配置Duo與Active Directory和ISE的整合,以便在 Anyconnect/遠端訪問VPN客戶端上進行雙因素身 份驗證

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簡介

本文檔介紹與AD和ISE的Duo Push整合,作為連線到ASA的AnyConnect客戶端的雙因素身份驗證 。

必要條件

需求

思科建議您瞭解以下主題:

- ・ ASA上的RA VPN配置
- ASA上的RADIUS配置
- ISE
- Active Directory
- Duo應用程式

本文中的資訊係根據以下軟體和硬體版本:

- Microsoft 2016伺服器
- ASA 9.14(3)18
- ISE伺服器3.0
- Duo伺服器
- Duo Authentication Proxy Manager

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除(預設))的組態來啟動。如果您的網路運作中,請確保您瞭解任何指令可能造成的影響。

背景資訊

本文檔介紹如何配置與Active Directory(AD)和Cisco Identity Service Engine(ISE)的Duo Push整合 ,作為連線到思科自適應安全裝置(ASA)的AnyConnect客戶端的雙因素身份驗證。

網路圖表和案例



通訊過程

https://duo.com/docs/ciscoise-radius

- 1. 對思科ISE發起的主要身份驗證
- 2. Cisco ASA向Duo Authentication Proxy傳送身份驗證請求
- 3. 主身份驗證使用Active Directory或RADIUS
- 4. Duo Authentication Proxy連線建立到Duo Security over TCP埠443
- 5. 通過Duo Security的服務進行輔助身份驗證
- 6. Duo身份驗證代理收到身份驗證響應

7. 已授予思科ISE訪問許可權

使用者帳戶:

- Active Directory管理員:此帳戶用作目錄帳戶,以允許Duo Auth Proxy繫結到Active Directory伺服器以進行主身份驗證。
- Active Directory測試使用者
- Duo測試使用者進行輔助身份驗證

Active Directory配置

Windows伺服器預配置了Active Directory域服務。

◆ 註意:如果RADIUS Duo Auth Proxy Manager在同一Active Directory主機上運行,則必須解除安裝/刪除網路策略伺服器(NPS)角色;如果兩個RADIUS服務都運行,則它們可能衝突並影響效能。

要在遠端訪問VPN使用者上實現身份驗證和使用者身份的AD配置,需要幾個值。

在ASA和Duo Auth Proxy伺服器上完成配置之前,必須在Microsoft伺服器上建立或收集所有這些詳 細資訊。

主要值包括:

- 域名。這是伺服器的域名。在本配置指南中,agarciam.cisco是域名。
- 伺服器IP/FQDN地址。用於訪問Microsoft伺服器的IP地址或FQDN。如果使用FQDN,則必須在ASA和Duo Auth Proxy中配置DNS伺服器以解析FQDN。

在本配置指南中,此值為agarciam.cisco(解析為10.28.17.107)。

- 伺服器埠。LDAP服務使用的埠。預設情況下,LDAP和STARTTLS將TCP埠389用於 LDAP,而LDAP over SSL(LDAPS)使用TCP埠636。
- 根CA。如果使用LDAPS或STARTTLS,則需要使用根CA來對LDAPS使用的SSL證書進行簽 名。
- 目錄使用者名稱和密碼。這是Duo Auth Proxy伺服器用於繫結到LDAP伺服器並對使用者進行 驗證和搜尋使用者與群組的帳戶。
- 基本和群組可分辨名稱(DN)。基礎DN是Duo Auth Proxy的出發點,並通知Active Directory開始搜尋和驗證使用者。

在本配置指南中,根域agarciam.cisco用作基礎DN,組DN為Duo-USERS。

1.要新增新的Duo使用者,請在Windows Server上導航到左下角的Windows圖示,然後按一下 Windows管理工具,如下圖所示。



2.在「Windows管理工具」視窗中,導航至Active Directory使用者和電腦。

在Active Directory使用者和電腦面板上,展開域選項並導航到Users資料夾。

在此配置示例中,Duo-USERS用作輔助身份驗證的目標組。

→ - ↑ 墻 > Cor	trol Panel > System and Security > Administrat	tive Tools			Active Directory Users and Comp	outers		- 0		×
🖈 Quick access	Name	Date modified 7/16/2016 6:23 AM	Type File folder	Size	File Action View Help	1 @ 🕞 🛛 🗊 🗏 🔌 🛍 '	r 🛛 🔌			
Desktop 🖈	Active Directory Administrative Center	7/16/2016 6:19 AM	Shortcut	2 KB	Active Directory Users and Com	Name Type	Description			^
🕹 Downloads 🛛 🖈	Active Directory Domains and Trusts	7/16/2016 6:20 AM	Shortcut	2 KB	> Saved Queries	& Administrator User	Built-in account for ad			
🗎 Documents 🛛 🖈	TActive Disastory Medule fas Windows Po	7/16/2016 6:19 AM	Shortcut	2 KB	Builtin	Sagarciam User				
E Pictures 🖈	Active Directory Sites and Services	7/16/2016 6:19 AM	Shortcut	2 KB	> Computers	alanad User				
log	Retive Directory Users and Computers	7/16/2016 6:20 AM	Shortcut	2 KB	> 🗐 Domain Controllers	Salanduo User	Mamhan in this arous a			
System32	ADSI Edit	7/16/2016 6:19 AM	Shortcut	2 KB	> ForeignSecurityPrincipal:	R Cert Publish_ Security Group.	Members of this group			
	Certification Authority	7/16/2016 6:19 AM	Shortcut	2 KB	> Managed Service Accour	Cloneable D Security Group.	Members of this group t			
This PC	Component Services	7/16/2016 6:18 AM	Shortcut	2 KB	Osers	R DefaultAcco User	A user account manage			
Desktop	Tomputer Management	7/16/2016 6:18 AM	Shortcut	2 KB		B Denied ROD. Security Group.	Members in this group c			
Documents	💕 Connection Manager Administration Kit	7/16/2016 6:19 AM	Shortcut	2 KB		BonsAdmins Security Group	DNS Administrators Gro			
Downloads	Defragment and Optimize Drives	7/16/2016 6:18 AM	Shortcut	2 KB		BonsUpdateP Security Group	DNS clients who are permitted to	perform dynamic	updates o	on b
Downloads on Mac	📜 Disk Cleanup	7/16/2016 6:19 AM	Shortcut	2 KB		Bomain Ad Security Group	Designated administrato			
h Music	📩 DNS	7/16/2016 6:19 AM	Shortcut	2 KB		Domain Co Security Group.	All workstations and ser			
ar music	1 Event Viewer	7/16/2016 6:18 AM	Shortcut	2 KB		Bomain Con Security Group.	All domain controllers I			
Pictures	K Group Policy Management	7/16/2016 6:19 AM	Shortcut	2 KB		Domain Users Scurity Group.	All domain users			
Videos	Sinternet Information Services (IIS) Manager	7/16/2016 6:19 AM	Shortcut	2 KB		DUO-USERS Sejurity Group.				
Local Disk (C:)	👧 iSCSI Initiator	7/16/2016 6:18 AM	Shortcut	2 KB		duo2 Jser				
n DVD Drive (D:) SSS_3	here a country Policy	7/16/2016 6:19 AM	Shortcut	2 KB		Enterprise A Security Group	Designated administrato			
A Maharada	Microsoft Azure Services	7/16/2016 6:19 AM	Shortcut	2 KB		Enterprise K Security Group	Members of this group			
Pretwork	DOBC Data Sources (32-bit)	7/16/2016 6:18 AM	Shortcut	2 KB	< >	REnterprise R., Security Group.,	Members of this group		2226	Y
	DOBC Data Sources (64-bit)	7/16/2016 6:18 AM	Shortcut	2 KB						

3.按一下右鍵Users資料夾,然後選擇New > User,如下圖所示。

Active Directory Users and Comp	uters			-	×
File Action View Help					
수 🔿 🙋 🚾 🖌 🛅	0 🔒 🛛 🖬	1 🙁 🐮 🗊	" 🗾 🖗		
Active Directory Users and Com Saved Queries Saved Queries Builtin Builtin Computers Domain Controllers Signature ForeignSecurityPrincipals Managed Service Accour Users Delegate Control	Name Administrator agarciam alanad alanduo Allowed RO Cert Publish Coneable D rol	Type User User User Security Group Security Group Security Group User	Description Built-in account for ad Members in this group c Members of this group Members of this group t A user account manage		^
Find New All Tasks	D	Security Group Members in this Computer Contact Group InetOrgPerson msDS-KeyCredential msDS-ResourcePropertyList	Members in this group c		
View Refresh Export List	>		tial ropertyList		
Properties		msDS-ShadowPri	ncipalContainer		
< Help	🕰 Enterprise 🙉 Enterprise	msImaging-PSPs MSMQ Queue Ali Printer	as .		~
Create a new object		User +			

4.在「新對象 — 使用者」視窗中,指定此新使用者的身份屬性,然後按一下下一步,如下圖所示。

	~	
Create in: agarciam.cisco/Users		0
First name: duovpn Initials:		30
Last name:		
Full name: duovpn		s i
		S I
duovpn @agarciam.cisco v		5 I 20
User logon name (pre-Windows 2000):		s i mi
AGARCIAM\ duovpn		nt
		e
		sta
< Back Next > Cancel		air air

5.確認密碼,並在驗證使用者資訊後按一下Next,然後按一下Finish。

New Object - User	×
Create in: agarciam.cisco/Users	0
Password:	30
User must change password at next logon	s
Password never expires	s cc s
	n nt
< Back Next > Car	ncel si

6.將新使用者分配給特定組,按一下右鍵該使用者並選擇「新增到組」,如下圖所示。

Active Directory Users and Com	puters			-	×
File Action View Help					
♦ ♦ 2 📰 4 🖬 🗙 🛙	0 🕒 🔒 🖬	1 🗏 🐮 🖬 🎙	' 🗾 🐍		
Active Directory Users and Com Saved Queries Saved Queries Builtin Computers Solution ForeignSecurityPrincipal: Managed Service Accour Users	Name Administrator agarciam alanad alanduo Allowed RO Cert Publish Cert Publish Cloneable D DefaultAcco Denied ROD DnsAdmins DnsUpdateP Domain Ad Domain Co Domain Co Domain Gue Domain Gue Domain Gue Domain Users duo2 DUO-USERS	Type User User User Security Group Security Group	Description Built-in account for ad Members in this group c Members of this group Members of this group t A user account manage Members in this group c DNS Administrators Gro DNS clients who are per Designated administrato All workstations and ser All domain controllers i All domain guests All domain users		*
< >	Lenterprise	Copy Add to a group	d administrato		~
Allows you to add the selected object	ts to a group yo	Disable Account	or this group		

7.在「選擇組」面板上,鍵入所需組的名稱,然後按一下檢查名稱。

然後,選擇符合條件的名稱,然後按一下Ok。

Select Groups	× _
Select this object type:	
Groups or Built-in security principals Object Type	S 1
agarciam.cisco Locations	
Enter the object names to select (examples):	
DUO-USERS Check Nam	t bf1
	of t
Advanced OK Cance	al pu an t

8.此使用者用作本文檔的示例。

Duo配置

1.登入您的Dudo Admin門戶。

Admin Login	
Enter your admin credentials	
Forgot password?	
Confirm your identity	

2.在左側面板上,導航到Users,按一下Add User,然後鍵入與活動域使用者名稱匹配的使用者名 稱,然後按一下Add User。

	Q Search for users, groups, applications, or devices
Dashboard	Dashboard > Users > Add User
Device Insight	Add Llear
Policies	Add USEI
Applications	Learn more about adding users []
Single Sign-On	
Users	Username duovpn
Add User 📕 🕂	Should match the primary authentication username.
Pending Enrollments	
Bulk Enroll Users	
Directory Sunc	Add User
Directory Sync	

3.在「新使用者」面板上,將所有必要資訊填入空白。

Policies	Uasnboard > Users > duovpn		
Applications	duovpn		Logs Send Enrollment Email
Single Sign-On			
Users Add User Pending Enroliments Bulk Enroll Users	(i) This user has not en	duovpn	
Directory Sync Bypass Codes	Username aliases	+ Add a username alias Users can have up to 8 aliases.	
Groups		Optionally, you may choose to reserve using an alias number for a specific alias (e.g., Username alias 1 should only be used for Employee ID).	
Endpoints			
2FA Devices	Full name	test vpn user	
Trusted Endpoints			
Trust Monitor	5		
Reports	Email	com	
Settings	Status	Active	
Need Help? Chat with Tech Support C Email Support Call us at 1-855-386-2884 Versioning Core Authentication Service: D235.6 Admin Panel:	Surg.	 Require multi-factor authentication (default). Bypass Allow users to skip two-factor authentication and log in with only a password. Passwordless. Disabled Automatically deny access This controls the user's two-factor authentication process. 	authentication is not skipped.
D235.6 Read Release Notes C ² Account ID 2910-6030-53	Groups	You don't have any editable groups. Add one. Groups can be used for management, reporting, and policy. Learn more about groups ☐	
Deployment ID DU063 cf Helpful Links Documentation cf User Guide cf Knowledge Base cf	Notes	For internal use.	

4.在「使用者裝置」下,指定輔助身份驗證方法。

≫ 注意:在本文檔中,使用Duo push for mobile devices方法,因此需要新增電話裝置。

按一下「Add Phone」。

		\frown
Phones ou may rearrange the phones by dragging and	f dropping in the table. Learn more about activating a replacement phone 다.	Add Phone
	This user has no phones. Add one.	
Indpoints		
	This user has no devices.	
lardware Tokens		Add Hardware Token
	This user has no hardware tokens. Add one.	
Bypass Codes		Add Bypass Code
	This user has no bypass codes. Add one.	
VebAuthn & U2F		Add Security Key

5.鍵入使用者電話號碼,然後按一下Add Phone。

Dashboard > Users > duovpn > Add Phone

Add Phone



6.在左側的Duo Admin面板上,導航到Users,然後按一下新使用者。

Dashboard	Dashboard > Users						
Device Insight				Director	. Cons L Import		
Policies	Users			Director	ry Sync T Import C	Jsers I Bulk En	roli Users Add User
Applications	i You have users wh	no have not activated Duo	Mobile, Click here to send them ad	tivation links.			
Single Sign-On	Need to activate a	replacement phone? Lear	n more about Reactivating Duo Mo	blie 🗗			
Users ┥							
Add User	5	0	2	1	0		0
Pending Enroliments	Total Users	Not Enrolled	Inactive Users	Trash	Bypass L	Jsers	Locked Out
Bulk Enroll Users		_					
Import Users	Select (0) ~ ···				Export ~	Q Search	
Directory Sync							
Bypass Codes	Lisername	Name	Email	Phones	Tokens	Statue	Last Login
Groups			L I FRAM	110100	ionalia	Charlos	Lust Login
Endpoints				1		Active	Mar 8, 2022 6:50 PM
2FA Devices				1		Active	Mar 5, 2022 7:04 PM
Trusted Endpoints							
Trust Monitor				1		Active	Never authenticated
Reports	duovpn		D.com	1		Active	Never authenticated
Settings			.com	1		Active	Mar 5, 2022 7:16 PM
Need Help? Chat with Tech Support 🗗							

💊 注意:如果您目前沒有訪問電話的許可權,您可以選擇電子郵件選項。

7.導航到Phones部分,然後按一下Activate Duo Mobile。

Phones You may rearrange	e the phones by dragging and dr	opping in the table. I	earn more about activating a	replacement phone 🗗.		Add Phone
Alias	Device	Platform	Model	Security Warnings		
phone1	1000	Android 10	0.011×10^{-10}	🗸 No warnings	Activate Duo Mobile	Ē

8.按一下Generate Duo Mobile Activation Code。



9.選擇Email以通過電子郵件接收說明,鍵入您的電子郵件地址,然後按一下Send Instructions by email。

Dashboard > • XXX TH TM6 > Activate Duo Mobile

Activate Duo Mobile

This form allows you to generate a new activation code for this phone's Duo Mobile application. The Duo Mobile application allow: mobile device or authenticate via Duo Push.

Note: Generating an activation code will invalidate any existing Duo Mobile credentials for this device until it is activated with the r

Phone	a di ka Wasaka
Send links via	SMS Email
Email	gradient ille versione i

10.您會收到一封包含說明的電子郵件,如下圖所示。

This is an automated email from Duo Security.

Your organization invites you to set up Duo Mobile on your phone. You will find instructions from your Duo administrator below. If you have questions, please reach out to your organization's IT or help desk team.

This email will help you add your Cisco account to Duo Mobile on this device:

Just tap this link from +



If you're not reading this from +



100

DOM: NO

Don't have Duo Mobile yet? Install it first:

iPhone: https://itunes.apple.com/us/app/duo-mobile/id422663827

Android: https://play.google.com/store/apps/details?id=com.duosecurity.duomobile

11.從您的流動裝置開啟Duo Mobile App,按一下Add,然後選擇Use QR code,然後從說明電子郵 件中掃描該代碼。

12.新使用者將新增到您的Duo Mobile App中。

Duo Auth Proxy 設定

1.從https://duo.com/docs/authproxy-reference下載並安裝Duo Auth Proxy Manager。

✤ 注意:在本文檔中, Duo Auth Proxy Manager安裝在承載Active Directory服務的同一 Windows伺服器上。

2.在Duo Admin Panel上,導航至Applications,然後按一下Protect an Application。



3.在搜尋欄上查詢Cisco ISE Radius。

o

Pro	tect an Application									
0	Add an application that you'd like to protect with Duo two-factor authentication. You can start with a small "proof-of-concept" installation — it takes just a few minutes, and you're the only one that will see it, until you decide to add others. Documentation: Getting Started E' Choose an application below to get started.									
Applicat	tion	Protection Type								
CAkamal	Akamai Enterprise Application Access	2FA	Documentation 🗠 Protect							
altalta cisco	Cisco ISE RADIUS	2FA	Documentation E Protect							

4. 複製整合金鑰、Secrety金鑰和API主機名。您需要此資訊才能進行Duo Authentication Proxy配置

Successfully added Cisco ISE RADIUS to protected applications. Add another.

Dashboard > Applications > Cisco ISE RADIUS 1

Cisco ISE RADIUS 1

Follow the Cisco ISE RADIUS instructions ⊡.

Details

~



5.運行Duo Authentication Proxy Manager應用程式並完成Active Directory客戶端和ISE Radius伺服 器的配置,然後按一下Validate。

注意:如果驗證不成功,請參閱debug頁籤瞭解詳細資訊並進行相應更正。

Duo Authentication Proxy Manager			- 🗆 X
Authentication Proxy is running Up since: 3/5/2022, 9:2	3:04 AM AM) tication Proxy	Restart Service Stop Service
Validation passed Configuration has passed validation and is ready to be saved	←		
Configure: authproxy.cfg	Unsaved Changes Output		
<pre>18 ; number to the section name (e.g. [ad_client2]) 19 20 [ad_client] 21 host=10.28.17.107 22 service_account_username=Administrator 23 service_account_password= HEAMTLAT 24 search_dn=DC=agarciam_DC=cisco 25 26 [radius_server_auto] 27 ikey=Lumpining[Limining] 28 skey=KGeG7utBiA27 HITp77i6A165wh1VOpag9wrCdp 29 api_host=api_aft4730.clumtk_urity.tom 30 radius_ip_1=10.28.17.101 31 radius_secret_1=WeXMp117! 32 failmode=safe 33 client=ad_client 34 port=1812 35 36</pre>	Running [info] [info] [info] [info] [info] [info] [info] [info]	The Duo Authentication Proxy Cor several minutes Testing section 'main' with conf {'debug': 'True', 'log_max_files': '10', 'log_max_size': '20971520', 'test_connectivity_on_startup': There are no configuration probl 	nectivity Tool. This may take figuration: ''true'} .ems n configuration: isco', *****', dministrator'} lems auto' with configuration: accurity com'
Validate Save		Learn h	ow to configure the Authentication Proxy

Cisco ISE配置

1.登入ISE管理員門戶。

2.展開Cisco ISE頁籤,導航到Administration,然後點選Network Resources,然後點選External RADIUS Servers。

Cisco ISE 🛶	Q What page are you looking for?					
Dashboard	Context Visibility	Operations	-Policy	Administration		
Recent Pages	System		Network Resources			
External Identity Sources Policy Sets Network Device Profiles External RADIUS Servers RADIUS Server Sequences Live Logs	Deployment Licensing Certificates Logging Maintenance Upgrade Health Checks Backup & Pestore		Network Devices Network Device Cros Network Device Prof External RADIUS Ser RADIUS Server Sequ NAC Managers External MDM	vens vers lences		

3.在外部Radius伺服器索引標籤上,按一下Add。

E Cisco ISE Administration · Network Resources						
Network Devices	Network Device Groups	Network Device Profiles	External RADIUS Servers	RADIUS Server Sequences		
External R	ADIUS Servers		1			
	🗍 Duplicate 🌐 Delete					
Name Name:	Currently Sorted	Description				

4.使用Duo Authentication Proxy Manager中使用的RADIUS配置填空並點選Submit。

Network Devices Network	k Device Groups	Network Device Profiles	External RADIUS Servers	RADIUS Server Sequences	NAC Managers	External MDM	More
* Name	DUO_NEW						
Description			æ				
* Host IP	10.28.17.107						
* Shared Secret		Show					
Enable KeyWrap							
* Key Encryption Key		Show					
* Message Authenticator Code Key		Show					
Key Input Format		DECIMAL					
* Authentication Port	1812	(Valid Range 1 to 6	(5535)				
* Accounting Port	1813	(Valid Range 1 to 6	5535)				
* Server Timeout	5	Seconds (Valid Ra	nge 1 to 120)				
* Connection Attempts	3	(Valid Range 1 to	9)				
Radius ProxyFailover Expiration	300	(valid Range 1	to 600)				

5.導覽至RADIUS Server Sequences頁籤,然後按一下Add。

E Cisco ISE Administration • Network Resources							
Network Devices	Network Device Groups	Network Device Profiles	External RADIUS Servers	RADIUS Server Sequences			
RADIUS S	erver Sequence inistration > System > Backup & Restore = Duplicate © Delete	Policy Export Page		1			

6.指定序列名稱並分配新的RADIUS外部伺服器,按一下提交。

RADIUS Server Sequences List > New RADIUS Server Sequence

RADIUS Server Sequence



✓ User Selected Service Type

Select the set of external RADIUS servers to use to process requests. Servers are accessed in sequence until a response is r



7.從「控制面板」選單導航至策略,然後按一下策略集。



o

注意:在本文檔中,對所有連線應用Duo序列,因此使用預設策略。策略分配可能因要求而異

Status	Policy Set Name	Description	Con	ditions	Allowed Protocols / Server Sequence	Hits
Q Search						
0	19 V V		Ŧ	Radius-User-Name EQUALS isevpn	Default Network Access $~$ \propto $+$	3
0	-			Radius-NAS-Port-Type EQUALS Virtual	DUO_Sequence	22
0	Default	Default policy set			Default Network Access 🛛 🔿 +	0
	Î				EQ.	
	1				Allowed Protocols	eset
					Default Network Access	

Cisco ASA RADIUS/ISE配置

1.在AAA伺服器組下配置ISE RADIUS伺服器,導航到Configuration,然後點選Device Management並展開Users/AAA部分,選擇AAA伺服器組。

o t avi	Home Configuration Monitoring Save Device Lip Beokmarks Bookmarks bookmark a page, right-click on a node in the agation tree and select "Add to bookmarks".	Refresh Ba AAA Server Group Server Group ISE LOCAL ad-agarciam	ack () ation : ips Pro RA LO
0	O O Device Management		
>	Management Access		
>	8 Licensing		
>	System Image/Configuration		
>	High Availability and Scalability		
>	Logging	Find:	
	Smart Call-Home		
	Security	Servers in the Se	elected
	Service Module Settings	Server Name or IP	Addres
¢.	🕼 Users/AAA 🚽	10.28.17.101	Addre.
	讓 AAA Server Groups		
	S LDAP Attribute Map		
	🔓 AAA Kerberos		
	Sa Authentication Prompt		
	🗛 AAA Access		
	🛱 Dynamic Access Policies		
	😴 User Accounts		
	A Password Policy		
	Thange My Password		
	Login History		
>	Certificate Management		
>	P DHCP		
	B DNS		
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關於此翻譯

思科已使用電腦和人工技術翻譯本文件,讓全世界的使用者能夠以自己的語言理解支援內容。請注 意,即使是最佳機器翻譯,也不如專業譯者翻譯的內容準確。Cisco Systems, Inc. 對這些翻譯的準 確度概不負責,並建議一律查看原始英文文件(提供連結)。