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1 Getting Started

SAP Single Sign-On (SAP SSO) enables companies to eliminate the need for multiple passwords and user IDs. With SAP SSO, part of a comprehensive single sign-on portfolio for multiple user authentication processes, you can lower the risks of unsecured login information, reduce help desk calls, and help ensure the confidentiality and security of personal and company data.

The master guide provides an overview of SAP Single Sign-On, its software units, and its scenarios. Use it to help you design your single sign-on system landscape before you start the implementation phase. It refers you to the required detailed documentation.

- SAP Notes
- Installation and upgrade information for individual software components
- Configuration and operation information for individual software components
- Security information for individual software components

1.1 Related Information

For more information about planning topics not covered in this guide, see the content on SAP Service Marketplace, SAP Help Portal, and SAP Community Network.

Related Information

http://help.sap.com/nwsso20
http://scn.sap.com/community/netweaver-sso
https://service.sap.com/swdc
https://service.sap.com/message
https://service.sap.com/notes
https://service.sap.com/rkt
https://service.sap.com/sap/support/pam?hash=pvnr%3d67837800100900006373

1.2 Important SAP Notes

Read the following SAP Notes before you start the installation.

These SAP Notes contain the most recent information on the installation, as well as corrections to the installation documentation. Make sure that you have the up-to-date version of each SAP Note, which you can find on SAP Service Marketplace.
Related Information

https://service.sap.com.sap/support/notes/2039196
2 SAP Single Sign-On Overview

SAP Single Sign-On (SAP SSO) enables companies to eliminate the need for multiple passwords and user IDs. To navigate the heterogeneous IT environments common to most systems within companies, people frequently must use multiple sets of authentication credentials. This reduces business user efficiency and increases risks to sensitive company and personal information. With SAP SSO, part of a comprehensive single sign-on portfolio for multiple user authentication processes, you can lower the risks of unsecured login information, reduce help desk calls, and help ensure the confidentiality and security of personal and company data.

SAP SSO consists of the following components:

- Secure Login
- Password Manager
- Identity Federation
- Extension for Kerberos Constrained Delegation
- One-Time Password Authentication
- Access Policies

For more information about the scenarios in which you can deploy these components, see the relevant component documentation.

Related Information

Secure Login [page 6]
With Secure Login, business users only have to authenticate when they initially log in.

Password Manager [page 7]
The Password Manager component of SAP Single Sign-On stores user name and password combinations on the client side along with information about the applications they access.

Identity Federation [page 7]
Identity federation includes a SAML 2.0 identity provider and a security token service (STS) using the WS-Trust 1.3 standard.

Extension for Kerberos Constrained Delegation [page 8]
This library provides support for Kerberos constrained delegation, which consists of a Service-for-User-to-Self (S4U2Self) extension and a Service-for-User-to-Proxy (S4U2Proxy) extension. This functionality can be used to obtain Kerberos service tickets on behalf of the currently authenticated user.

One-Time Password Authentication [page 8]
The one-time password (OTP) solution in SAP Single Sign-On (SSO) enables strong authentication for access to corporate resources.

Access Policies [page 9]
The access policies component of SAP Single Sign-On is used to control access to business applications.
2.1 Secure Login

With Secure Login, business users only have to authenticate when they initially log in.

Strong encryption provides additional security for communication with GUIs and web browsers. User activities are protected from unauthorized monitoring or manipulation. The application enables forced re-authentication for critical applications as well as digital signatures for legal contracts, and can allow access across firewalls.

This approach requires no additional public key infrastructure (PKI) solution because SAP Single Sign-On (SAP SSO) includes the necessary X.509 implementation. However, if a PKI solution is wanted, SAP SSO facilitates the integration of your existing PKI architecture.

The architecture that supports Secure Login offers a variety of possible combinations. The simplest implementation utilizes the Windows process that authenticates users when they log onto their computers in a certain domain and triggers the generation of an X.509 certificate. The user is then automatically logged into the SAP software he or she needs through a browser or Windows-based SAP GUI. Secure Login is flexible enough to integrate a wide variety of environments, even if the user IDs are not synchronized.

SAP SSO uses the standard encryption methods used in online banking applications based on Secure Sockets Layer (SSL) technology. Here, a cryptographic key “negotiated” between the client and server through the X.509 certificate encodes subsequent communications.

The following variants of a Secure Login solution are possible:

- Direct use of Windows-based Kerberos tickets for logging into SAP software
- Integration of other authentication procedures, such as the Remote Authentication Dial-In User Service (RADIUS), Lightweight Directory Access Protocol (LDAP), RSA SecurID, and smart cards
- Forced repeat authentication for critical applications that require more than basic verification, based on user names and passwords, for example
- A client solution that requires only a minimum installation and grants browsers and instances of the Web GUI from SAP direct access to back-end systems across firewalls and domains through X.509 certificates

Using standard procedures, you can incorporate any number of target systems that employ X.509 certificates for client authentication into the SSO architecture. These methods combine the high level of security that strong encryption and authentication technologies offer based on open standards with the benefits of short implementation and roll-out times and the corresponding cost advantages. In other words, you no longer need additional proprietary or individually programmed solutions, and X.509 certificates will increase the integrity of your data. Users will be able to apply digital signatures to invoices and contracts, for example, by means of an interface included with SAP SSO.

Secure Login also enables logon support for Simple and Protected GSS API Negotiation Mechanism (SPNego) to SAP NetWeaver Application Server ABAP. With a browser that supports SPNego, you can log on to an SAP NetWeaver Application Server ABAP with your Windows credentials without any interaction from you, the user.

SAP is pursuing FIPS 140-2, security level 1 certification for the default SAP Cryptographic Library (which comes with SAP NetWeaver Application Server ABAP) and the Secure Login Library component. FIPS 140-2 certification ensures that the cryptographic module of the SAP Cryptographic Library and of the Secure Login Library (which enable end-to-end encryption of communication channels between servers or between client and server) is designed, tested, and implemented correctly and indeed protects sensitive data from unauthorized access.
2.2 Password Manager

The Password Manager component of SAP Single Sign-On stores user name and password combinations on the client side along with information about the applications they access.

Applications often do not support standardized authentication or single sign-on (SSO) tokens. Instead, they rely on authentication through user names and passwords. Password Manager closes this gap.

The Password Manager application supports convenient and secure administration of passwords, password policies, notes, identities and credit cards. Password Manager recognizes new applications, when you start them. You can then decide if you want Password Manager to save your logon information or not. You can also specify whether Password Manager should initiate the logon process automatically or manually the next time you start the application.

2.3 Identity Federation

Identity federation includes a SAML 2.0 identity provider and a security token service (STS) using the WS-Trust 1.3 standard.

You can use the identity provider for single sign-on (SSO) with SAP or non-SAP service providers. As an identity provider, SAP NetWeaver Application Server (SAP NetWeaver AS) Java can provide cross-domain SSO in combination with SAML 2.0 service providers and at the same time enable single log-out (SLO) to close all user sessions in the SAML landscape. SAML 2.0 also enables identity federation by defining a name ID to be shared between the identity provider and one or more service providers.

You can use the STS to provide cross-domain SSO for web service providers. The STS converts what are often proprietary authentication methods from a Web service consumer into a security token consumable by the web service provider. The STS supports X.509, SAML 1.1, and SAML 2.0 security token types.

The identity federation component runs separately from the rest of SAP Single Sign-On. It can be installed together with the other components, but there are no technical dependencies between the identity federation component and the other SAP Single Sign-On components.

You can deploy this software on SAP NetWeaver Application Server Java release 7.2 SPS 2 with SAP Note 1471322 applied or SAP NetWeaver Application Server Java release 7.2 SPS 3 or later. However, to use the
security token service or the newest user interface improvements in the identity provider, you must install the latest identity federation software component archive (SCA) and upgrade the host SAP NetWeaver Application Server Java to release 7.2 SPS 4 or later.

Related Information

Identity Provider Implementation Guide
Security Token Service Implementation Guide

2.4 Extension for Kerberos Constrained Delegation

This library provides support for Kerberos constrained delegation, which consists of a Service-for-User-to-Self (S4U2Self) extension and a Service-for-User-to-Proxy (S4U2Proxy) extension. This functionality can be used to obtain Kerberos service tickets on behalf of the currently authenticated user.

Note
The library currently supports only the RC4-HMAC encryption algorithm.

2.5 One-Time Password Authentication

The one-time password (OTP) solution in SAP Single Sign-On (SSO) enables strong authentication for access to corporate resources.

You can use it to authenticate with passcodes generated by the SAP Authenticator mobile application. Passcodes are time-based and valid for one login attempt, meaning they are more secure than the common static passwords.

SAP Authenticator itself provides a secure storage of the secret keys used to generate passcodes. In addition, users can protect the mobile application by setting up a password. This means that, if a mobile device is lost or stolen, the solution is not compromised.

You can use the OTP authentication to:

- Log on to systems using Secure Login Client.
- Log on to systems using SAML, using SAP NetWeaver (NW) Application Server (AS) Java as an Identity Provider.
- Log on to web applications running on SAP NetWeaver Application Server Java.

The OTP solution provides its own login module, TOTPLoginModule, which can be configured to support single-factor authentication or two-factor-authentication. With single-factor authentication, you log on with only a user name and a passcode, while with two-factor authentication you provide two means of identification: a user name,
a passcode and another factor for authentication (for example, your corporate password, X.509 certificate or others).

For more information about one-time password authentication, see *One-Time Password Authentication Administrator’s Guide* and *Using SAP Authenticator on Your Mobile Device User Guide*.

### 2.6 Access Policies

The access policies component of SAP Single Sign-On is used to control access to business applications.

With the implementation of access policies you can control how users are authenticated. You can use access policies for the following scenarios:

- For a one-time password authentication through a login module.
  After setting a special mode for such an authentication, with an access policy implementation you define if the login module will authenticate with a password and passcode or only with a password.

- For an authentication by the identity provider (IdP).
  By implementing access policies for IdP extensions, you specify the conditions for the IdP authentication, when the IdP has to issue an assertion, and what to include in this assertion sent to the service provider.

### Related Information

*One-Time Password Authentication*

*Access Policies Implementation Guide*

*Configuring Access Policies for Identity Provider Extensions*
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SSLeay

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zlib

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3.9 SHA, Flex

SHA, Flex

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AES-NI Sample Library

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