address=192.168.30.0/24 dst-address=192.168.101.0/2
4 comment=MENGIZINKAN AKSES VLAN30-Server ke VLAN10-Guru-Admin
```

18. Address List untuk mendaftarkan IP yang terpercaya
    Address List> + name=trusted> Address= 192.168.10.0/24
    Address List> + name=trusted> Address= 192.168.20.0/24
    Address List> + name=trusted> Address= 192.168.30.0/24

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall address-list add list=trusted address=192.168.101.0/24 disabled=no
[admin@RB-UKKTKJ_SMKHN] > ip firewall address-list add list=trusted address=192.168.201.0/24 disabled=no
[admin@RB-UKKTKJ_SMKHN] > ip firewall address-list add list=trusted address=192.168.30.0/24 disabled=no
```

19. Menambahkan Rule untuk mendeteksi bruteforce pada WinBox dan pada SSH

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall filter add chain=input protocol=tcp dst-port=22,8291 action=add-src-to-address-list address-li
st=bruteforce address-list-timeout=1d00:00:00
```

20. Membuat Rule untuk memblokir bruteforce

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall filter add chain=input src-address-list=bruteforce action=drop
```

21. Membuat Filter Loging

```
[admin@RB-UKKTKJ_SMKHN] > ip firewall filter add chain=input action=log log-prefix=@@CRITICAL-ACCESS@@
```

KONDIGURASI SWITCH:

1. Mengganti nama Swicth

```
[admin@MikroTik] > system identity set name=SW-UKKTKJ-2026
[admin@SW-UKKTKJ-2026] >
```

2. Menambahakn user baru pada switch dan menonaktifkan user admin

```
[admin@SW-UKKTKJ-2026] > user add name=ukktkj group=full password=1234
[admin@SW-UKKTKJ-2026] > user disable admin
```

3. Membuat interface Bride untuk VLAN

```
[admin@SW-UKKTKJ-2026] > interface bridge add name=BRIDGE-VLAN
```

4. Memasukan Port ether1, ether2, ether3, ether4 ke dalam BRIDGE-VLAN dan berikan pvid pada port ether2, ether3, dan ether4

```
[admin@SW-UKKTKJ-2026] > interface bridge port add interface=ether1 bridge=BRIDGE-VLAN
[admin@SW-UKKTKJ-2026] > interface bridge port add interface=ether2 pvid=10 bridge=BRIDGE-VLAN
[admin@SW-UKKTKJ-2026] > interface bridge port add interface=ether3 pvid=20 bridge=BRIDGE-VLAN
[admin@SW-UKKTKJ-2026] > interface bridge port add interface=ether4 pvid=30 bridge=BRIDGE-VLAN
```

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5. Membuat VLANs pada interface BRIDGE-VLAN

```
[admin@SW-UKKTKJ-2026] > interface bridge vlan add bridge=BRIDGE-VLAN vlan-ids=10 tagged=ether1 untagged=ether2
[admin@SW-UKKTKJ-2026] > interface bridge vlan add bridge=BRIDGE-VLAN vlan-ids=20 tagged=ether1 untagged=ether3
[admin@SW-UKKTKJ-2026] > interface bridge vlan add bridge=BRIDGE-VLAN vlan-ids=30 tagged=ether1 untagged=ether4
```

6. Mengaktifkan fitur RoMON (secret disamakan dengan secret RoMON pada Router)

```
[admin@SW-UKKTKJ-2026] > tool romon set enabled=yes secrets=ukktkj2026
```

7. Mengaktifkan Bridge Filtering

```
[admin@SW-UKKTKJ-2026] > interface bridge set vlan-filtering=yes numbers=0
```

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