

TUGAS MANAJEMEN JARINGAN



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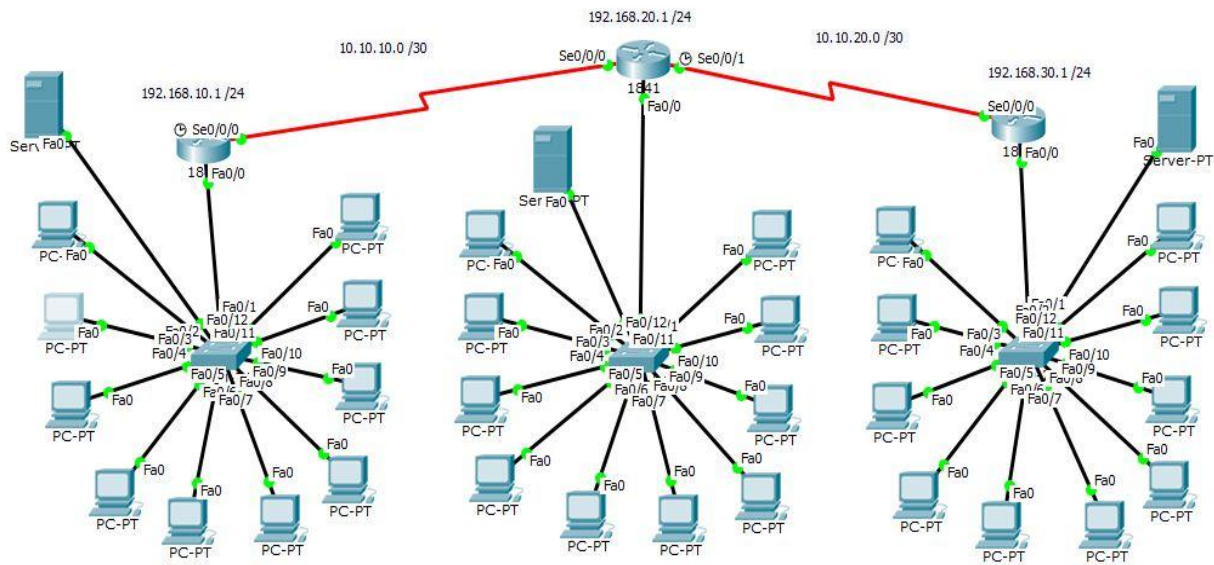
UNIVERSITAS SRIWIJAYA

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IMPLEMENTASI SNMP MENGGUNAKAN CISCO PACKET TRACER

SNMP adalah sebuah protokol yang dirancang untuk memberikan kemampuan kepada pengguna untuk memantau dan mengatur jaringan komputernya secara sistematis dari jarak jauh atau dalam satu pusat kontrol saja. Pengolahan ini dijalankan dengan mengumpulkan data dan melakukan penetapan terhadap variabel-variabel dalam elemen jaringan yang dikelola.

Topologi Pada Cisco Packet Tracer:



Dimana terdapat 3 buah router, 3 buah switch, 3 buah server serta 30 client dengan penjelasan IP sebagai berikut:

IP pada router 1: 192.168.10.0/24

Network antara Router 1 dan 2 : 10.10.10.0

IP pada router 2: 192.168.20.0/24

Network antara Router 2 dan 3 : 10.10.20.0

IP pada router3 : 192.168.30.0/24

Server 1: 192.168.10.100

Server 2: 192.168.20.100

Server 3: 192.168.30.100

Setelah semua IP telah ditentukan barulah kita akan membuat topologi dengan konfigurasi dengan menggunakan routing RIP.

SNMP Router 1

```
SNMPROUTER1>enable
SNMPROUTER1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER1(config)#router rip
SNMPROUTER1(config-router)#network 192.168.10.0
SNMPROUTER1(config-router)#network 10.10.10.0
```

SNMP Router 2

```
SNMPROUTER2>enable
SNMPROUTER2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER2(config)#router rip
SNMPROUTER2(config-router)#network 192.168.20.0
SNMPROUTER2(config-router)#network 10.10.10.0
SNMPROUTER2(config-router)#network 10.10.20.0
```

SNMP Router 3

```
SNMPROUTER3>enable
SNMPROUTER3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER3(config)#router rip
SNMPROUTER3(config-router)#network 192.168.30.0
SNMPROUTER3(config-router)#network 10.10.20.0
```

Selanjutnya melakukan pengujian apakah routing RIP berhasil dilakukan dengan melihat gambar pada bawah ini dengan hasil ping dari IP 192.168.10.2 ke 192.168.20.3

```
PC>ping 192.168.20.3

Pinging 192.168.20.3 with 32 bytes of data:

Reply from 192.168.20.3: bytes=32 time=1ms TTL=126
Reply from 192.168.20.3: bytes=32 time=13ms TTL=126
Reply from 192.168.20.3: bytes=32 time=1ms TTL=126
Reply from 192.168.20.3: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 13ms, Average = 4ms
```

Setelah berhasil melakukan routing RIP selanjutnya kita akan melakukan konfigurasi SNMP pada setiap router

SNMP Router 1

```
SNMPROUTER1>enable
SNMPROUTER1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER1(config)#snmp-server community public ro
SNMPROUTER1(config)#snmp-server community private rw
```

SNMP Router 2

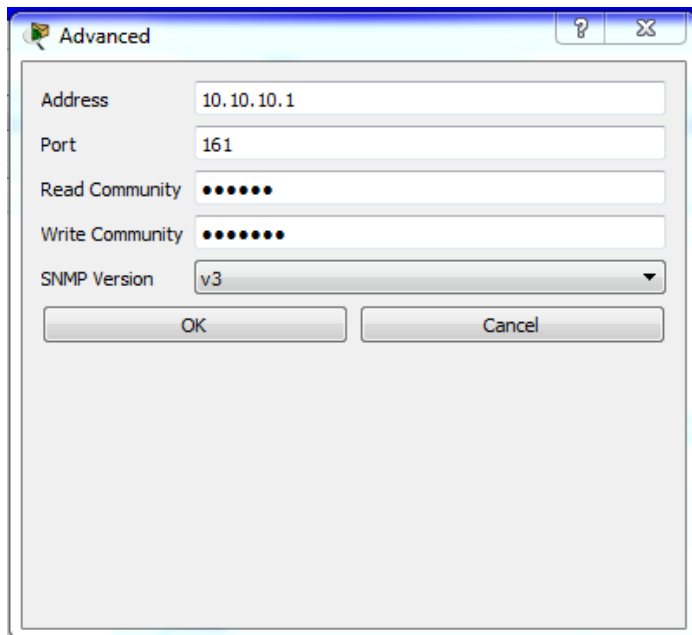
```
SNMPROUTER2>enable
SNMPROUTER2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER2(config)#snmp-server community public ro
SNMPROUTER2(config)#snmp-server community private rw
```

SNMP Router 3

```
SNMPROUTER3>enable
SNMPROUTER3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SNMPROUTER3(config)#snmp-server community public ro
SNMPROUTER3(config)#snmp-server community private rw
```

Pada perangkat Cisco, untuk mengaktifkan snmp menggunakan perintah snmp-server community <community string> ro/rw

Setelah itu lakukan pengujian dengan mencoba untuk melakukan pengujian pada satu buah PC yang berada di jaringan IP 192.168.10.0/24 dan dengan satu buah PC tersebut akan melakukan SNMP pada Router 1, 2 serta 3 karena ketiga router tersebut telah diaktifkan fitur SNMPnya.



Gambar diatas merupakan hasil MIB pada PC 192.168.10.0/24

Address = Diisi dengan IP Address SNMP Router 1 (10.10.10.1) ; SNMP Router 2 (10.10.10.2) ; SNMP Router 3 (10.10.20.1)

Port = Yaitu port khusus untuk protokol TCP/UDP dan service SNMP (161)

Read Community = public

Write Community = private

SNMP Version = v3

SNMP Router 1

Address: 10.10.10.1 OID: .1.3.6.1.2.1.1.5.0
 Operations: Get GO

SNMP MIBs

- ▲ MIB Tree
 - ▲ router_std MIBs
 - ▲ .iso
 - ▲ .dod
 - ▲ .internet
 - ▲ .mgmt
 - ▲ .mib-2
 - ▲ .system
 - .sysDescr
 - .sysObjectID
 - .sysUpTime
 - .sysContact
 - .sysName
 - .sysLocation
 - ▶ .interfaces
 - ▶ .ip
 - ▶ .ospf
 - ▶ .rip2
 - ▶ .private
 - ▶ router_advip MIBs
 - ▶ switch_l2 MIBs
 - ▶ switch_multiLayer MIBs

Result Table

Name/OID	Value	Type
.1.3.6.1.2.1.1.5.0 (.iso.org.dod.internet.mgmt.mib-2.system.sysName.0)	SNMPROUTER1	OctetString

Name : .sysName
 OID : .1.3.6.1.2.1.1.5.0
 Syntax :
 Access :
 Description :

iso.org.dod.internet.mgmt.mib-2.system.sysName.0

SysName SNMP Router 1

Address: 10.10.10.1 OID: .1.3.6.1.2.1.2.2.1.2
 Operations: Get GO

SNMP MIBs

- ▲ MIB Tree
 - ▲ router_std MIBs
 - ▲ .iso
 - ▲ .dod
 - ▲ .internet
 - ▲ .mgmt
 - ▲ .mib-2
 - ▲ .system
 - .sysDescr
 - .sysObjectID
 - .sysUpTime
 - .sysContact
 - .sysName
 - .sysLocation
 - ▲ .interfaces
 - ▲ .ifNumber
 - ▲ .ifTable
 - ▲ .ifEntry
 - ▲ .ifIndex
 - .ifDescr
 - .ifType
 - .ifMtu
 - .ifSpeed
 - .ifPhysAddress
 - .ifAdminStatus
 - .ifOperStatus
 - ▶ .ip
 - ▶ .ospf
 - ▶ .rip2

Result Table

| Name/OID | Value | Type |
|---|-----------------|-------------|
| .1.3.6.1.2.1.2.2.1.2.1
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.i... | Van1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.2
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.i... | FastEthernet0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.3
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.i... | FastEthernet0/1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.4
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.i... | Serial0/0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.5
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.i... | Serial0/0/1 | OctetString |

Name : .ifDescr
 OID : .1.3.6.1.2.1.2.2.1.2
 Syntax :
 Access :
 Description :

iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifDescr

Informasi SNMP Router 1

MI B Browser

Address: 10.10.10.1 OID: .1.3.6.1.2.1.4.21.1.7

Advanced... Operations: Get GO

SNMP MIBs

- sysName
- sysLocation
- interfaces
 - ifNumber
 - ifTable
 - ifEntry
 - ifIndex
 - ifDescr
 - ifType
 - ifMtu
 - ifSpeed
 - ifPhysAddress
 - ifAdminStatus
 - ifOperStatus
 - ip
 - ipRouteTable
 - ipRouteEntry
 - ipRouteDest
 - ipRouteIndex
 - ipRouteMetric1
 - ipRouteMetric2
 - ipRouteMetric3
 - ipRouteMetric4
 - ipRouteNextHop
 - ipRouteAge
 - ipRouteMask
 - ipRouteMetric5
 - ospf
 - rip2

Result Table

| Name/OID | Value | Type |
|--|------------|-----------|
| .1.3.6.1.2.1.4.21.1.7.10.10.10.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.10.10.10.0) | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.10.10.20.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.10.10.10.20.0) | 10.10.10.2 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.1.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.192.168.1.0) | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.2.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.192.168.2.0) | 10.10.10.2 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.3.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.192.168.3.0) | 10.10.10.2 | IpAddress |

Name : ipRouteNextHop
OID : .1.3.6.1.2.1.4.21.1.7
Syntax :
Access :
Description :

iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.ipRouteNextHop

Informasi NextHop SNMP Router 1

SNMP Router 2

MI B Browser

Address: 10.10.10.2 OID: .1.3.6.1.2.1.1.5.0

Advanced... Operations: Get GO

SNMP MIBs

- router_std MIBs
 - iso
 - org
 - internet
 - mgmt
 - mib-2
 - system
 - sysDescr
 - sysObj...
 - sysUp...
 - sysCo...
 - sysName
 - sysLoc...
 - interfaces
 - ip
 - ospf
 - rip2
 - router_advip MIBs
 - switch_l2 MIBs
 - switch_multilayer MIBs

Result Table

| Name/OID | Value | Type |
|--|-------------|-------------|
| .1.3.6.1.2.1.1.5.0
(iso.org.dod.internet.mgmt.mib-2.system.sysName.0) | SNMPROUTER2 | OctetString |

Name : sysName
OID : .1.3.6.1.2.1.1.5.0
Syntax :
Access :
Description :

iso.org.dod.internet.mgmt.mib-2.system.sysName.0

SysName SNMP Router 2

MIB Browser

Address: 10.10.10.2 OID: .1.3.6.1.2.1.2.2.1.2

Advanced... Operations: Get GO

SNMP MIBs

- router_std MIBs
 - .iso
 - .org
 - .dod
 - .internet
 - .mgmt
 - .mb-2
 - .system
 - .sysDescr
 - .sysObjectID
 - .sysUpTime
 - .sysContact
 - .sysName
 - .sysLocation
 - .interfaces
 - .ifNumber
 - .ifTable
 - .ifEntry
 - .ifIndex
 - .ifDescr
 - .ifType
 - .ifMtu
 - .ifSpeed
 - .ifPhysAddress
 - .ifAdminStatus
 - .ifOperStatus

Result Table

| Name/OID | Value | Type |
|---|-----------------|-------------|
| .1.3.6.1.2.1.2.2.1.2.1
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry....) | Vlan1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.2
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry....) | FastEthernet0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.3
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry....) | FastEthernet0/1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.4
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry....) | Serial0/0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.5
(.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry....) | Serial0/0/1 | OctetString |

Name: ifDescr
 OID: .1.3.6.1.2.1.2.2.1.2
 Syntax:
 Access:
 Description:

iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifDescr

Informasi SNMP Router 2

MIB Browser

Address: 10.10.10.2 OID: .1.3.6.1.2.1.4.21.1.7

Advanced... Operations: Get GO

SNMP MIBs

- .ip
 - .ipRouteTable
 - .ipRouteEntry
 - .ipRouteDest
 - .ipRouteMetric1
 - .ipRouteMetric2
 - .ipRouteMetric3
 - .ipRouteMetric4
 - .ipRouteNextHop
 - .ipRouteAge
 - .ipRouteMask

Result Table

| Name/OID | Value | Type |
|---|------------|-----------|
| .1.3.6.1.2.1.4.21.1.7.10.10.10.0
(.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute....) | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.10.10.20.0
(.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute....) | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.1.0
(.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute....) | 10.10.10.1 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.2.0
(.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute....) | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.3.0
(.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute....) | 10.10.20.2 | IpAddress |

Name: ipRouteNextHop
 OID: .1.3.6.1.2.1.4.21.1.7
 Syntax:
 Access:
 Description:

iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.ipRouteNextHop

Informasi NextHop SNMP Router 2

SNMP Router 3

Address: 10.10.20.2 OID: .1.3.6.1.2.1.1.5.0
 Operations: Get GO

Result Table

| Name/OID | Value | Type |
|--|-------------|-------------|
| .1.3.6.1.2.1.1.5.0
(iso.org.dod.internet.mgmt.mib-2.system.sysName.0) | SNMPROUTER3 | OctetString |

Name : .sysName
 OID : .1.3.6.1.2.1.1.5.0
 Syntax :
 Access :
 Description :

iso.org.dod.internet.mgmt.mib-2.system.sysName.0

SysName SNMP Router 3

Address: 10.10.20.2 OID: .1.3.6.1.2.1.2.2.1.2
 Operations: Get GO

Result Table

| Name/OID | Value | Type |
|---|-----------------|-------------|
| .1.3.6.1.2.1.2.2.1.2.1
(iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry...) | Vlan1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.2
(iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry...) | FastEthernet0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.3
(iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry...) | FastEthernet0/1 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.4
(iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry...) | Serial0/0/0 | OctetString |
| .1.3.6.1.2.1.2.2.1.2.5
(iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry...) | Serial0/0/1 | OctetString |

Name : .ifDescr
 OID : .1.3.6.1.2.1.2.2.1.2
 Syntax :
 Access :
 Description :

iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifDescr

Informasi SNMP Router 3

MIB Browser

Address: 10.10.20.2 OID: .1.3.6.1.2.1.4.21.1.7

Advanced... Operations: Get GO

SNMP MIBs

- .ifTable
 - .ifEntry
 - .ifIndex
 - .ifDescr
 - .ifType
 - .ifFlt
 - .ifSpeed
 - .ifPhysAddress
 - .ifAdminStatus
 - .ifOperStatus
- .ip
 - .ipRouteTable
 - .ipRouteEntry
 - .ipRouteDest
 - .ipRouteIfIndex
 - .ipRouteMetric1
 - .ipRouteMetric2
 - .ipRouteMetric3
 - .ipRouteMetric4
 - .ipRouteNextHop
 - .ipRouteAge
 - .ipRouteMask
 - .ipRouteMetric5
- .ospf
 - .ospfGeneralGroup
 - .ospfAreaTable
 - .ospfLsdbTable
 - .ospfNbrTable
- .rip2

Result Table

| Name/OID | Value | Type |
|--|------------|-----------|
| .1.3.6.1.2.1.4.21.1.7.10.10.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute... | 10.10.20.1 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.10.10.20.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute... | 0.0.0.0 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.1.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute... | 10.10.20.1 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.2.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute... | 10.10.20.1 | IpAddress |
| .1.3.6.1.2.1.4.21.1.7.192.168.3.0
(iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRoute... | 0.0.0.0 | IpAddress |

Name : .ipRouteNextHop

OID : .1.3.6.1.2.1.4.21.1.7

Syntax :

Access :

Description :

.iso.org.dod.internet.mgmt.mib-2.ip.ipRouteTable.ipRouteEntry.ipRouteNextHop

Informasi NextHop SNMP Route