Wireless Security

Why – to protect your data

If someone uses your wire router as an access point, they are on the same Ethernet loop as your PC. This makes it easier for that person to use shared resources on your PC.

Wireless Security - types

WEP (Wired Equivalent Privacy) 64 bit

WEP (Wired Equivalent Privacy) 128 bit

WPA (Wi-Fi Protected Access)

WPA2 (Wi-Fi Protected Access)

These systems use "keys" to insure that the PC is allowed to connect to the router .

The differences in these security types is the number of bits used to make the "keys." The more bits used, the harder it is for a hacker to break the key code. Each addition bit doubles the number of possible key code combinations.

Wireless Security – WEP, 64 bit

WEP (Wired Equivalent Privacy)

The original system used a 64 bit key (40 + 24).

The 64 bit WEP key is displayed in 10 hexadecimal characters.

The hexadecimal numbers are 0-9, a-f

0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Some routers let you enter a phase and it will generate the key. The resultant key will be the required 10 hexadecimal characters.

The WEP key setup in the router needs to be entered into the PC connections.

Wireless Security – WEP2, 128 bit

WEP (Wired Equivalent Privacy) version 2

This system uses a 128 bit key (104 + 24).

The 128 bit WEP key is displayed in 26 hexadecimal characters.

The hexadecimal numbers are 0-9, a-f

0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Some routers let you enter a phase and it will generate the key. The resultant key will be the required 26 hexadecimal characters.

The WEP key setup in the router needs to be entered into the PC connections.

Wireless Security – WPA Personal

WPA (Wi-Fi Protected Access) Personal

This system uses a 176 bit key (128 + 48).

The 176 bit WPA Personal key is displayed in 64 hexadecimal characters.

The hexadecimal numbers are 0-9, a-f

0	1	2	3	4	5	6	7	8	9	a	b	c	d	e	f
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

In general you enter a phase from 8 to 63 characters and it will generate the key. The resultant key will be the required 64 hexadecimal characters.

The WPA phrase used in the setup in the router needs to be entered into the PC connections.

Wireless Security – WPA2 Personal

WPA2 (Wi-Fi Protected Access) Personal

Basically the same as WPA with enhanced encoding.

Wireless Security – WPA Enterprise

WPA (Wi-Fi Protected Access) Enterprise

This uses a network security server that is not within the norm for a personal user.

Wireless Security – Preferences

The order of preference is:

- WPA2
- WPA
- WEP 128
- WEP 64

Some issues:

Older wireless adapters may not support WPA.

802.11N only works with WPA.

Discussion