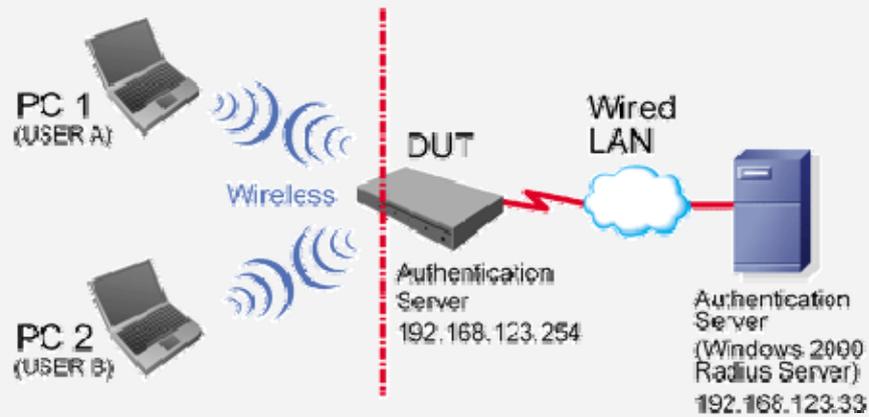


Q: How to configure 802.1x or WPA with Radius server?

A:



Equipment Details

PC1:

Microsoft Windows XP Professional without Service Pack 1.

D-Link DWL-650+ wireless LAN adapter

Driver version: 3.0.5.0 (Driver date: 03.05.2003)

PC2:

Microsoft Windows XP Professional with Service Pack 1a.

Z-Com XI-725 wireless LAN USB adapter

Driver version: 1.7.29.0 (Driver date: 10.20.2001)

Authentication Server: Windows 2000 RADIUS server with Service Pack 3 and HotFix Q313664.

Note. Windows 2000 RADIUS server only supports PEAP after upgrade to service pack 3 and HotFix Q313664 (*You can get more information from <http://support.microsoft.com/default.aspx?scid=kb;en-us;313664>*)

DUT Configuration:

1. Enable DHCP server.
2. WAN setting: static IP address.
3. LAN IP address: 192.168.123.254/24.
4. Set RADIUS server IP.
5. Set RADIUS server shared key.
6. Configure WEP key and 802.1X setting.

The following test will use the inbuilt 802.1X authentication method such as EAP_TLS, PEAP_CHAPv2 (Windows XP with SP1 only), and PEAP_TLS (Windows XP with SP1 only) using the Smart Card or other Certificate of the Windows XP Professional.

DUT and Windows 2000 RADIUS Server Setup

1. Setup Windows 2000 RADIUS Server. We have to change authentication method to MD5_Challenge or using smart card or other certificate on RADIUS server according to the test condition.

2. Setup DUT

- Enable the 802.1X (check the "Enable checkbox").
- Enter the RADIUS server IP.
- Enter the shared key. (The key shared by the RADIUS server and DUT).
- We will change 802.1X encryption key length to fit the variable test condition.

3. Setup Network adapter on PC

- Choose the IEEE 802.1X as the authentication method. (Figure 2)
- Note. Figure 2 is a setting picture of Windows XP without service pack 1. If users upgrade to service pack 1, then they can't see MD5-Challenge from EAP type list any more, but they will get a new Protected EAP (PEAP) option.
- Choose MD5-Challenge or Smart Card or other Certificate as the EAP type.
 - If choosing use smart card or the certificate as the EAP type, we select to use certificate on this computer.
 - We will change EAP type to fit the variable test condition.

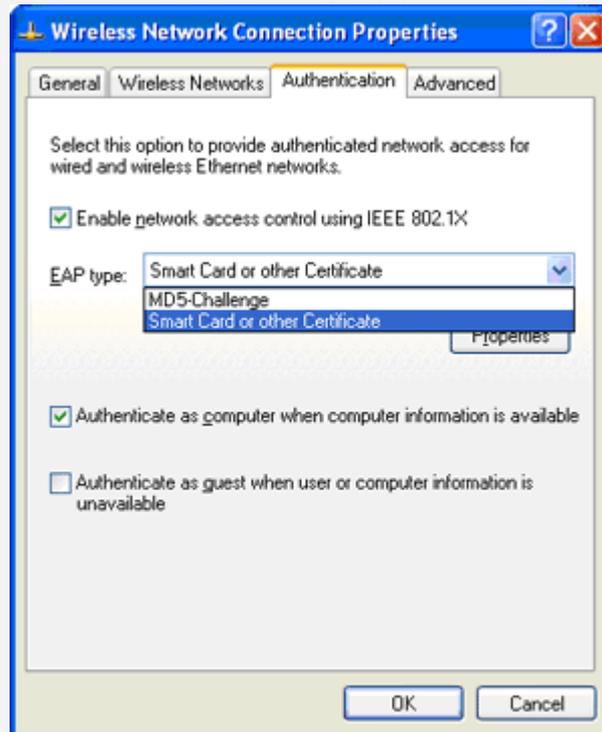


Figure 2: Certificate information on PC1

Windows 2000 RADIUS server Authentication testing

1. DUT authenticate PC1 using certificate. (PC2 follows the same test procedures.)
2. Download and install the certificate on PC1. (Figure 4)
3. PC1 choose the SSID of DUT as the Access Point.
4. Set authentication type of wireless client and RADIUS server both to EAP_TLS.
5. Disable the wireless connection and enable again.
6. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC1. (Figure 5)
7. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Figure 6)

Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

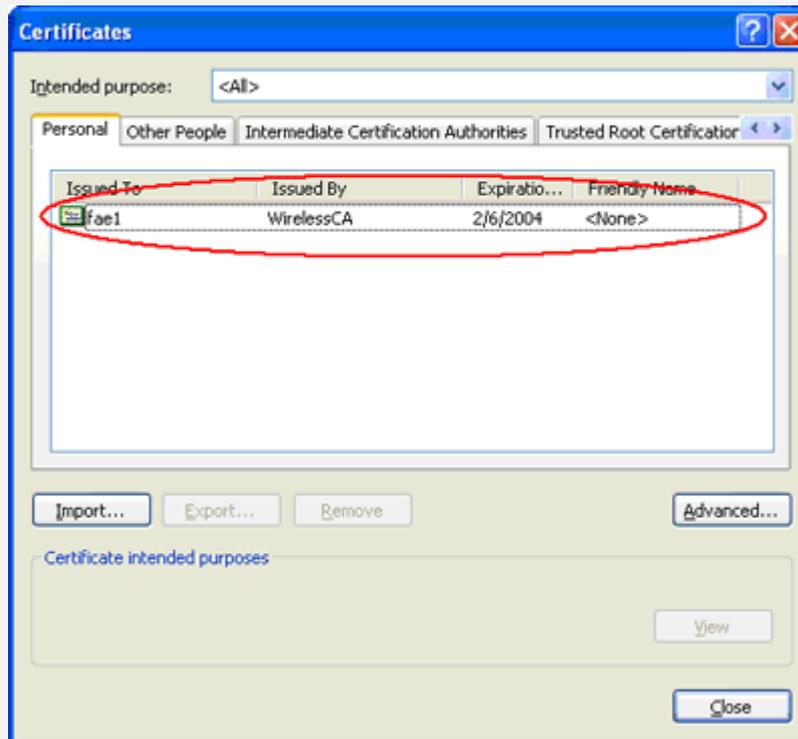


Figure 5: Authenticating

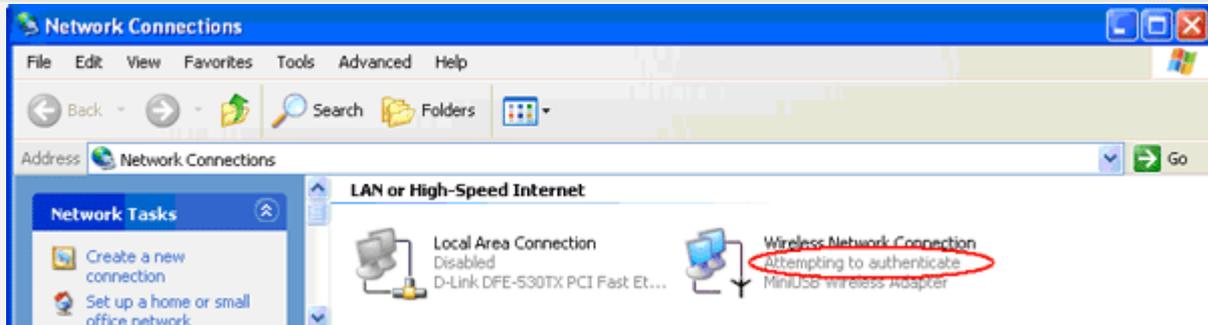


Figure 6: Authentication success

DUT authenticate PC2 using PEAP-TLS

1. PC2 choose the SSID of DUT as the Access Point.
2. Set authentication type of wireless client and RADIUS server both to PEAP_TLS.
3. Disable the wireless connection and enable again.
4. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC2.
5. Windows XP will prompt that the authentication process is success or fail and end the authentication procedure.

Terminate the test steps when PC2 get dynamic IP and PING remote host successfully.