

# 统一无线网络本地EAP服务器配置示例

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## 简介

本文档介绍在思科无线局域网控制器(WLC)中配置本地可扩展身份验证协议(EAP)服务器以对无线用户进行身份验证。

本地 EAP 是允许用户和无线客户端在本地进行身份验证的身份验证方法。它设计用于远程办公室，当后端系统中断或外部身份验证服务器关闭时，远程办公室希望保持与无线客户端的连接。启用本地EAP时，控制器充当身份验证服务器和本地用户数据库，从而消除对外部身份验证服务器的依赖。本地EAP从本地用户数据库或轻量目录访问协议(LDAP)后端数据库检索用户凭证以对用户进行身份验证。本地EAP支持控制器和无线客户端之间的轻量级EAP(LEAP)、通过安全隧道的EAP灵活身份验证(EAP-FAST)和EAP传输层安全(EAP-TLS)身份验证。

请注意，如果WLC中有全局外部RADIUS服务器配置，则本地EAP服务器不可用。所有身份验证请求都会转发到全局外部RADIUS，直到本地EAP服务器可用。如果WLC失去与外部RADIUS服务器的连接，则本地EAP服务器变为活动状态。如果没有全局RADIUS服务器配置，本地EAP服务器将立即变为活动状态。本地EAP服务器无法用于验证连接到其他WLC的客户端。换句话说，一个WLC无法将其EAP请求转发到另一个WLC进行身份验证。每个WLC都应有自己的本地EAP服务器和单个数据库。

**注意：**使用这些命令可阻止WLC向外部radius服务器发送请求。

```
config wlan disable
    config wlan radius_server auth disable
    config wlan enable
```

本地EAP服务器在4.1.171.0软件版本及更高版本中支持以下协议：

- LEAP
- EAP-FAST ( 用户名/密码和证书 )
- EAP-TLS

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- 关于如何为基本操作配置 WLC 和轻量接入点 (LAP) 的知识
- 轻量级接入点协议(LWAPP)和无线安全方法知识
- 本地EAP身份验证的基本知识。

### 使用的组件

本文档中的信息基于以下软件和硬件版本：

- Windows XP，装有 CB21AG 适配器卡和 Cisco 安全服务客户端 4.05 版
- 思科4400无线LAN控制器4.1.171.0
- Windows 2000服务器上的Microsoft认证中心

### 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 在思科无线局域网控制器上配置本地EAP

本文档假设 WLC 的基本配置已完成。

### 本地EAP配置

要配置本地EAP，请完成以下步骤：

1. 添加本地网络用户：从GUI中。选择**Security > Local Net Users > New**，输入User Name、Password、Guest User、WLAN ID和Description，然后单击**Apply**。

Security      Local Net Users > New

**AAA**

- General
- RADIUS
  - Authentication
  - Accounting
- TACACS+
  - LDAP
- Local Net Users**
- MAC Filtering
- Disabled Clients
- User Login Policies
- AP Policies

**Local EAP**

- General

User Name: eapuser2  
 Password: \*\*\*\*\*  
 Confirm Password: \*\*\*\*\*  
 Guest User:   
 WLAN ID: 1  
 Description: Employee user local database

< Back      Apply

在CLI中，您可以使用config netuser add <username> <password> <WLAN id>

<description>命令：注意：由于空间原因，此命令已降级到第二行。

```
(Cisco Controller) >config netuser add eapuser2 cisco123 1 Employee user local database
```

2. 指定用户凭据检索顺序。从GUI中，选择Security > Local EAP > Authentication Priority。然后选择LDAP，单击“<”按钮，然后单击Apply。这会首先将用户凭证放入本地数据库中。

Security      Priority Order > Local-Auth

**AAA**

- General
- RADIUS
  - Authentication
  - Accounting
- TACACS+
  - Authentication
  - Accounting
  - Authorization
- LDAP
- Local Net Users
- MAC Filtering
- Disabled Clients
- User Login Policies
- AP Policies

**Local EAP**

- Profiles
- EAP-FAST Parameters
- Authentication Priority

User Credentials

LDAP    >    LOCAL    Up  
       <    Down

从CLI:

```
(Cisco Controller) >config local-auth user-credentials local
```

3. 添加EAP配置文件：要从GUI执行此操作，请选择Security > Local EAP > Profiles，然后单击New。当出现新窗口时，键入“配置文件名称”(Profile Name)，然后单击“应用”(Apply)。



您也可以使用CLI命令`config local-auth eap-profile add <profile-name>`执行此操作。在我们的示例中，配置文件名称为EAP-test。

```
(Cisco Controller) >config local-auth eap-profile add EAP-test
```

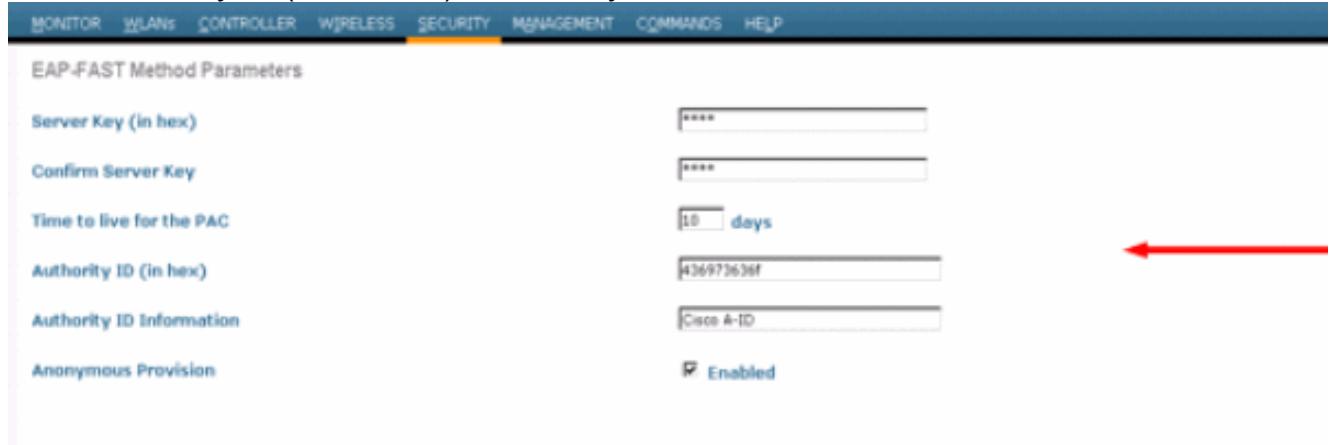
- 向EAP配置文件添加方法。从GUI中选择Security > Local EAP > Profiles，然后单击要为其添加身份验证方法的配置文件名称。本示例使用LEAP、EAP-FAST和EAP-TLS。单击Apply以设置方法。

您还可以使用CLI命令`config local-auth eap-profile method add <method-name> <profile-name>`。在示例配置中，我们向配置文件EAP测试添加三种方法。方法为LEAP、EAP-FAST和EAP-TLS，其方法名称分别为leap、fast和tls。此输出显示CLI配置命令：

```
(Cisco Controller) >config local-auth eap-profile method add leap EAP-test
(Cisco Controller) >config local-auth eap-profile method add fast EAP-test
(Cisco Controller) >config local-auth eap-profile method add tls EAP-test
```

- 配置EAP方法的参数。这仅用于EAP-FAST。要配置的参数包括：Server Key(server-key) —

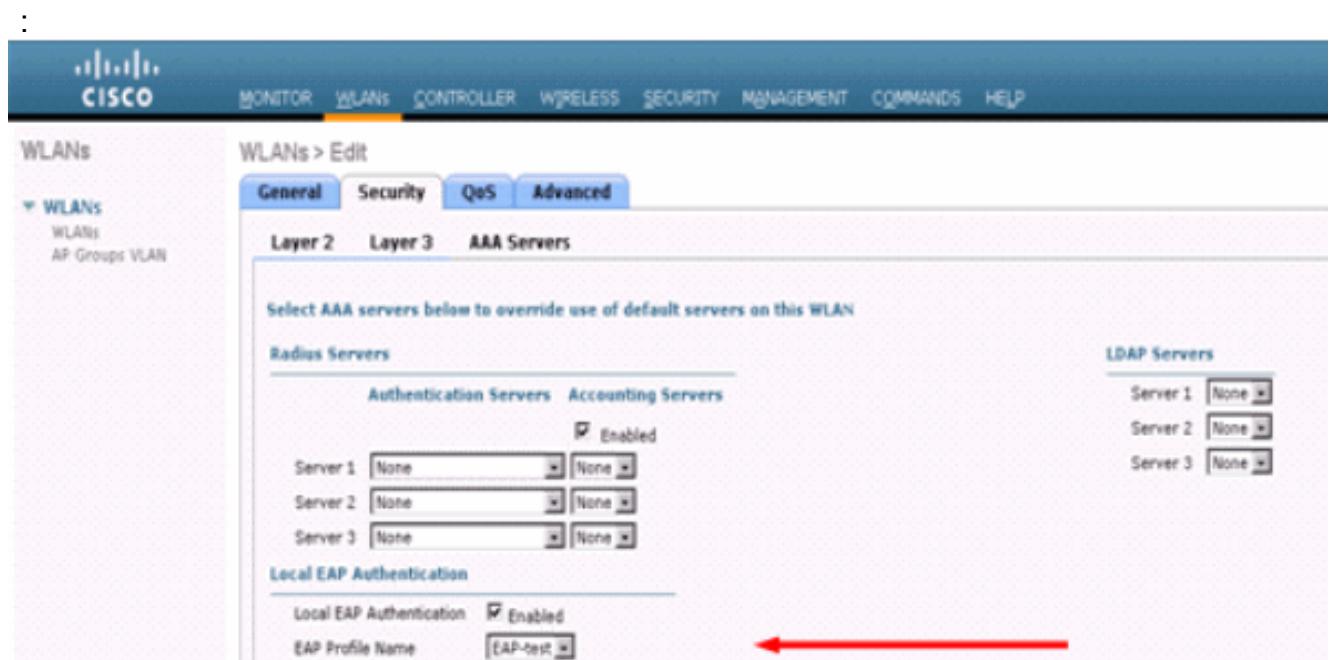
用于加密/解密受保护访问凭证(PAC) (十六进制) 的服务器密钥。PAC的生存时间(pac-ttl) — 设置PAC的生存时间。授权ID (授权ID) — 设置授权标识符。匿名调配 (匿名调配) — 配置是否允许匿名调配。默认情况下启用该接口。对于通过GUI进行的配置，请选择Security > Local EAP > EAP-FAST Parameters，然后输入PAC的Server key、Time to live for the PAC、Authority ID (十六进制) 和Authority ID Information值。



以下是用于EAP-FAST设置这些参数的CLI配置命令：

```
(Cisco Controller) >config local-auth method fast server-key 12345678
(Cisco Controller) >config local-auth method fast authority-id 43697369f1 CiscoA-ID
(Cisco Controller) >config local-auth method fast pac-ttl 10
```

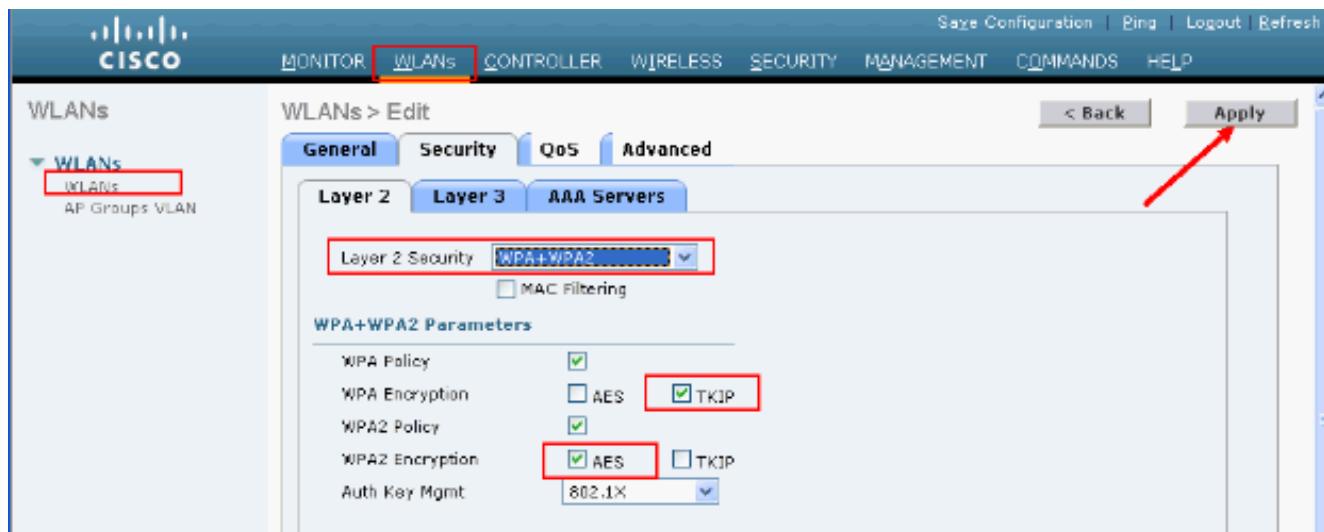
6. 启用每个WLAN的本地身份验证：从GUI中，在顶部菜单上选择WLAN，然后选择要为其配置本地身份验证的WLAN。系统将显示新窗口。单击“安全”>“AAA”选项卡。选中Local EAP Authentication，然后从下拉菜单中选择正确的EAP Profile Name，如以下示例所示



您还可以发出CLI config wlan local-auth enable <profile-name> <wlan-id>配置命令，如下所示：

```
(Cisco Controller) >config wlan local-auth enable EAP-test 1
```

7. 设置第2层安全参数。在GUI界面中，在“WLAN编辑”窗口中转到“安全”>“第2层”选项卡，并从“第2层安全”下拉菜单中选择WPA+WPA2。在“WPA+WPA2参数”部分下，将WPA加密设置为TKIP和WPA2加密AES。然后单击Apply。



在CLI中，使用以下命令：

```
(Cisco Controller) >config wlan security wpa enable 1
(Cisco Controller) >config wlan security wpa wpa1 ciphers tkip enable 1
(Cisco Controller) >config wlan security wpa wpa2 ciphers aes enable 1
```

## 8. 检查配置：

```
(Cisco Controller) >show local-auth config
```

```
User credentials database search order:
Primary ..... Local DB

Timer:
Active timeout ..... Undefined

Configured EAP profiles:
Name ..... EAP-test
Certificate issuer ..... cisco
Peer verification options:
Check against CA certificates ..... Enabled
Verify certificate CN identity ..... Disabled
Check certificate date validity ..... Enabled
EAP-FAST configuration:
Local certificate required ..... No
Client certificate required ..... No
Enabled methods ..... leap fast tls
Configured on WLANS ..... 1

EAP Method configuration:
EAP-FAST:
--More-- or (q)uit
Server key ..... <hidden>
TTL for the PAC ..... 10
Anonymous provision allowed ..... Yes
Authority ID ..... 43697369f10000000000000000000000
Authority Information ..... CiscoA-ID
```

使用show wlan <wlan id>命令可以看到wlan 1的特定参数：

```
(Cisco Controller) >show wlan 1
```

```
WLAN Identifier..... 1
Profile Name..... austinlab
Network Name (SSID)..... austinlab
Status..... Disabled
MAC Filtering..... Disabled
Broadcast SSID..... Enabled
AAA Policy Override..... Disabled
Number of Active Clients..... 0
```

```

Exclusionist Timeout..... 60 seconds
Session Timeout..... 1800 seconds
Interface..... management
WLAN ACL..... unconfigured
DHCP Server..... Default
DHCP Address Assignment Required..... Disabled
Quality of Service..... Silver (best effort)
WMM..... Disabled
CCX - AironetIE Support..... Enabled
CCX - Gratuitous ProbeResponse (GPR)..... Disabled
Dot11-Phone Mode (7920)..... Disabled
Wired Protocol..... None
--More-- or (q)uit
IPv6 Support..... Disabled
Radio Policy..... All
Local EAP Authentication..... Enabled (Profile 'EAP-test')

```

### **Security**

802.11 Authentication.....	Open System
Static WEP Keys.....	Disabled
802.1X.....	Disabled
<b>Wi-Fi Protected Access (WPA/WPA2).....</b>	<b>Enabled</b>
<b>WPA (SSN IE).....</b>	<b>Enabled</b>
<b>TKIP Cipher.....</b>	<b>Enabled</b>
AES Cipher.....	Disabled
<b>WPA2 (RSN IE).....</b>	<b>Enabled</b>
TKIP Cipher.....	Disabled
AES Cipher.....	<b>Enabled</b>
	Auth Key Management
802.1x.....	Enabled
PSK.....	Disabled
CCKM.....	Disabled
CKIP .....	Disabled
IP Security.....	Disabled
IP Security Passthru.....	Disabled
Web Based Authentication.....	Disabled
--More-- or (q)uit	
Web-Passthrough.....	Disabled
Conditional Web Redirect.....	Disabled
Auto Anchor.....	Disabled
Granite Passthru.....	Disabled
Fortress Passthru.....	Disabled
H-REAP Local Switching.....	Disabled
Infrastructure MFP protection.....	Enabled
	(Global Infrastructure MFP Disabled)
Client MFP.....	Optional
Tkip MIC Countermeasure Hold-down Timer.....	60

#### Mobility Anchor List

WLAN ID	IP Address	Status
---------	------------	--------

还可以配置其他本地身份验证参数，特别是活动超时计时器。此计时器配置在所有RADIUS服务器发生故障后使用本地EAP的时间段。从GUI中，选择**Security > Local EAP > General**并设置时间值。然后单击**Apply**。

Security

**General**

**Local Auth Active Timeout<sup>4</sup> (in secs)**

\* The timeout period during which Local EAP will always be used after all Radius Servers are failed.

**AAA**

- General
- RADIUS
  - Authentication
  - Accounting
- TACACS+
  - LDAP
  - Local Net Users
  - MAC Filtering
  - Disabled Clients
  - User Login Policies
  - AP Policies

**Local EAP**

- General
- Profiles

**Apply**

从CLI发出以下命令：

```
(Cisco Controller) >config local-auth active-timeout ?
<1 to 3600> Enter the timeout period for the Local EAP to remain active,
in seconds.
(Cisco Controller) >config local-auth active-timeout 60
```

当您发出show local-auth config命令时，可以验证此计时器设置到的值。

```
(Cisco Controller) >show local-auth config
```

User credentials database search order:  
Primary ..... Local DB

**Timer:**  
Active timeout ..... 60

Configured EAP profiles:  
Name ..... EAP-test  
... Skip

9. 如果需要生成并加载手动PAC，可以使用GUI或CLI。从GUI中，从顶部菜单中选择“命令”，然后从右侧列表中选择“上传文件”。从“文件类型”(File Type)下拉菜单中选择“PAC(Protected Access Credential)”(PAC(Protected Access Credential))。输入所有参数，然后单击“上载”。

Commands

Upload file from Controller

**File Type**

**User (Identity)** test1

**Validity (in days)**

**Password**

**Confirm Password**

**TFTP Server**

**IP Address** 10.1.1.1

**File Path** /

**File Name** manual.pac

**Clear** **Upload**

在CLI中输入以下命令：

```
(Cisco Controller) >transfer upload datatype pac
(Cisco Controller) >transfer upload pac ?
```

username Enter the user (identity) of the PAC

```

(Cisco Controller) >transfer upload pac test1 ?

<validity>      Enter the PAC validity period (days)

(Cisco Controller) >transfer upload pac test1 60 ?

<password>      Enter a password to protect the PAC

(Cisco Controller) >transfer upload pac test1 60 cisco123

(Cisco Controller) >transfer upload serverip 10.1.1.1

(Cisco Controller) >transfer upload filename manual.pac

(Cisco Controller) >transfer upload start

Mode.....          TFTP
TFTP Server IP..... 10.1.1.1
TFTP Path.....      /
TFTP Filename.....  manual.pac
Data Type.....      PAC
PAC User.....      test1
PAC Validity.....  60 days
PAC Password.....  cisco123

Are you sure you want to start? (y/N) y
PAC transfer starting.
File transfer operation completed successfully.

```

## Microsoft认证中心

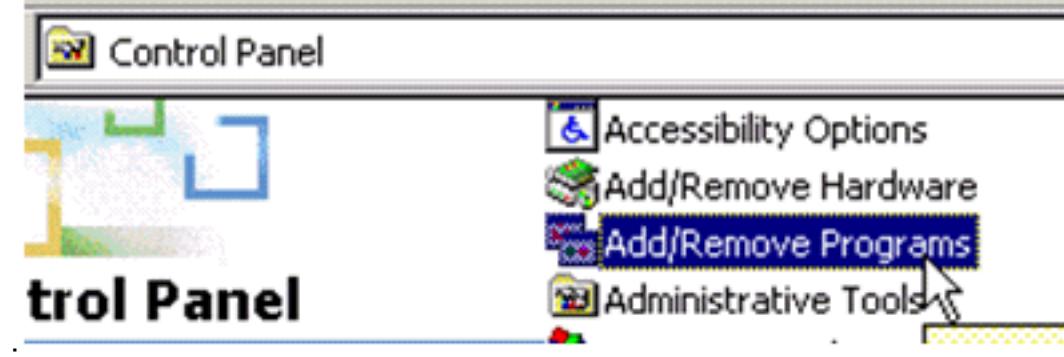
要使用EAP-FAST第2版和EAP-TLS身份验证，WLC和所有客户端设备必须具有有效的证书，并且还必须知道证书颁发机构的公共证书。

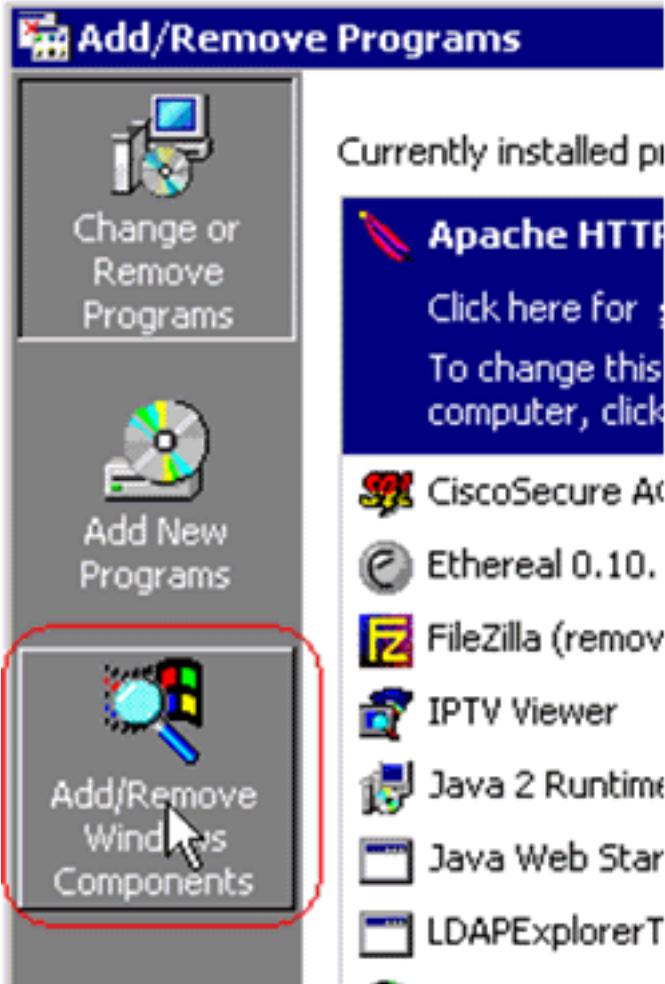
### 安装

如果Windows 2000 Server尚未安装证书颁发机构服务，则需要安装它。

要在Windows 2000 Server上激活Microsoft证书颁发机构，请完成以下步骤：

1. 从“控制面板”中，选择“添加/删除程序”。





2. 在左侧选择添加/删除Windows组件。
3. 检查证书服务。

## Windows Components Wizard



### Windows Components

You can add or remove components of Windows 2000.

To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.

#### Components:

<input checked="" type="checkbox"/> Accessories and Utilities	12.1 MB
<input checked="" type="checkbox"/> Certificate Services	1.4 MB
<input checked="" type="checkbox"/> Indexing Service	0.0 MB
<input checked="" type="checkbox"/> Internet Information Services (IIS)	21.6 MB
<input type="checkbox"/> Management and Monitoring Tools	5.2 MB

Description: Installs a certification authority (CA) to issue certificates for use with public key security applications.

Total disk space required: 0.0 MB

[Details...](#)

Space available on disk: 4205.9 MB

< Back

Next >

Cancel

在继续之前，请查看此警告

## Microsoft Certificate Services



After installing Certificate Services, the computer cannot be renamed and the computer cannot join or be removed from a domain. Do you want to continue?

Yes

No

4. 选择要安装的证书颁发机构类型。要创建简单的独立机构，请选择Stand-alone root CA。

## Windows Components Wizard



### Certification Authority Type

There are four types of certification authorities.

Certification Authority types:

- Enterprise root CA
- Enterprise subordinate CA
- Stand-alone root CA
- Stand-alone subordinate CA

Description:

The most trusted CA in a CA hierarchy. Does not require Active Directory.

Advanced options

< Back

Next >

Cancel

5. 输入有关认证中心的必要信息。此信息为您的证书颁发机构创建自签名证书。记住您使用的CA名称。证书颁发机构将证书存储在数据库中。本示例使用Microsoft建议的默认设置

## Windows Components Wizard



### Data Storage Location

Specify the storage location for the configuration data, database and log

Certificate database:

C:\WINNT\system32\CertLog

[Browse...](#)

Certificate database log:

C:\WINNT\system32\CertLog

[Browse...](#)

Store configuration information in a shared folder

Shared folder:

[Browse...](#)

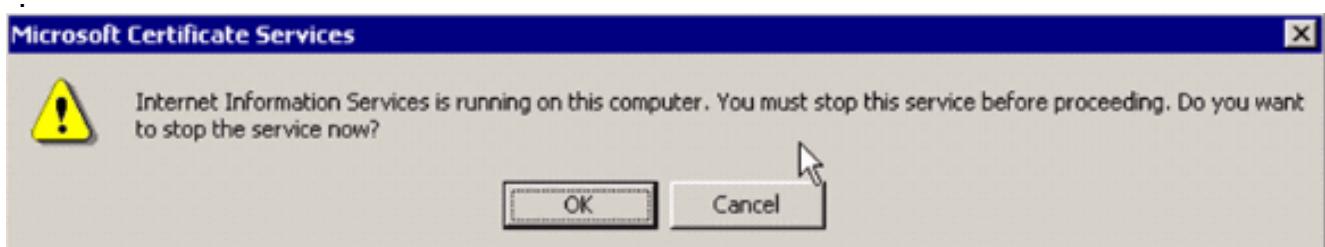
Preserve existing certificate database

< Back

Next >

Cancel

6. Microsoft证书颁发机构服务使用IIS Microsoft Web Server来创建和管理客户端和服务器证书。它需要为此重新启动IIS服务



Microsoft Windows 2000 Server现在安装新服务。您需要有Windows 2000 Server安装光盘才能安装新的Windows组件。现在已安装证书颁发机构。

## 在思科无线局域网控制器中安装证书

要在思科无线局域网控制器的本地EAP服务器上使用EAP-FAST第2版和EAP-TLS，请执行以下步骤：

1. [在无线LAN控制器上安装设备证书。](#)
2. [将供应商CA证书下载到无线局域网控制器。](#)
3. [将无线LAN控制器配置为使用EAP-TLS。](#)

请注意，在本文档所示的示例中，访问控制服务器(ACS)与Microsoft Active Directory和Microsoft证书颁发机构安装在同一台主机上，但如果ACS服务器位于其他服务器上，则配置应相同。

### 在无线局域网控制器上安装设备证书

请完成以下步骤：

1. 要生成要导入到WLC的证书，请完成以下步骤：转到`http://<serverIpAddr>/certsrv`。选择申请一个证书，然后单击“下一步”。选择高级请求并单击“下一步”。选择使用表单向此 CA 提交证书请求并单击“下一步”。为Certificate Template(证书模板)选择Web服务器并输入相关信息。然后将密钥标记为可导出。现在，您将收到需要在计算机中安装的证书。
2. 要从PC检索证书，请完成以下步骤：打开Internet Explorer浏览器，然后选择“工具”>“Internet选项”>“内容”。单击Certificates。从下拉菜单中选择新安装的证书。单击Export。单击Next两次，然后选择Yes export the private key。此格式为PKCS#12 (.PFX格式)。选择启用强保护。键入密码。将其保存到文件<tme2.pfx>中。
3. 将PKCS#12格式的证书复制到安装了OpenSSL的任何计算机，以将其转换为PEM格式。

```
openssl pkcs12 -in tme2.pfx -out tme2.pem  
!-- The command to be given, -in Enter Import Password: !--- Enter the password given  
previously, from step 2g. MAC verified OK Enter PEM pass phrase: !--- Enter a phrase.  
Verifying - Enter PEM pass phrase:
```

4. 将转换的PEM格式设备证书下载到WLC。

```
(Cisco Controller) >transfer download datatype eapdevcert  
  
(Cisco Controller) >transfer download certpassword password  
!-- From step 3. Setting password to <cisco123> (Cisco Controller) >transfer download  
filename tme2.pem  
  
(Cisco Controller) >transfer download start
```

```
Mode..... TFTP  
Data Type..... Vendor Dev Cert
```

```
TFTP Server IP..... 10.1.1.12
TFTP Packet Timeout..... 6
TFTP Max Retries..... 10
TFTP Path..... /
TFTP Filename..... tme2.pem
```

```
This may take some time.
Are you sure you want to start? (y/N) y
```

```
TFTP EAP Dev cert transfer starting.
```

```
Certificate installed.
Reboot the switch to use new certificate.
```

## 5. 重新启动后，检查证书。

```
(Cisco Controller) >show local-auth certificates
```

```
Certificates available for Local EAP authentication:
```

```
Certificate issuer ..... vendor
CA certificate:
Subject: C=US, ST=ca, L=san jose, O=cisco, OU=wnbu, CN=tme
Issuer: C=US, ST=ca, L=san jose, O=cisco, OU=wnbu, CN=tme
Valid: 2007 Feb 28th, 19:35:21 GMT to 2012 Feb 28th, 19:44:44 GMT
Device certificate:
Subject: C=US, ST=ca, L=san jose, O=cisco, OU=wnbu, CN=tme2
Issuer: C=US, ST=ca, L=san jose, O=cisco, OU=wnbu, CN=tme
Valid: 2007 Mar 28th, 23:08:39 GMT to 2009 Mar 27th, 23:08:39 GMT
```

## 将供应商CA证书下载到无线局域网控制器

请完成以下步骤：

1. 要检索供应商CA证书，请完成以下步骤：转到http://<serveripAddr>/certsrv。选择Retrieve the CA Certificate(检索CA证书)，然后单击Next。选择CA证书。单击DER encoded。单击“Download CA certificate(下载CA证书)”，将证书保存为rootca.cer。
2. 使用openssl x509 -in rootca.cer -inform DER -out rootca.pem -outform PEM命令将供应商CA从DER格式转换为PEM格式。输出文件为PEM格式的rootca.pem。
3. 下载供应商CA证书：

```
(Cisco Controller) >transfer download datatype eapcacert
```

```
(Cisco Controller) >transfer download filename ?
```

```
<filename> Enter filename up to 16 alphanumeric characters.
```

```
(Cisco Controller) >transfer download filename rootca.pem
```

```
(Cisco Controller) >transfer download start ?
```

```
(Cisco Controller) >transfer download start
```

```
Mode..... TFTP
Data Type..... Vendor CA Cert
TFTP Server IP..... 10.1.1.12
TFTP Packet Timeout..... 6
TFTP Max Retries..... 10
TFTP Path..... /
TFTP Filename..... rootca.pem
```

```
This may take some time.
Are you sure you want to start? (y/N) y
```

TFTP EAP CA cert transfer starting.

Certificate installed.

Reboot the switch to use new certificate.

## 配置无线LAN控制器以使用EAP-TLS

请完成以下步骤：

在GUI中，选择Security > Local EAP > Profiles，选择配置文件并检查以下设置：

- 已启用“需要本地证书”。
- 已启用“需要客户端证书”。
- 证书颁发者为供应商。
- 已启用针对CA证书的检查。

The screenshot shows the Cisco Wireless LAN Controller (WLC) configuration interface. The top navigation bar includes MONITOR, WLAN, CONTROLLER, WIRELESS, SECURITY (highlighted), MANAGEMENT, COMMANDS, and HELP. The left sidebar menu lists AAA (General, RADIUS Authentication, Accounting, TACACS+, LDAP, Local Net Users, MAC Filtering, Disabled Clients, User Login Policies, AP Policies), Local EAP (General, Profiles, EAP-FAST Parameters, Authentication Priority), Priority Order, Access Control Lists, IPSec Certs, and Wireless Protection Policies. The main content area displays the 'Local EAP Profiles > Edit' screen for the 'EAP-test' profile. It lists several configuration options: Profile Name (EAP-test), LEAP (checkbox checked), EAP-FAST (checkbox checked), EAP-TLS (checkbox checked), Local Certificate Required (checkbox checked, highlighted with a red arrow), Client Certificate Required (checkbox checked), Certificate Issuer (Vendor dropdown), Check against CA certificates (checkbox checked), Verify Certificate CN Identity (checkbox checked), and Check Certificate Date Validity (checkbox checked).

## 在客户端设备上安装证书颁发机构证书

### 下载并安装客户端的根CA证书

客户端必须从证书颁发机构服务器获取根CA证书。您可以使用多种方法获取客户端证书并将其安装在Windows XP计算机上。要获取有效证书，Windows XP用户必须使用其用户ID登录，并且必须具有网络连接。

Windows XP客户端上的Web浏览器和网络的有线连接用于从专用根证书颁发机构服务器获取客户端证书。此过程用于从Microsoft证书颁发机构服务器获取客户端证书：

1. 在客户端上使用Web浏览器，并将浏览器指向证书颁发机构服务器。为此，请输入`http://IP-address-of-Root-CA/certsrv`。
2. 使用**域名\用户名登录**。您必须使用要使用XP客户端的个人的用户名登录。
3. 在“欢迎”窗口中，选择**检索CA证书**，然后单击**下一步**。
4. 选择**Base64 Encoding**和**Download CA certificate**。
5. 在“Certificate Issued ( 颁发的证书 )”窗口中，单击**Install this certificate(安装此证书)**，然后单击**Next(下一步)**。

6. 选择自动选择证书存储，然后单击下一步，以获得成功的导入消息。

7. 连接到证书颁发机构以检索证书颁发机构证书

Microsoft Certificate Services -- tme Home

---

Welcome

You use this web site to request a certificate for your web browser, e-mail client, or other secure program. Once you acquire a certificate, you will be able to securely identify yourself to other people over the web, sign your e-mail messages, encrypt your e-mail messages, and more depending upon the type of certificate you request.

Select a task:

Retrieve the CA certificate or certificate revocation list  
 Request a certificate  
 Check on a pending certificate

[Next >](#)

Microsoft Certificate Services -- tme Home

---

**Retrieve The CA Certificate Or Certificate Revocation List**

[Install this CA certification path](#) to allow your computer to trust certificates issued from this certification authority.

It is not necessary to manually install the CA certification path if you request and install a certificate from this certification authority, because the CA certification path will be installed for you automatically.

Choose file to download:

CA Certificate: [Current \[tme\]](#)

DER encoded or  Base 64 encoded

[Download CA certificate](#)  
[Download CA certification path](#)  
[Download latest certificate revocation list](#)

8. 单击下载 CA 证书。

Microsoft Certificate Services -- tme Home

---

**Retrieve The CA Certificate Or Certificate Revocation List**

[Install this CA certification path](#) to allow your computer to trust certificates issued from this certification authority.

It is not necessary to manually install the CA certification path if you request and install a certificate from this certification authority, because the CA certification path will be installed for you automatically.

Choose file to download:

CA Certificate: [Current \[tme\]](#)

DER encoded or  Base 64 encoded

[Download CA certificate](#)  
[Download CA certification path](#)  
[Download latest certificate revocation list](#)

**File Download - Security Warning**

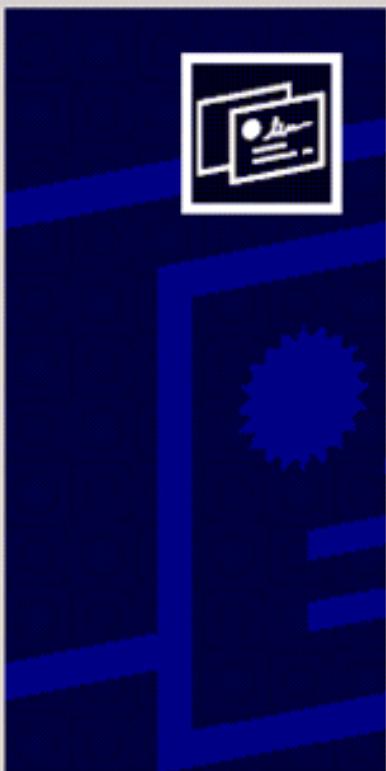
Do you want to open or save this file?

 Name: certnew.cer  
Type: Security Certificate, 798 bytes  
From: 10.1.1.12

[Open](#) [Save](#) [Cancel](#)

 While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not open or save this software. [What's the risk?](#)

## Certificate Import Wizard



### Welcome to the Certificate Import Wizard

This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

To continue, click Next.

< Back

Next >

Cancel

## Certificate Import Wizard

### Certificate Store

Certificate stores are system areas where certificates are kept.



Windows can automatically select a certificate store, or you can specify a location for

- Automatically select the certificate store based on the type of certificate
- Place all certificates in the following store

Certificate store:

[Browse...](#)

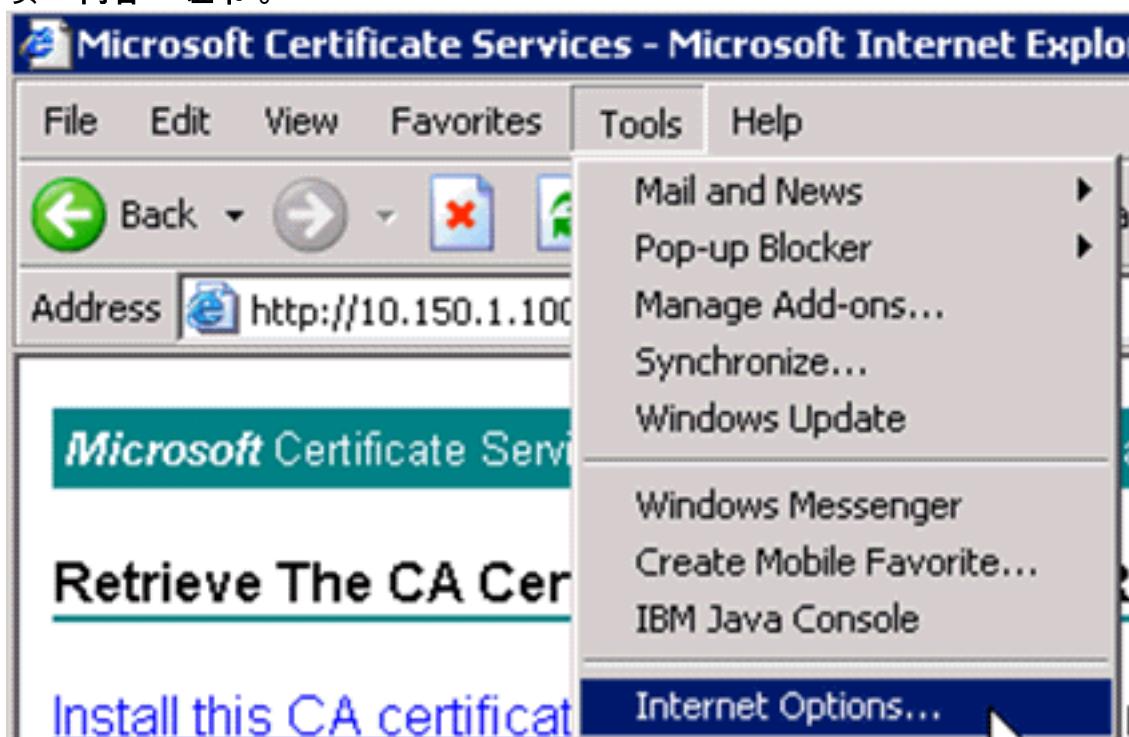
< Back

Next >

Cancel



9. 要检查证书颁发机构证书是否已正确安装，请打开Internet Explorer并选择“工具”>“Internet选项”>“内容”>“证书”。



## Internet Options



General | Security | Privacy | Content | Connections | Programs | Advanced

### Content Advisor



Ratings help you control the Internet content that can be viewed on this computer.

[Enable...](#)

[Settings...](#)

### Certificates



Use certificates to positively identify yourself, certification authorities, and publishers.

[Clear SSL State](#)

[Certificates...](#)

[Publishers...](#)

### Personal information



AutoComplete stores previous entries and suggests matches for you.

[AutoComplete...](#)

Microsoft Profile Assistant stores your personal information.

[My Profile...](#)

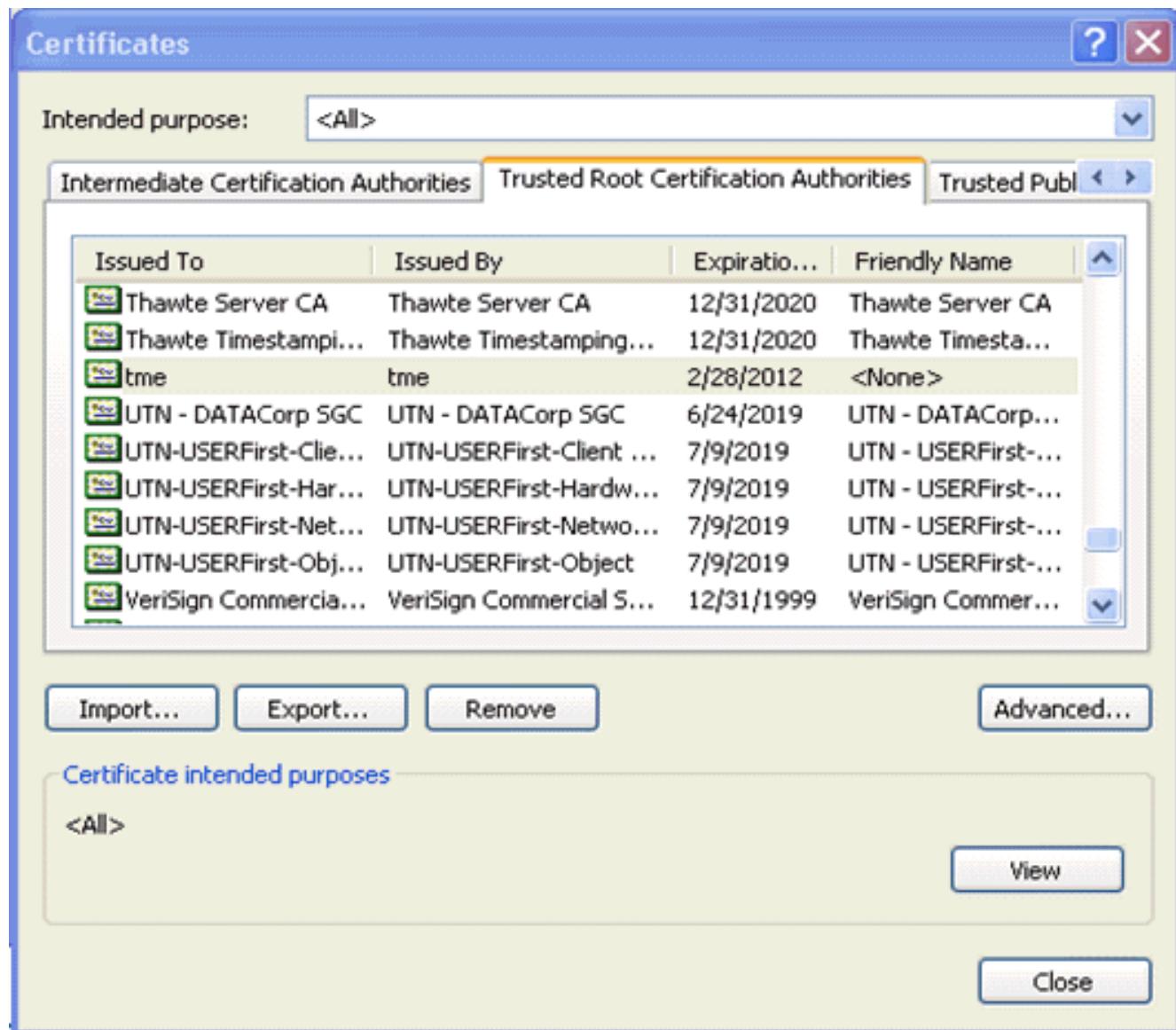
[OK](#)

[Cancel](#)

[Apply](#)

在受信任的根证书颁发机构中，您应看到新安装的证书颁发机构

:



## 为客户端设备生成客户端证书

客户端必须从证书颁发机构服务器获取证书，WLC才能对WLAN EAP-TLS客户端进行身份验证。您可以使用多种方法来获取客户端证书并将其安装在Windows XP计算机上。要获取有效证书，Windows XP用户必须使用其用户ID登录，并且必须具有网络连接（有线连接或禁用了802.1x安全的WLAN连接）。

Windows XP客户端上的Web浏览器和网络的有线连接用于从专用根证书颁发机构服务器获取客户端证书。此过程用于从Microsoft证书颁发机构服务器获取客户端证书：

1. 在客户端上使用Web浏览器，并将浏览器指向证书颁发机构服务器。为此，请输入<http://IP-address-of-Root-CA/certsrv>。
2. 使用**域名\用户名**登录。必须使用使用XP客户端的个人的用户名登录。（用户名嵌入到客户端证书中。）
3. 在“欢迎”窗口中，选择“**请求证书**”，然后单击“**下一步**”。
4. 选择**高级请求并单击“下一步”**。
5. 选择**使用表单向此 CA 提交证书请求并单击“下一步”**。
6. 在“**高级证书请求**”(Advanced Certificate Request)表单中，选择“**证书模板**”(Certificate Template)作为“**用户**”(User)，将“**密钥大小**”(Key Size)指定为**1024**，然后单击“**提交**”(Submit)。
7. 在**Certificate Issued** (颁发的证书)窗口中，单击**Install this certificate(安装此证书)**。这会导

## 致在Windows XP客户端上成功安装客户端证书。

Microsoft Certificate Services -- tme [Home](#)

### Welcome

You use this web site to request a certificate for your web browser, e-mail client, or other secure program. Once you acquire a certificate, you will be able to securely identify yourself to other people over the web, sign your e-mail messages, encrypt your e-mail messages, and more depending upon the type of certificate you request.

#### Select a task:

- Retrieve the CA certificate or certificate revocation list
- Request a certificate
- Check on a pending certificate

[Next >](#)

Microsoft Certificate Services -- tme [Home](#)

### Choose Request Type

Please select the type of request you would like to make:

- User certificate request:



- Advanced request

[Next >](#)

Microsoft Certificate Services -- tme [Home](#)

### Advanced Certificate Requests

You can request a certificate for yourself, another user, or a computer using one of the following methods. Note that the policy of the certification authority (CA) will determine the certificates that you can obtain.

- Submit a certificate request to this CA using a form.
- Submit a certificate request using a base64 encoded PKCS #10 file or a renewal request using a base64 encoded PKCS #7 file.
- Request a certificate for a smart card on behalf of another user using the Smart Card Enrollment Station.  
You must have an enrollment agent certificate to submit a request for another user.

[Next >](#)

## 8. 选择“Client Authentication Certificate”。

**Advanced Certificate Request****Certificate Template:**

User

**Key Options:**

CSP: Microsoft Base Cryptographic Provider v1.0

Key Usage:  Exchange  Signature  Both

Key Size: 512 Min: 384 Max:1024 (common key sizes: 512, 1024)

- Create new key set
  - Set the container name
- Use existing key set
- Enable strong private key protection
- Mark keys as exportable
  - Export keys to file
- Use local machine store
 

*You must be an administrator to generate a key in the local machine store.*

**Additional Options:**

Hash Algorithm: SHA-1

*Only used to sign request.*

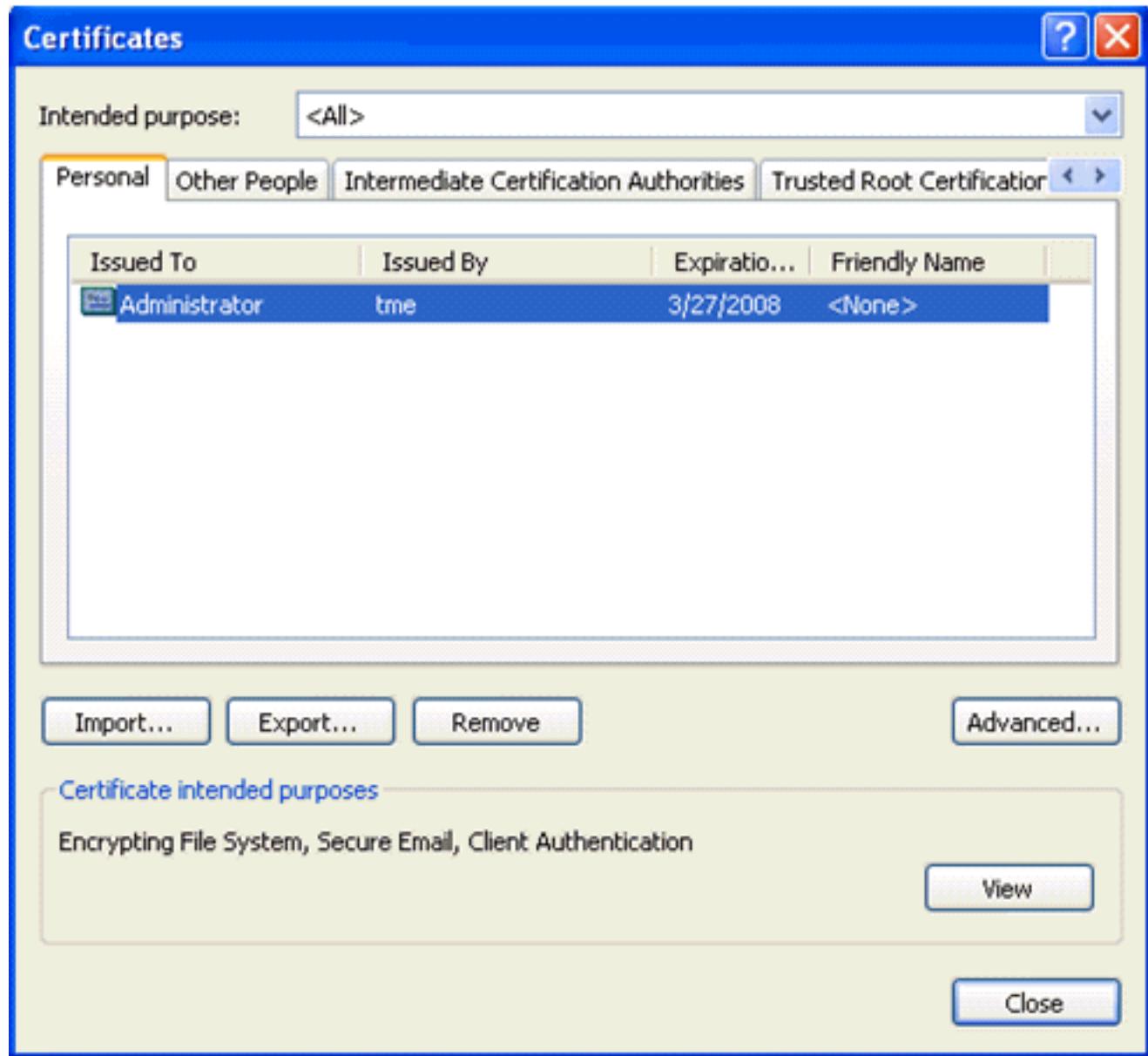
Save request to a PKCS #10 file

Attributes:

客户端证书现

已创建。

9. 要检查证书是否已安装，请转到Internet Explorer，然后选择“工具”>“Internet选项”>“内容”>“证书”。在“个人”选项卡中，您应该看到证书。



## 客户端设备上思科安全服务客户端的EAP-TLS

请完成以下步骤：

1. 默认情况下，WLC广播SSID，因此它显示在已扫描SSID的Create Networks列表中。要创建网络配置文件，可以点击列表（企业）中的SSID，然后点击创建网络。如果WLAN基础设施配置了禁用广播SSID，则必须手动添加SSID。为此，请单击“Access Devices”下的Add，然后手动输入适当的SSID（例如，Enterprise）。为客户端配置活动探测行为。也就是说，客户端主动探查其已配置的SSID。在“Add Access Device”窗口中输入SSID之后，指定**Actively search for this access device**。**注意**：如果EAP身份验证设置未首先为配置文件配置，则端口设置不允许企业模式(802.1X)。
2. 单击Create Network以启动“Network Profile”窗口，该窗口允许您将所选（或已配置）SSID与身份验证机制相关联。为配置文件指定描述性名称。**注意**：在此身份验证配置文件下可以关联多个WLAN安全类型和/或SSID。

Cisco Secure Services Client

Client Administration Help

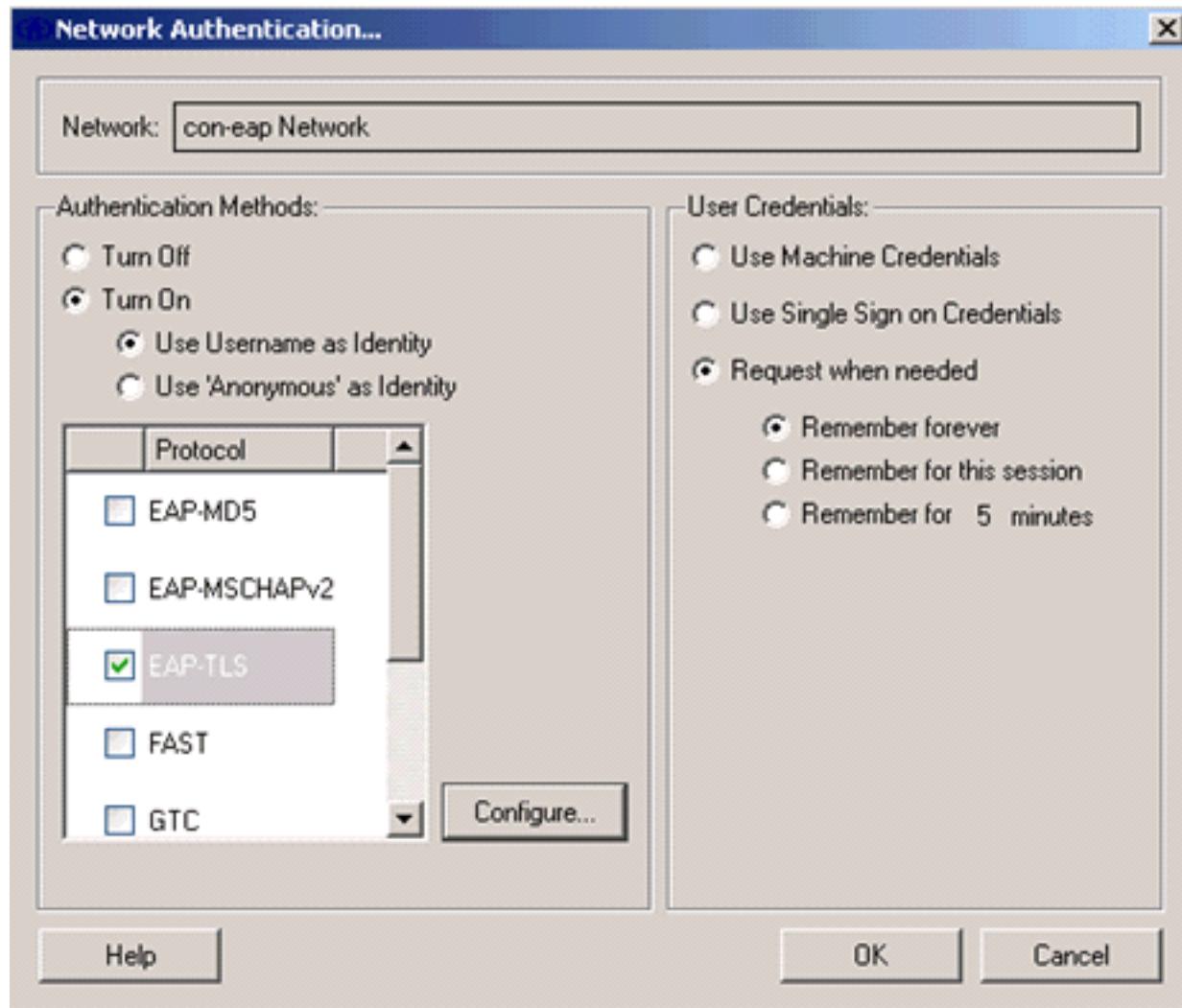
Create Networks | Manage Networks

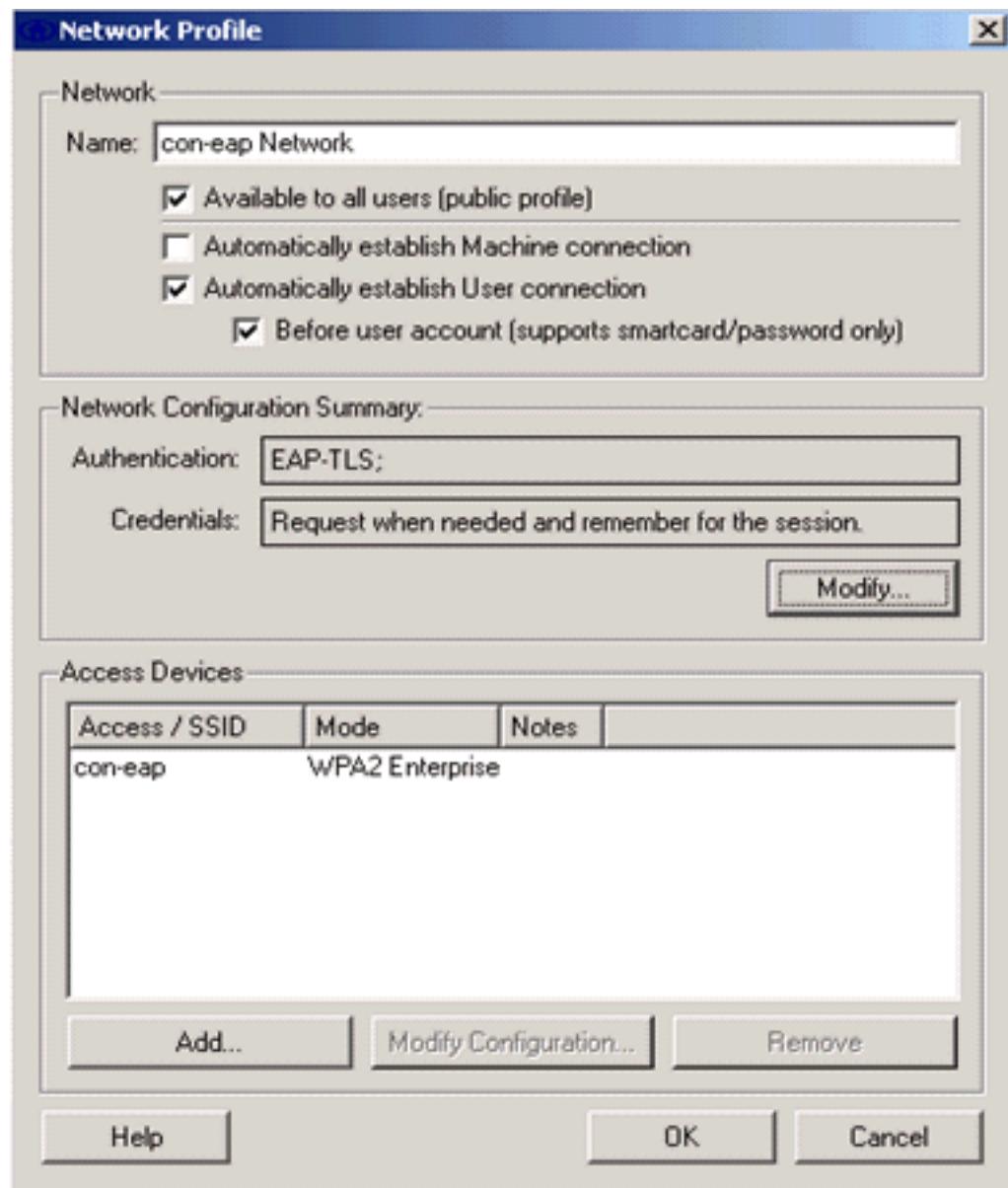
Access	Data Security
aruba-ap-config-in-the-clear (2 accesses detected)	WEP
b	Open
ccx5 (2 accesses detected)	Open
con	Open
con-eap 001907351aa3 High Signal	WEP
guestnet (5 accesses detected)	Open
guestnetwork	Open
N-Rogue	WEP
secure-1 (3 accesses detected)	Mixed
tme-test (5 accesses detected)	WPA
trng1 (2 accesses detected)	WEP

Create Network

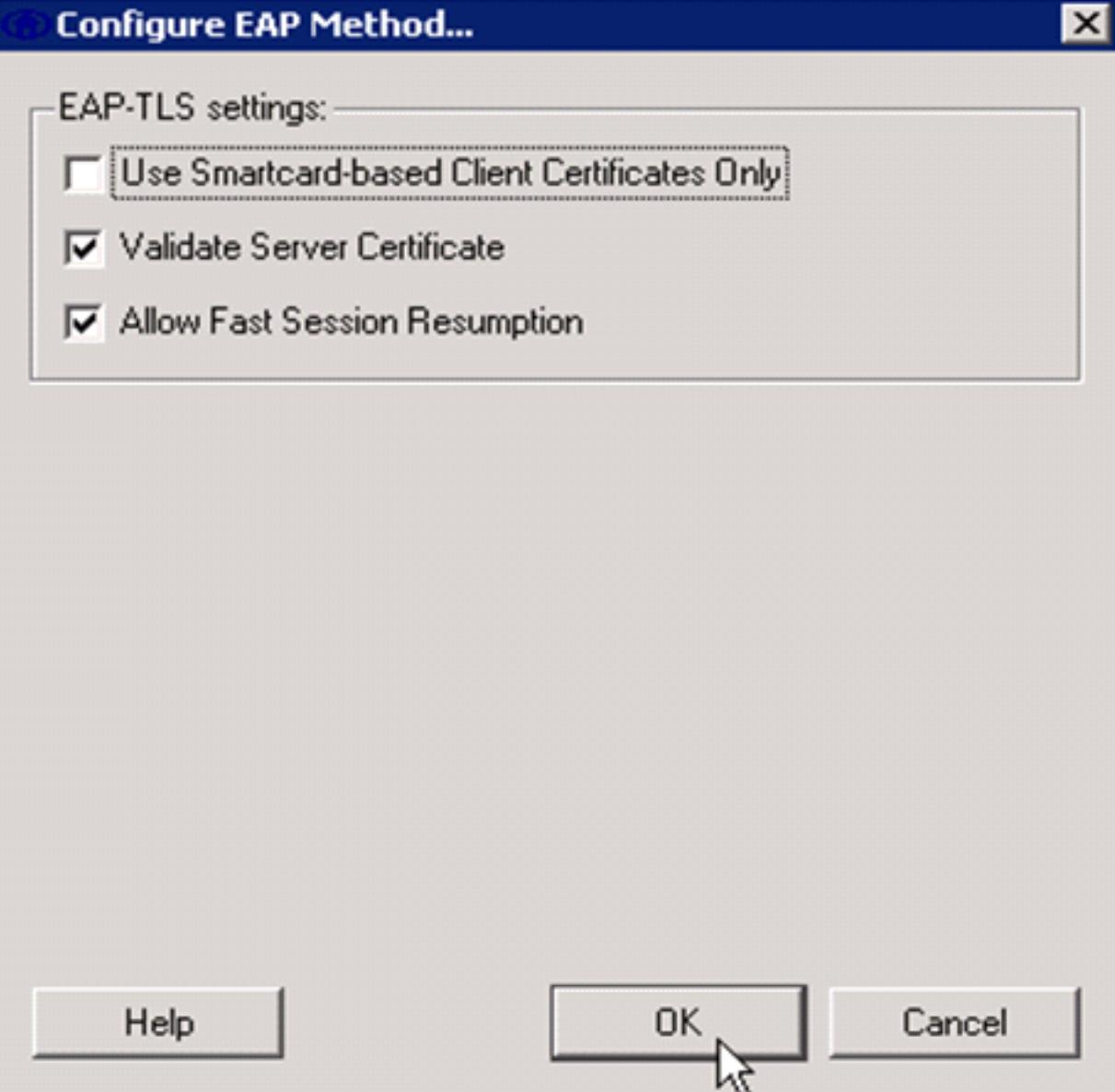
The screenshot shows the Cisco Secure Services Client interface. At the top, there's a menu bar with 'Client', 'Administration', and 'Help'. Below that is a navigation bar with 'Create Networks' and 'Manage Networks'. The main area is titled 'Access' and contains a table of wireless networks. Each row in the table has a small icon, the network name, and its security status. One row, 'con-eap', is highlighted with a gray background and a dotted border. At the bottom right of the main area is a 'Create Network' button.

3. 打开身份验证并检查EAP-TLS方法。然后单击Configure以配置EAP-TLS属性。
4. 在Network Configuration Summary ( 网络配置摘要 ) 下，单击Modify以配置EAP /凭据设置。
5. 指定Turn On Authentication，在Protocol下选择EAP-TLS，然后选择Username作为Identity。
6. 指定 Use Single Sign on Credentials，以使用登录凭据进行网络身份验证。单击Configure以设置EAP-TLS参数。

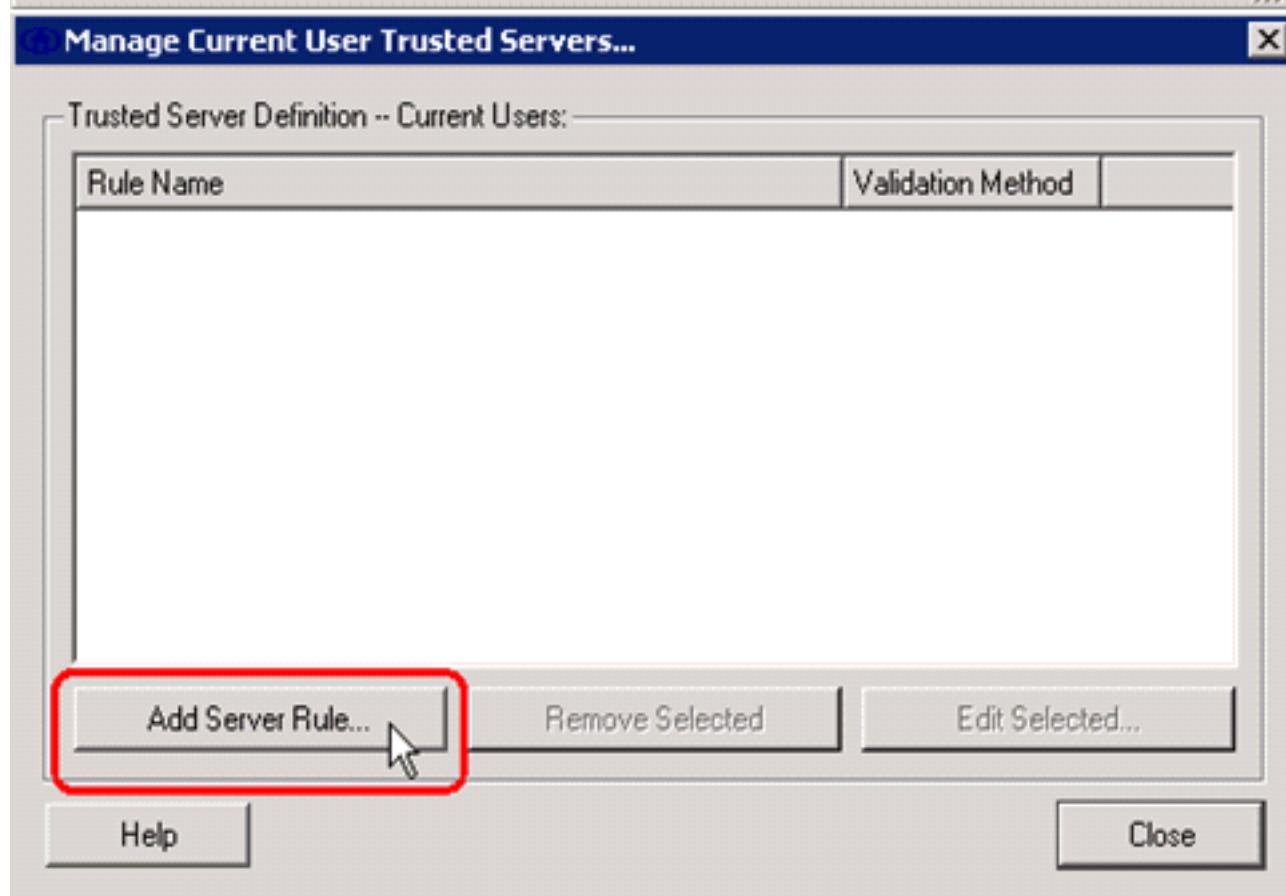
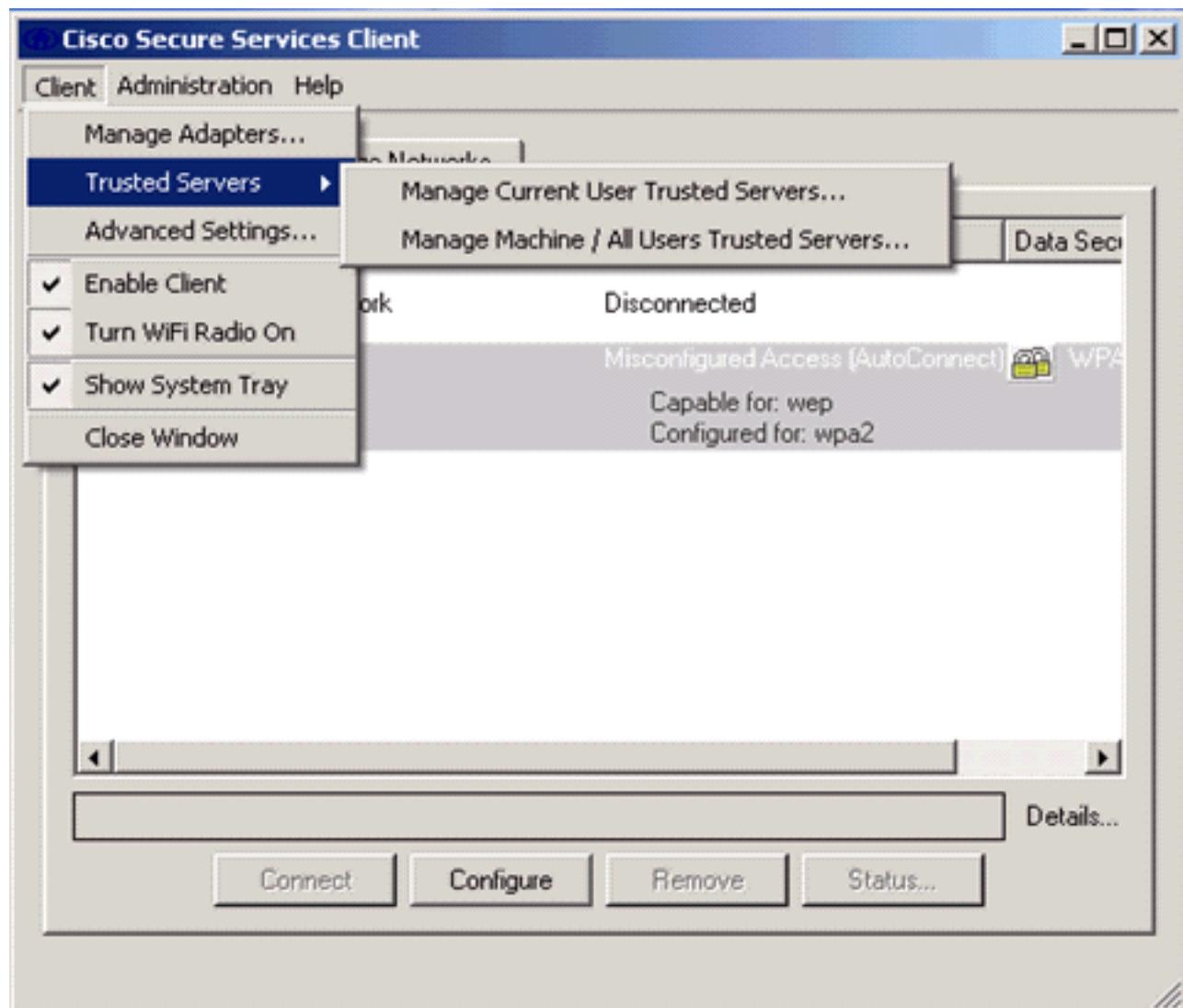




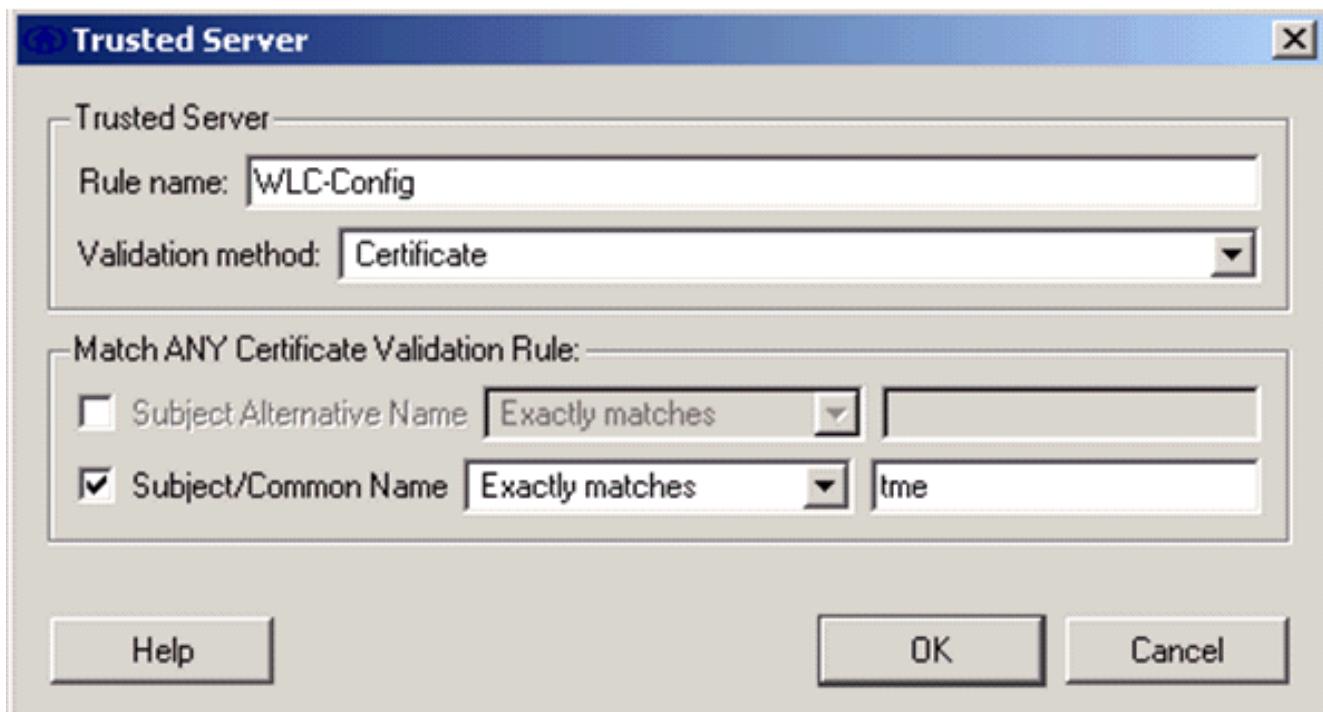
7. 要获得安全的EAP-TLS配置，您需要检查RADIUS服务器证书。为此，请选中验证服务器证书



8. 要验证RADIUS服务器证书，您需要提供思科安全服务客户端信息，以便仅接受正确的证书。  
选择Client > Trusted Servers > Manage Current User Trusted Servers。

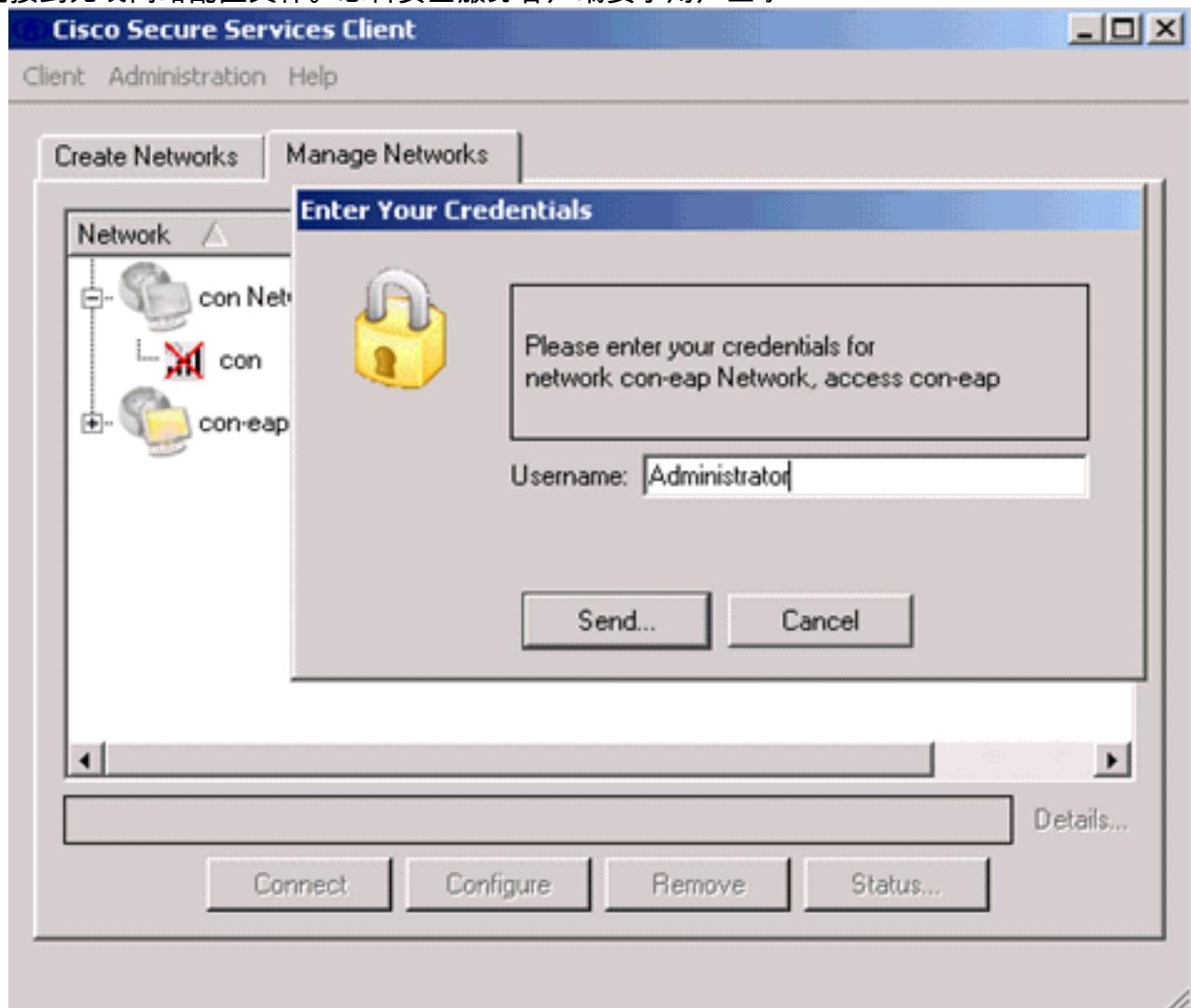


9. 为规则指定名称并检查服务器证书的名称。



EAP-TLS配置已完成。

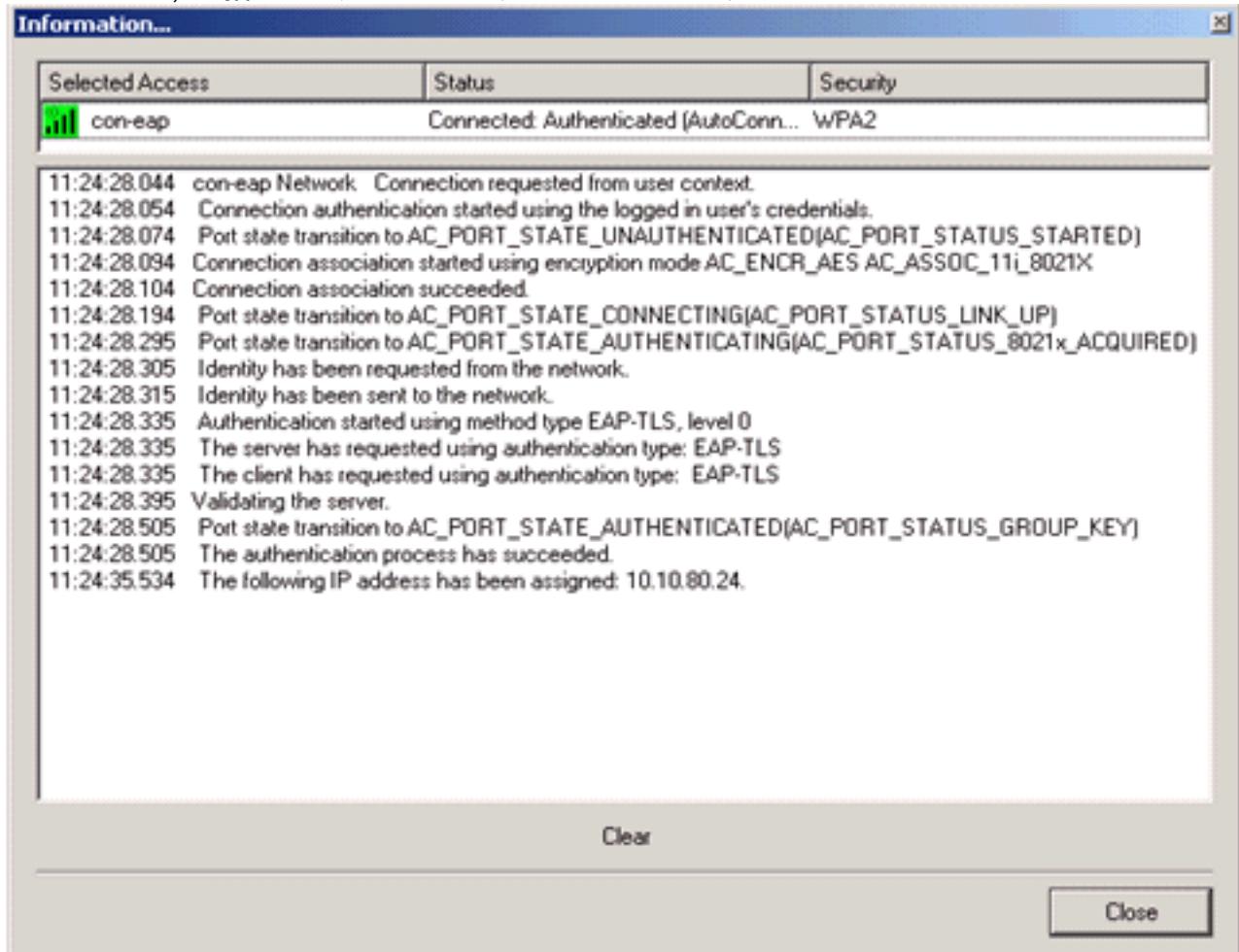
#### 10. 连接到无线网络配置文件。思科安全服务客户端要求用户登录



思科安全服务客户端接收服务器证书并对其进行检查（配置规则并安装证书颁发机构）。然后，它要求用户使用证书。

#### 11. 在客户端验证之后，在“Manage Networks”选项卡中的“Profile”下选择 SSID，然后单击

“Status”以查询有关连接的详细信息。“Connection Details”窗口提供了有关客户端设备、连接状态和统计信息以及身份验证方法的信息。“WiFi Details”选项卡提供了有关 802.11 连接状态的详细信息，包括 RSSI、802.11 通道以及身份验证/加密。



# Cisco Secure Services Client



Client Administration Help

Create Networks

Manage Networks

Network	Status	Data
con Network	Disconnected	
con-eap Network	Connected: Authenticated	

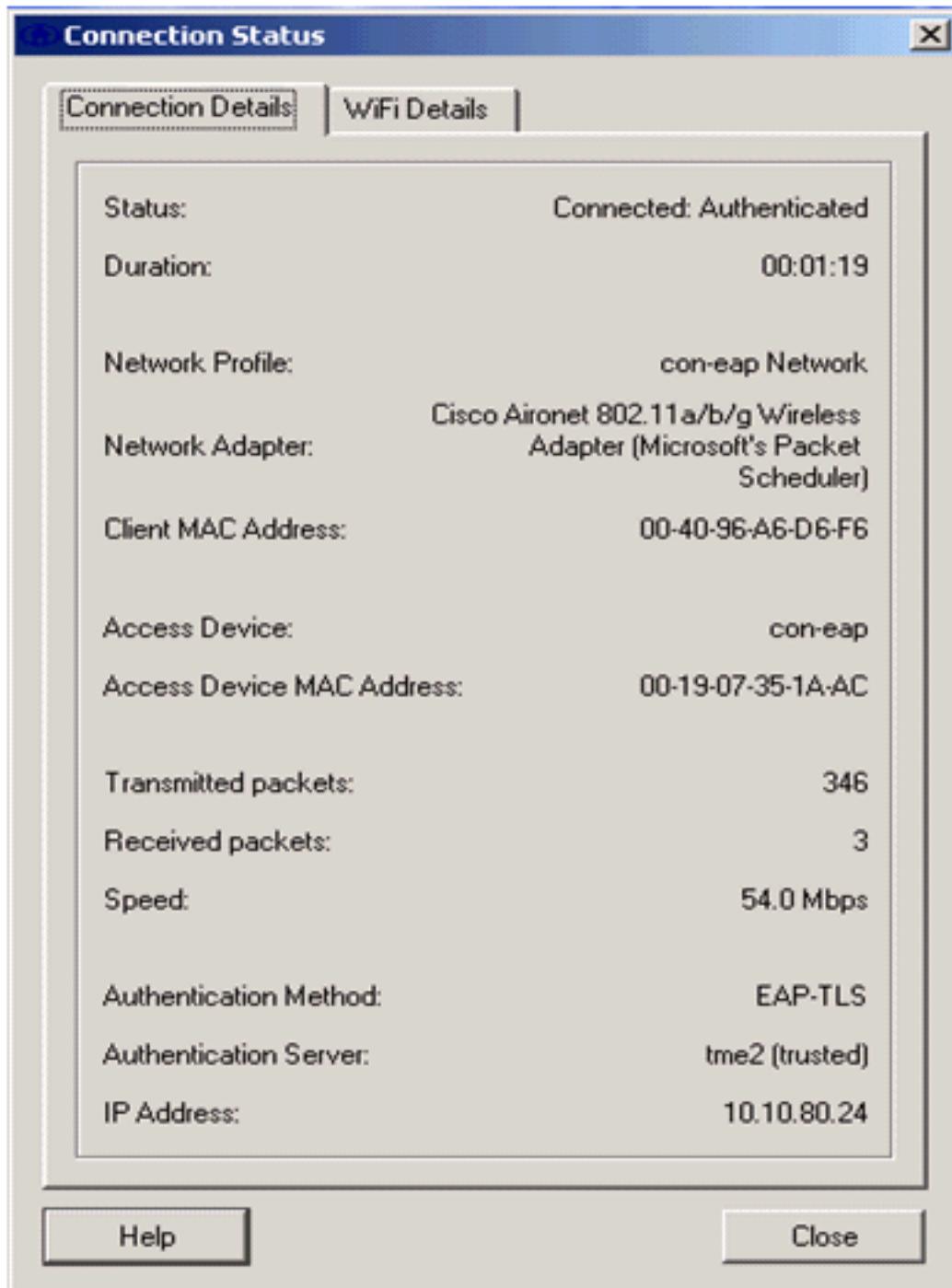
Disconnect

Configure

Remove

Status...

Details...



## 调试命令

[命令输出解释程序（仅限注册用户）\(OIT\)](#) 支持某些 `show` 命令。使用 OIT 可查看对 `show` 命令输出的分析。

**注意：**在使用 `debug` 命令之前，请参阅有关 `Debug` 命令的重要信息。

在 WLC 上可以使用以下 `debug` 命令来监控身份验证交换的进度：

- `debug aaa events enable`
- `debug aaa detail enable`
- `debug dot1x events enable`
- `debug dot1x states enable`
- `debug aaa local-auth eap events enable` 或者

- `debug aaa all enable`

## 相关信息

- [Cisco 无线局域网控制器配置指南 4.1 版](#)
- [WLAN 技术支持](#)
- [技术支持和文档 - Cisco Systems](#)