

Bab 6: Jaringan Terapan

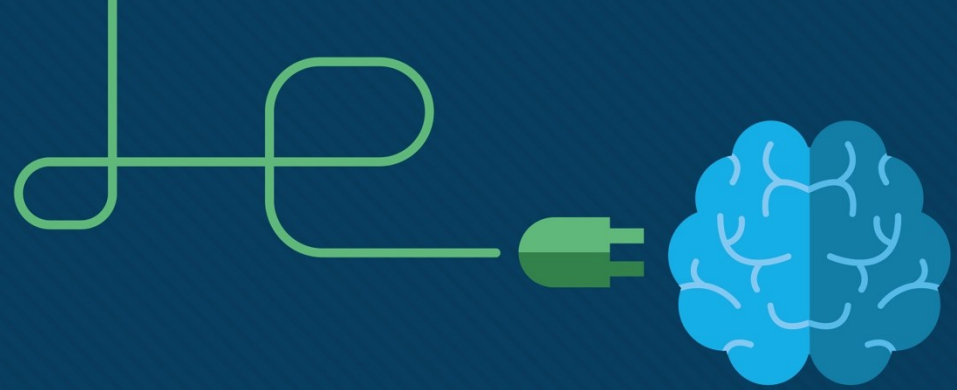
Materi Instruktur

Dasar-dasar TI v7.0



Bab 6: Jaringan Terapan

Panduan Perencanaan IT Essentials 7.0



Bab 6: Diterapkan Jaringan

Dasar-dasar TI v7.0



Bab 6 - Bagian & Tujuan

6.1 Koneksi Perangkat ke Jaringan

- Konfigurasi perangkat untuk jaringan kabel dan nirkabel.
 - Jelaskan pengalamatan MAC dan IP untuk jaringan komputer.
 - Konfigurasi NIC untuk jaringan kabel dan nirkabel.
 - Konfigurasi jaringan nirkabel dalam LAN kecil.
 - Konfigurasi pengaturan firewall.
 - Konfigurasi perangkat IoT.

6.2 Pemecahan Masalah Jaringan

- Memecahkan masalah dan solusi yang terkait dengan jaringan.
 - Jelaskan enam langkah proses pemecahan masalah untuk jaringan.
 - Memecahkan masalah umum dan lanjutan yang terkait dengan jaringan.

6.1 Koneksi Perangkat ke Jaringan

Penjelasan Video – Pengalaman MAC

Ini adalah penjelasan video tentang Pengalaman MAC:

- Analogi komunikasi
- Alamat MAC NIC
- Alamat Fisik
- OUI dan Vendor yang Ditugaskan
- Komunikasi pada Jaringan yang Sama
- Komunikasi pada Jaringan Terpisah

Penjelasan Video – Pengalamatan IPv4

Berikut adalah penjelasan video tentang Pengalamatan IPv4:

- Analogi komunikasi
- Alamat IPv4 vs. Alamat IPv6
- Desimal vs. Biner vs. Heksadesimal
- Masker Subnet
- Alamat IPv4 Bagian Jaringan dan Host
- Contoh Pengalamatan IPv4

Penjelasan Video – Pengalamatan IPv6

Ini adalah penjelasan video tentang Pengalamatan IPv6:

- Segmen Heksadesimal
- Aturan Kompresi Alamat
- Alamat IPv6 Bagian Jaringan dan Host
- Contoh Pengalamatan IPv6

Dua Alamat Jaringan



MAC Address Format

Address Format	Description
00-50-56-BE-D7-87	Two hexadecimal digits separated by hyphens
00:50:56:BE:D7:87	Two hexadecimal digits separated by colons
0050.56BE.D787	Four hexadecimal digits separated by periods

IPv4 Address Format

32 bits in dotted decimal notation

192.168.200.8

IPv6 Address Format

128 bits in hexadecimal format

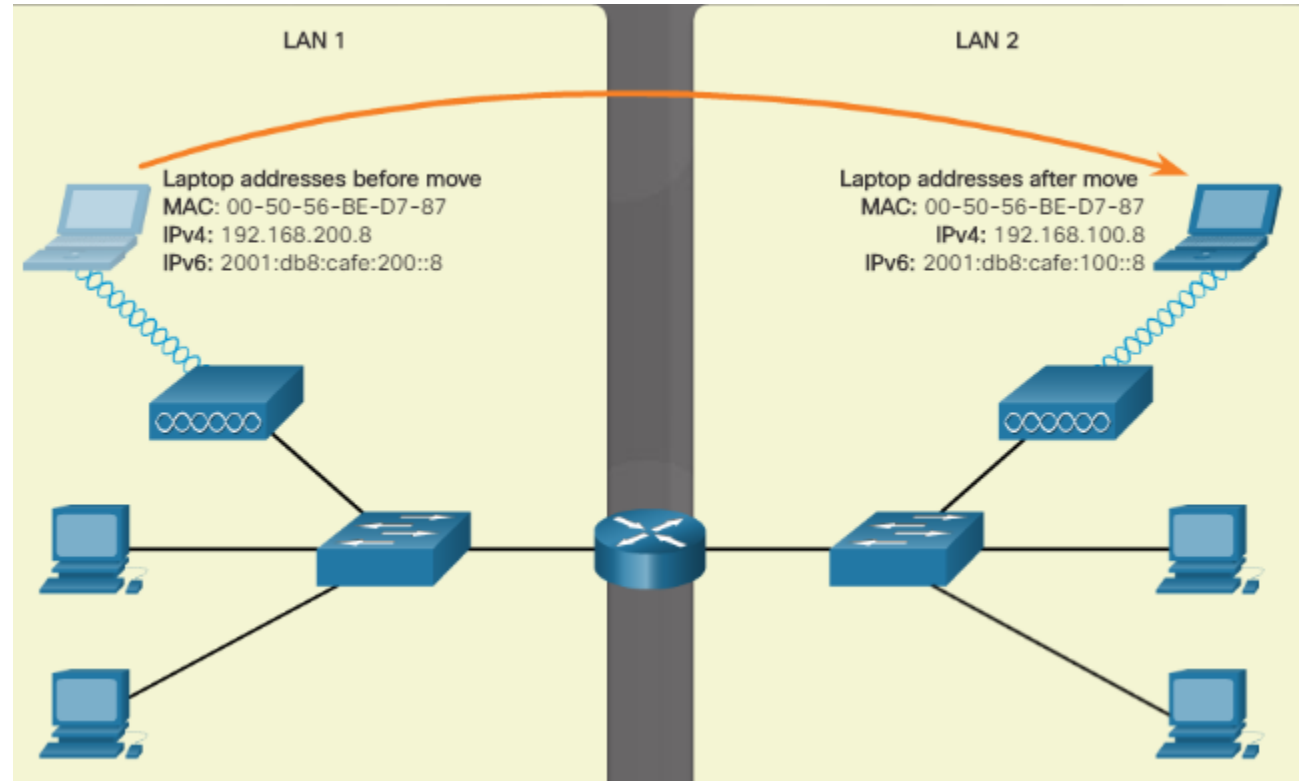
2001:0db8:cafe:0200:0000:0000:0000:0008

128 bits in compressed format

2001:db8:cafe:200::8

Dua Alamat Jaringan (Lanjutan)

- Ketika laptop dipindahkan ke jaringan lain, MAC alamat tetap sama, tapi alamat IPv4 dan IPv6 mengubah.
- Alamat MAC adalah nomor unik yang merupakan bagian dari NIC.
- Alamat IP ditetapkan oleh perusahaan atau internet penyedia.



Menampilkan Alamat

Use the /all switch with the ipconfig command to see the MAC (physical) address.

```
C:\> ipconfig /all
```

Windows IP Configuration

```
Host Name . . . . . : ITEUser
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
```

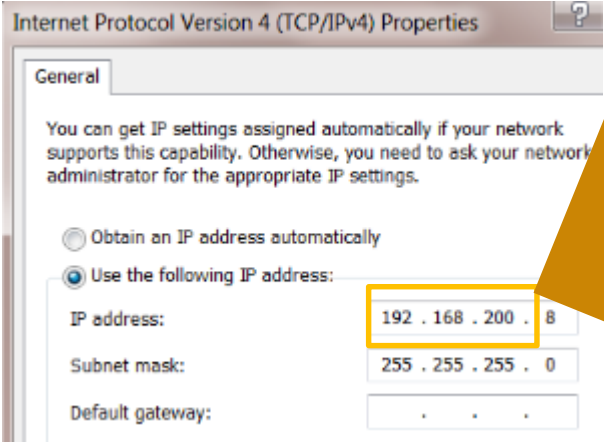
Ethernet adapter Local Area Connection:

```
Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) PRO/1000 MT Network Connection
Physical Address. . . . . : 00-50-56-8E-D7-87
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2001:db8:cafe:200::8(Preferred)
Link-local IPv6 Address . . . . . : fe80::8cbf:a682:d2e0:98a%11(Preferred)
IPv4 Address. . . . . : 192.168.200.8(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 2001:db8:cafe:200::1
                             192.168.200.1
```

Pengalaman Jaringan

Format Alamat IPv4

- Dua bagian dari alamat IP:
 - Jaringan
 - Tuan rumah
- Subnet mask menentukan bagian alamat mana yang merupakan bagian jaringan.



Network portion of the address
due to the subnet mask

	Network Portion	Host Portion
192.168.200.8	11000000.10101000.11001000	.00001000
255.255.255.0	11111111.11111111.11111111	.00000000
192.168.200.0	11000000.10101000.11001000	.00000000

Format Alamat IPv6

- Aturan:

- Hilangkan angka 0 di depan – 0db8 bisa menjadi db8
- Hilangkan semua segmen 0 – gunakan titik dua ganda (::)

```
2001 : 0DB8 : 0000 : 1111 : 0000 : 0000 : 0000 : 0200
FE80 : 0000 : 0000 : 0000 : 0123 : 4567 : 89AB : CDEF
FF02 : 0000 : 0000 : 0000 : 0000 : 0000 : 0000 : 0001
```

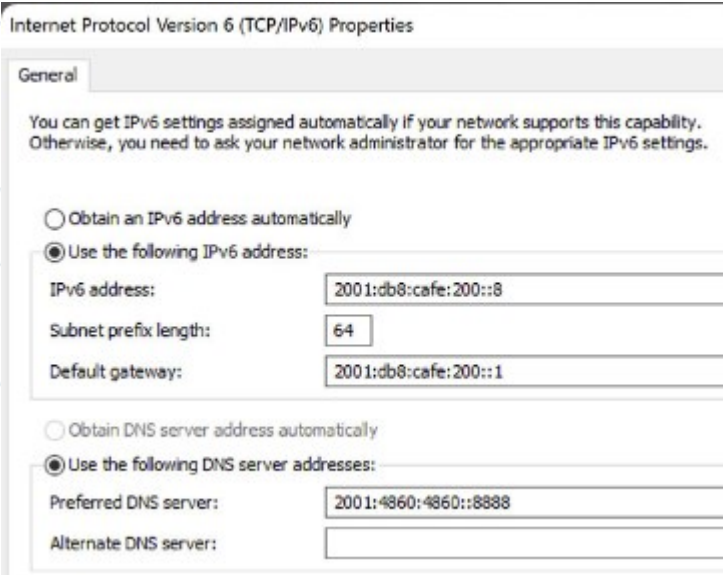
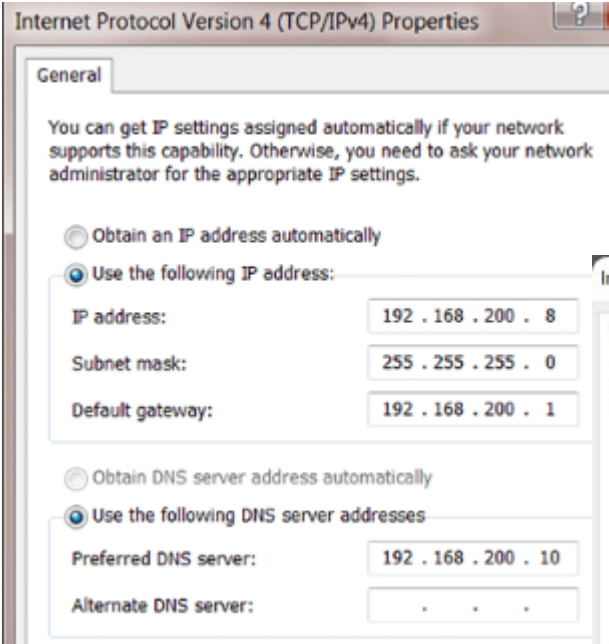
Fully expanded	2001:0db8:0000:1111:0000:0000:0000:0200
No leading 0s	2001: db8: 0:1111: 0: 0: 0: 200
Compressed	2001:db8:0:1111::200

Fully expanded	fe80:0000:0000:0000:0123:4567:89ab:cdef
No leading 0s	fe80: 0: 0: 0: 123:4567:89ab:cdef
Compressed	fe80::123:4567:89ab:cdef

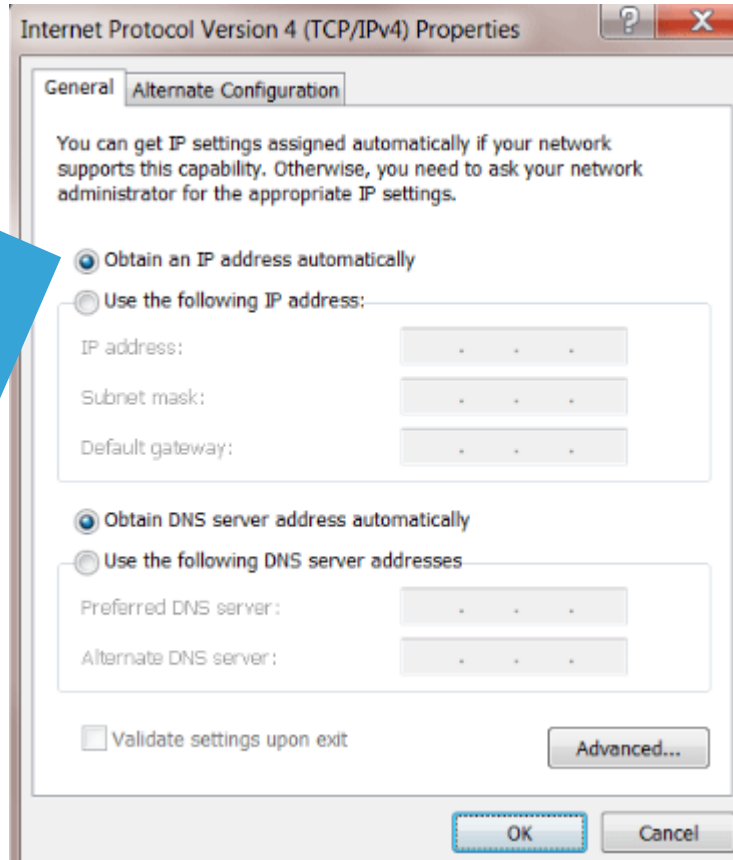
Fully expanded	ff02:0000:0000:0000:0000:0000:0000:0001
No leading 0s	ff02: 0: 0: 0: 0: 0: 0: 1
Compressed	ff02::1

Pengalamatan Statis

- Informasi alamat statis yang diperlukan untuk komunikasi dengan jaringan lain dan internet:
 - alamat IP
 - Masker subnet
 - Gateway default (alamat router sehingga informasi dapat dikirim ke router lain) jaringan)
 - Server DNS (mengubah nama domain atau URL menjadi alamat IP agar mudah diakses atau situs web dan perangkat jarak jauh)



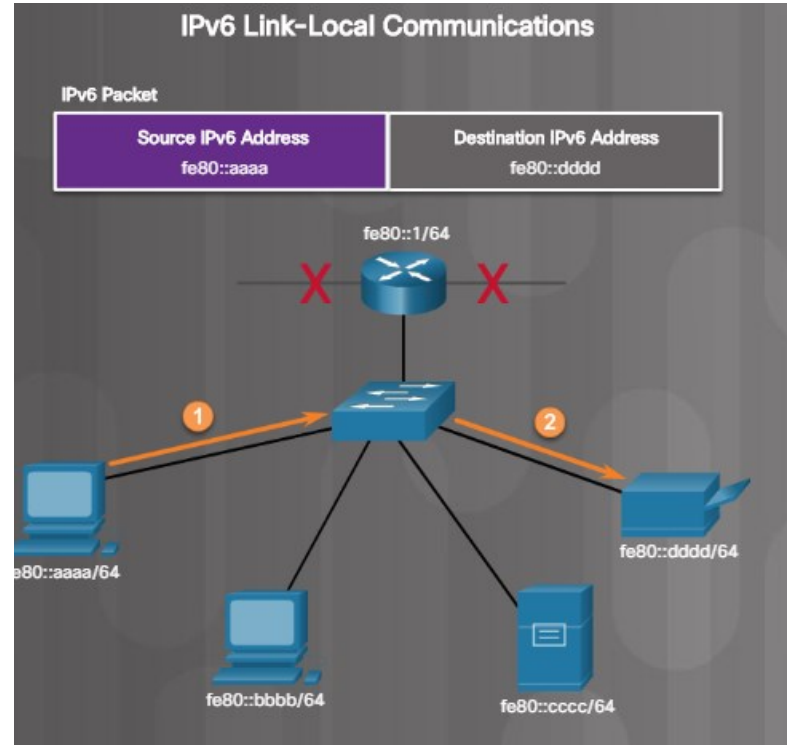
Pengalamatan Dinamis



- Informasi pengalamatan IP berasal dari server DHCP

Alamat IPv4 dan IPv6 Link-lokal

- Perangkat IPv4 digunakan jika perangkat tidak dapat memperoleh alamat IP IPv4.
- Perangkat IPv6 harus selalu memiliki alamat IP IPv6 link-local yang dinamis atau dikonfigurasi secara manual.

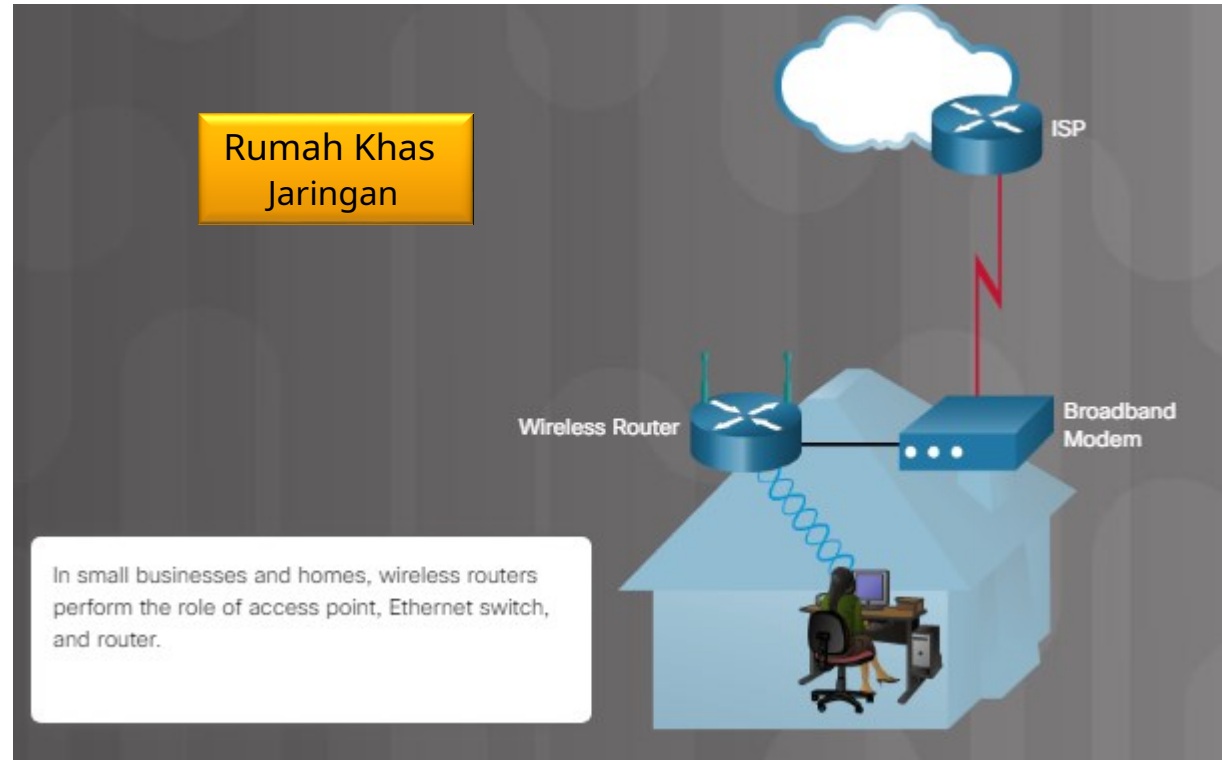


Packet Tracer – Menambahkan Komputer ke Jaringan yang Ada

Dalam aktivitas Packet Tracer ini, Anda akan mengonfigurasi komputer untuk menggunakan DHCP, mengonfigurasi pengalamatan statis, menggunakan ipconfig untuk mengambil informasi IPv4 host, dan menggunakan ping untuk memverifikasi konektivitas.

Desain Jaringan

- Jaringan komponen
- Desain jaringan



Konfigurasi NIC

Memilih NIC



Berkabel
Ethernet



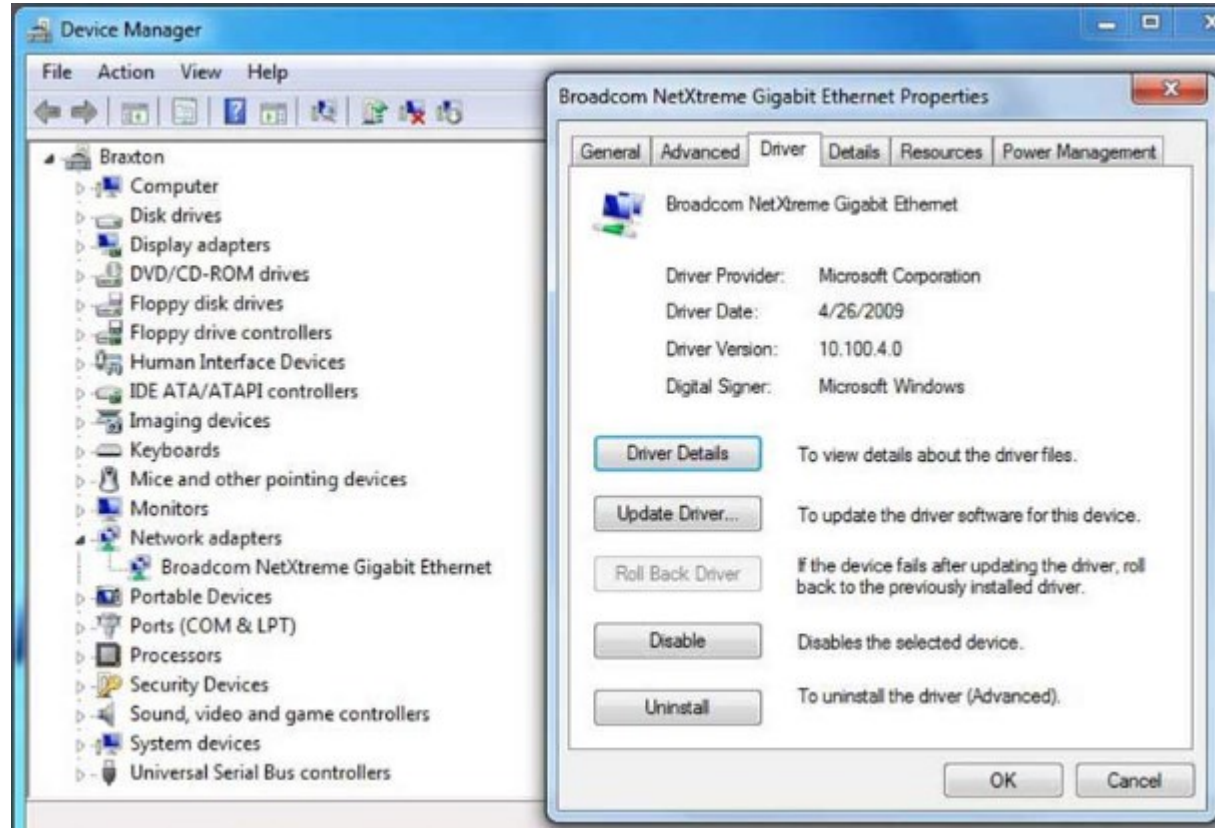
Nirkabel
Ethernet



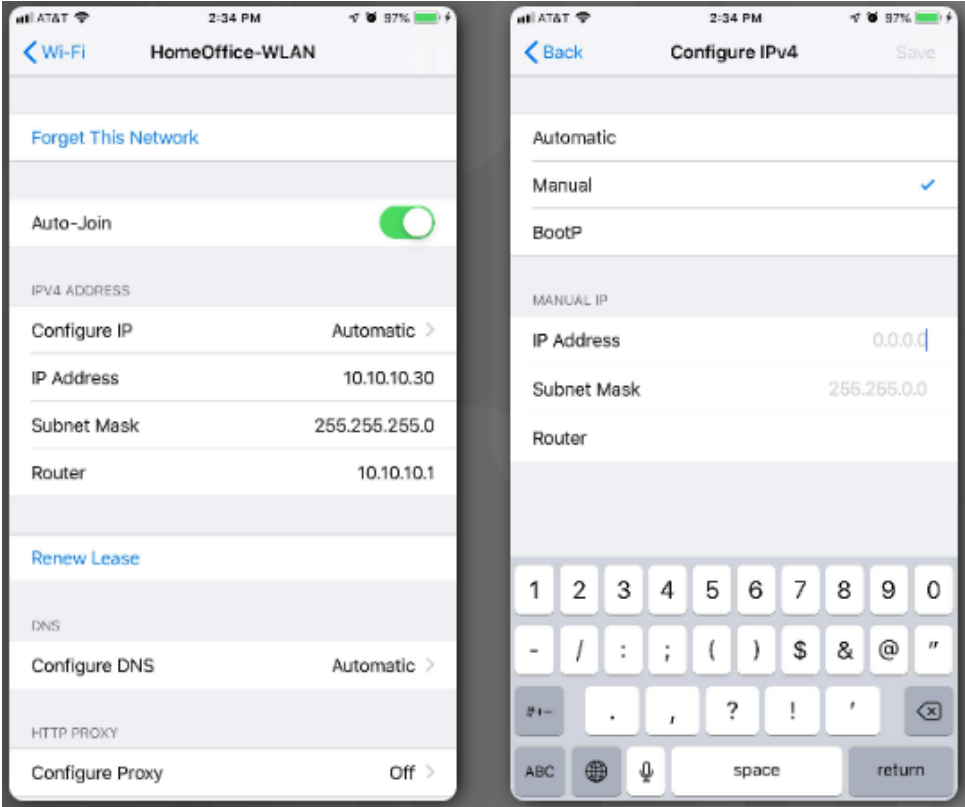
Nirkabel
Ethernet

Memasang dan Memperbarui NIC

- Jika memasang NIC nirkabel, pastikan antena diposisikan untuk jangkauan optimal
- Menggunakan **Manajer Perangkat** untuk melihat detail pengemudi:
 - Perluas *Adaptor jaringan* kategori
 - Klik kanan pada NIC tertentu > *Properti* atau *Perbarui driver*



Konfigurasi NIC



- Perangkat nirkabel termasuk telepon pintar juga memerlukan alamat IP untuk berpartisipasi dalam jaringan nirkabel.

Konfigurasi NIC

Bahasa Indonesia: ICMP

pingopsi sakelar perintah

- Internet Control Message Protocol (ICMP) digunakan untuk menguji konektivitas dan mengirim pesan kontrol dan kesalahan.
- Itupingperintah adalah bagian dari ICMP.

```
C:\> ping cisco.com

Pinging e144.dscb.akamaiedge.net [23.200.16.170] with 32 bytes of data:
Reply from 23.200.16.170: bytes=32 time=25ms TTL=54
Reply from 23.200.16.170: bytes=32 time=26ms TTL=54
Reply from 23.200.16.170: bytes=32 time=25ms TTL=54
Reply from 23.200.16.170: bytes=32 time=25ms TTL=54

Ping statistics for 23.200.16.170:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 25ms, Maximum = 26ms, Average = 25ms
```

```
C:\> ping /?

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
          [-r count] [-s count] [[-j host-list] | [-k host-list]]
          [-w timeout] [-R] [-S srcaddr] [-4] [-6] target_name

Options:
    -t          Ping the specified host until stopped.
                To see statistics and continue - type Control-Break;
                To stop - type Control-C.
    -a          Resolve addresses to hostnames.
    -n count    Number of echo requests to send.
    -l size     Send buffer size.
    -f         Set Don't Fragment flag in packet (IPv4-only).
    -i TTL      Time To Live.
    -v TOS      Type Of Service (IPv4-only. This setting has been deprecated
                and has no effect on the type of service field in the IP Header).
    -r count    Record route for count hops (IPv4-only).
    -s count    Timestamp for count hops (IPv4-only).
    -j host-list Loose source route along host-list (IPv4-only).
    -k host-list Strict source route along host-list (IPv4-only).
    -w timeout  Timeout in milliseconds to wait for each reply.
    -R         Use routing header to test reverse route also (IPv6-only).
    -S srcaddr  Source address to use.
    -4         Force using IPv4.
    -6         Force using IPv6.
```

Lab – Konfigurasi NIC untuk Menggunakan DHCP di Windows

Di lab ini, Anda akan mengonfigurasi NIC Ethernet untuk menggunakan DHCP guna memperoleh alamat IP dan menguji konektivitas antara dua komputer.

Penjelasan Video – Konfigurasi Jaringan Kabel dan Nirkabel

Berikut adalah penjelasan video tentang konfigurasi jaringan kabel dan nirkabel:

- Hubungkan Kabel
- Halaman Web Router Nirkabel
- Ubah Kata Sandi
- Pengaturan WAN
- Pengaturan LAN
- Pengaturan Nirkabel
- Hubungkan ke Jaringan Nirkabel

Menghubungkan Perangkat Kabel ke Internet

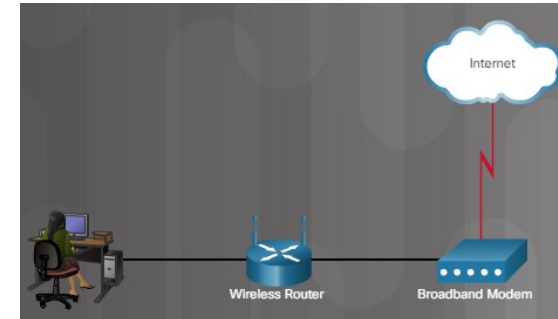
Untuk menghubungkan perangkat jaringan kabel kantor kecil atau rumah:

1. Hubungkan kabel ke perangkat.
2. Hubungkan ujung kabel lainnya ke sakelar (port kuning).
3. Hubungkan kabel antara router nirkabel (port biru) dan modem pita lebar.



Ke modem

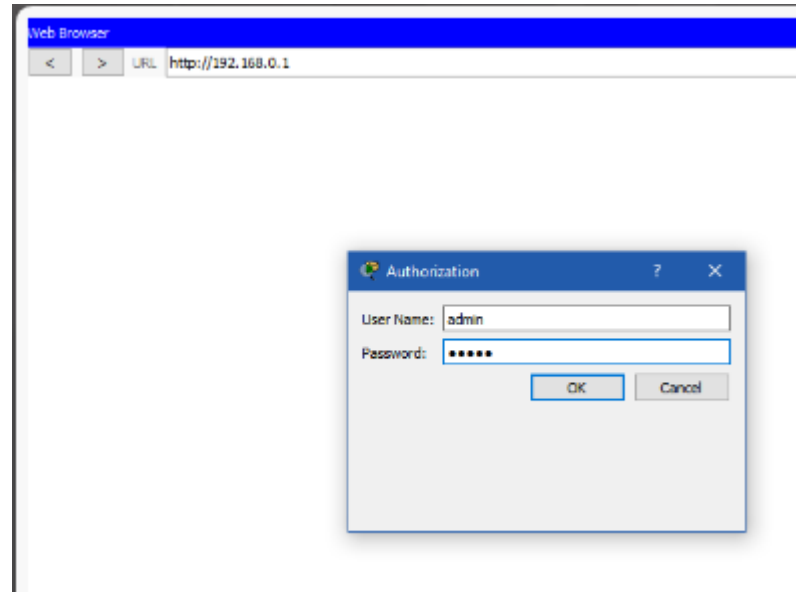
Ke PC



Konfigurasi Jaringan Kabel dan Nirkabel

Masuk ke Router

- Buka peramban dan masukkan alamat IP default router.
- Ubah nama pengguna dan kata sandi default segera.



Konfigurasi Jaringan Kabel dan Nirkabel

Pengaturan Jaringan Dasar

1. Masuk ke router.
2. Ubah kata sandi default.
3. Masuk dengan kata sandi baru.
4. Mengatur rentang alamat DHCP
5. Perbarui alamat IP pada perangkat (**ipconfig /renew** kemudian **ipconfig /flushdns** perintah).
6. Ubah alamat IP default dan masuk dengan alamat IP baru.

Web Browser

< > URL Go Stop

Wireless-N Broadband Router Firmware Version: v0.93.3 WRT300N

Setup Setup Wireless Security Access Restrictions Applications & Gaming Administration Status

Basic Setup DDNS MAC Address Clone Advanced Routing

Internet Setup

Internet Connection type: Automatic Configuration - DHCP

Optional Settings (required by some internet service providers)

Host Name:

Domain Name:

MTU: Size: 1500

Network Setup

Router IP

IP Address: . . .

Subnet Mask:

DHCP Server: ☒ Enabled ☐ Disabled

DHCP Server Settings

Start IP Address: 192.168.0.

Help...

Konfigurasi Jaringan Kabel dan Nirkabel

Pengaturan Nirkabel Dasar

- 1.Lihat default WLAN.
- 2.Ubah mode jaringan.
- 3.Konfigurasi SSID.
- 4.Konfigurasi saluran.
- 5.Konfigurasi mode keamanan.
- 6.Konfigurasi frasa sandi.

2.

Basic Wireless Settings

Network Mode:

Network Name (SSID):

Radio Band:

Wide Channel:

Mixed

Mixed

BG-Mixed

Wireless-G Only

Wireless-B Only

Wireless-N Only

Disabled

3.

Network Name (SSID):

OfficeNet

4.

Standard Channel:

1 - 2.412GHz

1 - 2.412GHz

2 - 2.417GHz

3 - 2.422GHz

4 - 2.427GHz

5 - 2.432GHz

5.

Security Mode:

WPA2 Personal

Encryption:

AES

AES

TKIP

Passphrase:

Key Renewal:

3600

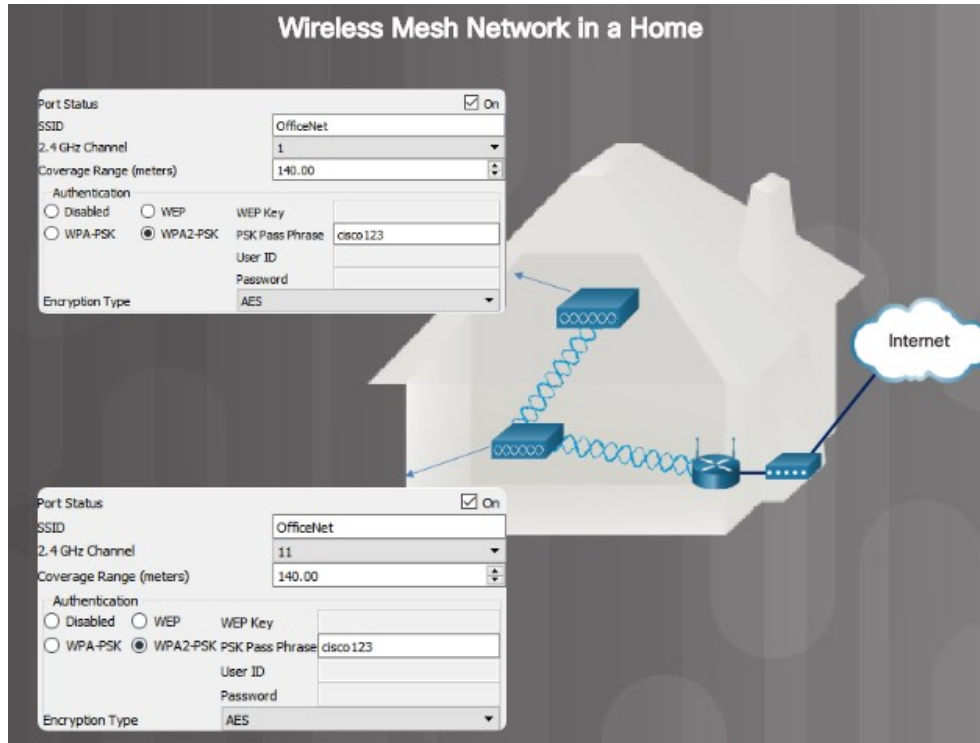
seconds

6.

Passphrase:

cisco123

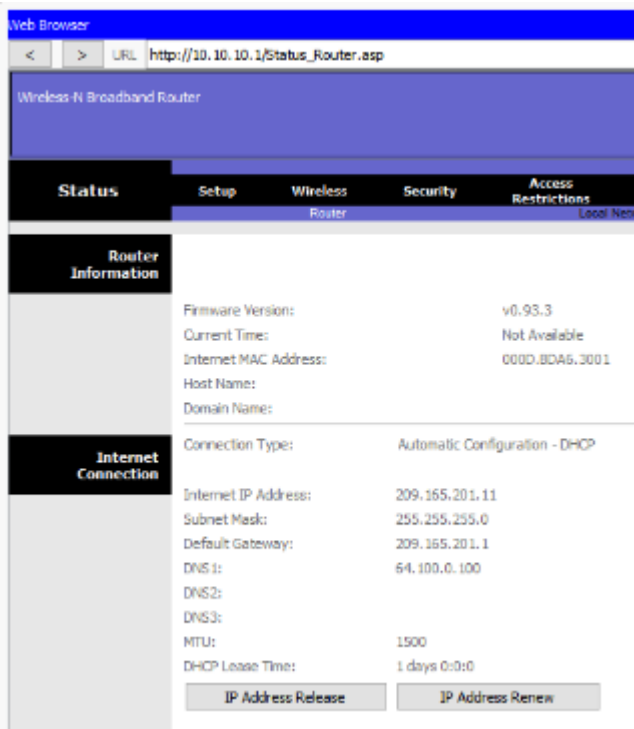
Konfigurasi Jaringan Mesh Nirkabel



Konfigurasi Jaringan Kabel dan Nirkabel

NAT untuk IPv4

- Network Address Translation (NAT) mengubah alamat IPv4 pribadi menjadi alamat IPv4 publik yang dapat dirutekan ke Internet.



Konfigurasi Jaringan Kabel dan Nirkabel

Kualitas Layanan

- Konfigurasi Kualitas Layanan (QoS) memungkinkan prioritas jenis lalu lintas tertentu.

Basic

Advanced

Cancel

Apply

Advanced Home

Setup

Internet Setup

Wireless Setup

LAN Setup

QoS Setup

Storage

Security

Administration

Advanced Setup

QoS Setup

#	QoS Policy	Priority	Description
1	IP Phone	High	IP Phone applications
2	Counter Strike	High	Online Gaming Counter Strike
3	Netflix	High	Online Video Streaming Netflix
4	FTP	Medium	FTP Applications
5	WWW	Medium	WWW Applications
6	Gnutella	Low	Gnutella Applications
7	SMTP	Medium	SMTP Applications

Edit

Delete

Delete All

Add Priority Rule

Packet Tracer – Hubungkan ke Jaringan Nirkabel

Dalam aktivitas Packet Tracer ini, Anda akan mengonfigurasi router nirkabel dan titik akses untuk menerima klien nirkabel dan merutekan paket IP. Anda juga akan memperbarui beberapa pengaturan default.

Lab – Konfigurasi Jaringan Nirkabel

Di lab ini, Anda akan mengonfigurasi pengaturan dasar pada router nirkabel dan menghubungkan PC ke router secara nirkabel.

Penjelasan Video – Pengaturan Firewall

Ini adalah penjelasan video tentang Pengaturan Firewall:

- Konfigurasi DMZ di LAN
- Aturan firewall

UPnP

- Universal Plug and Play (UPnP) tidak aman dan merupakan risiko keamanan.
- UPnP memungkinkan perangkat untuk menambahkan dirinya secara dinamis ke jaringan nirkabel tanpa intervensi/konfigurasi.

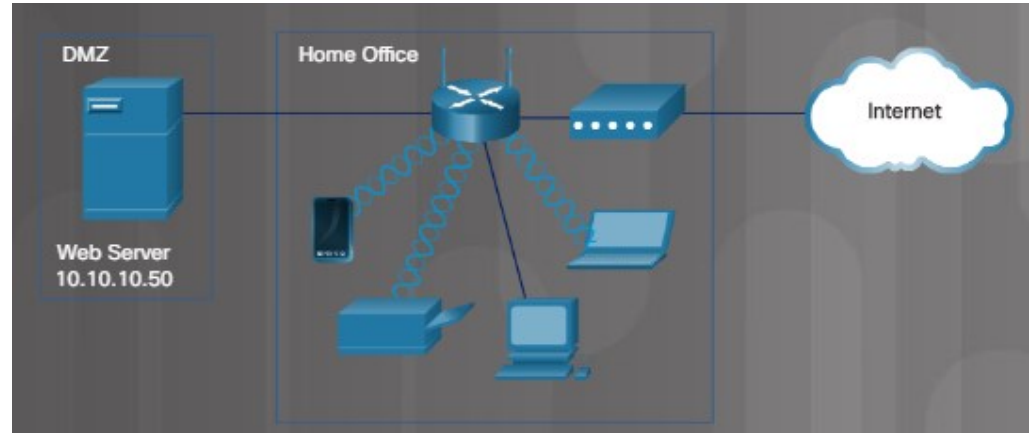
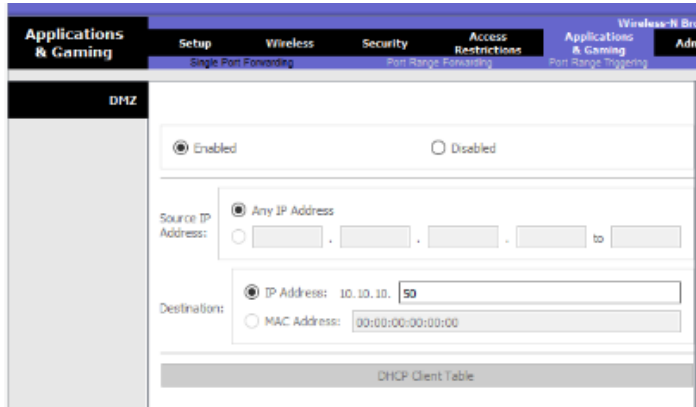
The screenshot displays the UPnP configuration page. On the left, a vertical grey bar contains the label 'Upnp'. The main content area is white and contains the following settings:

- Allowed Remote Ip Address:** A section with two radio button options. The first is 'Any Ip Address'. The second is a range of IP addresses: '0 . 0 . 0 . 0 to 0'.
- Remote Management Port:** A text box containing the value '8080'.
- Upnp:** A section with a radio button set where 'Disabled' is selected.
- Allow Users to Configure:** A section with a radio button set where 'Disabled' is selected.
- Allow Users to Disable Internet Access:** A section with a radio button set where 'Disabled' is selected.

Pengaturan Firewall

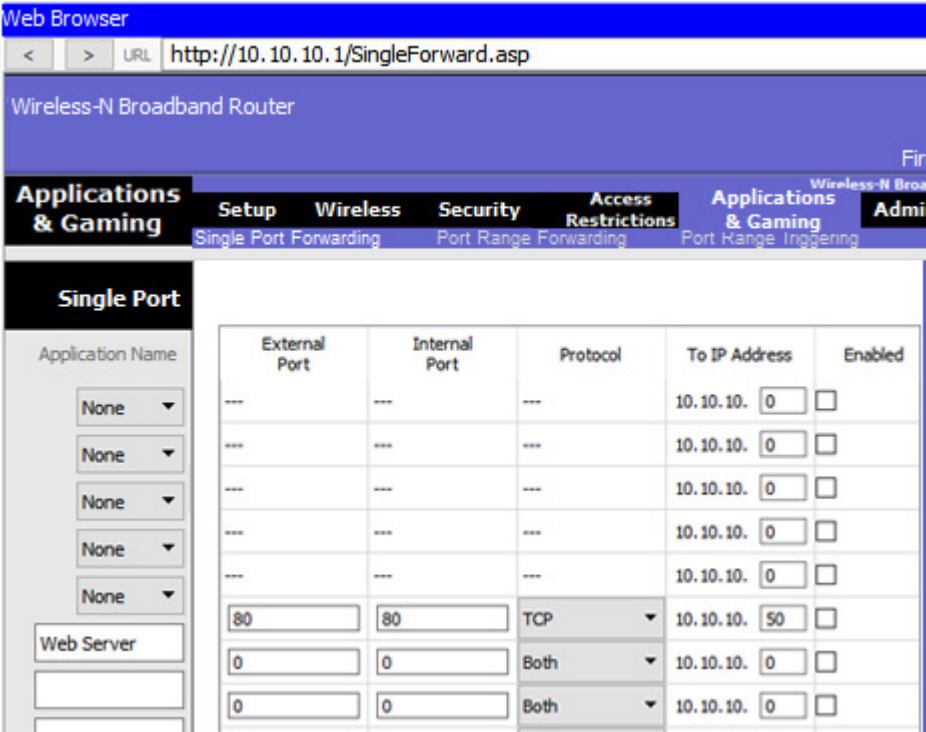
Zona Demiliterasi

- Zona demiliterasi (DMZ) adalah jaringan yang menyediakan layanan ke jaringan yang tidak terpercaya.
- DMZ sering kali berisi server.
- Beberapa router nirkabel mendukung pembuatan DMZ.



Penerusan Pelabuhan

- Penerusan port memungkinkan lalu lintas ke port tertentu.
- Pemicu port memungkinkan pembukaan sementara pada firewall untuk mengizinkan data ke port masuk tertentu atau rentang port untuk aplikasi atau permainan.



Penyaringan Alamat MAC

- Penyaringan Alamat MAC digunakan untuk menentukan alamat MAC yang diizinkan pada jaringan nirkabel.

The MAC addresses have not yet been entered into the MAC Address filter list on the wireless router configuration to the left.

Wireless Setup Wireless Security Access Restrictions Applications & Gaming

Wireless MAC Filter

☒ Enabled ☐ Disabled

☐ Prevent PCs listed below from accessing the wireless network

☒ Permit PCs listed below to access wireless network

Wireless Client List

MAC 01:	00:00:00:00:00:00	MAC 26:	00:00:00:00:00:00
MAC 02:	00:00:00:00:00:00	MAC 27:	00:00:00:00:00:00
MAC 03:	00:00:00:00:00:00	MAC 28:	00:00:00:00:00:00
MAC 04:	00:00:00:00:00:00	MAC 29:	00:00:00:00:00:00
MAC 05:	00:00:00:00:00:00	MAC 30:	00:00:00:00:00:00
MAC 06:	00:00:00:00:00:00	MAC 31:	00:00:00:00:00:00
MAC 07:	00:00:00:00:00:00	MAC 32:	00:00:00:00:00:00
MAC 08:	00:00:00:00:00:00	MAC 33:	00:00:00:00:00:00
MAC 09:	00:00:00:00:00:00	MAC 34:	00:00:00:00:00:00
MAC 10:	00:00:00:00:00:00	MAC 35:	00:00:00:00:00:00

Daftar Putih dan Daftar Hitam

- **Daftar putih**—mengizinkan pengguna seperti anak-anak atau karyawan mengakses alamat IP tertentu.
- **Daftar Hitam**—blokir situs web yang dikenal

The screenshot shows the 'Access Restrictions' configuration page for an 'Internet Access Policy'. The left sidebar contains a tree view with 'Internet Setup' selected, and sub-items for 'Applied PCs', 'Access Restriction', 'Schedule', and 'Website Blocking by URL Address'. The main configuration area includes:

- Access Policy:** A dropdown menu showing '10', with buttons for 'Delete This Entry' and 'Summary'.
- Enter Policy Name:** A text field containing 'Whitelist'.
- Status:** Radio buttons for 'Enabled' (selected) and 'Disabled'.
- Edit List:** A button with the note '(This Policy applies only to PCs on the List.)'.
- Access Restriction:** Radio buttons for 'Deny' and 'Allow' (selected).
- Schedule:** A section for 'Internet access during selected days and hours.' with checkboxes for 'EveryDay' (checked), 'Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', and 'Sat'.
- Times:** Radio buttons for '24 Hours' (selected) and a time range selector (12 AM : 00 to 12 AM : 00).
- Website Blocking by URL Address:** Four text fields labeled 'URL 1:', 'URL 2:', 'URL 3:', and 'URL 4:'.
- Reserved:** Two text fields labeled 'Reserved 1:' and 'Reserved 2:'.

Packet Tracer – Konfigurasi Pengaturan Firewall

Dalam aktivitas Packet Tracer ini, Anda akan mengonfigurasi router nirkabel untuk:

- Mengandalkan penyaringan MAC untuk meningkatkan keamanan
- Izinkan akses ke server di DMZ
- Nonaktifkan DMZ dan konfigurasi dukungan untuk Penerusan Port Tunggal

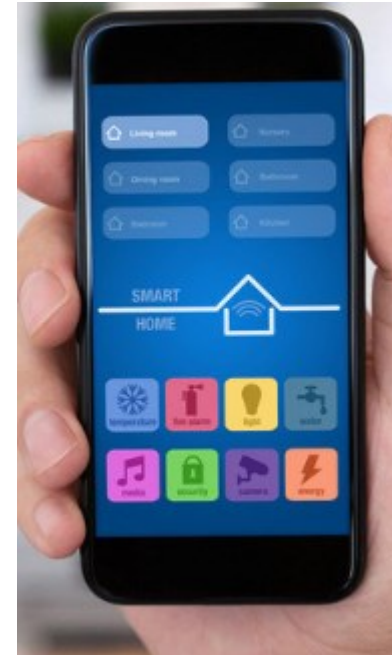
Lab – Konfigurasi Pengaturan Firewall

Di lab ini, Anda akan mengonfigurasi pengaturan firewall untuk menggunakan pemfilteran alamat MAC, DMZ, dan penerusan port tunggal pada router nirkabel untuk mengelola koneksi dan lalu lintas melalui router nirkabel.

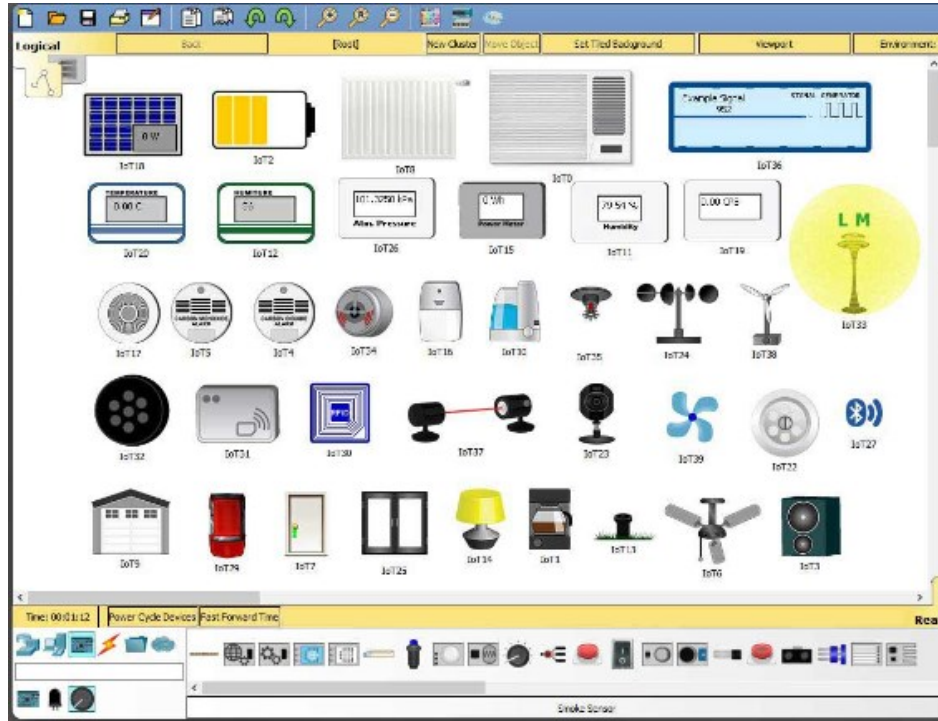
Konfigurasi Perangkat IoT

Internet untuk Segala Hal

- Internet of Things (IoT) dapat terhubung ke jaringan yang telah ada sebelumnya atau jaringannya sendiri.
- Rumah pintar berisi perangkat IoT.



Perangkat IoT di Packet Tracer

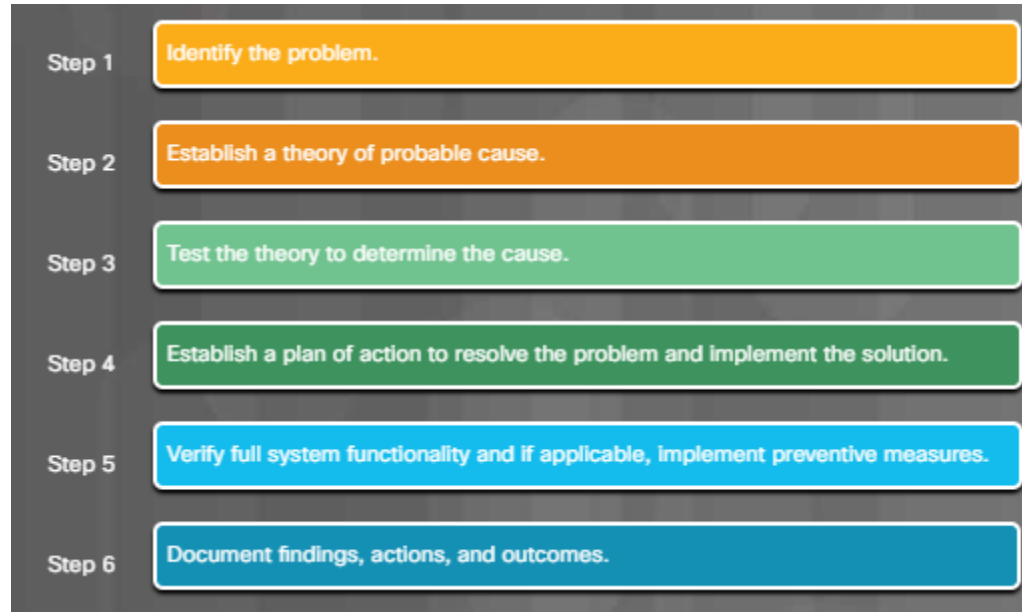


Packet Tracer – Konfigurasi Pengaturan Firewall

Dalam aktivitas ini, Anda baru saja memasang berbagai perangkat IoT di sekitar rumah dan ingin mengonfigurasinya sebagai sistem keamanan rumah. Anda akan mengonfigurasi gateway rumah untuk menggunakan sensor gerak, menguji dan menyetel ulang fitur keamanan, serta menyetel AC.

6.2 Proses Pemecahan Masalah Jaringan

Proses Pemecahan Masalah



Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 1

Step 1. Identify the problem.	
Open-ended questions	<ul style="list-style-type: none">• What problems are you experiencing with your device?• What software has been installed on your device recently?• What were you doing when the problem was identified?• What error message have you received?• What type of network connection is the device using?
Closed-ended questions	<ul style="list-style-type: none">• Has anyone else used your device recently?• Can you see any shared files or printers?• Have you changed your password recently?• Can you access the internet?• Are you currently logged into the network?• Is anyone else having this problem?• Have there been any environmental or infrastructure changes to the network?

Network problems can be simple or complex, and can result from a combination of hardware, software, and connectivity issues. As a technician, you should develop a logical and consistent method for diagnosing network problems by eliminating one problem at a time.

For example, to assess the problem determine how many devices are experiencing the problem. If there is a problem with one device, start with that device. If problem with all devices, start the troubleshooting process in the network room where all the devices are connected.

The first step in the troubleshooting process is to identify the problem. Use the list of open-ended and closed-ended questions above as a starting point to gather information from the customer.

Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 2

Step 2. Establish a theory of probable cause.

Common causes of network problems	<ul style="list-style-type: none">• Loose cable connections• Improperly installed NIC• ISP is down• Low wireless signal strength• Invalid IP address• DNS Server issue• DHCP server issue
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After you have talked to the customer, you can establish a theory of probable causes. The list above provides some common probable causes for network problems.

Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 3

Step 3. Test the theory to determine the cause.

Common steps to determine cause	<ul style="list-style-type: none">• Check that all cables are connected to the proper locations.• Unseat and then reconnect cables and connectors.• Reboot the computer or network device.• Login as a different user.• Repair or re-enable the network connection.• Contact the network administrator.• Ping the device's default gateway.• Access a remote web page such as http://www.cisco.com.
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After you have developed some theories about what is wrong, test your theories to determine the cause of the problem. The list above shows some quick procedures that you can use to determine the exact cause of the problem or even correct the problem. If a quick procedure does correct the problem, you can then verify full system functionality. If a quick procedure does not correct the problem, you might need to research the problem further to establish the exact cause.

Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 4

Step 4. Establish a plan of action to resolve the problem and implement the solution.

If no solution is achieved in the previous step, further research is needed to implement the solution.

- Helpdesk repair logs.
- Other technicians.
- Manufacturer FAQ websites.
- Technical websites.
- News groups.
- Computer manuals.
- Device manuals.
- Online forums.
- Internet search.

After you have determined the exact cause of the problem, establish a plan of action to resolve the problem and implement the solution. The list above shows some sources you can use to gather additional information to resolve an issue.

Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 5

Step 5. Verify full system functionality and if applicable, implement preventive measures.

Verify full system functionality and if applicable, implement preventive measures.

- Use **ipconfig /all** command to display IP address information for all network adapters.
- Use **ping** to check network connectivity. It will send a packet to the specified address and displays response information.
- Verify the device can access authorized resources like company email servers and the internet.
- Research additional commands or ask a supervisor for help with other testing utilities.

After you have corrected the problem, verify full functionality and, if applicable, implement preventive measures. The list above shows a few steps to verify the solution.

Enam Langkah untuk Memecahkan Masalah Jaringan – Langkah 6

Step 6. Document findings, actions, and outcomes.

Document findings, actions, and outcomes.	<ul style="list-style-type: none">• Discuss the solution implemented with the customer.• Have the customer verify problem has been solved.• Provide the customer with all paperwork.• Document the steps taken to solve the problem in the work order and technician's journal.• Document any components used in the repair.• Document the time spent to solve the problem.
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In the final step of the troubleshooting process, document your findings, actions, and outcomes, as shown in the list above.

Masalah Umum dan Solusi untuk Jaringan

Identify the Problem

NIC LED lights are not lit.

User cannot use secured shell (SSH) to access a remote device.

Device cannot detect the wireless router.

Windows computer has an IPv4 address of 169.254.x.x.

Remote device does not respond to a ping request.

A user can access the local network but cannot access the internet.

The network is fully functional but the wireless device cannot connect to the network.

Local resources such as file shares or printers are unavailable.

NIC LED lights are not lit.

Probable Causes

- The network cable is unplugged or damaged.
- The NIC is damaged.

Possible Solutions

- Reconnect or replace the network connection to the computer.
- Replace the NIC.

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Masalah Lanjutan dan Solusi untuk Koneksi Jaringan

Identify the Problem

A device can connect to a network device by the IP address but not by the host name.

The device does not obtain or renew the IP address on the network.

An IP address conflict message displays when connecting a new device to the network.

A device has network access but does not have internet access.

Users are experiencing slow transfer speeds, weak signal strength, intermittent connectivity on the wireless network.

A device can connect to a network device by the IP address but not by the host name.

Probable Causes	Possible Solutions
Incorrect host name.	Re-enter the host name.
Incorrect DNS settings.	Re-enter the IP address of the DNS server.
DNS server is not operational.	Restart the DNS server.

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Masalah dan Solusi Lanjutan untuk FTP dan Koneksi Internet Aman

Identify the Problem

A user cannot access the FTP server.

The FTP client software cannot find the FTP server.

A device cannot access a specific HTTPS site.

A user cannot access the FTP server.

Probable Causes	Possible Solutions
FTP is being blocked by the firewall at the router.	Ensure that ports 20 and 21 are allowed through the router's outbound firewall.
FTP is being blocked by the Windows firewall.	Ensure that ports 20 and 21 are allowed through the Windows outbound firewall.
The maximum number of users has been reached.	Increase the maximum number of simultaneous FTP users on the FTP server.

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Masalah dan Solusi Lanjutan Menggunakan Alat Jaringan

Identify the Problem

A device on one network cannot ping a device on another network.

The computer cannot Telnet into a remote computer.

The nslookup command reports "Can't find server name for address {ip-address}: timed out", where ip-address...

The ipconfig /release or ipconfig /renew command results in the following message: "No operation can be performed..."

The ipconfig /release or ipconfig /renew command results in the following message: "The operation failed as no adapter is..."

A device on one network cannot ping a device on another network.

Probable Causes	Possible Solutions
There is a broken link between the two networks.	Use traceroute to locate which link is down and fix the broken link.
Internet Control Message Protocol (ICMP) is blocked at the router.	Configure the router to allow ICMP echo requests and echo replies.
ICMP is blocked at the Windows firewall.	Configure Windows firewall to allow ICMP echo requests and echo replies.

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Lab – Memecahkan Masalah Jaringan

Di lab ini, Anda akan mendiagnosis penyebab masalah jaringan dan menyelesaikannya.

6.3 Ringkasan Bab

Bab 6: Ringkasan Jaringan Terapan

6.1 Koneksi Perangkat ke Jaringan

- Konfigurasi perangkat untuk jaringan kabel dan nirkabel.
 - Jelaskan pengalamatan MAC dan IP untuk jaringan komputer.
 - Konfigurasi NIC untuk jaringan kabel dan nirkabel.
 - Konfigurasi jaringan nirkabel dalam LAN kecil.
 - Konfigurasi pengaturan firewall.
 - Konfigurasi perangkat IoT.

6.2 Pemecahan Masalah Jaringan

- Memecahkan masalah dan solusi yang terkait dengan jaringan.
 - Jelaskan enam langkah proses pemecahan masalah untuk jaringan.
 - Memecahkan masalah umum dan lanjutan yang terkait dengan jaringan.

