AnyConnect LDAP-afbeelding configureren op FirePOWER Threat Defense (FTD)

Inhoud

Inleiding

Dit document biedt een configuratievoorbeeld van Light Directory Access Protocol (LDAP)-mapping voor AnyConnect-gebruikers op Firepower Threat Defense (FTD) met behulp van een beleid van Firepower Management Center (FMC) FlexConfig. Deze configuratie wordt gebruikt om specifieke gebruikers die tot een AD-groep (Active Directory) behoren, toe te staan om een VPN-verbinding (Virtual Private Network) op te zetten. Gebruikers van verschillende AD groepen die niet op de kaart zijn gedefinieerd kunnen geen verbinding maken met hetzelfde profiel.

Voorwaarden

Vereisten

Cisco raadt u aan om kennis over deze onderwerpen te hebben:

- Configuratie AD-gebied op FMC
- Windows Active Directory
- AnyConnect (SSLVPN) configuratie op FMC
- Basiskennis van FlexConfig-objecten op FMC

Gebruikte componenten

- FirePower Manager Center (FMC) versie 6.2.3 en 6.5.0
- FirePower Threat Defense (FTD) versie 6.2.3 en 6.5.0
- Windows Server met actieve map

Configureren

Configuratie op de FTD

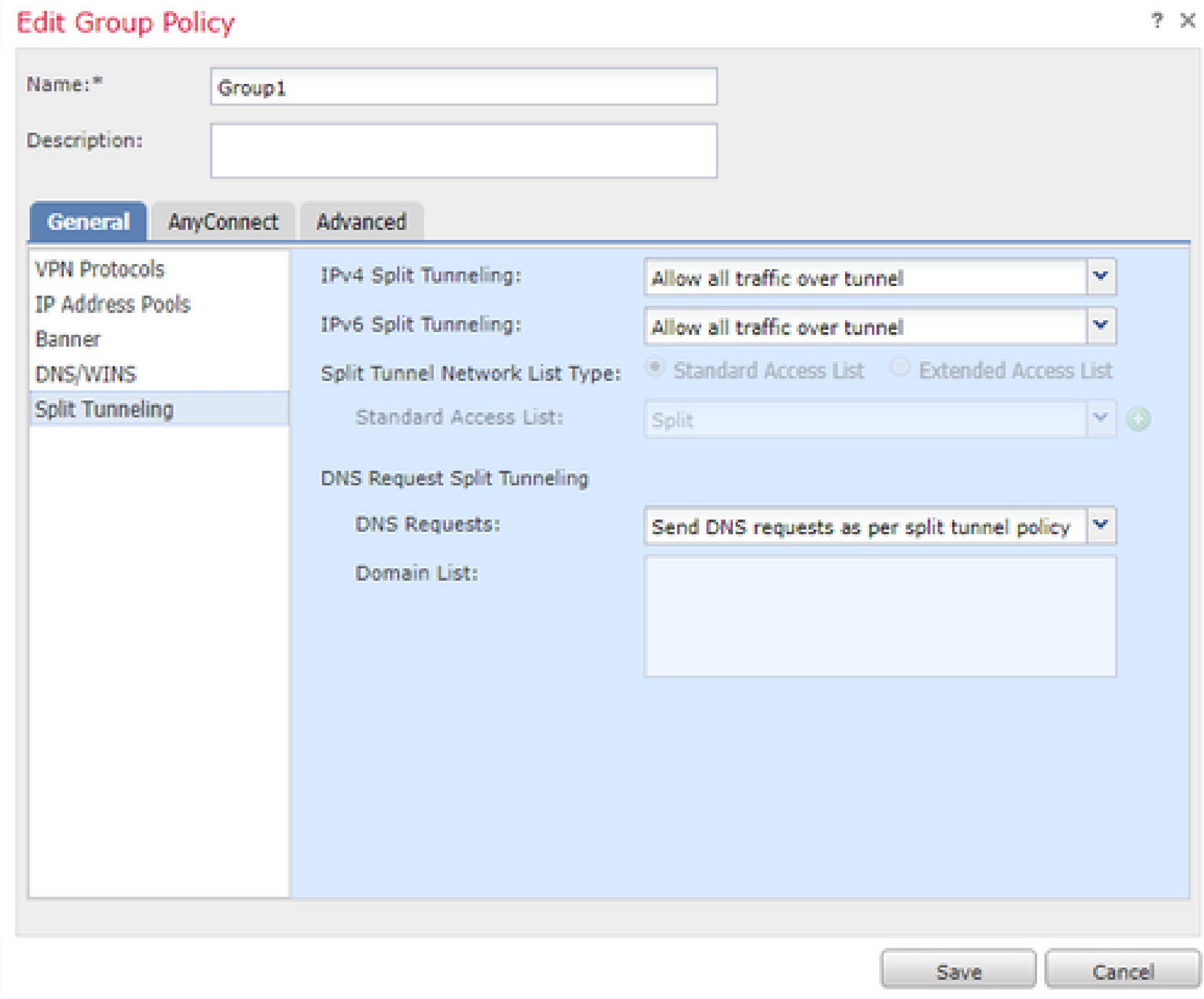
In dit voorbeeld gebruiken gebruikers die tot AD Group1 behoren een tunnel-alle configuratie en gebruikers die tot AD Group2 behoren hebben beperkte toegang tot specifieke hosts. Alle andere gebruikers die niet tot deze groepen behoren kunnen niet echt geauthentiseerd worden.

Stap 1. Configureer AnyConnect met behulp van LDAP-verificatie en stel de wijzigingen in. Een voorbeeld is te vinden in deze handleiding.

Stap 2. Navigeer naar Apparaten > Externe toegang > AnyConnect-beleid bewerken > Geavanceerd > Groepsbeleid.

Stap 3. Maak 3 verschillende groepsbeleidsmaatregelen:

- Group1 met Split Tunneling configuratie ingesteld om **al verkeer via tunnels toe** te **staan.**


Edit Group Policy

Name:* Group1

Description:

IPv4 Split Tunneling: Allow all traffic over tunnel

IPv6 Split Tunneling: Allow all traffic over tunnel

Split Tunnel Network List Type: ● Standard Access List ○ Extended Access List

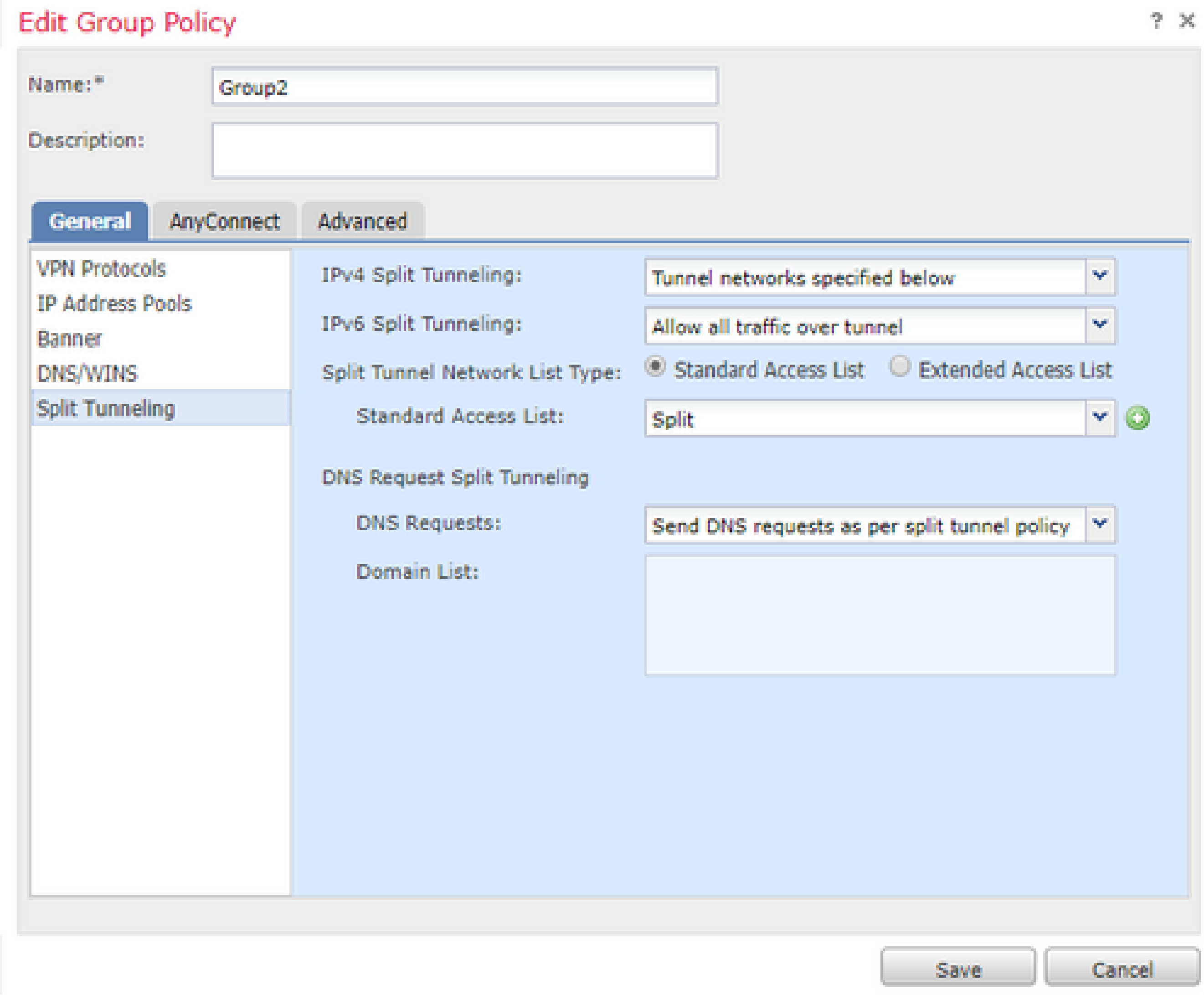
Standard Access List: Split

DNS Request Split Tunneling

DNS Requests: Send DNS requests as per split tunnel policy

Domain List:

- Group2 met Split Tunneling configuratie ingesteld op **Split**.



Edit Group Policy

Name:* Group2

Description:

IPv4 Split Tunneling: Tunnel networks specified below

IPv6 Split Tunneling: Allow all traffic over tunnel

Split Tunnel Network List Type: ● Standard Access List ○ Extended Access List

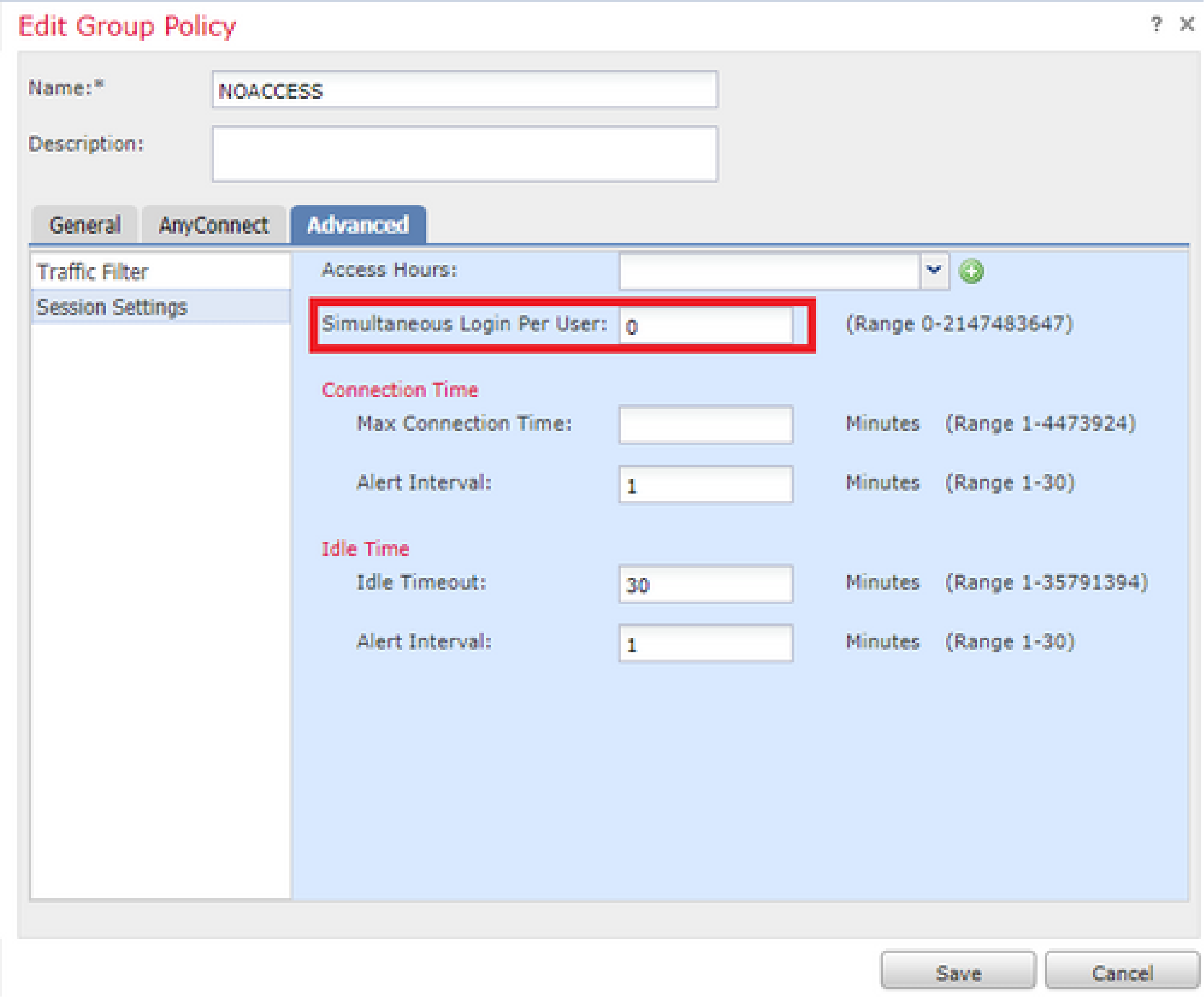
Standard Access List: Split

DNS Request Split Tunneling

DNS Requests: Send DNS requests as per split tunnel policy

Domain List:

- NOACCESS group voor gebruikers die niet tot een van de vorige groepen behoren. Het veld **Meld per gebruiker** wordt ingesteld op 0.



Edit Group Policy

Name:* NOACCESS

Description:

Access Hours:

Simultaneous Login Per User: 0 (Range 0-2147483647)

Connection Time

Max Connection Time: Minutes (Range 1-4473924)

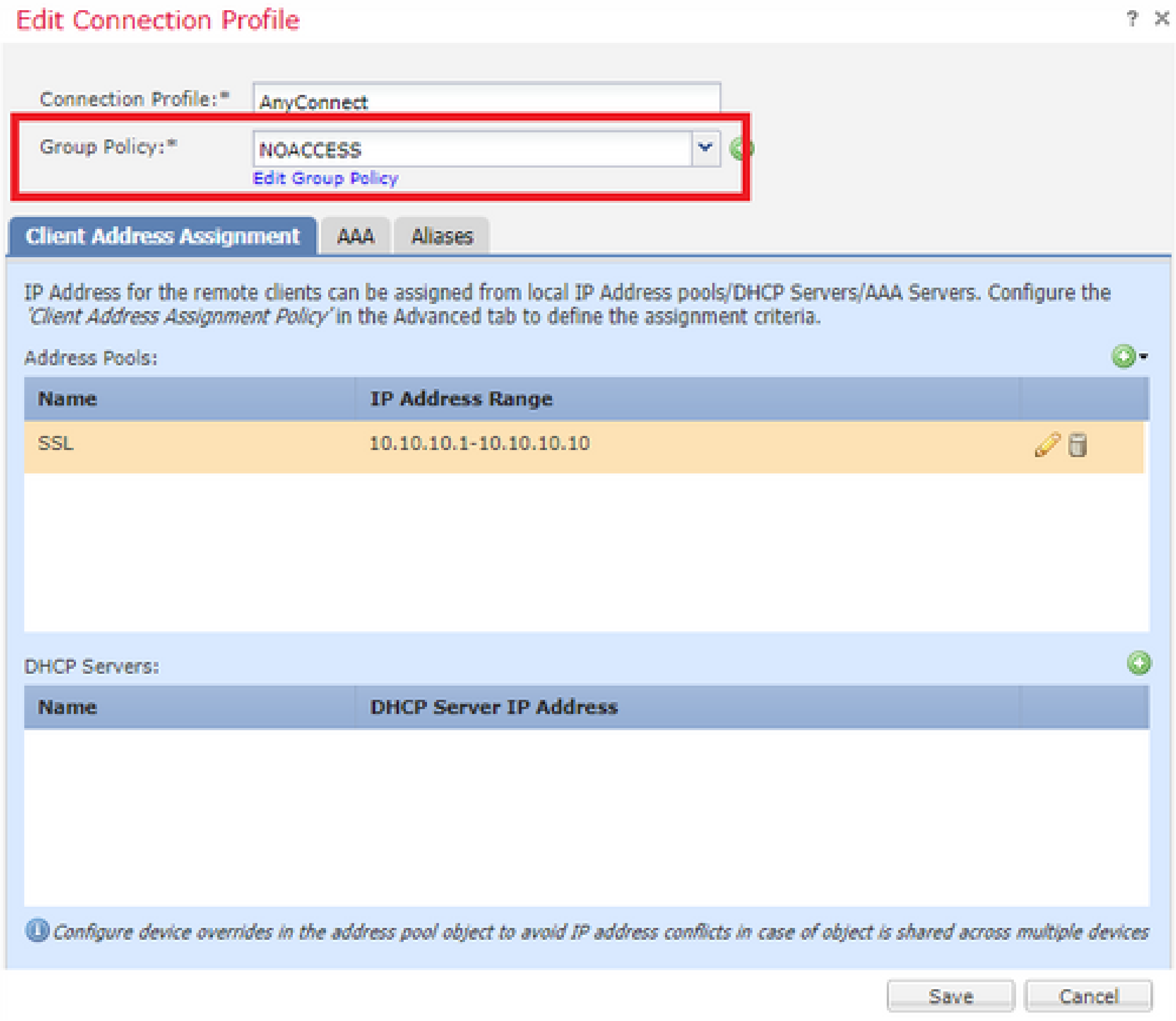
Alert Interval: 1 Minutes (Range 1-30)

Idle Time

Idle Timeout: 30 Minutes (Range 1-35791394)

Alert Interval: 1 Minutes (Range 1-30)

Stap 4. Pas het NOACCESS-groepsbeleid aan het verbindingsprofiel toe.



Edit Connection Profile

Connection Profile:* AnyConnect

Group Policy:* NOACCESS

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
SSL	10.10.10.1-10.10.10.10

DHCP Servers:

Name	DHCP Server IP Address

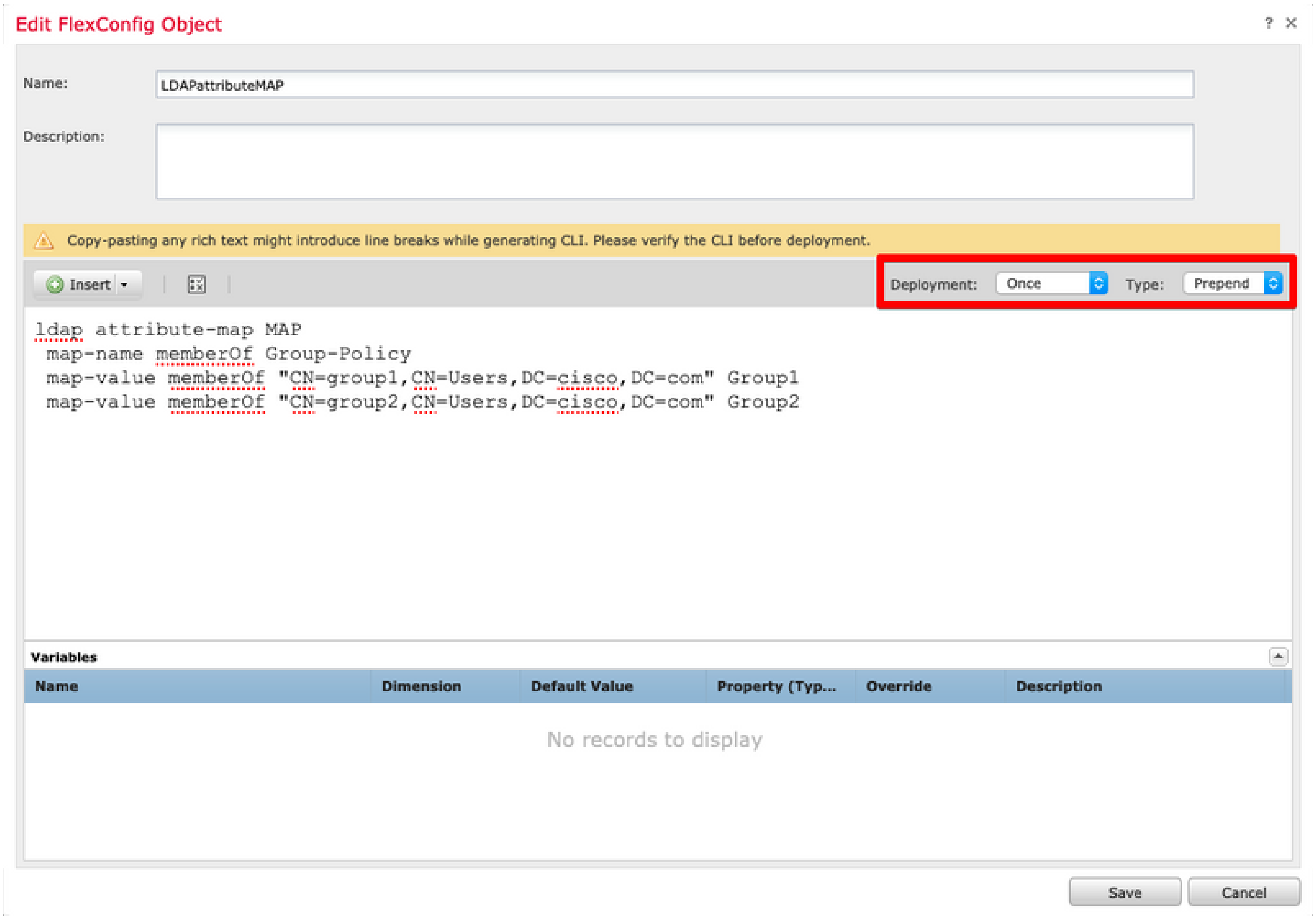
Configure device overrides in the address pool object to avoid IP address conflicts in case of object is shared across multiple devices

Stap 5. Navigeer om te object > Objectbeheer in> FlexConfig > FlexConfig > Add FlexConfig-object.

Stap 6. Voeg de benodigde lidOf-waarden toe die vereist zijn voor de LDAP attribuut-map configuratie. Om de Groep DNA van de server te krijgen, kunt u de opdracht "dsquery samid-group <group-name>" gebruiken.

De implementatie moet als *vroeger* en type als *voorkant* worden ingesteld.

Tip: De namen en waarden van eigenschappen zijn Case-Sensitive. Als de mapping niet goed voorkomt, moet u er zeker van zijn dat de juiste spelling en kapitalisatie is gebruikt in de LDAP-attributenkaart voor zowel de Cisco- als de LDAP-eigenschappen en -waarden.



Name: LDAPattributeMAP

Description:

Copy-pasting any rich text might introduce line breaks while generating CLI. Please verify the CLI before deployment.

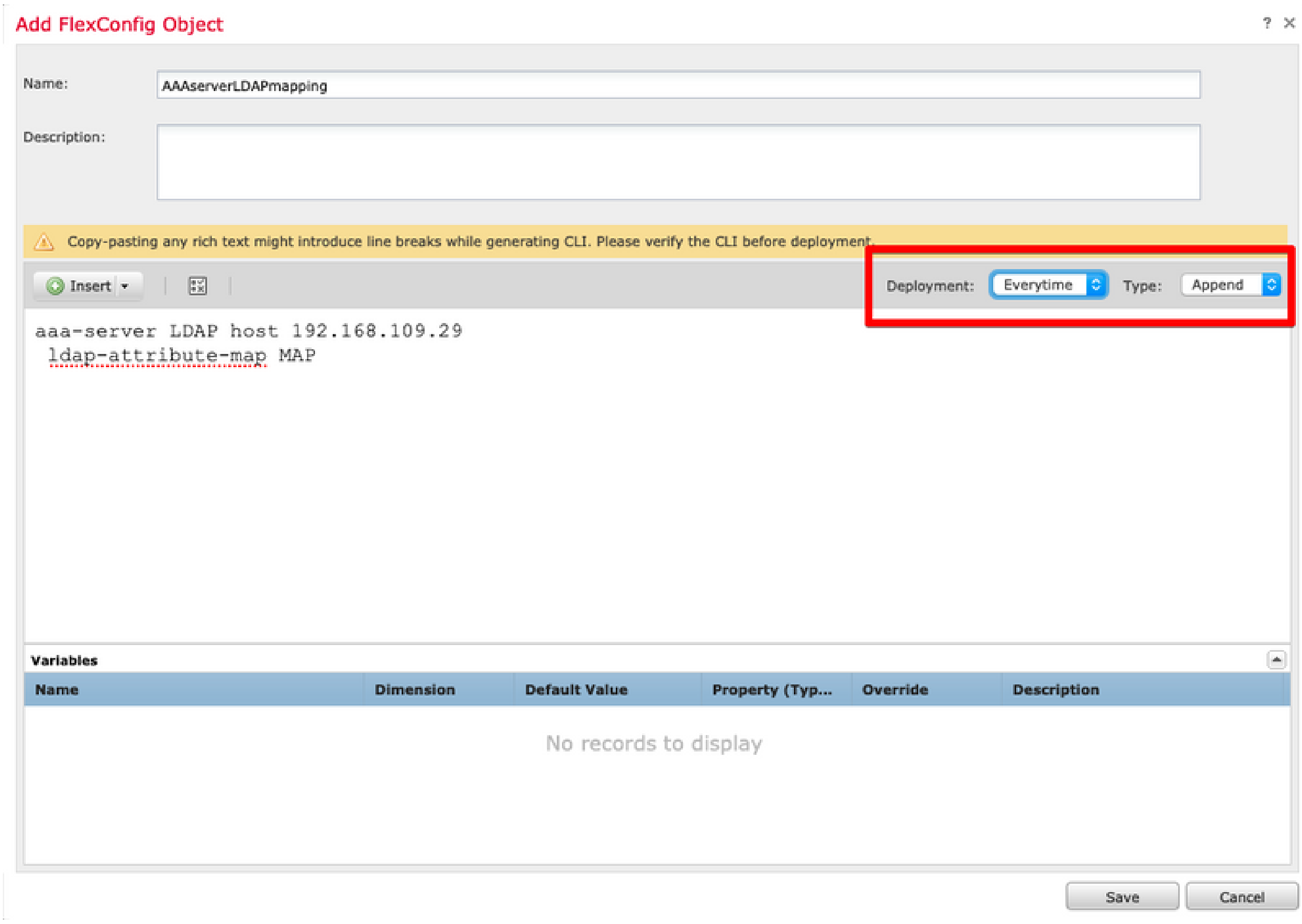
Deployment: Once Type: Prepend

```
ldap attribute-map MAP
 map-name memberOf Group-Policy
 map-value memberOf "CN=group1,CN=Users,DC=cisco,DC=com" Group1
 map-value memberOf "CN=group2,CN=Users,DC=cisco,DC=com" Group2
```

Name	Dimension	Default Value	Property (Typ...	Override	Description

Stap 7. Maak een andere versie FlexConfig Object met de naam AAAserverLDAPmapping. Dit object hecht de attribuut-map aan de configuratie van de aa-server aan.

De implementatiewaarden moeten worden ingesteld als *ALTIJD* en type als *bijlage*.



Name: AAAserverLDAPmapping

Description:

Copy-pasting any rich text might introduce line breaks while generating CLI. Please verify the CLI before deployment

Deployment: Everytime Type: Append

```
aaa-server LDAP host 192.168.109.29
 ldap-attribute-map MAP
```

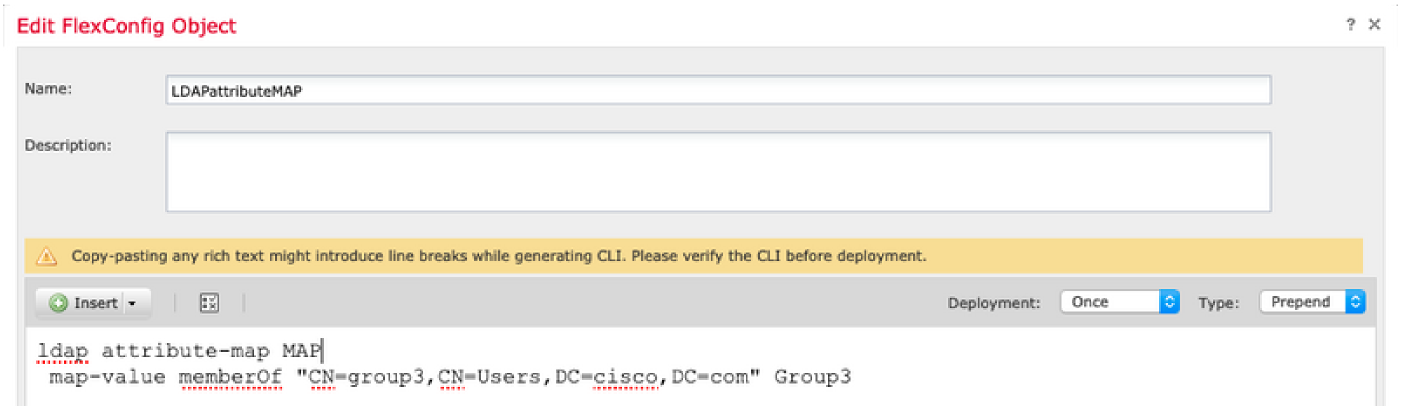
Name	Dimension	Default Value	Property (Typ...	Override	Description

No records to display

Stap 8. Navigeer naar Apparaten > FlexConfig > Bewerken van huidige FlexConfig. Verzeker u ervan dat de volgorde van de objecten FlexConfig in het beleid FlexConfig eerst het object dat wordt gevolgd door het object AAA-server wordt gevormd door de map Map van LFP-kenmerken.

Stap 9. Stel de configuratie op het apparaat in om deze configuratie naar het beheerde apparaat te sturen.

Om een extra waarde aan de LDAP-kaart toe te voegen, wijzigt u het bestaande FlexConfig LDAPAtributeMAP-object alleen om de nieuwe map-waarde op te nemen.



Name: LDAPattributeMAP

Description:

Copy-pasting any rich text might introduce line breaks while generating CLI. Please verify the CLI before deployment.

Deployment: Once Type: Prepend

```
ldap attribute-map MAP
 map-value memberOf "CN=group3,CN=Users,DC=cisco,DC=com" Group3
```

Verifiëren

Sluit aan op de FTD CLISH en geef deze opdrachten uit om ervoor te zorgen dat de gebruikers in de gedefinieerde groepen verbinding kunnen maken.

```
> show vpn-sessiondb anyconnect

Session Type: AnyConnect

Username     : cisco1                 Index        : 25
Assigned IP  : 10.10.10.1             Public IP    : 192.168.109.80
Protocol     : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License      : AnyConnect Premium
Encryption   : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)AES-GCM-256  DTLS-Tunnel: (1)AES256
Hashing      : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)SHA384  DTLS-Tunnel: (1)SHA1
Bytes Tx     : 15820                  Bytes Rx     : 160
Group Policy : Group1                 Tunnel Group : AnyConnect
Login Time   : 16:02:45 UTC Tue Oct 9 2018
Duration     : 0h:00m:38s
Inactivity   : 0h:00m:00s
VLAN Mapping : N/A                    VLAN         : none
Audt Sess ID : 00000000000190005bbcd125
Security Grp : none                   Tunnel Zone  : 0


> show vpn-sessiondb anyconnect

Session Type: AnyConnect

Username     : cisco2                 Index        : 26
Assigned IP  : 11.11.11.1             Public IP    : 192.168.109.80
Protocol     : AnyConnect-Parent SSL-Tunnel DTLS-Tunnel
License      : AnyConnect Premium
Encryption   : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)AES-GCM-256  DTLS-Tunnel: (1)AES256
Hashing      : AnyConnect-Parent: (1)none  SSL-Tunnel: (1)SHA384  DTLS-Tunnel: (1)SHA1
Bytes Tx     : 15820                  Bytes Rx     : 442
Group Policy : Group2                 Tunnel Group : AnyConnect
Login Time   : 16:04:12 UTC Tue Oct 9 2018
Duration     : 0h:00m:14s
Inactivity   : 0h:00m:00s
VLAN Mapping : N/A                    VLAN         : none
Audt Sess ID : 000000000001a0005bbcd17c
Security Grp : none                   Tunnel Zone  : 0
```

Problemen oplossen

Debugs:

U kunt deze debug-opdrachten gebruiken om de LDAP-transactie te controleren.

```
> system support diagnostic-cli
debug ldap 250
debug aaa common 250
```

Dit zijn voorbeelden van succesvolle uitvoer voor elke debug opdracht.

```
firepower# debug ldap 250
debug ldap  enabled at level 250
firepower#
[49] Session Start
[49] New request Session, context 0x00002aaad332f100, reqType = Authentication
[49] Fiber started
[49] Creating LDAP context with uri=ldap://192.168.109.29:389
```

```
[49] Connect to LDAP server: ldap://192.168.109.29:389, status = Successful
[49] supportedLDAPVersion: value = 3
[49] supportedLDAPVersion: value = 2
[49] LDAP server 192.168.109.29 is Active directory
[49] Binding as AdminFTD
[49] Performing Simple authentication for AdminFTD to 192.168.109.29
[49] LDAP Search:
        Base DN = [DC=cisco,DC=com]
        Filter  = [samaccountname=cisco1]
        Scope   = [SUBTREE]
[49] User DN = [CN=cisco1,CN=Users,DC=cisco,DC=com]
[49] Talking to Active Directory server 192.168.109.29
[49] Reading password policy for cisco1, dn:CN=cisco1,CN=Users,DC=cisco,DC=com
[49] Read bad password count 1
[49] Binding as cisco1
[49] Performing Simple authentication for cisco1 to 192.168.109.29
[49] Processing LDAP response for user cisco1
[49] Message (cisco1):
[49] Authentication successful for cisco1 to 192.168.109.29
[49] Retrieved User Attributes:
[49]    objectClass: value = top
[49]    objectClass: value = person
[49]    objectClass: value = organizationalPerson
[49]    objectClass: value = user
[49]    cn: value = cisco1
[49]    givenName: value = cisco1
[49]    distinguishedName: value = CN=cisco1,CN=Users,DC=cisco,DC=com
[49]    instanceType: value = 4
[49]    whenCreated: value = 20181009153032.0Z
[49]    whenChanged: value = 20181009154032.0Z
[49]    displayName: value = cisco1
[49]    uSNCreated: value = 856333
[49]    memberOf: value = CN=group1,CN=Users,DC=cisco,DC=com
[49]            mapped to Group-Policy: value = Group1
[49]            mapped to LDAP-Class: value = Group1
[49]    uSNChanged: value = 856372
[49]    name: value = cisco1
[49]    objectGUID: value = .K.'..3N....Q...
[49]    userAccountControl: value = 66048
[49]    badPwdCount: value = 1
[49]    codePage: value = 0
[49]    countryCode: value = 0
[49]    badPasswordTime: value = 131835752510299209
[49]    lastLogoff: value = 0
[49]    lastLogon: value = 131835733331105504
[49]    pwdLastSet: value = 131835726324409149
[49]    primaryGroupID: value = 513
[49]    objectSid: value = ............E1.E.G..9..@s...
[49]    adminCount: value = 1
[49]    accountExpires: value = 9223372036854775807
[49]    logonCount: value = 0
[49]    sAMAccountName: value = cisco1
[49]    sAMAccountType: value = 805306368
[49]    userPrincipalName: value = cisco1@cisco.com
[49]    objectCategory: value = CN=Person,CN=Schema,CN=Configuration,DC=cisco,DC=com
[49]    dSCorePropagationData: value = 20181009153316.0Z
[49]    dSCorePropagationData: value = 16010101000000.0Z
[49]    lastLogonTimestamp: value = 131835732321783732
[49] Fiber exit Tx=551 bytes Rx=2628 bytes, status=1
[49] Session End

firepower# debug aaa common 250
debug aaa common enabled at level 250
```

```
firepower# AAA API: In aaa_open
AAA session opened: handle = 31
AAA API: In aaa_process_async
aaa_process_async: sending AAA_MSG_PROCESS
AAA task: aaa_process_msg(0x00002b4ad7423b20) received message type 0
[31] AAA FSM: In AAA_StartAAATransaction
[31] AAA FSM: In AAA_InitTransaction

Initiating authentication to primary server (Svr Grp: LDAP-29)
-------------------------------------------------
[31] AAA FSM: In AAA_BindServer
[31] AAA_BindServer: Using server: 192.168.109.29
[31] AAA FSM: In AAA_SendMsg
User: cisco1
Resp:
callback_aaa_task: status = 1, msg =
[31] AAA FSM: In aaa_backend_callback
aaa_backend_callback: Handle = 31, pAcb = 0x00002aaad352bc80
AAA task: aaa_process_msg(0x00002b4ad7423b20) received message type 1
[31] AAA FSM: In AAA_ProcSvrResp

Back End response:
------------------
Authentication Status: 1 (ACCEPT)

[31] AAA FSM: In AAA_NextFunction
AAA_NextFunction: i_fsm_state = IFSM_PRIM_AUTHENTICATE, auth_status = ACCEPT
AAA_NextFunction: authen svr = LDAP-29, author svr = <none>, user pol = Group1, tunn pol =
NOACCESS
AAA_NextFunction: New i_fsm_state = IFSM_USER_GRP_POLICY,
[31] AAA FSM: In AAA_InitTransaction
aaai_policy_name_to_server_id(Group1)
Got server ID 0 for group policy DB

Initiating user group policy lookup (Svr Grp: GROUP_POLICY_DB)
-------------------------------------------------
[31] AAA FSM: In AAA_BindServer
[31] AAA_BindServer: Using server: <Internal Server>
[31] AAA FSM: In AAA_SendMsg
User: Group1
Resp:
grp_policy_ioctl(0x00002b4ad31fd460, 114698, 0x00002b4ad7423430)
grp_policy_ioctl: Looking up Group1
callback_aaa_task: status = 1, msg =
[31] AAA FSM: In aaa_backend_callback
aaa_backend_callback: Handle = 31, pAcb = 0x00002aaad352bc80
AAA task: aaa_process_msg(0x00002b4ad7423b20) received message type 1
[31] AAA FSM: In AAA_ProcSvrResp

Back End response:
------------------
User Group Policy Status: 1 (ACCEPT)

[31] AAA FSM: In AAA_NextFunction
AAA_NextFunction: i_fsm_state = IFSM_USER_GRP_POLICY, auth_status = ACCEPT
AAA_NextFunction: New i_fsm_state = IFSM_TUNN_GRP_POLICY,
[31] AAA FSM: In AAA_InitTransaction
aaai_policy_name_to_server_id(NOACCESS)
Got server ID 0 for group policy DB

Initiating tunnel group policy lookup (Svr Grp: GROUP_POLICY_DB)
-------------------------------------------------
[31] AAA FSM: In AAA_BindServer
[31] AAA_BindServer: Using server: <Internal Server>
```

```
[31] AAA FSM: In AAA_SendMsg
User: NOACCESS
Resp:
grp_policy_ioctl(0x00002b4ad31fd460, 114698, 0x00002b4ad7423430)
grp_policy_ioctl: Looking up NOACCESS
callback_aaa_task: status = 1, msg =
[31] AAA FSM: In aaa_backend_callback
aaa_backend_callback: Handle = 31, pAcb = 0x00002aaad352bc80
AAA task: aaa_process_msg(0x00002b4ad7423b20) received message type 1
[31] AAA FSM: In AAA_ProcSvrResp

Back End response:
------------------
Tunnel Group Policy Status: 1 (ACCEPT)

[31] AAA FSM: In AAA_NextFunction
AAA_NextFunction: i_fsm_state = IFSM_TUNN_GRP_POLICY, auth_status = ACCEPT
dACL processing skipped: no ATTR_FILTER_ID found
AAA_NextFunction: New i_fsm_state = IFSM_DONE,
[31] AAA FSM: In AAA_ProcessFinal
Checking simultaneous login restriction (max allowance=3) for user cisco1
Class attribute created from LDAP-Class attribute
[31] AAA FSM: In AAA_Callback
user attributes:
  1     User-Name(1)      6    "cisco1"
  2     User-Password(2)     13    (hidden)
  3     Group-Policy(4121)      6    "Group1"
  4     AAA-AVP-Table(4243)    1639    "g[06][00][00]$[00][00][00]x[01][00][00][8F][01][00][00]"
  5     DAP class attribute required(20510)      4    1
  6     LDAP-Class(20520)      7    "Group1[00]"

User Access-Lists:
user_acl[0] = NULL
user_acl[1] = NULL
user policy attributes:                              <--- Group-Policy Configuration (Group1)
  1     Filter-Id(11)      8    ""
  2     Session-Timeout(27)      4    0
  3     Idle-Timeout(28)      4    30
  4     Simultaneous-Logins(4098)      4    3
  5     Primary-DNS(4101)      4    IP: 0.0.0.0
  6     Secondary-DNS(4102)      4    IP: 0.0.0.0
  7     Primary-WINS(4103)      4    IP: 0.0.0.0
  8     Secondary-WINS(4104)      4    IP: 0.0.0.0
  9     Tunnelling-Protocol(4107)      4    96
 10     Banner(4111)      0    0x00002aaad49daa38   ** Unresolved Attribute **
 11     Split-Tunnel-Inclusion-List(4123)      8    ""
 12     Default-Domain-Name(4124)      0    0x00002aaad49daa41   ** Unresolved Attribute **
 13     Secondary-Domain-Name-List(4125)      0    0x00002aaad49daa42   ** Unresolved Attribute
**
 14     Split-Tunneling-Policy(4151)      4    0
 15     Group-giaddr(4157)      4    IP: 0.0.0.0
 16     WebVPN SVC Keepalive interval(4203)      4    20
 17     WebVPN SVC Client DPD period(4204)      4    30
 18     WebVPN SVC Gateway DPD period(4205)      4    30
 19     WebVPN SVC Rekey period(4206)      4    0
 20     WebVPN SVC Rekey method(4207)      4    0
 21     WebVPN SVC Compression(4208)      4    0
 22     WebVPN SVC Firewall Rule(4211)     17    "public#,private#,"
 23     WebVPN SVC DTLS Compression(4213)      4    0
 24     WebVPN SVC DTLS enable(4219)      4    1
 25     WebVPN SVC MTU(4221)      4    1406
 26     CVC-Modules(4223)      4    "dart"
 27     CVC-Profile(4224)     11    "FTD03#user,"
 28     CVC-Ask(4227)      4    2
 29     CVC-Ask-Timeout(4228)      4    0
 30     VLAN ID(4236)      4    0
 31     WebVPN Idle timeout alert interval(4244)      4    1
 32     WebVPN Session timeout alert interval(4245)      4    1
 33     List of address pools to assign addresses from(4313)      3    "SSL"
 34     SVC ignore DF bit(4326)      4    0
 35     Configure the behaviour of DNS queries by the client when Split tunneling is
enabled(4328)      4    0
 36     Primary-IPv6-DNS(4329)     16    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  37
Secondary-IPv6-DNS(4330)     16    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  38
Client Bypass Protocol(4331)      4    0
 39     IPv6-Split-Tunneling-Policy(4332)      4    0

User Policy Access-Lists:
user_acl[0] = NULL
user_acl[1] = NULL
tunnel policy attributes:                                    <--- Default Group-Policy
attributes (NOACCESS)
  1     Filter-Id(11)      8    ""
  2     Session-Timeout(27)      4    0
  3     Idle-Timeout(28)      4    30
  4     Simultaneous-Logins(4098)      4    0
  5     Primary-DNS(4101)      4    IP: 0.0.0.0
  6     Secondary-DNS(4102)      4    IP: 0.0.0.0
  7     Primary-WINS(4103)      4    IP: 0.0.0.0
  8     Secondary-WINS(4104)      4    IP: 0.0.0.0
  9     Tunnelling-Protocol(4107)      4    96
 10     Banner(4111)      0    0x00002aaad2580328   ** Unresolved Attribute **
 11     Group-Policy(4121)      8    "NOACCESS"
 12     Split-Tunnel-Inclusion-List(4123)      8    ""
 13     Default-Domain-Name(4124)      0    0x00002aaad2580331   ** Unresolved Attribute **
 14     Secondary-Domain-Name-List(4125)      0    0x00002aaad2580332   ** Unresolved Attribute
**
 15     Split-Tunneling-Policy(4151)      4    0
 16     Group-giaddr(4157)      4    IP: 0.0.0.0
 17     WebVPN SVC Keepalive interval(4203)      4    20
 18     WebVPN SVC Client DPD period(4204)      4    30
 19     WebVPN SVC Gateway DPD period(4205)      4    30
 20     WebVPN SVC Rekey period(4206)      4    0
 21     WebVPN SVC Rekey method(4207)      4    0
 22     WebVPN SVC Compression(4208)      4    0
 23     WebVPN SVC Firewall Rule(4211)     17    "public#,private#,"
 24     WebVPN SVC DTLS Compression(4213)      4    0
 25     WebVPN SVC DTLS enable(4219)      4    1
 26     WebVPN SVC MTU(4221)      4    1406
 27     CVC-Modules(4223)      4    "dart"
 28     CVC-Profile(4224)     11    "FTD03#user,"
 29     CVC-Ask(4227)      4    2
 30     CVC-Ask-Timeout(4228)      4    0
 31     VLAN ID(4236)      4    0
 32     WebVPN Idle timeout alert interval(4244)      4    1
 33     WebVPN Session timeout alert interval(4245)      4    1
 34     SVC ignore DF bit(4326)      4    0
 35     Configure the behaviour of DNS queries by the client when Split tunneling is
enabled(4328)      4    0
 36     Primary-IPv6-DNS(4329)     16    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  37
Secondary-IPv6-DNS(4330)     16    00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00  38
Client Bypass Protocol(4331)      4    0
 39     IPv6-Split-Tunneling-Policy(4332)      4    0

Tunnel Policy Access-Lists:
user_acl[0] = NULL
user_acl[1] = NULL
```

```
Auth Status = ACCEPT
aaai_internal_cb: handle is 31, pAcb is 0x00002aaad352bc80, pAcb->tq.tqh_first is
0x0000000000000000
AAA API: In aaa_close
Checking simultaneous login restriction (max allowance=3) for user cisco1
AAA task: aaa_process_msg(0x00002b4ad7423b20) received message type 2
In aaai_close_session (31)
AAA API: In aaa_send_acct_start
```