ASA AnyConnect双重身份验证用证书确认、映射和预先充满配置指南

目录

简介

本文描述以证书确认使用双重身份验证的可适应安全工具(ASA) Cisco AnyConnect安全移动客户端访问的配置示例。作为AnyConnect用户，您必须为主要的和附属验证提供正确证书和凭证为了获得VPN访问。本文也提供证书映射示例预先充满功能。

先决条件

要求

Cisco 建议您了解以下主题：

- ASA命令行界面(CLI)配置和安全套接字层SSL VPN配置基础知识
- X509证书基础知识

使用的组件

本文档中的信息基于以下软件版本：

- Cisco可适应安全工具(ASA)软件，版本8.4和以上
- 与Cisco AnyConnect安全移动客户端3.1的Windows 7

假设，您使用一外部Certificate Authority (CA)为了生成：

- ASA的(anyconnect.pfx)一公钥加密标准#12 (PKCS-12) base64-encoded证书
- AnyConnect的一PKCS-12证书

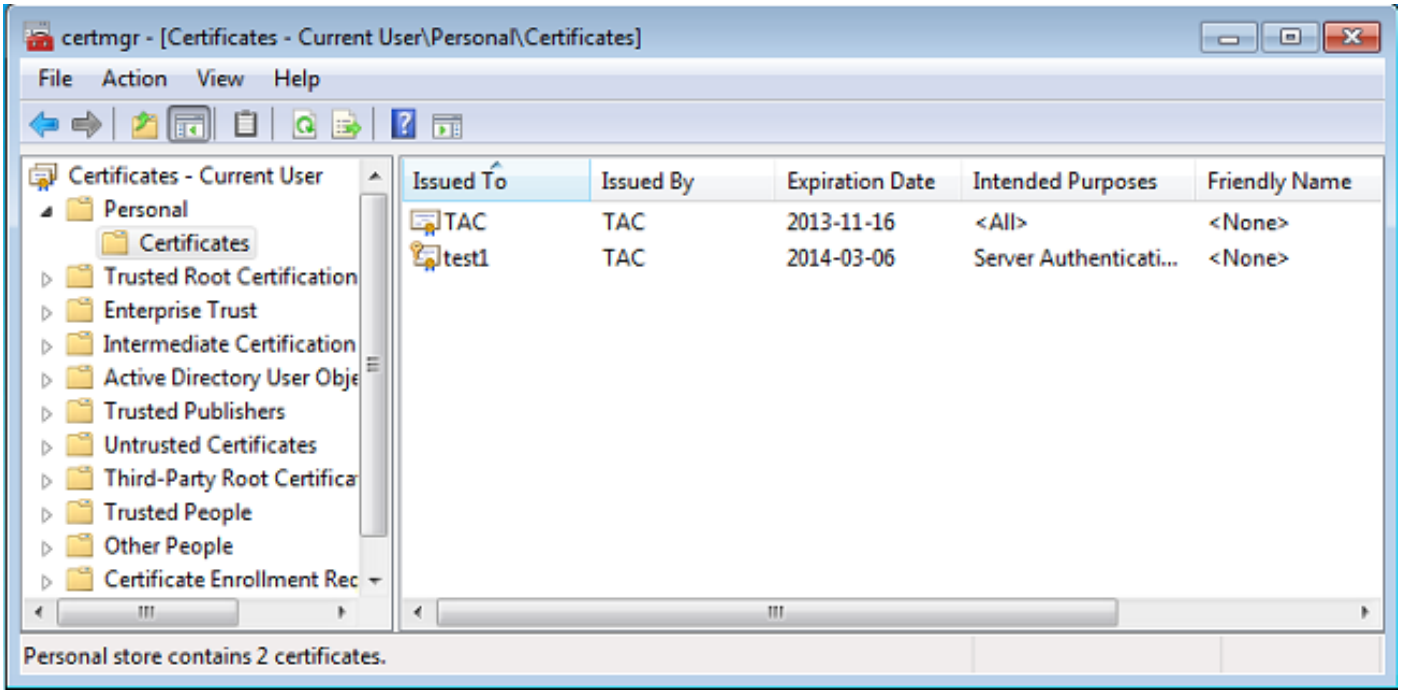
配置

Note:使用命令查找工具（仅限注册用户）可获取有关本部分所使用命令的详细信息。

AnyConnect的证书

为了安装示例证书，请双击anyconnect.pfx文件，并且安装该证书作为个人证书。

请使用认证管理器(certmgr.msc)为了验证安装：



默认情况下， AnyConnect在Microsoft用户存储设法查找一证书;没有需要做在AnyConnect配置文件的所有变动。

ASA的认证安装

此示例显示ASA如何能导入base64 PKCS-12证书：

```
BSNS-ASA5580-40-1(config)# crypto ca import CA pkcs12 123456

Enter the base 64 encoded pkcs12.
End with the word "quit" on a line by itself:
MIIJAQIBAzCCCMcGCSqGSIb3DQEHAaCCCLgEggi0MIIIsDCCBa8GCSqGSIb3DQEH
...
<output ommitted>
...
83EwMTAhMAkGBSsOAwIaBQAEFCS/WBSkrOIeT1HARHbLF1FFQvSvBAhu0j9bTtZo
3AICCAA=
quit

INFO: Import PKCS12 operation completed successfully
```

请使用**show crypto ca certificates命令**为了验证导入：

```
BSNS-ASA5580-40-1(config)# crypto ca import CA pkcs12 123456

Enter the base 64 encoded pkcs12.
End with the word "quit" on a line by itself:
MIIJAQIBAzCCCMcGCSqGSIb3DQEHAaCCCLgEggi0MIIIsDCCBa8GCSqGSIb3DQEH
...
<output ommitted>
...
83EwMTAhMAkGBSsOAwIaBQAEFCS/WBSkrOIeT1HARHbLF1FFQvSvBAhu0j9bTtZo
3AICCAA=
quit

INFO: Import PKCS12 operation completed successfully
```

> Note:命令输出解释程序工具（仅限注册用户）支持某些 **show** 命令。请使用Output Interpreter Tool为了查看show命令输出分析。

单个验证和证书确认的ASA配置

ASA使用验证、授权和统计(AAA)验证和证书验证。证书确认是必须。AAA认证使用一个本地数据库。

此示例显示与证书确认的单个验证。

```
ip local pool POOL 10.1.1.10-10.1.1.20
username cisco password cisco

webvpn
 enable outside
 anyconnect image disk0:/anyconnect-win-3.1.01065-k9.pkg 1
 anyconnect enable
 tunnel-group-list enable

group-policy Group1 internal
group-policy Group1 attributes
```

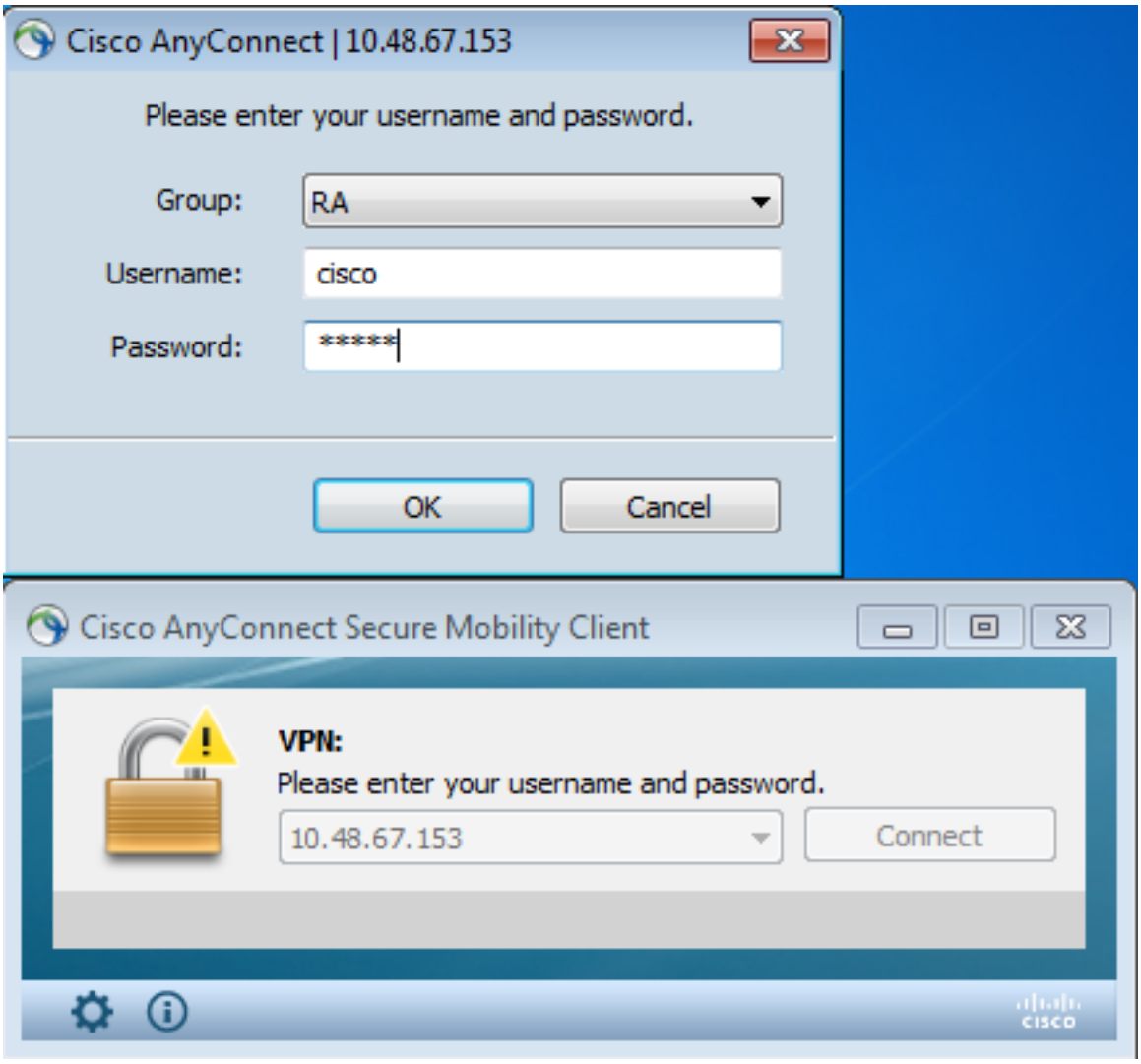
```
 vpn-tunnel-protocol ssl-client ssl-clientless
 address-pools value POOL

tunnel-group RA type remote-access
tunnel-group RA general-attributes
 authentication-server-group LOCAL
 default-group-policy Group1
 authorization-required
tunnel-group RA webvpn-attributes
 authentication aaa certificate
 group-alias RA enable
```

除此配置之外，是可能的执行轻量级目录访问协议(LDAP)授权与从一个特定证书字段的用户名，例如验证名称(CN)。另外的属性可能然后获取和应用到VPN会话。关于验证和证书授权的更多信息，参考“ASA Anyconnect VPN和与自定义模式和证书配置示例的OpenLDAP授权”。

测验

> **Note**:命令输出解释程序工具（仅限注册用户）支持某些 **show** 命令。请使用Output Interpreter Tool为了查看show命令输出分析。

为了测试此配置，请提供本地凭证(用户名cisco用密码cisco)。证书一定存在：



输入**显示vpn-sessiondb详细信息anyconnect** on命令ASA ：

```
BSNS-ASA5580-40-1(config-tunnel-general)# show vpn-sessiondb detail anyconnect
Session Type: AnyConnect Detailed

Username     : cisco                  Index        : 10
Assigned IP  : 10.1.1.10               Public IP    : 10.147.24.60
Protocol     : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License      : AnyConnect Premium
Encryption   : RC4 AES128             Hashing      : none SHA1
Bytes Tx     : 20150                  Bytes Rx     : 25199
Pkts Tx      : 16                     Pkts Rx      : 192
Pkts Tx Drop : 0                      Pkts Rx Drop : 0
Group Policy : Group1                 Tunnel Group : RA
Login Time   : 10:16:35 UTC Sat Apr 13 2013
Duration     : 0h:01m:30s
Inactivity   : 0h:00m:00s
NAC Result   : Unknown
VLAN Mapping : N/A                    VLAN         : none

AnyConnect-Parent Tunnels: 1
SSL-Tunnel Tunnels: 1
DTLS-Tunnel Tunnels: 1

AnyConnect-Parent:
 Tunnel ID    : 10.1
 Public IP    : 10.147.24.60
 Encryption   : none                   TCP Src Port : 62531
 TCP Dst Port : 443                    Auth Mode    : Certificate
and userPassword
 Idle Time Out: 30 Minutes             Idle TO Left : 28 Minutes
 Client Type  : AnyConnect
 Client Ver   : 3.1.01065
 Bytes Tx     : 10075                  Bytes Rx     : 1696
 Pkts Tx      : 8                      Pkts Rx      : 4
 Pkts Tx Drop : 0                      Pkts Rx Drop : 0

SSL-Tunnel:
 Tunnel ID    : 10.2
 Assigned IP  : 10.1.1.10               Public IP    : 10.147.24.60
 Encryption   : RC4                    Hashing      : SHA1
 Encapsulation: TLSv1.0                TCP Src Port : 62535
 TCP Dst Port : 443                    Auth Mode    : Certificate
and userPassword
 Idle Time Out: 30 Minutes             Idle TO Left : 28 Minutes
 Client Type  : SSL VPN Client
 Client Ver   : Cisco AnyConnect VPN Agent for Windows 3.1.01065
 Bytes Tx     : 5037                   Bytes Rx     : 2235
 Pkts Tx      : 4                      Pkts Rx      : 11
 Pkts Tx Drop : 0                      Pkts Rx Drop : 0

DTLS-Tunnel:
 Tunnel ID    : 10.3
 Assigned IP  : 10.1.1.10               Public IP    : 10.147.24.60
 Encryption   : AES128                 Hashing      : SHA1
 Encapsulation: DTLSv1.0               UDP Src Port : 52818
 UDP Dst Port : 443                    Auth Mode    : Certificate
and userPassword
 Idle Time Out: 30 Minutes             Idle TO Left : 29 Minutes
 Client Type  : DTLS VPN Client
 Client Ver   : 3.1.01065
 Bytes Tx     : 0                      Bytes Rx     : 21268
 Pkts Tx      : 0                      Pkts Rx      : 177
 Pkts Tx Drop : 0                      Pkts Rx Drop : 0
```

```
NAC:
 Reval Int (T): 0 Seconds            Reval Left(T): 0 Seconds
 SQ Int (T)   : 0 Seconds            EoU Age(T)   : 92 Seconds
 Hold Left (T): 0 Seconds            Posture Token:
 Redirect URL :
```

调试

> **Note**:使用 **debug** 命令之前，请参阅有关 Debug 命令的重要信息。

在本例中，证书在数据库未被缓存，找到了对应的CA，使用了正确密钥用法(ClientAuthentication)，并且证书顺利地验证：

```
debug aaa authentication
debug aaa authorization
debug webvpn  255
debug webvpn anyconnect 255
debug crypto ca 255
```

详细的调试指令，例如**debug webvpn 255命令**，在ASA能生成许多登录生产环境和放置重载。一些WebVPN调试为了清晰删除：

```
CERT_API: Authenticate session 0x0934d687, non-blocking cb=0x00000000012cfc50
CERT API thread wakes up!
CERT_API: process msg cmd=0, session=0x0934d687
CERT_API: Async locked for session 0x0934d687
CRYPTO_PKI: Checking to see if an identical cert is
 already in the database...
CRYPTO_PKI: looking for cert in handle=0x00007ffd8b80ee90, digest=
ad 3d a2 da 83 19 e0 ee d9 b5 2a 83 5c dd e0 70    |  .=........*.\..p
CRYPTO_PKI: Cert record not found, returning E_NOT_FOUND
CRYPTO_PKI: Cert not found in database.
CRYPTO_PKI: Looking for suitable trustpoints...
CRYPTO_PKI: Storage context locked by thread CERT API
CRYPTO_PKI: Found a suitable authenticated trustpoint CA.
CRYPTO_PKI(make trustedCerts list)CRYPTO_PKI:check_key_usage: ExtendedKeyUsage
OID = 1.3.6.1.5.5.7.3.1
CRYPTO_PKI:check_key_usage:Key Usage check OK

CRYPTO_PKI: Certificate validation: Successful, status: 0. Attempting to
retrieve revocation status if necessary
CRYPTO_PKI:Certificate validated. serial number: 00FE9C3D61E131CDB1, subject name:
cn=test1,ou=Security,o=Cisco,l=Krakow,st=PL,c=PL.
CRYPTO_PKI: Storage context released by thread CERT API
CRYPTO_PKI: Certificate validated without revocation check
```

这是尝试找到一匹配的隧道群。没有特定证书映射规则，并且您提供使用的隧道群：

```
CRYPTO_PKI: Attempting to find tunnel group for cert with serial number:
00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,l=Krakow,st=PL,
c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,l=Warsaw,st=Maz,c=PL.
CRYPTO_PKI: No Tunnel Group Match for peer certificate.
CERT_API: Unable to find tunnel group for cert using rules (SSL)
```

这些是SSL和全体会议调试：

```
%ASA-7-725012: Device chooses cipher : RC4-SHA for the SSL session with client
outside:10.147.24.60/64435
%ASA-7-717025: Validating certificate chain containing 1 certificate(s).
%ASA-7-717029: Identified client certificate within certificate chain. serial
number: 00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,l=Krakow,
st=PL,c=PL.
%ASA-7-717030: Found a suitable trustpoint CA to validate certificate.
%ASA-6-717022: Certificate was successfully validated. serial number:
00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,l=Krakow,st=PL,
c=PL.
%ASA-6-717028: Certificate chain was successfully validated with warning,
revocation status was not checked.
%ASA-6-725002: Device completed SSL handshake with client outside:
10.147.24.60/64435
%ASA-7-717036: Looking for a tunnel group match based on certificate maps for
peer certificate with serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,
ou=Security,o=Cisco,l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,
l=Warsaw,st=Maz,c=PL.
%ASA-4-717037: Tunnel group search using certificate maps failed for peer
certificate: serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,
ou=Security,o=Cisco,l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,
l=Warsaw,st=Maz,c=PL.
%ASA-6-113012: AAA user authentication Successful : local database : user = cisco
%ASA-6-113009: AAA retrieved default group policy (Group1) for user = cisco
%ASA-6-113008: AAA transaction status ACCEPT : user = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.grouppolicy = Group1
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username1 = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username2 =
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.tunnelgroup = RA
%ASA-6-734001: DAP: User cisco, Addr 10.147.24.60, Connection AnyConnect: The
following DAP records were selected for this connection: DfltAccessPolicy
 %ASA-6-113039: Group <Group1> User <cisco> IP <10.147.24.60> AnyConnect parent
session started.
```

双重身份验证和证书确认的ASA配置

这是双重身份验证示例，主要的认证服务器是本地，并且附属认证服务器是LDAP。证书确认仍然启用。

此示例显示IDAP配置：

```
%ASA-7-725012: Device chooses cipher : RC4-SHA for the SSL session with client
outside:10.147.24.60/64435
%ASA-7-717025: Validating certificate chain containing 1 certificate(s).
%ASA-7-717029: Identified client certificate within certificate chain. serial
number: 00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,l=Krakow,
st=PL,c=PL.
%ASA-7-717030: Found a suitable trustpoint CA to validate certificate.
%ASA-6-717022: Certificate was successfully validated. serial number:
00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,l=Krakow,st=PL,
c=PL.
%ASA-6-717028: Certificate chain was successfully validated with warning,
revocation status was not checked.
%ASA-6-725002: Device completed SSL handshake with client outside:
```

```
10.147.24.60/64435
%ASA-7-717036: Looking for a tunnel group match based on certificate maps for
peer certificate with serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,
ou=Security,o=Cisco,l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,
l=Warsaw,st=Maz,c=PL.
%ASA-4-717037: Tunnel group search using certificate maps failed for peer
certificate: serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,
ou=Security,o=Cisco,l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,
l=Warsaw,st=Maz,c=PL.
%ASA-6-113012: AAA user authentication Successful : local database : user = cisco
%ASA-6-113009: AAA retrieved default group policy (Group1) for user = cisco
%ASA-6-113008: AAA transaction status ACCEPT : user = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.grouppolicy = Group1
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username1 = cisco
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.username2 =
%ASA-7-734003: DAP: User cisco, Addr 10.147.24.60:
Session Attribute aaa.cisco.tunnelgroup = RA
%ASA-6-734001: DAP: User cisco, Addr 10.147.24.60, Connection AnyConnect: The
following DAP records were selected for this connection: DfltAccessPolicy
 %ASA-6-113039: Group <Group1> User <cisco> IP <10.147.24.60> AnyConnect parent
session started.
```

这是一个附属认证服务器的新增内容：

```
tunnel-group RA general-attributes
 authentication-server-group LOCAL
secondary-authentication-server-group LDAP
 default-group-policy Group1
 authorization-required
tunnel-group RA webvpn-attributes
 authentication aaa certificate
```

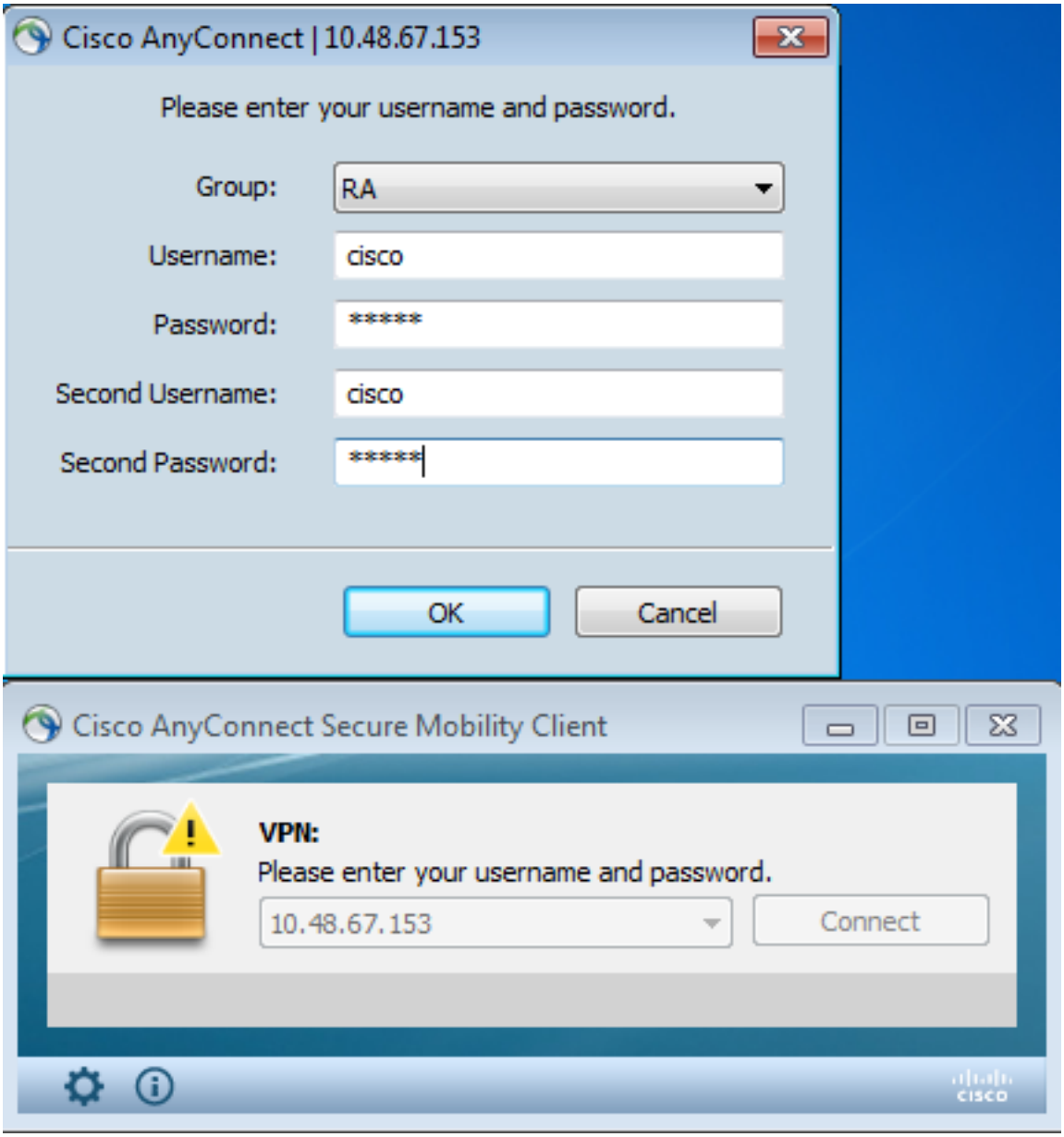
因为它是默认设置，您看不到'验证服务器组本地'在配置里。

所有其他AAA服务器可以用于'验证服务器组'。对于'第二验证服务器组'，使用所有AAA服务器除了Security Dynamics International (SDI)是可能的服务器;在那种情况下， SDI能仍然是主要的认证服务器。

测验

> **Note**:命令输出解释程序工具（仅限注册用户）支持某些 **show** 命令。请使用Output Interpreter Tool为了查看show命令输出分析。

为了测试此配置，请提供本地凭证(用户名cisco用密码cisco)和LDAP凭证(用户名cisco用从LDAP的密码)。证书一定存在：



输入**显示vpn-sessiondb详细信息anyconnect** on命令ASA。

结果类似于那些为单个验证。单个验证和证书确认的参考的“ASA配置，测验”。

调试

WebVPN会话的调试和验证是类似的。单个验证和证书确认的参考的“ASA配置，调试”。一另外的认证过程出现：

```
%ASA-6-113012: AAA user authentication Successful : local database : user = cisco
%ASA-6-302013: Built outbound TCP connection 1936 for outside:10.147.24.60/389
(10.147.24.60/389) to identity:10.48.67.153/54437 (10.48.67.153/54437)
%ASA-6-113004: AAA user authentication Successful : server =  10.147.24.60 :
user = cisco
%ASA-6-113009: AAA retrieved default group policy (Group1) for user = cisco
%ASA-6-113008: AAA transaction status ACCEPT : user = cisco
```

LDAP的调试显示也许随IDAP配置变化的详细信息：

```
%ASA-6-113012: AAA user authentication Successful : local database : user = cisco
%ASA-6-302013: Built outbound TCP connection 1936 for outside:10.147.24.60/389
(10.147.24.60/389) to identity:10.48.67.153/54437 (10.48.67.153/54437)
%ASA-6-113004: AAA user authentication Successful : server =  10.147.24.60 :
user = cisco
%ASA-6-113009: AAA retrieved default group policy (Group1) for user = cisco
%ASA-6-113008: AAA transaction status ACCEPT : user = cisco
```

双重身份验证和预先充满的ASA配置

映射某些证书字段到使用主要的和附属验证的用户名是可能的：

```
username test1 password cisco
tunnel-group RA general-attributes
 authentication-server-group LOCAL
 secondary-authentication-server-group LDAP
 default-group-policy Group1
 authorization-required
 username-from-certificate CN
 secondary-username-from-certificate OU
tunnel-group RA webvpn-attributes
 authentication aaa certificate
 pre-fill-username ssl-client
 secondary-pre-fill-username ssl-client
 group-alias RA enable
```

在本例中，客户端使用证书：cn=test1,ou=Security， o=Cisco， l=Krakow， st=PL， c=PL。

对于主要的验证，用户名从CN被采取，是本地用户'test1为什么创建。

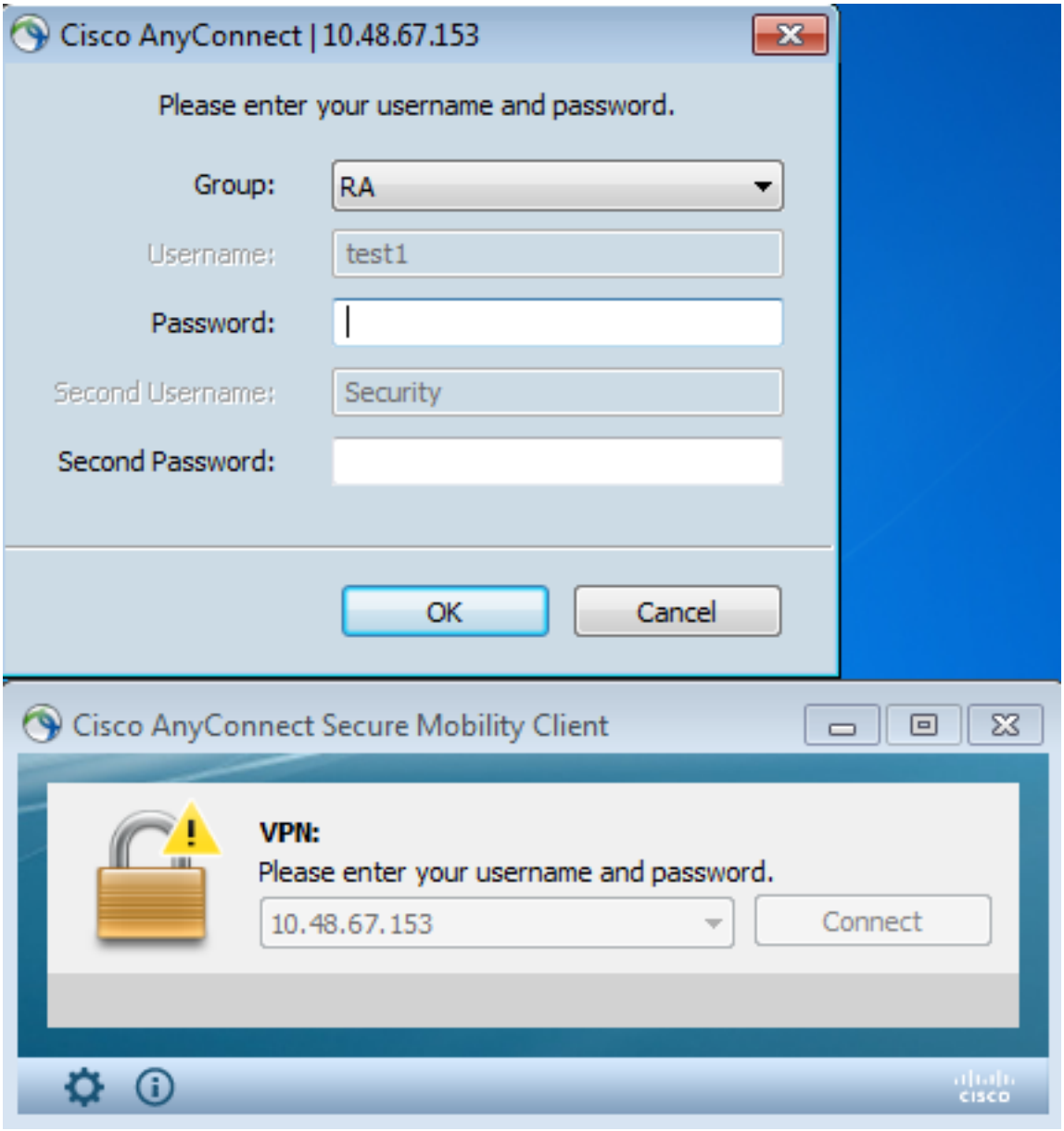
对于附属验证，用户名从组织单位(OU被采取，是用户‘安全’为什么在LDAP服务器创建。

强制AnyConnect使用预先充满命令为了预先填入主要的和附属用户名也是可能的。

在真实世界方案中，主要的认证服务器通常是AD或LDAP服务器，而附属认证服务器是使用令牌的密码的Rivest、沙米尔和Adelman (RSA)服务器。在此方案中，用户必须提供用户认识)的AD/LDAP凭证(用户有)的RSA令牌的密码(和使用)的证书(在计算机。

测验

注意到您不能更改主要的或附属用户名，因为从证书CN和OU字段被预先填入：



调试

此示例显示预先充满请求发送对AnyConnect ：

```
username test1 password cisco
tunnel-group RA general-attributes
 authentication-server-group LOCAL
 secondary-authentication-server-group LDAP
 default-group-policy Group1
 authorization-required
 username-from-certificate CN
 secondary-username-from-certificate OU
tunnel-group RA webvpn-attributes
 authentication aaa certificate
 pre-fill-username ssl-client
 secondary-pre-fill-username ssl-client
 group-alias RA enable
```

您看到验证使用正确用户名：

```
%ASA-6-113012: AAA user authentication Successful : local database : user = test1
%ASA-6-302013: Built outbound TCP connection 2137 for outside:10.147.24.60/389
(10.147.24.60/389) to identity:10.48.67.153/46606 (10.48.67.153/46606)
%ASA-6-113004: AAA user authentication Successful : server =  10.147.24.60 :
user = Security
```

双重身份验证和证书映射的ASA配置

映射特定客户端证书对特定隧道群，如此示例所显示，也是可能的：

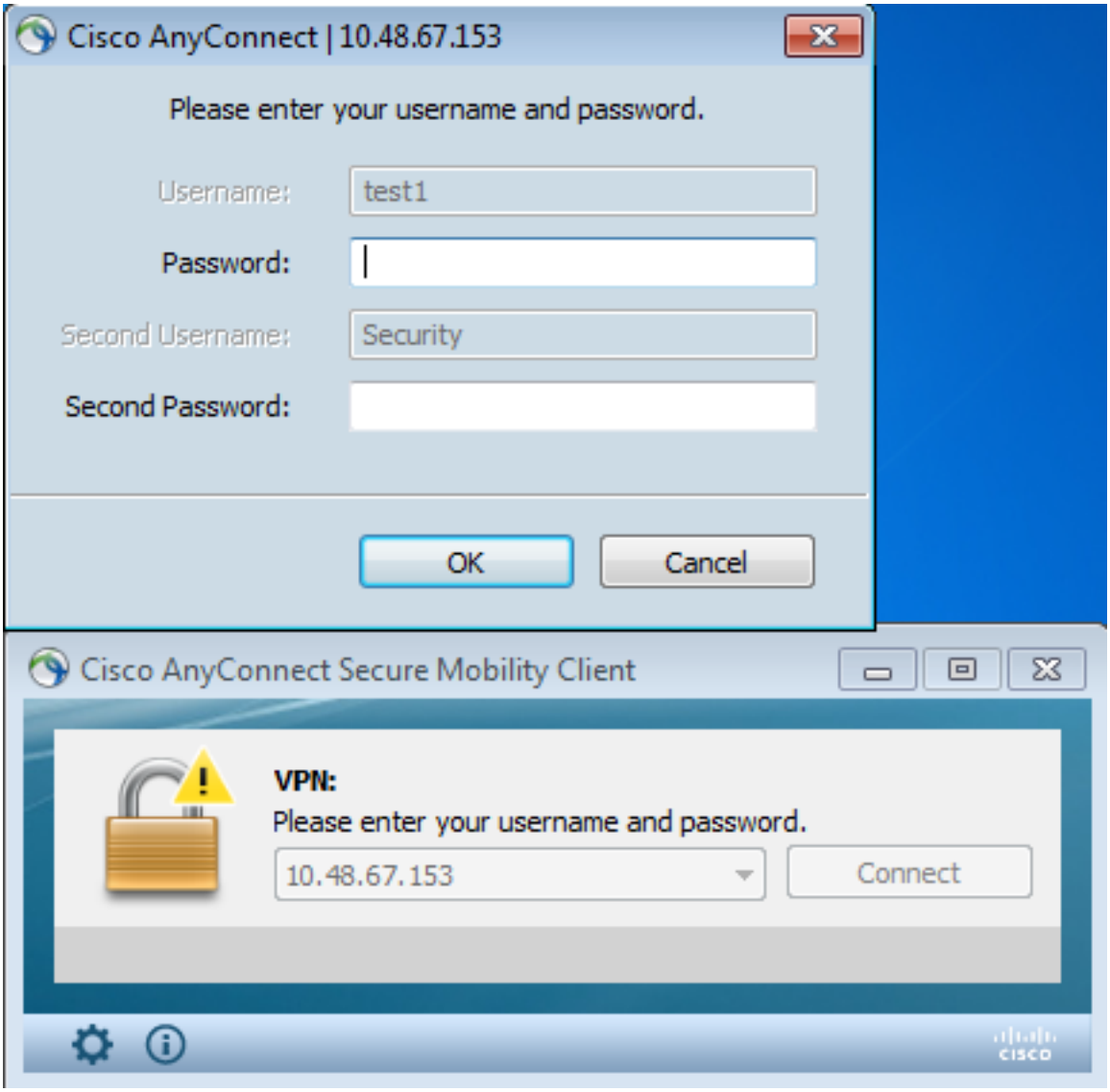

```
%ASA-6-113012: AAA user authentication Successful : local database : user = test1
%ASA-6-302013: Built outbound TCP connection 2137 for outside:10.147.24.60/389
(10.147.24.60/389) to identity:10.48.67.153/46606 (10.48.67.153/46606)
%ASA-6-113004: AAA user authentication Successful : server =  10.147.24.60 :
user = Security
```


这样， Cisco技术支持中心(TAC) CA签字的所有用户证书被映射给隧道群名为‘RA’。

> **Note**:SSL的证书映射跟IPsec的证书映射不同地配置。使用‘在全局配置模式的通道组MAP’规则对于IPsec，它配置。使用‘证书组MAP’在WebVPN配置模式下，对于SSL，它配置。

测验

注意到，一旦证书映射启用，您不需要再选择隧道群：



调试

在本例中，证书映射规则准许隧道群将找到：

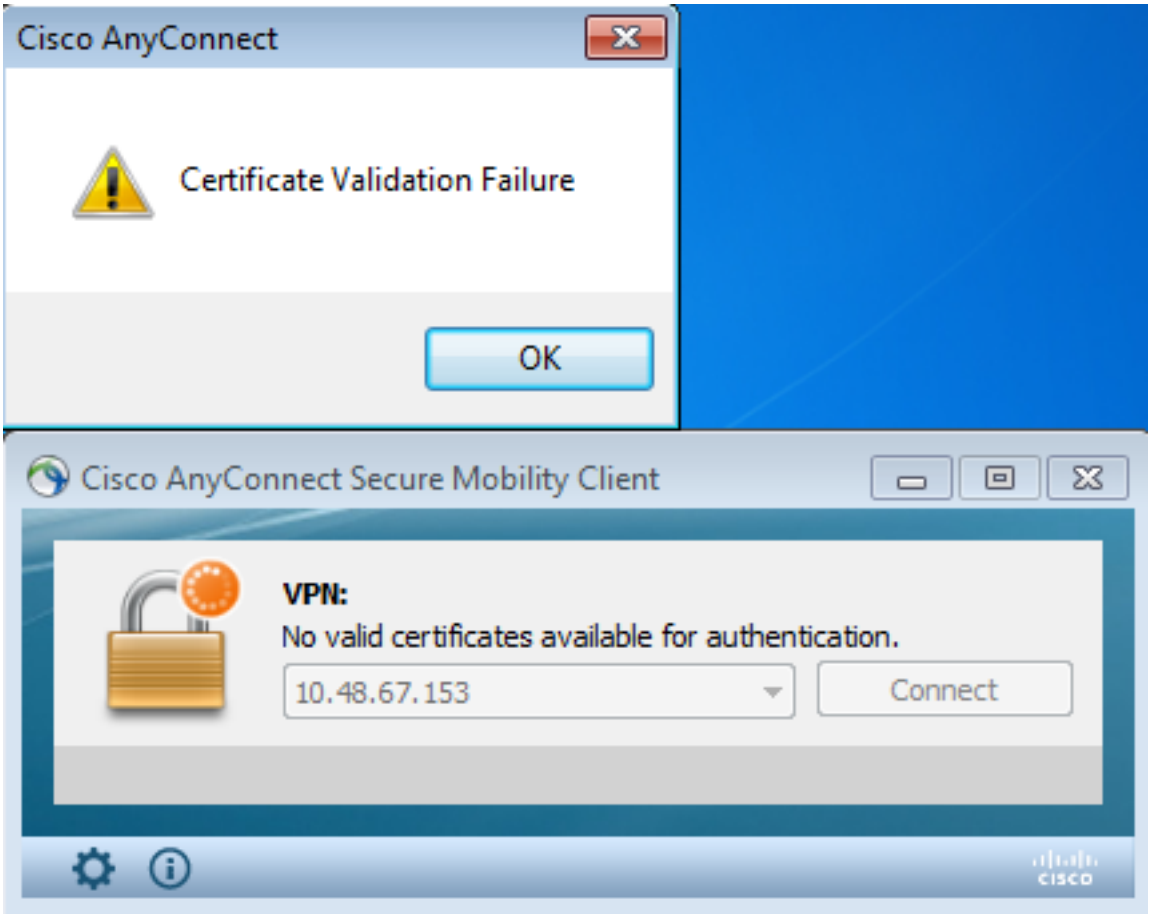
```
%ASA-7-717036: Looking for a tunnel group match based on certificate maps for
peer certificate with serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,
ou=Security,o=Cisco,l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,
l=Warsaw,st=Maz,c=PL.
%ASA-7-717038: Tunnel group match found. Tunnel Group: RA, Peer certificate:
serial number: 00FE9C3D61E131CDB1, subject name: cn=test1,ou=Security,o=Cisco,
l=Krakow,st=PL,c=PL, issuer_name: cn=TAC,ou=RAC,o=TAC,l=Warsaw,st=Maz,c=PL.
```

故障排除

本部分提供了可用于对配置进行故障排除的信息。

不现在的有效证书

在您从Windows7后删除有效证书， AnyConnect找不到所有有效证书：



在ASA，它看起来象会话由客户端(重置我)终止：

```
%ASA-6-302013: Built inbound TCP connection 2489 for outside:10.147.24.60/52838
(10.147.24.60/52838) to identity:10.48.67.153/443 (10.48.67.153/443)
%ASA-6-725001: Starting SSL handshake with client outside:10.147.24.60/52838 for
TLSv1 session.
%ASA-7-725010: Device supports the following 4 cipher(s).
%ASA-7-725011: Cipher[1] : RC4-SHA
%ASA-7-725011: Cipher[2] : AES128-SHA
%ASA-7-725011: Cipher[3] : AES256-SHA
%ASA-7-725011: Cipher[4] : DES-CBC3-SHA
%ASA-7-725008: SSL client outside:10.147.24.60/52838 proposes the following 8
cipher(s).
%ASA-7-725011: Cipher[1] : AES128-SHA
%ASA-7-725011: Cipher[2] : AES256-SHA
%ASA-7-725011: Cipher[3] : RC4-SHA
%ASA-7-725011: Cipher[4] : DES-CBC3-SHA
%ASA-7-725011: Cipher[5] : DHE-DSS-AES128-SHA
%ASA-7-725011: Cipher[6] : DHE-DSS-AES256-SHA
%ASA-7-725011: Cipher[7] : EDH-DSS-DES-CBC3-SHA
%ASA-7-725011: Cipher[8] : RC4-MD5
%ASA-7-725012: Device chooses cipher : RC4-SHA for the SSL session with client
outside:10.147.24.60/52838
%ASA-6-302014: Teardown TCP connection 2489 for outside:10.147.24.60/52838 to
identity:10.48.67.153/443 duration 0:00:00 bytes 1448 TCP Reset-I
```

相关信息

- 配置通道Grouips，组策略和用户：配置双重身份验证
- 配置安全工具用户授权的一个外部服务器

- 技术支持和文档 - Cisco Systems