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# 簡介

本文檔詳細介紹執行緒網格裝置(TGA)與Firepower管理中心(FMC)的整合。

# 必要條件

# 需求

思科建議您瞭解以下主題:

- Firepower管理FMC
- Threat Grid裝置基本配置
- 建立授權憑證(CA)
- Linux/Unix

# 採用元件

本文中的資訊係根據以下軟體和硬體版本:

- FMC版本6.6.1
- Threat Grid 2.12.2
- CentOS 8

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。

#### 問題

在此用例場景中,您可以看到2個問題和兩個錯誤代碼。

# 案例 1

整合失敗,但有錯誤:

Sandbox registration failed: Peer certificate cannot be authenticated with given CA certificates (code = 60)

在此問題方面,問題與未以完整鏈結形式上傳到FMC的憑證相關。由於使用了CA簽名的證書,因此需要使用合併到單個PEM檔案中的整個證書鏈。換句話說,您應該從Root CA > Intermediate Cert(如果適用) > Clean Int開始。請參考官方指南中介紹要求和程式的文章。

如果CA有多個簽名鏈,則所有必需的中間證書和根證書必須包含在上傳到FMC的單個檔案中。

所有證書都必須採用PEM編碼。

檔案的新行必須是UNIX,而不是DOS。

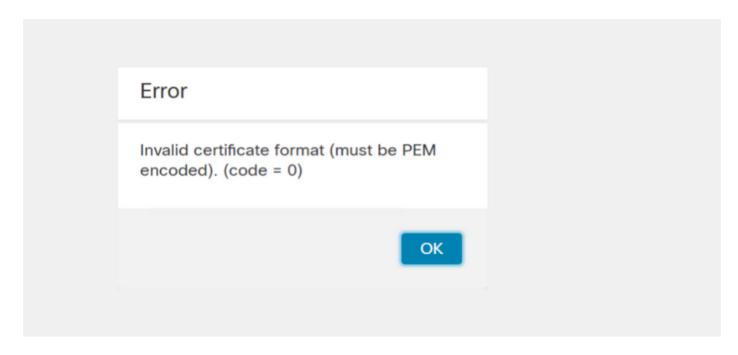
如果Threat Grid裝置提供自簽名證書,請上傳您從該裝置下載的證書。

如果Threat Grid裝置顯示CA簽名的證書,請上傳包含證書簽名鏈的檔案。

# 案例 2

無效的證書格式錯誤

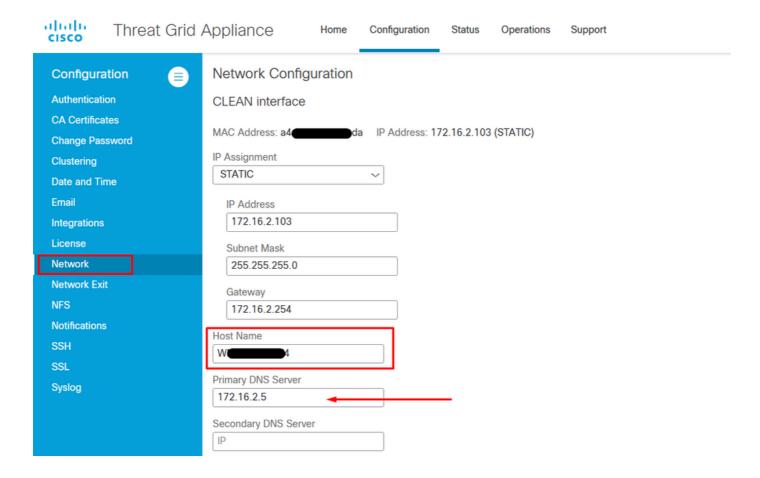
Invalid Certificate format (must be PEM encoded) (code=0) 憑證格式錯誤,如下圖所示。

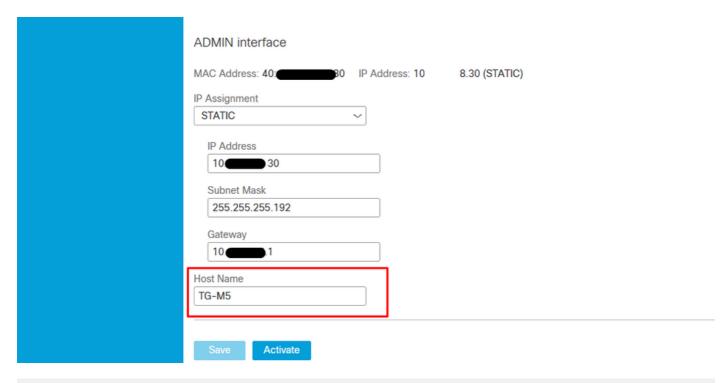


此錯誤是由於在使用OpenSSL的Windows機器上建立的組合PEM憑證的格式錯誤所致。強烈建議使用Linux電腦建立此證書。

#### 整合

步驟1.配置TGA,如下圖所示。





Host (A) Security

Host (uses parent domain if left blank):



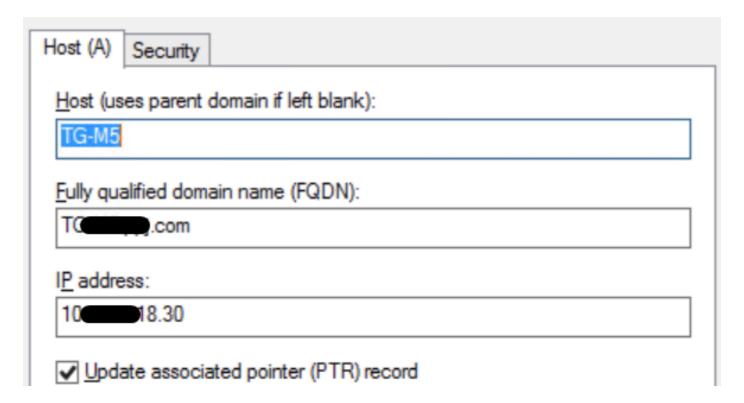
Fully qualified domain name (FQDN):



IP address:

172.16.2.103

✓ Update associated pointer (PTR) record



# 用於Clean Admin介面的內部CA簽名證書

步驟1.生成用於管理介面和乾淨介面的私鑰。

openssl ecparam -name secp521r1 -genkey -out private-ec-key.pem 步驟2.產生CSR。

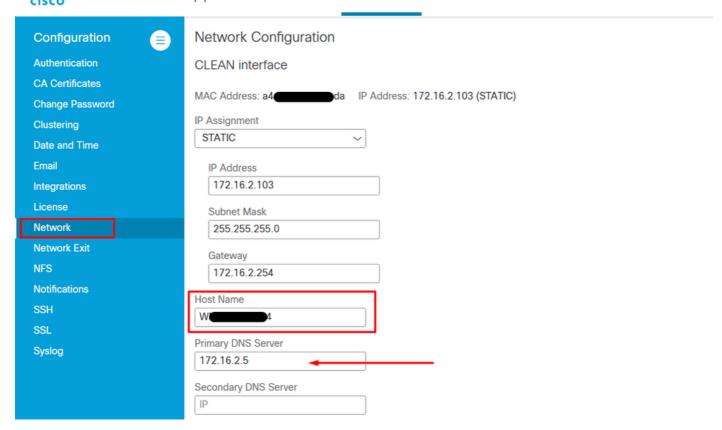
### 清潔介面

步驟1.導航到CSR建立並使用生成的私鑰。

openssl req -new -key private-ec-key.pem -out MYCSR.csr

**附註**:必須為CSR輸入CN名稱,並且必須與在「Network」下定義的清理介面的主機名匹配。DNS伺服器上必須存在DNS條目,該條目將解析Clean介面主機名。

Home

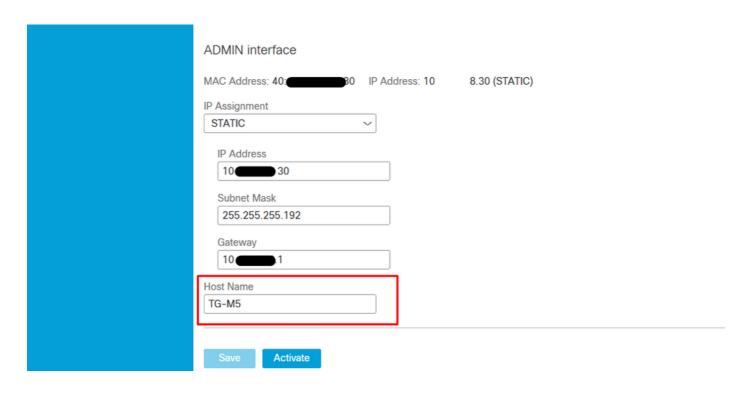


## 管理員介面

步驟1。導覽至CSR建立並使用產生的私密金鑰。

openssl req -new -key private-ec-key.pem -out MYCSR.csr

**附註**:必須為CSR輸入CN名稱,並且必須與「Network」下定義的「admin interface」的「hostname」匹配。DNS伺服器上必須存在DNS條目,該條目將解析乾淨介面主機名。



步驟2.由CA簽署CSR。下載帶有CER擴展的DER格式的證書。

步驟3.將CER轉換為PEM。

openssl x509 -inform DER -outform PEM -in xxxx.cer -out yyyy.pem

### 清除將CSR和CER連線到PEM的介面

### 管理介面CSR和CER到PEM

#### FMC證書的正確格式

如果您已經獲得證書,並且證書採用CER/CRT格式,在使用文本編輯器時是可讀的,則只需將副檔名更改為PEM即可。

## 如果證書不可讀,您需要將DER格式轉換為PEM可讀格式。

openssl x509 -inform DER -outform PEM -in xxxx.cer -out yyyy.pem

#### PEM

#### PEM可讀格式示例,如圖所示。

----BEGIN CERTIFICATE----MIIFozCCA4ugAwIBAgITGOAAAALex/EgACaWIAAAAAAAAjANBgkghkiG9w0BAOUF 2 ADAaMRgwFgYDVQQDEw9Ub21EZW1vIFJvb3QgQ0EwHhcNMTQwMjA3MTQwMTU3WhcN 3 4 MjQwMjA3MTQxMTU3WjBKMRIwEAYKCZImiZPvLGQBGRYCc2UxFzAVBqoJkiaJk/Is 5 ZAEZFqd0b21kZW1vMRswGQYDVQQDExJUb21EZW1vIElzc3VpbmcqQ0EwqqEiMA0G CSqGSIb3DQEBAQUAA4IBDwAwqqEKAoIBAQDC8XmXxLHo0M/521CFtI4DSN6qVNAN 6 7 8jxujS4PSSRnQtaqpbjbcAZpvbYysNt2uwA40urkxY2nyn4SMy/21S4L9x10u8su 8 W+/4T2dcFgQKzFiNyqVkLop9vRKnCKjceD+FRKXbPCSZyy4Hhz/XCgwPRfaobx+q 9 aV1fSnW0F a2MHx60jf BhdyONMrZxmQeYgFPUmd2o3x+lyq1406hIF7LLGFAoDdqi3R31D9OPb7+Dm2ezv0 10 OKkbCHdjl3inB3D1tg1L8mZeIEte+07RvlQXr33umO6zeYi4okbaHZLvAgMBAAGj 11 12 qqGwMIIBrDAQBqkrBqEEAYI3FQEEAwIBADAdBqNVHQ4EFqQU0+wPInpDnoqnuIlx BtUbIGLdS1UwqYsGA1UdIASBgzCBgDB+BgorBgEEAYKdZwEBMHAwPgYIKwYBBQUH 13 AgIwMh4wAFQAbwBtAEQAZQBtAG8AIABQAG8AbABpAGMAeQAgAFMAdABhAHQAZQBt 14 AGUAbgB0MC4GCCsGAQUFBwIBFiJodHRwOi8vcGtpLnRvbWRlbW8uc2UvcGtpL2Nw 15 16 cy5odG0AMBkGCSsGAQQBgjcUAgQMHgoAUwB1AGIAQwBBMAsGA1UdDwQEAwIBhjAP 17 BgNVHRMBAf8EBTADAQH/MB8GA1UdIwQYMBaAFL00e0rG2Ex21dmboIuLwgGgPr5e 18 MEIGA1UdH v5zZS9wa2kvVG9t 19 RGVtbyUyMFJvb3Q1MjBDQS5jcmwwTQYIKwYBBQUHAQEEQTA/MD0GCCsGAQUFBzAC 20 hjFodHRwOi8vcGtpLnRvbWRlbW8uc2UvcGtpL1RvbURlbW81MjBSb290JTIwQ0Eu Y3J0MA0GCSqGSIb3DQEBBQUAA4ICAQBBkNHa1bX3kkpOXCV3nQ9R4CyG61WI90qL 21 22 57uGRcpulSqUu790J5s4x1W8rhm32db7qvHDPaYED23qudpOSHyUywZTFbwzm92c e1wZpyJH6nsuqNFDTYQTdWAq8zwCrldcUFRW3O1mkPuhENjttqCIJ9KeLrwCaM/p 23 QVy7qWoTU14/BY+OsLXDGURXrGejcVs8ZQy4bqhmh0TfelTcAOAX47pVt8XdnWFe 24 25 Vnu/rwuOnfvlyiWW62cknAATaagnLXdbFWIxnVSlbooZmYXXQqe1FxJVlbhNdWM9 tgdq3t2qBXj3P7XiD+0WfzkABGMJrmki55LNpl0/oV+Kw3DuyGYLurq6TWW1Ji8J 26 94GJm9VQBX1Py1FQn0hILcxgr+LAIKX0PqXTyRCp1/UGH1ih05S1F4GvPEj0s1BA 27 28 ebRkDrN2vU+9kq8UXOhzxierQDmJkCOpSUWV6Pk6/OP72vxIuAQQNdY++cJRwzi+ adWp6cZBzW5h3OdK1yEDdjNB75rzQcwMlerYTABSIaK6KCTNb70F4kTW1B5R1WqD 29 30 VXyboYEbf0ym5CiNmDKUXqQMI45FIztDhYjJqn1NeroJUZnUYa9y63zujy2uyQeG EVWpXscPOfrcrCfSuvx0KsMiLxuclfVJyCAJqBMG++LgWxhb247CvhSDK2wZrq0+ 31 32 Q70p0WaYww==

#### DER

DER可讀格式示例, 如圖所示

0, ENQ£0, ETX< ETX|STX|SOH|STX|STX|DC3|EM|NUL|NUL|NUL|STX|PCfi | NUL|&-NUL NUL NUL NUL STX 0 ACK \*†H†÷ 3 SOHISOHIENOIENOINULIO SUB1 CANO SYNIACKIETXUEOTIETXIDC3 ST. CAORS FOR 140207140157Z 240207141157Z0J1DC20DLEACK '&%"ò, dSOHEMSYNSTXse1ETB0NAKACK 6 '&%"ò,dSOHEMSYNBEL 1 ESC 0 EMACK ETX U EOT ETX DC3 DC2 7 Issuing CAO, SOH"0 8 ACK \*†H†÷ SOH SOH SOH ENONUL ETX, SOH SINULO, SOH 9 STX, SOH SOH NULÂñy-ıèÐÏùÛP...′ŽŒTXHÞªTÐ 10 ò<n.SDI\$gBÖ°¥,ÛpMCKi%92°Ûv»NUD8ÒêäÅSÊ~DC23/öÕ.WD÷CSt»Ë.[ïøOg\SWNCOD 11 ÌXÊ¥d.Š}%DC2§BS"Üx?...D¥Û<\$™Ë.BDD‡?× 12 EESTEÖ "oUS°i] Ju´?£lUmUS^BÆòFÁ..₩EDÛÖ;) EOTDÒcoúONAK;Á·'ôÁ "ZØÁñĕHßACKETB 13 r8Ó+q**nn**y°**nn**=IÚñú\°×: "{,±...**snx**€Ý°-ÑßPý8öûø9¶{;ô8©**sscBs**wc-x§**sn**põ¶ 14 Kòf^ K^ûNÑ%TETB }îî'y^,oFÚES''iSTXETXSOHNULSOH£,SOH°0,SOH-0DLEACK +ACK/SOHIEOT/SOH, 7 NAK/SOHIEOT/ETX/STX/SOHINUL/0/GS/ACK/ETX/UGS/SO/EOT/SYN/EOT/DC4/Ó1 SN"zCžŠ§,%qACKÕESO bÝKUO<ACKETXUGS EOTf0€0~ACK +ACK SOHEOT SOH, q SOH SOH 0p0 > ACK BS + ACK SOH ENO ENO BELISTX STX 02 RS0 NULT NULO NULS NULT NUL a NULT NUL e NUL m NUL e NUL m NULT 0 . ACK BS + ACK SOH ENQENQBEL STX SOH .htmNUL0EMACK

# 在Windows和Linux中建立的證書之間的差異

+ACK SOH EOT SOH, 7 DC4 STX EOT FF RS

 $\chi_{\chi}$   $\hat{\Delta}$  SOE >\*^0B MCK ETX II CS II S BOT • 0907 5 3 ± 1

您可以在記事本++中使用Compare外掛來將兩個證書並排進行簡單比較,並詳細描述行#68中的編碼差異。在左側,您可以看到在Windows中建立的證書,在右側,您可以看到在Linux電腦上生成的證書。左側的憑證有回車符,因此該憑證PEM對FMC無效。但是,除了記事本頁面中的那一行之外,您無法區分文本編輯器中的++同。

NULSNULuNULbNULCNULA0 VTACKETXUGSSIEOTEOTETXSTXSOH+0 STACKETXUGS DC3SOHSOHÿEOTENQ0 ETXSOHSOHÿ0 USACKETXUGS#EOTCAN0 SYN€ DC424 { JÆØLYÕÙ >

MRMwEOYKCZImiZPvLGOBGRYDY29tMRMwEOYKCZImiZPvLGOBGRYDcHBaMR8wHOYI MDIxMjEwNDc1NVowSzETMBEGCgmSJomT8ixkARkWA2NvbTETMBEGCgmSJomT8ixk ARkWA3BwajEfMB0GA1UEAxMWcHBqLVdJTi1LRUQ5NjRQT0lPSC1DQTCCAiIwDQYJ MDIxMjEwNDc1NVowSzETMBEGCgmSJomT8ixkARkWA2NvbTETMBEGCgmSJomT8ixk ARkWA3BwajEfMB0GA1UEAxMWcHBqLVdJTi1LRUQ5NjRQT0lPSC1DQTCCAiIwDQYJ KoZIhvcNAQEBBQADggIPADCCAgoCggIBALD7GjxJ2VNn7AGCKH+s+NfyoGnFT1QR ngyZp@ReF6AipKUbU+MrEny+KgNXxsvijFS81M055pEWgYhIzfnOiXQioyiKXr55 Pjo7cku5GyfodsaYcPqO4LiDuIybyd77j9mFzurn+hKaMKSPXQE9Jd1+JRBZ23JR KoZIhvcNAQEBBQADggIPADCCAgoCggIBALD7GjxJ2VNn7AGCKH+s+WfyoGnFT1QR ngyZp0ReF6AipKUbU+MrEny+KgNXxsvijFS81M055pEWgYhIzfnOiXQioyiKXr55 Pjo7cku5GyfodsaYcPqO4LiDuIybyd77j9mFzurn+hKaMKSPXQE9Jd1+JRBZ23JR xa5qAXicyznurAuszyrp/rgurchikniqniusuzivuvsAnsusuusvurijAurg/Bve6 KrC8naXNCsN9D/9weTU6WKXBG146MrJHffk1fSbFbQDkHOYoUmT/FuuPd0+Q3QCU gkeQHT18nxjF6mJ9ekfirYNGKLCqAFNu2dMDNvTQhmVAPyiyzF+pp1vdrjpIS7NL fsc24CHs6kHc3Lbt779JOnsMgt0jp7VVVJNJSYQRJwhn6QSMcM/Vf97kSTiTiqq KrC8naXNCsN9D/9weTU6WKXBG146MrJHffk1fSbFbQDkHOYoUmT/FuuPd0+Q3QCU gkeQHT18nxjF6mJ9ekfirYNGKLCqAFNu2dMDNvTQhmVAPyiyzF+pp1vdrjpIS7NL fsc24CHs6kHc3Lbt779IOnsMgt0jp7VVrVJNJSYQRlwhn6QSMcM/Vf97kSTiTiqq pgaIM7rLfotadcI26KlPfuhg3TYJgreiRs38jat@FDFqKtE6kuOm9G4fOvQ8tX/5 VGvruqES6C6kbk@WiZ8oJ0iBi8lnhllUGLdc7wzKz5xwoa+0aaU+OvUpAREkHGdQ pgaIM7rLfotadcI26KlPfuhg3TYJgreiRs38jat0FDFqKtE6kuOm9G4fOvQ8tX/5 VGvruqES6C6kbk0WiZ8oJ0iBi8lnhl1UGLdc7wzKz5xwoa+0aaU+OvUpAREkHGdQ VOVI OLISOCKOMAZGOOJEBEINITISTICKE WAZZAWAGTOBEATOVOJARKKNOUG CSSKXIgfNdMCliq6FAfobxGiYuFQN+PUtSOmkvxzd0SCKxam0++tFXYBKNmmA512 GC3w0wxEx60alAgMBAAGjUTBPMAsGA1UdDwQEAwIBhjAPPgNVHRNBAF8EBTADAQH/ MB0GA1UdDgQWBBTC42Sse9pCs7DXxHe6mXqzm3jw0DAQBgkrBgEEAYI3FQEEAwIB ADANBgkqhkiG9w0BAQsFAAOCAgEAUXuGTW0jiZ5y1bYolqTvweUKxZz0oXoRzPUG QDHRsiXbt7u4hyShLPINeY3INZ474m1SyyDrU1NJISW8yYpTwLK2qhca7Gus02i GCSW6WEXE031AgMBAAGJUTBPMASGA1UdDwQEAWIBhjAPBgNVHRMBAF8EBTADAQH/
MB0GA1UdDgQWBBTC42Sse9pCs7DXxHe6mXqzm3jw0DAQBgkrBgEEAYI3FQEEAWIB
ADANBgkqhkiG9w0BAQsFAAOCAgEAUXuGTW0jiZ5y1bYo1qTvweUKxZz0oXoRzPUG
QDhRsiXbt7u4hy5hLPINeYaI1NZ474m1SyyDrU1NJLSW8yYpTwLK2qhca7Gus02i BosRXfBT9xQV8M7ZLcYEc12ImvnL0XK62fCVVJGCSIG8Id7xwgyPiorH7U0Kzy5w RAfXTQ/ANcIjmcJ6C1xcXiEYEOz1ei19k+Goz6bWJsmmzRsGO2/e8MAd0HutbeXB BosRXfBT9xQV8M7ZLcYEc12ImvnL0XK62fCVVJGCSIG8Id7xwgyPiorH7U0Kzy5w RAfXTQ/ANcIjmcJ6C1xcXiEYEOz1ei19k+Goz6bWJsmmzRsGO2/e8MAd0HutbeXB 8aZieTLPQDTIjy/6ZQ85+QlGza9ws5pz+zKZpNeiEVyfrbBf0cq03eAHfNkoXqyR JekAtIeLRb03TYYDGsEEm/e6aKRIcFZQyQDe/9IafiWv5JGGVB71wzLmyqIAVL10 rRSE01jeTUBygJyHX8FRh9CzdkRVdExue40mhpyaIuQZT1yIK1FAgrFyZ6pvefle 8aZieTLPQDTIjy/6ZQ85+Q1Gza9ws5pz+zKZpNeiEVyfrbBf6cq03eAHfNkoXqyR JekAtIeLRb03TYYDGsEEm/e6aKRIcFZQyQDe/9IafiWv5JGGVB71wzLmyqIAVL10 rRSEo1jeTUBygJyHX8FRh9CzdkRVdExue40mhpyaIuQZT1y1K1FAgrFyZ6pvefle xa4F7xXBY/dŽfk8Q71YGc+2LLecQ6d8PrVmK6mQ4mdÅtGqjG/cU+na/tocZKgn8v R6fEmfDL19tq54Og/WUsGLSC+akcZxk+HfvzaFxhY/aeVAmQ4jTluh/+t7jOYyyH xa4F7xXBY/d2fk8Q71YGc+2LLecQ6d8PrVmK6mQ4mdAtGqjG/cU+na/toCZKgn8v R6fEmfDL19tq54Og/WUsGLSC+akcZxk+HfvzaFxhY/aeVAmQ4jT1uh/+t7jOYyyH -BEGIN CERTIFICATE--ADBLMRMwEQYKCZImiZPyLGQBGRYDY29tMRMwEQYKCZImiZPyLGQBGRYDcHBqMR8w HQYDVQQDExZwcGotV010LUtFRDk2NFBPSU9ILUNBMB4XDTIxMDMxOTEwNDE0NFoX ADBLMRMwEQYKCZImiZPyLGQBGRYDY29tMRMwEQYKCZImiZPyLGQBGRYDcHBqMR8v HQYDVQQDExZwcGotV010LUtFRDk2NFBPSU91LUNBMB4XDT1xMDMxOTEwNDE0NFoX DTIZMDMXOTEWNDEONFOWWZELMAKGA1UEBHMCQVUXEZARBgNVBAgTClNvbWutU3Rh dGUxDDAKBgNVBAoTA1BQSjELMAKGA1UECxMCSVQxHDAaBgNVBAMTE1dNUDIONDEw DTIZMDMxOTEwNDE0NFowWzELMAkGA1UEBhMCQVUxEzARBgNVBAgTclnvbWutU3RhdGUxDDAKBgNVBAoTA1BQSjELMAkGA1UECxMCSVQxHDAaBgNVBAMTE1dNUD10NDEw ME00LnBwai5jb20wgZswEAYHKOZIzj0CAQYFK4EEACMDgYYABAHlahlKlXffqxkD 7yLF2A2wu+HFxAnh2Kb4wV9jY3TB3xFvNovNEv7/umIHWEeWE2/QG2nL7gSt910U ME00LnBwai5jb20wgZswEAYHKoZIzj0CAQYFK4EEACMDgYYABAHlahlklXffqxkD 7yLF2A2wu+HFxAnh2Kb4wV9jY3TB3xFvNovNEv7/umIHWEeWE2/QG2nL7gSt910U zHtknPtmN/sMj7AVg1JpD41WDvWwjvJCS6OCAi4wggIqMCEGCSsGAQQBgjcUAgQU HhIAVwB1AGIAUwB1AHIAdgB1AHIwgcQGCCsGAQUFBwEBBIG3MIG0MIGxBggrBgEF BQcwAoaBpGxkYXA6Ly8vQ049cHBqLVdJTi11LRUQSNjRQT01PSC1DQSxDTj1BSUEs zHtknPtmN/sMj7AVg1JpD4lWDvWvjvJCS60CAi4wggIqMCEGCSsGAQQBgjcUAgQU HhIAVwBlAGIAUwBlAHIAdgBlAHIwgcQGCCsGAQUFBwEBBIG3MIG0MIGxBggrBgEF dXJhdG1vb1xEQz1wcGoskEM9Y29TPZNBQZVyGG1mawwnGGO/TmFZZ19YYmp1Y3RD bGFzcz1jZXJ0aWZpY2F0aW9uQXV0aG9yaXR5MB0GA1UdDgQWBBSYfwZzXcHMhf4W 5VFbo7F2j7qrjTAOBgNVHQ8BAf8EBAMCB4AwgdgGA1UdHwSB0DCBzTCByqCBx6CB dXJhdGlvUzACQLzmcuOShCi37E2CrZmQZYyUJZmmmmiOUJ7mi EE17V7mpzf3RD bGFzcz1jZXJ0aWZPY2F0aW9uQXV0aG9yaXR5MB0GA1UdDgQWBBSYfwZZXCHMhf4h 5VFb07F2j7qrjTAOBgNVHQ8BAf8EBAMCB4AwgdgGA1UdHw5B0DCBZTCByqCBX6CB xIaBwhxkYXAGLy8vQ049cHBqLVdJTi1LRUQ5NjRQT01PSC1DQ5xDTj1XSU4tS0VE xIaBwwxkYXA6Ly8vQ049cHBqLVdJTi1LRUQ5hjRqTelPSC1DQ5xDTj1XSU4tS0VE OTY0UE9JT0g5Q049Q0RQLENOPVB1YmxpYyUyMEtleSUyMFNlcnZpY2VzLENOPVNl cnZpY2VzLENOPUNvbmZpZ3VyYXRpb24sREM9cHBqLERDPWNvbT9jZXJ0aWZpY2F0 OTYOUE91T0gsQ049Q0RQLENOPVB17mxpYyJVJMEtleSUJMFMlcnZpY2VzLENOPVNIVcnZpY2VzLENOPVNIVbmzpZ3VyYXRpb24sREM9cHBqLERDPwNvbT9jZXJ0awZpY2F6 ZVJldm9jYXRpb25MaXN0P2Jhc2U/b2JqZWN0Q2xhc3M9Y1JMRGIzdHJpYnV0aW9u UG9pbnQwHwYDVR0jBBgwFoAUwuNkrHvaQrOw18R3up16s5t48NAwEwYDVR01BAww ZVJldm9jYXRpb25MaXN0P2Jhc2U/b2JqZWN0Q2xhc3M9Y1JMRG1zdHJpYnV0aW9u UG9pbnQwHwYDVR0jBBgwFoAUwuNkrHvaQrOw18R3up16s5t48NAwEwYDVR01BAw M+HfNmixqqvvvvconspozoozjmonwk+rxsnmmqyyew4AbtJzW3C1WOcqsyG6f8e gZVUsBNxonbHNEETStUynJZ82Kb41m7HbVdo4yvdQYRyBu3fSeU9CKhMdMMqrx2u qEfPw7otc8Jk0EX1eo02FTy2FIAaWdBa01V4rF0TFot1R5WHUChiyy1FSU68DGng M+hrmmixqqvvvucinspozoozjmorrmetrasimmqyyemmocvinsermocqsyoor8e gZVUsBNxonbHNEETStUynJZ82Kb41m7HbVdo4yvdQYRyBu3fSeU9CKhMdMMqrx2u qEfPw7otc8Jk0EXleo02FTy2FIAaWdBa01V4rF0TFot1R5WHUChiyy1FSU68DGng yjjVNJLJll+66fKXZHD4k1o+KRCYZFLv+28YJEaUNY+sn1k0nL+b/mvg1kxRhHoo gT87WYBnMpME8af2H3uDrmv3zXbUCEe8lvvytTBy0d6VLQmRcyFENESVrNn6umF6 szZpjLH6gIceNshPhXiDSkGPvYSyBe2EuReHYvC9Ua9yz6KqrHqL7CHzxMdjXP+M yjjvNJLJ1l+66fKXZHD4k1o+KRCYZFLv+28YJEaUNY+sn1kOnL+b/mvg1kxRhHook gT87WYBnMpME8af2H3uDrmv3zXbUCEe8lvvytTBy0d6VLQmRcyFENESVrNn6umF6 szZpjLH6gIceNshPhXiDSkGPvYSyBe2EuReHYvC9Ua9yz6KqrHqL7CHzxMdjXP+W ZiqacIkGRfN4TguG435yNaUB08sqBd+rYEWIgAvBvJOn7eC+06paFB6t4kwxuXC5 Cy/I28kshRF2a7vD3m0BBSc/XExIe1UQsXuCUootE2tmY8wYRXW4dc2wIC1jib2e ZiqacIkGRfN4TguG435yNaUB08sqBd+rYEWIgAvBvJOn7eC+06paFB6t4kwxuXC5 Cy/I28kshRF2a7vD3m0BBSc/XExIelUQsXuCUootE2tmY8wYRXW4dc2wIC1jib2e

將新建立/轉換的RootCA和CLEAN介面的PEM證書複製到Linux電腦,並從PEM檔案中刪除回車。

 $sed -i 's/\r//'$ 

例如sed -i 's/\r/' OPADMIN.pem。

驗證是否存在回車。

od -c

仍顯示有回車符的憑證,如圖所示。

[admin@l	ocal	host	Des	ktop	]\$ od	1 - c	MRJ	CA.c	er								
0000000				-	-	В	Е	G	I	N		С	Е	R	Т	I	
0000020	F	I	С	Α	Т	Ε						\r	\n	М	I	I	
0000040	G	t	D	С	С	В	Z	У	g	Α	W	I	В	Α	g	I	
0000060	Т	R	Q	Α	Α	Α	Р	n	p	ι	у	n	В	0	ĥ	j	
0000100	Z	а	W	Α	Е	Α	Α	Α	A	+	Ť	Α	N	В	g	k	
0000120	q	h	k	i	G	9	W	0	В	Α	Q	s	F	\r	\n	Α	
0000140	D	В	0	М	R	U	W	Е	W	Υ	K	С	Z	I	m	i	
0000160	Z	Р	у	L	G	Q	В	G	R	Υ	F	Т	G	9	j	Υ	
0000200	U	W	Х	F	Z	Α	٧	В	g	0	J	k	i	а	J	k	
0000220	/	I	s	Z	Α	Ε	Z	F	g	d	Р	С	2	9	j	\r	
0000240	\n	L	W	р	٧	М	R	W	W	G	g	Υ	D	٧	Q	Q	
0000260	D	Ε	Х	N	Р	С	2	9	j	L	W	р	V	L	U	N	
0000300	D	Т	ι	R	Ε	Q	z	Α	У	L	U	N	В	М	В	4	
0000320	Х	Ū	Т	I	Х	М	D	Q	W	N	D	I	х	М	j	U	
0000340	х	\r	\n	М	ι	0	Х	D	Т	I	Z	М	D	Q	W	N	
0000360	D	I	Х	М	j	U	х	М	ι	0	W	J	j	Ε	k	М	
0000400	С	I	G	Α	1	U	Ε	Α	х	М	b	Т	٧	J	K	L	
0000420	U	F	N		С	1	U	R	У	1	N	N	S	0	W	М	
0000440	S	5	q	\r	\n	d	С	5	q	d	G	d	У	b	3	٧	
0000460	W	М	Ι	ī	В	Ι	j	Α	N	В	g	k	q	h	k	i	
0000500	G	9	W	0	В	Α	Q	Е	F	Α	Α	0	C	Α	Q	8	
0000520	Α	М	Ι	Ι	В	c	g	K	С	Α	Q	Е	Α	s	g	4	
0000540	Z	s	m	0	Υ	\r	\n	W	Т	2	Q	Υ	0	7	h	h	
0000560	Z	d	8	b	+	ĸ	b	s	U	М	С	Q	Q	0	5	0	
0000600	р	0	g	q	٧	е	1	Q	5	2	G	7	Т	m	W	е	
0000620	+	٧	m	q	+	Ε	Υ	Н	W	b	В	Т	g	D	9	9	
0000640	K	D	ι	Х	R	0	ι	\r	\n	0	S	У	Ι	g	3	W	
0000660	k	i	ι	М	р	Ι	ι	u	Р	i	0	Ε	U	Н	d	Α	
0000700	С	2	Т	q	Α	d	W	0	r	е	Ε	М	k	Н	ι	F	
0000720	n	Q	5	4	G	J	ι	W	Z	6	S	0	h	Ι	9	J	
0000740	2	8	h	/	L	k	R	f	8	\r	\n	Z	3	5	В	q	
0000760	q	F	0	Х	р	S	8	s	0	k	р	7	1	0	7	Н	
0001000	Α	1	b	х	q	b	4	5	t	t	U	U	N	n	/	i	

通過Linux電腦運行證書之後。

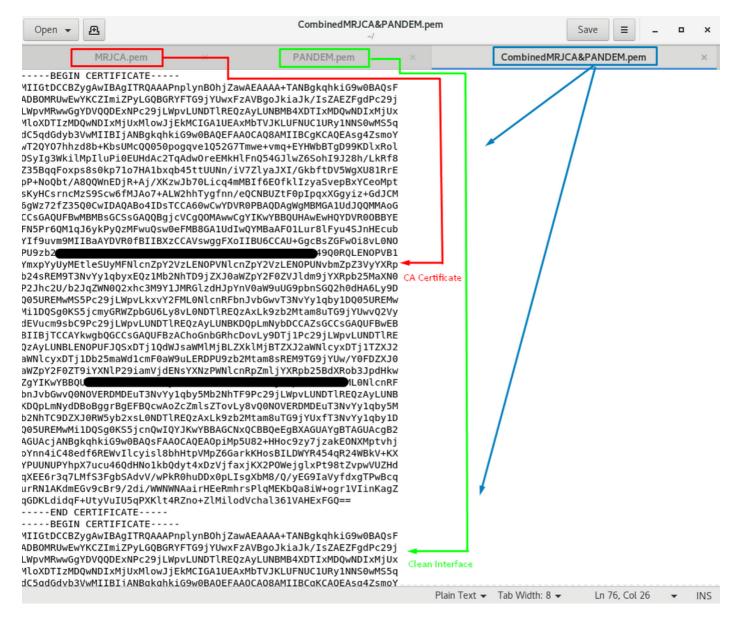
[admin@localhost Deskt					]\$ od	- C	MRJO	CA.pe	em							
0000000						В	Ε	G	I	N		С	Ε	R	Т	I
0000020	F	I	С	Α	Т	Ε						\n	М	I	I	G
0000040	t	D	С	С	В	Z	У	g	Α	W	I	В	Α	g	I	Т
0000060	R	Q	Α	Α	Α	Ρ	n	p	ι	у	n	В	0	ĥ	j	Z
0000100	а	W	Α	Ε	Α	Α	Α	Α	+	Т	Α	N	В	g	k	q
0000120	h	k	i	G	9	W	0	В	Α	Q	s	F	\n	Α	D	В
0000140	0	М	R	U	W	Ε	W	Υ	K	C	Z	I	m	i	Z	Р
0000160	у	L	G	Q	В	G	R	Υ	F	Т	G	9	j	Υ	U	W
0000200	Х	F	Z	Α	٧	В	g	0	J	k	i	а	J	k	/	I
0000220	s	Z	Α	Ε	Z	F	g	d	Р	С	2	9	j	\n	L	W
0000240	р	V	М	R	W	W	G	g	Υ	D	٧	Q	Q	D	Ε	Х
0000260	N	Р	С	2	9	j	L	W	р	V	L	U	N	D	Т	l
0000300	R	Ε	Q	Z	Α	у	L	U	N	В	М	В	4	Χ	D	Т
0000320	Ι	Х	М	D	Q	W	N	D	I	Х	М	j	U	Х	\n	М
0000340	l	0	Χ	D	Т	Ι	Z	М	D	Q	W	N	D	Ι	Х	М
0000360	j	U	Х	М	l	0	W	J	j	Е	k	М	C	Ι	G	Α
0000400	1	U	Ε	Α	Х	М	b	Т	٧	J	K	L	U	F	N	U
0000420	C	1	U	R	У	1	N	N	S	0	W	М	S	5	q	\n
0000440	d	С	5	q	d	G	d	У	b	3	٧	W	М	Ι	Ι	В
0000460	Ι	j	Α	N	В	g	k	q	h	k	i	G	9	W	0	В
0000500	Α	Q	Ε	F	Α	Α	0	С	Α	Q	8	Α	М	Ι	Ι	В
0000520	C	g	K	С	Α	Q	Е	Α	s	g	4	Z	s	m	0	Υ
0000540	\n	W	Т	2	Q	Υ	0	7	h	h	Z	d	8	b	+	K
0000560	b	s	U	М	С	Q	Q	0	5	0	р	0	g	q	٧	е
0000600	1	Q	5	2	G	7	Т	m	W	е	+	٧	m	q	+	Е
0000620	Υ	Н	W	b	В	Т	g	D	9	9	K	D	ι	Х	R	0
0000640	l	\n	0	S	У	Ι	g	3	W	k	i	ι	М	р	Ι	ι
0000660	u	Р	i	0	E	U	Н	d	Α	С	2	Т	q	Α	d	W
0000700	0	r	е	Ε	М	k	Н	ι	F	n	Q	5	4	G	J	l
0000720	W	Z	6	S	0	h	Ι	9	J	2	8	h	/	L	k	R
0000740	f	8	\n	Z	3	5	В	q	q	F	0	Х	р	S	8	s
0000760	0	k	р	7	1	0	7	Н	Α	1	b	Х	q	b	4	5
0001000	t	t	U	U	N	n	/	i	٧	7	Z	l	у	а	J	Χ

對於FMC,在Linux電腦上結合Root\_CA和無回車證書,請使用下一個命令。

cat

例如,cat Clean-interface\_CSR\_CA-signed\_DER\_CER\_PEM\_no-carriage.pem Root-CA.pem > combine.pem。

或者,也可以在Linux電腦中開啟一個新的文本編輯器,將刪除回車的Clean證書合併到一個檔案中,然後使用.PEM副檔名儲存該檔案。您必須將CA證書放在頂部,將Clean Interface證書放在底部

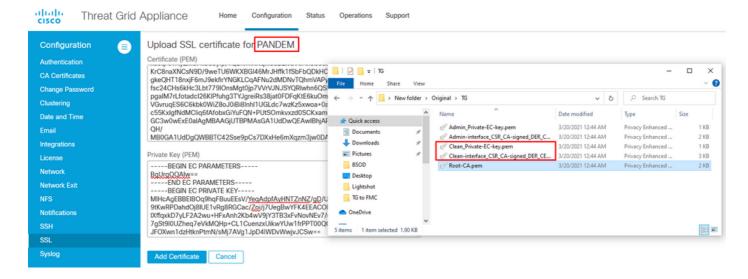


該證書必須是您稍後上傳到FMC以與TG裝置整合的證書。

#### 證書上傳到TG裝置和FMC

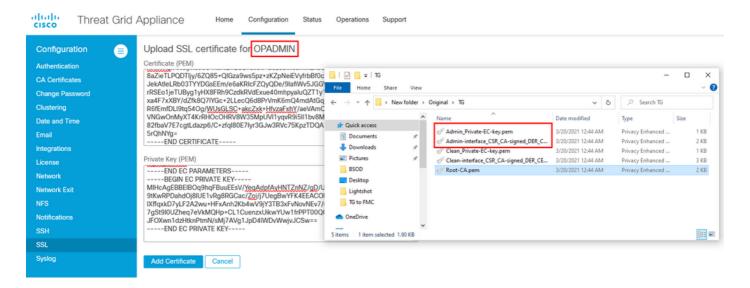
# 上傳乾淨介面的證書

導覽至Configuration > SSL > PANDEM - Actions Upload New Certificate > Add Certificate,如下 圖所示。



# 上傳管理員介面的證書

導覽至Configuration > SSL > OPADMIN - Actions Upload New Certificate > Add Certificate,如下 圖所示。



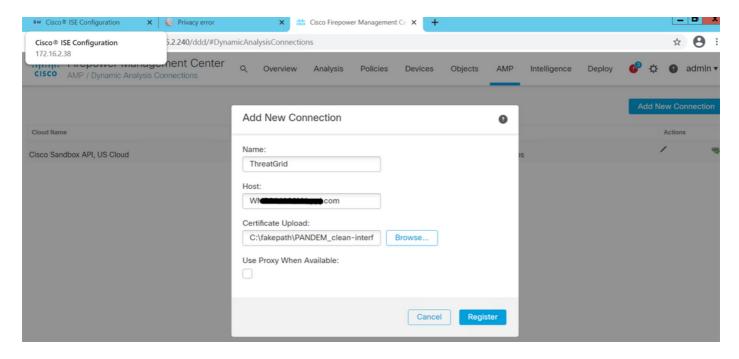
### 將證書上傳到FMC

若要將憑證上傳到FMC,請導覽至AMP > Dynamic Analysis Connections > Add New Connection,然後填寫所需的資訊。

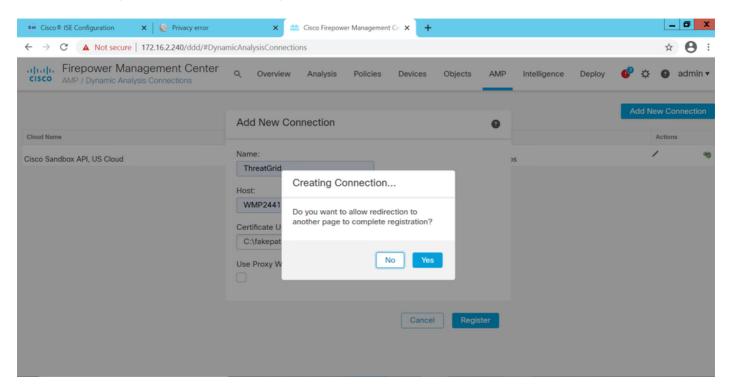
名稱:要標識的任何名稱。

**主機:**清潔介面FQDN,在生成清潔介面的CSR時定義

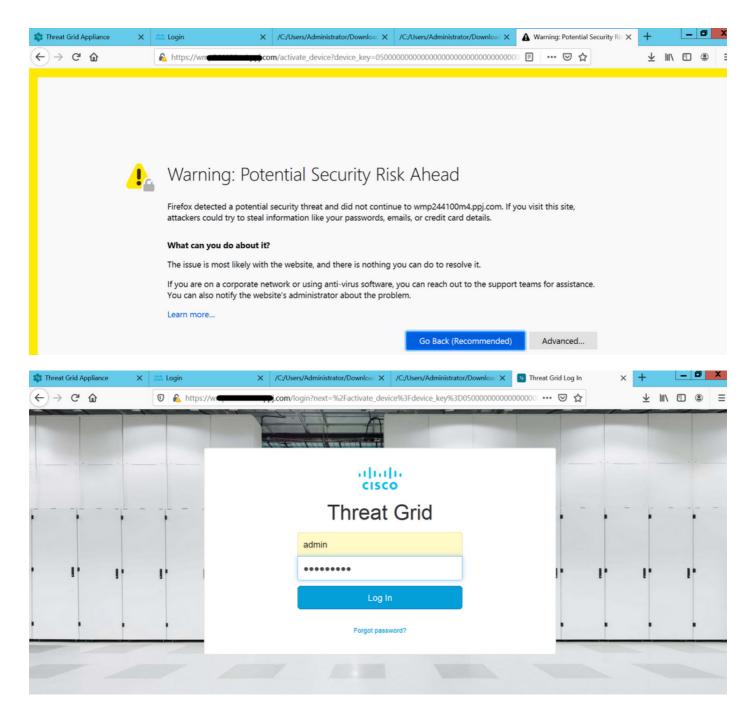
證書: ROOT CA和clean interface no-carriage的組合證書。



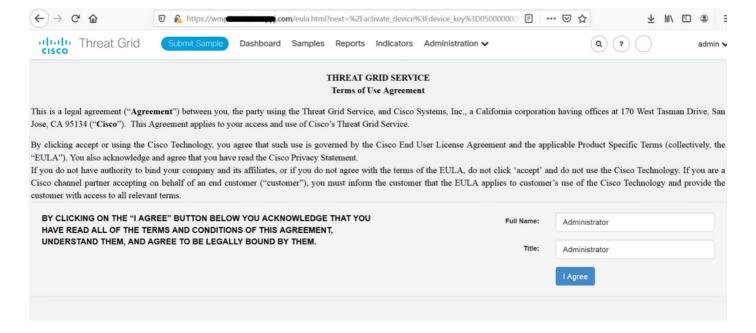
註冊新連線後,將顯示一個彈出視窗,按一下Yes按鈕。



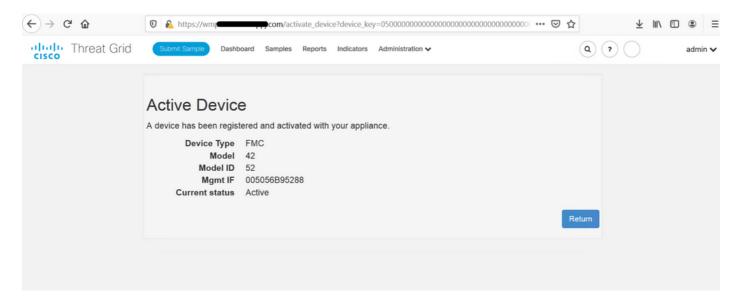
頁面重定向至TG Clean介面和登入提示,如圖所示。



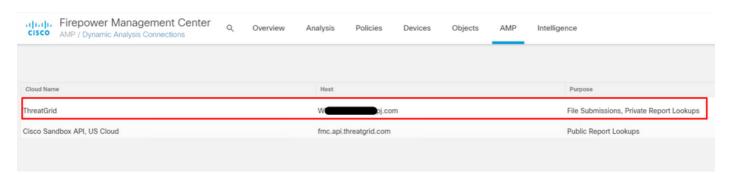
接受EULA。



# 成功整合將顯示活動裝置,如下圖所示。



# 按一下「Return」,返回FMC,成功整合TG,如下圖所示。



# 相關資訊

- Firepower管理中心配置指南6.6版
- 技術支援與文件 Cisco Systems