Configurazione del mapping LDAP di AnyConnect su Firepower Threat Defense (FTD)

Sommario

Introduzione

Questo documento offre un esempio di configurazione del mapping LDAP (Lightweight Directory Access Protocol) per gli utenti AnyConnect su Firepower Threat Defense (FTD) con un criterio FlexConfig di Firepower Management Center (FMC). Questa configurazione viene utilizzata per consentire a utenti specifici appartenenti a un gruppo di Active Directory (AD) di stabilire una connessione VPN (Virtual Private Network). Gli utenti di diversi gruppi AD non definiti nella mappa non potranno connettersi con lo stesso profilo.

Prerequisiti

Requisiti

Cisco raccomanda la conoscenza dei seguenti argomenti:

- Configurazione dell'area di autenticazione AD in FMC
- Windows Active Directory
- Configurazione AnyConnect (SSLVPN) su FMC
- Conoscenze base degli oggetti FlexConfig in FMC

Componenti usati

- FirePower Manager Center (FMC) versione 6.2.3 e 6.5.0
- FirePower Threat Defense (FTD) versione 6.2.3 e 6.5.0
- Windows Server con Active Directory

Configurazione

Configurazione su FTD

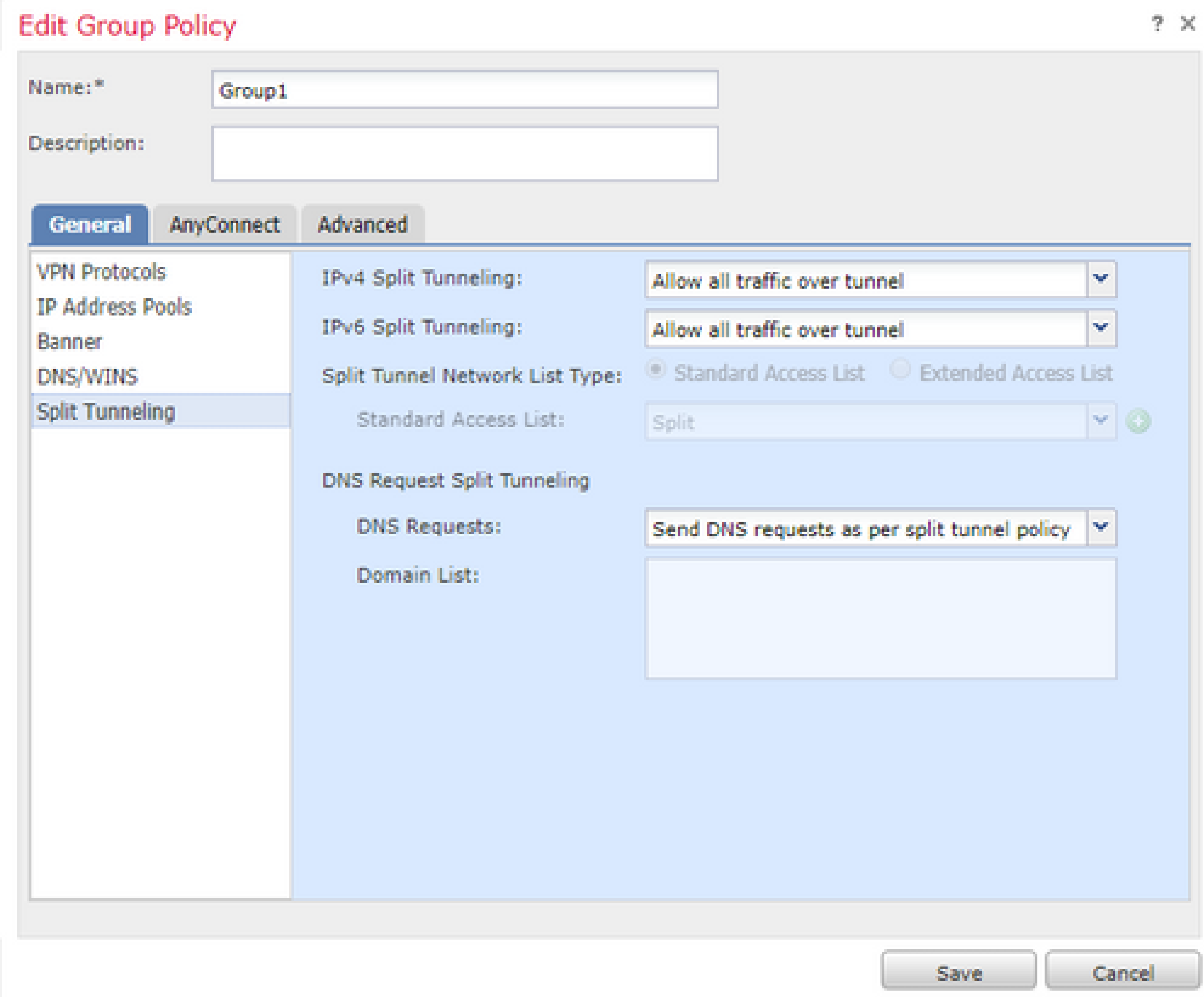
In questo esempio, gli utenti che appartengono al gruppo AD1 utilizzano una configurazione tunnel-all e gli utenti che appartengono al gruppo AD2 dispongono di accesso limitato a host specifici. Tutti gli altri utenti che non appartengono a questi gruppi non possono essere autenticati.

Passaggio 1. Configurare AnyConnect utilizzando l'autenticazione LDAP e distribuire le modifiche. Un esempio è disponibile in questa guida.

Passaggio 2. Selezionare Dispositivi > Accesso remoto > Modifica criterio AnyConnect > Avanzate > Criteri di gruppo.

Passaggio 3. Creare 3 criteri di gruppo diversi:

- Gruppo 1 con configurazione Tunneling ripartito impostata su **Consenti tutto il traffico sul tunnel.**



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

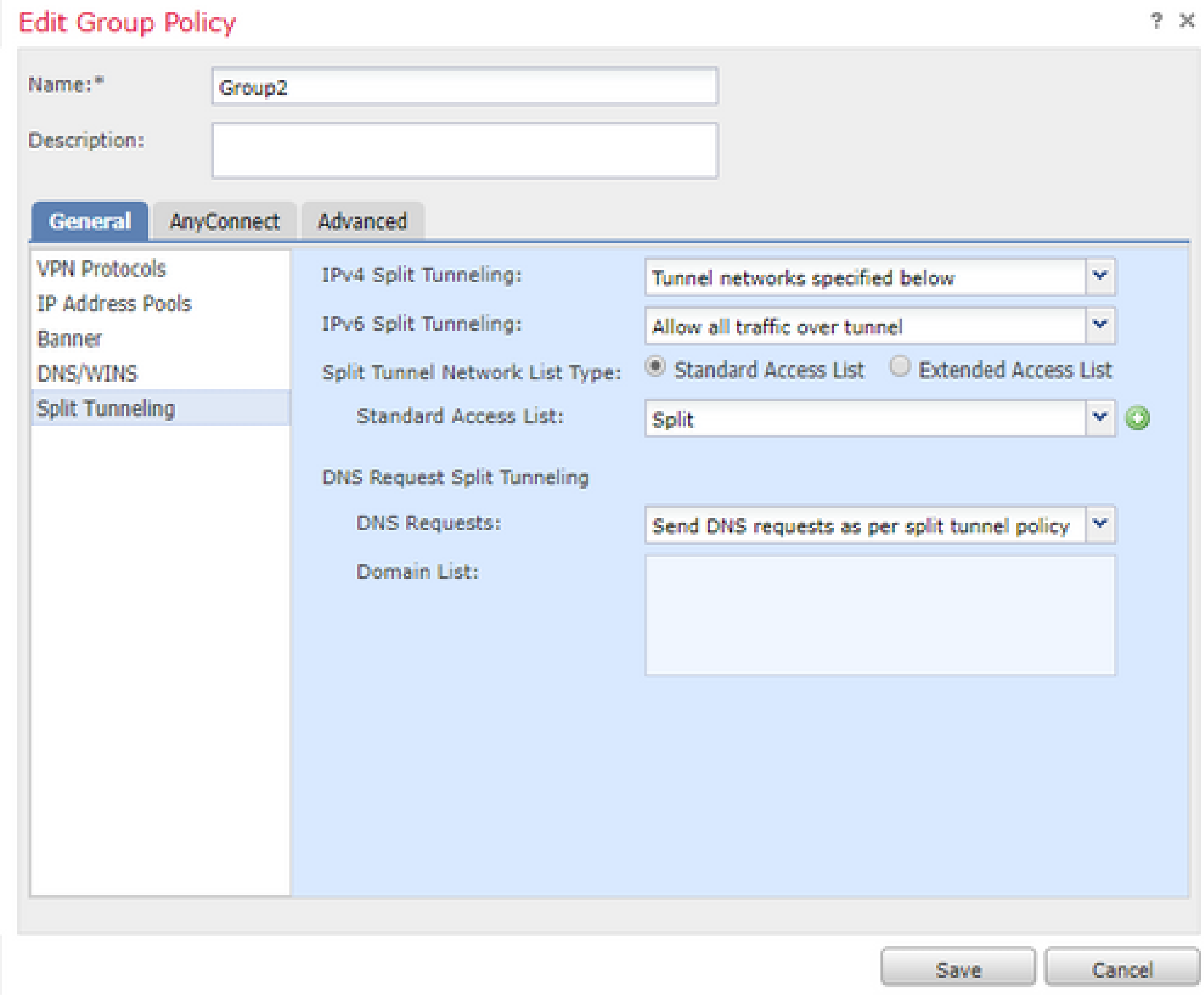
Standard Access List: Split

DNS Request Split Tunneling

DNS Requests: Send DNS requests as per split tunnel policy

Domain List:

- Group2 con la configurazione del tunneling suddiviso impostata su **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

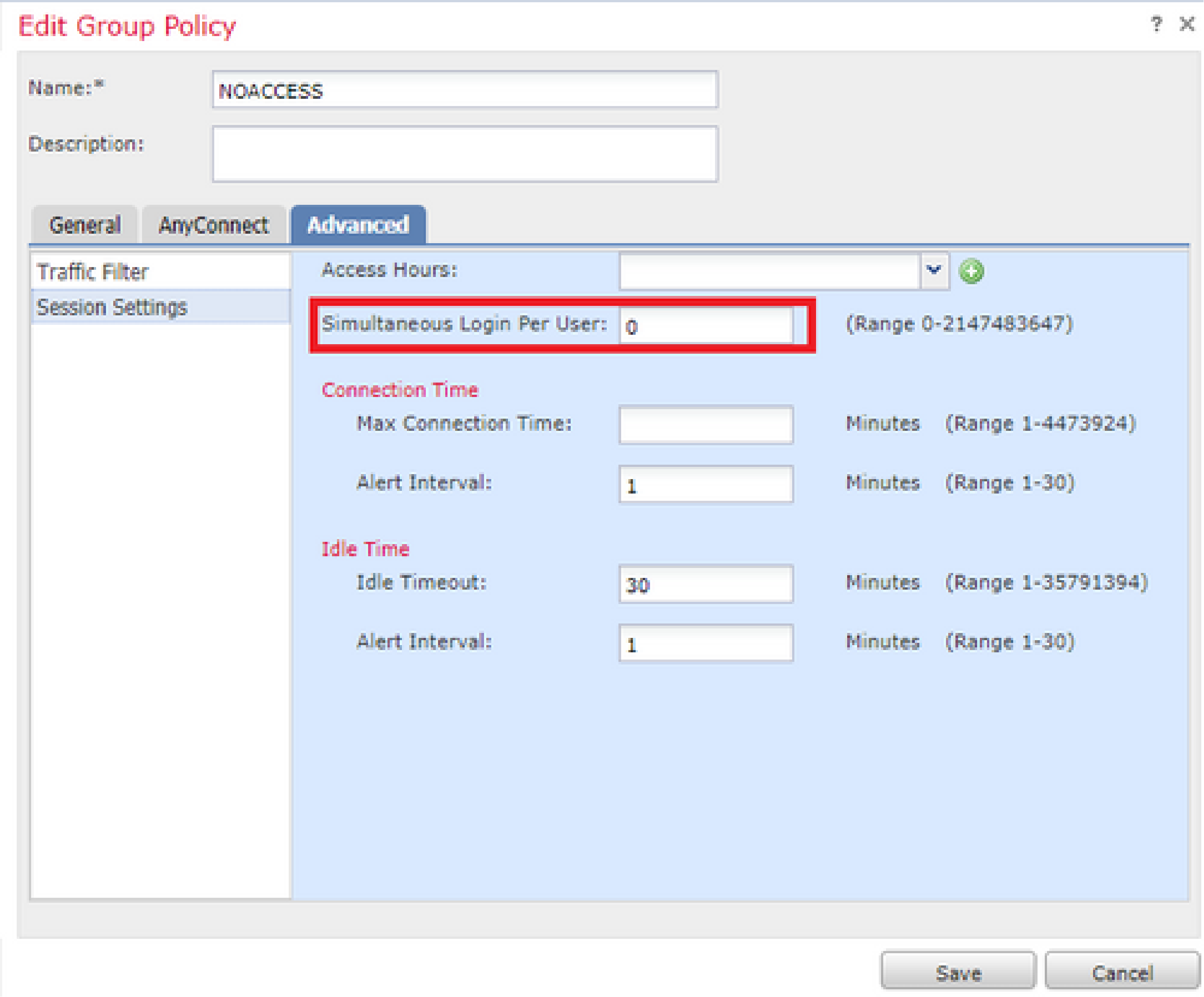
Standard Access List: Split

DNS Request Split Tunneling

DNS Requests: Send DNS requests as per split tunnel policy

Domain List:

- Gruppo NOACCESS per utenti che non appartengono a nessuno dei gruppi precedenti. Il campo **Accesso simultaneo per utente** deve essere impostato su 0.



Name:* NOACCESS

Description:

Access Hours:

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

Connection Time

Max Connection Time: Minutes (Range 1-4473924)

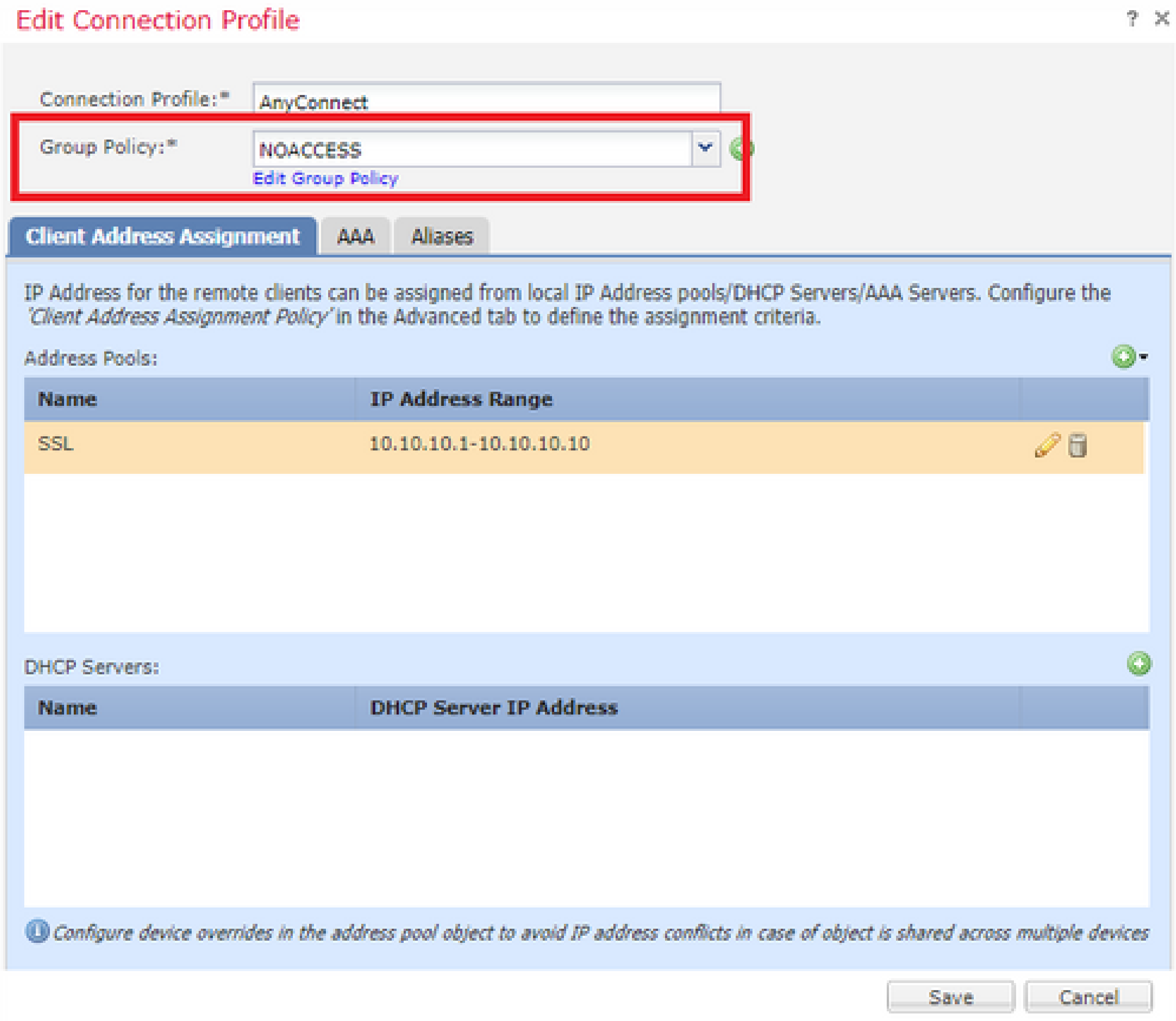
Alert Interval: 1 Minutes (Range 1-30)

Idle Time

Idle Timeout: 30 Minutes (Range 1-35791394)

Alert Interval: 1 Minutes (Range 1-30)

Passaggio 4. Assegnare il criterio di gruppo NOACCESS al profilo di connessione.


Edit Connection Profile

Connection Profile:* AnyConnect

Group Policy:* NOACCESS

Edit Group Policy

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

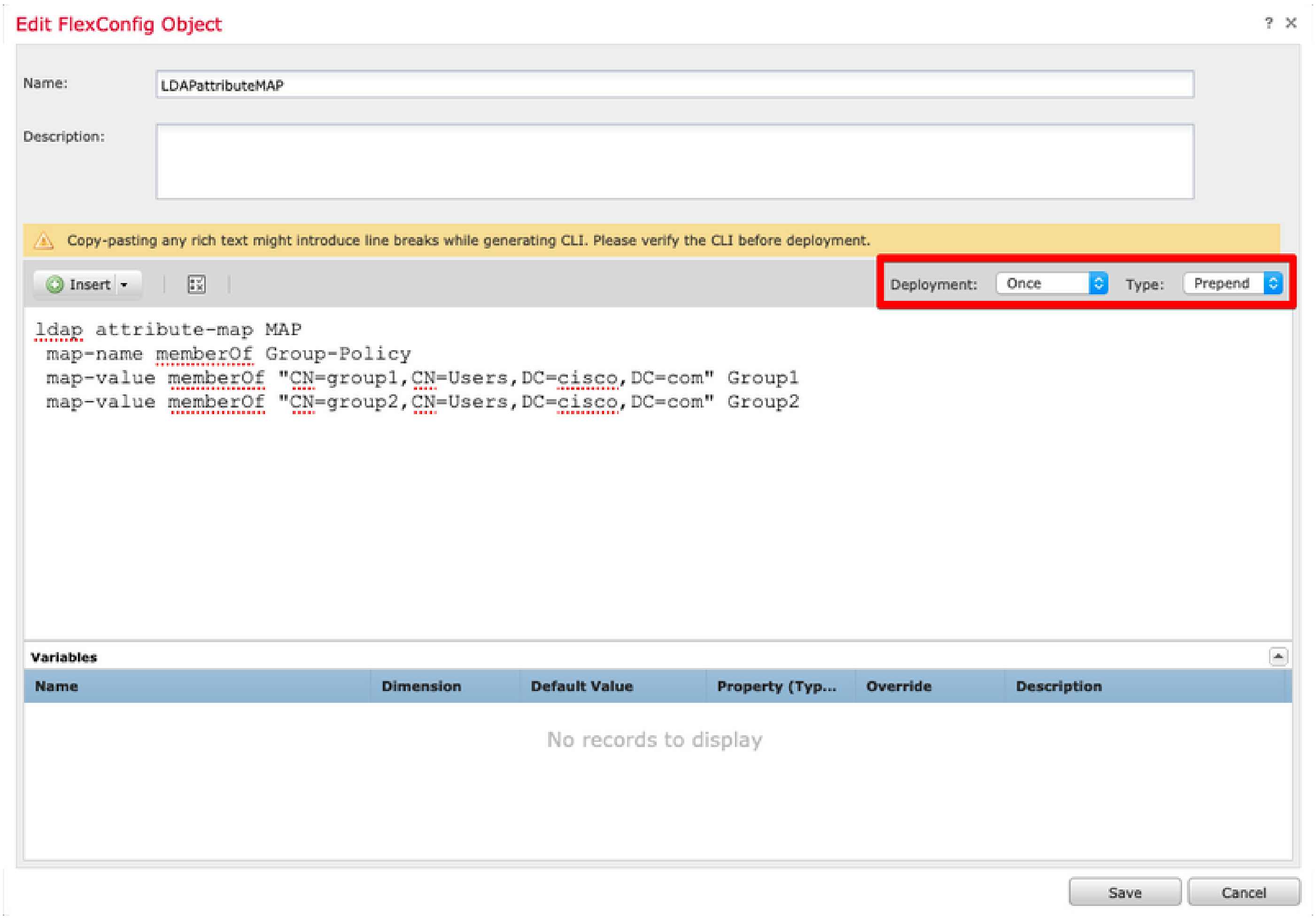
Configure device overrides in the address pool object to avoid IP address conflicts in case of object is shared across multiple devices

Passaggio 5. Passare a Oggetto > Gestione oggetti t> FlexConfig > Oggetto FlexConfig > Aggiungi oggetto FlexConfig.

Passaggio 6. Aggiungere i valori memberOf necessari per la configurazione della mappa degli attributi LDAP. Per ottenere il DN del gruppo dal server, è possibile utilizzare il comando "dsquery samid -group <nome-gruppo>".

La distribuzione deve essere impostata su *Once* e Type su *Prepend*.

Suggerimento: Per i nomi e i valori degli attributi viene fatta distinzione tra maiuscole e minuscole. Se il mapping non viene eseguito correttamente, assicurarsi che nella mappa degli attributi LDAP sia stata utilizzata l'ortografia corretta e la combinazione di maiuscole e minuscole per i nomi e i valori degli attributi Cisco e LDAP.



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
```

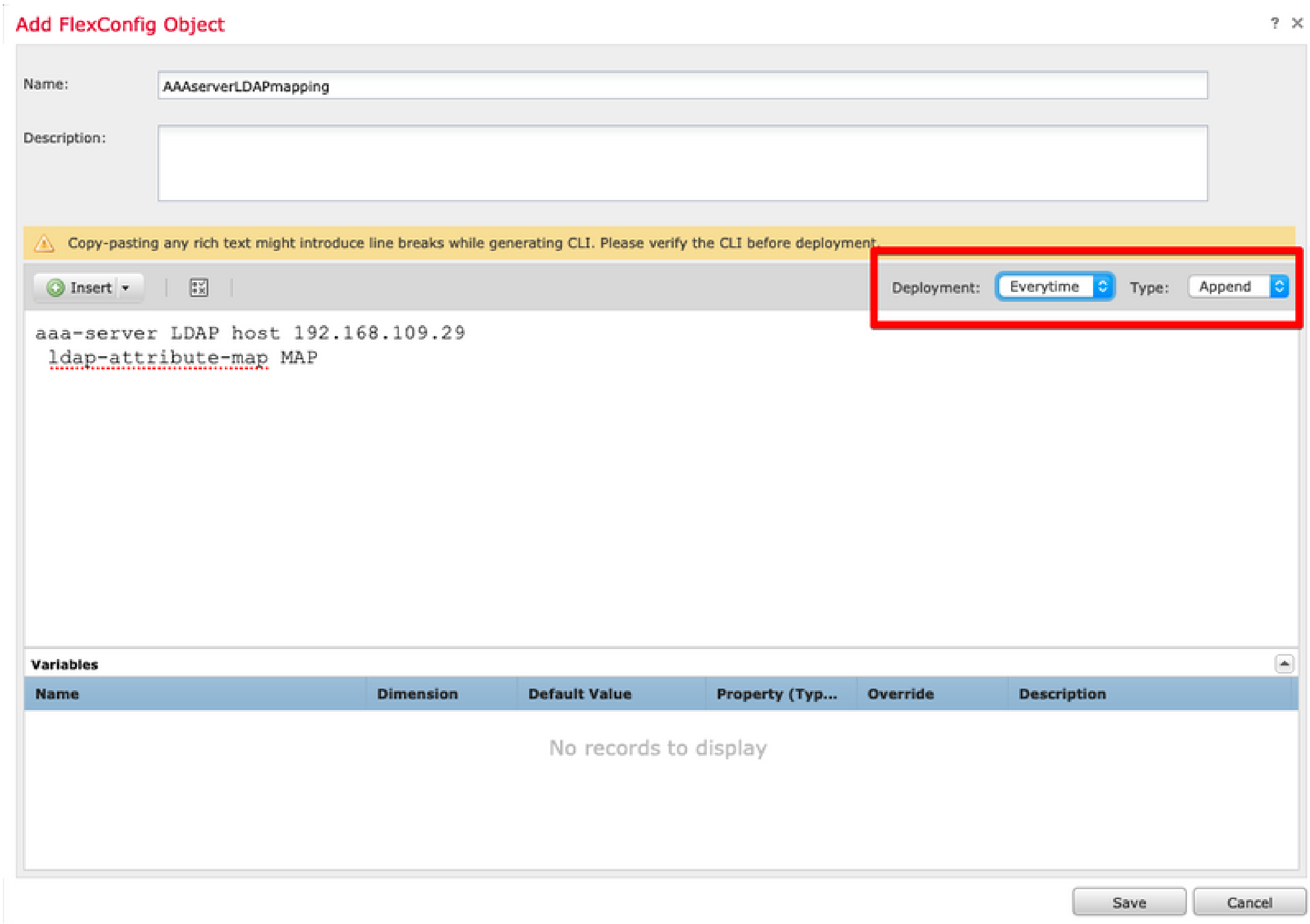
Variables

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

No records to display

Passaggio 7. Creare un altro Oggetto FlexConfig denominato AAAserverLDAPmapping. Questo oggetto associa il mapping degli attributi alla configurazione del server aaa.

I valori di Deployment devono essere impostati su *Everytime* (Ogni volta) e Type (Tipo) su *Append* (Aggiungi).


Add FlexConfig Object
? ×

Name: AAAserverLDAPmapping

Description:

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

Deployment: Everytime

Type: Append

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

Variables

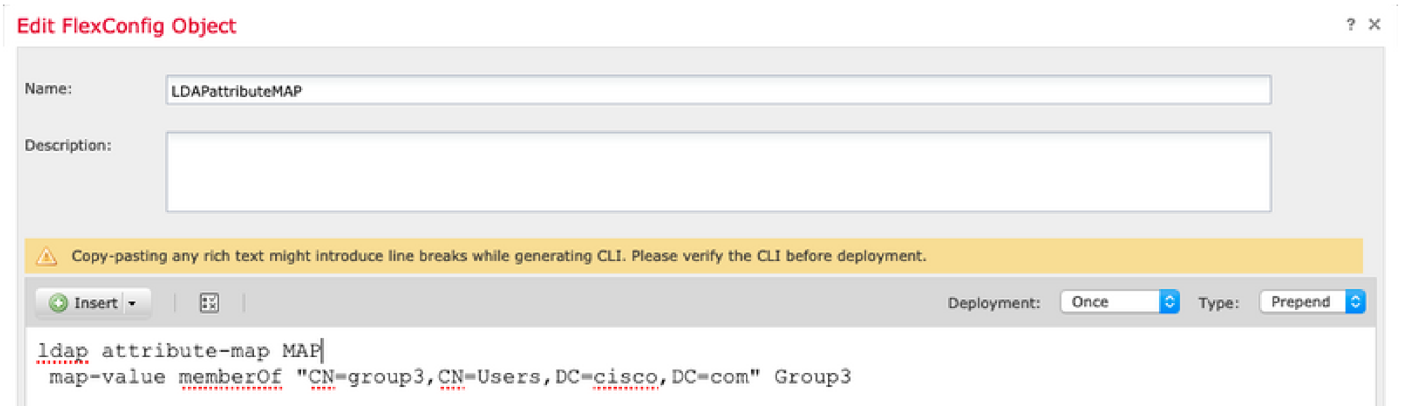
Name	Dimension	Default Value	Property (Typ...	Override	Description

No records to display

Passaggio 8. Passare a Dispositivi > FlexConfig > Modifica FlexConfig corrente. Assicurarsi che l'ordine degli oggetti FlexConfig nel criterio FlexConfig sia innanzitutto l'oggetto mappa attributi LDAP FlexConfig seguito dall'oggetto server AAA.

Passaggio 9. Distribuire la configurazione nel dispositivo per inviarla al dispositivo gestito.

Per aggiungere una voce supplementare nella mappa LDAP, modificare l'oggetto FlexConfig LDAPAtributeMAP esistente in modo da includere SOLO il nuovo valore della mappa.


Edit FlexConfig Object
? ×

Name: LDAPattributeMAP

Description:

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

Deployment: Once

Type: Prepend

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

Verifica

Connettersi al FTD CLISH ed eseguire questi comandi per assicurarsi che gli utenti sui gruppi definiti siano in grado di connettersi.

```
> 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
```

Risoluzione dei problemi

Debug:

Per controllare la transazione LDAP, è possibile utilizzare questi comandi di debug.

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

Di seguito vengono riportati alcuni esempi di output corretto per ciascun comando debug.

```
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
```