Contents

Introduction

This document describes how to configure and verify Security Assertion Markup Language (SAML) Single Sign-on (SSO) for Cisco Unified Communications Manager (CUCM).

Prerequisites

Requirements

Network Time Protocol (NTP) Setup

For SAML SSO to work, you must install the correct NTP setup and make sure that the time difference between the Identity Provider (IdP) and the Unified Communications applications does not exceed three seconds.

If there is a time mismatch between CUCM and IdP, you receive this error: "Invalid SAML response." This error might be caused when time is out of sync between the CUCM and IdP servers. For SAML SSO to work, you must install the correct NTP setup and make sure that the time difference between the IdP and the Unified Communications applications does not exceed three seconds.

For information about how to synchronize clocks, refer to the NTP Settings section in Cisco Unified Communications Operating System Administration Guide.

Domain Name Server (DNS) Setup

Unified Communications applications can use DNS in order to resolve Fully Qualified Domain Names (FQDNs) to IP addresses. The Service Providers and the IdP must be resolvable by the browser.

Components Used

The information in this document is based on these software and hardware versions:

- Active Directory Federation Service (AD FS) Version 2.0 as IdP
- CUCM Version 10.5 as Service Provider
- Microsoft Internet Explorer 10

> **Caution**: This document is based on a newly-installed CUCM. If you configure SAML SSO on an already-in-production server, you might have to skip some of the steps accordingly. You must also understand the service impact if you perform the steps on the production server. It is recommended to perform this procedure during non-business hours.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Background Information

SAML is an XML-based, open-standard data format that enables administrators to access a defined set of Cisco collaboration applications seamlessly after they sign into one of those applications. SAML SSO establishes a Circle of Trust (CoT) when it exchanges metadata as part of the provisioning process between the IdP and the Service Provider. The Service Provider trusts the IdP's user information to provide access to the various services or applications.

> **Note**: Service Providers are no longer involved in authentication. SAML Version 2.0 delegates authentication away from the Service Providers and to the IdPs. The client authenticates against the IdP, and the IdP grants an Assertion to the client. The client presents the Assertion to the Service Provider. Since there is a CoT established, the Service Provider trusts the Assertion and grants access to the client.

Configure

Network Diagram

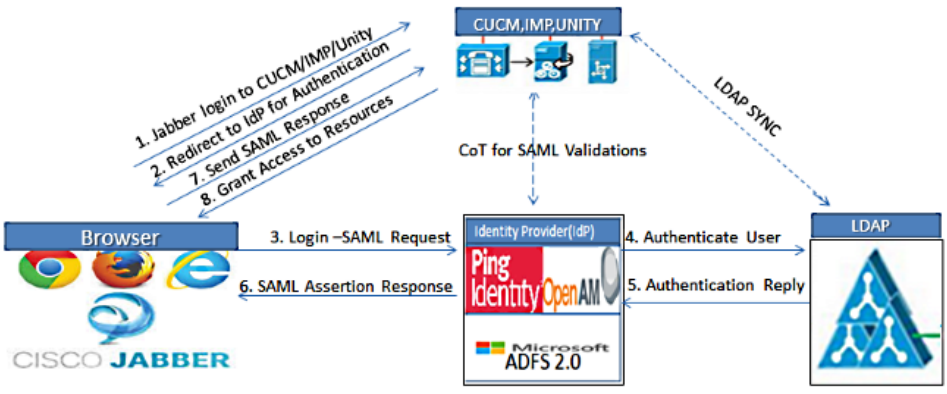
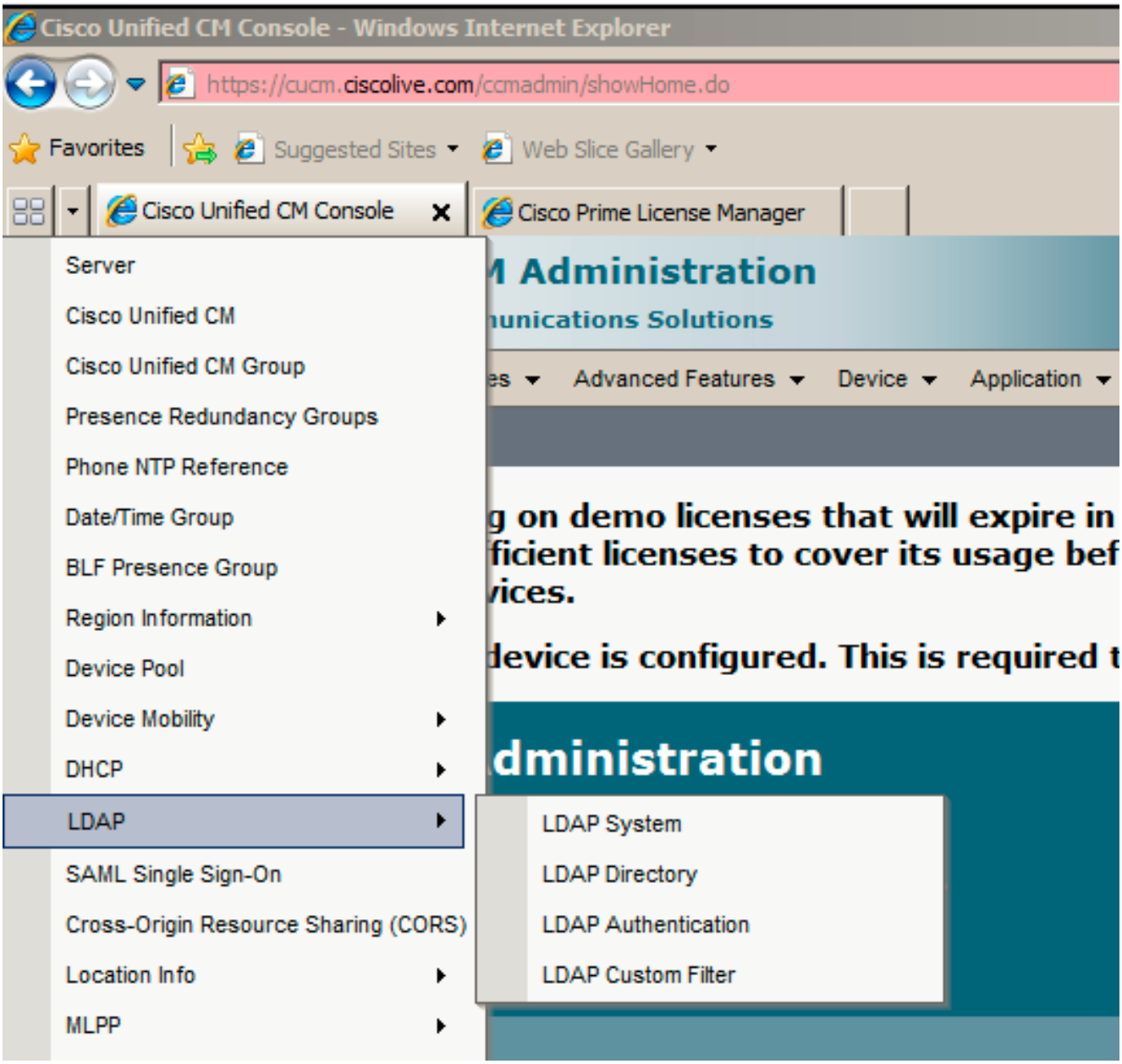


Figure :SAML Single sign SSO Call Flow for Collaboration Servers

Directory Setup

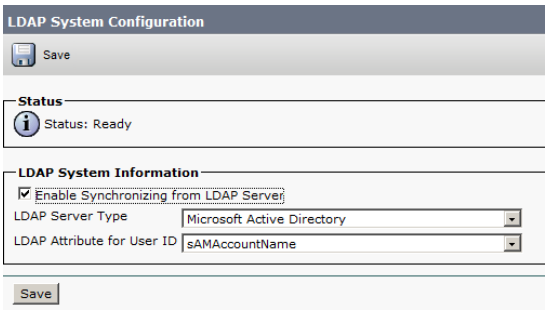
1. Choose **Cisco Unified CM Administration > System > LDAP > LDAP System.**



2. Click **Add New**.

3. Configure the Lightweight Directory Access Protocol (LDAP) server type and attribute.

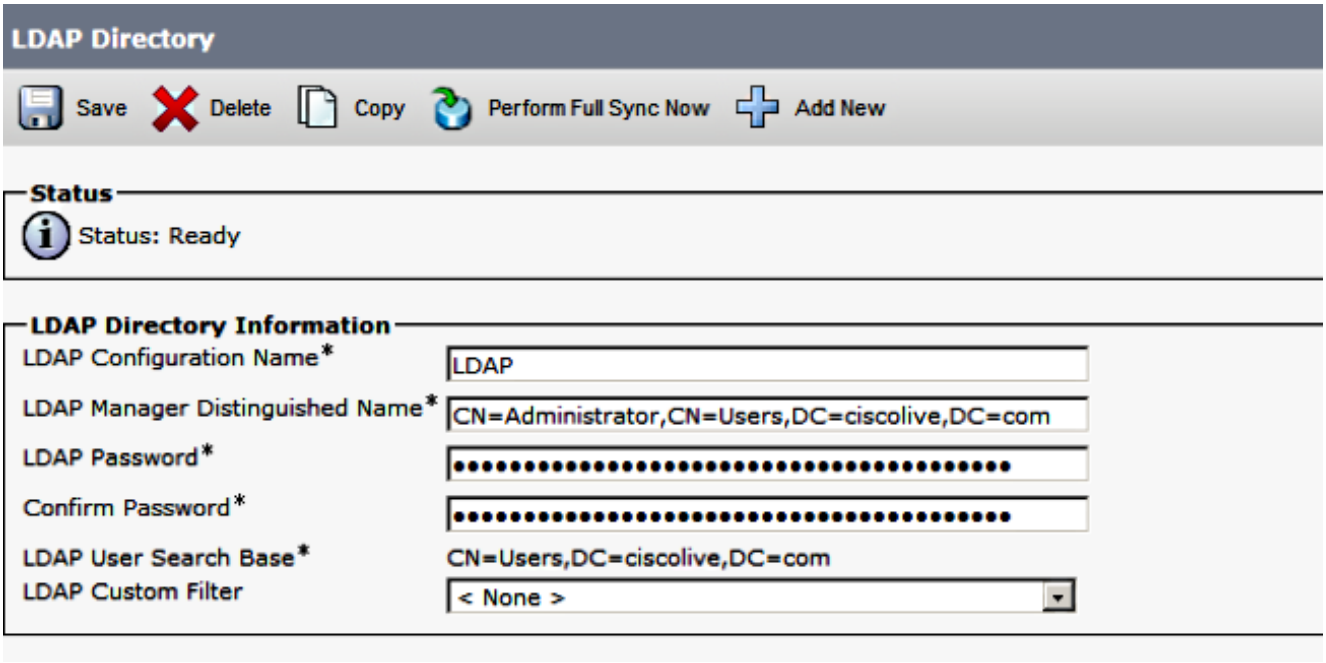
4. Choose **Enable Synchronizing from LDAP Server**.



5. Choose **Cisco Unified CM Administration > System > LDAP > LDAP Directory**.

6. Configure these items:

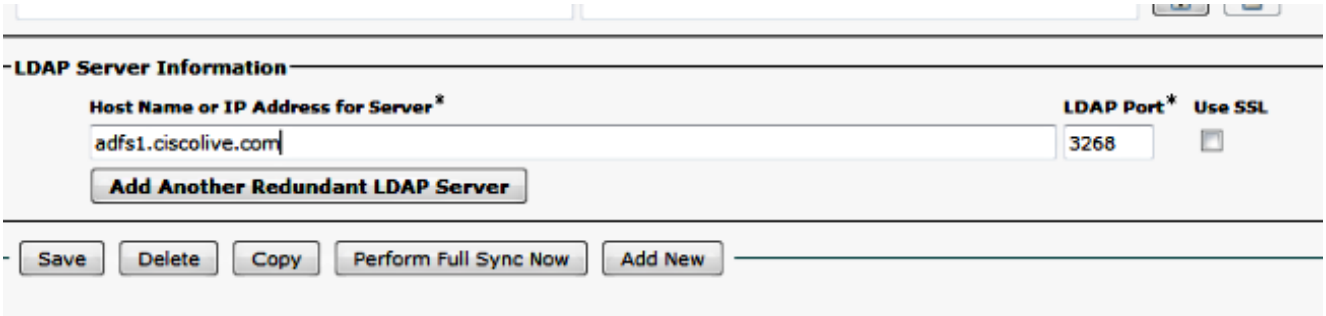
   LDAP directory account settingsUser attributes to be synchronizedSynchronization scheduleLDAP server hostname or IP address and port number



7. Uncheck **Use SSL** if you do not want to use Secure Socket Layer (SSL) in order to communicate with the LDAP directory.

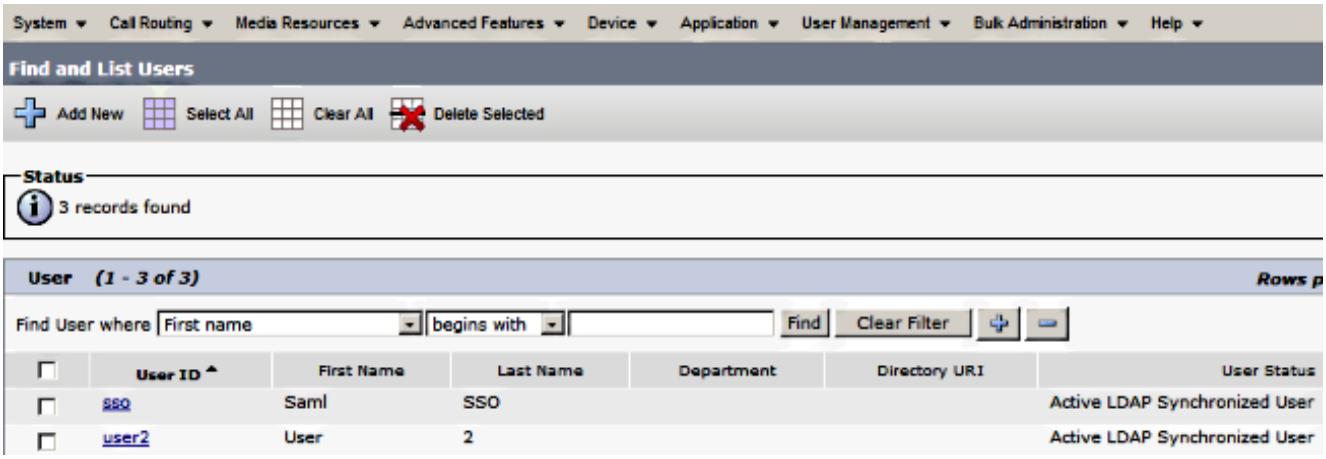
   Tip: If you want to configure LDAP over SSL, upload the LDAP directory certificate onto CUCM. See the LDAP directory content in Cisco Unified Communications Manager SRND for information about the account synchronization mechanism for specific LDAP products and general best practices for LDAP synchronization.

8. Click **Save** and then **Perform Full Sync Now**.

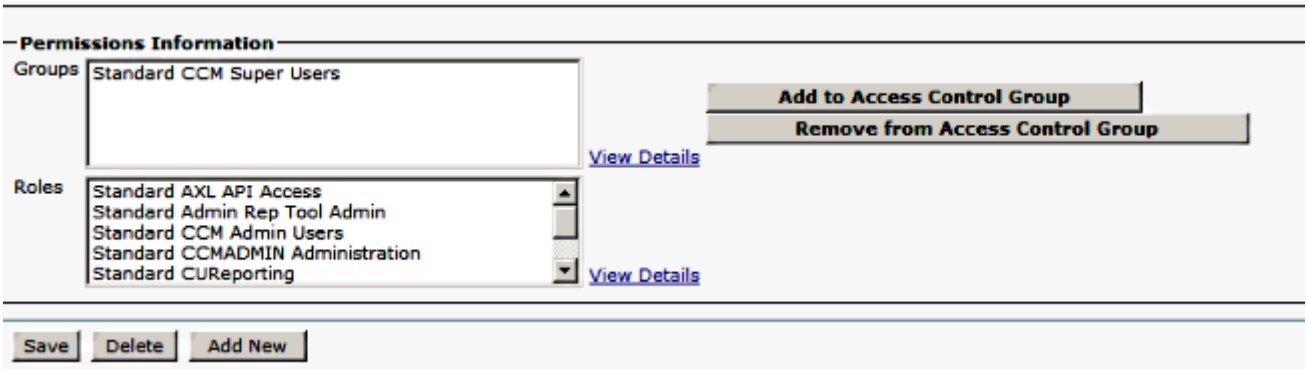


   Note: Make sure **Cisco DirSync** service is enabled in the Serviceability web page before you click Save.

9. Navigate to **User Management > End User**, and select a user to whom you want to give the CUCM Administrative role (this example selects user **SSO**).



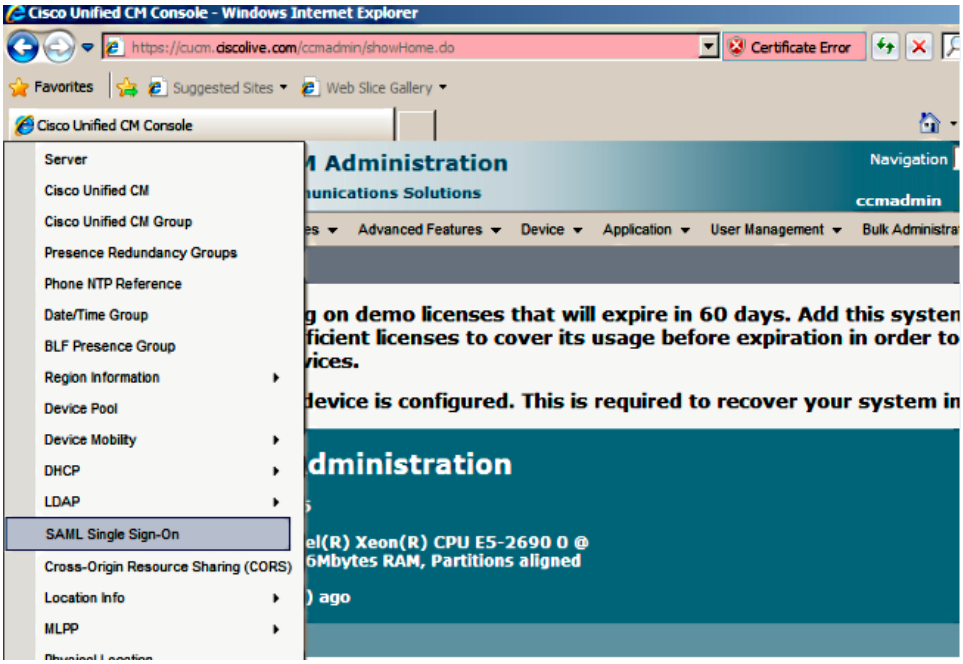
10. Scroll down to the Permissions Information and click **Add to Access Control Group**. Select **Standard CCM Super Users**, click **Add Selected**, and click **Save**.



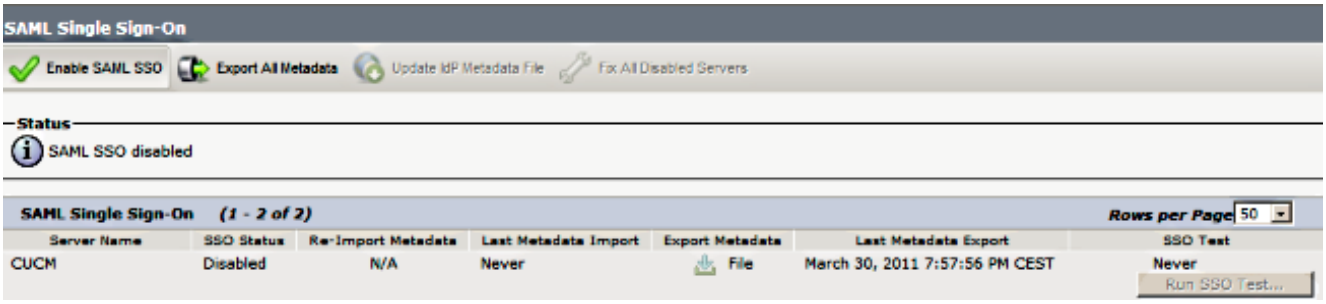
Enable SAML SSO

1. Log into the CUCM Administration user interface.

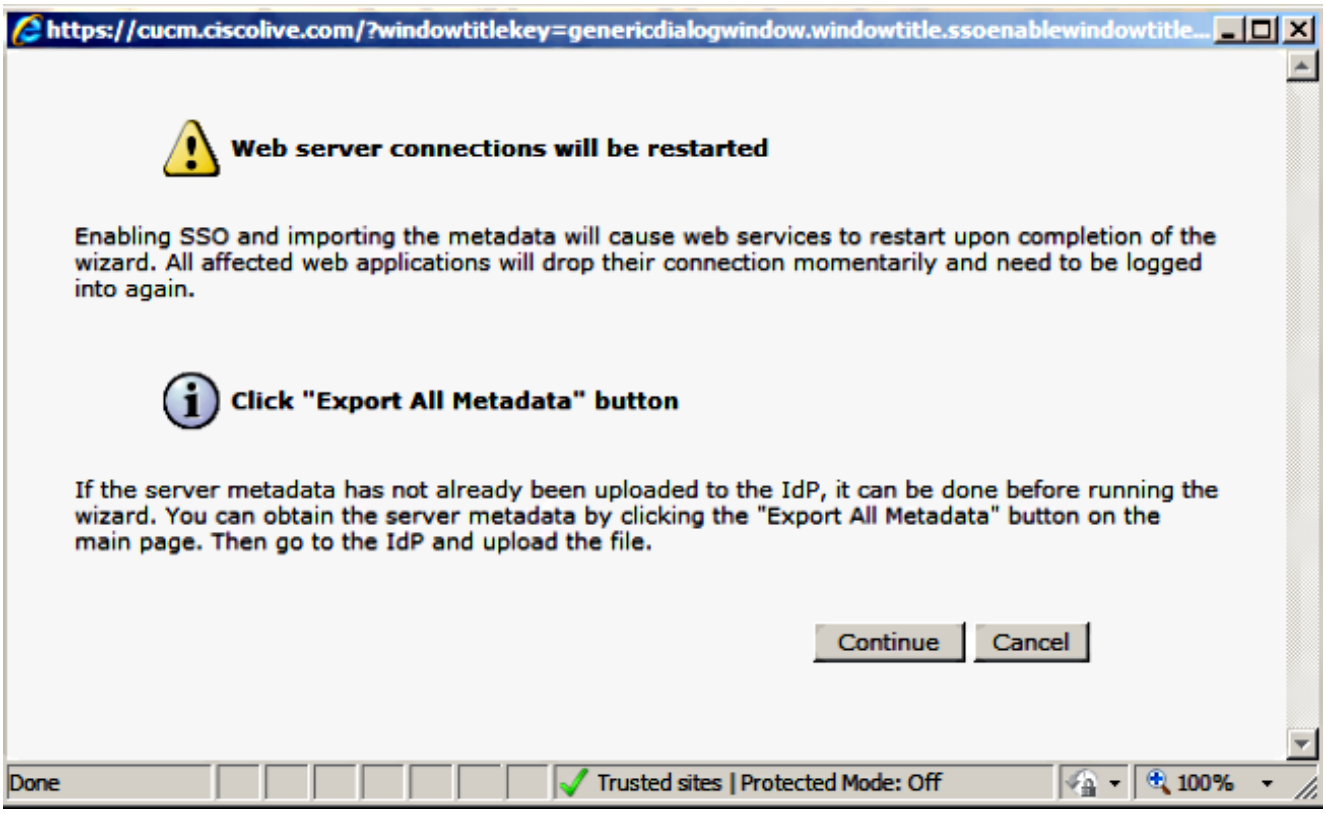
2. Choose **System > SAML Single Sign-On** and the SAML Single Sign-On Configuration window opens.



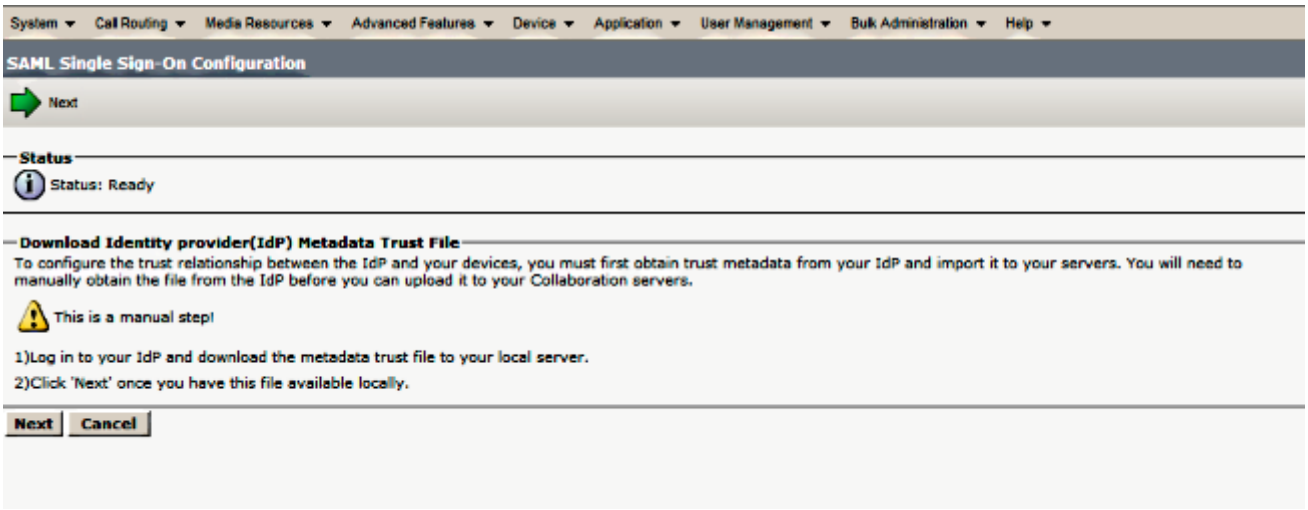
3. In order to enable SAML SSO on the cluster, click **Enable SAML SSO**.



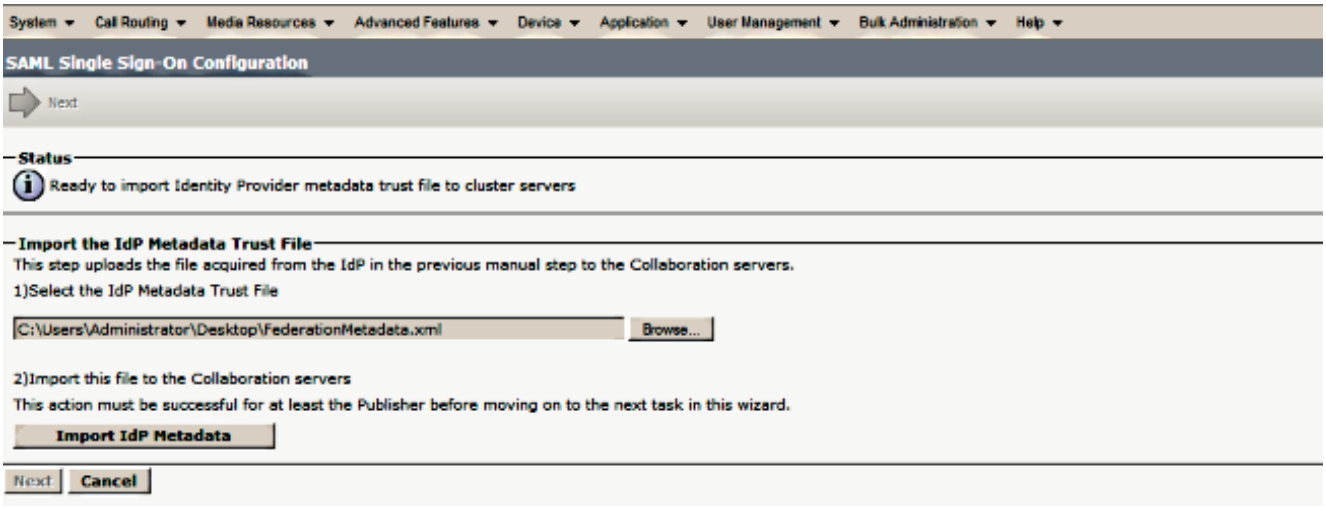
4. In the Reset Warning window, click **Continue**.

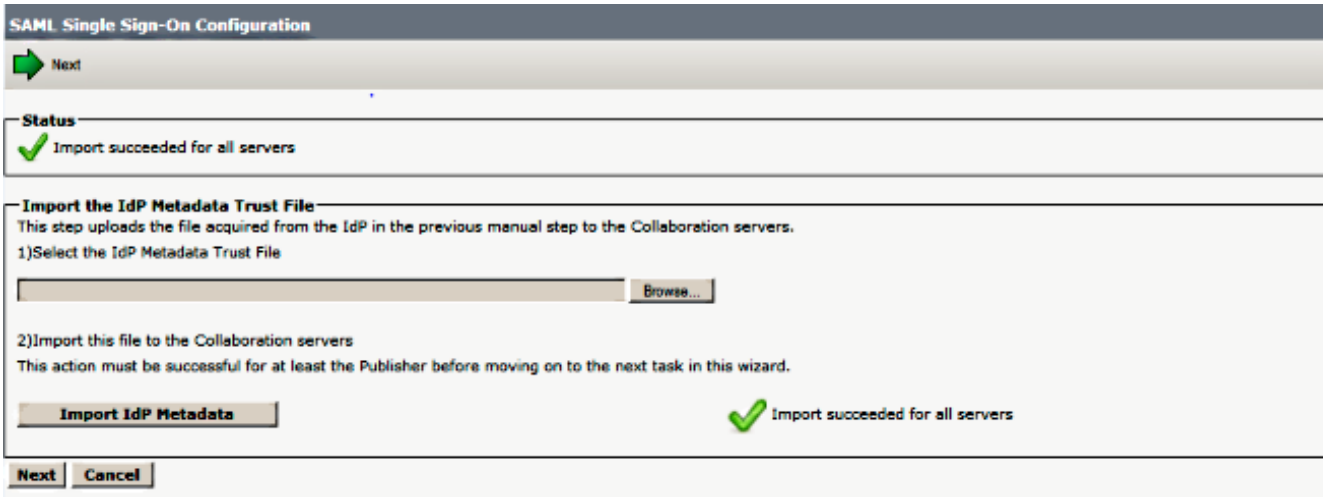


5. On the SSO screen, click **Browse** in order to import the IdP (**FederationMetadata.xml**) metadata XML file with the **Download IdP Metadata** step.

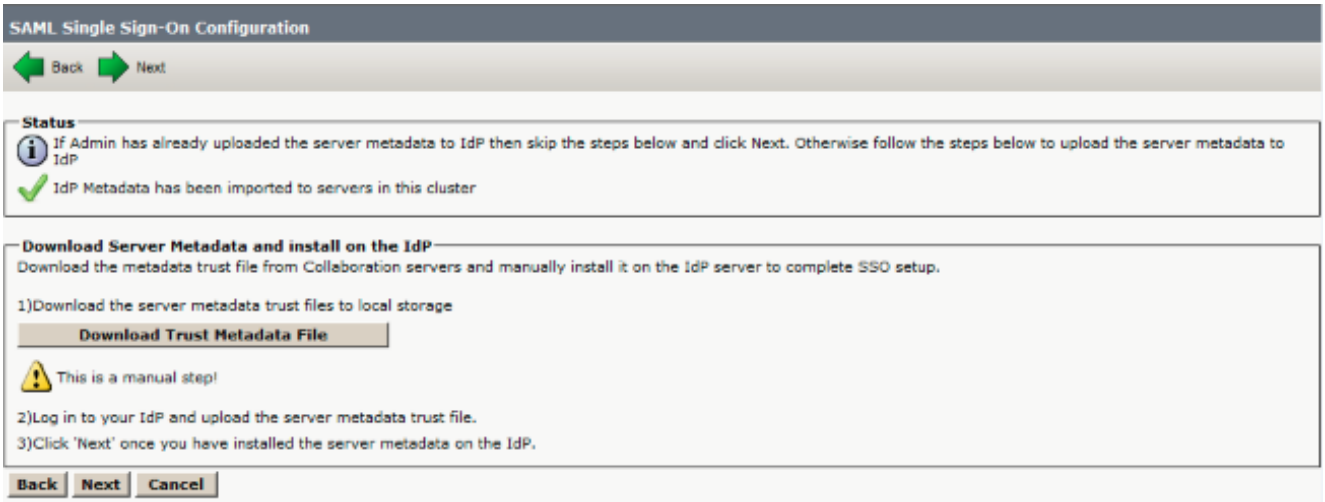


6. Once the metadata file is uploaded, click **Import IdP Metadata** in order to import the IdP information to CUCM. Confirm that the import was successful and click **Next** in order to continue.

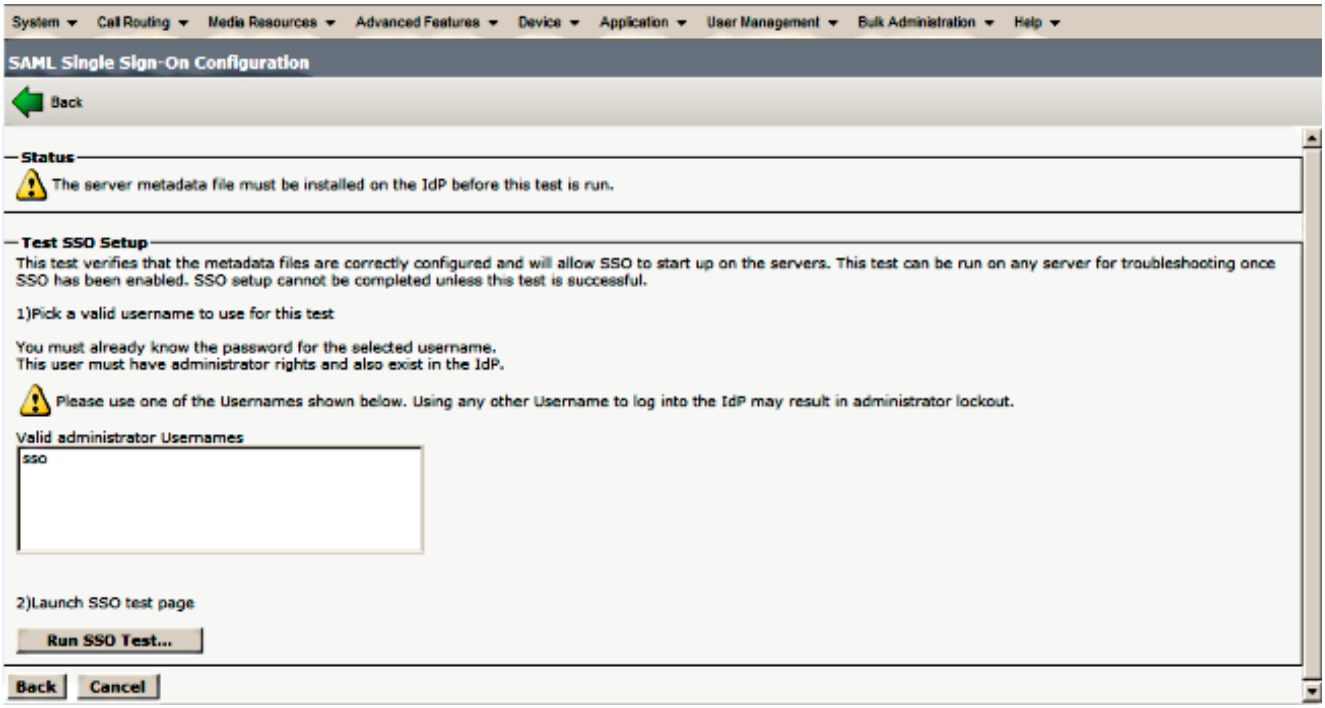




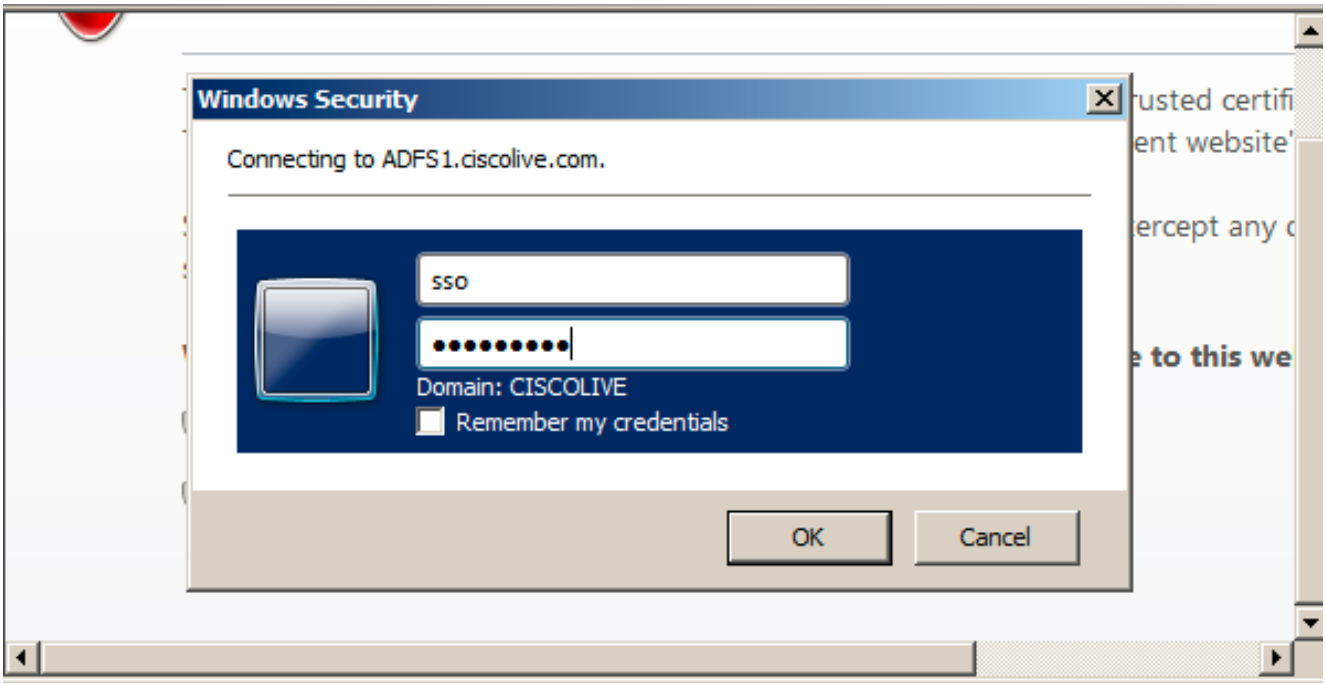
7. Click **Download Trust Metadata File** (optional) in order to save the CUCM and the CUCM IM and Presence metadata to a local folder and go to Add CUCM as Relying Party Trust. Once the AD FS configuration is completed, proceed to Step 8.



8. Select **SSO** as the administrative user and click **Run SSO Test.**



9. Ignore Certificate Warnings and proceed further. When you are prompted for credentials, enter the username and password for user **SSO** and click **OK**.



Note: This configuration example is based on CUCM and AD FS self-signed certificates. In case you use Certificate Authority (CA) certificates, appropriate certificates must be installed on both AD FS and CUCM. Refer Certificate Management and Validation for more information.

10. After all steps are complete, the "SSO Test Succeeded!" message displays. Click **Close** and **Finish** to continue. You have now successfully completed the configuration tasks in order to enable SSO on CUCM with AD FS.

11. Since CUCM IM and Presence acts like the CUCM Subscriber, you must configure Add CUCM IM and Presence as Relying Party Trust and then run **Run SSO Test** in order to enable SAML SSO from the CUCM SAML SSO page itself.

    Note: If you configure all nodes' metadata XML files on IdP and you enable SSO operation on one node, then SAML SSO is enabled on all of the nodes in the cluster.

    AD FS must be configured for all of the nodes of CUCM and CUCM IM and Presence in a cluster as Relaying Party.

    Tip: You should also configure Cisco Unity Connection and CUCM IM and Presence for SAML SSO if you want to use the SAML SSO experience for Cisco Jabber Clients.

Verify

Use this section in order to confirm that your configuration works properly.

1. Open a web browser and enter the FQDN for CUCM.

2. Click **Cisco Unified Communications Manager**.

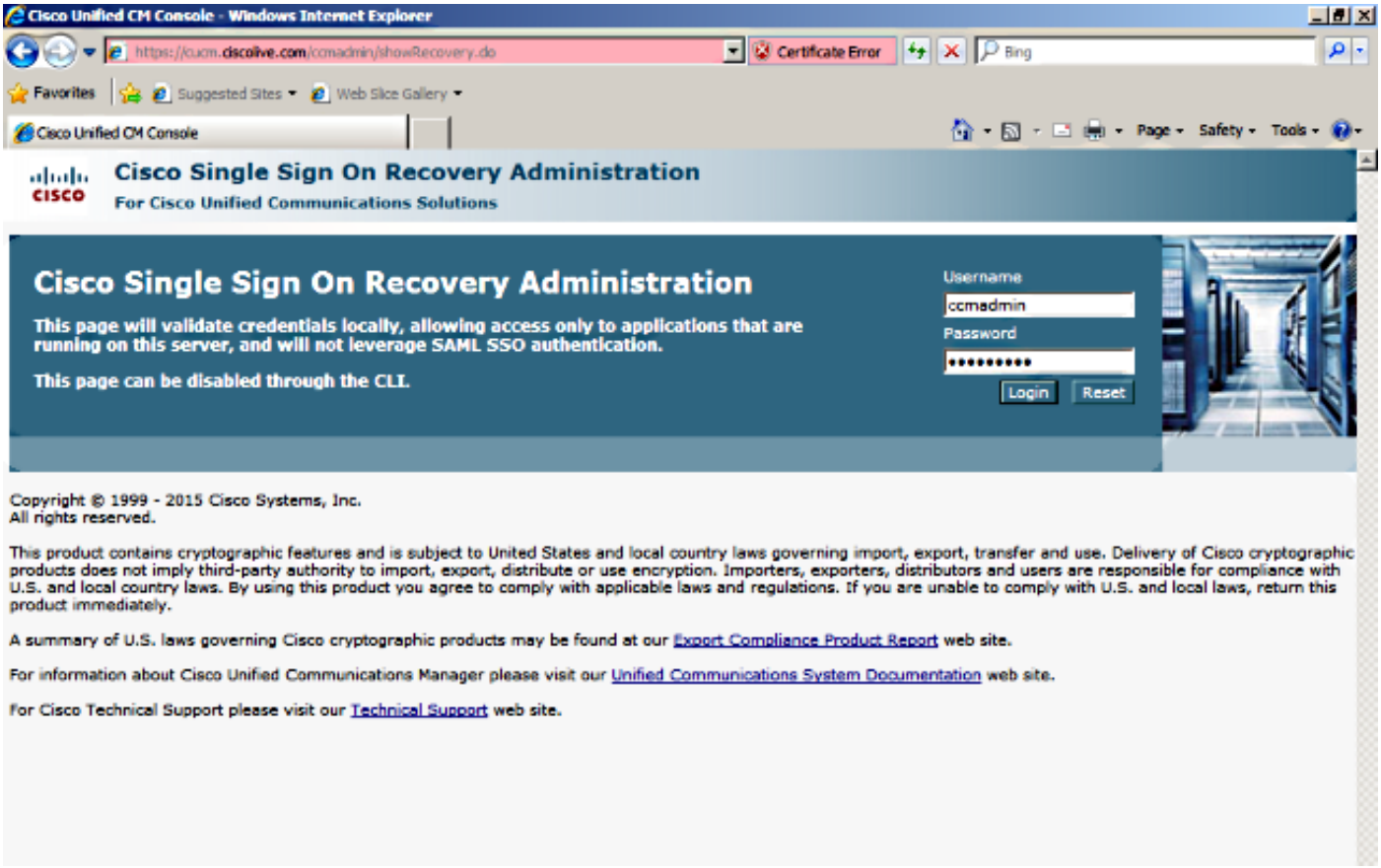
3. Select the webapp (**CM Administration/Unified Serviceability/ Cisco Unified Reporting**) and press **Go**, then you should be prompted for credentials by the AD FS. Once you enter the credentials of user **SSO**, you are successfully logged into the selected webapp (**CM Administration pag , Unified Serviceability page, Cisco Unified Reporting**).

Note: SAML SSO does not enable access to these pages:

- Prime Licensing Manager
- OS Administration
- Disaster Recovery system

Troubleshoot

If you are not able to enable SAML and you are not able to log in, use the new option under Installed Applications called **Recovery URL to bypass Single Sign-on (SSO)**, which can be used in order to log in with the credentials created during installation or locally-created CUCM Administrative users.



For further troubleshooting, refer to Troubleshooting SAML SSO for Collaboration Products 10.x.