为通过FMC的FTD上的安全客户端身份验证配置证书映射

目录

简介

本文档介绍如何使用证书映射进行身份验证，通过FMC在FTD上设置带SSL的Cisco安全客户端。

先决条件

要求

Cisco 建议您了解以下主题：

- 思科Firepower管理中心(FMC)
- 防火墙威胁防御(FTD)虚拟
- VPN身份验证流程

使用的组件

- 思科VMWare Firepower管理中心7.4.1
- 思科防火墙威胁防御虚拟7.4.1
- 思科安全客户端5.1.3.62

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

背景信息

证书映射是在VPN连接中使用的方法，其中客户端证书映射到本地用户帐户，或者证书中的属性用于授权目的。此过程使用数字证书作为标识用户或设备的方式。通过使用证书映射，它利用SSL协议对用户进行身份验证，而无需他们输入凭证。

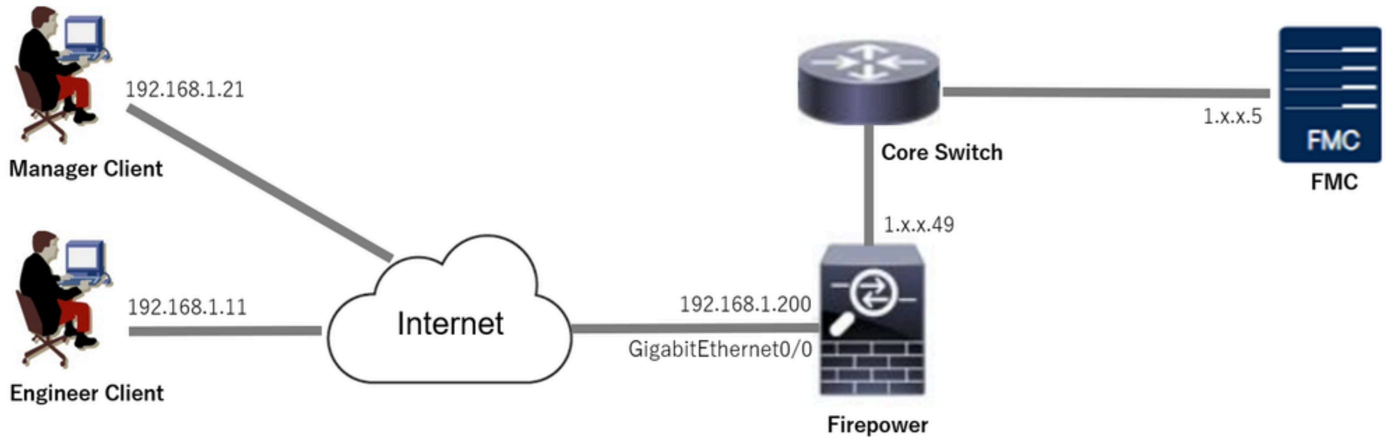
本文档介绍如何使用SSL证书中的公用名对Cisco安全客户端进行身份验证。

这些证书中包含用于授权目的的公用名称。

- CA：ftd-ra-ca-common-name
- 工程师VPN客户端证书：vpnEngineerClientCN
- 管理器VPN客户端证书：vpnManagerClientCN
- 服务器证书：192.168.1.200

网络图

下图显示本文档示例中使用的拓扑。



网络图

配置

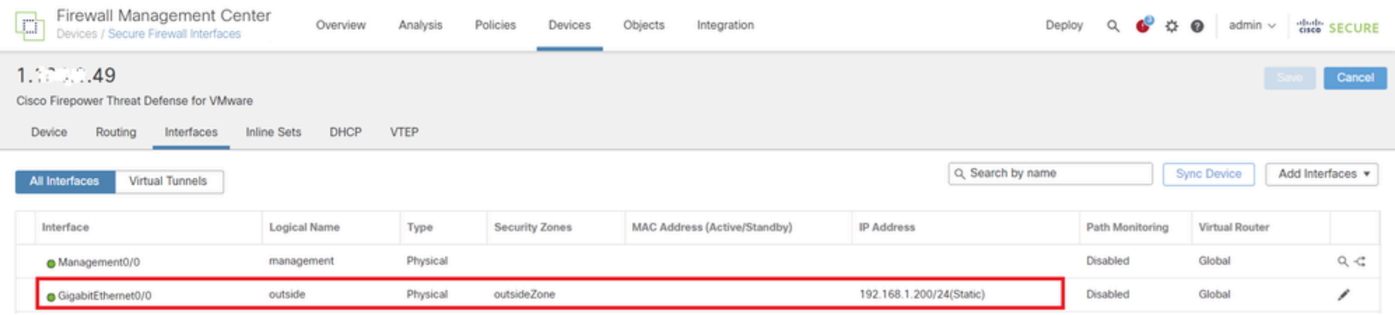
FMC中的配置

步骤1:配置FTD接口

导航到设备>设备管理，编辑目标FTD设备，在接口中为FTD配置外部接口选项卡。

对于GigabitEthernet0/0，

- 名称：outside
- 安全区域：outsideZone
- IP地址：192.168.1.200/24



1.[redacted].49

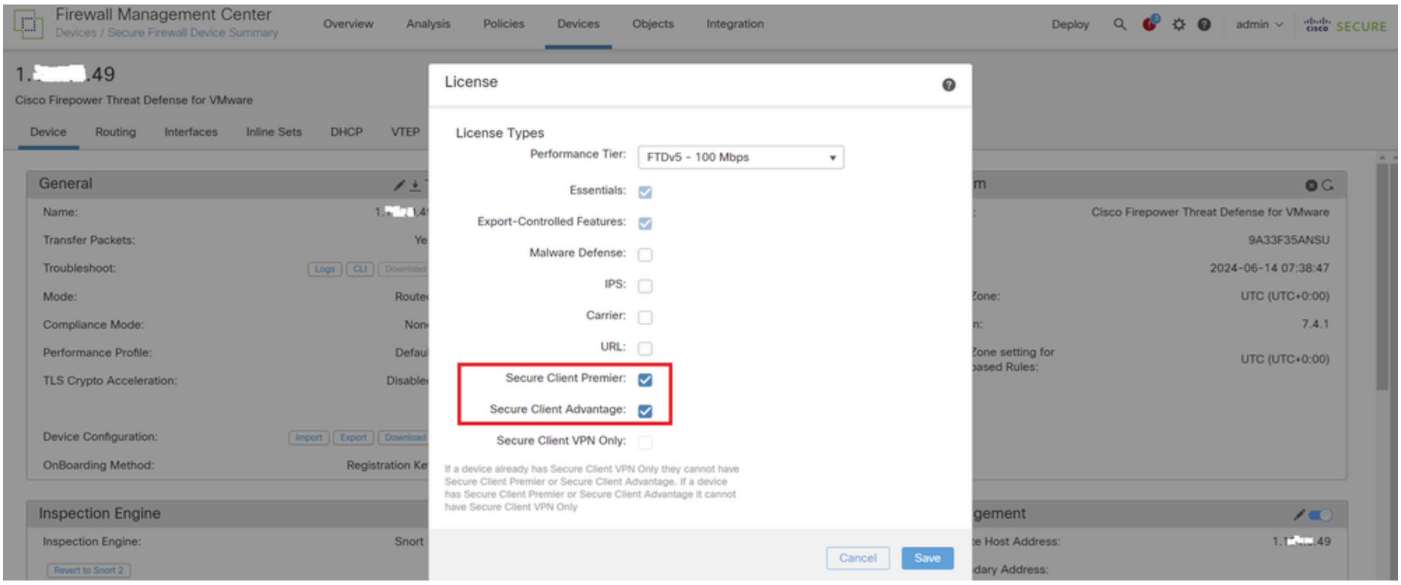
Cisco Firepower Threat Defense for VMware

Interface	Logical Name	Type	Security Zones	MAC Address (Active/Standby)	IP Address	Path Monitoring	Virtual Router
Management0/0	management	Physical				Disabled	Global
GigabitEthernet0/0	outside	Physical	outsideZone		192.168.1.200/24(Static)	Disabled	Global

FTD接口

第二步：确认思科安全客户端许可证

导航到设备>设备管理，编辑目标FTD设备，在设备选项卡中确认Cisco安全客户端许可证。



1.[redacted].49

Cisco Firepower Threat Defense for VMware

License

License Types

Performance Tier: FTDv5 - 100 Mbps

Essentials: ☑

Export-Controlled Features: ☑

Malware Defense: □

IPS: □

Carrier: □

URL: □

Secure Client Premier: ☑

Secure Client Advantage: ☑

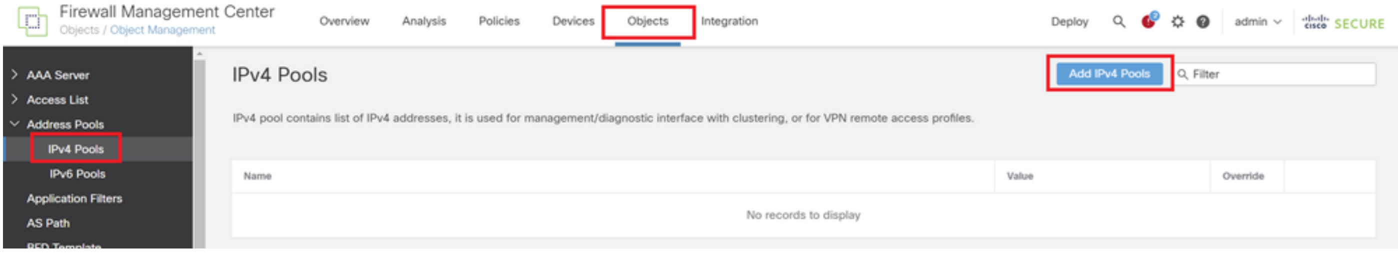
Secure Client VPN Only: □

If a device already has Secure Client VPN Only they cannot have Secure Client Premier or Secure Client Advantage. If a device has Secure Client Premier or Secure Client Advantage it cannot have Secure Client VPN Only

安全客户端许可证

第三步：添加IPv4地址池

导航到对象>对象管理>地址池> IPv4池，点击添加IPv4池按钮。



IPv4 Pools

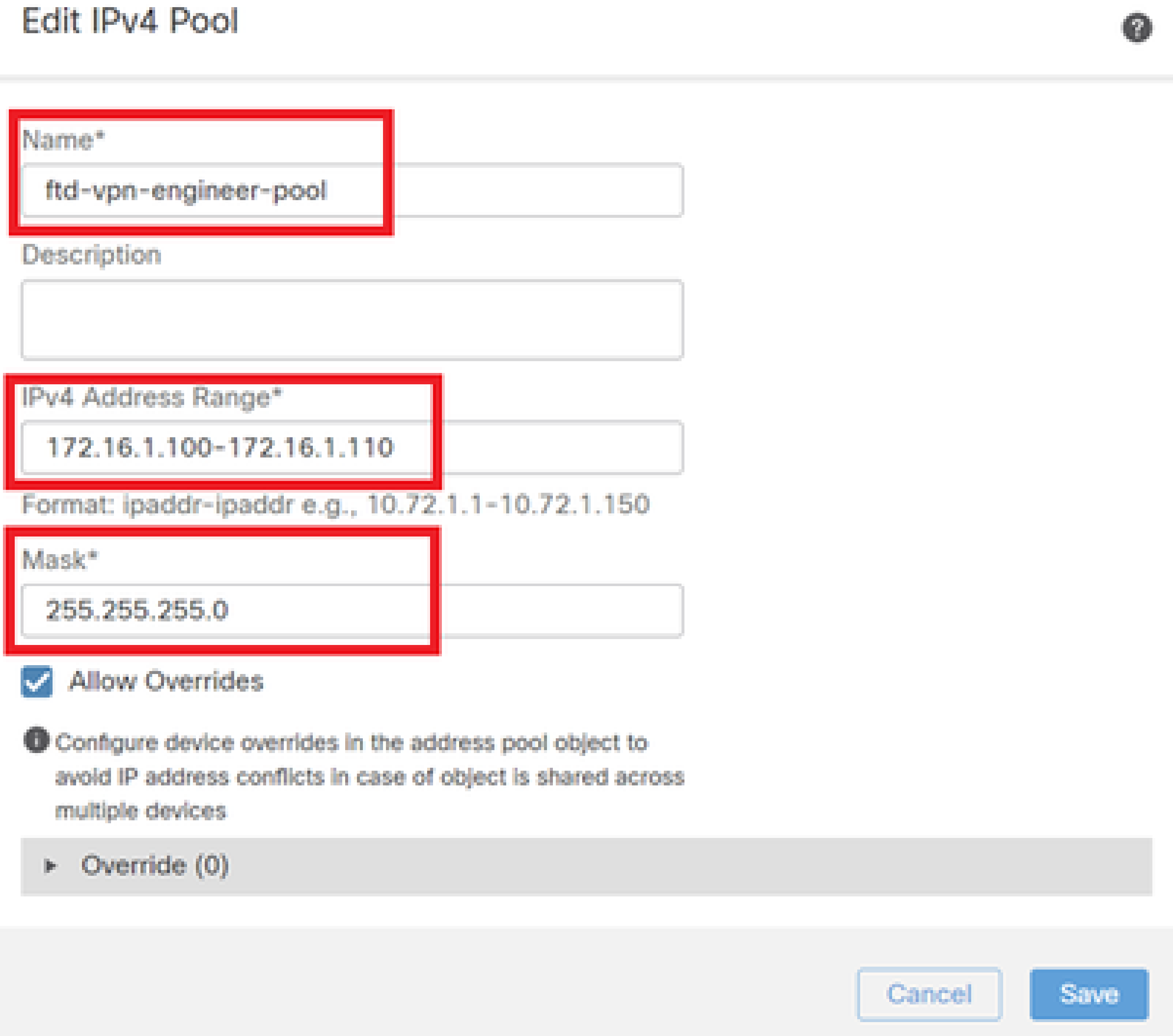
IPv4 pool contains list of IPv4 addresses, it is used for management/diagnostic interface with clustering, or for VPN remote access profiles.

Name	Value	Override
No records to display		

添加IPv4地址池

输入必要信息，为工程师VPN客户端创建IPv4地址池。

- 名称：ftd-vpn-engineer-pool
- IPv4地址范围：172.16.1.100-172.16.1.110
- 掩码：255.255.255.0



Edit IPv4 Pool

Name*
ftd-vpn-engineer-pool

Description

IPv4 Address Range*
172.16.1.100-172.16.1.110

Format: ipaddr-ipaddr e.g., 10.72.1.1-10.72.1.150

Mask*
255.255.255.0

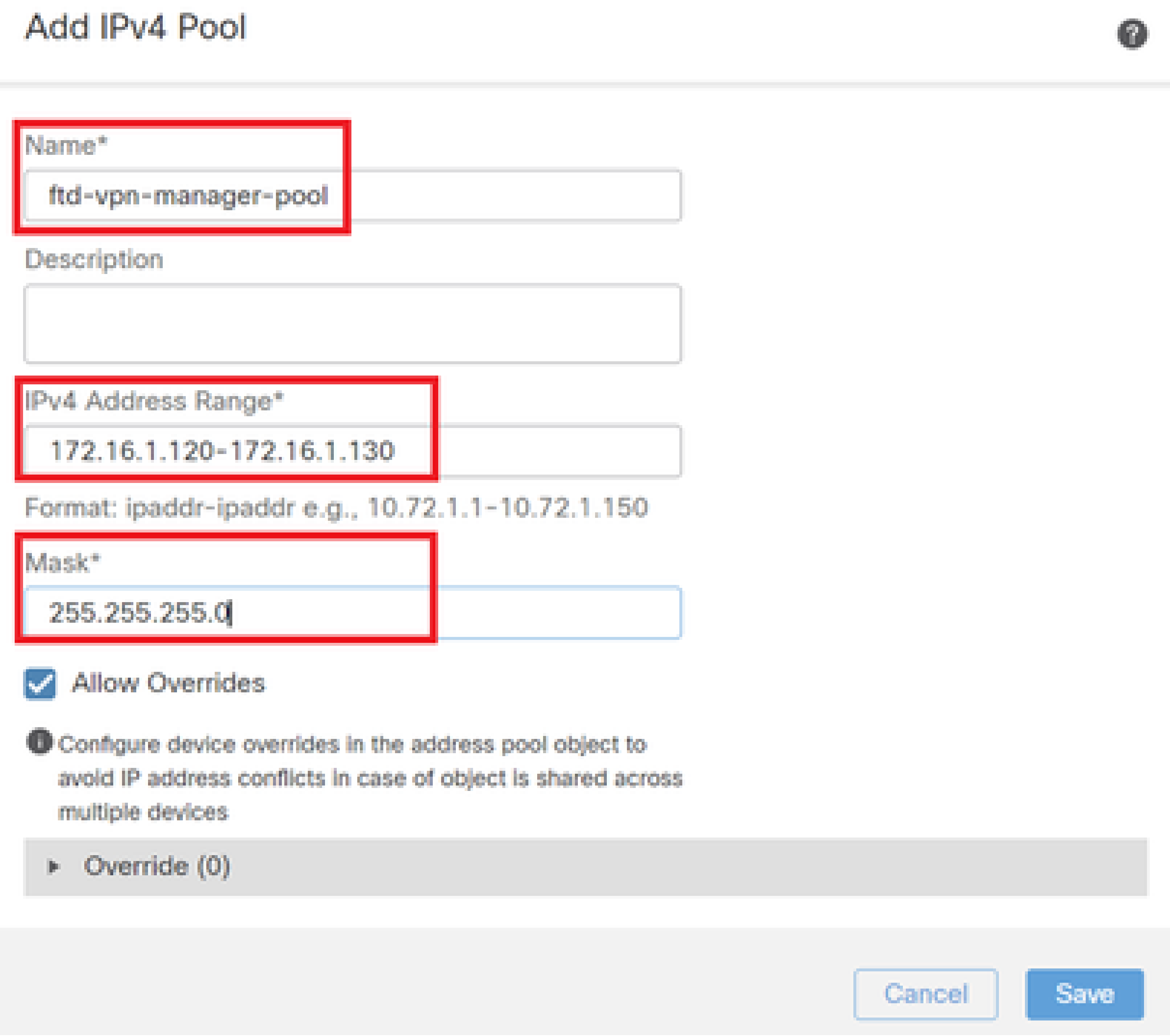
☑ Allow Overrides

Configure device overrides in the address pool object to avoid IP address conflicts in case of object is shared across multiple devices

工程师VPN客户端的IPv4地址池

输入必要信息，为管理器VPN客户端创建IPv4地址池。

- 名称：ftd-vpn-manager-pool
- IPv4地址范围：172.16.1.120-172.16.1.130
- 掩码：255.255.255.0



Add IPv4 Pool

Name*: ftd-vpn-manager-pool

Description:

IPv4 Address Range*: 172.16.1.120-172.16.1.130

Format: ipaddr-ipaddr e.g., 10.72.1.1-10.72.1.150

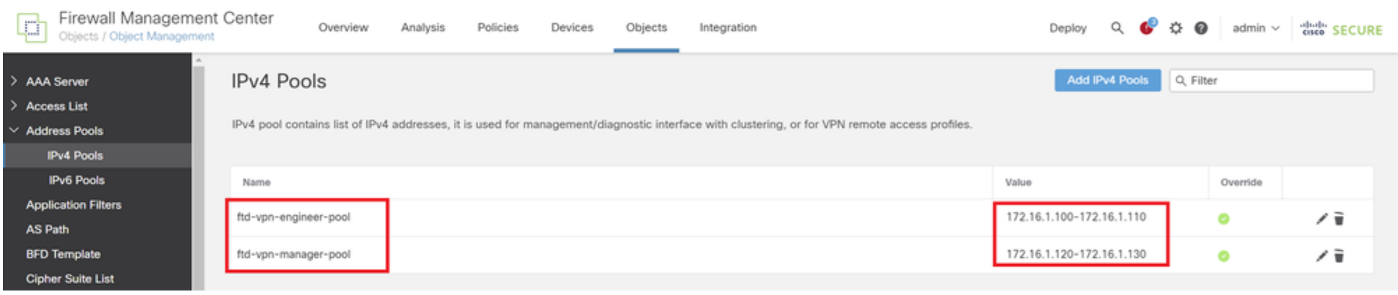
Mask*: 255.255.255.0

☑ Allow Overrides

Configure device overrides in the address pool object to avoid IP address conflicts in case of object is shared across multiple devices

Manager VPN客户端的IPv4地址池

确认新的IPv4地址池。



IPv4 Pools

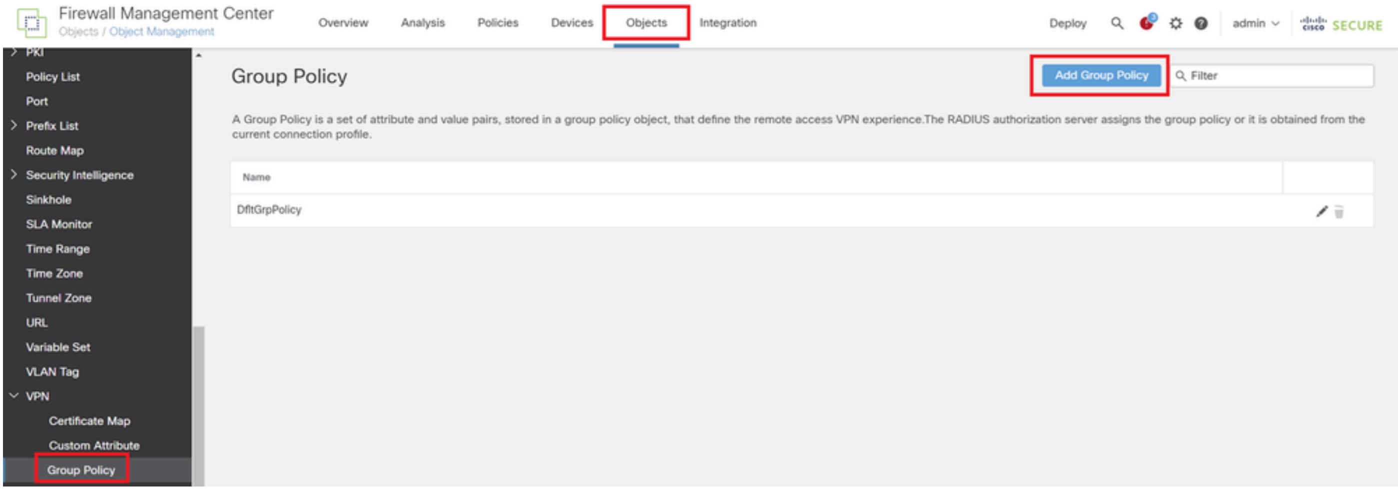
IPv4 pool contains list of IPv4 addresses, it is used for management/diagnostic interface with clustering, or for VPN remote access profiles.

Name	Value	Override
ftd-vpn-engineer-pool	172.16.1.100-172.16.1.110	✓
ftd-vpn-manager-pool	172.16.1.120-172.16.1.130	✓

新的IPv4地址池

第四步：添加组策略

导航到对象>对象管理> VPN >组策略，点击添加组策略按钮。



Group Policy

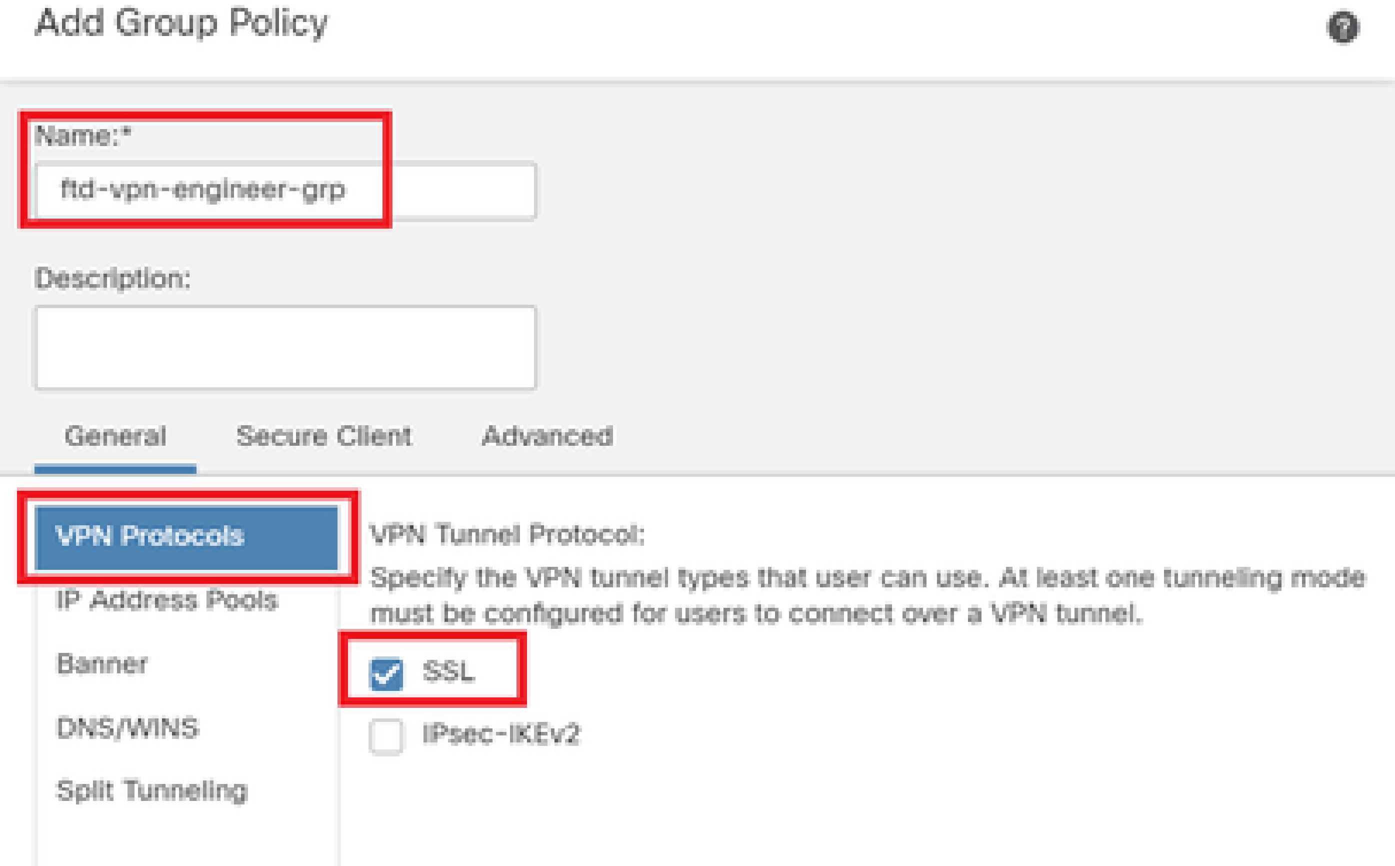
A Group Policy is a set of attribute and value pairs, stored in a group policy object, that define the remote access VPN experience.The RADIUS authorization server assigns the group policy or it is obtained from the current connection profile.

Name
DfltGrpPolicy

添加组策略

输入必要信息，为工程师VPN客户端创建组策略。

- 名称：ftd-vpn-engineer-grp
- VPN协议：SSL



Add Group Policy

Name:* ftd-vpn-engineer-grp

Description:

VPN Tunnel Protocol:

Specify the VPN tunnel types that user can use. At least one tunneling mode must be configured for users to connect over a VPN tunnel.

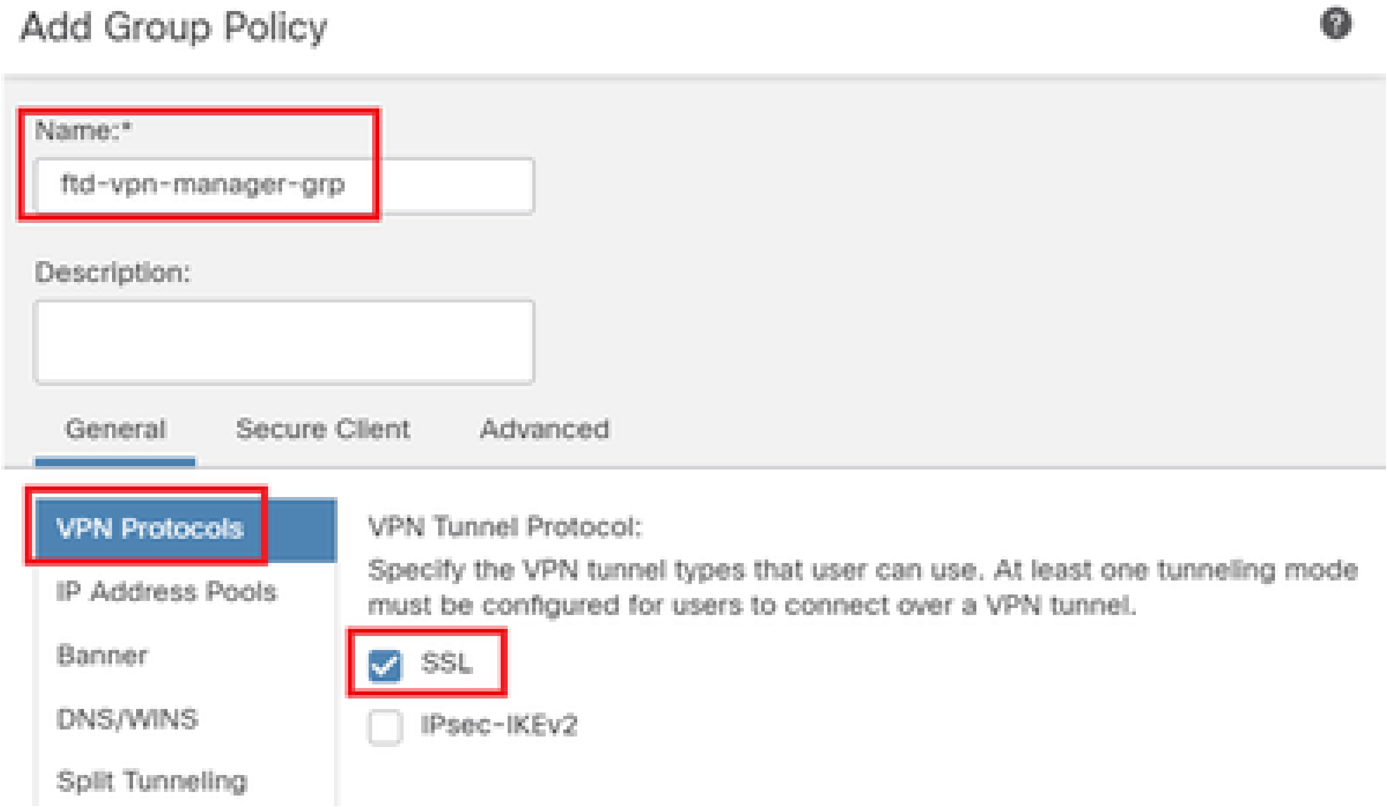
☑ SSL

□ IPsec-IKEv2

工程师VPN客户端的组策略

输入必要信息，为管理器VPN客户端创建组策略。

- 名称：ftd-vpn-manager-grp
- VPN协议：SSL



Add Group Policy

Name:* ftd-vpn-manager-grp

Description:

VPN Tunnel Protocol:

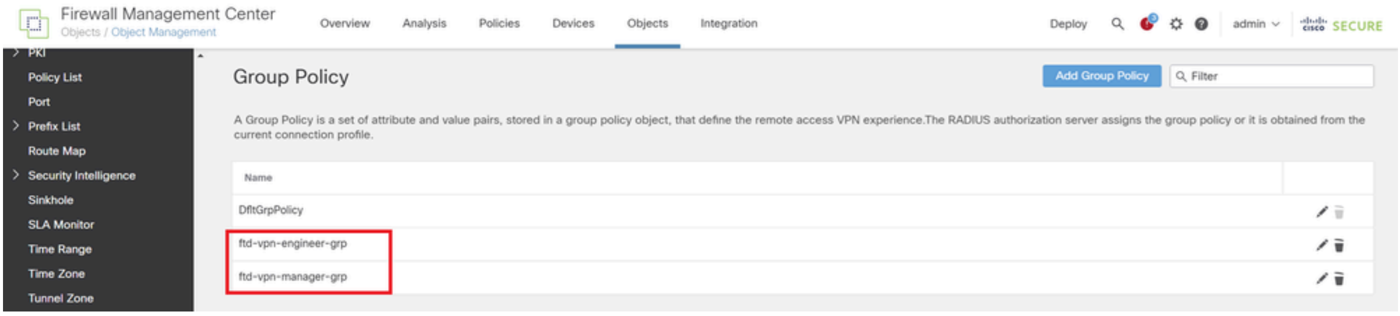
Specify the VPN tunnel types that user can use. At least one tunneling mode must be configured for users to connect over a VPN tunnel.

☑ SSL

□ IPsec-IKEv2

管理器VPN客户端的组策略

确认新的组策略。



Group Policy

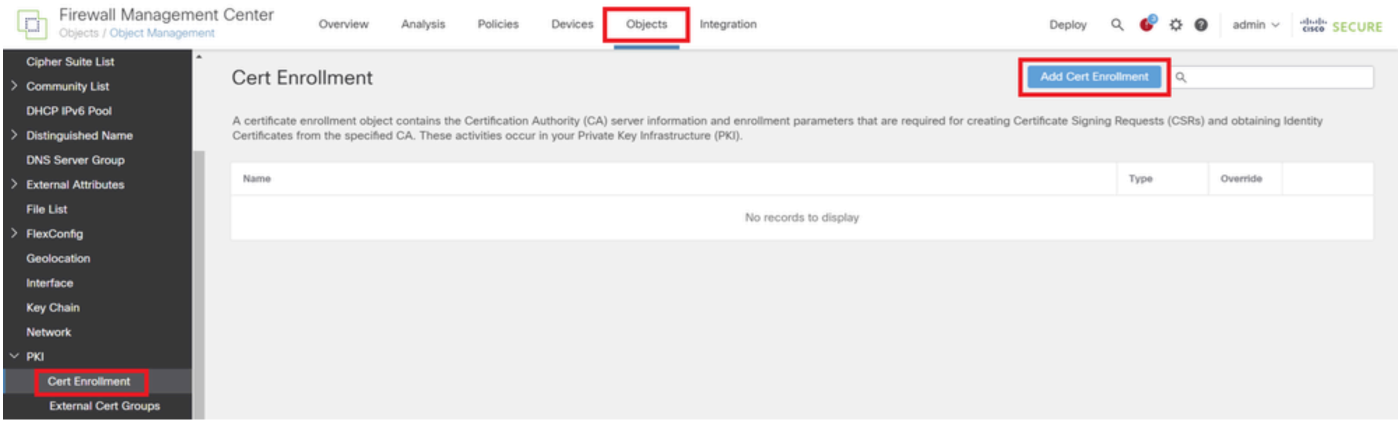
A Group Policy is a set of attribute and value pairs, stored in a group policy object, that define the remote access VPN experience.The RADIUS authorization server assigns the group policy or it is obtained from the current connection profile.

Name
DfltGrpPolicy
ftd-vpn-engineer-grp
ftd-vpn-manager-grp

新建组策略

第五步：添加FTD证书

导航到对象>对象管理> PKI >证书注册，点击添加证书注册按钮。



Cert Enrollment

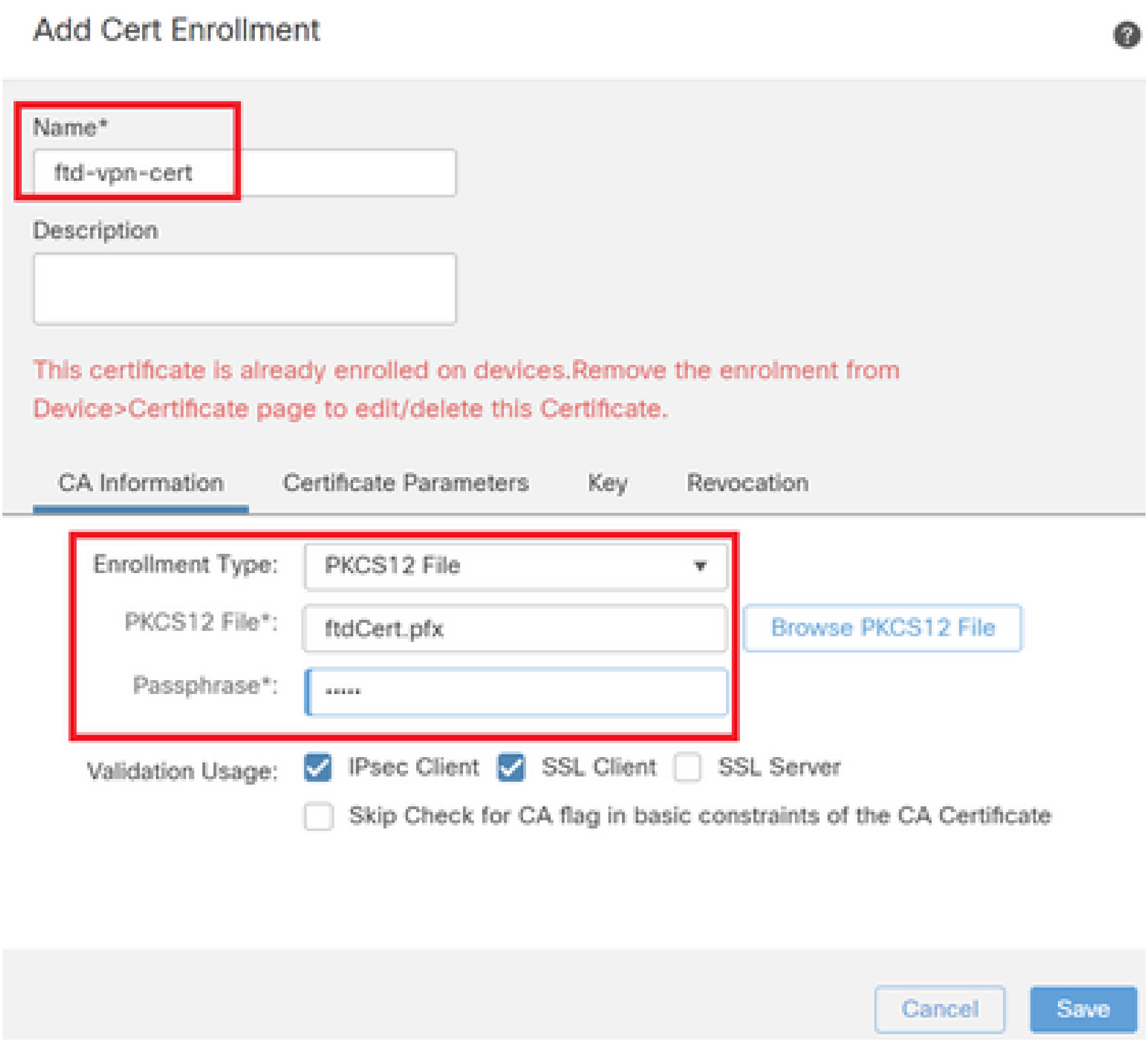
A certificate enrollment object contains the Certification Authority (CA) server information and enrollment parameters that are required for creating Certificate Signing Requests (CSRs) and obtaining Identity Certificates from the specified CA. These activities occur in your Private Key Infrastructure (PKI).

Name	Type	Override
No records to display		

添加证书注册

输入FTD证书的必要信息，并从本地计算机导入PKCS12文件。

- 名称：ftd-vpn-cert
- 注册类型：PKCS12文件



Add Cert Enrollment

Name*

ftd-vpn-cert

Description

This certificate is already enrolled on devices.Remove the enrolment from Device>Certificate page to edit/delete this Certificate.

Enrollment Type: PKCS12 File

PKCS12 File*: ftdCert.pfx

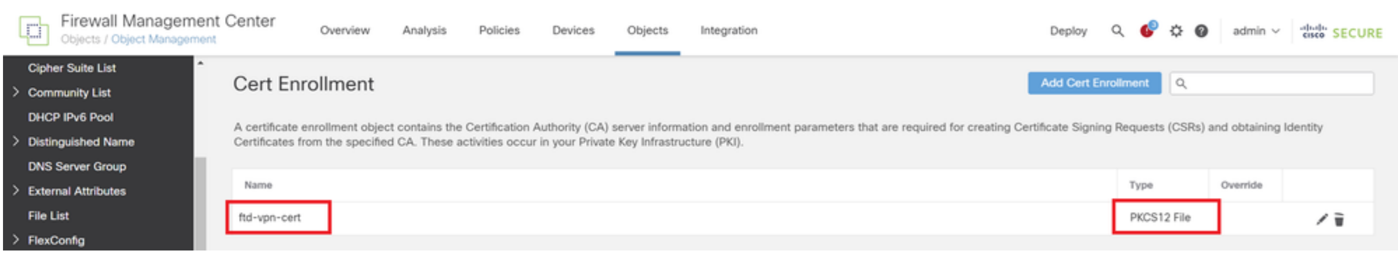
Passphrase*: •••••

Validation Usage: ☑ IPsec Client ☑ SSL Client □ SSL Server

□ Skip Check for CA flag in basic constraints of the CA Certificate

证书注册详细信息

确认新证书注册。



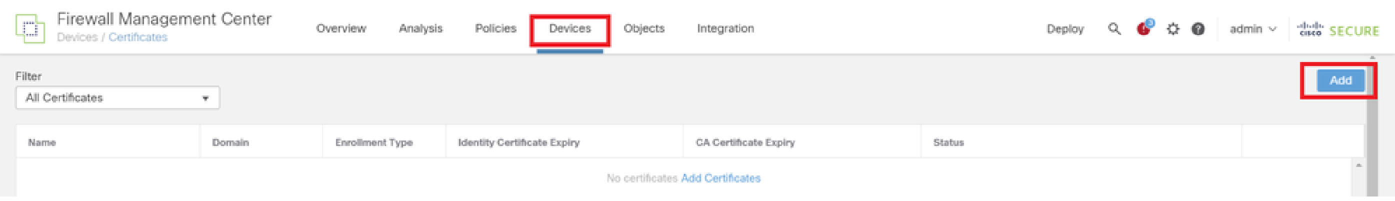
Cert Enrollment

A certificate enrollment object contains the Certification Authority (CA) server information and enrollment parameters that are required for creating Certificate Signing Requests (CSRs) and obtaining Identity Certificates from the specified CA. These activities occur in your Private Key Infrastructure (PKI).

Name	Type	Override
ftd-vpn-cert	PKCS12 File	

新证书注册

导航到设备>证书，点击添加按钮。



Firewall Management Center
Devices / Certificates

Filter
All Certificates

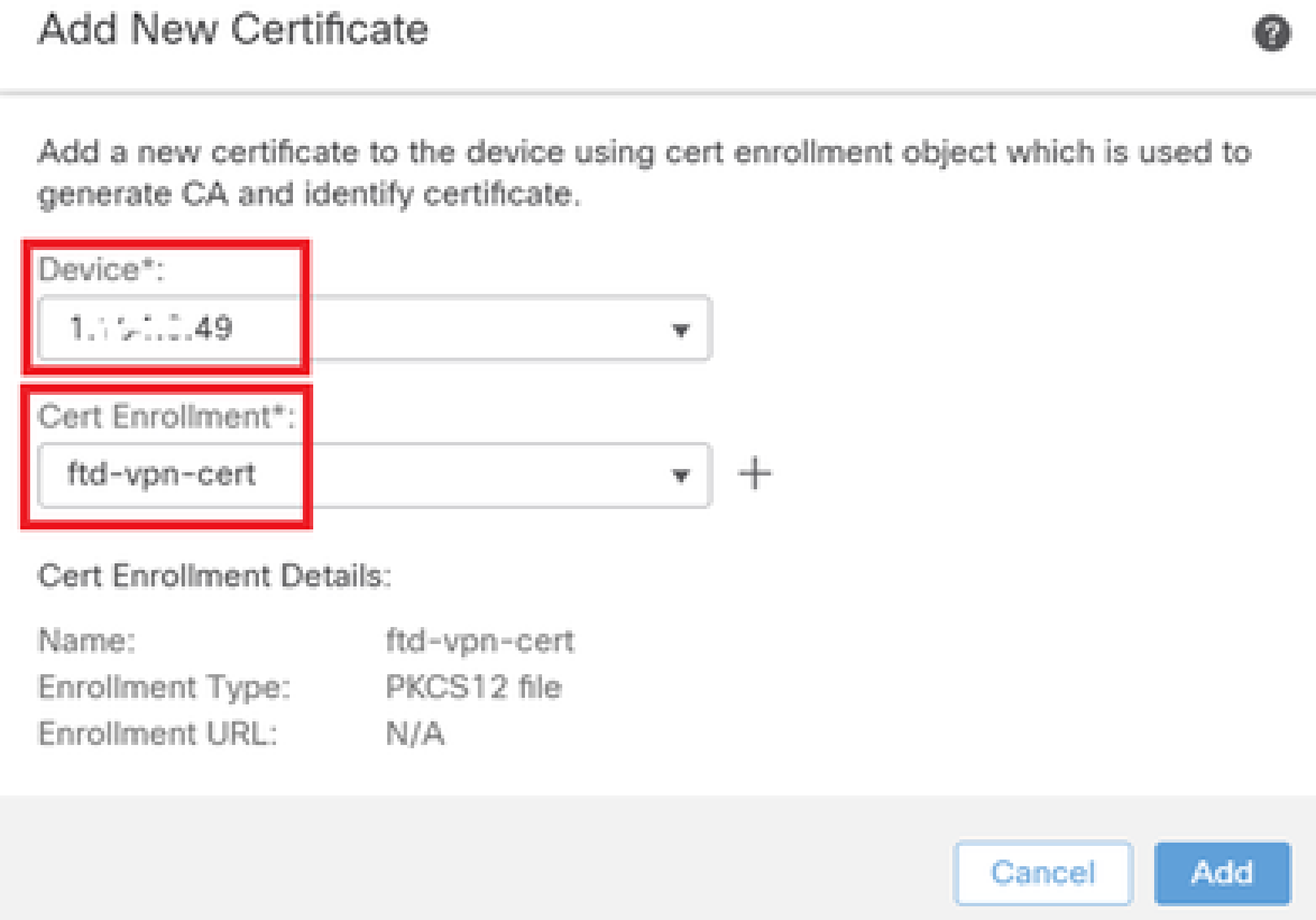
Name	Domain	Enrollment Type	Identity Certificate Expiry	CA Certificate Expiry	Status

No certificates Add Certificates

添加FTD证书

输入将新证书注册绑定到FTD所需的信息。

- 设备：1.x.x.49
- 证书注册：ftd-vpn-cert



Add New Certificate

Add a new certificate to the device using cert enrollment object which is used to generate CA and identify certificate.

Device*: 1.[redacted].49

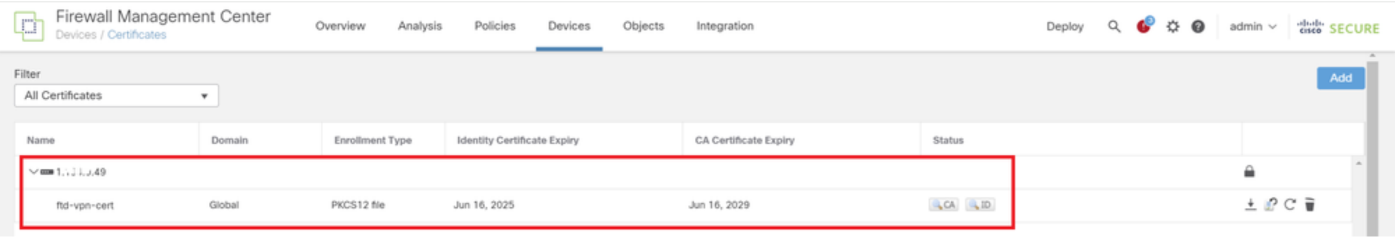
Cert Enrollment*: ftd-vpn-cert

Cert Enrollment Details:

Name: ftd-vpn-cert
Enrollment Type: PKCS12 file
Enrollment URL: N/A

将证书绑定到FTD

确认证书绑定的状态。



Filter

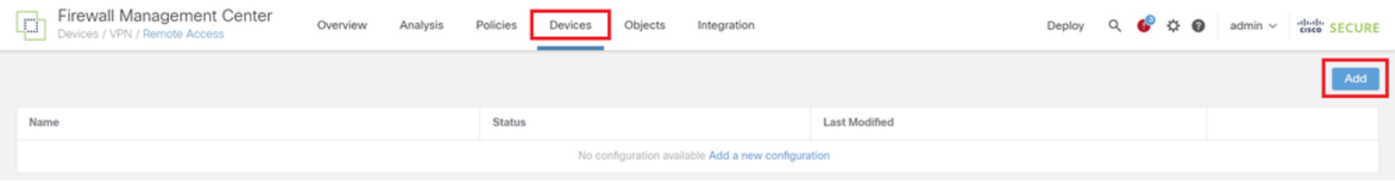
All Certificates

Name	Domain	Enrollment Type	Identity Certificate Expiry	CA Certificate Expiry	Status
1.[redacted].49					
ftd-vpn-cert	Global	PKCS12 file	Jun 16, 2025	Jun 16, 2029	CA ID

证书绑定的状态

第六步：为工程师连接配置文件添加策略分配

导航到设备> VPN >远程访问，点击添加按钮。

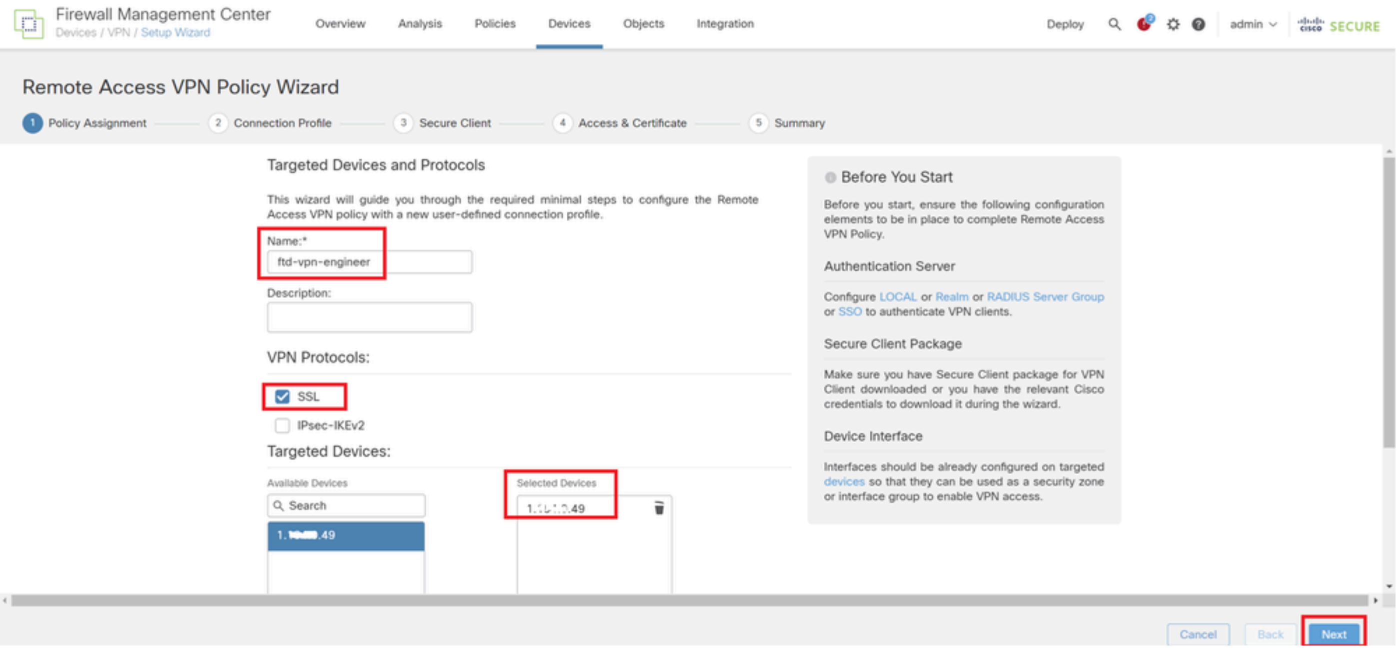


Name	Status	Last Modified
No configuration available Add a new configuration		

添加远程访问VPN

输入必要信息，然后点击“下一步”按钮。

- 名称：ftd-vpn-engineer
- VPN协议：SSL
- 目标设备：1.x.x.49



Remote Access VPN Policy Wizard

Targeted Devices and Protocols

This wizard will guide you through the required minimal steps to configure the Remote Access VPN policy with a new user-defined connection profile.

Name:* ftd-vpn-engineer

Description:

VPN Protocols:

☑ SSL

□ IPsec-IKEv2

Targeted Devices:

Available Devices: 1.[redacted].49

Selected Devices: 1.[redacted].49

Before You Start

Before you start, ensure the following configuration elements to be in place to complete Remote Access VPN Policy.

Authentication Server

Configure LOCAL or Realm or RADIUS Server Group or SSO to authenticate VPN clients.

Secure Client Package

Make sure you have Secure Client package for VPN Client downloaded or you have the relevant Cisco credentials to download it during the wizard.

Device Interface

Interfaces should be already configured on targeted devices so that they can be used as a security zone or interface group to enable VPN access.

策略分配

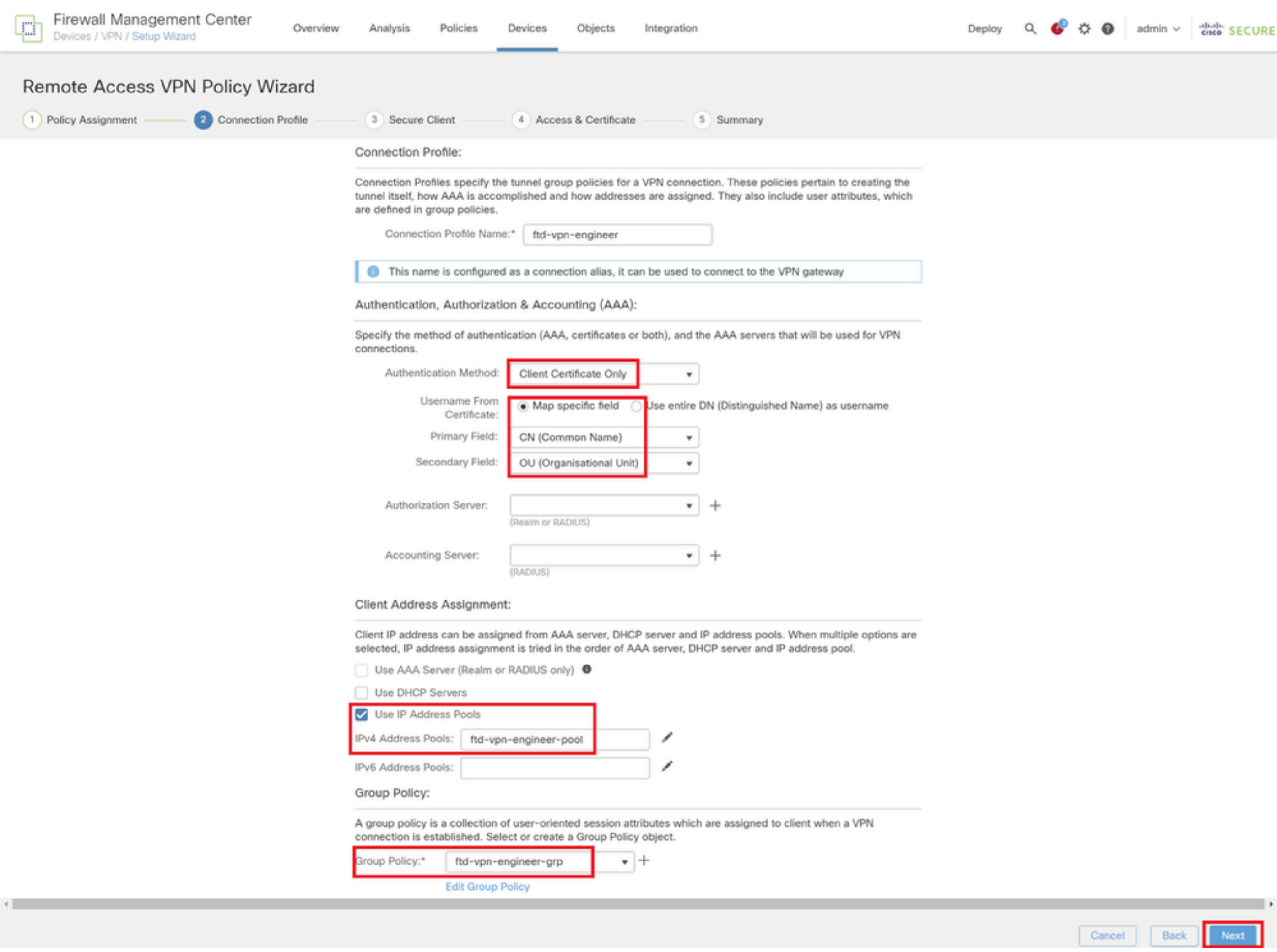
步骤 7.配置工程师连接配置文件的详细信息

输入必要信息，然后点击“下一步”按钮。

- 身份验证方法：仅客户端证书
- Username From Certificate：映射特定字段

- 主字段：CN（公用名）
- 辅助字段：OU（组织单位）

- IPv4地址池：ftd-vpn-engineer-pool
- 组策略：ftd-vpn-engineer-grp



Remote Access VPN Policy Wizard

Connection Profile:

Connection Profiles specify the tunnel group policies for a VPN connection. These policies pertain to creating the tunnel itself, how AAA is accomplished and how addresses are assigned. They also include user attributes, which are defined in group policies.

Connection Profile Name:* ftd-vpn-engineer

This name is configured as a connection alias, it can be used to connect to the VPN gateway

Authentication, Authorization & Accounting (AAA):

Specify the method of authentication (AAA, certificates or both), and the AAA servers that will be used for VPN connections.

Authentication Method: Client Certificate Only

Username From Certificate: ● Map specific field ○ Use entire DN (Distinguished Name) as username

Primary Field: CN (Common Name)

Secondary Field: OU (Organisational Unit)

Authorization Server: (Realm or RADIUS)

Accounting Server: (RADIUS)

Client Address Assignment:

Client IP address can be assigned from AAA server, DHCP server and IP address pools. When multiple options are selected, IP address assignment is tried in the order of AAA server, DHCP server and IP address pool.

□ Use AAA Server (Realm or RADIUS only)

□ Use DHCP Servers

☑ Use IP Address Pools

IPv4 Address Pools: ftd-vpn-engineer-pool

IPv6 Address Pools:

Group Policy:

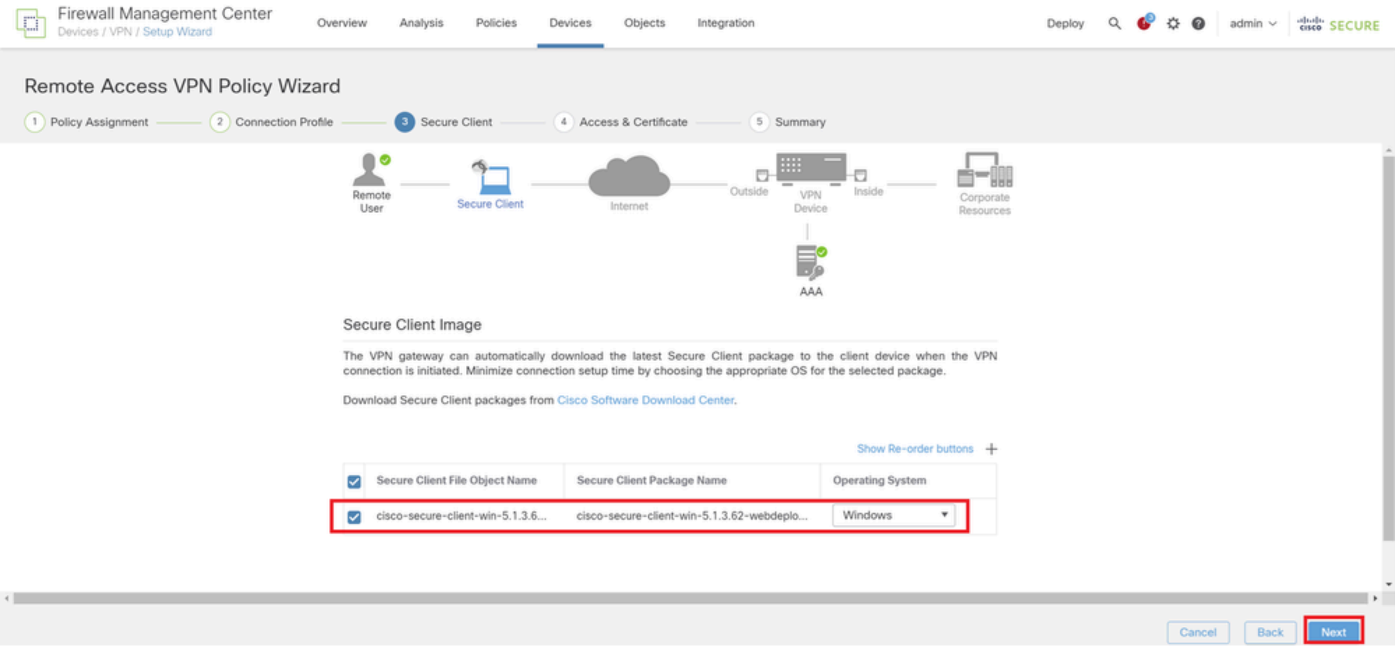
A group policy is a collection of user-oriented session attributes which are assigned to client when a VPN connection is established. Select or create a Group Policy object.

Group Policy:* ftd-vpn-engineer-grp

连接配置文件的详细信息

步骤 8为工程师连接配置文件配置安全客户端映像

选择安全客户端映像文件并单击Nextbutton。



Remote Access VPN Policy Wizard

1 Policy Assignment — 2 Connection Profile — 3 Secure Client — 4 Access & Certificate — 5 Summary

Secure Client Image

The VPN gateway can automatically download the latest Secure Client package to the client device when the VPN connection is initiated. Minimize connection setup time by choosing the appropriate OS for the selected package.

Download Secure Client packages from Cisco Software Download Center.

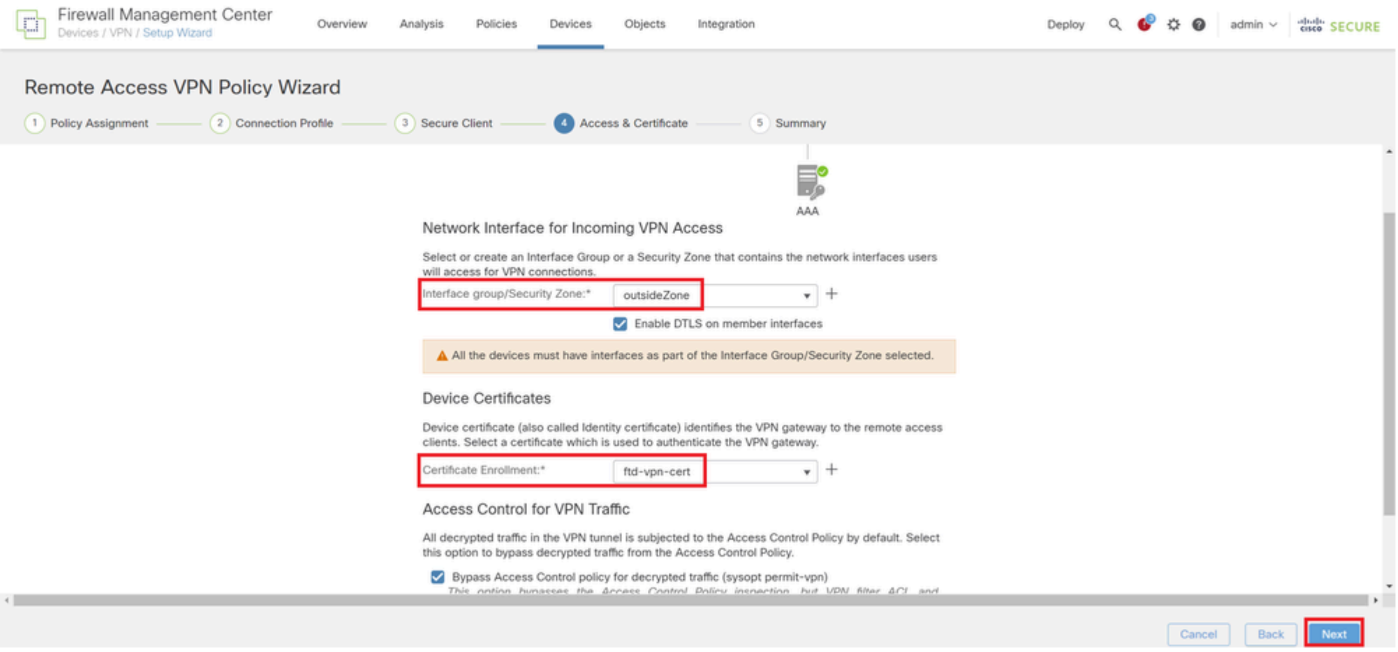
☑	Secure Client File Object Name	Secure Client Package Name	Operating System
☑	cisco-secure-client-win-5.1.3.6...	cisco-secure-client-win-5.1.3.62-webdeplo...	Windows

选择安全客户端

步骤 9为工程师连接配置文件配置访问和证书

为接口组/安全区域和证书注册项选择值，然后单击下一步按钮。

- 接口组/安全区域：outsideZone
- 证书注册：ftd-vpn-cert



Remote Access VPN Policy Wizard

1 Policy Assignment — 2 Connection Profile — 3 Secure Client — 4 Access & Certificate — 5 Summary

Network Interface for Incoming VPN Access

Select or create an Interface Group or a Security Zone that contains the network interfaces users will access for VPN connections.

Interface group/Security Zone:* outsideZone

☑ Enable DTLS on member interfaces

⚠ All the devices must have interfaces as part of the Interface Group/Security Zone selected.

Device Certificates

Device certificate (also called Identity certificate) identifies the VPN gateway to the remote access clients. Select a certificate which is used to authenticate the VPN gateway.

Certificate Enrollment:* ftd-vpn-cert

Access Control for VPN Traffic

All decrypted traffic in the VPN tunnel is subjected to the Access Control Policy by default. Select this option to bypass decrypted traffic from the Access Control Policy.

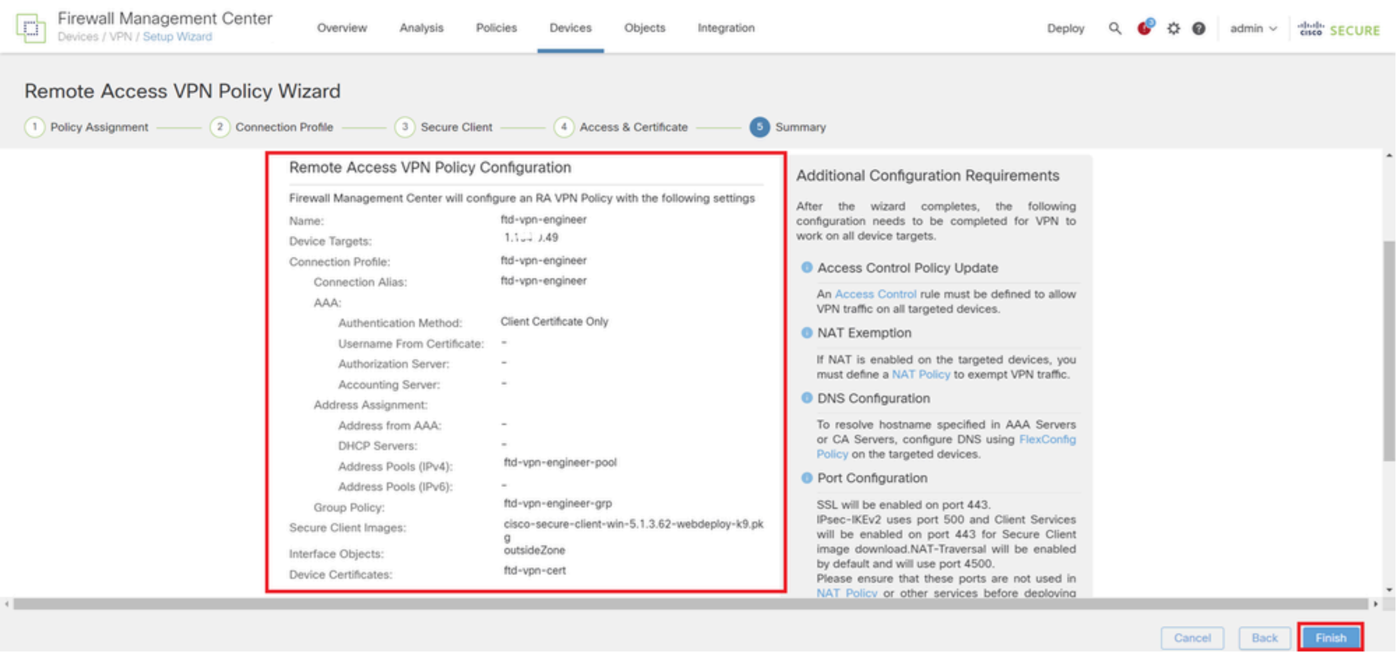
☑ Bypass Access Control policy for decrypted traffic (sysopt permit-vpn)

This option bypasses the Access Control Policy inspection, but VPN filter ACL and

访问和证书的详细信息

步骤 10确认工程师连接配置文件的摘要

确认为远程访问VPN策略输入的信息，然后单击Finish按钮。



Remote Access VPN Policy Wizard

1 Policy Assignment — 2 Connection Profile — 3 Secure Client — 4 Access & Certificate — 5 Summary

Remote Access VPN Policy Configuration

Firewall Management Center will configure an RA VPN Policy with the following settings

Name:	ftd-vpn-engineer
Device Targets:	1.1[redacted].49
Connection Profile:	ftd-vpn-engineer
Connection Alias:	ftd-vpn-engineer
AAA:	
Authentication Method:	Client Certificate Only
Username From Certificate:	-
Authorization Server:	-
Accounting Server:	-
Address Assignment:	
Address from AAA:	-
DHCP Servers:	-
Address Pools (IPv4):	ftd-vpn-engineer-pool
Address Pools (IPv6):	-
Group Policy:	ftd-vpn-engineer-grp
Secure Client Images:	cisco-secure-client-win-5.1.3.62-webdeploy-k9.pkg
Interface Objects:	outsideZone
Device Certificates:	ftd-vpn-cert

Additional Configuration Requirements

After the wizard completes, the following configuration needs to be completed for VPN to work on all device targets.

Access Control Policy Update

An Access Control rule must be defined to allow VPN traffic on all targeted devices.

NAT Exemption

If NAT is enabled on the targeted devices, you must define a NAT Policy to exempt VPN traffic.

DNS Configuration

To resolve hostname specified in AAA Servers or CA Servers, configure DNS using FlexConfig Policy on the targeted devices.

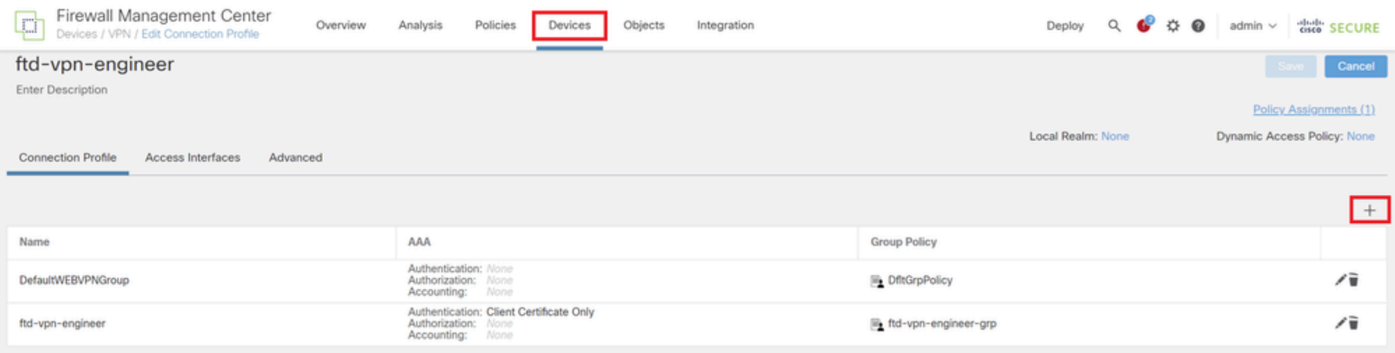
Port Configuration

SSL will be enabled on port 443.
IPsec-IKEv2 uses port 500 and Client Services will be enabled on port 443 for Secure Client image download.NAT-Traversal will be enabled by default and will use port 4500.
Please ensure that these ports are not used in NAT Policy or other services before deploying

远程访问VPN策略的详细信息

步骤 11为管理器VPN客户端添加连接配置文件

导航到设备> VPN >远程访问>连接配置文件，点击+按钮。



ftd-vpn-engineer

Enter Description

Local Realm: None

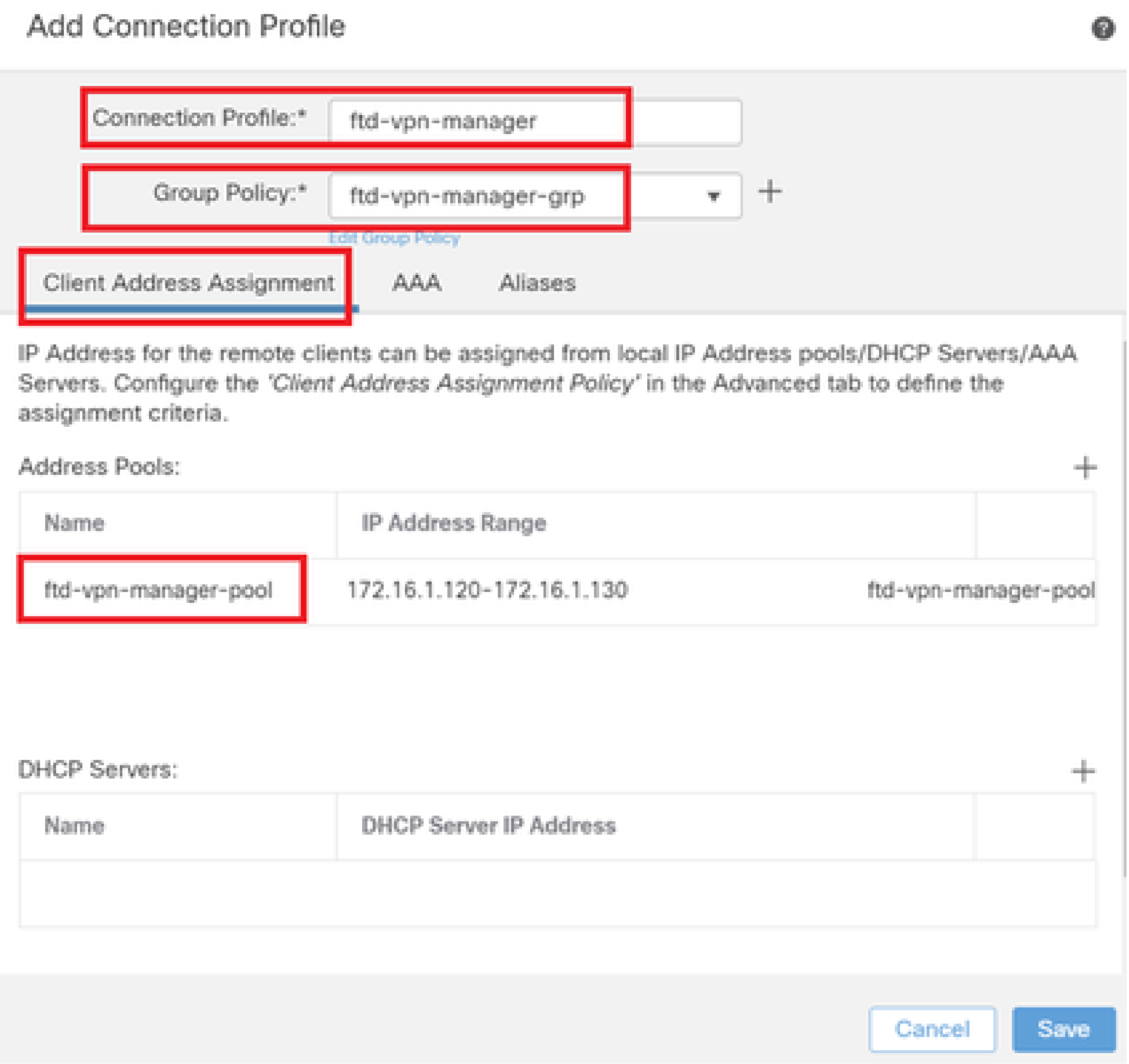
Dynamic Access Policy: None

Name	AAA	Group Policy
DefaultWEBVPNGroup	Authentication: None Authorization: None Accounting: None	DfltGrpPolicy
ftd-vpn-engineer	Authentication: Client Certificate Only Authorization: None Accounting: None	ftd-vpn-engineer-grp

为管理器VPN客户端添加连接配置文件

输入连接配置文件的必要信息，然后单击Save按钮。

- 名称：ftd-vpn-manager
- 组策略：ftd-vpn-manager-grp
- IPv4地址池：ftd-vpn-manager-pool



Add Connection Profile

Connection Profile:* ftd-vpn-manager

Group Policy:* ftd-vpn-manager-grp

IP Address for the remote clients can be assigned from local IP Address pools/DHCP Servers/AAA Servers. Configure the *'Client Address Assignment Policy'* in the Advanced tab to define the assignment criteria.

Address Pools:

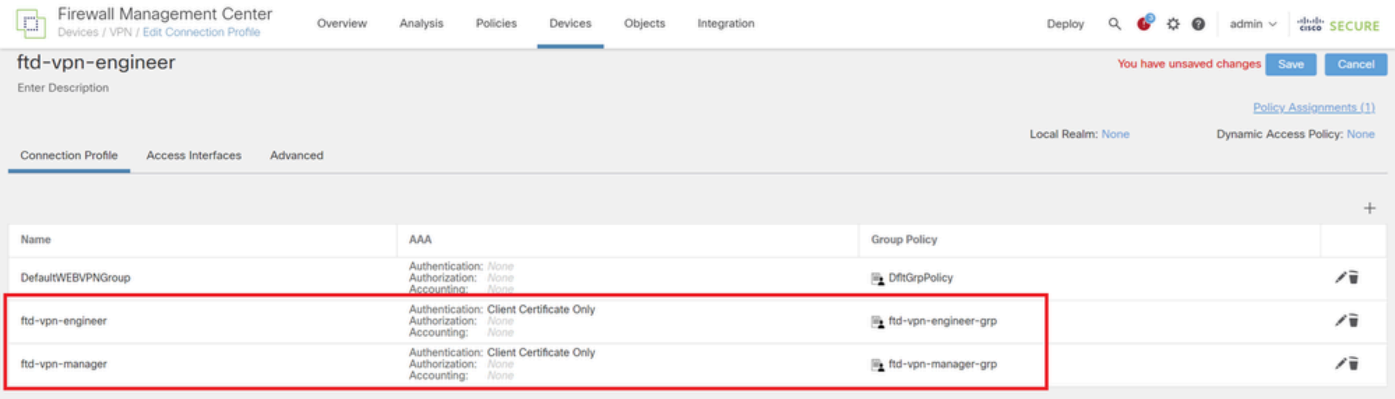
Name	IP Address Range	
ftd-vpn-manager-pool	172.16.1.120-172.16.1.130	ftd-vpn-manager-pool

DHCP Servers:

Name	DHCP Server IP Address	

管理器VPN客户端的连接配置文件的详细信息

确认新添加的连接配置文件。



ftd-vpn-engineer

Enter Description

You have unsaved changes

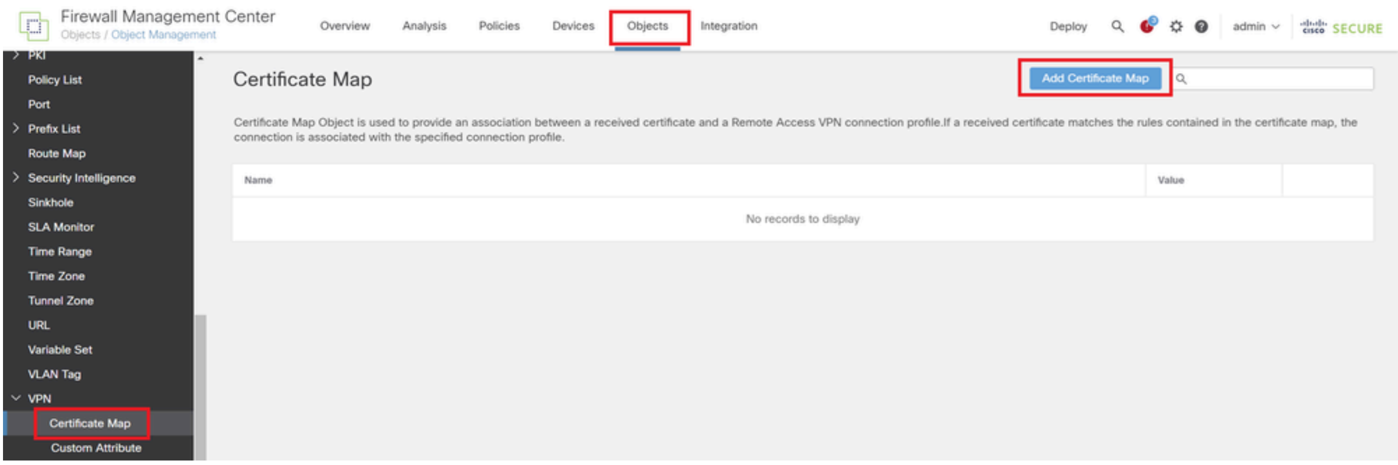
Local Realm: None Dynamic Access Policy: None

Name	AAA	Group Policy
DefaultWEBVPNGroup	Authentication: None Authorization: None Accounting: None	DfltGrpPolicy
ftd-vpn-engineer	Authentication: Client Certificate Only Authorization: None Accounting: None	ftd-vpn-engineer-grp
ftd-vpn-manager	Authentication: Client Certificate Only Authorization: None Accounting: None	ftd-vpn-manager-grp

确认已添加的连接配置文件

步骤 12添加证书映射

导航到对象>对象管理> VPN >证书映射，点击添加证书映射按钮。



Certificate Map

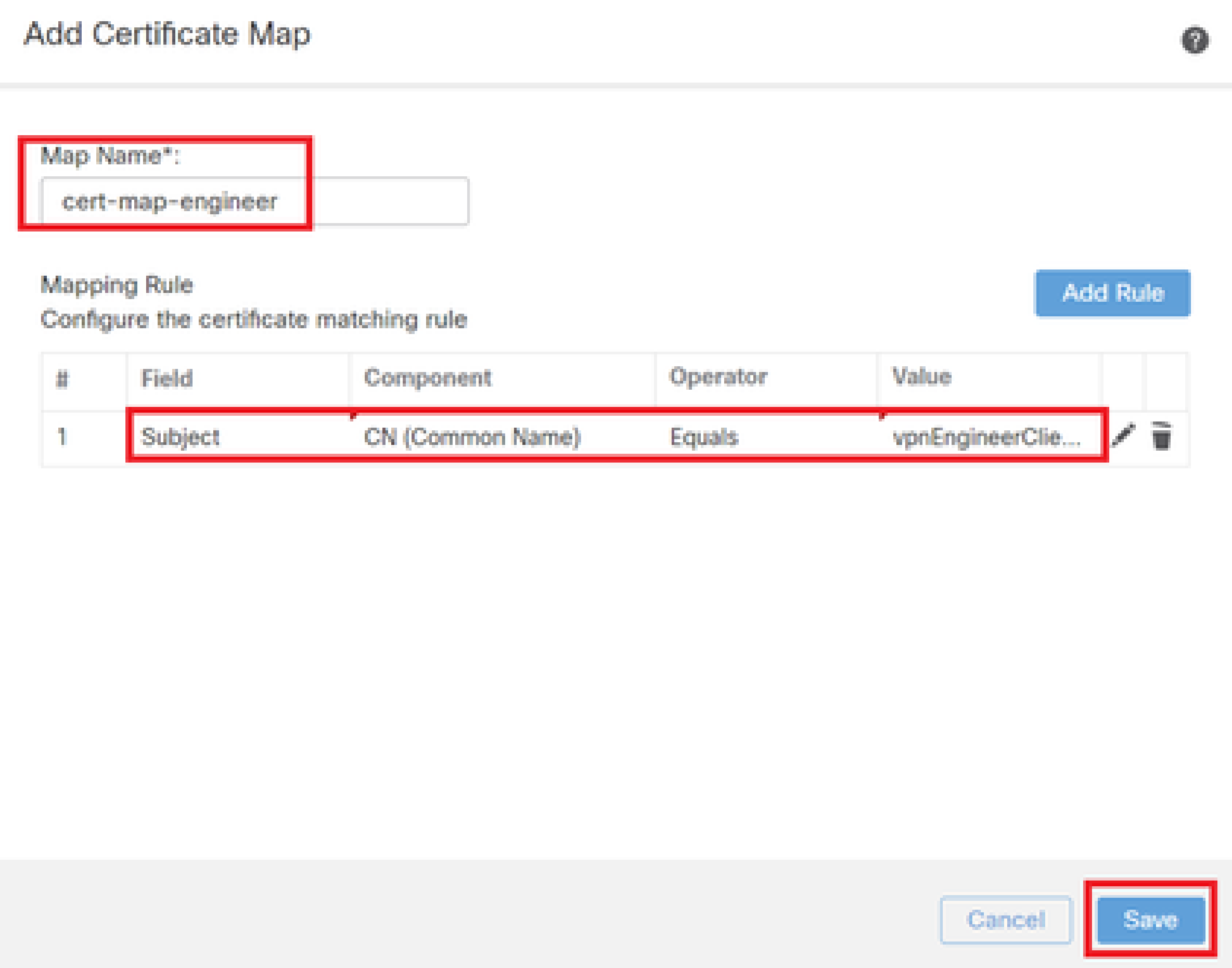
Certificate Map Object is used to provide an association between a received certificate and a Remote Access VPN connection profile.If a received certificate matches the rules contained in the certificate map, the connection is associated with the specified connection profile.

Name	Value	
No records to display		

添加证书映射

输入工程师VPN客户端的证书映射的必需信息，然后单击Save按钮。

- 映射名称：cert-map-engineer
- 映射规则：CN（公用名）等于vpnEngineerClientCN



Add Certificate Map

Map Name*:

cert-map-engineer

Mapping Rule

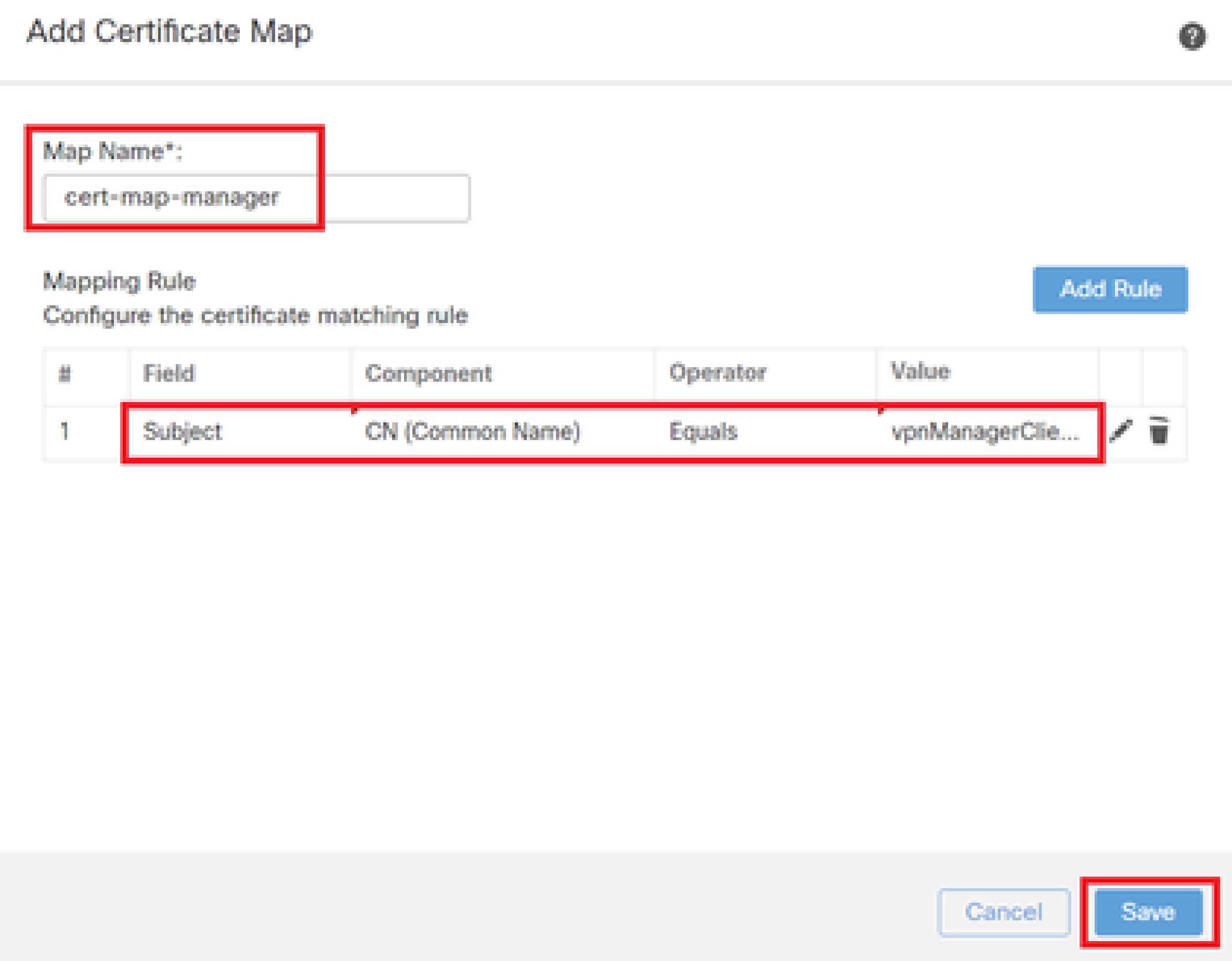
Configure the certificate matching rule

#	Field	Component	Operator	Value
1	Subject	CN (Common Name)	Equals	vpnEngineerClie...

工程师客户端的证书映射

输入管理器VPN客户端的证书映射的必需信息，然后单击Save按钮。

- 映射名称：cert-map-manager
- 映射规则：CN（公用名）等于vpnManagerClientCN



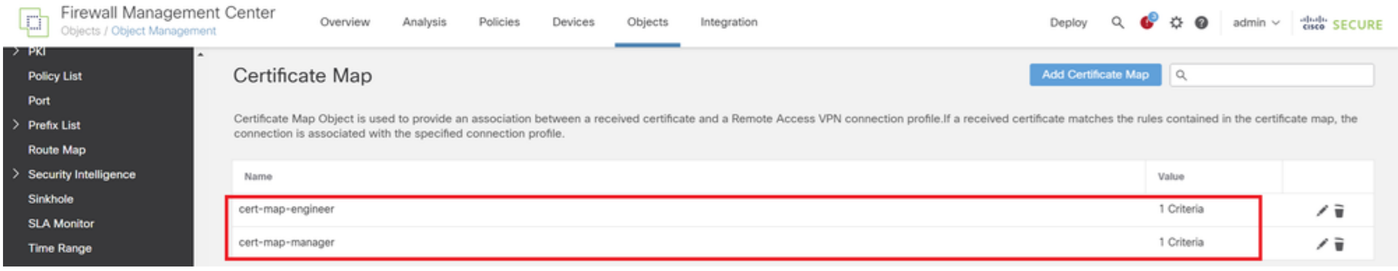
Map Name*: cert-map-manager

Mapping Rule
Configure the certificate matching rule

#	Field	Component	Operator	Value
1	Subject	CN (Common Name)	Equals	vpnManagerClie...

Manager客户端的证书映射

确认新添加的证书映射。



Certificate Map

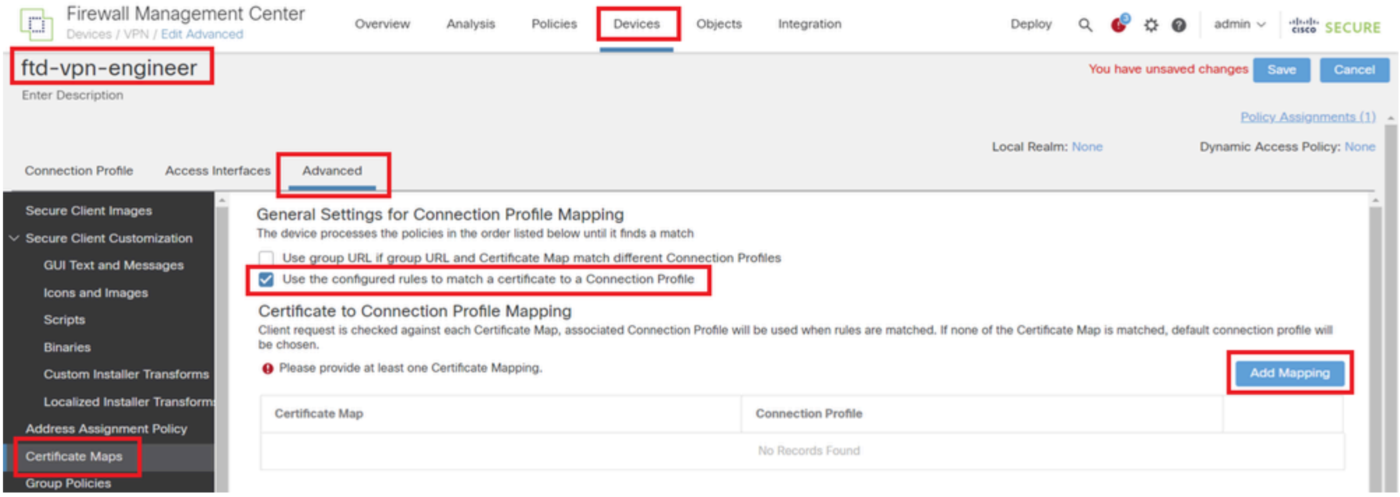
Certificate Map Object is used to provide an association between a received certificate and a Remote Access VPN connection profile.If a received certificate matches the rules contained in the certificate map, the connection is associated with the specified connection profile.

Name	Value
cert-map-engineer	1 Criteria
cert-map-manager	1 Criteria

新证书映射

步骤 13将证书映射绑定到连接配置文件

导航到Devices > VPN > Remote Access，编辑ftd-vpn-engineer。 然后，导航到Advanced > Certificate Maps，点击Add Mapping按钮。



ftd-vpn-engineer

Enter Description

You have unsaved changes Save Cancel

Policy Assignments (1)

Local Realm: None Dynamic Access Policy: None

General Settings for Connection Profile Mapping

The device processes the policies in the order listed below until it finds a match

□ Use group URL if group URL and Certificate Map match different Connection Profiles

☑ Use the configured rules to match a certificate to a Connection Profile

Certificate to Connection Profile Mapping

Client request is checked against each Certificate Map, associated Connection Profile will be used when rules are matched. If none of the Certificate Map is matched, default connection profile will be chosen.

Please provide at least one Certificate Mapping.

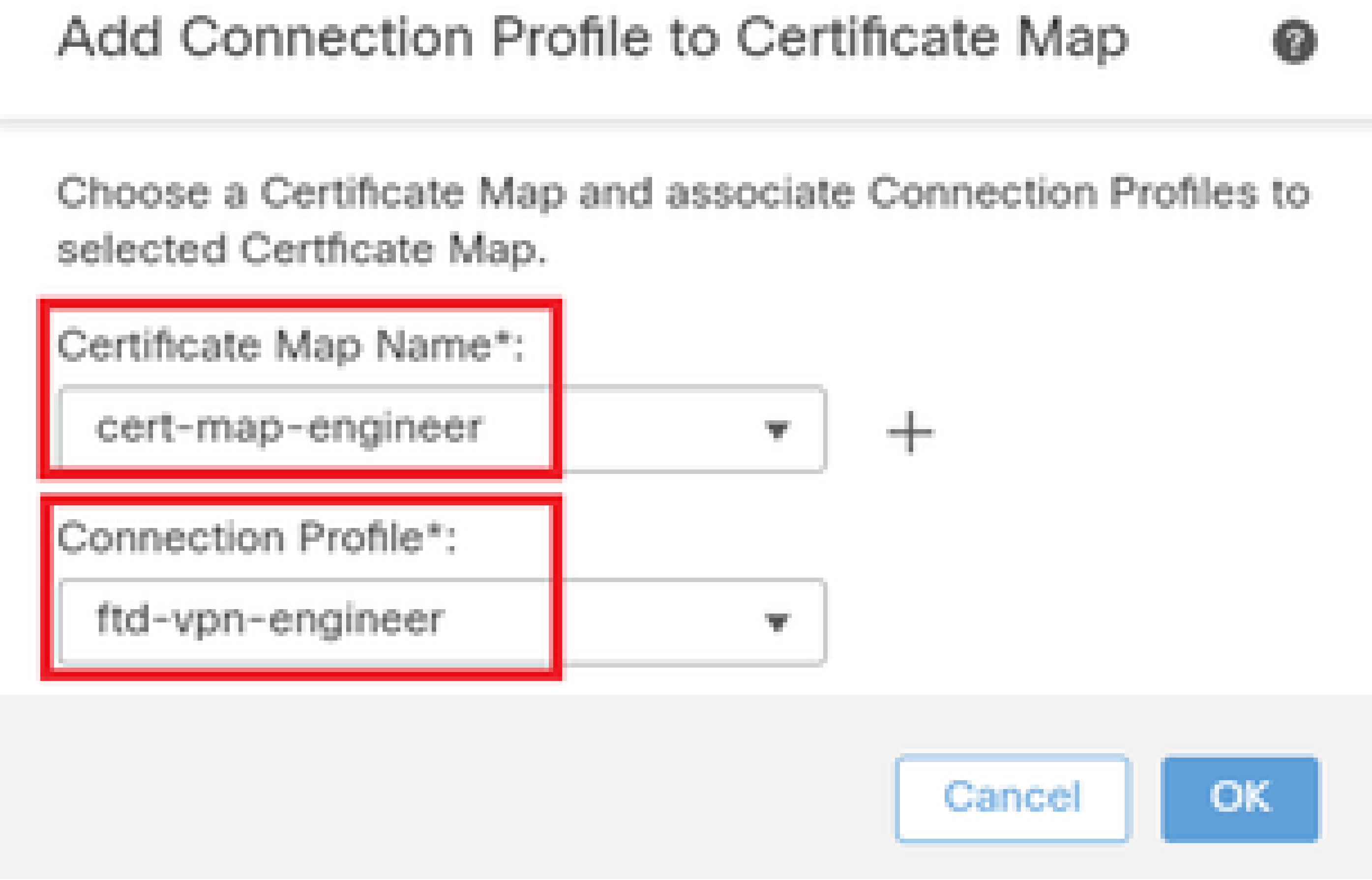
Add Mapping

Certificate Map	Connection Profile
No Records Found	

绑定证书映射

将证书映射绑定到工程师VPN客户端的连接配置文件。

- 证书映射名称：cert-map-engineer
- Connection Profile: ftd-vpn-engineer



Add Connection Profile to Certificate Map

Choose a Certificate Map and associate Connection Profiles to selected Certficate Map.

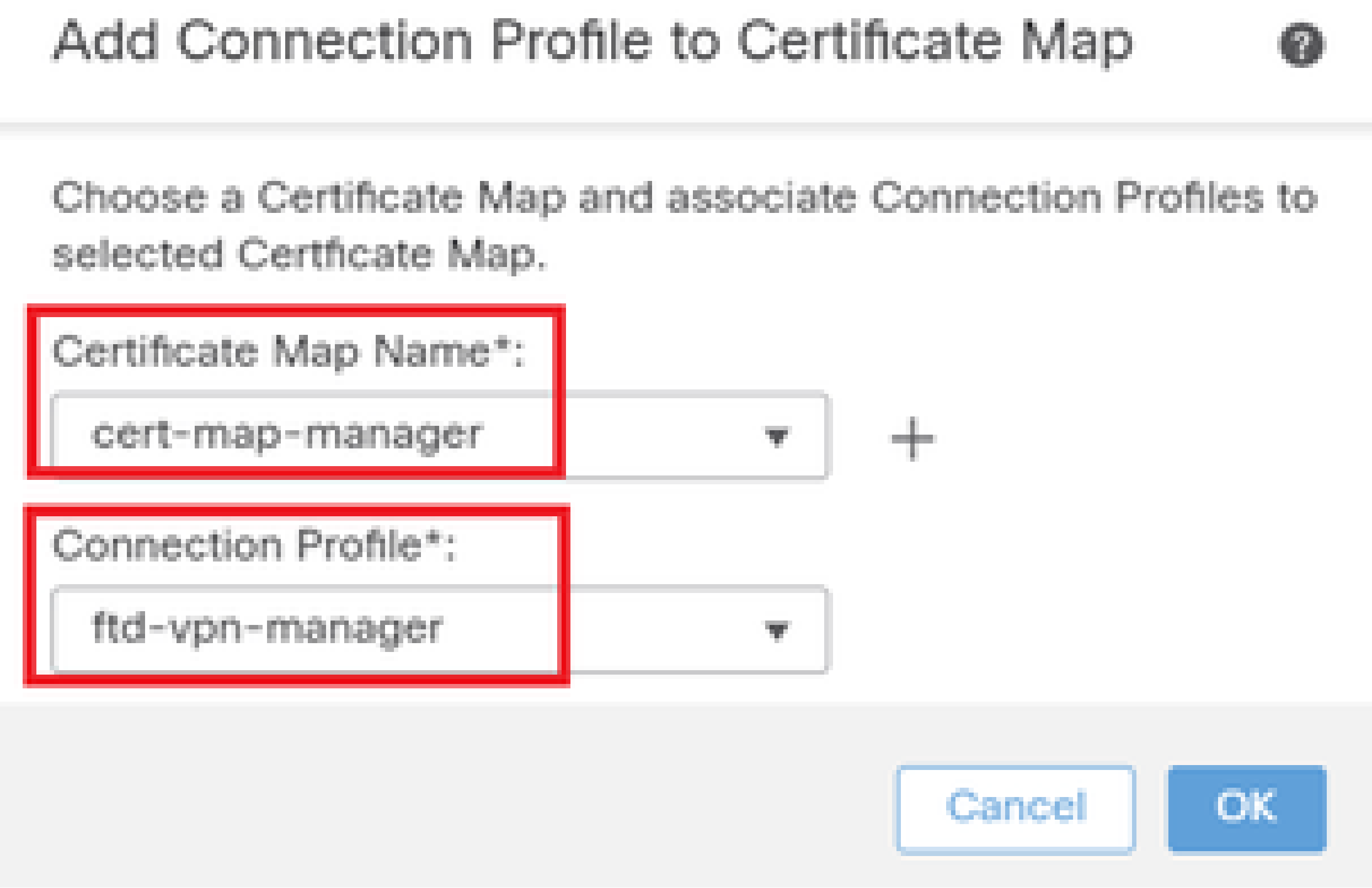
Certificate Map Name*: cert-map-engineer

Connection Profile*: ftd-vpn-engineer

工程师VPN客户端的绑定证书映射

将证书映射绑定到管理器VPN客户端的连接配置文件。

- 证书映射名称：cert-map-manager
- 连接配置文件：ftd-vpn-manager



Add Connection Profile to Certificate Map

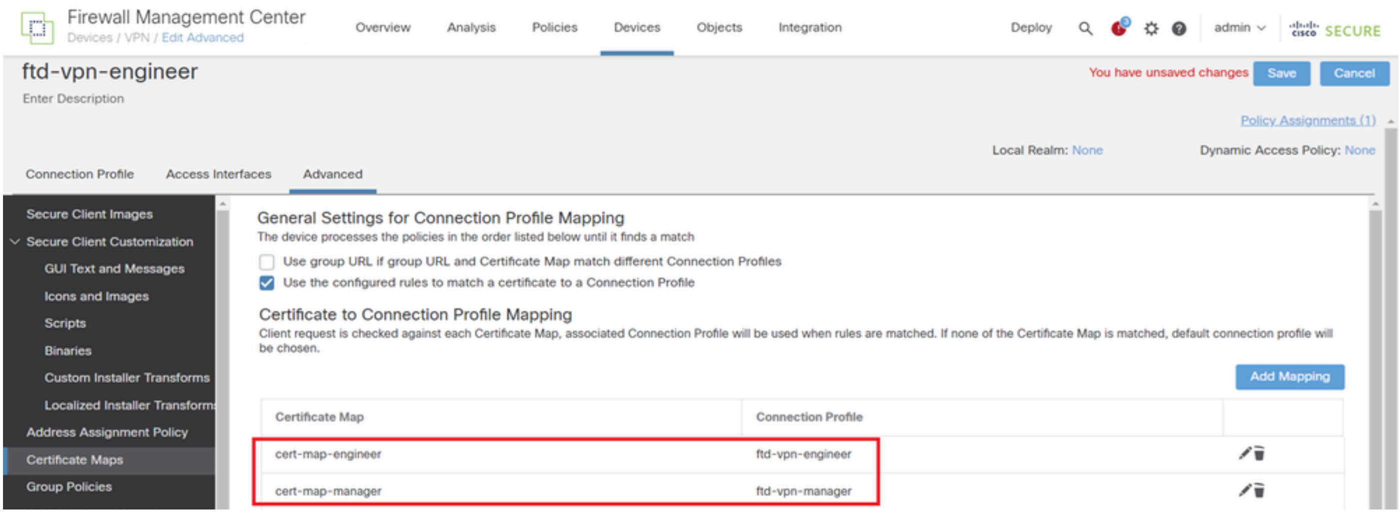
Choose a Certificate Map and associate Connection Profiles to selected Certficate Map.

Certificate Map Name*: cert-map-manager

Connection Profile*: ftd-vpn-manager

为管理器VPN客户端绑定证书映射

确认证书绑定的设置。



ftd-vpn-engineer

Enter Description

You have unsaved changes

Local Realm: None   Dynamic Access Policy: None

General Settings for Connection Profile Mapping

The device processes the policies in the order listed below until it finds a match

☐ Use group URL if group URL and Certificate Map match different Connection Profiles

☑ Use the configured rules to match a certificate to a Connection Profile

Certificate to Connection Profile Mapping

Client request is checked against each Certificate Map, associated Connection Profile will be used when rules are matched. If none of the Certificate Map is matched, default connection profile will be chosen.

Certificate Map	Connection Profile
cert-map-engineer	ftd-vpn-engineer
cert-map-manager	ftd-vpn-manager

确认证书绑定

在FTD CLI中确认

从FMC部署后，在FTD CLI中确认VPN连接设置。

```
// Defines IP of interface
interface GigabitEthernet0/0
```

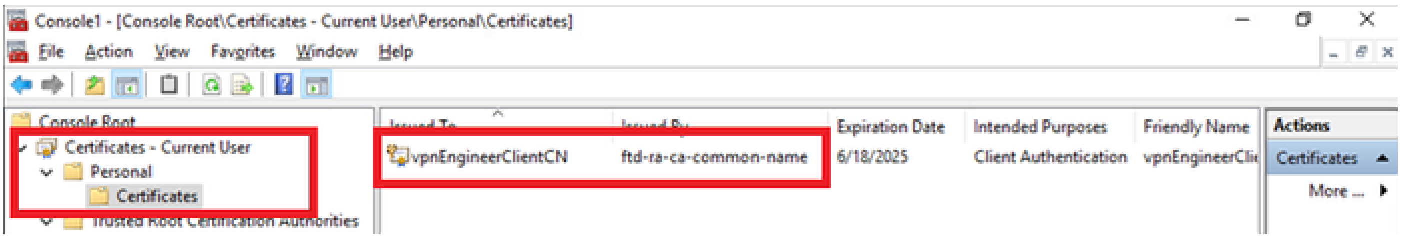
```
nameif outside
security-level 0
ip address 192.168.1.200 255.255.255.0

// Defines a pool of addresses
ip local pool ftd-vpn-engineer-pool 172.16.1.100-172.16.1.110 mask 255.255.255.0
ip local pool ftd-vpn-manager-pool 172.16.1.120-172.16.1.130 mask 255.255.255.0

// Defines Trustpoint for Server Certificate
crypto ca trustpoint ftd-vpn-cert
keypair ftd-vpn-cert
crl configure

// Server Certificate Chain
crypto ca certificate chain ftd-vpn-cert
certificate 22413df584b6726c
3082037c 30820264 a0030201 02020822 413df584 b6726c30 0d06092a 864886f7
......
quit

certificate ca 5242a02e0db6f7fd
3082036c 30820254 a0030201 02020852 42a02e0d b6f7fd30 0d06092a 864886f7
......
quit

// Defines Certificate Map for Engineer VPN Clients
crypto ca certificate map cert-map-engineer 10
subject-name attr cn eq vpnEngineerClientCN

// Defines Certificate Map for Manager VPN Clients
crypto ca certificate map cert-map-manager 10
subject-name attr cn eq vpnManagerClientCN

// Configures the FTD to allow Cisco Secure Client connections and the valid Cisco Secure Client images
webvpn
enable outside
http-headers
hsts-server
enable
max-age 31536000
include-sub-domains
no preload
hsts-client
enable
x-content-type-options
x-xss-protection
content-security-policy
anyconnect image disk0:/csm/cisco-secure-client-win-5.1.3.62-webdeploy-k9.pkg 1 regex "Windows"
anyconnect enable
tunnel-group-list enable
cache
disable
certificate-group-map cert-map-engineer 10 ftd-vpn-engineer
certificate-group-map cert-map-manager 10 ftd-vpn-manager
error-recovery disable

// Configures the group-policy to allow SSL connections from manager VPN clients
group-policy ftd-vpn-manager-grp internal
group-policy ftd-vpn-manager-grp attributes
banner none
wins-server none
dns-server none
```

```
dhcp-network-scope none
vpn-simultaneous-logins 3
vpn-idle-timeout 30
vpn-idle-timeout alert-interval 1
vpn-session-timeout none
vpn-session-timeout alert-interval 1
vpn-filter none
vpn-tunnel-protocol ikev2 ssl-client
split-tunnel-policy tunnelall
ipv6-split-tunnel-policy tunnelall
split-tunnel-network-list none
default-domain none
split-dns none
split-tunnel-all-dns disable
client-bypass-protocol disable
vlan none
address-pools none
webvpn
anyconnect ssl dtls enable
anyconnect mtu 1406
anyconnect firewall-rule client-interface public none
anyconnect firewall-rule client-interface private none
anyconnect ssl keepalive 20
anyconnect ssl rekey time none
anyconnect ssl rekey method none
anyconnect dpd-interval client 30
anyconnect dpd-interval gateway 30
anyconnect ssl compression none
anyconnect dtls compression none
anyconnect modules value none
anyconnect ask none default anyconnect
anyconnect ssl df-bit-ignore disable

// Configures the group-policy to allow SSL connections from engineer VPN clients
group-policy ftd-vpn-engineer-grp internal
group-policy ftd-vpn-engineer-grp attributes
banner none
wins-server none
dns-server none
dhcp-network-scope none
vpn-simultaneous-logins 3
vpn-idle-timeout 30
vpn-idle-timeout alert-interval 1
vpn-session-timeout none
vpn-session-timeout alert-interval 1
vpn-filter none
vpn-tunnel-protocol ssl-client
split-tunnel-policy tunnelall
ipv6-split-tunnel-policy tunnelall
split-tunnel-network-list none
default-domain none
split-dns none
split-tunnel-all-dns disable
client-bypass-protocol disable
vlan none
address-pools none
webvpn
anyconnect ssl dtls enable
anyconnect mtu 1406
anyconnect firewall-rule client-interface public none
anyconnect firewall-rule client-interface private none
anyconnect ssl keepalive 20
anyconnect ssl rekey time none
anyconnect ssl rekey method none
anyconnect dpd-interval client 30
anyconnect dpd-interval gateway 30
anyconnect ssl compression none
anyconnect dtls compression none
anyconnect modules value none
anyconnect ask none default anyconnect
anyconnect ssl df-bit-ignore disable

// Configures the tunnel-group to use the certificate authentication for engineer VPN clients
tunnel-group ftd-vpn-engineer type remote-access
tunnel-group ftd-vpn-engineer general-attributes
address-pool ftd-vpn-engineer-pool
default-group-policy ftd-vpn-engineer-grp
tunnel-group ftd-vpn-engineer webvpn-attributes
authentication certificate
group-alias ftd-vpn-engineer enable

// Configures the tunnel-group to use the certificate authentication for manager VPN clients
tunnel-group ftd-vpn-manager type remote-access
tunnel-group ftd-vpn-manager general-attributes
address-pool ftd-vpn-manager-pool
default-group-policy ftd-vpn-manager-grp
tunnel-group ftd-vpn-manager webvpn-attributes
authentication certificate
```

在VPN客户端中确认

步骤1:确认客户端证书

在工程师VPN客户端中，导航到证书-当前用户>个人>证书，检查用于身份验证的客户端证书。



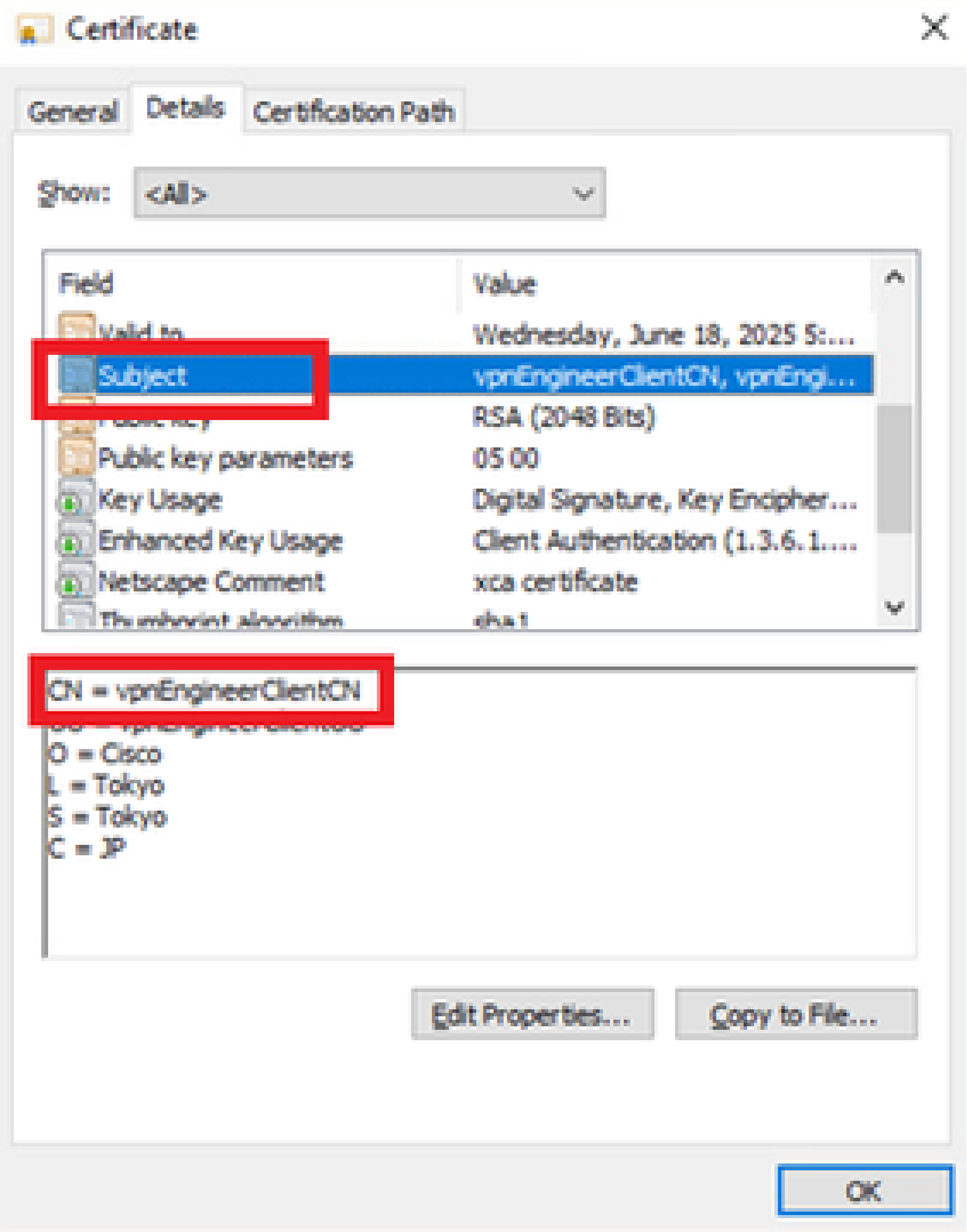
Console1 - [Console Root\Certificates - Current User\Personal\Certificates]

Issued To	Issued By	Expiration Date	Intended Purposes	Friendly Name
vpnEngineerClientCN	ftd-ra-ca-common-name	6/18/2025	Client Authentication	vpnEngineerCli

确认工程师VPN客户端的证书

双击客户端证书，导航到Details，检查Subject的详细信息。

- 主题：CN = vpnEngineerClientCN

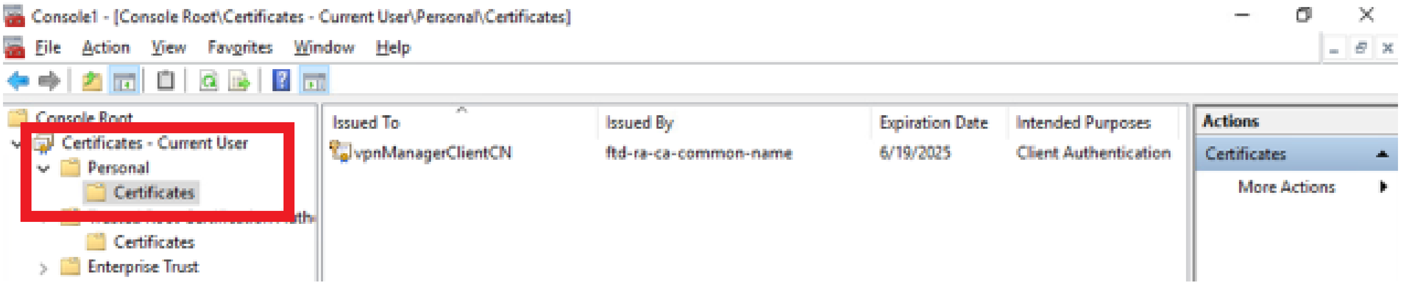


Field	Value
Valid to	Wednesday, June 18, 2025 5:...
Subject	vpnEngineerClientCN, vpnEngi...
Public key	RSA (2048 Bits)
Public key parameters	05 00
Key Usage	Digital Signature, Key Encipher...
Enhanced Key Usage	Client Authentication (1.3.6.1....
Netscape Comment	xca certificate
Thumbprint algorithm	sha1

CN = vpnEngineerClientCN
OU = vpnEngineerClientOU
O = Cisco
L = Tokyo
S = Tokyo
C = JP

工程师客户端证书的详细信息

在Manager VPN Client中，导航到Certificates - Current User > Personal > Certificates，检查用于身份验证的客户端证书。



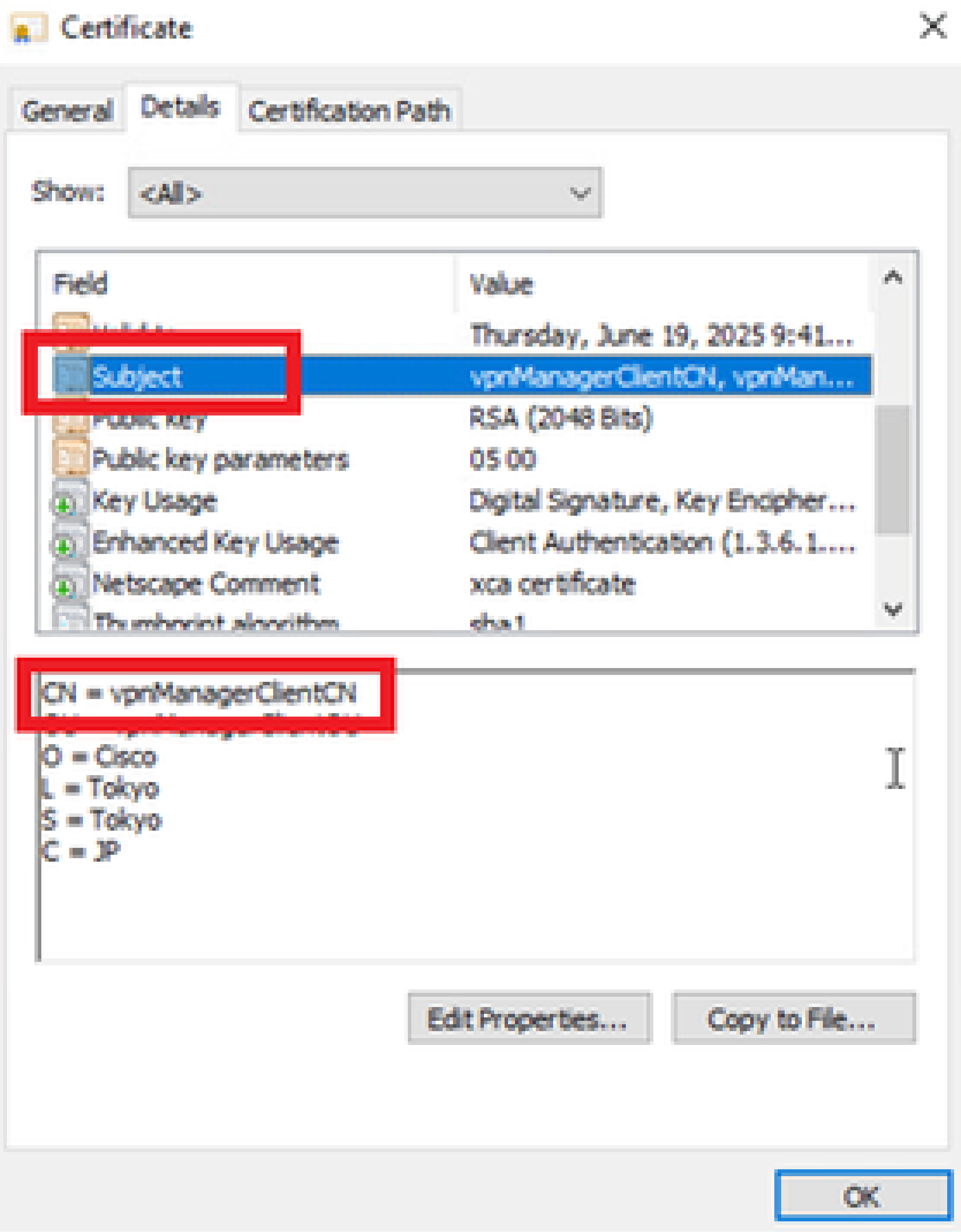
Console1 - [Console Root\Certificates - Current User\Personal\Certificates]

Issued To	Issued By	Expiration Date	Intended Purposes
vpnManagerClientCN	ftd-ra-ca-common-name	6/19/2025	Client Authentication

确认Manager VPN客户端的证书

双击客户端证书，导航到Details，检查Subject的详细信息。

- 主题：CN = vpnManagerClientCN



Field	Value
Valid to	Thursday, June 19, 2025 9:41...
Subject	vpnManagerClientCN, vpnMan...
Public key	RSA (2048 Bits)
Public key parameters	05 00
Key Usage	Digital Signature, Key Encipher...
Enhanced Key Usage	Client Authentication (1.3.6.1....
Netscape Comment	xca certificate
Thumbprint algorithm	sha1

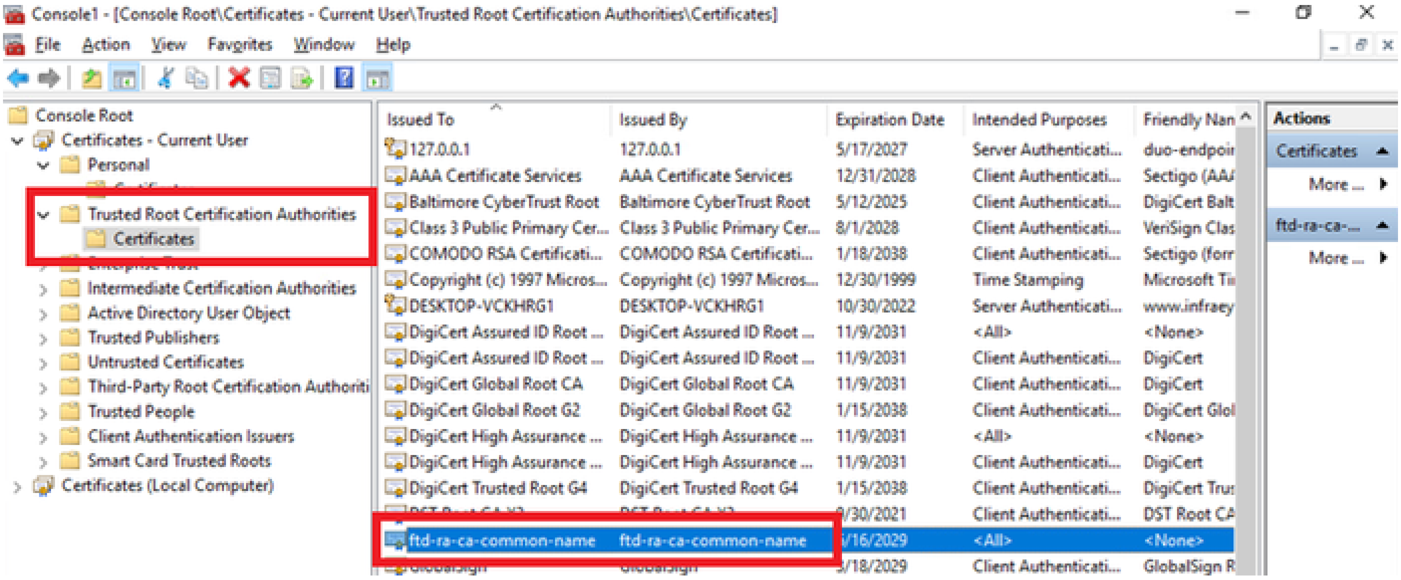
```
CN = vpnManagerClientCN
OU = vpnManagerClientOU
O = Cisco
L = Tokyo
S = Tokyo
C = JP
```

Manager客户端证书的详细信息

第二步：确认CA

在工程师VPN客户端和管理器VPN客户端中，导航到证书-当前用户>受信任的根证书颁发机构>证书，检查用于身份验证的CA。

- 颁发者：ftd-ra-ca-common-name



Console1 - [Console Root\Certificates - Current User\Trusted Root Certification Authorities\Certificates]

File
Action
View
Favorites
Window
Help
Console Root
Certificates - Current User
Personal
Trusted Root Certification Authorities
Certificates
Intermediate Certification Authorities
Active Directory User Object
Trusted Publishers
Untrusted Certificates
Third-Party Root Certification Authoriti
Trusted People
Client Authentication Issuers
Smart Card Trusted Roots
Certificates (Local Computer)
Actions
Certificates
More ...
ftd-ra-ca-...
More ...

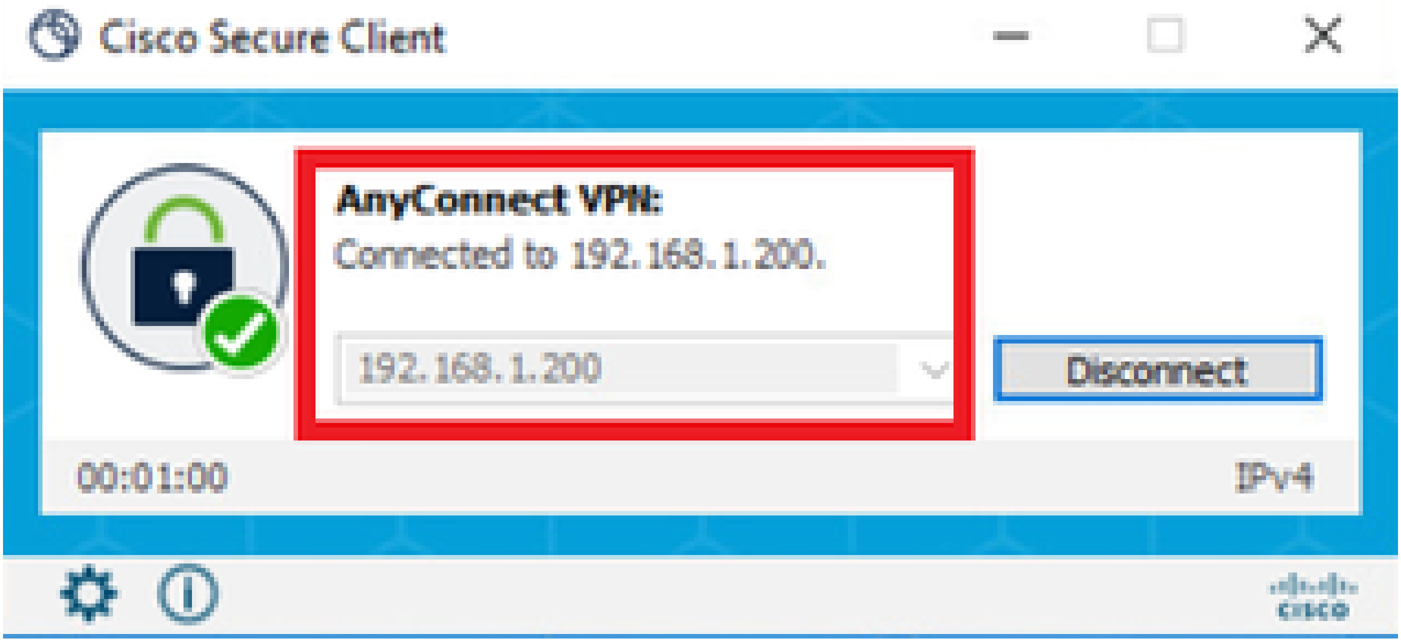
Issued To	Issued By	Expiration Date	Intended Purposes	Friendly Nan
127.0.0.1	127.0.0.1	5/17/2027	Server Authenticati...	duo-endpoi
AAA Certificate Services	AAA Certificate Services	12/31/2028	Client Authenticati...	Sectigo (AA
Baltimore CyberTrust Root	Baltimore CyberTrust Root	5/12/2025	Client Authenticati...	DigiCert Balt
Class 3 Public Primary Cer...	Class 3 Public Primary Cer...	8/1/2028	Client Authenticati...	VeriSign Clas
COMODO RSA Certificati...	COMODO RSA Certificati...	1/18/2038	Client Authenticati...	Sectigo (forr
Copyright (c) 1997 Micros...	Copyright (c) 1997 Micros...	12/30/1999	Time Stamping	Microsoft Ti
DESKTOP-VCKHRG1	DESKTOP-VCKHRG1	10/30/2022	Server Authenticati...	www.infraey
DigiCert Assured ID Root ...	DigiCert Assured ID Root ...	11/9/2031	<All>	<None>
DigiCert Assured ID Root ...	DigiCert Assured ID Root ...	11/9/2031	Client Authenticati...	DigiCert
DigiCert Global Root CA	DigiCert Global Root CA	11/9/2031	Client Authenticati...	DigiCert
DigiCert Global Root G2	DigiCert Global Root G2	1/15/2038	Client Authenticati...	DigiCert Glol
DigiCert High Assurance ...	DigiCert High Assurance ...	11/9/2031	<All>	<None>
DigiCert High Assurance ...	DigiCert High Assurance ...	11/9/2031	Client Authenticati...	DigiCert
DigiCert Trusted Root G4	DigiCert Trusted Root G4	1/15/2038	Client Authenticati...	DigiCert Trus
DST Root CA X3	DST Root CA X3	9/30/2021	Client Authenticati...	DST Root CA
ftd-ra-ca-common-name	ftd-ra-ca-common-name	/16/2029	<All>	<None>
GlobalSign	GlobalSign	/18/2029	Client Authenticati...	GlobalSign R

确认CA

验证

步骤1:启动VPN连接

在工程师VPN客户端中，启动Cisco安全客户端连接。无需输入用户名和密码，VPN连接成功。



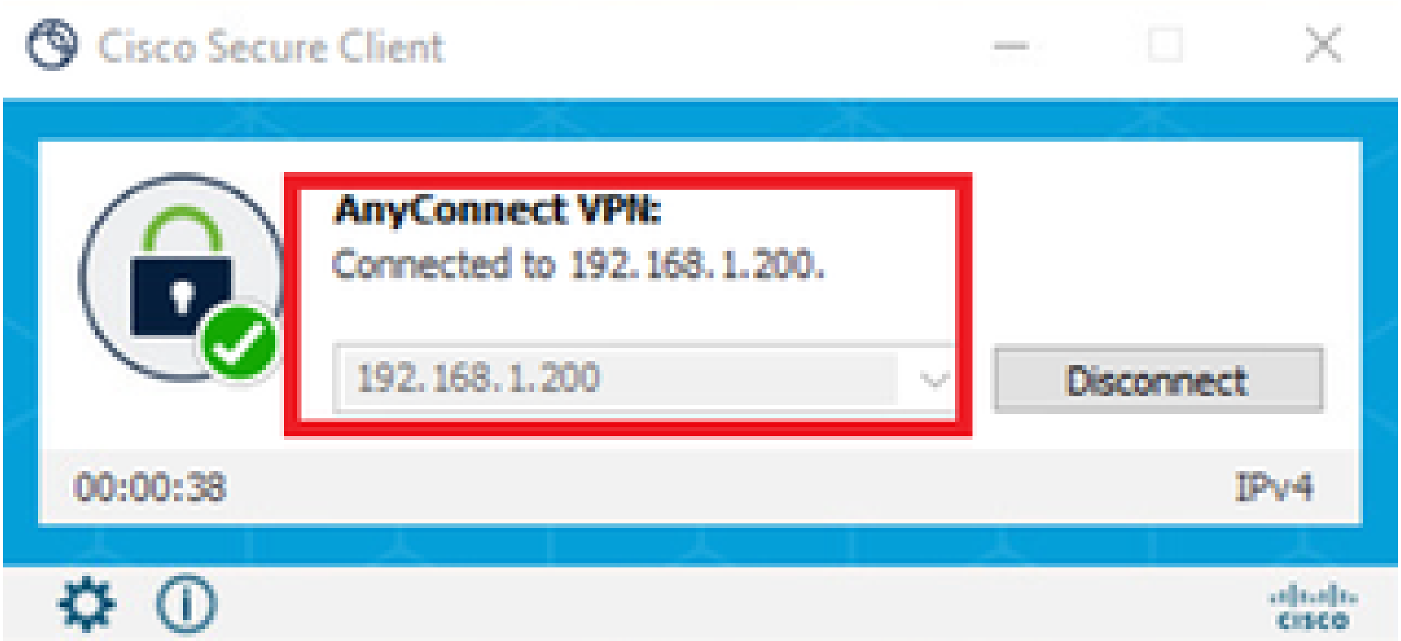
Cisco Secure Client

AnyConnect VPN:
Connected to 192.168.1.200.

192.168.1.200

从工程师客户端启动VPN连接

在Manager VPN客户端中，启动Cisco Secure Client连接。无需输入用户名和密码，VPN连接成功。



Cisco Secure Client

AnyConnect VPN:
Connected to 192.168.1.200.

192.168.1.200

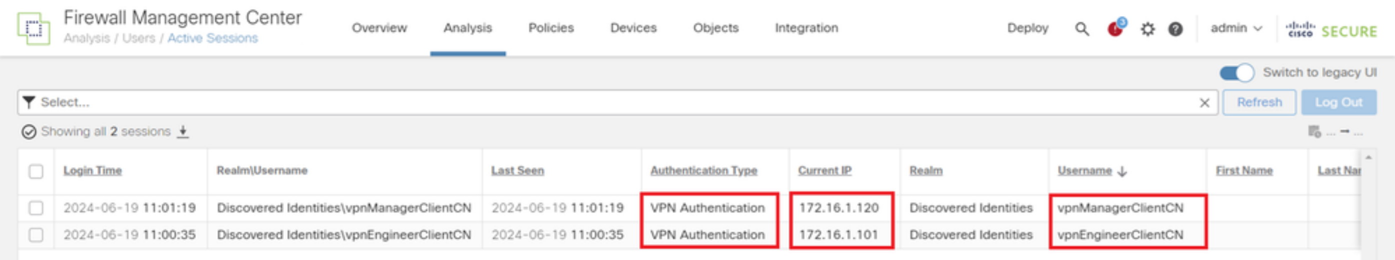
00:00:38

IPv4

从Manager客户端启动VPN连接

第二步：确认FMC中的活动会话

导航到Analysis > Users > Active Sessions，检查VPN身份验证的活动会话。



Showing all 2 sessions

□	Login Time	Realm\Username	Last Seen	Authentication Type	Current IP	Realm	Username ↓	First Name	Last Nar
□	2024-06-19 11:01:19	Discovered Identities\vpnManagerClientCN	2024-06-19 11:01:19	VPN Authentication	172.16.1.120	Discovered Identities	vpnManagerClientCN		
□	2024-06-19 11:00:35	Discovered Identities\vpnEngineerClientCN	2024-06-19 11:00:35	VPN Authentication	172.16.1.101	Discovered Identities	vpnEngineerClientCN		

确认活动会话

第三步：在FTD CLI中确认VPN会话

在FTD (Lina) CLI中运行show vpn-sessiondb detail anyconnect命令，确认工程师和经理的VPN会话。

```
ftd702# show vpn-sessiondb detail anyconnect

Session Type: AnyConnect Detailed

Username : vpnEngineerClientCN Index : 13
Assigned IP : 172.16.1.101 Public IP : 192.168.1.11
Protocol : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License : AnyConnect Premium
Encryption : AnyConnect-Parent: (1)none SSL-Tunnel: (1)AES-GCM-128 DTLS-Tunnel: (1)AES-GCM-256
Hashing : AnyConnect-Parent: (1)none SSL-Tunnel: (1)SHA256 DTLS-Tunnel: (1)SHA384
Bytes Tx : 14782 Bytes Rx : 12714
Pkts Tx : 2 Pkts Rx : 32
Pkts Tx Drop : 0 Pkts Rx Drop : 0
Group Policy : ftd-vpn-engineer-grp Tunnel Group : ftd-vpn-engineer
Login Time : 02:00:35 UTC Wed Jun 19 2024
```

```
Duration : 0h:00m:55s
Inactivity : 0h:00m:00s
VLAN Mapping : N/A VLAN : none
Audt Sess ID : cb0071820000d00066723bc3
Security Grp : none Tunnel Zone : 0

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

AnyConnect-Parent:
Tunnel ID : 13.1
Public IP : 192.168.1.11
Encryption : none Hashing : none
TCP Src Port : 50225 TCP Dst Port : 443
Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes
Client OS : win
Client OS Ver: 10.0.15063
Client Type : AnyConnect
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 7391 Bytes Rx : 0
Pkts Tx : 1 Pkts Rx : 0
Pkts Tx Drop : 0 Pkts Rx Drop : 0

SSL-Tunnel:
Tunnel ID : 13.2
Assigned IP : 172.16.1.101 Public IP : 192.168.1.11
Encryption : AES-GCM-128 Hashing : SHA256
Ciphersuite : TLS_AES_128_GCM_SHA256
Encapsulation: TLSv1.3 TCP Src Port : 50232
TCP Dst Port : 443 Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes
Client OS : Windows
Client Type : SSL VPN Client
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 7391 Bytes Rx : 1775
Pkts Tx : 1 Pkts Rx : 2
Pkts Tx Drop : 0 Pkts Rx Drop : 0

DTLS-Tunnel:
Tunnel ID : 13.3
Assigned IP : 172.16.1.101 Public IP : 192.168.1.11
Encryption : AES-GCM-256 Hashing : SHA384
Ciphersuite : ECDHE-ECDSA-AES256-GCM-SHA384
Encapsulation: DTLSv1.2 UDP Src Port : 50825
UDP Dst Port : 443 Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes
Client OS : Windows
Client Type : DTLS VPN Client
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 0 Bytes Rx : 10939
Pkts Tx : 0 Pkts Rx : 30
Pkts Tx Drop : 0 Pkts Rx Drop : 0

Username : vpnManagerClientCN Index : 14
Assigned IP : 172.16.1.120 Public IP : 192.168.1.21
Protocol : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License : AnyConnect Premium
```

```
Encryption : AnyConnect-Parent: (1)none SSL-Tunnel: (1)AES-GCM-128 DTLS-Tunnel: (1)AES-GCM-256
Hashing : AnyConnect-Parent: (1)none SSL-Tunnel: (1)SHA256 DTLS-Tunnel: (1)SHA384
Bytes Tx : 14782 Bytes Rx : 13521
Pkts Tx : 2 Pkts Rx : 57
Pkts Tx Drop : 0 Pkts Rx Drop : 0
Group Policy : ftd-vpn-manager-grp Tunnel Group : ftd-vpn-manager
Login Time : 02:01:19 UTC Wed Jun 19 2024
Duration : 0h:00m:11s
Inactivity : 0h:00m:00s
VLAN Mapping : N/A VLAN : none
Audt Sess ID : cb0071820000e00066723bef
Security Grp : none Tunnel Zone : 0

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

AnyConnect-Parent:
Tunnel ID : 14.1
Public IP : 192.168.1.21
Encryption : none Hashing : none
TCP Src Port : 49809 TCP Dst Port : 443
Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes
Client OS : win
Client OS Ver: 10.0.15063
Client Type : AnyConnect
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 7391 Bytes Rx : 0
Pkts Tx : 1 Pkts Rx : 0
Pkts Tx Drop : 0 Pkts Rx Drop : 0

SSL-Tunnel:
Tunnel ID : 14.2
Assigned IP : 172.16.1.120 Public IP : 192.168.1.21
Encryption : AES-GCM-128 Hashing : SHA256
Ciphersuite : TLS_AES_128_GCM_SHA256
Encapsulation: TLSv1.3 TCP Src Port : 49816
TCP Dst Port : 443 Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 29 Minutes
Client OS : Windows
Client Type : SSL VPN Client
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 7391 Bytes Rx : 3848
Pkts Tx : 1 Pkts Rx : 25
Pkts Tx Drop : 0 Pkts Rx Drop : 0

DTLS-Tunnel:
Tunnel ID : 14.3
Assigned IP : 172.16.1.120 Public IP : 192.168.1.21
Encryption : AES-GCM-256 Hashing : SHA384
Ciphersuite : ECDHE-ECDSA-AES256-GCM-SHA384
Encapsulation: DTLSv1.2 UDP Src Port : 65501
UDP Dst Port : 443 Auth Mode : Certificate
Idle Time Out: 30 Minutes Idle TO Left : 30 Minutes
Client OS : Windows
Client Type : DTLS VPN Client
Client Ver : Cisco AnyConnect VPN Agent for Windows 5.1.3.62
Bytes Tx : 0 Bytes Rx : 9673
```

Pkts Tx : 0 Pkts Rx : 32
Pkts Tx Drop : 0 Pkts Rx Drop : 0

故障排除

您可以在Lina引擎的调试系统日志和Windows PC上的DART文件中找到有关VPN身份验证的信息。

这是从工程师客户端进行VPN连接期间Lina引擎中的调试日志示例。

<#root>

```
Jun 19 2024 02:00:35: %FTD-7-717029: Identified client certificate within certificate chain. serial number: 7AF1C78ADCC8F941, subject name: CN=vpn
Jun 19 2024 02:00:35: %FTD-6-717022:

Certificate was successfully validated

. serial number: 7AF1C78ADCC8F941, subject name:

CN=vpnEngineerClientCN

,OU=vpnEngineerClientOU,O=Cisco,L=Tokyo,ST=Tokyo,C=JP.
Jun 19 2024 02:00:35: %FTD-7-717038: Tunnel group match found.

Tunnel Group: ftd-vpn-engineer

, Peer certificate: serial number: 7AF1C78ADCC8F941, subject name: CN=vpnEngineerClientCN,OU=vpnEnginee
Jun 19 2024 02:00:35: %FTD-6-113009: AAA retrieved default group policy (ftd-vpn-engineer-grp) for user
Jun 19 2024 02:00:46: %FTD-6-725002: Device completed SSL handshake with client outside:192.168.1.11/50
```

这是从管理器客户端进行VPN连接期间Lina引擎中的调试日志的示例。

<#root>

```
Jun 19 2024 02:01:19: %FTD-7-717029: Identified client certificate within certificate chain. serial number: 1AD1B5EAE28C6D3C, subject name: CN=vp
Jun 19 2024 02:01:19: %FTD-6-717022:

Certificate was successfully validated

. serial number: 1AD1B5EAE28C6D3C, subject name:

 CN=vpnManagerClientCN

,OU=vpnManagerClientOU,O=Cisco,L=Tokyo,ST=Tokyo,C=JP.
Jun 19 2024 02:01:19: %FTD-7-717038: Tunnel group match found.

Tunnel Group: ftd-vpn-manager

, Peer certificate: serial number: 1AD1B5EAE28C6D3C, subject name: CN=vpnManagerClientCN,OU=vpnManagerC
Jun 19 2024 02:01:19: %FTD-6-113009: AAA retrieved default group policy (ftd-vpn-manager-grp) for user
Jun 19 2024 02:01:25: %FTD-6-725002: Device completed SSL handshake with client outside:192.168.1.21/65
```

相关信息

为移动访问配置基于Anyconnect证书的身份验证

关于此翻译
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