



MikroTik

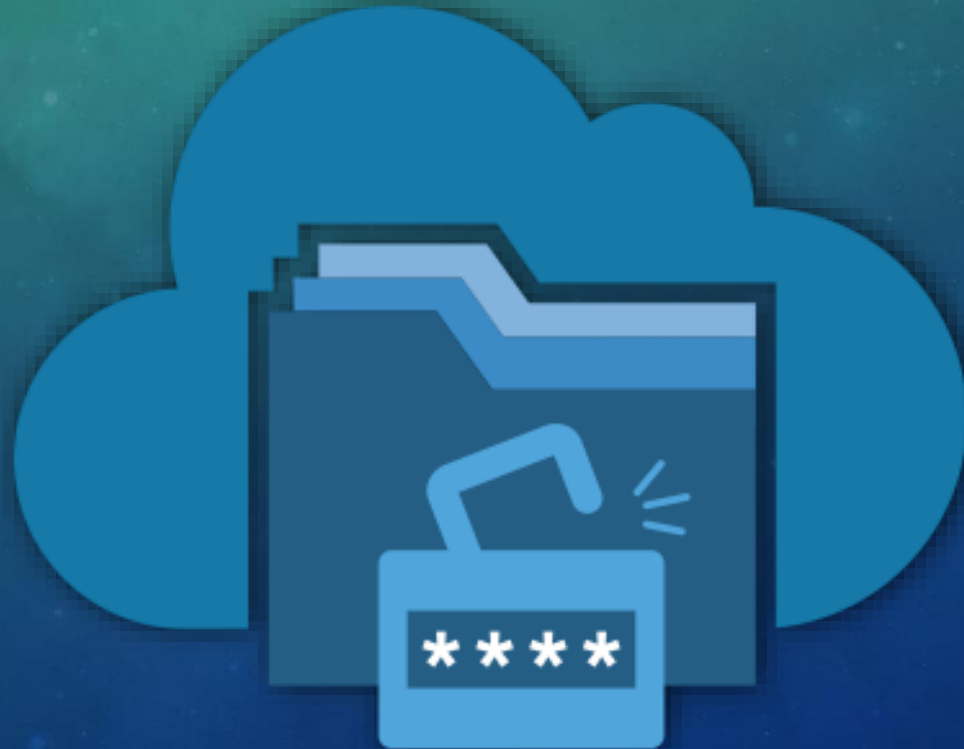
Prepared by

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October 2018 Turkey MUM

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How To Secure Mikrotik Wireless Link Using WPA / WPA2 EAP

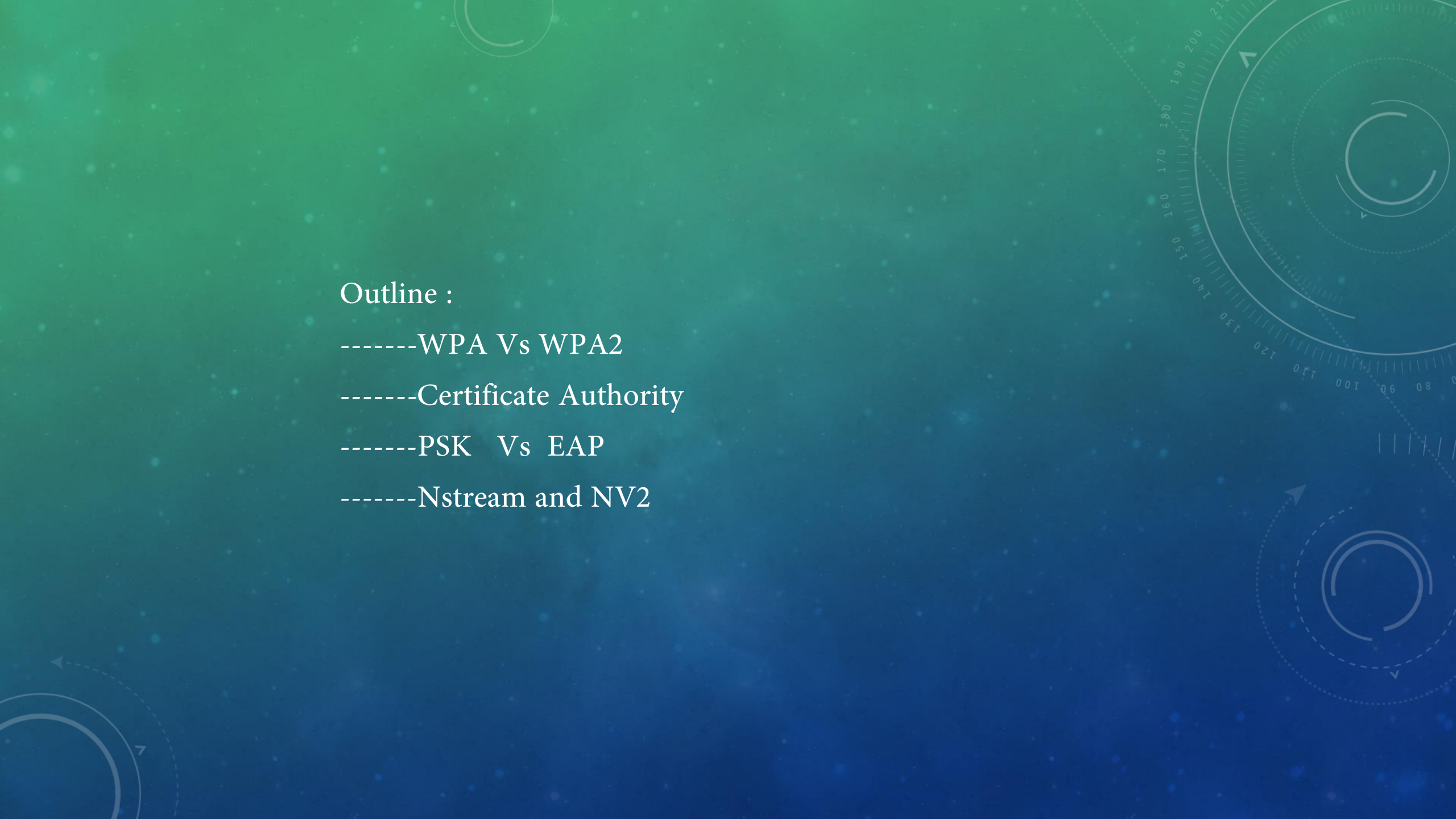


About me:

- ✓ Experienced in IT field about 17 years
- ✓ Consultor of Mikrotik
- ✓ Designer of Network
- ✓ Implementation network
- ✓ Penetration Test
- ✓ MTCNA , MTCRE , MTCWE , MTCUME , MTCTCE
MTCIPV6E , MTCINE
- ✓ Mikrotik Certified Trainer
- ✓ MCSA , MCP , MCSE
- ✓ Microsoft Certified Trainer

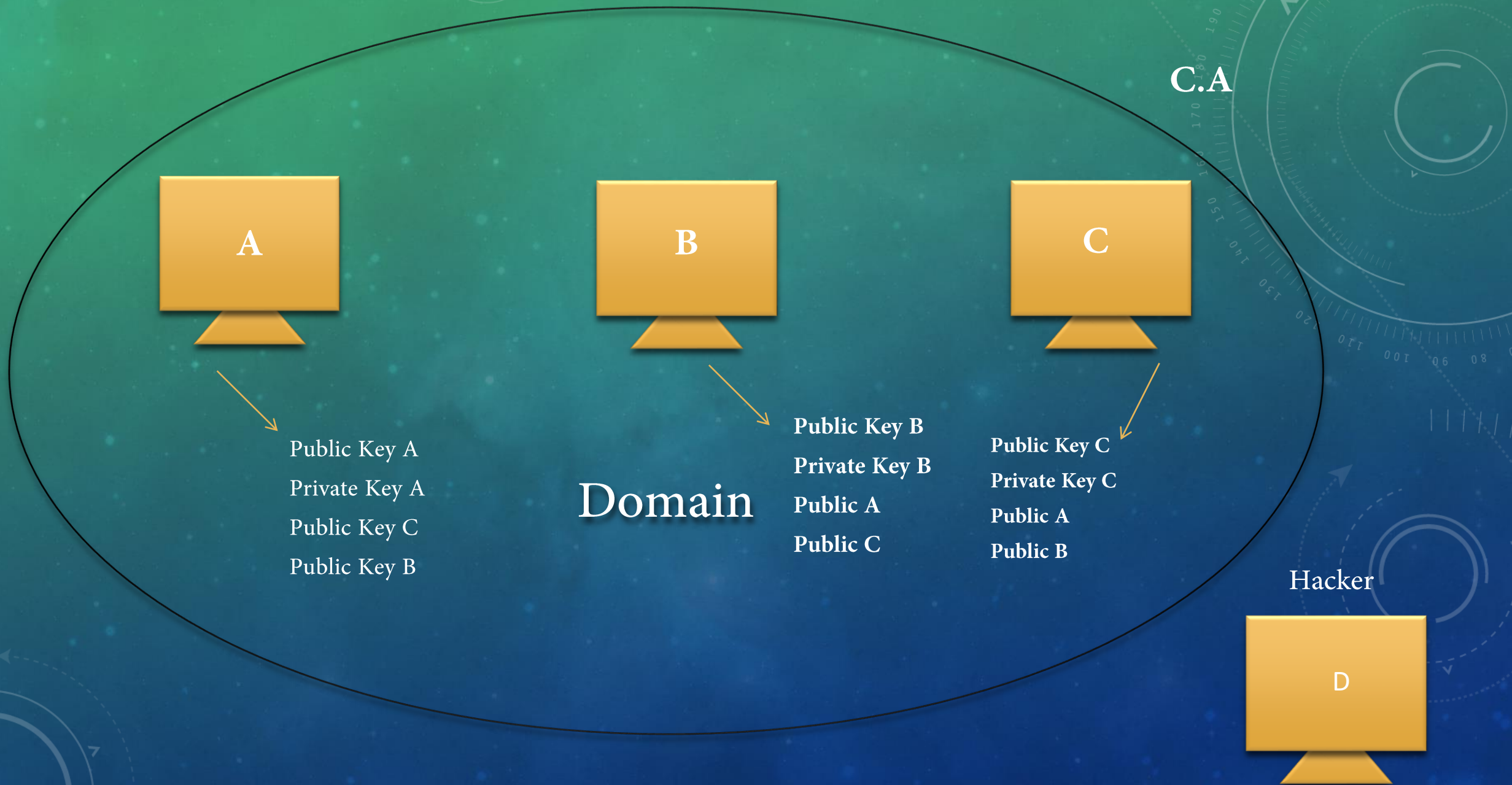
Outline :

- ✓ Certificate
- ✓ C.A
- ✓ Public key/ private key
- ✓ Nstream/NV2
- ✓ WPA/ WPA2
- ✓ PSK VS. EAP
- ✓ Create a Certificate by using router OS
- ✓ How use Certificate in security profile ?
- ✓ Test



Outline :

- WPA Vs WPA2
- Certificate Authority
- PSK Vs EAP
- Nstream and NV2



Public



Private





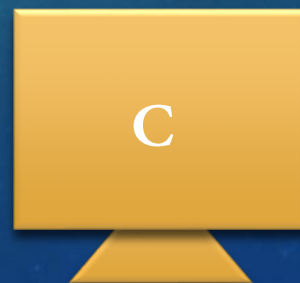
A

Private A



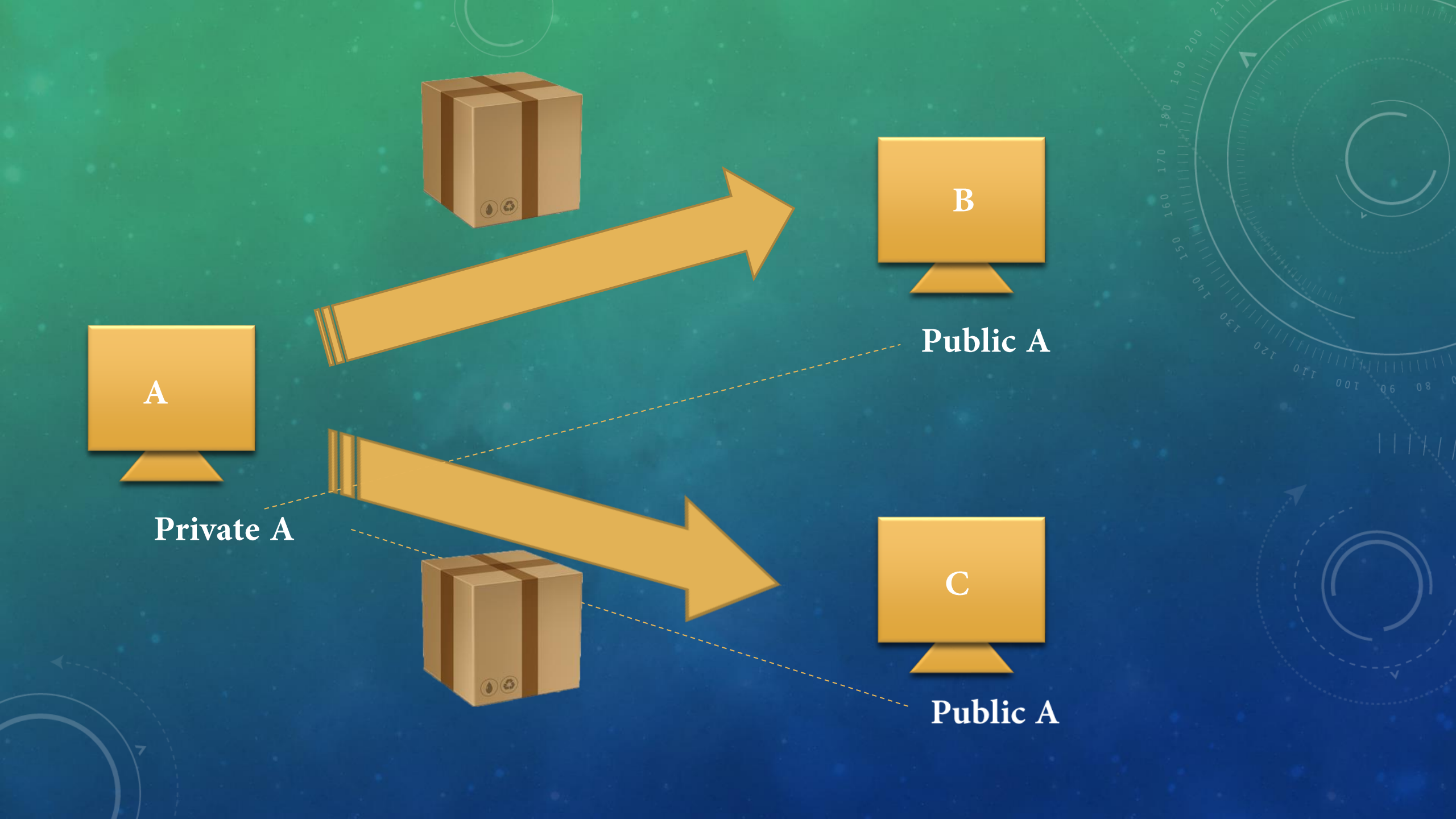
B

Public A



C

Public A

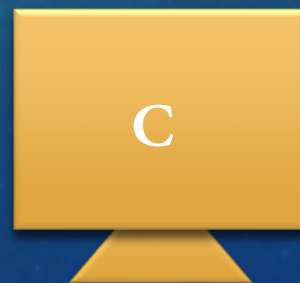




Public B



Private B



- Quick Set
- CAPsMAN
- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- IPv6
- MPLS
- OpenFlow
- Routing
- System
- Queues
- Files
- Log
- Radius
- Tools
- New Terminal
- TR069
- LCD
- MetaROUTER
- Partition
- Make Supout.tif
- Manual
- New WinBox
- Exit

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels

	Name	Type	Actual MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	F
X	wlan1	Wireless (Atheros AR9...	1500	0 bps	0 bps	0	0	0 bps	

click to enable
Wlan

1 item out of 12 (1 selected)

Session Settings Dashboard

Safe Mode

Session: 64:D1:54:3B:03:FD

Quick Set

CAPsMAN

Interfaces

Wireless

Bridge

PPP

Switch

Mesh

IP

IPv6

MPLS

OpenFlow

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

TR069

LCD

MetaROUTER

Partition

Make Supout.tif

Manual

New WinBox

Ext

Wireless Tables

WiFi Interfaces

W60G Station

Nstreme Dual

Access List

Registration

Connect List

+

-

✓

✗

📁

🔍

CAP

WPS Client

Setup Repeater

Sc

Name	Type	Actual MTU	Tx
wlan1	Wireless (Atheros AR9...	1500	0 bps

1 item out of 12 (1 selected)

Interface <wlan1>

General

Wireless

HT

WDS

Nstreme

NV2

Status

Traffic

Mode: ap bridge

Band: 2GHz-B/G

Channel Width: 20MHz

Frequency: 2412

SSID: MikroTik

Scan List: default

Wireless Protocol: any

Security Profile: default

WPS Mode: push button

Bridge Mode: enabled

VLAN Mode: no tag

VLAN ID: 1

Default AP Tx Rate:

Default Client Tx Rate:

☒ Default Authenticate☒ Default Forward☐ Hide SSIDMode on
ap bridgeGo to
Wireless TabActivate Windows
Go to PC settings to activate Windows.

admin@64:D1:54:3B:03:FD (Farkiantech-B) - WinBox v6.42.4 on RB2011UiAS-2HnD (mipsbe)

Session Settings Dashboard

Safe Mode Session: 64:D1:54:3B:03:FD

Quick Set CAPsMAN Interfaces Wireless Bridge PPP Switch Mesh IP IPv6 MPLS OpenFlow Routing System Queues Files Log Radius Tools New Terminal TR069 LCD MetaROUTER Partition Make Supout.rtf Manual New WinBox Exit

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List

+ - ✓ ✗ 📄 📶 CAP WPS Client Setup Repeater Sc

Name	Type	Actual MTU	Tx
wlan1	Wireless (Atheros AR9...	1500	0 bps

1 item out of 12 (1 selected)

Interface <wlan1>

General Wireless HT WDS Nstreme NV2 Advanced Status Status

Mode: station

Band: 2GHz-B/G

Channel Width: 20MHz

Frequency: 2412 MHz

SSID: MikroTik

Scan List: default

Wireless Protocol: any

Security Profile: default

☒ Default Authenticate

OK Cancel Apply Disable Comment Advanced Mode Torch WPS Accept WPS Client Setup Repeater Scan... Freq. Usage... Align... Sniff... Snooper... Reset Configuration

Activate Windows
Go to PC settings to activate Windows

admin@64:D1:54:3B:03:FD (Farkiantech-A) - WinBox v6.42.4 on RB2011UiAS-2HnD (mipsbe)

Session Settings Dashboard

Safe Mode Session: 64:D1:54:3B:03:FD

Quick Set CAPsMAN Interfaces Wireless Bridge PPP Switch Mesh IP IPv6 MPLS OpenFlow Routing System

Wireless Tables

Name	Type	Actual MTU	Tx
wlan1	Wireless (Atheros AR9...	1500	0 bps

Set a SSID for Router A

Interface <wlan1>

General Wireless HT WDS Nstreme NV2 Status Traffic

Mode: ap bridge

Band: 2GHz-B/G

Channel Width: 20MHz

Frequency: 2412 MHz

SSID: RB-A

Scan List: default

Wireless Protocol: any

Security Profile: default

WPS Mode: push button

Bridge Mode: enabled

OK Cancel Apply Disable Comment Advanced Mode Torch WPS Accept WPS Client Setup Repeater

Session Settings Dashboard

Safe Mode

Session: 64:D1:54:3B:03:FD

Quick Set
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Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels

+ - [icon] [icon]

Find

Name	Mode	Authenticatio...	Unicast Ciphers	Group Ciphers	WPA Pre-Shared ...	WPA2 Pre-Shared...
default	none					

1 item

New Security Profile

General RADIUS EAP Static Keys

Name: profile1

Mode: dynamic keys

Authentication Types: ☒ WPA PSK ☒ WPA2 PSK
☐ WPA EAP ☐ WPA2 EAP

Unicast Ciphers: ☒ aes ccm ☐ tkip

Group Ciphers: ☒ aes ccm ☐ tkip

WPA Pre-Shared Key:

WPA2 Pre-Shared Key:

Supplicant Identity:

Group Key Update: 00:05:00

Management Protection: allowed

Management Protection Key:

OK Cancel Apply Comment Copy Remove

Activate Windows
Go to Settings to activate Windows.

New Security Profile

General RADIUS EAP Static Keys

Name: profile1

Mode: dynamic keys

OK Cancel Apply

New Security Profile

General RADIUS EAP Static Keys

Name: profile1

Mode: static keys optional

Authentication Types: ☒ WPA PSK ☒ WPA2 PSK
☐ WPA EAP ☐ WPA2 EAP

Unicast Ciphers: ☒ aes ccm ☐ tkip

Group Ciphers: ☒ aes ccm ☐ tkip

WPA Pre-Shared Key:

WPA2 Pre-Shared Key:

Supplicant Identity:

Group Key Update: 00:05:00

Management Protection: allowed

Management Protection Key:

OK Cancel Apply Comment Copy Remove

become disabled while static algorithm used

Authentication Types: ☒ WPA PSK ☒ WPA2 PSK
☐ WPA EAP ☐ WPA2 EAP

New Security Profile

General | RADIUS | EAP | Static Keys

Name: profile1

Mode: dynamic keys

Authentication Types: ☒ WPA PSK ☒ WPA2 PSK
☐ WPA EAP ☐ WPA2 EAP

Unicast Ciphers: ☒ aes ccm ☐ tkip

Group Ciphers: ☒ aes ccm ☐ tkip

WPA Pre-Shared Key: 123@farkiantech

WPA2 Pre-Shared Key: 123@farkiantech

Supplicant Identity:

Group Key Update: 00:05:00

Management Protection: allowed

Management Protection Key:

OK Cancel Apply Comment Copy Remove

New Security Profile

General | RADIUS | EAP | Static Keys

Name: profile1

Mode: dynamic keys

Authentication Types: ☐ WPA PSK ☐ WPA2 PSK
☒ WPA EAP ☒ WPA2 EAP

Unicast Ciphers: ☒ aes ccm ☐ tkip

Group Ciphers: ☒ aes ccm ☐ tkip

WPA Pre-Shared Key: 123@farkiantech

WPA2 Pre-Shared Key: 123@farkiantech

Supplicant Identity:

Group Key Update: 00:05:00

Management Protection: allowed

Management Protection Key:

OK Cancel Apply Comment Copy Remove

New Security Profile

General | RADIUS | EAP | Static Keys

EAP Methods: passthrough

TLS Mode: no certificates

TLS Certificate: none

MSCHAPv2 Username:

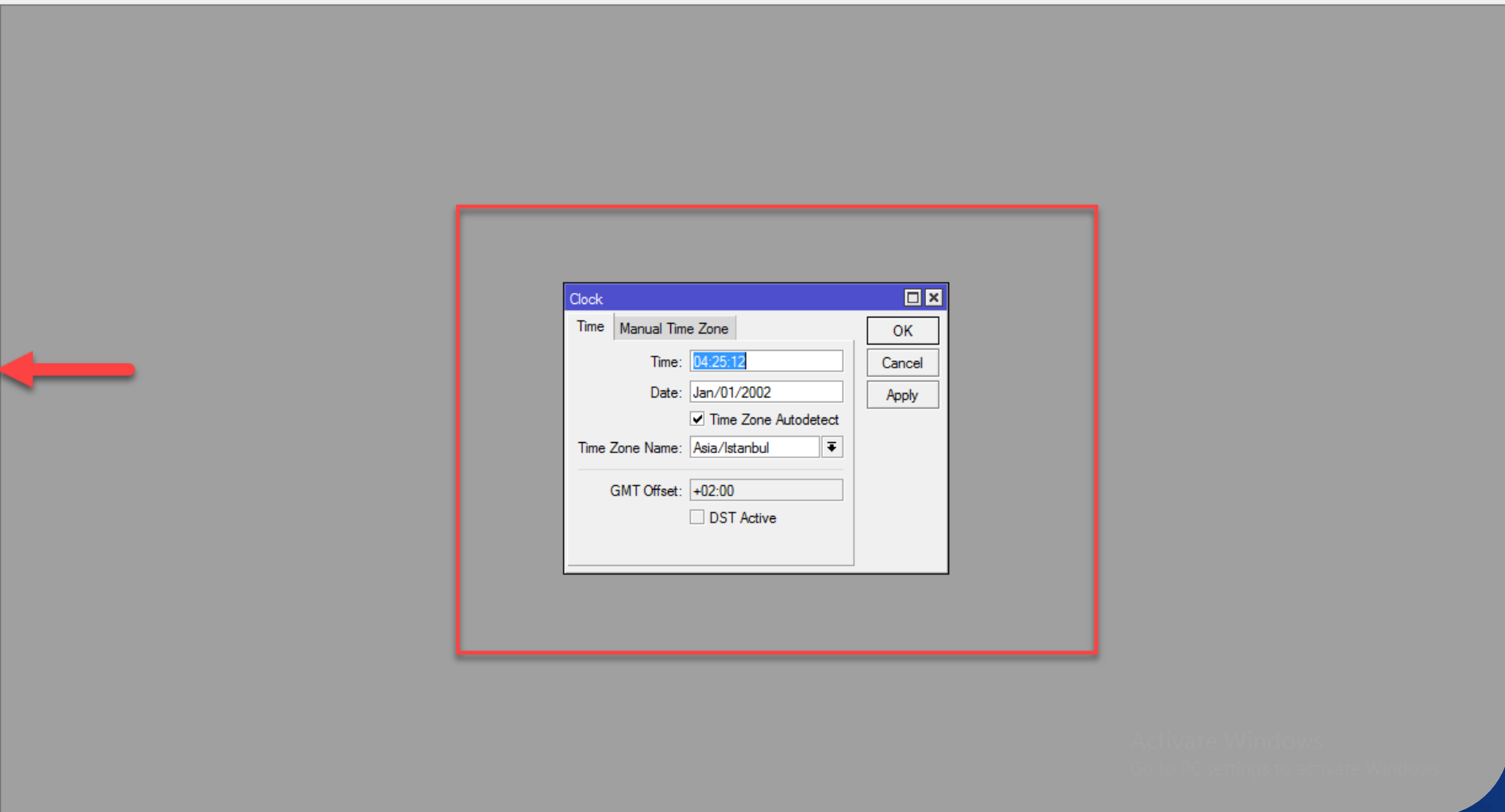
MSCHAPv2 Password:

OK Cancel Apply Comment Copy Remove

Session Settings Dashboard

Safe Mode Session: 64:D1:54:3B:03:FD

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- Make Supout.rif
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- New WinBox
- Exit



Clock

Time Manual Time Zone

Time: 04:25:12

Date: Jan/01/2002

☒ Time Zone Autodetect

Time Zone Name: Asia/Istanbul

GMT Offset: +02:00

☐ DST Active

OK Cancel Apply

Activate Windows
Go to Settings to activate Windows.

Session Settings Dashboard

Safe Mode

Session: 64:D1:54:3B:03:FD

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Select Certificate

6

Sign

Certificate: cert1

CA:

CA CRL Host:

Progress: done

Start
Stop
Close

Export

Certificate: cert1

Type: PEM

Export Passphrase: Farkiantech

Export
Cancel

2

Certificates

Certificates SCEP Servers SCEP RA

+ - Import Card Re

	Name	Issuer
KAT	cert1	

1 item

3

Certificate <cert1>

General Key Usage Status

Name: cert2

Issuer:

Country: TU

State: Istanbul

Locality: Istanbul

Organization: Farkiantech

Unit:

Common Name:

Subject Alt. Name: IP

Key Size: 2048

Days Valid: 365

☒ Trusted

private key crt authority expired smart card key trusted

OK
Cancel
Apply
Copy
Remove
Sign
Sign via SCEP
Import
Card Reinstall
Card Verify
Set CA Passphrase
Export
Revoke

4

5

7

- Quick Set
- CAPsMAN
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- Exit

Select the
certificate

Import

Only File:

Passphrase:

Import Cancel

Certificates

Certificates SCEP Servers SCEP RA Requests OTP CRL

+ - Import Card Reinstall Card Verify Revoke Create Cert. Request Settings Find

Name	Issuer	Common Name	Subject Alt. N...	Key Size	Days Valid	Trusted	SCEP URL	CA	Fingerprint
0 items									

Scan List: default

Wireless Protocol: any

Security Profile: 802.11

WPS Mode: nstreme
nv2
nv2 nstreme

Bridge Mode: nv2 nstreme 802.11
unspecified

VLAN Mode: no tag

New Security Profile

General RADIUS EAP Static Keys

EAP Methods: passthrough
EAP TTLS MSCHAPv2
EAP-TLS
PEAP
passthrough

TLS Mode:

TLS Certificate: passthrough

MSCHAPv2 Username:

MSCHAPv2 Password:

OK
Cancel
Apply
Comment
Copy
Remove

New Security Profile

General RADIUS EAP Static Keys

EAP Methods: EAP-TLS

TLS Mode: verify certificate

TLS Certificate: cert_export_cert1.crt_0

MSCHAPv2 Username:

MSCHAPv2 Password:

OK
Cancel
Apply
Comment
Copy
Remove

Interface <wlan1>

General Wireless HT WDS Nstreme NV2 Status Traffic

Mode: ap bridge

Band: 2GHz-B/G

Channel Width: 20MHz

Frequency: 2412 MHz

SSID: Farkiantech-AP

Scan List: default

Wireless Protocol: nv2 nstreme

Security Profile: Profile-EAP-Security

WPS Mode: push button

Bridge Mode: enabled

VLAN Mode: no tag

VLAN ID: 1

Default AP Tx Rate: bps

Default Client Tx Rate: bps

☒ Default Authenticate

☒ Default Forward

☐ Hide SSID

OK

Cancel

Apply

Disable

Comment

Advanced Mode

Torch

WPS Accept

WPS Client

Setup Repeater

Scan...

Freq. Usage...

Align...

Sniff...

Snooper...

Reset Configuration

Interface <wlan1>

General Wireless HT WDS Nstreme NV2 Advanced Status Status ...

Mode: station

Band: 2GHz-B/G

Channel Width: 20MHz

Frequency: 2412 MHz

SSID: Farkiantech-AP

Scan List: default

Wireless Protocol: nv2 nstreme

Security Profile: Profile-EAP-Security

☒ Default Authenticate

OK

Cancel

Apply

Disable

Comment

Advanced Mode

Torch

WPS Accept

WPS Client

Setup Repeater

Scan...

Freq. Usage...

Align...

Sniff...

Snooper...

Reset Configuration



Thank
you