配置思科統一通訊管理器(CUCM)上的SSO並對其進行故障排除

目錄

簡介

本檔案介紹Cisco Unified Communications Manager(CUCM)中的單點登入(SSO)功能、配置步驟、故障排除提示、示例日誌分析以及其他資訊的資源。

必要條件

需求

為了瞭解本文檔，思科建議瞭解幾個SSO術語：

- 安全斷言標籤語言(SAML) — 一種在各方之間交換身份驗證和授權資料的開放標準
- 服務提供商(SP)- SP是承載服務的實體。在本文檔中，CUCM是服務提供商
- 身份提供程式(IdP)- IdP是驗證客戶端憑據的實體。身份驗證對SP完全透明，因此憑據可以是智慧卡、使用者名稱/密碼等。IdP對客戶端憑據進行身份驗證後，會生成一個斷言，將其傳送到客戶端，並將客戶端重定向回到SP
- 斷言 — IdP在成功對使用者進行身份驗證後生成的對時間敏感的資訊。斷言的目的是向SP提供有關經過身份驗證的使用者的資訊
- 繫結 — 定義用於在實體之間傳遞SAML協定消息的傳輸方法。 Cisco Unified Communications產品使用HTTP
- 配置檔案 — 用於實現特定業務用例的SAML消息內容（斷言、協定、繫結）的預定義約束和組合。本培訓重點介紹Web瀏覽器單點登入配置檔案，因為CUCM使用的是這種方法
- 後設資料 — 各方之間交換的配置資訊集。包含支援SAML繫結、操作角色（如IdP或SP）、支援的識別符號屬性、識別符號資訊以及用於簽名和加密請求或響應的證書資訊等資訊。

採用元件

- 思科整合通訊管理員(CUCM)12.5.1.14900-63
- Microsoft Windows Server 2016
- Active Directory聯合身份驗證服務(AD FS)4.0

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

SSO的用途是允許使用者和管理員訪問多個思科合作應用，而無需對每個應用進行單獨的身份驗證。啟用SSO具有以下優勢：

- 它提高了生產效率，因為使用者無需在不同產品上重新輸入同一身份的憑據。
- 它將身份驗證從託管應用程式的系統傳輸到第三方系統。您可以在IdP和服務提供商之間建立一個信任圈，從而允許IdP代表SP對使用者進行身份驗證。
- 它提供加密以保護在IdP、服務提供方和使用者之間傳遞的身份驗證資訊。SSO還隱藏任何外部方在IdP和服務提供方之間傳遞的身份驗證消息。
- 由於密碼重置的幫助台呼叫減少，因此可以降低成本。

信任圈

證書在SSO中扮演著非常重要的角色，它們通過後設資料檔案在SP和IdP之間交換。SP後設資料檔案包含服務提供程式的簽名和加密證書以及其他一些重要資訊，如斷言使用服務索引值和HTTP POST/REDIRECT資訊。IdP後設資料檔案包含它的證書以及一些有關IdP功能的其他資訊。您需要將SP後設資料匯入IdP並將IdP後設資料匯入SP以建立信任圈。實質上，SP使用IdP信任的證書對生成的任何請求進行簽名和加密，而IdP則使用SP信任的證書對生成的任何宣告（響應）進行簽名和加密。

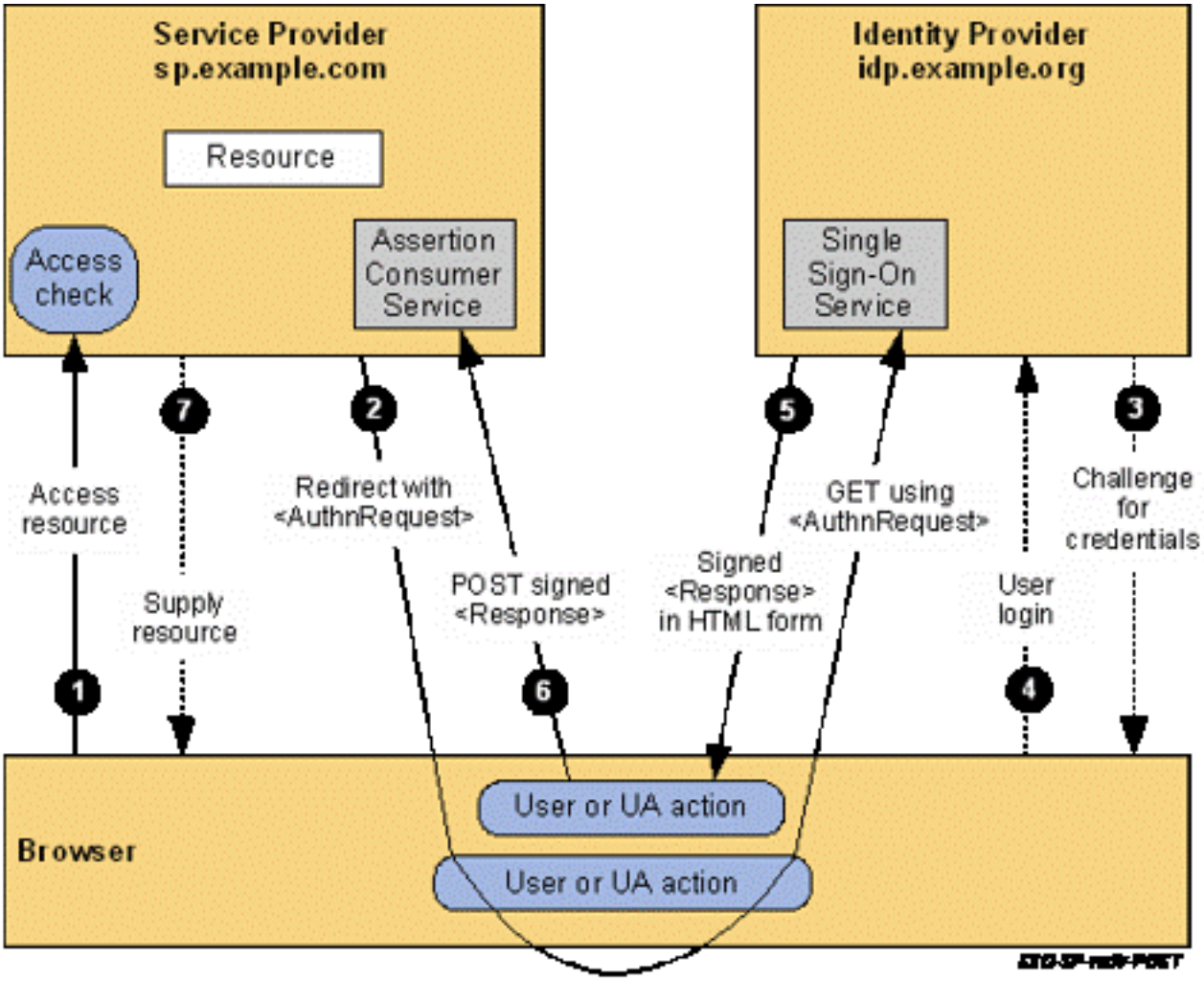
> **附註**：如果SP上的某些資訊發生更改，例如主機名/完全限定域名(FQDN)或簽名/加密證書（Tomcat或ITLRecovery），則可以打破信任循環。您需要從SP下載新的後設資料檔案並將其匯入到IdP。 如果有關IdP的某些資訊發生更改，則需要從IdP下載新的後設資料檔案並重新運行SSO測試，以便可以更新SP上的資訊。如果您不確定您的更改是否需要在另一台裝置上更新後設資料，則最好更新該檔案。在任一端進行後設資料更新不會產生負面影響，這是解決

SSO問題的有效步驟，尤其是在發生配置更改的情況下。

設定

網路圖表

標準SSO登入的流程如下圖所示：

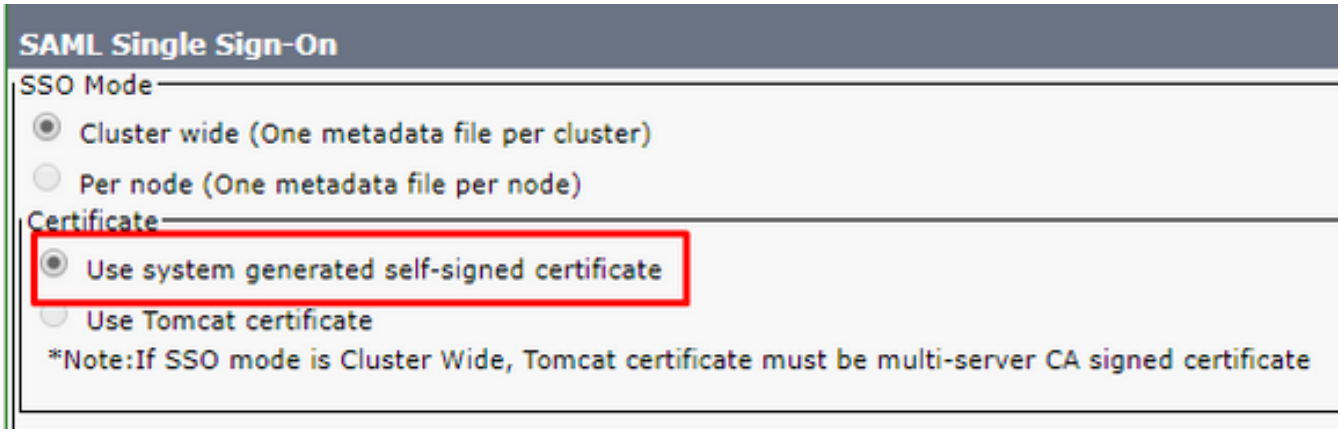


附註：影象中的過程不是按從左到右的順序進行的。請記住，SP是CUCM，IdP是第三方應用程式。

組態

從CUCM的角度來看，對SSO的配置非常少。在CUCM 11.5及更高版本中，您可以選擇集群範圍或每節點SSO。

- 在CUCM 11.5中，集群範圍的SSO要求在所有節點上安裝多伺服器tomcat證書，因為整個集群只有一個後設資料檔案（並且證書儲存在該檔案中，因此您需要每個節點具有相同的tomcat證書）。
- 在CUCM 12.0及更高版本中，您可以選擇**Use system generated self-signed certificate** for Cluster-wide SSO。此選項使用ITLRecovery證書而不是tomcat:



- 每個節點的SSO是CUCM 11.5之前的預設配置。在每節點配置中，每個節點都有自己的後設資料檔案，需要將其匯入到IdP，因為其中任何一個節點都可能重定向使用者進行身份驗證。
- 您還可以在CUCM 11.5中為RTMT啟用SSO。預設情況下啟用此功能，它位於**Cisco Unified CM管理>企業引數>為RTMT使用SSO**。

附註：請注意，如果SSO模式為集群範圍，則Tomcat證書必須是多伺服器CA簽名的證書在12.0和12.5上為錯誤，並且已開啟缺陷以更正此錯誤(思科錯誤ID CSCvr49382)。

除了這些選項，SSO的其餘配置都在IdP上。根據您選擇的IdP，配置步驟可能會有很大不同。這些文檔包含一些配置更常見IdP的步驟：

- Microsoft AD FS配置指南
- 《Okta配置指南》
- PingFederate配置指南
- Microsoft Azure配置指南

疑難排解

要收集的資料

為了解決SSO問題，需要將SSO跟蹤設定為調試。無法通過GUI將SSO日誌級別設定為調試。要將SSO日誌級別設定為debug，請在CLI中運行此命令：**set samltrace level debug**

附註：此命令不是群集範圍的，因此需要在可能與SSO登入嘗試相關的每個節點上運行。

將日誌級別設定為調試後，您需要重現問題並從CUCM收集此資料：

- **Cisco SSO日誌**
- **Cisco Tomcat日誌**

大多數SSO問題都會在SSO日誌中生成異常或錯誤，但在某些情況下，Tomcat日誌也會有所幫助。

範例分析

來自TAC實驗室的裝置資訊

CUCM（服務提供商）：

- 版本:12.5.1.14900-11
- FQDN：1cucm1251.sckiewer.lab

Windows Server 2016（身份提供程式）：

- Active Directory聯合身份驗證服務3.0
- FQDN：WinServer2016.sckiewer.lab

CUCM日誌審查

```
tomcat/logs/ssosp/log4j/

%%%% A user has attempted to access Cisco Unified CM Administration
2021-04-30 09:00:53,156 DEBUG [http-bio-443-exec-83] filter.SSOAuthAgentFilter - servlet path
:/showHome.do
2021-04-30 09:00:53,157 DEBUG [http-bio-443-exec-83] filter.SSOAuthAgentFilter - recovery URL
:/showRecovery.do

%%%% You can see the SP and IdP EntityIDs here
2021-04-30 09:00:53,194 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
spEntityID is : 1cucm1251.sckiewer.lab
2021-04-30 09:00:53,194 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
idpEntityID : http://WinServer2016.sckiewer.lab/adfs/services/trust

%%%% The client is redirected to the SSO URL listed here
2021-04-30 09:00:53,196 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
SingleSignOnService URL :https://winserver2016.sckiewer.lab/adfs/ls/

%%%% CUCM prints the AssertionConsumerService URL and you can see that CUCM uses an HTTP-POST
2021-04-30 09:00:53,196 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
AssertionConsumerService : URL
:https://1cucm1251.sckiewer.lab:8443/ssosp/saml/SSO/alias/1cucm1251.sckiewer.lab
2021-04-30 09:00:53,196 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
AssertionConsumerService : Binding Passed in Query: urn:oasis:names:tc:SAML:2.0:bindings:HTTP-
POST
2021-04-30 09:00:53,196 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
AssertionConsumerService : Binding : urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST

%%%% Here CUCM prints the AuthnRequest to the client. The client is redirected to the IdP with
a 302 and this request
2021-04-30 09:00:53,199 DEBUG [http-bio-443-exec-83] fappend.SamlLogger - SPSSOFederate:
AuthnRequest:<samlp:AuthnRequest xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol"
ID="s29fd87c888ef6a4bc8c48d7e7087a8aeb997dd76f" Version="2.0" IssueInstant="2021-04-
30T13:00:53Z" Destination="https://winserver2016.sckiewer.lab/adfs/ls/" ForceAuthn="false"
IsPassive="false" AssertionConsumerServiceIndex="0">
<saml:Issuer
xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion">1cucm1251.sckiewer.lab</saml:Issuer>
<samlp:NameIDPolicy xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol"
Format="urn:oasis:names:tc:SAML:2.0:nameid-format:transient"
SPNameQualifier="1cucm1251.sckiewer.lab" AllowCreate="true"></samlp:NameIDPolicy>
</samlp:AuthnRequest>

%%%% You can see that CUCM has received an encoded SAML response that is base64 encoded
2021-04-30 09:01:03,986 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - SAML
Response is
::PHNhbWxwOlJlc3BvbnNlIElEPSJfYTM2ZDE5ZjItM2UzZC00Yjg0LTlhNDItNGFmN2JkMWQ4YTcxIiBWZXJzaW9uPSIyLj
AiIElzc3VlSW5zdGFudD0iMjAxOS0wOC0zMFQxMzowMTowMy44OTFaIiBEZXN0aW5hdGlvbj0iaHR0cHM6Ly8xY3VjbTEyNT
Euc2NraWV3ZXIubGFiOjg0NDMvc3Nvc3Avc2FtbC9TU08vYWxpYXMvMWN1Y20xMjUxLnNja2lld2VyLmxhYiIgQ29uc2VudD
0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6Mi4wOmNvbnNlbnQ6dW5zcGVjaWZpZWQiIEluUmVzcG9uc2VUbz0iczI5ZmQ4N2
M4ODhlZjZhNGJjOGM0OGQ3ZTcwODdhOGFlYjk5N2RkNzZmIiB4bWxuczpzYW1scD0idXJuOm9hc2lzOm5hbWVzOnRjOlNBTU
```

w6Mi4wOnByb3RvY29sIj48SXNzdWVyIHhtbG5zPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6YXNzZXJ0aW9uIj5odH
RwOi8vV2luU2VydmVyMjAxNi5zY2tpZXdlci5sYWIvYWRmcy9zZXJ2aWNlcy90cnVzdDwvSXNzdWVyPjxzYW1scDpTdGF0dX
M+PHNhbWxwOlN0YXR1c0NvZGUgVmFsdWU9InVybjpvYXNpczpuYW1lczp0YzpTQU1MOjIuMDpzdGF0dXM6U3VjY2VzcyIgLz
48L3NhbWxwOlN0YXR1cz48RW5jcnlwdGVkQXNzZXJ0aW9uIHhtbG5zPSJ1cm46b2FzaXM6bmFtZXM6dGM6U0FNTDoyLjA6YX
NzZXJ0aW9uIj48eGVuYzpFbmNyeXB0ZWREYXRhIFR5cGU9Imh0dHA6Ly93d3cudzMub3JnLzIwMDEvMDQveG1sZW5jI0VsZW
1lbnQiIHhtbG5zOnhlbmM9Imh0dHA6Ly93d3cudzMub3JnLzIwMDEvMDQveG1sZW5jIyI+PHhlbmM6RW5jcnlwdGlvbk1ldG
hvZCBBbGdvcml0aG09Imh0dHA6Ly93d3cudzMub3JnLzIwMDEvMDQveG1sZW5jI2FlczI1Ni1jYmMiIC8+PEtleUluZm8geG
1sbnM9Imh0dHA6Ly93d3cudzMub3JnLzIwMDAvMDkveG1sZHNpZyMiPjxlOkVuY3J5cHRlZEtleSB4bWxuczplPSJodHRwOi
8vd3d3LnczLm9yZy8yMDAxLzA0L3htbGVuYyMiPjxlOkVuY3J5cHRpb25pNZXRob2QgQWxnb3JpdGhtPSJodHRwOi8vd3d3Ln
czLm9yZy8yMDAxLzA0L3htbGVuYyNyc2Etb2FlcC1tZ2YxcCI+PERpZ2VzdE1ldGhvZCBBbGdvcml0aG09Imh0dHA6Ly93d3
cudzMub3JnLzIwMDAvMDkveG1sZHNpZyNzaGExIiAvPjwvZTpFbmNyeXB0aW9uTWV0aG9kPjxLZXlJbmZvPjxkczpYNTA5RG
F0YSB4bWxuczpkcz0iaHR0cDovL3d3dy53My5vcmcvMjAwMC8wOS94bWxkc2lnIyI+PGRzOlg1MDlJc3N1ZXJTZXJpYWw+PG
RzOlg1MDlJc3N1ZXJOYW1lPkw9UlRQLCBTPU5DLCBDTj1JVExSRUNPVkVSWV8xY3VjbTEyNTEuc2NraWV3ZXIubGFiLCBPVT
1UQUMsIE89Q2lzY28sIEM9VVM8L2RzOlg1MDlJc3N1ZXJOYW1lPjxkczpYNTA5U2VyaWFsTnVtYmVyPjEzNDkzNjAzNDA3Nz
A3NTkxMzA3MzMwMTI3MjY3OTM0NDY5MjA1MzwvZHM6WDUwOVNlcmlhbE51bWJlcj48L2RzOlg1MDlJc3N1ZXJTZXJpYWw+PC
9kczpYNTA5RGF0YT48L0tleUluZm8+PGU6Q2lwaGVyRGF0YT48ZTpDaXBoZXJWYWx1ZT5uRk9uN3RjNVFwZGV6SU1TTVMxc1
RBMW55aHNJTG5VQVRLakRkNUNMNkV0L3c3R2dVeEsrZkZsaDdhaGkzVFg1ZUcweEs4QkRXMXNORHM4dm94ZEYycTduL0xmck
FPTmg4ZzUzY1ZRZWN5TEtPaGlHZDNVZDNvazl5cHkwMmlZU1pYNkNMWGtGdGR5V0l6WUIzZDBwb0paeG5pdkRNUE8zMHEzbV
RwZmNQZVgzeTdGRU5UVS9DZ1Z3dkpTdllyNDRudnZmcmRHTm9DMTRhc2pqUHFvVXJ2MEN4TnUwNThCcGQwU25JSzdhSnRQaE
xya29OK1JNaWZVdzlzRWxIY0o1SVVkWE5wczhKVnNxaFBwZWpvYnZiSnBwRWM3QkdkT0ZZTW8yVWJmeTVSZ3M1UE4ya2lLTE
5YSVV0Qnh4emVxNi91VjlmbktYcFpqMy9KRWRRR3ZsOVE9PTwvZTpDaXBoZXJWYWx1ZT48L2U6Q2lwaGVyRGF0YT48L2U6RW
5jcnlwdGVkS2V5PjwvS2V5SW5mbz48eGVuYzpDaXBoZXJEYXRhPjx4ZW5jOkNpcGhlclZhbHVlPjVxeVZRYmRYaEx5L2xOdH
UvNnVQbmVUSzNIaStSc3dYVG10UnRSK1ZuQzNZMEtxU1VlWDR0TkJtNFZwclNrVUlFcDkrZDFueU9sclRPQkZNME1XUmtpbX
dKbDVGeTluWExQWXpIVndYQU5WaEFaZ3A0MEpTMXVQTlR2ZTVmY1RtbFh2UkhMR1U5WkFFbG9veGNGVDhKQloyRmJzM29NeE
5CK0J4N242bDFUZ2hpZE01M3d1Qm1xckRHWFFyQ0xJVGxOVmxMcjRJNnN4L0lmZUNJUS9KUHI3N011T20xTFk3a1BRSFFqOE
I5YlgzKzVLbUNWazhVbXFnRGZGcEVqdUl2OUdIbFVoS2FxeitGUVU4M3B5Y3B1djkvMjNQcnBIc01RTjNIQ3QvV0lDbHZPQV
BzV251Z0xrcytqVy9UTXZFWlBKdWMvWUVIYkVGc2kreWxhdDZ0UyttM2hNdGJGUVV1a3JCekM3L3RrUmFPNXhnbkJ5ZmtGak
xxVUE1ZFE3ZXY3YUU1azJJM3ZmN2haeU4wdkJKK2FnUEN4MVlpOFgxOERPS2J0dm9IYXJZNUpkUzVGQzVPeHFJVTdnVmpmdj
FIWUUvdjE1RjgzOEMxMmZzaVJZSlNPUjk4UzdZamdmaVJWK3NVdUsvV21UanpXUVhYWGVsQktBc0NCb2lvNDE3RTJLU29iaU
hiaklhbXczTUIwdlJ2MUFuZkJHazJJMUZhcms3WVM3OUkzSnZjMjlxRDVuNHB4ZllkU0xHRHlmcUxzYUN6MEE2WjR0eUtQU0
FMRk1LdE0weUxUUEcySnA4UklEaWpERDFZeU04eDN1NmIxenZrY2I2Mmo4Z2lGSWY2K1hiSkRWSVR1ZW4wa0cxeWFiM0NjZm
Y2OG8rQk1kVUFTc094UGZLVUF2UkN1WmdocDcrbFpmeEVjWlFHUnpVZ3B6MjI0TWNJVnVGbXNMVUtJMDVTVVJFNHJzaExGdX
RJRlJXNit6eXljSUlzWWFXRE5kUzUvWjRzd3lhTTQ1VFkyU1lBbW5laWYvVUwyUMzSHphWWNta2xxak9OTG1WNFlycnN3Yj
ZxTFdOS3RrUnpJUnBpb0NZVjB3RFg4blZIRUhLNTk4RW1yclI2bWIzT0N2Y21IYnhUY2dCRGV5ZWFNd1Z1dVpxd2UrN29YOX
hZUjRZSHZTa1pVbXdOd0tmeGpvUUQrK3lKOTZ6QVFqQkpjRC81c1dOTm9ldTBJNFNtSXNmbEVkT1NRSzlzUjI5ZXJQV1J6c0
hBbkpaRVptK1I5Mm9SWU9Yd2hVb2J1WjF6bWM4dUt0K2tlMkRBVCtjU3N6bUZKbFo5SVdwQzJtSVh1RFpGdnNXLzR1QjJXWi
tWc2dYdUo4eEJ4cFB4RWhjaGNNMk5yaHJxMTZOczRuL3dhZS82Nk16NFN2Z0hkM3RjZUNheWdGOEF3a1JlSHVBM2VGRjVMWm
hrRjN3UzM0Zk9ieDhPbFhER1BMNE13M09GbVF4Q0p5ZDZtVXl6Qzk1WUhYckcvNHp2ek1YVXJ6NU9lUVBQNXRxNHl2clR6OD
lHMVFFMHJkMXZGN29PNGE0aFNPOFg0VllQdmoyT2h5Yk00ZUhOQU92K2hmTzNqeWlGTnN0SnVENlU2bVZQLzhSQjg3RWsxWH
AxNUJ5YWpMR0k0V3dFYkFJZjZtVUVSQlhrTCs4Ukh4RnVvRlVuQ1kwb0dkaGdkZGRtKzNXVlIwZXE2RjNiT1dyZVdZVjlMa3
pnMXo1VjlkR2hGazVhd0ZKQkJOZ1dDeHFJQ3RrV09URHZwRnRVRk5DUmc5dHdVb3lYQTlncnAyeEsvUURieEE4dzJFNXNpUU
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%%%% Here is the encrypted SAML response from the client. You can see that the InResponseTo value matches the ID from the SAML request, so it is clear that this is a response to that request

2021-04-30 09:01:04,005 DEBUG [http-bio-8443-exec-85] fappend.SamlLogger - SPACSUtils.getResponse: got response=<samlp:Response xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol" ID="_a36d19f2-3e3d-4b84-9a42-4af7bd1d8a71" InResponseTo="s29fd87c888ef6a4bc8c48d7e7087a8aeb997dd76f" Version="2.0" IssueInstant="2021-04-30T13:01:03Z" Destination="https://1cucm1251.sckiewer.lab:8443/ssosp/saml/SSO/alias/1cucm1251.sckiewer.lab" Consent="urn:oasis:names:tc:SAML:2.0:consent:unspecified"><saml:Issuer xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion">http://WinServer2016.sckiewer.lab/adfs/services/trust</saml:Issuer><samlp:Status xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol">
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</samlp:Status><EncryptedAssertion xmlns="urn:oasis:names:tc:SAML:2.0:assertion"><xenc:EncryptedData xmlns:xenc="http://www.w3.org/2001/04/xmlenc#" Type="http://www.w3.org/2001/04/xmlenc#Element"><xenc:EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#aes256-cbc"/><KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#"><e:EncryptedKey xmlns:e="http://www.w3.org/2001/04/xmlenc#"><e:EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#rsa-oaep-mgf1p"><DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/></e:EncryptionMethod><KeyInfo><ds:X509Data xmlns:ds="http://www.w3.org/2000/09/xmldsig#"><ds:X509IssuerSerial><ds:X509IssuerName>L=RTP, S=NC, CN=ITLRECOVERY_1cucm1251.sckiewer.lab, OU=TAC, O=Cisco, C=US</ds:X509IssuerName><ds:X509SerialNumber>134936034077075913073301272679344692053</ds:X509SerialNumber></ds:X509IssuerSerial></ds:X509Data></KeyInfo><e:CipherData><e:CipherValue>nFOn7tc5Qpd
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DpicvTa6rIKPln6deyrcPOloY+RWzitSBN7nxgYVeAB2VrRulTLnZF1LVaumIqsJMpGa5b2pWZX73ShdWC89UCkYkDYCVRwb
D4lENzxKbNmazY3pCFFxUNKV7wOSdUzSVrpbKHGgKp/2hkYwfS0smNbJtWFifJ6/S/3TJPcYTxdjivayw7fyUJMPhGezmOm/
MPW92p5Tyc00d+vSGxeya7tcdcUsYgJv1E+7itk0AS5K40N7K5GFz2XV7/U3COep722JJmQyhxyTG6wN+OODw5Nflhib6i1v
ktWiwgwUwCxJ1S4fPXLXvZFHtu/fWB+xJPfjbKy4MVYZlX93+REp+fIPQBkivIfX2iXslbQ/QSQQEWwB7NdbzI8BADYnb/c2
3SfUauLCCexQ0Ym+z+7xluAa/V5GxCPZLSsGC8dikR8GBktwH1Xo+YkfwwdgjxKixLTYlabL33</xenc:CipherValue></x
enc:CipherData></xenc:EncryptedData></EncryptedAssertion></samlp:Response>

%%%% Here you can see that the IdP uses a supported binding type
2021-04-30 09:01:04,010 DEBUG [http-bio-8443-exec-85] fappend.SamlLogger -
SAML2Utils.verifyResponse:binding is :urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST

%%%% The decrypted assertion is printed here. You see that a lot of important information
covered later in this doc
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator -
<Assertion xmlns="urn:oasis:names:tc:SAML:2.0:assertion" ID="_23d2b89f-7e75-4dc8-b154-
def8767a391c" IssueInstant="2021-04-30T13:01:03.891Z"
Version="2.0"><Issuer>http://WinServer2016.sckiewer.lab/adfs/services/trust</Issuer><ds:Signatur
e xmlns:ds="http://www.w3.org/2000/09/xmldsig#"><ds:SignedInfo><ds:CanonicalizationMethod
Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/><ds:SignatureMethod
Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/><ds:Reference URI="#_23d2b89f-
7e75-4dc8-b154-def8767a391c"><ds:Transforms><ds:Transform
Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/><ds:Transform
Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/></ds:Transforms><ds:DigestMethod
Algorithm="http://www.w3.org/2001/04/xmlenc#sha256"/><ds:DigestValue>aYnlNK8NiHWHshYMggpeDsta2Gy
UKQI5MmRmx+gI374=</ds:DigestValue></ds:Reference></ds:SignedInfo><ds:SignatureValue>rvkc6QWoTCLD

ly8/MoRCzGcu0FJr6PSu5BTQt3qp5ua7J/AQbbzWn7gWK6TzI+xcH2478M2Smm5mIVVINXnGW4N0U62hZz/aqIEm+3YAYTnv
aytw9TFjld2rngkWzTIILAm6fslr9uZCVDHS37g0Ry2mUHYU0KHHXsbm/ouDS/F/LAm/w27X+5++U0o6g+NGE00QYwmo5hg+
tNWmMxCnLtfENi8dGE+CSRv1oklLIx1QtK3mMI13WiebxOzp9ZP8IR5J1JxkkOWt9wSGBmZO7Gr7ZUmmEFpJ13qfKtcNZ9P8
545rZ9UYHBcPH6H2uwYL0g8Awp5P74CAXHFwS1X2eg==</ds:SignatureValue><KeyInfo
xmlns="http://www.w3.org/2000/09/xmldsig#"><ds:X509Data><ds:X509Certificate>MIIC8DCCAdigAwIBAgIQ
Q2RhydxzTY1GQQ88eF3LWjANBgkqhkiG9w0BAQsFADA0MTIwMAYDVQQDEylBREZTIFNpZ25pbmcgLSBXaW5TZXJ2ZXIyMDE2
LnNja2lld2VyLmxhYjAeFw0xOTA0MTYxMjM0NDFaFw0yMDA0MTUxMjM0NDFaMDQxMjAwBgNVBAMTKUFERlMgU2lnbmluZyAt
IFdpblNlcnZlcjIwMTYuc2NraWV3ZXIubGFiMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAsR20Nb3o8UqWeP8z
17wkXJqIIYnqtbxiQXmdh4fJ4kNDno590dWFRjGTtcM+S44d6inis1lAfTWUgpsPWOCUgQWlA0o8Dyaq8UfiMIkt9ZrvMWc7
krMCgILTC3m9eeCcypm9CdPZnuoL863yfRI+2TJr6j/nbUeIVL1KzJHcDgAVtcn/p/+0aHOC7GplC0yVI67FumWagVt9EaK+
0SumclZYFyFTX641lfbpRbmcfAKrx0b10bfCkKDdCjgzXobuxlabzPp6IUb4NIsGIpm7fo7B23wHl/WIswu26XDp0IADbX25
id9bRnR6GXRbfnYj1LBxCmpBq0VHsO1G7VwR4QIDAQABMA0GCSqGSIb3DQEBCwUAA4IBAQCPckMMbI7J/AQh62rFQbt2KFXJ
yyKCHhzQKai6hwMseM/eKScqOXG1VqPEjtbXx2XdqECZ8AJu64i6iaH1oMIcjxQtepZMHqMh/sKh1565oA23cFO5DttgXeEf
yUBQe6R4lILi7m6IFapyPN3jL4+y4ggS/4VFVS02QPaQYZmTNnor2PPbOlMkq0mZO0D81MFk5ou1Np2zOGASq96/pa0Gi58B
xyEZGCLbJlTe5v5dQnGHL3/f5BmIxduer7nUOvrEb+EdarxxwNHHRLB484j0W7GVQ/g6WVzvOGd1uAMdYfrW5Djw1W42Kv15
0eSh3RJg54Kr5EsoUidrz982Z+lX</ds:X509Certificate></ds:X509Data></KeyInfo></ds:Signature><Subject
><NameID Format="urn:oasis:names:tc:SAML:2.0:nameid-format:transient"
NameQualifier="http://WinServer2016.sckiewer.lab/adfs/com/adfs/service/trust"
SPNameQualifier="1cucm1251.sckiewer.lab">SCKIEWER\admin</NameID><SubjectConfirmation
Method="urn:oasis:names:tc:SAML:2.0:cm:bearer"><SubjectConfirmationData
InResponseTo="s29fd87c888ef6a4bc8c48d7e7087a8aeb997dd76f" NotOnOrAfter="2021-04-
30T13:06:03.891Z"
Recipient="https://1cucm1251.sckiewer.lab:8443/ssosp/saml/SSO/alias/1cucm1251.sckiewer.lab"/></S
ubjectConfirmation></Subject><Conditions NotBefore="2021-04-30T13:01:03.891Z"
NotOnOrAfter="2021-04-
30T14:01:03.891Z"><AudienceRestriction><Audience>1cucm1251.sckiewer.lab</Audience></AudienceRest
riction></Conditions><AttributeStatement><Attribute
Name="uid"><AttributeValue>admin</AttributeValue></Attribute></AttributeStatement><AuthnStatemen
t AuthnInstant="2021-04-30T13:01:03.844Z" SessionIndex="_23d2b89f-7e75-4dc8-b154-
def8767a391c"><AuthnContext><AuthnContextClassRef>urn:oasis:names:tc:SAML:2.0:ac:classes:Passwor
dProtectedTransport</AuthnContextClassRef></AuthnContext></AuthnStatement></Assertion> XML
Representation

%%%%% CUCM looks at its current time and makes sure that it is within the validity timeframe of
the assertion
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - Time
Valid?:true
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - SAML
Authenticator:ProcessResponse. End of time validation
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator -
Attributes: {uid=[admin]}

%%%%% CUCM prints the username here
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - userid
is ::admin
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - Realy
state is ::/ccmadmin/showHome.do
2021-04-30 09:01:04,091 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - http
request context is ::/ssosp

%%%%% The client is redirected to the resource it initially tried to access
2021-04-30 09:01:04,283 INFO [http-bio-8443-exec-85] servlet.RelayToOriginalAppServlet -
relayUrl ::/ccmadmin/showHome.do::
2021-04-30 09:01:04,284 INFO [http-bio-8443-exec-85] servlet.RelayToOriginalAppServlet -
redirecting to ::/ccmadmin/showHome.do::

深入瞭解SAML請求和斷言

SAML請求

有關SAML請求的分析和資訊：

```
AuthnRequest:<samlp:AuthnRequest xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol"

%%%%% The ID from the request is returned in the assertion generated by the IdP.  This allows
CUCM to correlate the assertion with a specific request
%%%%% This log snippet was taken from CUCM 12.5, so you use the AssertionConsumerServiceIndex
rather than AssertionConsumerServiceURL (more information later in this doc)
ID="s29fd87c888ef6a4bc8c48d7e7087a8aeb997dd76f" Version="2.0" IssueInstant="2021-04-
30T13:00:53Z" Destination="https://winserver2016.sckiewer.lab/adfs/ls/" ForceAuthn="false"
IsPassive="false" AssertionConsumerServiceIndex="0">
<saml:Issuer
xmlns:saml="urn:oasis:names:tc:SAML:2.0:assertion">1cucm1251.sckiewer.lab</saml:Issuer>

%%%%% The NameID Format must be transient.
%%%%% The SP Name Qualifier allows us to see which node generated the request.
<samlp:NameIDPolicy xmlns:samlp="urn:oasis:names:tc:SAML:2.0:protocol"
Format="urn:oasis:names:tc:SAML:2.0:nameid-format:transient"
SPNameQualifier="1cucm1251.sckiewer.lab" AllowCreate="true"/>
</samlp:AuthnRequest>
```

斷言

有關SAML響應的分析和資訊：

```
<Assertion xmlns="urn:oasis:names:tc:SAML:2.0:assertion" ID="_23d2b89f-7e75-4dc8-b154-
def8767a391c" IssueInstant="2021-04-30T13:01:03.891Z" Version="2.0">

%%%%% You can see that the issuer of the assertion was my Windows server
<Issuer>http://WinServer2016.sckiewer.lab/adfs/services/trust</Issuer>
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
<ds:SignedInfo>
<ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
<ds:SignatureMethod Algorithm="http://www.w3.org/2001/04/xmldsig-more#rsa-sha256"/>
<ds:Reference URI="#_23d2b89f-7e75-4dc8-b154-def8767a391c">
<ds:Transforms>
<ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
<ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
</ds:Transforms>
<ds:DigestMethod Algorithm="http://www.w3.org/2001/04/xmlenc#sha256"/>
<ds:DigestValue>aYnlNK8NiHWHshYMggpeDsta2GyUKQI5MmRmx+gI374=</ds:DigestValue>
</ds:Reference>
</ds:SignedInfo>
<ds:SignatureValue>rvkc6QWoTCLDly8/MoRCzGcu0FJr6PSu5BTQt3qp5ua7J/AQbbzWn7gWK6TzI+xcH2478M2Smm5mI
VVINXnGW4N0U62hZz/aqIEm+3YAYTnvaytw9TFjld2rngkWzTIILAm6fslr9uZCVDHS37g0Ry2mUHYU0KHHXsbm/ouDS/F/L
Am/w27X+5++U0o6g+NGE00QYwmo5hg+tNWmMxCnLtfENi8dGE+CSRv1oklLIx1QtK3mMI13WiebxOzp9ZP8IR5J1JxkkOWt9
wSGBmZO7Gr7ZUmmEFpJ13qfKtcNZ9P8545rZ9UYHBcPH6H2uwYL0g8Awp5P74CAXHFwS1X2eg==</ds:SignatureValue>
<KeyInfo xmlns="http://www.w3.org/2000/09/xmldsig#">
<ds:X509Data>
<ds:X509Certificate>MIIC8DCCAdigAwIBAgIQQ2RhydxzTY1GQQ88eF3LWjANBgkqhkiG9w0BAQsFADA0MTIwMAYDVQQD
EylBREZTIFNpZ25pbmcgLSBXaW5TZXJ2ZXIyMDE2LnNja2lld2VyLmxhYjAeFw0xOTA0MTYxMjM0NDFaFw0yMDA0MTUxMjM0
NDFaMDQxMjAwBgNVBAMTKUFERlMgU2lnbmluZyAtIFdpblNlcnZlcjIwMTYuc2NraWV3ZXIubGFiMIIBIjANBgkqhkiG9w0B
AQEFAAOCAQ8AMIIBCgKCAQEAsR20Nb3o8UqWeP8z17wkXJqIIYnqtbxiQXmdh4fJ4kNDno590dWFRjGTtcM+S44d6inis1lA
fTWUgpsPWOCUgQWlA0o8Dyaq8UfiMIkt9ZrvMWc7krMCgILTC3m9eeCcypm9CdPZnuoL863yfRI+2TJr6j/nbUeIVL1KzJHc
DgAVtcn/p/+0aHOC7GplC0yVI67FumWagVt9EaK+0SumclZYFyFTX641lfbpRbmcfAKrx0b10bfCkKDdCjgzXobuxlabzPp6
IUb4NIsGIpm7fo7B23wHl/WIswu26XDp0IADbX25id9bRnR6GXRbfnYj1LBxCmpBq0VHsO1G7VwR4QIDAQABMA0GCSqGSIb3
DQEBCwUAA4IBAQCPckMMbI7J/AQh62rFQbt2KFXJyyKCHhzQKai6hwMseM/eKScqOXG1VqPEjtbXx2XdqECZ8AJu64i6iaH1
oMIcjxQtepZMHqMh/sKh1565oA23cFO5DttgXeEfyUBQe6R4lILi7m6IFapyPN3jL4+y4ggS/4VFVS02QPaQYZmTNnor2PPb
OlMkq0mZO0D81MFk5ou1Np2zOGASq96/pa0Gi58BxyEZGCLbJlTe5v5dQnGHL3/f5BmIxduer7nUOvrEb+EdarxxwNHHRLB4
84j0W7GVQ/g6WVzvOGd1uAMdYfrW5Djw1W42Kv150eSh3RJg54Kr5EsoUidrz982Z+lX</ds:X509Certificate>
```

```
</ds:X509Data>
</KeyInfo>
</ds:Signature>
<Subject>

%%%% The NameID Format is transient which is what CUCM expects
<NameID Format="urn:oasis:names:tc:SAML:2.0:nameid-format:transient"
NameQualifier="http://WinServer2016.sckiewer.lab/adfs/com/adfs/service/trust"
SPNameQualifier="1cucm1251.sckiewer.lab">SCKIEWER\admin</NameID>
<SubjectConfirmation Method="urn:oasis:names:tc:SAML:2.0:cm:bearer">

%%%% You have an InResponseTo value that matches our SAML request, so you can correlate a given
assertion to a SAML request
<SubjectConfirmationData InResponseTo="s29fd87c888ef6a4bc8c48d7e7087a8aeb997dd76f"
NotOnOrAfter="2021-04-30T13:06:03.891Z"
Recipient="https://1cucm1251.sckiewer.lab:8443/ssosp/saml/SSO/alias/1cucm1251.sckiewer.lab"/>
</SubjectConfirmation>
</Subject>

%%%% You can see here that this assertion is only to be considered valid from 13:01:03:891-
14:01:03:891 on 8/30/19
<Conditions NotBefore="2021-04-30T13:01:03.891Z" NotOnOrAfter="2021-04-30T14:01:03.891Z">
<AudienceRestriction>
<Audience>1cucm1251.sckiewer.lab</Audience>
</AudienceRestriction>
</Conditions>

%%%% AttributeStatement is a required section that provides the ID of the user (admin in this
case) and the attribute type
<AttributeStatement>
<Attribute Name="uid">
<AttributeValue>admin</AttributeValue>
</Attribute>
</AttributeStatement>
<AuthnStatement AuthnInstant="2021-04-30T13:01:03.844Z" SessionIndex="_23d2b89f-7e75-4dc8-b154-
def8767a391c">
<AuthnContext>
<AuthnContextClassRef>urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport</AuthnCo
ntextClassRef>
</AuthnContext>
</AuthnStatement>
</Assertion> XML Representation
```

實用的CLI命令

- utils sso disable — 這樣，如果SSO不起作用，可以將其禁用
- utils sso status — 顯示節點上SSO的當前狀態
- utils sso recovery-url enable — 此選項可讓您停用復原URL
- utils sso recovery-url disable — 此選項可讓您啟用恢復URL
- show samltrace level — 顯示SSO日誌的當前日誌級別
- set samltrace level — 這允許您設定SSO日誌的日誌級別。 需要將此項設定為DEBUG，才能有效地排除故障。

從AssertionConsumerServiceURL更改為AssertionConsumerServiceIndex

在CUCM 11.5中新增群集範圍的SSO時，CUCM不再在SAML請求中寫入AssertionConsumerService(ACS)URL。相反，CUCM會寫入AssertionConsumerServiceIndex。請參閱來自SAML請求的以下片段：

CUCM 11.5.1之前的版本：

```
AssertionConsumerServiceURL="https://1cucm1101.sckiewer.lab:443/ssosp/saml/SSO/alias/1cucm1101.sckiewer.lab"
```

CUCM 11.5.1及更高版本：

```
AssertionConsumerServiceIndex="0"
```

在11.5及更高版本中，CUCM希望IdP使用請求中的ACS索引號，以便從配置過程中上載的後設資料檔案中查詢ACS URL。此CUCM後設資料片段顯示與索引0關聯的發佈者的POST URL:

```
<md:AssertionConsumerService index="0"
Location="https://cucm14.sckiewer.lab:8443/ssosp/saml/SSO/alias/cucm14.sckiewer.lab"
Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"/>
```

沒有解決方法可以更改此行為，並且IdP必須使用ACS索引值而不是ACS URL。如需更多資訊，請參閱思科錯誤ID CSCvc56596。

常見問題

無法訪問作業系統管理或災難恢復

在CUCM 12.x中，思科統一作業系統管理和災難恢復系統Web應用程式使用SSO。如果在啟用SSO後登入嘗試這些應用程式失敗並出現403錯誤，則可能是由於CUCM平台無法找到使用者ID。出現這種情況是因為這些應用程式不引用CM管理、可維護性和報告使用的終端使用者表。因此，CUCM平台端不存在已驗證IdP的使用者ID，因此CUCM返回403 Forbidden。本文檔詳細說明了如何將適當的使用者新增到系統中，以便平台應用程式成功使用SSO。

NTP故障

由於IdP為斷言附加了「有效性時間範圍」，因此SSO具有時間敏感性。為了驗證時間是否是您案例中的問題，您可以在SSO日誌中查詢此部分：

```
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - Time
Valid?:true
2021-04-30 09:01:04,090 DEBUG [http-bio-8443-exec-85] authentication.SAMLAuthenticator - SAML
Authenticator:ProcessResponse. End of time validation
```

如果您在SSO日誌中發現**Time Valid?:false**，請調查斷言的Conditions部分以確定斷言必須被視為有效的時間範圍：

```
<Conditions NotBefore="2021-04-30T13:01:03.891Z" NotOnOrAfter="2021-04-30T14:01:03.891Z">
<AudienceRestriction>
<Audience>1cucm1251.sckiewer.lab</Audience>
</AudienceRestriction>
</Conditions>
```

您可以在示例代碼片段中看到，此斷言僅在2021年4月30日13:01:03:8917到14:01:03:8917之間有效。在故障情形中，請參閱CUCM收到此斷言的時間，並驗證它是否處於斷言的有效期限內。如果CUCM處理斷言的時間超出了有效期，則這就是問題的原因。確保CUCM和IdP都同步到同一個NTP伺服器，因為SSO非常時間敏感。

無效的屬性語句

請參閱這裡對斷言的分析並檢視有關attribute語句的註釋。思科統一通訊產品要求IdP提供屬性語句，但有時候IdP不傳送屬性語句。為便於參考，這是一個有效的AttributeStatement:

```
<AttributeStatement>
<Attribute Name="uid">
<AttributeValue>admin</AttributeValue>
</Attribute>
</AttributeStatement>
```

如果您看到來自IdP的斷言，但忽略了屬性語句，則需要與IdP軟體的供應商合作，以進行必要的更改，以便它提供此語句。此修復程式因IdP而異，在有些情況下，此語句中傳送的資訊可能比在代碼片段中看到的更多。只要Attribute Name設定為uid ，且AttributeValue與CUCM資料庫中具有正確許可權的使用者相匹配，登入就會成功。

兩個簽名證書 — AD FS

此問題特定於Microsoft AD FS。當AD FS上的簽名證書即將到期時，Windows Server將自動生成新證書，但保留舊證書直到到期。發生這種情況時，AD FS後設資料包含兩個簽名證書。在此時間範圍內嘗試運行SSO測試時，可以看到以下錯誤消息：**處理SAML響應時出錯。**

> **注意：處理SAML響應時也會出現其他問題，因**此，如果您看到此錯誤，請不要假定這是您的問題。 請務必檢查要驗證的SSO日誌。

如果看到此錯誤，請檢視SSO日誌並查詢以下內容：

```
2018-12-26 13:49:59,581 ERROR [http-bio-443-exec-45] authentication.SAMLAuthenticator - Error
while processing saml response The signing certificate does not match what's defined in the
entity metadata.
com.sun.identity.saml2.common.SAML2Exception: The signing certificate does not match what's
defined in the entity metadata.
```

此錯誤表示匯入到CUCM的IdP後設資料包含與此SAML交換中使用的IdP不匹配的簽名證書。發生此錯誤通常是由於AD FS有兩個簽名證書。 當原始證書即將到期時，AD FS會自動生成新證書。您必須從AD FS下載新的後設資料檔案，驗證它只有一個簽名和加密證書，然後將其匯入CUCM。其他IdP還有需要更新的簽名證書，因此可能有人手動更新了它，但只是沒有將包含新證書的新後設資料檔案匯入到CUCM。

如果您遇到上述錯誤：

- 如果您使用AD FS，請參閱思科錯誤ID CSCuj66703
- 如果不使用AD FS，請從IdP收集新的後設資料檔案並將其匯入CUCM

響應中的狀態代碼無效

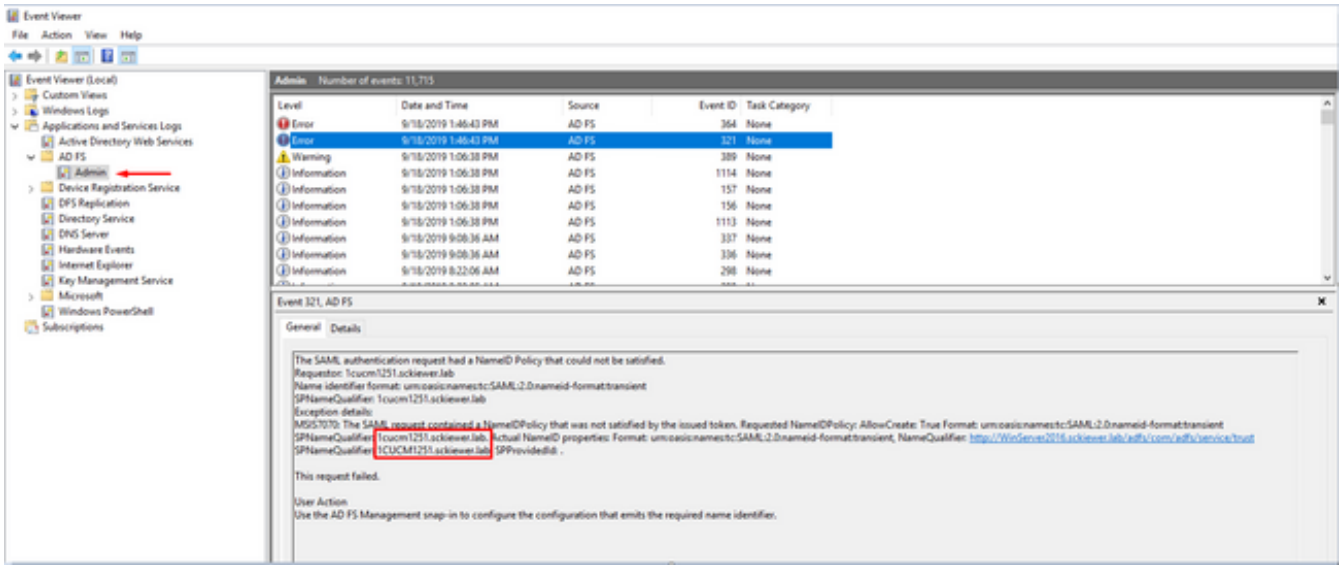
在使用AD FS的部署中，這是常見錯誤：

```
Invalid Status code in Response. This may be caused by a configuration error in the IDP. Please
check the IDP logs and configuration.
```

在幾乎所有情況下，這是與AD FS端上的索賠規則有關的問題。我建議先將規則貼上到記事本中

，新增您的實體ID，然後將規則從記事本貼上到AD FS中。在某些情況下，直接從電子郵件或瀏覽器進行複製/貼上可能會省略某些標點符號並導致語法錯誤。

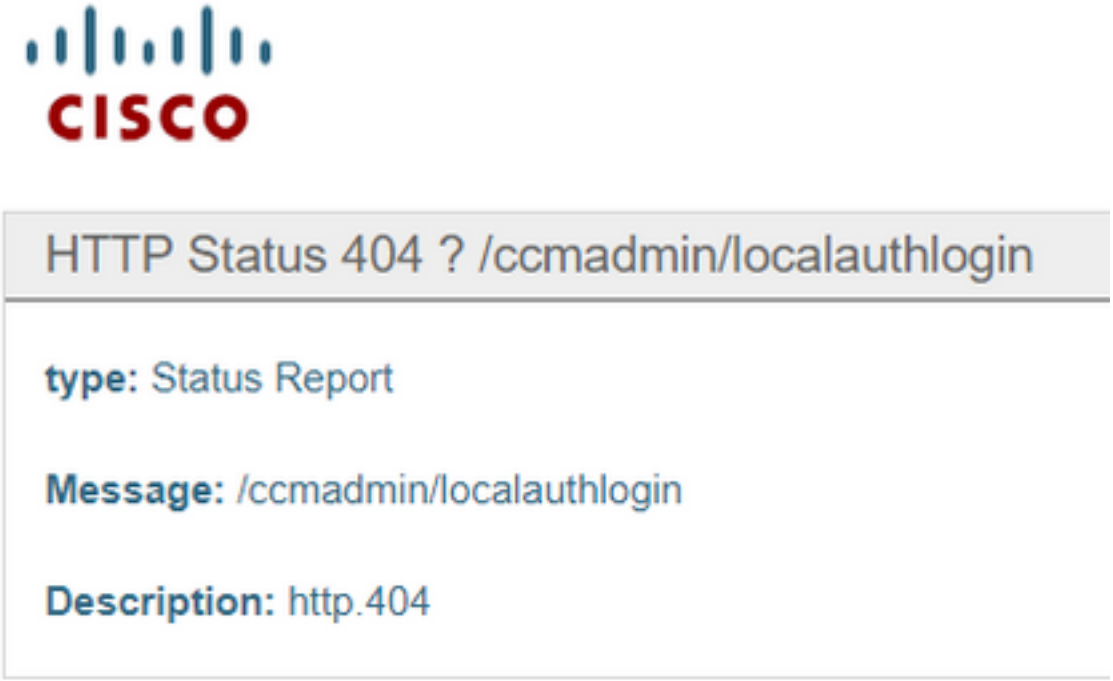
另一個常見問題是宣告規則，即IdP或SP FQDN的大小與後設資料檔案中的entityID不匹配。您需要檢查Windows Server上的事件檢視器日誌，以確定這是否屬於您的問題。



您可以在圖中看到，請求的NameID為1cucm1251.sckiewer.lab，而實際的NameID為1CUCM1251.sckiewer.lab。 在宣告規則中設定Actual NameID時，請求的NameID必須與SP後設資料檔案中的entityID匹配。 要解決此問題，我需要用小寫FQDN更新SP宣告規則。

CLI和GUI之間的SSO狀態不匹配

在某些情況下，**utils sso status**和GUI可以顯示有關SSO是啟用還是禁用的不同資訊。 解決此問題的最簡單方法是禁用和重新啟用SSO。通過啟用過程更新的檔案和引用數量非常多，因此嘗試手動更新所有這些檔案是不可行的。 在大多數情況下，您可以登入到GUI，然後禁用並重新啟用，而不會出現問題。 當您嘗試通過恢復URL或主連結訪問發佈伺服器時，可能會看到以下錯誤：



您可以檢查GUI以檢視恢復URL是否是一個選項，還可以從CLI檢查**utils sso status**輸出：

```
admin:utils sso status
SSO Status: SAML SSO Enabled
IdP Metadata Imported Date = Fri Apr 09 09:09:00 EDT 2021
SP Metadata Exported Date = Fri Apr 02 15:00:42 EDT 2021
SSO Test Result Date = Fri Apr 09 09:10:39 EDT 2021
SAML SSO Test Status = passed
Recovery URL Status = enabled
Entity ID = http://WinServer2016.sckiewer.lab/adfs/services/trust
```

接下來，您需要檢查進程節點表。 在此示例中，您可以看到資料庫中已禁用SSO（請參閱最右側1cucm1251.sckiewer.lab的tkssomode值）：

```
admin:run sql select pkid,name,tkssomode from processnode
pkid name tkssomode
==================================== ================== =========
00000000-1111-0000-0000-000000000000 EnterpriseWideData 0
04bff76f-ba8c-456e-8e8f-5708ce321c20 1cucm1251.sckiewer.lab 0

admin:run sql select * from typessomode enum name moniker ==== ========== ================== 0
Disable SSO_MODE_DISABLE 1 Agent Flow SSO_MODE_AGENT_FLOW 2 SAML SSO_MODE_SAML
```

為了解決此問題，您需要將進程節點表上的tkssomode欄位重新設定為2，以便您可以通過恢復URL登入：

```
admin:run sql update processnode set tkssomode='2' where name ='1cucm1251.sckiewer.lab'
Rows: 1

admin:run sql select pkid,name,tkssomode from processnode
pkid name tkssomode
==================================== ================== =========
00000000-1111-0000-0000-000000000000 EnterpriseWideData 0
04bff76f-ba8c-456e-8e8f-5708ce321c20 1cucm1251.sckiewer.lab 2
```

此時，測試恢復URL並繼續執行**Disable > Re-enable of SSO**，這將觸發CUCM更新系統中的所有引用。

相關資訊

- 思科統一通訊應用SAML SSO部署指南12.5(1)版
- 安全宣告標籤語言(SAML)V2.0技術概述
- 技術支援與文件 - Cisco Systems

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）。