



MikroTik

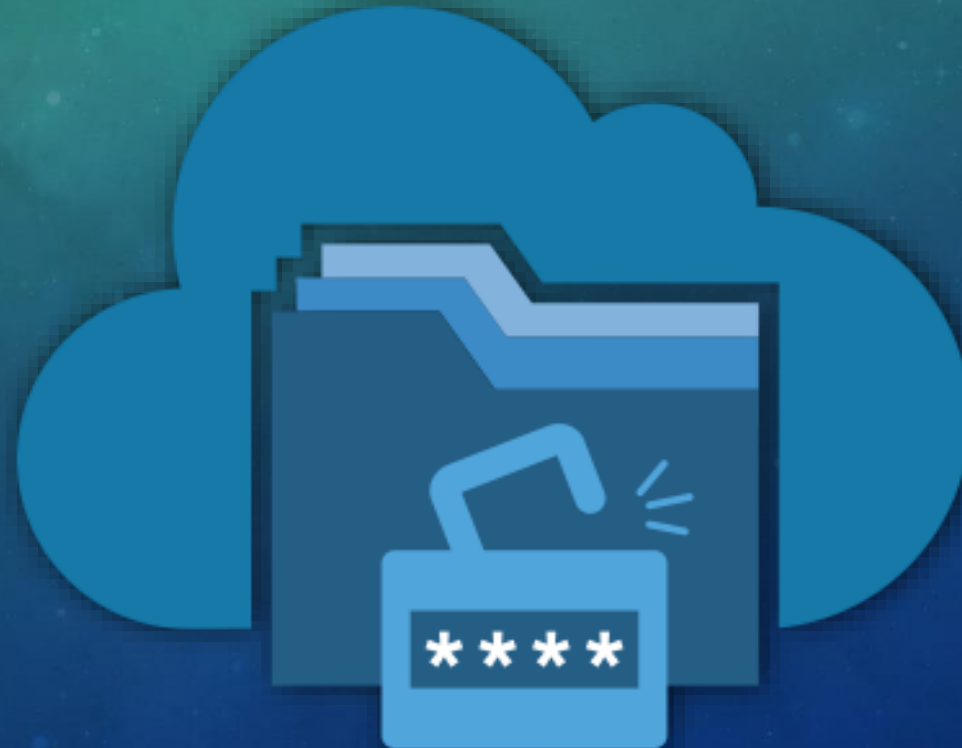
Prepared by

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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 :

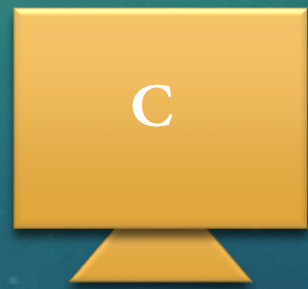
-----WPA Vs WPA2

-----Certificate Authority

-----PSK Vs EAP

-----Nstream and NV2

C.A



Domain



Public Key A
Private Key A
Public Key C
Public Key B



Public Key B
Private Key B
Public A
Public C



Public Key C
Private Key C
Public A
Public B

Hacker

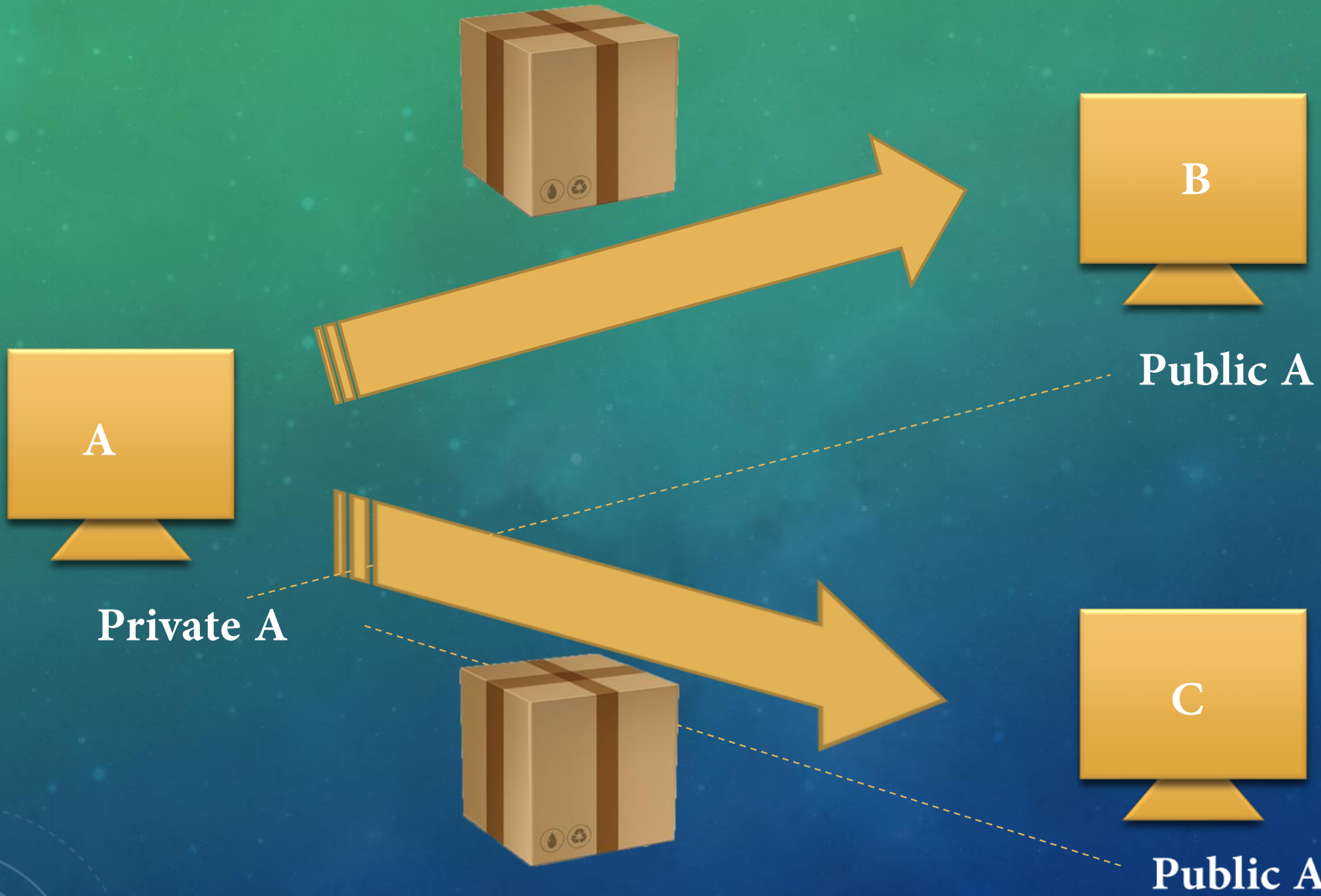


Public



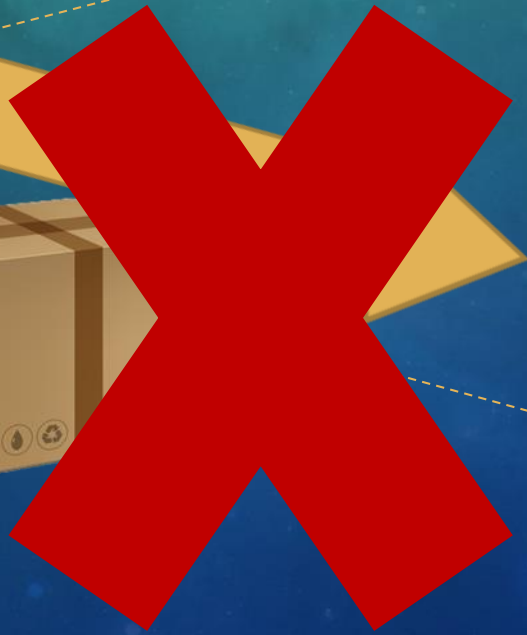
Private







Public B



Private B



C



- 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.nf
- Manual
- New WinBox
- Exit

Wireless Tables

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

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CAP	WPS Client	Setup Repeater	Scanner	Freq. Usage	Alignment	Wireless Sniffer	Wireless Snooper	Find
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)

Activate Windows
Go to PC settings to activate Windows.

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Wireless Tables

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 MHz

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: bps

Default Client Tx Rate: bps

Default Authenticate

Default Forward

Hide SSID

Go to Wireless Tab

Mode on ap bridge

- 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.

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Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List

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

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

1 item out of 12 (1 selected)

Other Router

Mode on Station

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

- Quick Set
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- System

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List

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

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Wireless Tables

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



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 PC 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

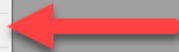
TLS Certificate: none

MSCHAPv2 Username:

MSCHAPv2 Password:

OK Cancel Apply Comment Copy Remove

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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

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Certificates

Certificates SCEP Servers SCEP RA

+ - Import Card Re

Name	Issuer
KAT	cert1

1 item

Select Certificate

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

Sign

Certificate: cert1

CA:

CA CRL Host:

Progress: done

Start Stop Close

Export

Certificate: cert1

Type: PEM

Export Passphrase: Farkiantech

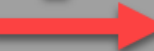
Export Cancel

OK Cancel Apply

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

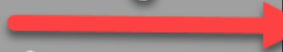
Fingerprint b4c025f6659...

2

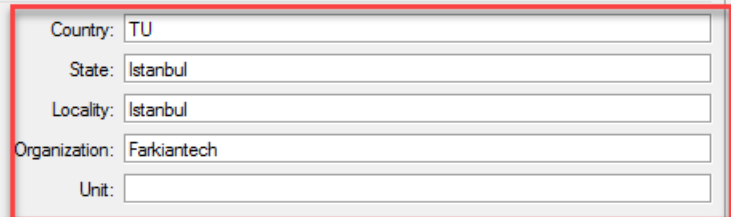


1

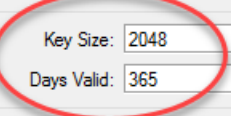
6



3



4



5

7

- Quick Set
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Select the certificate

Import

Only File: cert_export_cert1.cer

Passphrase:

Import Cancel

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									

Activate Windows
Go to PC settings to activate Windows

Scan List: default

Wireless Protocol: any

Security Profile: 802.11

WPS Mode: nstreme
nv2

Bridge Mode: nv2 nstreme
nv2 nstreme 802.11
unspecified

VLAN Mode: no tag

New Security Profile

General RADIUS EAP Static Keys

EAP Methods: passthrough

TLS Mode: EAP TTLS MSCHAPv2
EAP-TLS
PEAP

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

Activate W
Go to PC setti

abled running slave running ap

abled running slave running ap

Reset Configuration



Thank
you