Technical Integration Guide for Entrust IdentityGuard Adapter 1.0 for Active Directory Federation Services (AD FS) 3.0

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Introduction

This Technical Integration Guide provides an overview of how to integrate Entrust® IdentityGuard Adapter with Microsoft® Active Directory Federation Services (AD FS) 3.0. The aim of this integration is to add Entrust IdentityGuard multi-factor authentication (MFA) to AD FS. The Entrust IdentifyGuard Adapter uses the pluggable Multi-factor authentication (MFA) option of AD FS to integrate Entrust IdentityGuard MFA with AD FS.

Overview

Entrust IdentityGuard AD FS Adapter integrates the Entrust IdentityGuard Server second factor authentication to Miscrosoft Active Directory Federaiton Services.

The Entrust IdentityGuard Server is a server-based software product that authenticates and manages users and their authentication data. Entrust IdentityGuard provides strong second-factor authentication. When AD FS is integrated with the Entrust IdentityGuard AD FS Adapter, the Entrust IdentityGuard AD FS Adapter serves as a login and re-authentication device to allow for two-factor authentication for system access or to verify certain secured actions.

Integration information

Entrust Product: Entrust IdentityGuard 10.2 FP1

Partner name: Microsoft

Web site: http://www.microsoft.com

Product name: Active Directory Federation Services

Product version: 3.0

Partner Product description: In Windows Server® 2012 R2, AD FS includes a federation service role service that acts as an identity provider (authenticates users to provide security tokens to applications that trust AD FS) or as a federation provider (consumes tokens from other identity providers and then provides security tokens to applications that trust AD FS). Active Directory Federation Services (AD FS) makes it possible for local users and federated users to use claims-based single sign-on (SSO) to Web sites and services.

AD FS can be used to collaborate securely across Active Directory domains with other external organizations by using identity federation. This reduces the need for duplicate accounts, management of multiple logons, and other credential management issues that can occur when establishing cross-organizational trusts. The AD FS 3.0 platform provides a fully redesigned Windows-based Federation Service that supports the WS-Trust, WS-Federation, and Security Assertion Markup Language (SAML) protocols.

Authentication overview

Table 1: Supported authentication methods

Authentication Type	Description
Entrust IdentityGuard One-Time Password	In OTP authentication, the user enters a password that can be used only once. In the classic case, the user receives the password only when it is needed. Entrust IdentityGuard allows users to have multiple OTPs. Since OTPs can be used only once, the user's supply of OTPs is reduced with each authentication. When the user's supply of OTPs falls below a threshold, Entrust IdentityGuard automatically generates and sends a new supply of OTPs. The operation and refresh threshold are defined in Entrust IdentityGuard policy. OTP authentication can be used with a personal verification number (PVN) if your system is set up to require it.
Entrust IdentityGuard Grid	In grid authentication, the user enters the user ID and password on one page, and the response to the grid challenge on the next page. Grid authentication can be used with a personal verification number (PVN) if your system is set up to require it.
Entrust IdentityGuard Knowledge Based Q & A	During user registration, the user sets up answers for some predefined (and sometimes user-defined) questions. In knowledge-based authentication, the user answers these previously-defined questions.
Entrust IdentityGuard Token	In token authentication, the user enters a code generated on a hardware or software token in response to a token challenge. There are two types of hardware tokens: response-only (RO) challenge-response (CR) Token authentication can be used with a personal verification number (PVN) if your system is set up to require it.
Entrust IdentityGuard Mobile Soft Token	TVS is a strong out-of-band authentication method where an authentication challenge is sent on user's mobile. This challenge is signed by the Entrust Mobile Soft Token app and verified by Entrust IdentityGuard server. A user can accept or reject the challenge, which results in either a successful or failed authentication.
Entrust IdentityGuard Mobile Smart Credentials	Identity Assured is a strong out-of-band authentication method where an authentication challenge is sent on user's mobile. This challenge is signed by the Entrust Mobile smart card app and verified by Entrust IdentityGuard server. A user can accept or reject the challenge, which results in either a successful or failed authentication
Entrust IdentityGuard Personal Verification Number	Provides an extra level of security when using grids, tokens, and temporary PINs. Any grid, token, or temporary PIN challenge can also include a PVN challenge. By default, no authentication methods require a PVN, so you must set the Entrust IdentityGuard policy to require PVNs. An administrator can create PVNs for your users, or you can let users create and update their own PVNs.

Authentication Type	Description
	The PVN can be any length from 1-255 digits, but you should select a length that makes the value easy to remember and enter, while still providing an acceptable level of security. You set the length in the PVN policy on the Entrust IdentityGuard Server. Each user can have just one PVN. You can force a user to update their PVN just after an administrator creates it, or anytime the PVN gets too old. If a user's PVN needs to be changed, the user receives at the next login attempt. The change request appears with the second-factor challenge.
Entrust IdentityGuard Temporary PIN	A temporary PIN is a fall-back authentication method used when the user: is not yet registered for a grid or token the user has lost or forgotten their grid or token The user requests the temporary PIN, and receives a password (PIN) that can be used to log on. The temporary PIN can be used to replace grid, or token authentication. Temporary PINs can be used with a personal verification number (PVN) if your system is set up to require it.
Machine risk-based authentication	Supports checking the IP address and additional client information (for example persistent browser cookies) of the user logging in.

Two-factor authentication

AD FS supports both primary and secondary authentication of users against Active Directory.

Primary authentication

Windows Server 2012 R2 supports the following primary authentication methods:

- Windows integrated authentication
- Username and password
- Client certificate (client Transport Layer Security (TLS), including SmartCard authentication

Secondary authentication

Secondary authentication occurs immediately after primary authentication and authenticates the same Active Directory (AD) user. Once primary authentication is complete and successful, AD FS invokes an external authentication handler. This handler invokes an additional authentication provider, either an in-box AD FS provider or an external MFA provider, based on protocol inputs and policy.

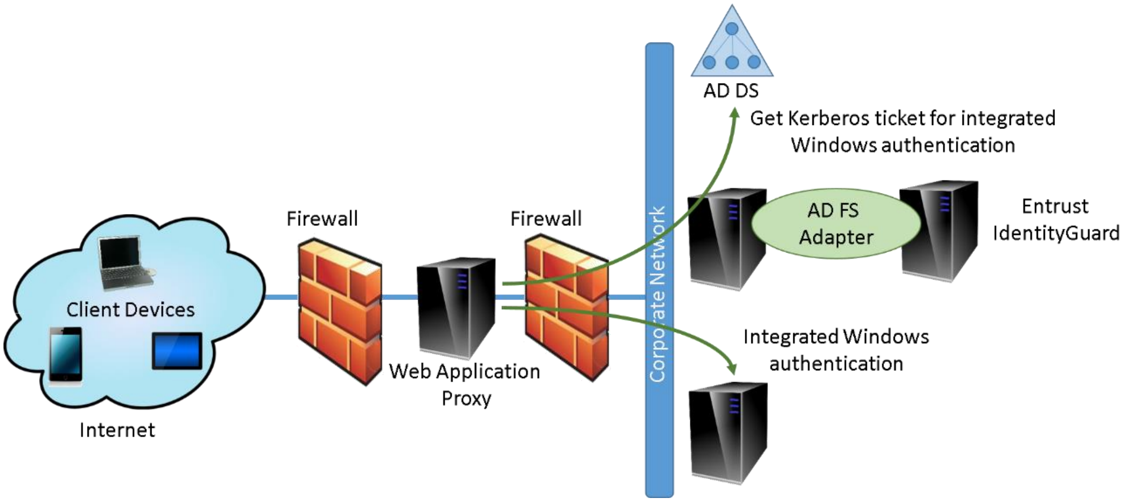
AD FS passes the primary authenticated user's identity to the additional authentication provider, which performs the authentication and returns the results. At this point, AD FS continues executing the authentication/authorization policy and issues the token accordingly.

Authentication flow

AD FS provides extensible Multifactor Authentication by additional authentication providers that are invoked during secondary authentication. AD FS includes, in box, the x509 certificate authentication provider. Other, external providers developed by AD FS partners can be registered in AD FS by the administrator. Once a provider is registered with AD FS, it is invoked from the AD FS authentication code through specific interfaces and methods that the provider implements and that AD FS calls. Because it provides a bridge from AD FS to the functionality of an external authentication provider, the external authentication provider is also called an *AD FS MFA adapter*.

Figure 1 provides an overview of the AD FS authentication flow using the AD FS Adapter for second factor authentication with Entrust IdentityGuard.

Figure 1: Overview of AD FS multifactor authentication flow



Multifactor authentication flow process

The multifactor authentication flow works as follows:

1. The user accesses a resource protected using AD FS on WAP, for example, Microsoft OWA.
2. The user is redirected to ADFS primary authentication login page, for example, forms authentication, Integrated Windows Authentication (IWA), etc.
3. AD FS performs the primary authentication by validating the credentials with Active Directory Domain Service.
4. AD FS invokes the Entrust IdentityGuard Multifactor Authentication Adapter.
5. Entrust IdentityGuard AD FS Adapter submits the SF challenge page to AD FS and then presents it to the user.
6. The user provides SF response to Entrust IdentityGuard Adapter by way of AD FS.
7. Entrust IdentityGuard Adapter verifies SF response and returns success or failure to AD FS.
8. AD FS issues a security token (WS-trust, WS federation or SAML 2.0) and redirects to original protected resource.

Performing the integration

Integrating Active Directory Federation Services and Entrust IdentityGuard Adapter requires that you complete the following steps:

1. Install and configure AD FS 3.0.
2. Install and configure WAP.
3. Publish an AD FS sample application on WAP.
4. Install Entrust IdentityGuard Adapter.
5. Restart the AD FS service.
6. Configure AD FS for Entrust authentication.
7. Test the integration by publishing a WAP application.

Note: This guide assumes that you have WAP, AD FS 3.0 and at least one Relying Party, protected by ADFS working prior to Entrust IdentityGuard AD FS Adapter integration. Appendix A provides instructions on installing and configuring AD FS 3.0, WAP and a publishing application. However, it is expected that customers contact Microsoft support if they encounter any issues.

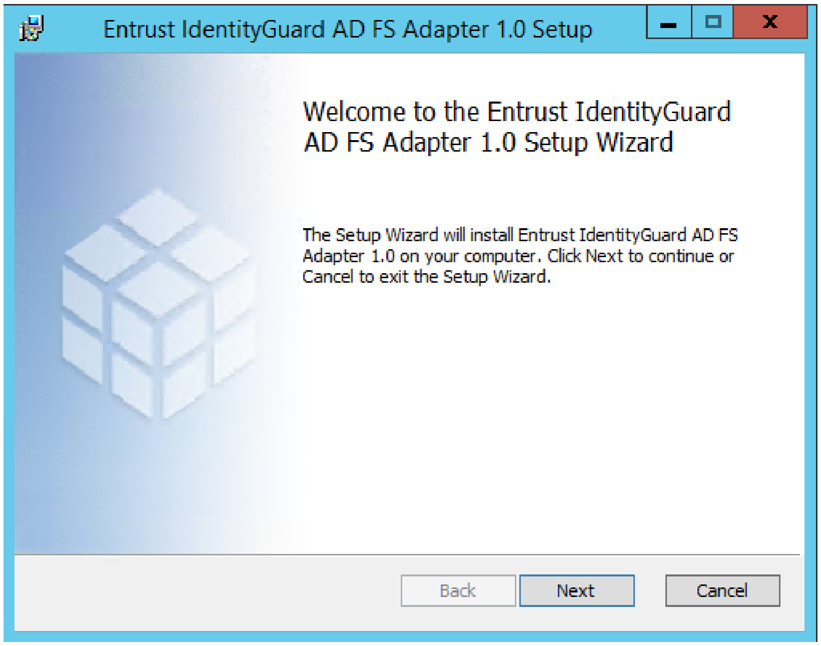
Installing the Entrust IdentifyGuard AD FS Adapter

The following instructions provide details on installing Entrust IdentityGuard AD FS Adapter.

To install the Entrust IdentityGuard AD FS Adapter

1. Download the Entrust IdentityGuard AD FS Adapter software from Entrust Trusted Care (**Products>Entrust IdentityGuard>Integrations>Free Integrations**).
2. https://secure.entrust.com/trustedcare
3. Copy the software to your computer.
4. Double-click the `IG_ADFS_1.0.msi` installer file.

   The Entrust IdentityGuard AD FS Adapter Setup Wizard appears.

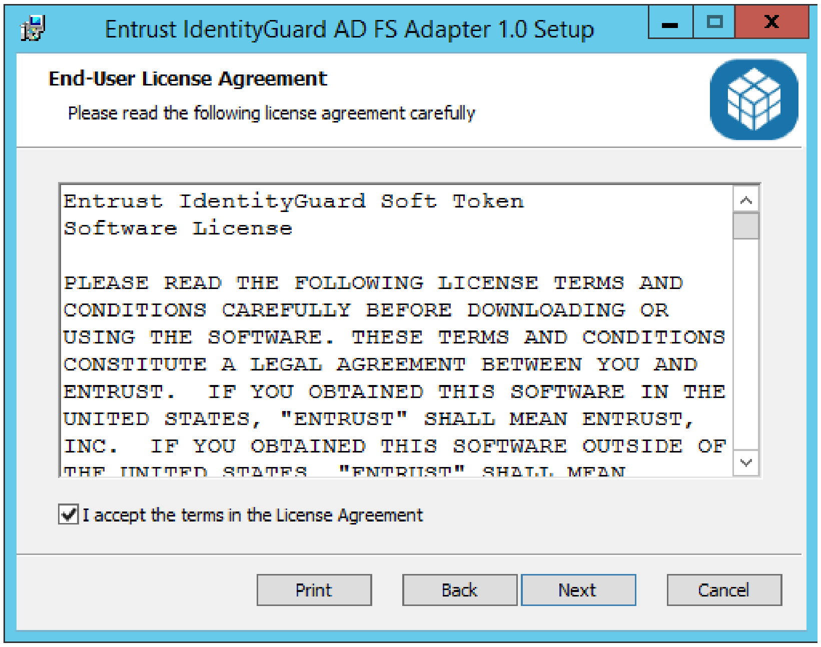


Welcome to the Entrust IdentityGuard AD FS Adapter 1.0 Setup Wizard

The Setup Wizard will install Entrust IdentityGuard AD FS Adapter 1.0 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

5. Click **Next** to continue.
6. Click **Next** to begin the installation.

   The License Agreement page appears.



End-User License Agreement

Please read the following license agreement carefully

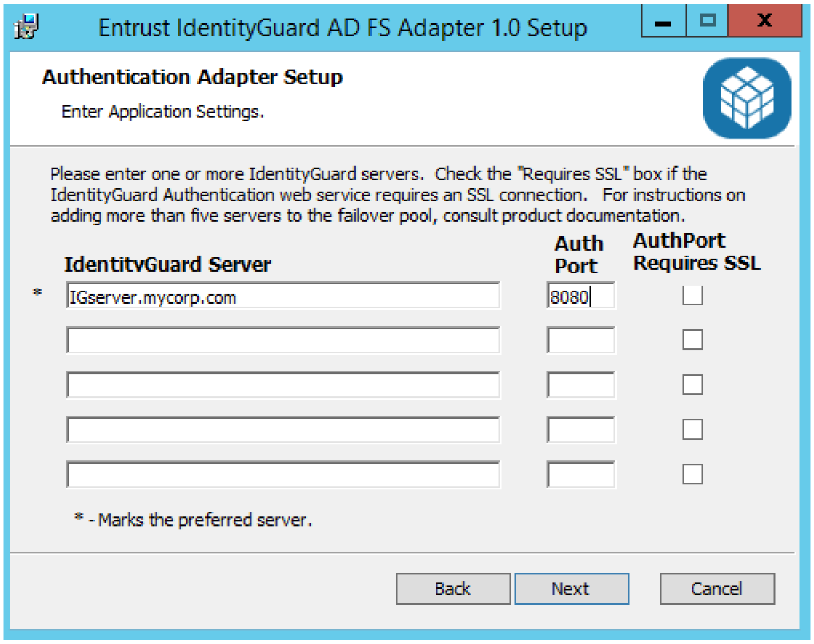
```
Entrust IdentityGuard Soft Token
Software License

PLEASE READ THE FOLLOWING LICENSE TERMS AND
CONDITIONS CAREFULLY BEFORE DOWNLOADING OR
USING THE SOFTWARE. THESE TERMS AND CONDITIONS
CONSTITUTE A LEGAL AGREEMENT BETWEEN YOU AND
ENTRUST.  IF YOU OBTAINED THIS SOFTWARE IN THE
UNITED STATES, "ENTRUST" SHALL MEAN ENTRUST,
INC.  IF YOU OBTAINED THIS SOFTWARE OUTSIDE OF
THE UNITED STATES, "ENTRUST" SHALL MEAN
```

☑ I accept the terms in the License Agreement

7. Read the license agreement for Entrust IdentityGuard software carefully, and select **I accept the license agreement**.
8. Click **Next**.

The Authentication Adapter Setup page appears.



Authentication Adapter Setup

Enter Application Settings.

Please enter one or more IdentityGuard servers. Check the "Requires SSL" box if the IdentityGuard Authentication web service requires an SSL connection. For instructions on adding more than five servers to the failover pool, consult product documentation.

	IdentitvGuard Server	Auth Port	AuthPort Requires SSL
*	IGserver.mycorp.com	8080	☐
			☐
			☐
			☐
			☐

* - Marks the preferred server.

9. On the Authentication Adapter Setup page, complete the following:
   a. Enter the host names of one or more Entrust IdentityGuard Servers in the **IdentityGuard Server** fields.

If you need to configure more than five Entrust IdentityGuard Servers, you can add the extra servers after installation is complete. See “*Appendix B: Configuring failover for Entrust IdentityGuard Servers*.”

Note: The **preferred** Entrust IdentityGuard Server (number 1) is the Primary Entrust IdentityGuard Server in a high availability failover scenario.

b. Enter the port number being used by the Entrust IdentityGuard authentication service in the **Auth Port** field.

Default port assignment numbers:

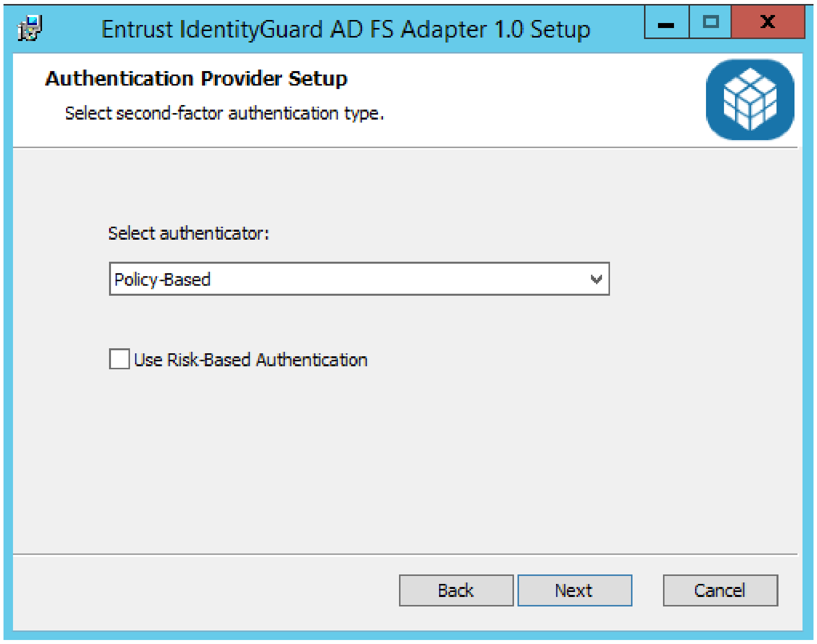
`8080`	`non-SSL`
`8443`	`SSL`

c. If needed, select Auth Port Requires SSL.

Note: If you select SSL, you must already have imported the appropriate certificates into the local computer store of the computer where you are installing the Entrust IdentityGuard AD FS Adapter.

d. Click **Next**.

The Authentication Provider Setup page appears.



Entrust IdentityGuard AD FS Adapter 1.0 Setup

Authentication Provider Setup

Select second-factor authentication type.

Select authenticator:

Policy-Based

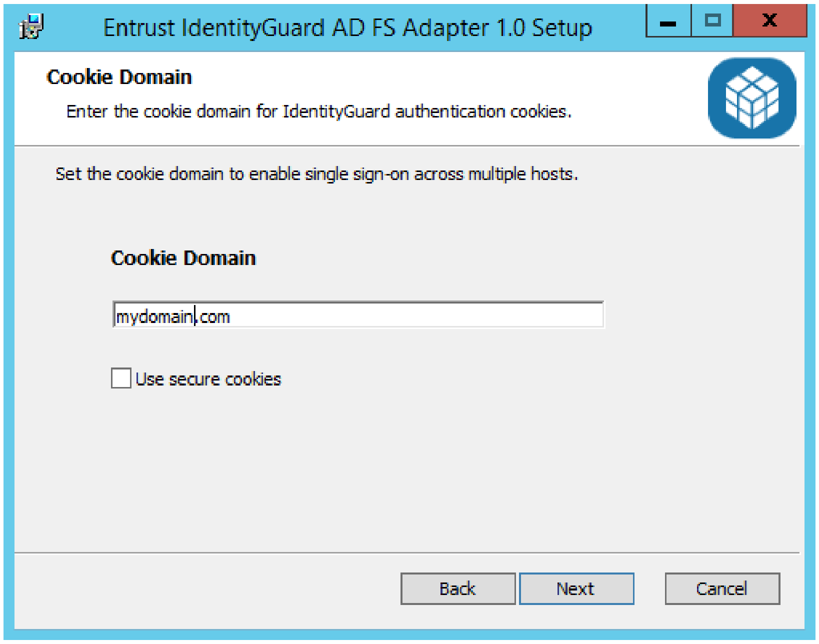
□ Use Risk-Based Authentication

10. Select the second factor authentication type from the drop-down menu. The default is Policy-based.

a. Optionally, select **Use Risk-Based Authentication** if you want to enable machine authentication.

11. Click **Next**.

The Cookie Domain page appears.



Entrust IdentityGuard AD FS Adapter 1.0 Setup

Cookie Domain

Enter the cookie domain for IdentityGuard authentication cookies.

Set the cookie domain to enable single sign-on across multiple hosts.

Cookie Domain

mydomain.com

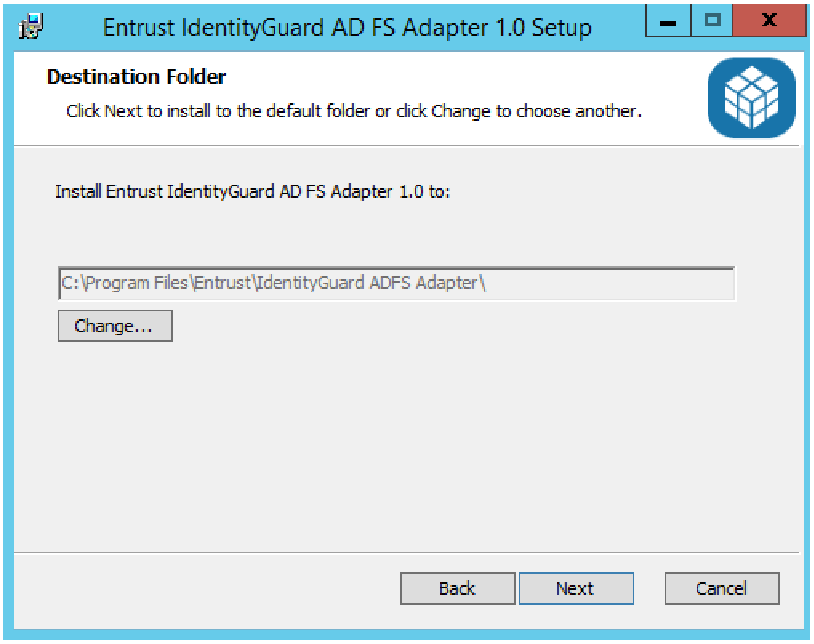
□ Use secure cookies

12. If you are using risk-based authentication, provide the cookie domain for Entrust IdentityGuard authentication cookies.

    Note: This step is optional if you are not using risk-based authentication.

13. Click **Next**.

    The Destination Folder page appears.



Entrust IdentityGuard AD FS Adapter 1.0 Setup

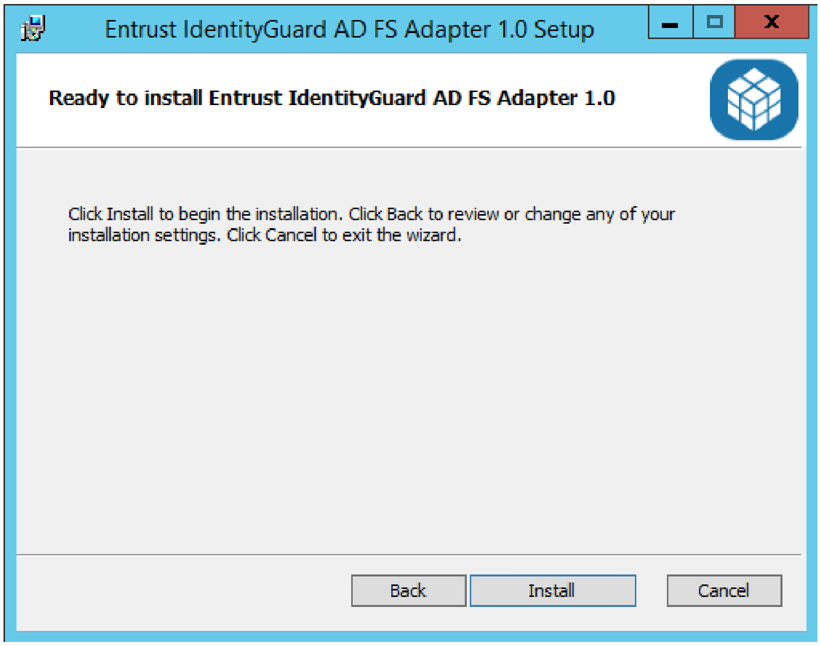
Destination Folder

Click Next to install to the default folder or click Change to choose another.

Install Entrust IdentityGuard AD FS Adapter 1.0 to:

C:\Program Files\Entrust\IdentityGuard ADFS Adapter\

14. Select the folder where you want to install the application, and click **Next**.
15. The Ready to Install Entrust IdentityGuard AD FS Adapter screen appears.

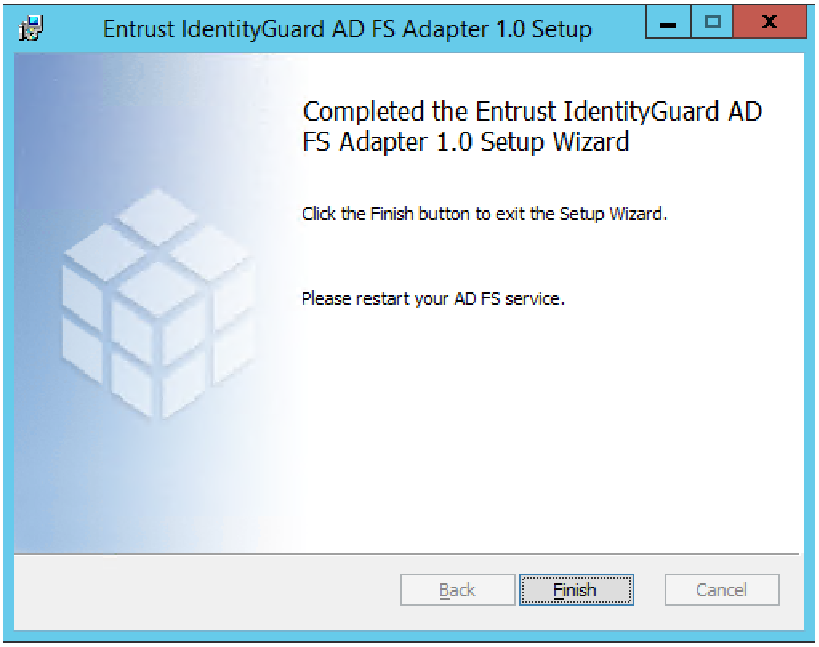


Entrust IdentityGuard AD FS Adapter 1.0 Setup

Ready to install Entrust IdentityGuard AD FS Adapter 1.0

Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.

16. Click **Install** to start the installation.
17. The Completed Entrust IdentityGuard AD FS Adapter Setup Wizard page appears.



Entrust IdentityGuard AD FS Adapter 1.0 Setup

Completed the Entrust IdentityGuard AD FS Adapter 1.0 Setup Wizard

Click the Finish button to exit the Setup Wizard.

Please restart your AD FS service.

18. Click **Finish** to exit the Setup Wizard. You must now restart your AD FS service.

Restarting the AD FS service

To restart the AD FS service

1. Go to Control Panel > System and Security > Administrative Tools > Services to display your list of services.
2. Right-click **Active Directory Federation Services** and select **Restart** from the drop-down menu.

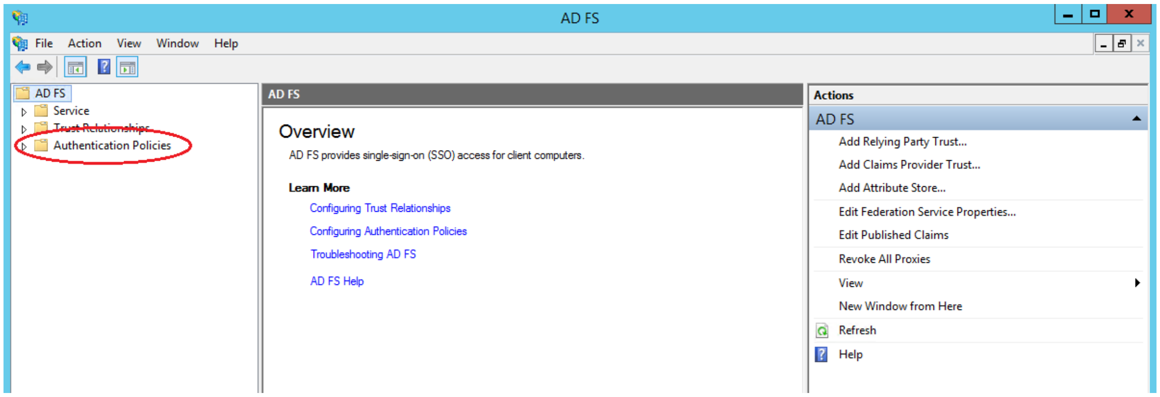
Configuring AD FS for Entrust IdentityGuard authentication

To configure AD FS for Entrust IdentityGuard authentication you must create that AD FS policy that invokes the Entrust IdentityGuard AD FS Adapter.

To configure AD FS for Entrust IdentityGuard Authentication

1. Ensure that you have restarted the Active Directory Federation Services after installing the Entrust IdentityGuard AD FS Adapter (see Restarting the AD FS service).
2. Go to **Start > Administrative Tools** and double-click **AD FS Management** to open the AD FS Console.

   The AD FS Console window appears.



Overview

AD FS provides single-sign-on (SSO) access for client computers.

Learn More

Configuring Trust Relationships

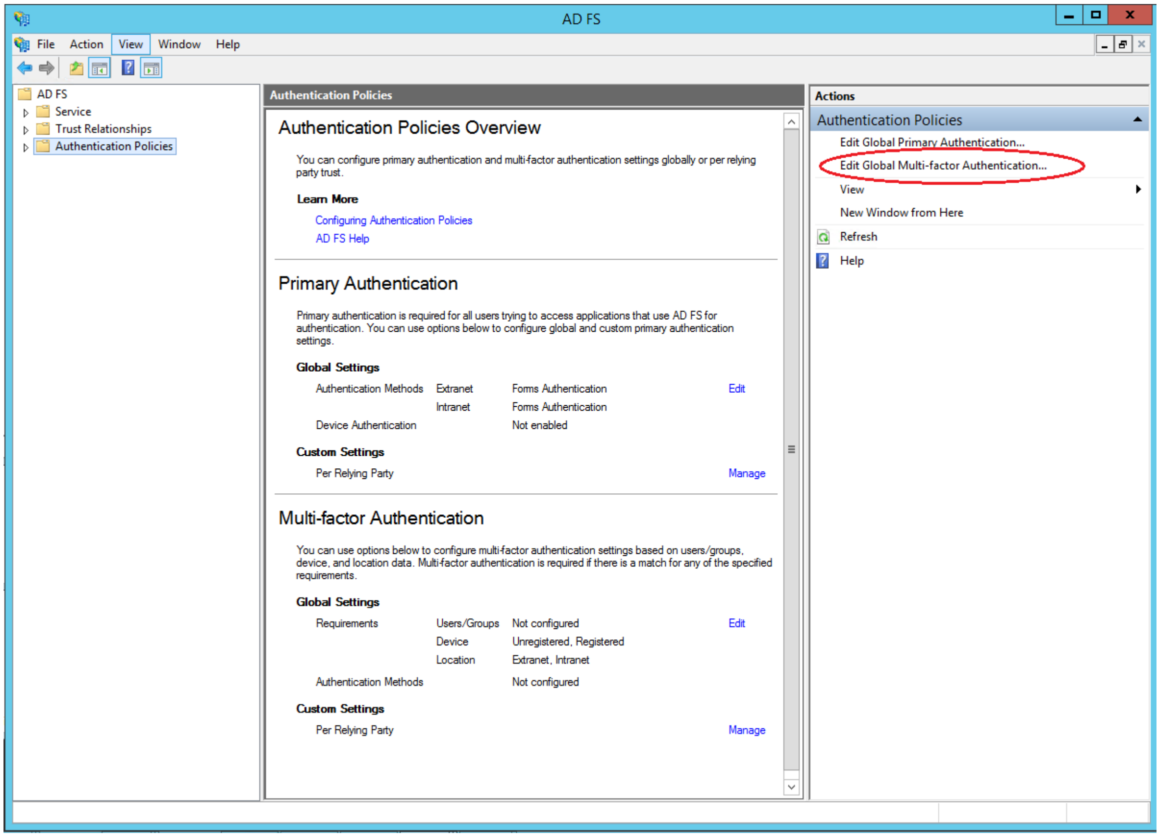
Configuring Authentication Policies

Troubleshooting AD FS

AD FS Help

3. Click **Authentication Policies**.

   The AD FS Authentication Policies Overview page appears.



Authentication Policies Overview

You can configure primary authentication and multi-factor authentication settings globally or per relying party trust.

Learn More

Configuring Authentication Policies

AD FS Help

Primary Authentication

Primary authentication is required for all users trying to access applications that use AD FS for authentication. You can use options below to configure global and custom primary authentication settings.

Global Settings

Authentication Methods	Extranet	Forms Authentication	Edit
	Intranet	Forms Authentication	
Device Authentication		Not enabled	

Custom Settings

Per Relying Party	Manage

Multi-factor Authentication

You can use options below to configure multi-factor authentication settings based on users/groups, device, and location data. Multi-factor authentication is required if there is a match for any of the specified requirements.

Global Settings

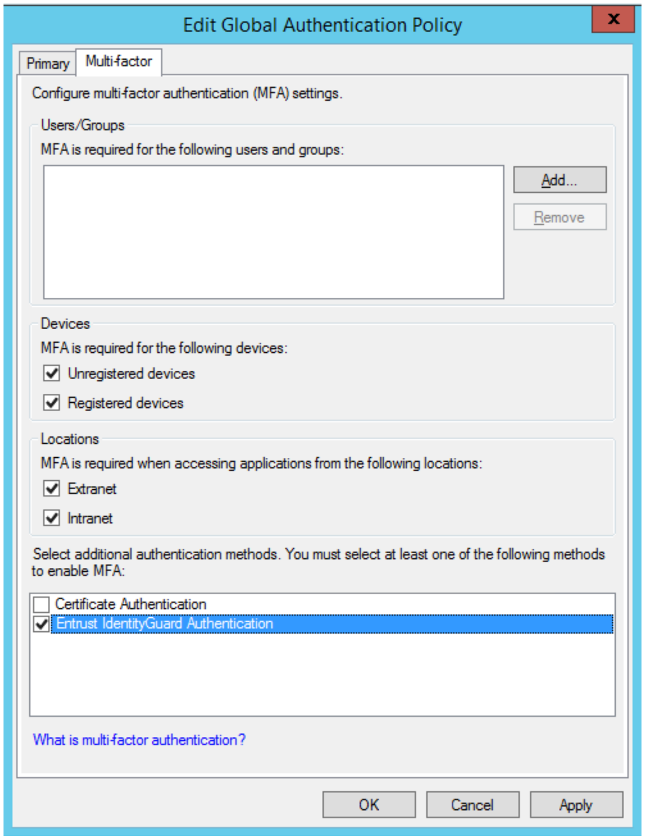
Requirements	Users/Groups	Not configured	Edit
	Device	Unregistered, Registered	
	Location	Extranet, Intranet	
Authentication Methods		Not configured	

Custom Settings

Per Relying Party	Manage

4. Click **Edit Global Multi-factor Authentication**.

The Edit Global Policy Authentication page appears.



Edit Global Authentication Policy

Primary | Multi-factor

Configure multi-factor authentication (MFA) settings.

Users/Groups

MFA is required for the following users and groups:

Add... | Remove

Devices

MFA is required for the following devices:

☑ Unregistered devices

☑ Registered devices

Locations

MFA is required when accessing applications from the following locations:

☑ Extranet

☑ Intranet

Select additional authentication methods. You must select at least one of the following methods to enable MFA:

☐ Certificate Authentication

☑ Entrust IdentityGuard Authentication

What is multi-factor authentication?

OK | Cancel | Apply

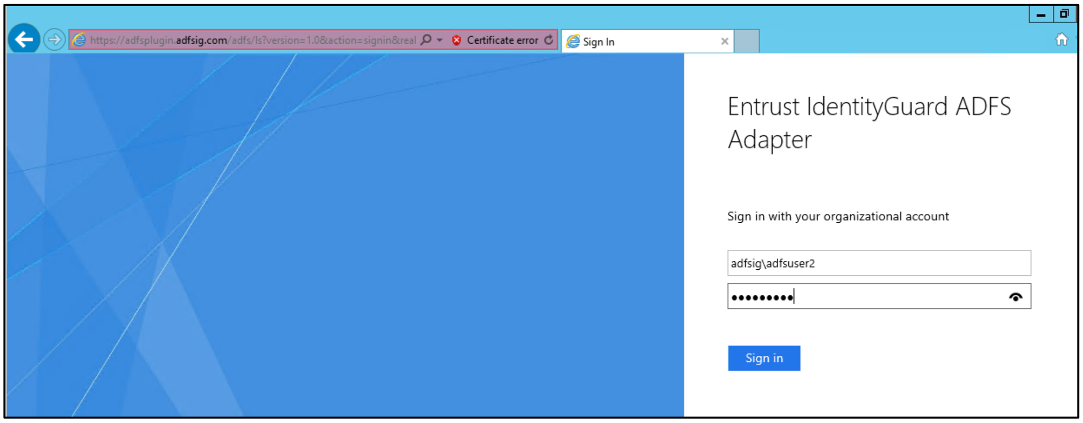
5. Check **Entrust IdentityGuard Authentication** to invoke Multi-factor authentication using the Entrust IdentityGuard AD FS Adapter.
6. Optional selections:
   a. Under **Users/Groups**, click **Add** to add users or groups that require MFA using the Entrust IdentityGuard AD FS Adapter
   b. Under **Devices**, select **Unregistered Devices**, **Registered Devices**, or both as the triggers to invoke MFA using the Entrust IdentityGuard AD FS Adapter.
   c. Under **Locations**, select **Extranet**, **Intranet** or both as the triggers to invoke MFA using the Entrust IdentityGuard AD FS Adapter.
7. Click **OK**.

Testing the integration

Before you test your integration, you must create a user in Entrust IdentityGuard and assign a grid to the user. After doing so, you should be able to access the WAP published.

To test the integration

1. Go to the starting page for the sample WAP application, for example, `https://igadfsplugin.mydomain.com/claimapp`. WAP redirects to AD FS for first factor authentication.
2. The First Factor authentication page appears.



https://adfsplugin.adfsig.com/adfs/ls?version=1.0&action=signin&real
Certificate error
Sign In
Sign in

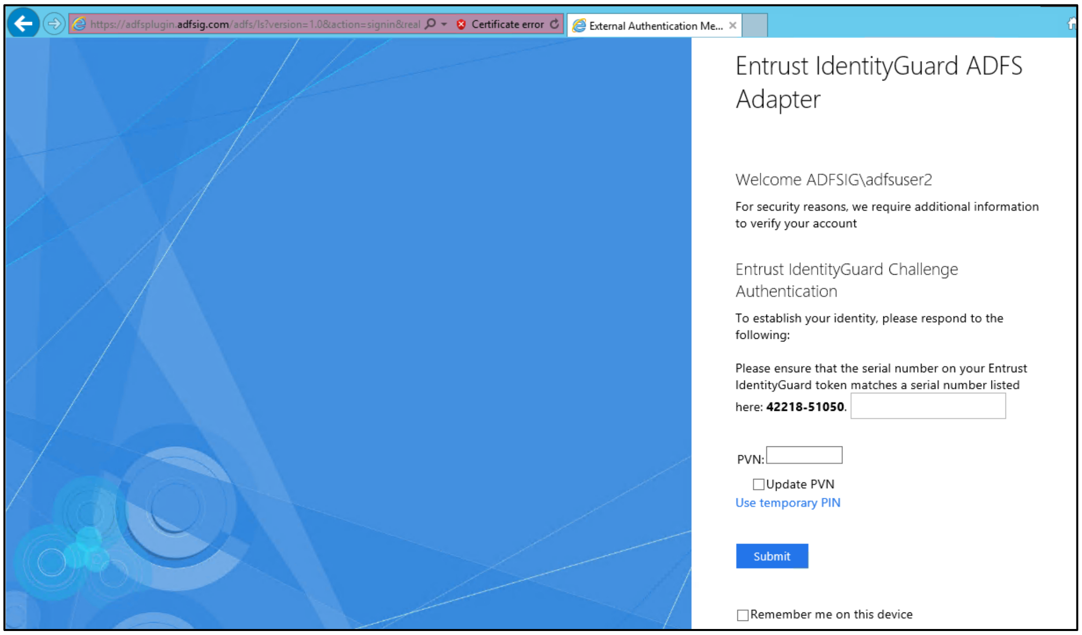
Entrust IdentityGuard ADFS Adapter

Sign in with your organizational account

adfsig\adfsuser2

•••••••••

3. Enter your userID and password and click **Sign in**.
4. The Entrust IdentityGuard AD FS Adapter second-factor authentication page appears.



https://adfsplugin.adfsig.com/adfs/ls?version=1.0&action=signin&real
Certificate error
External Authentication Me...
Submit

Entrust IdentityGuard ADFS Adapter

Welcome ADFSIG\adfsuser2

For security reasons, we require additional information to verify your account

Entrust IdentityGuard Challenge Authentication

To establish your identity, please respond to the following:

Please ensure that the serial number on your Entrust IdentityGuard token matches a serial number listed here: **42218-51050**.

PVN:

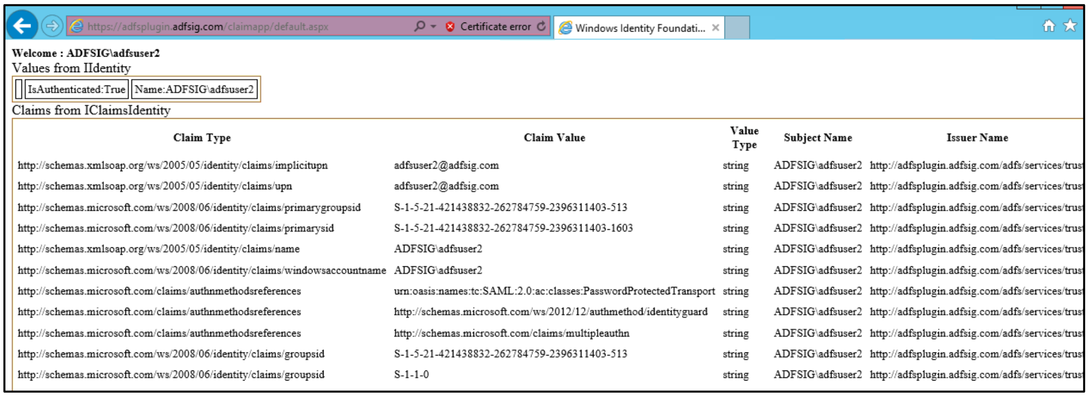
□ Update PVN

Use temporary PIN

□ Remember me on this device

5. Enter your second factor authentication.
6. After successful authentication, a security token is returned with the claim, which WAP is expecting from AD FS 3.0 and the resource page appears.

7. The WAP sample application resource page.



https://adfsplugin.adfsig.com/claimapp/default.aspx
Certificate error
Windows Identity Foundati...

Welcome : ADFSIG\adfsuser2

Values from IIdentity

	IsAuthenticated:True	Name:ADFSIG\adfsuser2

Claims from IClaimsIdentity

Claim Type	Claim Value	Value Type	Subject Name	Issuer Name
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/implicitupn	adfsuser2@adfsig.com	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/upn	adfsuser2@adfsig.com	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/ws/2008/06/identity/claims/primarygroupsid	S-1-5-21-421438832-262784759-2396311403-513	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/ws/2008/06/identity/claims/primarysid	S-1-5-21-421438832-262784759-2396311403-1603	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name	ADFSIG\adfsuser2	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/ws/2008/06/identity/claims/windowsaccountname	ADFSIG\adfsuser2	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/claims/authnmethodsreferences	urn:oasis:names:tc:SAML:2.0:ac:classes:PasswordProtectedTransport	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/claims/authnmethodsreferences	http://schemas.microsoft.com/ws/2012/12/authmethod/identityguard	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/claims/authnmethodsreferences	http://schemas.microsoft.com/claims/multipleauthn	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/ws/2008/06/identity/claims/groupsid	S-1-5-21-421438832-262784759-2396311403-513	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus
http://schemas.microsoft.com/ws/2008/06/identity/claims/groupsid	S-1-1-0	string	ADFSIG\adfsuser2	http://adfsplugin.adfsig.com/adfs/services/trus

Post installation configuration

After installing the Entrust IdentityGuard AD FS Adapter, you can

- Configure the second factor authentication method
- Configure alternate authenticators
- Configure group mapping
- Customize end-user message
- Configure logging settings

Configuring the second factor authentication method

After installation you can change the second factor authentication by editing the `eigadfsplugin.xml` file.

Note: For your changes to take effect, you must comment the authentication second factor method you no longer want to use and uncomment the new authentication method in the `eigadfsplugin.xml` file.

For example, if during installation you chose grid as the second factor authentication method but you want to replace it with another method, such as policy, be sure to comment the definition for grid and uncomment the definition for policy to ensure that your changes are applied.

Configuring policy-based authentication

You can use policy-based authentication as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file.

To configure policy-based authentication

1. Stop Active Directory Federation Services.
2. Go to `<adfs_adapter_install>\IdentityGuard ADFS Adapter` and open the `eigadfsplugin.xml` file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="Policy">
      <Authenticator>
      <Policy/></Authenticator>
</AuthMethod>
```

5. Be sure to uncomment the `policy` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring grid authentication

You can use grid authentication as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file. Additionally, you can configure grid to specify an enhanced RBA and a particular Entrust IdentityGuard group.

To configure grid authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="Grid">
      <Authenticator>
            <Grid/>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
            cookieName="machineNonce" cookieDomain="{cookiedomain}"
            cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
            cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
            cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the `grid` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

To configure grid for enhanced RBA

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="GridRBA">
```

```
      <Authenticator>
            <Grid/>
      </Authenticator>
      <RBA>
            <SecurityLevel>enhanced</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
            cookieName="machineNonce" cookieDomain="{cookiedomain}"
            cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
            cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
            cookieLifetime="365" />
                  <UseAppData>true</UseAppData>
            </RegisterMachine>
         </RBA>
</AuthMethod>
```

5. Be sure to uncomment the applicable definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring token authentication

You can use token as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file.

To configure token authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="Token">
      <Authenticator>
            <Token/>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
```

```
</AuthMethod>
```

5. Be sure to uncomment the token definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring knowledge-based authentication

You can use knowledge-based as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file. Additionally, you can configure knowledge-based authentication to override the default question and answer challenge size.

To configure knowledge-based authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="KB">
      <Authenticator>
            <KB/>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the `KB` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

To configure knowledge-based authentication and override the default question and answer challenge size

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="KBOverrideSize">
      <Authenticator>
            <KB>
                  <OverrideKBChallengeSize size="4" />
                  <MaskAnswers>false</MaskAnswers>
            </KB>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the applicable definition strings.

6. Save and close `eigadfsplugin.xml`.

7. Restart Active Directory Federation Services.

Configuring policy authentication to override Q&A challenge size

You can configure policy authentication to override the default question and answer challenge size if knowledge-based is chosen for the user.

To configure policy authentication and override the default question and answer challenge size

1. Stop Active Directory Federation Services.

2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.

3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="PolicyOverrideSize">
      <Authenticator>
            <Policy>
                <OverrideKBChallengeSize size="4">
                <MaskAnswers>false</MaskAnswers>
                <AllowManualDelivery>false</AllowManualDelivery>
            </Policy>
      </Authenticator>
      <RBA>
                <SecurityLevel>normal</SecurityLevel>
                <RegisterMachine>
                    <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                    <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
               <UseAppData>false</UseAppData>
              </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the applicable definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring IP Geo risk-based authentication

To configure IP Geo risk-based authentication

1. Stop Active Directory Federation Services.
2. Go to `<adfs_adapter_install>\IdentityGuard ADFS Adapter` and open the `eigadfsplugin.xml` file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Find the `AuthMethod` for which you want to define IP Geo risk-based authentication.

```
<AuthMethod id="Grid">
      <Authenticator>
            <Grid/>
      </Authenticator>
      <RBA>
      ...
      </RBA>

</AuthMethod>
```

5. Add child elements as needed to the RBA element, as follows:

   a. Add the `UseIP` element (optional) and set it to `true` if you want to pass the client IP address to Entrust IdentityGuard for IP Geolocation analysis. For example,

```
<RBA>
<SecurityLevel>Normal</SecurityLevel>
<UseIP>true</UseIP>
...
</RBA>
```

Note: Setting the `UseIP` element to `false` is the same as leaving it out.

6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring one-time password (OTP) authentication

You can use one-time password as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file.

To configure OTP authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="OTP">
      <Authenticator>
            <OTP>
              <AllowManualDelivery>false</AllowManualDelivery>
            </OTP>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the `OTP` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring Mobile Smart Credential authentication (Identity Assured)

You can use Mobile SC as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file.

To configure Mobile SC authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="MobileSC">
      <Authenticator>
            <MobileSC pollingInterval="2"/>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the `MobileSC` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring Mobile Soft Token (TVS) authentication

You can use Mobile ST as your second-factor authentication type by editing the Entrust IdentityGuard AD FS Adapter configuration file.

To configure Mobile ST authentication

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the `AuthenticationMethods` element.

```
<AuthenticationMethods>

      ...

</AuthenticationMethods>
```

4. Define an `AuthMethod` element as shown in the example below.

```
<AuthMethod id="MobileST">
      <Authenticator>
            <MobileST pollingInterval="2" mode="Online"
fallbackToClassic="false"/>
      </Authenticator>
      <RBA>
            <SecurityLevel>normal</SecurityLevel>
            <RegisterMachine>
                  <UseMachineNonce enabled="false"
cookieName="machineNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseSequenceNonce enabled="false"
cookieName="sequenceNonce" cookieDomain="{cookiedomain}"
cookieLifetime="365" />
                  <UseAppData>false</UseAppData>
            </RegisterMachine>
      </RBA>
</AuthMethod>
```

5. Be sure to uncomment the `MobileST` definition strings.
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

Configuring alternate authenticators

To have a link for an alternate authenticator appear on the login screen for a given user, that authenticator must:

- be configured for use in the policy for the Entrust IdentityGuard group to which the user belongs
- be an authenticator that the user possesses (for example a grid card, knowledge of the answers to questions, or a mobile smart credential)
- be configured as an alternate authentication method for a given `<AuthenticationMethod>` in the `eigadfsplugin.xml` file

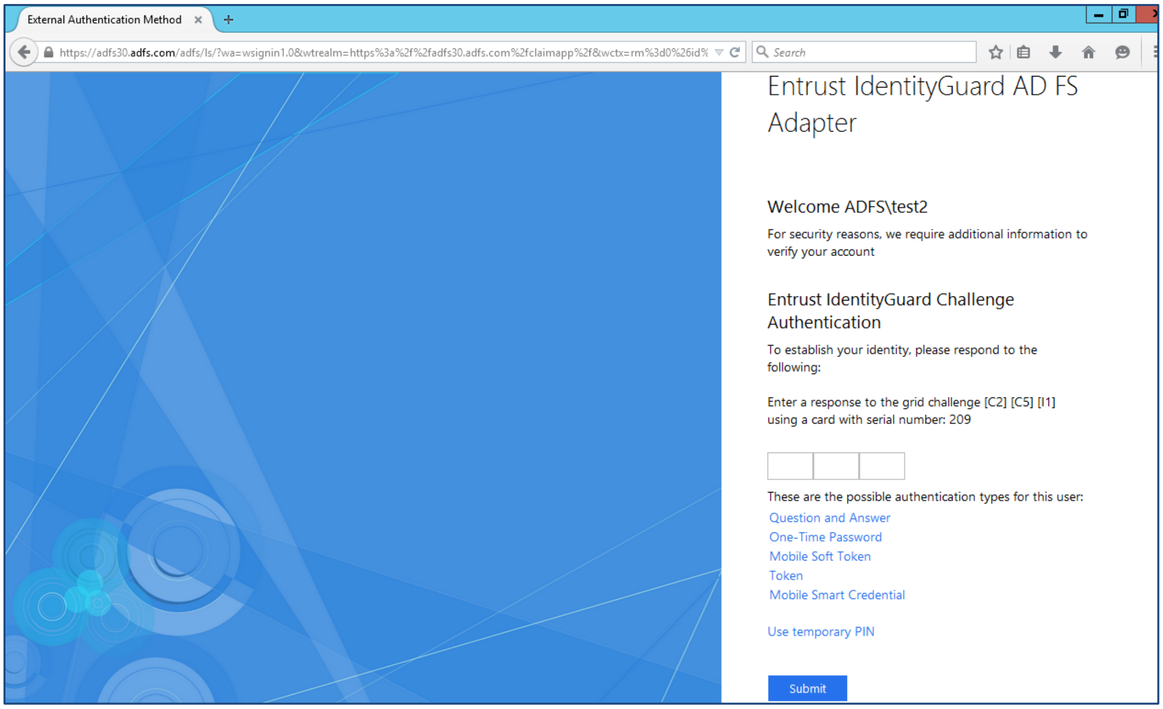
You can configure the Entrust identityGuard AD FS Adapter to display alternative second-factor authenticators on the second-factor authentication page (see Figure 2: Alternative authenticators). Users can select an alternative if they do not have their primary authenticator.

The authenticators that are supported as alternatives are:

- grid
- token
- knowledge-based Q&A
- one-time password (OTP)
- MobileSC
- MobileST

For example, Q&A will be visible as an alternative even if the user has not created Q&A answers yet, if you allowed Q&A in your policy and it is configured in the configuration file.

Figure 2: Alternative Authenticators


External Authentication Method
https://adfs30.adfs.com/adfs/ls/?wa=wsignin1.0&wtrealm=https%3a%2f%2fadfs30.adfs.com%2fclaimapp%2f&wctx=rm%3d0%26id%
Search
Submit

Entrust IdentityGuard AD FS Adapter

Welcome ADFS\test2

For security reasons, we require additional information to verify your account

Entrust IdentityGuard Challenge Authentication

To establish your identity, please respond to the following:

Enter a response to the grid challenge [C2] [C5] [I1] using a card with serial number: 209

These are the possible authentication types for this user:

Question and Answer
One-Time Password
Mobile Soft Token
Token
Mobile Smart Credential

Use temporary PIN

To enable alternative authenticators

1. Stop Active Directory Federation Services.
2. Go to $root\<install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Locate the authenticator that will be an alternative authenticator. For example, locate this XML block:

```
<AuthMethod id="gridAuth">
  <Authenticator>
     <Grid />
  </Authenticator>
</AuthMethod>
```

4. Add the following text, in bold:

```
<AuthMethod id=”gridAuth”>
  <Authenticator>
    <Grid Alternate=”true”/>
    <Token Alternate=”true”/>
    <OTP Alternate=”true” />
      <AllowManualDelivery>false</AllowManualDelivery>
    </OTP>
    <KB Alternate=”false”>
     <OverrideKBChallengeSize size=”4” />
     <MaskAnswers>false</MaskAnswers>
   </KB>
<MobileSC Alternate=”true”/>
</Authenticator>
</AuthMethod>
```

   where `Alternate=true` indicates that the authenticator must be listed as a link below the primary authenticator, if it is not already displayed as the primary authenticator.

5. Save and close `eigadfsplugin`.xml.
6. Restart Active Directory Federation Services.

Configuring the user domain to Entrust IdentityGuard group mapping

Entrust IdentityGuard AD FS Adapter supports mapping a domain from AD FS primary authentication to a corresponding group in Entrust IdentityGuard Server. By default the Entrust IdentityGuard group is not used.

Group configuration is optional. If there is no group configuration, there is no Entrust identityGuard group passed to the Entrust identityGuard Server and all groups are searched for the user.

To configure user domain to Entrust IdentityGuard group mapping

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
3. Add the following block of text to the text file:

```
<Group useDomain=”true” useThisGroup=”IGGroup”>
  <DomainToGroupMapping domainName=”ADFS1” groupName=”IGGroup1” />
  <DomainToGroupMapping domainName=”ADFS2” groupName=”IGGroup2” /> </Group>
```

   where

   - If `useThisGroup` is present, the value of `useThisGroup` Entrust IdentityGuard group is taken as first priority and all other strings are ignored.
   - If `useDomain` is present and if it is `false`, no Entrust IdentityGuard Group is used.
   - If `useDomain` is present and if it is `true`, the domain from AD FS first factor authentication is searched in the list of available `DomainToGroupMapping` nodes.
     - If any `domainName` in `DomainToGroupMapping` matches the incoming AD FS first factor domain, the corresponding groupName will be used as IG Group.

- If no domainName in DomainToGroupMapping is matched, then same incoming AD FS first factor domain is used as IG Group

Note: domainName, groupName referred in DomainToGroupMapping are case insensitive.

4. Save and close eigadfsplugin.xml.
5. Restart Active Directory Federation Services.

Migrating users to Entrust IdentityGuard

User migration is the process of making all your end users of Entrust IdentityGuard users who access your protected resources through the AD FS Adapter. The AD FS Adapter has user migration features that you can configure to allow your users to continue to access your protected resources while you deploy your solution.

You can either force or phase in migration.

Forcing migration

In this scenario, after you install the AD FS Adapter, you force all users to enroll with Entrust IdentityGuard and to activate a second-factor authentication method. Until they complete the enrollment, they cannot access protected resources.

Forced migration works well when you have a small number of end users. It is recommended that you implement a cutoff date before which all users must complete the enrollment.

If you have a large number of end users, they could all attempt the migration at once, causing heavy demand on your servers. To avoid this problem, you may want to a phased approach to migration (see "Phasing in migration").

To implement forced migration

1. Create Entrust IdentityGuard user IDs for all your end users.
2. Stop Active Directory Federation Services.
3. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the eigadfsplugin.xml file.
4. Modify the <UserMigration> element in the file as shown below:

```
<SkipAuthNoExist enabled="false"
<SkipAuthNoActive enabled="false"
```

5. Save and close eigadfsplugin.xml.
6. Restart Active Directory Federation Services.
7. Instruct your end users that they cannot access protected resources until they enroll with Entrust IdentityGuard and activate a second-factor authentication method.

Phasing in migration

In this scenario, after you install the Entrust AD FS Adapter, you force all users to enroll with Entrust IdentityGuard and to activate a second-factor authentication method. Until they complete the enrollment, they cannot access protected resources.

To implement phased migration

1. Create Entrust IdentityGuard user IDs for your first batch of users.

2. **Have those users enroll in Entrust IdentityGuard and assign second-factor authentication methods to them.**

   You can enroll your users, or you can have them self-register using client software such as Entrust IdentityGuard Self-Service Module or Entrust IdentityGuard Desktop for Microsoft Windows.

   Note: Users who are already enrolled are not affected by the modifications described in the following steps.

3. Decide how you want the AD FS Adapter to handle the users who are not yet migrated.
4. Stop Active Directory Federation Services.
5. Go to `<adfs_adapter_install>\IdentityGuard ADFS Adapter` and open the `eigadfsplugin.xml` file and modify the `<UserMigration>` section using the scenarios described below:

   – If you want to block unmigrated users completely from the protected resource, set user migration as follows:
   ```
   <SkipAuthNoExist enabled="false"/>
   <SkipAuthNoActive enabled="false"/>
   ```

   – If you want to allow unmigrated users unrestricted access to the protected resource, set user migration as follows:
   ```
   <SkipAuthNoExist enabled="true"/>
   <SkipAuthNoActive enabled="true" />
   ```

   – If you want to redirect unrestricted users to another Web page, set user migration as follows:
   ```
   <SkipAuthNoExist enabled="true"
   url="https://adminigsss.mycorp.com:8445/IdentityGuardSelfService"/>
   <SkipAuthNoActive enabled="true"
   url="https://adminigsss.mycorp.com:8445/IdentityGuardSelfService"/>
   ```

   Note: Put in your own URL for the Web page, instead of the example shown above.

   There are other possible scenarios depending on how you want the AD FS Adapter to handle your unmigrated users. See "Modifying user migration" settings for the effect of each setting.

6. After you have migrated your first group of users, you can repeat steps 3-5 to migrate the next group.
7. Repeat until you have migrated all your users. After all your users are registered, you can disable the user migration feature, if desired, by changing the enabled attribute to false for both `<SkipAuthNoExist>` and `<SkipAuthNoActive>`.
8. Save and close `eigadfsplugin.xml`.
9. Restart Active Directory Federation Services.

Modifying user migration settings

When you deploy the AD FS Adapter, you may have end users in different states with regard to Entrust IdentityGuard, as follows:

- Users may not have a user ID created in Entrust IdentityGuard.
- Users may have a user ID created in Entrust IdentityGuard, but do not yet have an Entrust IdentityGuard password or second-factor authentication method assigned and activated.
- Users may have a user ID created in Entrust IdentityGuard, and they have an Entrust IdentityGuard password or second-factor authentication method assigned and activated.

The user migration settings in the authentication application configuration file allow you to choose how you handle the three types of users when they attempt to access a protected URL. User migration is configured globally for the entire solution. The user migration settings apply to all authentication methods in the solution.

You control the behavior of these features by modifying settings in the `<UserMigration>` element of `eigadfsplugin.xml`. The `<UserMigration>` element has two child elements:

- Modifying the SkipAuthNoExist element
- Modifying the SkipAuthNoActive element

Modifying the SkipAuthNoExist element

This element applies to users who have not yet been added to Entrust IdentityGuard.

Users who have already been added in Entrust IdentityGuard are not affected by the settings of this element.

`SkipAuthNoExist` has an attribute called enabled, which has two possible values: `true` or `false`. The default is `false`. It has the optional attribute `url`. You can use the element in several different ways.

If you set…	This is the effect…
`<SkipAuthNoExist enabled="false"/>`	Non-Entrust IdentityGuard users are blocked from the protected resource. This is the default setting.
`<SkipAuthNoExist enabled="true"/>`	Non-Entrust IdentityGuard users are allowed access to the protected resource without a second-factor challenge.
`<SkipAuthNoExist enabled="true" url="IdentityGuardEnrollment.aspx"/>`	Non-Entrust IdentityGuard users are not allowed to access the protected resource, and they are redirected to the given URL. This URL could be a page informing the user to contact support, or a self-service interface for registering. The example shows the default page. It informs the user that they have not yet been enrolled in Entrust IdentityGuard.

Modifying the SkipAuthNoActive element

This element applies to users who have been added to Entrust IdentityGuard, but do not yet have any assigned and activated second-factor authentication methods, such as grid, token, Q&A, or OTP.

Users who already have activated second-factor methods are not affected by the settings of this element.

`SkipAuthNoActive` has an attribute called `enabled`, which has two possible values, `true` or `false`. The default is `false`. It has the optional attribute `url`. You can use the element in several different ways.

If you set…	This is the effect…
`<SkipAuthNoActive enabled="false"/>`	Entrust IdentityGuard users who do not yet have assigned and activated second-factor authentication methods are blocked from the protected resource. This is the default setting.
`<SkipAuthNoActive enabled="true"/>`	Entrust IdentityGuard users who do not yet have assigned and activated second-factor authentication methods are allowed access to the protected resource without a second-factor challenge.
`<SkipAuthNoActive enabled="true" url="IdentityGuardActivation.aspx"/>`	Entrust IdentityGuard users who do not yet have assigned and activated second-factor authentication methods are not allowed to access the protected resource, and they are redirected to the given URL. This URL could be a page informing the user to contact support, or a self-service interface for registering. The example shows the default page informing the user that they do not yet have an active second-factor authentication method.

Customizing end-user messages

You can customize end user strings, error, and other messages returned by the Entrust IdentityGuard AD FS Adapter to meet your regional language requirements.

To customize end-user messages

1. Stop Active Directory Federation Services.
2. Go to <adfs_adapter_install>\IdentityGuard ADFS Adapter and open the String.res file.

   This file contains all the Entrust IdentityGuard AD FS Adapter user messages.
3. Edit the messages as required.
4. Save and close `Strings.res`.
5. Restart Active Directory Federation Services.

Configuring logging

You can configure logging for the Entrust IdentityGuard AD FS Adapter independently. The Entrust IdentityGuard AD FS Adapter uses Apache logging packages to implement logging. The Entrust IdentityGuard AD FS Adapter uses Apache log4net 1.2.10. For more detailed information read the Apache documentation at:

http://logging.apache.org/log4net/release/sdk/log4net.Appender.RollingFileAppenderMembers.html

Location of log files

The log files are located at `C:\Program Files\Entrust\IdentityGuard ADFS Adapter\log`.

Changing the logging level

You can configure the default logging level attribute for the Entrust IdentityGuard AD FS Adapter

The default logging level for the Entrust IdentityGuard AD FS Adapter is `INFO`. The possible values are:

- OFF
- FATAL
- ERROR
- WARN
- INFO
- DEBUG
- ALL

These levels show increasing amounts of information.

To change Entrust IdentityGuard AD FS Adapter logging level

1. Stop Active Directory Federation Services.
2. Open the `eigadfsplugin.xml` file.
3. Find the Logging element, and the level child element.
4. Change the value attribute to the level you want. The default is INFO. For example,
5. <level value="DEBUG" />
6. Save and close `eigadfsplugin.xml`.
7. Restart Active Directory Federation Services.

The DEBUG and ALL log levels generate a lot of logs. When you have finished troubleshooting, set the logging level back to INFO to avoid slowing down your system.

Configuring the log file settings

You can configure the settings affecting the log files, such as the name of the log files, how many backups to keep, and so on.

To configure the log file settings for the Entrust IdentityGuard AD FS Adapter

1. Stop Active Directory Federation Services.
2. Open the `eigadfsplugin.xml` file.
3. Locate the section that begins with:

   ```
   <!-- Logging settings for authentication provider -->
   ```

4. Modify the settings described below, depending on how you want to configure the log files.

   - `file`

     This setting specifies the name and location of the log file. For example:

     ```
     <file value="C:\Program Files\Entrust\IdentityGuard ADFS
     Adapter\log\IdentityGuardADFS.log"/>
     ```

   - `appendToFile`

     This setting contains a Boolean value. If `true`, then new logging information is appended at the bottom of the log file. If `false`, then new logging information is written to a new log file, after renaming the previous log file by adding the suffix `.#` where `#` is an integer. For example, a log file named `authapp.log` is renamed to `authapp.log.1` and a new `authapp.log` is created. For example:

     ```
     <appendToFile value="true" />
     ```

   - `maximumFileSize`

     This setting specifies the maximum size the log file can reach, before a new log file is created. When the log file reaches this size, it is renamed and a new log file is created. For example:

     ```
     <maximumFileSize value="1000KB" />
     ```

- `maxSizeRollBackups`

  This setting specifies the number of backups of the log file to keep. Every time a new log file is created, all previous log files are renamed by adding the suffix `.#` where `#` is an integer. The value in this setting determines how many renamed files are kept before deleting. If 10 is specified, then 10 renamed files are kept as well as the active log file. Every time a new log file is created the oldest renamed file (with a .10 suffix) is deleted. For example:

  `<maxSizeRollBackups value="10" />`

- `RollingFileAppender`

  Is the name of the appender that rolls log files based on size or date or both.

- `rollingStyle`

  This sets the rolling style (meaning it will roll the log file based on size).

- `staticLogFileName value="true"`

  Value attribute that indicates whether to always log to the same file.

- `layout type="log4net.Layout.PatternLayout"`

  Type attribute that indicates the layout of log statements written in the log file.

- `conversionPattern value="[%d] [%t] [%-5level] %m%n"`

  Value attribute that indicates the pattern/format of log statements written in the log file.

5. Save and close `eigadfsplugin.xml`.

6. Restart Active Directory Federation Services.

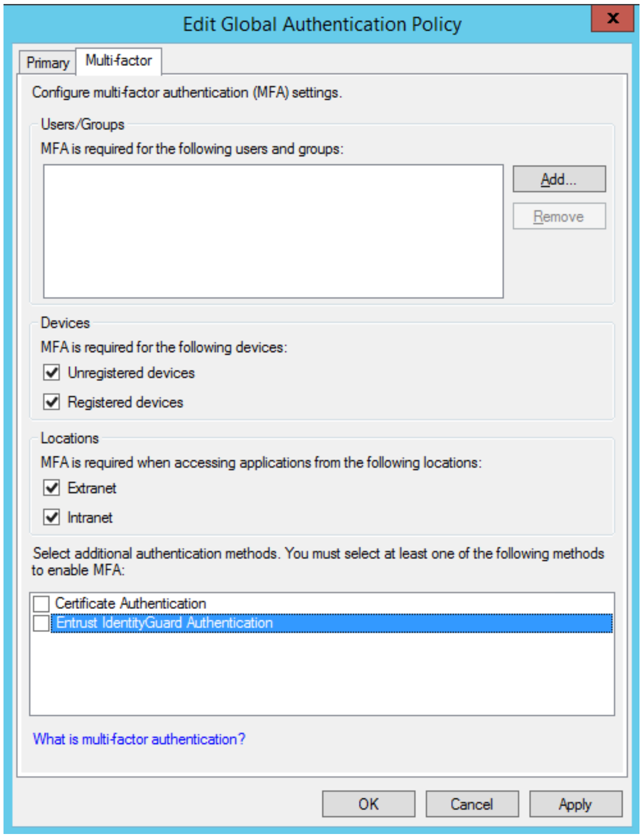
Uninstalling the Entrust IdentityGuard AD FS Adapter

Before uninstalling the Entrust IdentityGuard AD FS Adapter, you must first deselect the Entrust identifyGuard Authentication Plugin from AD FS.

To uninstall the Entrust IdentityGuard AD FS Adapter

1. Go to the AD FS console and select **Authentication Policies > Edit Global Multi-factor Authentication**.

   The Edit Global Policy Authentication page appears.



Edit Global Authentication Policy

Configure multi-factor authentication (MFA) settings.

Users/Groups

MFA is required for the following users and groups:

Devices

MFA is required for the following devices:

☑ Unregistered devices

☑ Registered devices

Locations

MFA is required when accessing applications from the following locations:

☑ Extranet

☑ Intranet

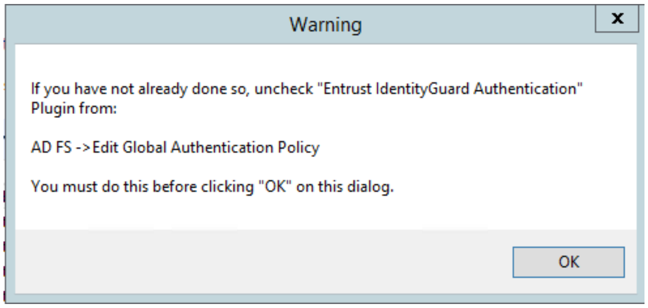
Select additional authentication methods. You must select at least one of the following methods to enable MFA:

□ Certificate Authentication

□ Entrust IdentityGuard Authentication

2. Uncheck **Entrust IdentityGuard Authentication** and then click **OK**.
3. Go to **Control Panel > Programs > Uninstall a program** and double-click **Entrust IdentityGuard AD FS Adapter**.

   A warning message appears reminding you to uncheck the Entrust IdentityGuard Authentication Plugin.



Warning

If you have not already done so, uncheck "Entrust IdentityGuard Authentication" Plugin from:

AD FS ->Edit Global Authentication Policy

You must do this before clicking "OK" on this dialog.

4. If prompted, click **Yes** to confirm that you want to uninstall Entrust IdentityGuard AD FS Adapter.
5. Click **OK** to complete the uninstall process.

Appendix A: Installing and Configuring AD FS 3.0

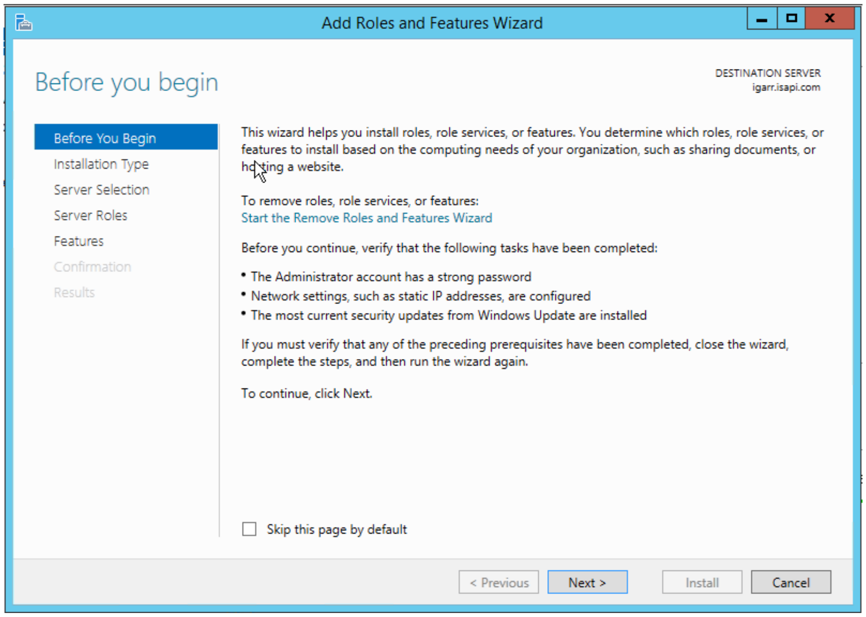
This Appendix provides instructions on installing and configuring AD FS 3.0, WAP and a publishing application. However, it is expected that customers contact Microsoft support if they encounter any issues.

Installing AD FS 3.0

You can install AD FS 3.0 using the Roles and Features and select Active Directory Federation services.

To install AD FS 3.0

1. In the **Roles Summary or Features Summary** areas of the Server Manager main window, click either **Add Roles** or **Add Features**, depending on the software that you want to install to access the **Add Roles and Features Wizard**.



This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
Start the Remove Roles and Features Wizard

Before you continue, verify that the following tasks have been completed:

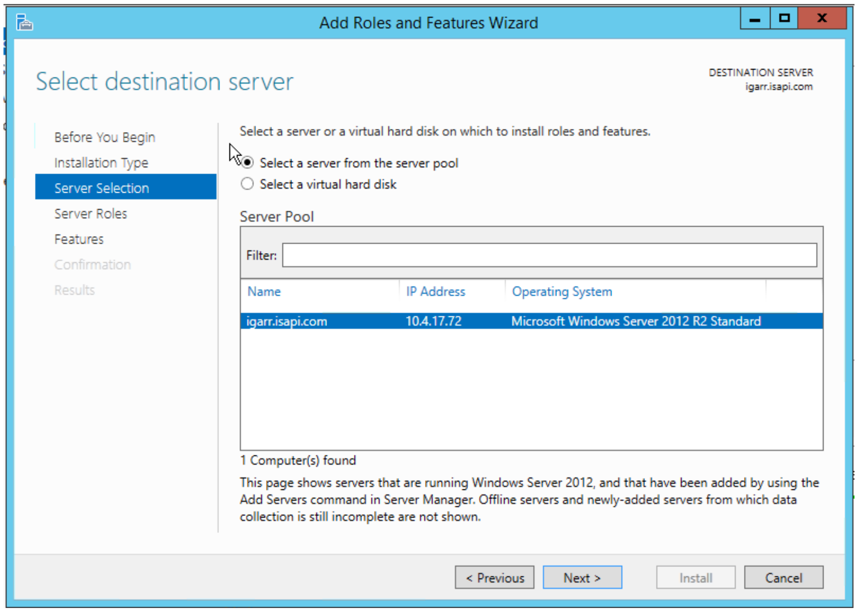
- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

2. Click **Next**. The Select installation type page appears.
3. Select Role-based or feature-based installation and then click **Next**.

The Select Destination Server page appears.



Select destination server

DESTINATION SERVER
igarr.isapi.com

Select a server or a virtual hard disk on which to install roles and features.

● Select a server from the server pool

○ Select a virtual hard disk

Server Pool

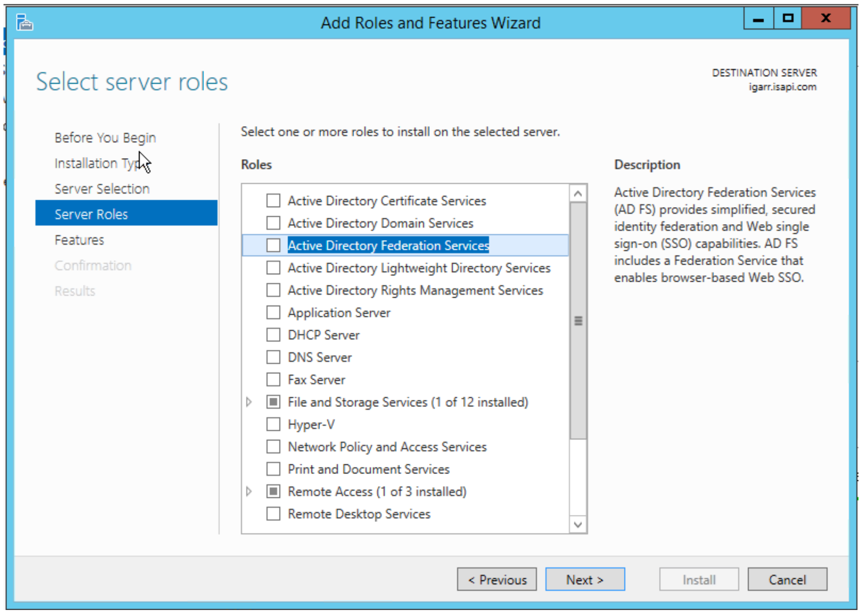
Filter:

Name	IP Address	Operating System
igarr.isapi.com	10.4.17.72	Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found

This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

4. Select the server and then click **Next**.
5. The Select Server Roles page appears.



Select server roles

DESTINATION SERVER
igarr.isapi.com

Select one or more roles to install on the selected server.

Roles

- ☐ Active Directory Certificate Services
- ☐ Active Directory Domain Services
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Application Server
- ☐ DHCP Server
- ☐ DNS Server
- ☐ Fax Server
- ▣ File and Storage Services (1 of 12 installed)
- ☐ Hyper-V
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ▣ Remote Access (1 of 3 installed)
- ☐ Remote Desktop Services

Description

Active Directory Federation Services (AD FS) provides simplified, secured identity federation and Web single sign-on (SSO) capabilities. AD FS includes a Federation Service that enables browser-based Web SSO.

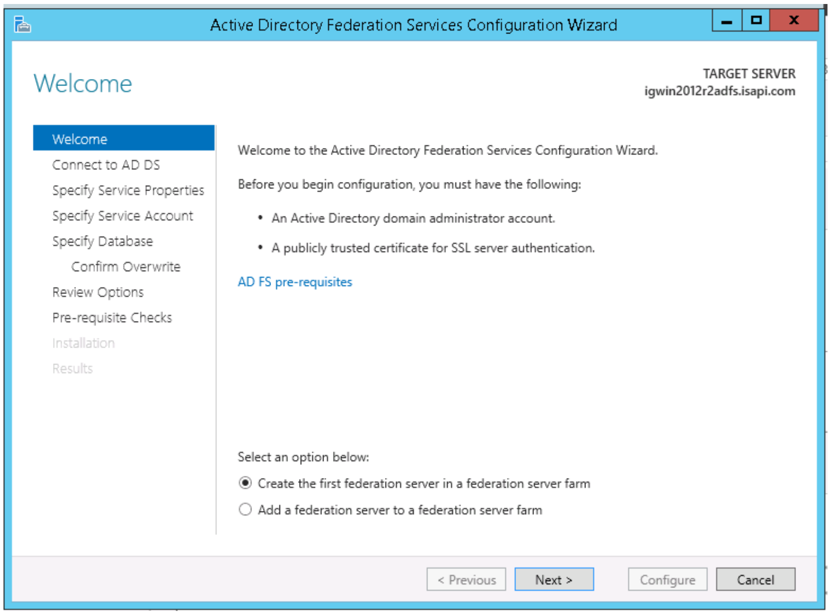
6. Select Active Directory Federation Services, click Next and then click Complete the wizard.

Configuring AD FS 3.0

The next step is to configure Active Directory Federation Services.

To configure AD FS 3.0

1. Launch the AD FS configuration wizard from the server manager. The AD FS Configuration Wizard appears.
2. There are two ways to start the AD FS Federation Server Configuration Wizard. To start the wizard, do one of the following:
   a. After the Federation Service role service installation is complete, open the AD FS Management snap-in and click the **AD FS Federation Server Configuration Wizard** link on the **Overview** page or in the **Actions** pane.
   b. Any time after the setup wizard is complete, open Windows Explorer, navigate to the `C:\Windows\AD FS` folder, and then double-click **FsConfigWizard.exe**.



Active Directory Federation Services Configuration Wizard

Welcome

TARGET SERVER
igwin2012r2adfs.isapi.com

Welcome to the Active Directory Federation Services Configuration Wizard.

Before you begin configuration, you must have the following:

- An Active Directory domain administrator account.
- A publicly trusted certificate for SSL server authentication.

AD FS pre-requisites

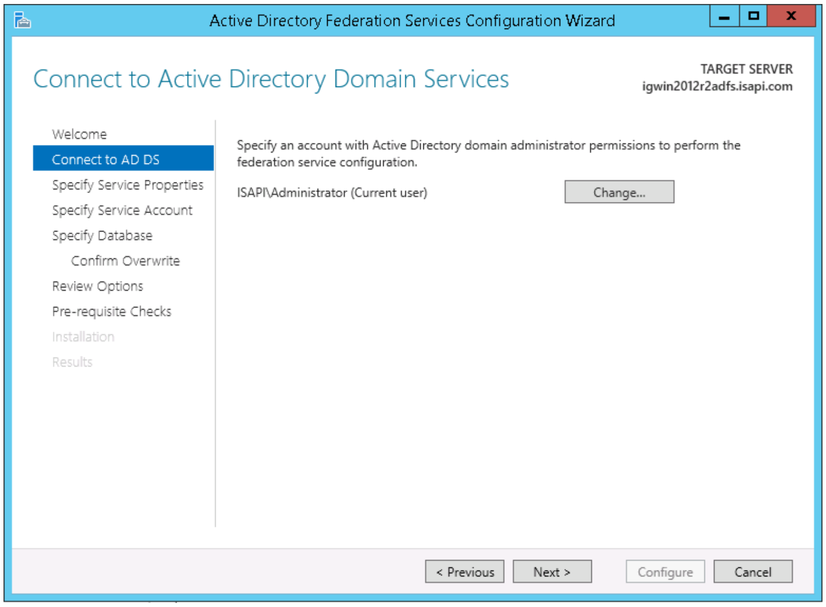
Select an option below:

● Create the first federation server in a federation server farm

○ Add a federation server to a federation server farm

3. Click **Create the first federation server in a federation server farm** and then click **Next**.

   The Connect to Active Directory Domain Services page appears.



Active Directory Federation Services Configuration Wizard

Connect to Active Directory Domain Services

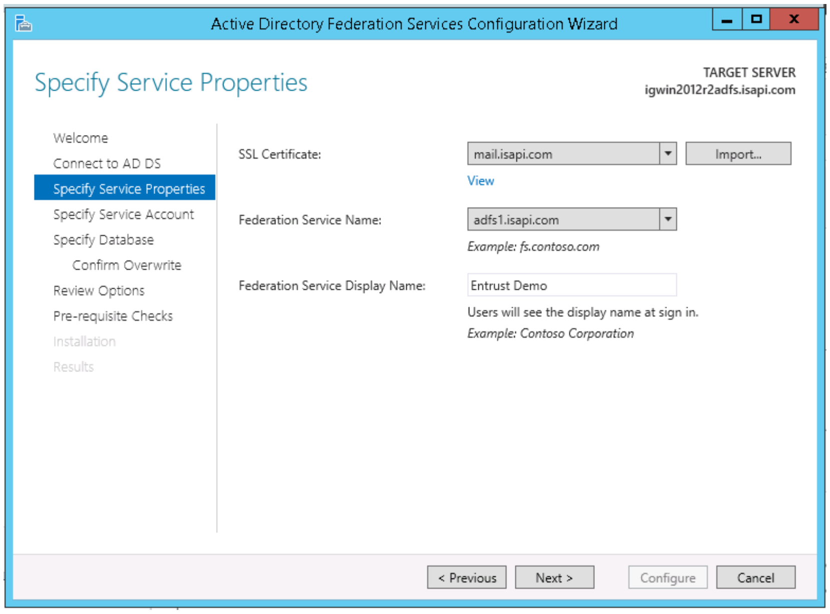
TARGET SERVER
igwin2012r2adfs.isapi.com

Specify an account with Active Directory domain administrator permissions to perform the federation service configuration.

ISAPI\Administrator (Current user)

4. Specify the account with administrator permissions and then click **Next**.

The Specify Service Properties page appears.



Active Directory Federation Services Configuration Wizard

Specify Service Properties

TARGET SERVER
igwin2012r2adfs.isapi.com

SSL Certificate: mail.isapi.com

Federation Service Name: adfs1.isapi.com

Example: fs.contoso.com

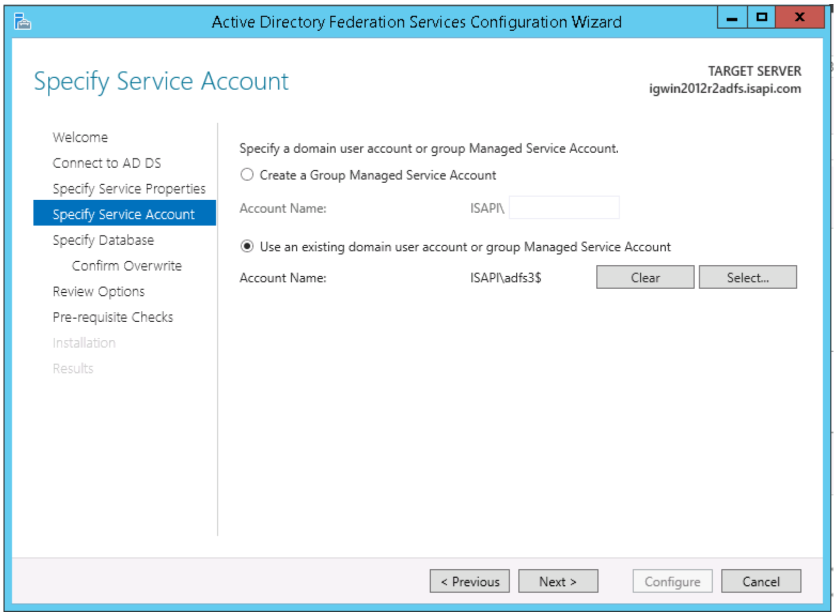
Federation Service Display Name: Entrust Demo

Users will see the display name at sign in.

Example: Contoso Corporation

5. On the Specify Service properties page
   - **a.** Select the SSL certification that you will use.
   - **b.** Select the Federation Service Name.
   - **c.** Enter a Federation Service Display Name.
6. Click **Next**.

The Specify Service Account page appears.



Specify a domain user account or group Managed Service Account.

○ Create a Group Managed Service Account

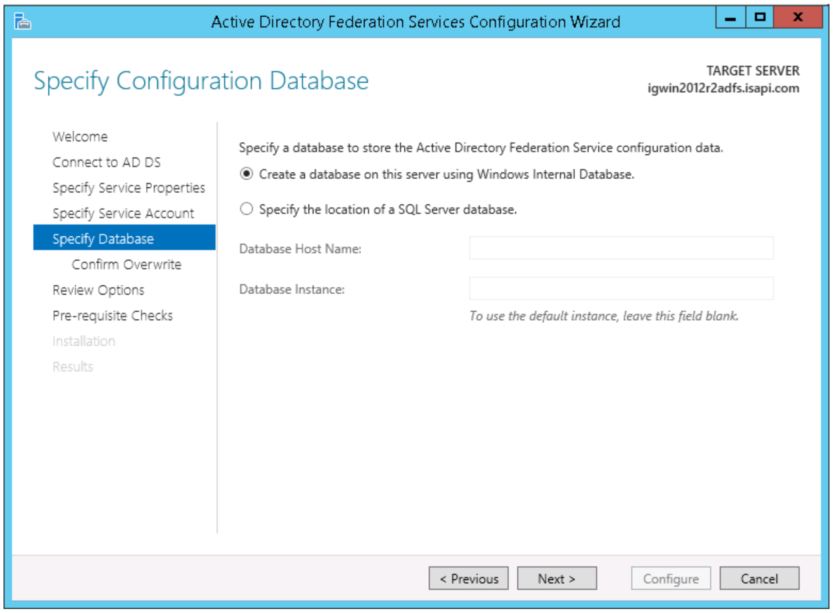
Account Name: ISAPI\

● Use an existing domain user account or group Managed Service Account

Account Name: ISAPI\adfs3$

7. Select to either create a Group Managed Service Account or Use an existing Managed Service Account and then click **Next**.

The Specify Configuration Database page appears.



Specify a database to store the Active Directory Federation Service configuration data.

● Create a database on this server using Windows Internal Database.

○ Specify the location of a SQL Server database.

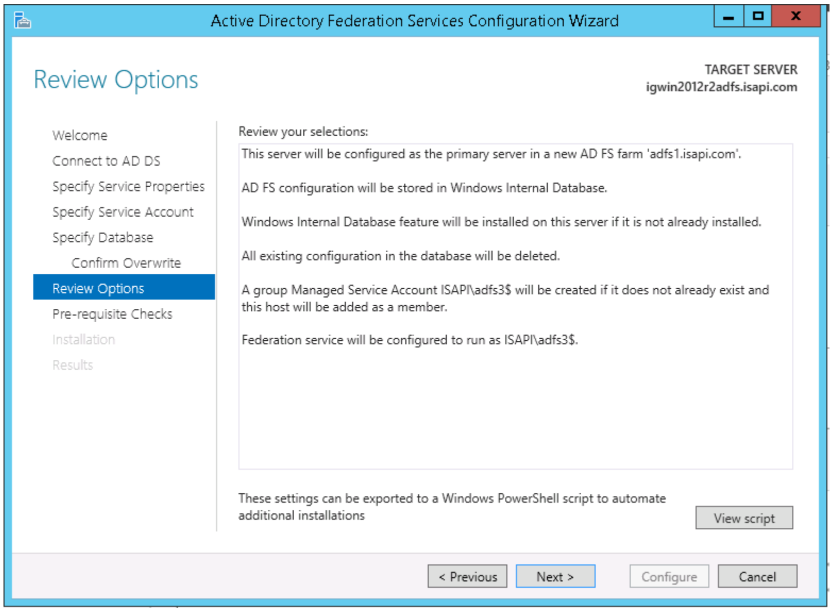
Database Host Name:

Database Instance:

To use the default instance, leave this field blank.

8. Specify an AD FS configuration database by creating a new database or pointing to an existing SQL server and then click **Next**.

The Review Options page appears.



Review your selections:

This server will be configured as the primary server in a new AD FS farm 'adfs1.isapi.com'.

AD FS configuration will be stored in Windows Internal Database.

Windows Internal Database feature will be installed on this server if it is not already installed.

All existing configuration in the database will be deleted.

A group Managed Service Account ISAPI\adfs3$ will be created if it does not already exist and this host will be added as a member.

Federation service will be configured to run as ISAPI\adfs3$.

These settings can be exported to a Windows PowerShell script to automate additional installations

9. Review your selections and then click **Next**.

10. Click **Configure** and complete the wizard.

Configuring an AD FS 3.0 Sample Application

This reference assumes that your environment already has Microsoft OWA, Microsoft SharePoint or any other application you wish to protect configured. Contact Microsoft support if you encounter any issues.

Refer to http://technet.microsoft.com/en-us/library/dn280939.aspx#BKMK_4

Step 3: Configure the Web server (WebServ1) and a sample claims-based application

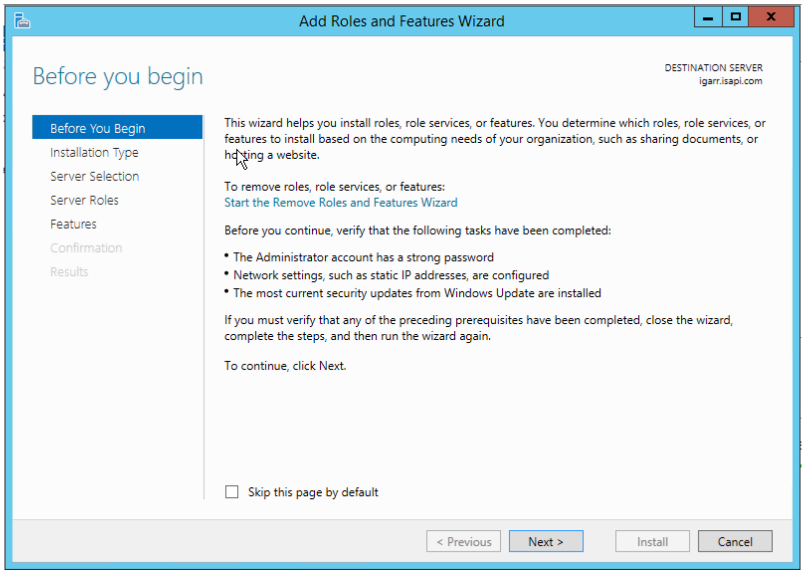
Step 4: Configure the client computer (Client1)

Installing WAP

WAP is installed using the Roles and Features and by selecting the Remote Services option.

To install WAP

1. Access the **Add Roles and Features** Wizard as follows:
2. To add roles or features by using the Windows interface:
3. In the **Roles Summary** or **Features Summary** areas of the **Server Manager** main window, click either **Add Roles** or **Add Features**, depending on the software that you want to install.
4. For WAP select the **Remote Services** option.



This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
Start the Remove Roles and Features Wizard

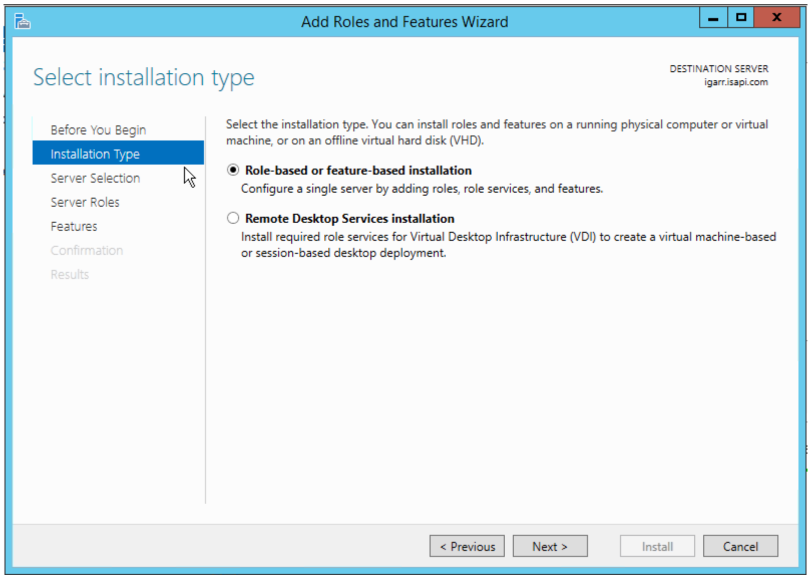
Before you continue, verify that the following tasks have been completed:

- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

5. Click **Next.** The Installation Type page appears.



Select installation type

DESTINATION SERVER
igarr.isapi.com

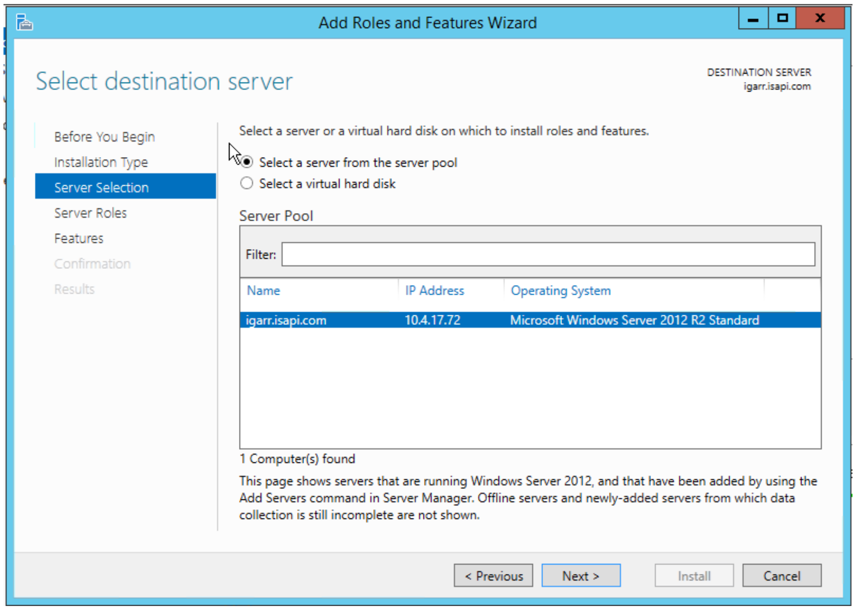
Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

● **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.

○ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

6. Select Role-based or feature-based installation and then click Next.

The Server Selection page appears.



Select destination server

DESTINATION SERVER
igarr.isapi.com

Select a server or a virtual hard disk on which to install roles and features.

● Select a server from the server pool
○ Select a virtual hard disk

Server Pool

Filter:

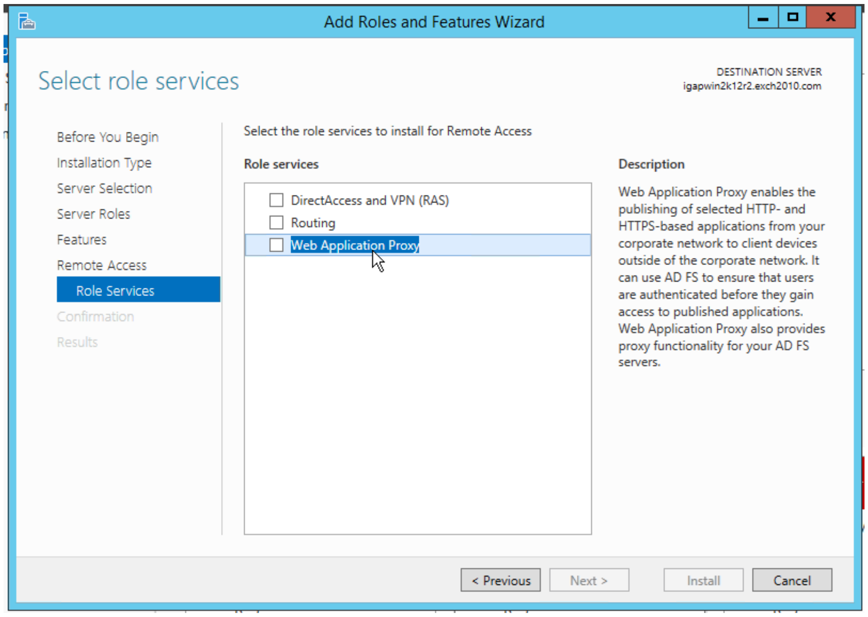
Name	IP Address	Operating System
igarr.isapi.com	10.4.17.72	Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found

This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

7. Select the server from the **Server Pool** list and then click **Next**.

The Select role services page appears.



Select role services

DESTINATION SERVER
igapwin2k12r2.exch2010.com

Select the role services to install for Remote Access

Role services

- □ DirectAccess and VPN (RAS)
- □ Routing
- □ Web Application Proxy

Description

Web Application Proxy enables the publishing of selected HTTP- and HTTPS-based applications from your corporate network to client devices outside of the corporate network. It can use AD FS to ensure that users are authenticated before they gain access to published applications. Web Application Proxy also provides proxy functionality for your AD FS servers.

8. Select **Remote Access** and then click **Next** until the Role Services options appears.

9. Select Web Application Proxy and then click Next.

10. Complete the wizard.

Configuring WAP

To configure WAP

1. Launch the Web Application Proxy Configuration Wizard. To launch the Wizard:

a. On the Web Application Proxy server, open the Remote Access Management console.

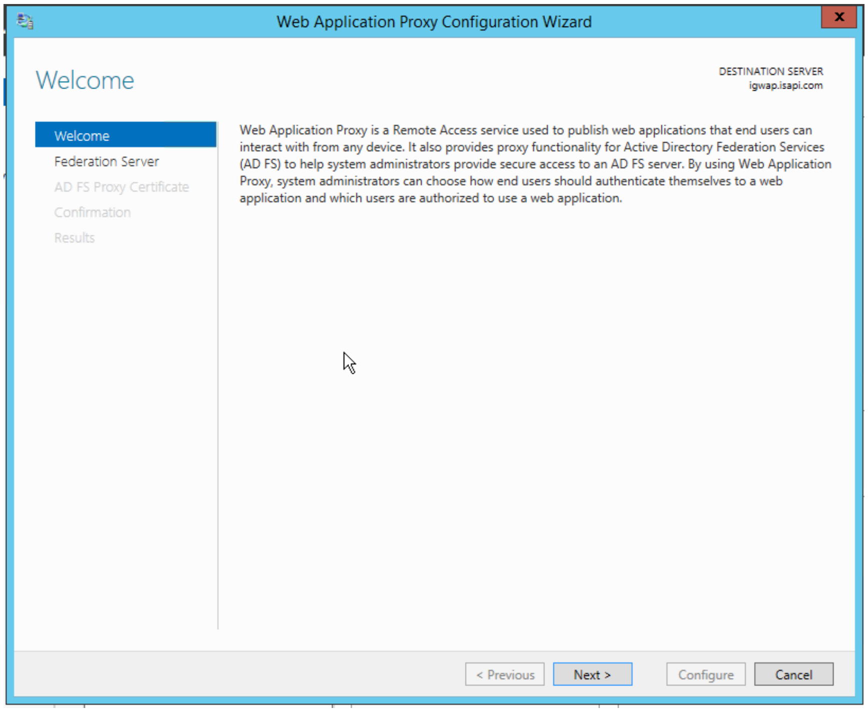
b. On the Start screen, click the **Apps** arrow.

c. On the Apps screen, type **`RAMgmtUI.exe`**, and then press **Enter**.

d. If the User Account Control dialog box appears, confirm that the action it appears is what you want, and then click **Yes**.

e. In the navigation pane, click **Web Application Proxy**.

f. In the Remote Access Management console, in the middle pane, click **Run the Web Application Proxy Configuration Wizard**.



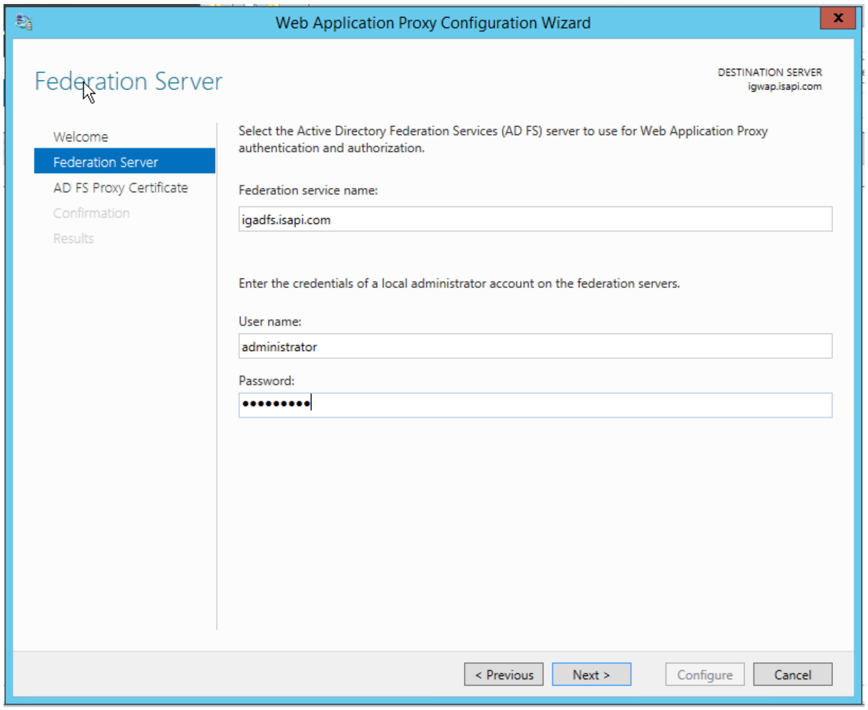
Web Application Proxy Configuration Wizard

Welcome

DESTINATION SERVER
igwap.isapi.com

Web Application Proxy is a Remote Access service used to publish web applications that end users can interact with from any device. It also provides proxy functionality for Active Directory Federation Services (AD FS) to help system administrators provide secure access to an AD FS server. By using Web Application Proxy, system administrators can choose how end users should authenticate themselves to a web application and which users are authorized to use a web application.

2. Click **Next**. The Federation Server page appears.



Web Application Proxy Configuration Wizard

Federation Server

DESTINATION SERVER
igwap.isapi.com

Select the Active Directory Federation Services (AD FS) server to use for Web Application Proxy authentication and authorization.

Federation service name:
igadfs.isapi.com

Enter the credentials of a local administrator account on the federation servers.

User name:
administrator

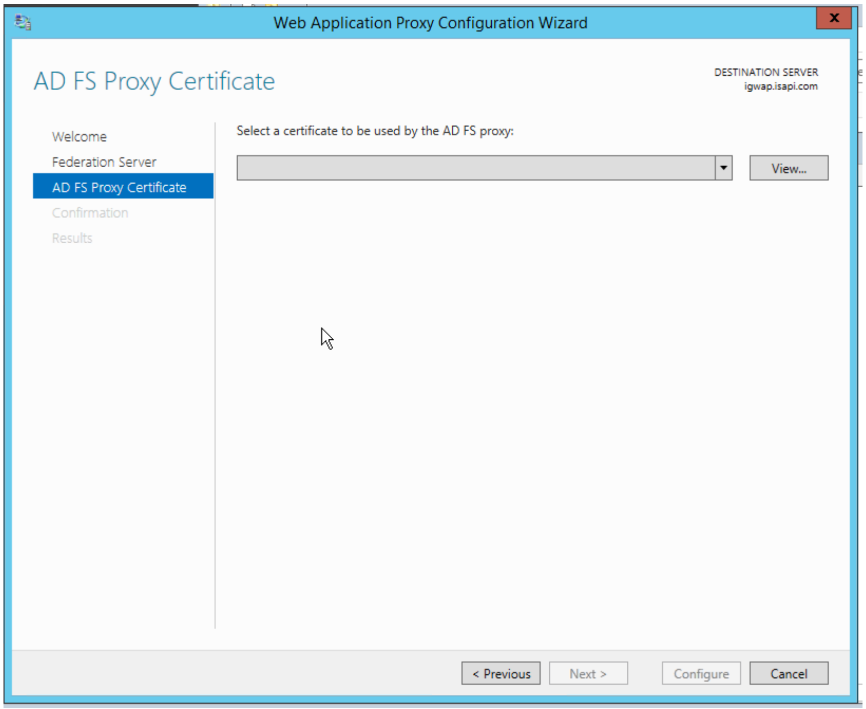
Password:
•••••••••

3. Choose the AD FS service name that you assigned during the configuration of AD FS and credentials of AD FS:

   a. In the **Federation service name** box, enter the fully qualified domain name (FQDN) of the AD FS server.

b. In the **User name** and **Password** boxes, enter the credentials of a local administrator account on the AD FS server.

c. Click **Next**. The AD FS Proxy Certification page appears.



Web Application Proxy Configuration Wizard

AD FS Proxy Certificate

DESTINATION SERVER
igwap.isapi.com

Select a certificate to be used by the AD FS proxy:

4. Select the certificate for AD FS proxy. The certificate should be the one with the Federation Service name as the subject.

5. Click **Next**. The Confirmation page appears.

6. Review the settings on the Confirmation page. If required, you can copy the **PowerShell cmdlet** to automate additional installations.

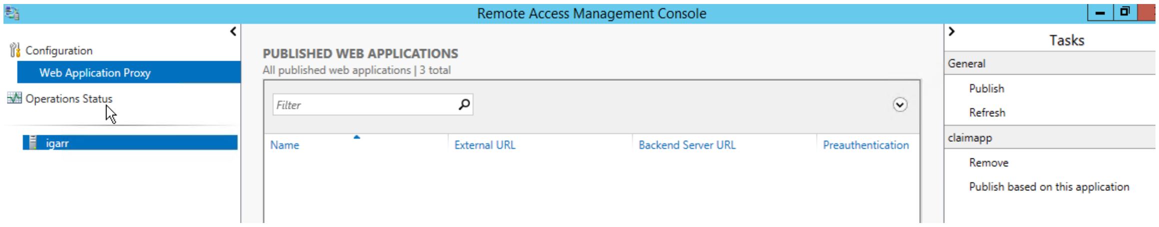
7. Click **Configure**. The Results page appears.

8. In the **Results** page, verify that the configuration was successful and the click **Close**.

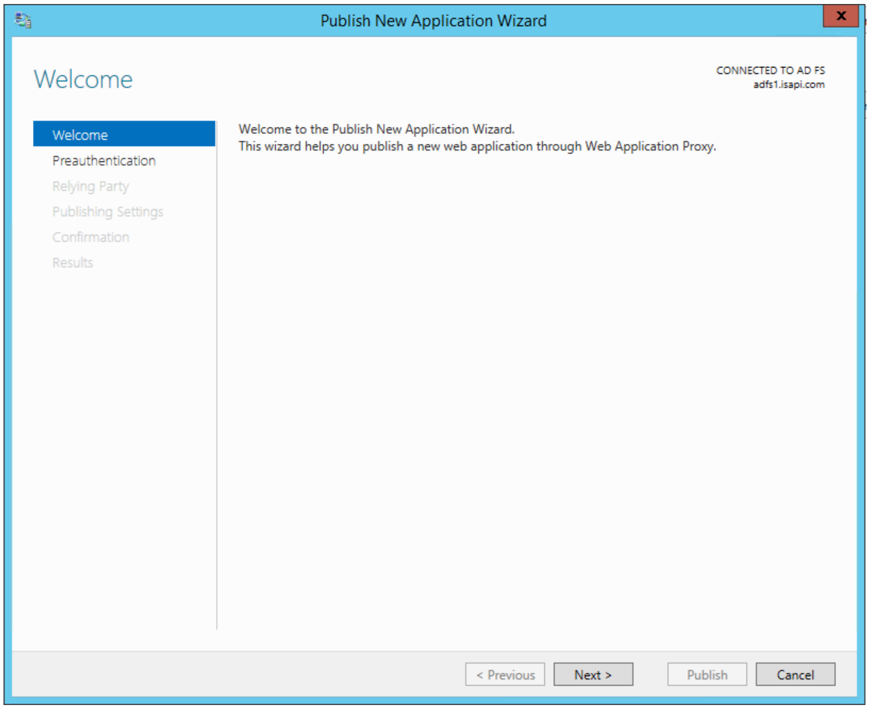
Publishing AD FS 3.0 sample application on WAP

To publish AD FS 3.0 sample application on WAP

1. On the Web Application Proxy Server, access the Remote Access Console.

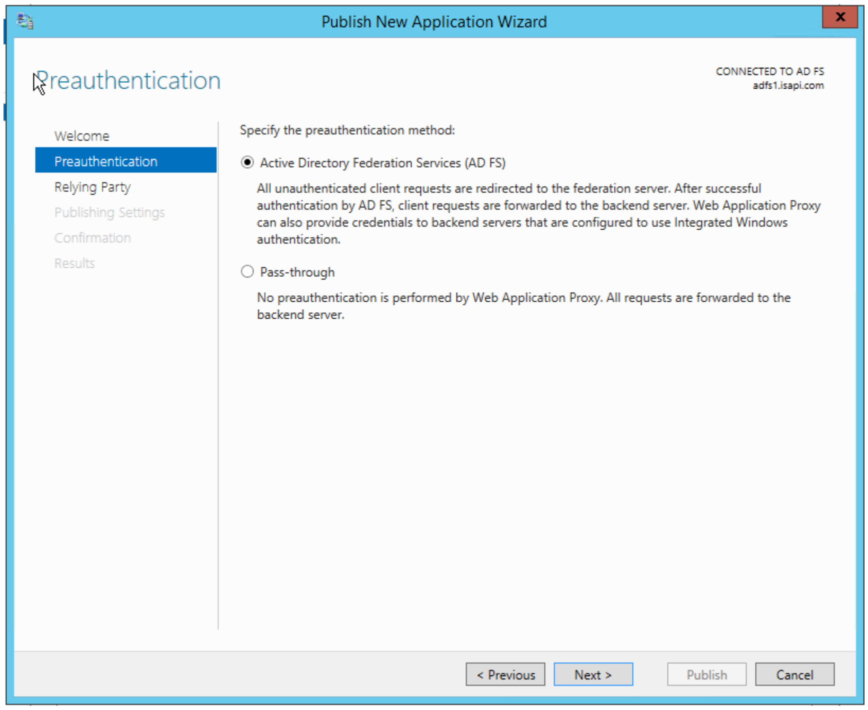


2. In the Navigation pane, click Web Application Proxy.
3. In the **Tasks** pane, click **Publish**. The Publish New Application Wizard appears.



Welcome to the Publish New Application Wizard.
This wizard helps you publish a new web application through Web Application Proxy.

4. On the **Publish New Application Wizard Welcome** page, click **Next**. The Preauthentication page appears.



Preauthentication

CONNECTED TO AD FS
adfs1.isapi.com

Specify the preauthentication method:

● Active Directory Federation Services (AD FS)

All unauthenticated client requests are redirected to the federation server. After successful authentication by AD FS, client requests are forwarded to the backend server. Web Application Proxy can also provide credentials to backend servers that are configured to use Integrated Windows authentication.

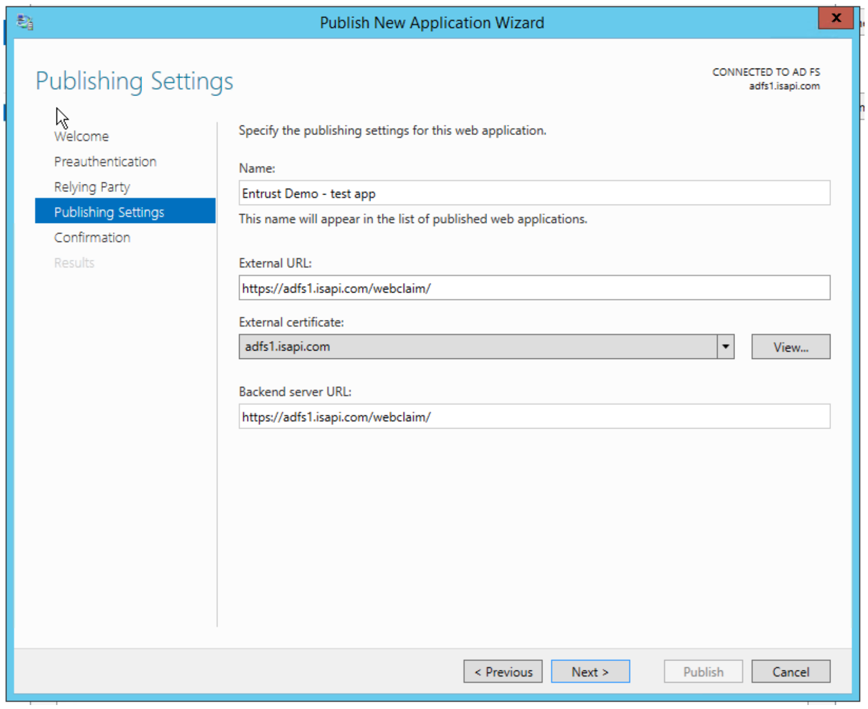
○ Pass-through

No preauthentication is performed by Web Application Proxy. All requests are forwarded to the backend server.

5. Click **Active Directory Federation Services (AD FS)** and then click **Next**. The Relying Party page appears.

6. In the list of Relying Parties, select the Relying Party for the application that you want to publish and then click **Next**.

   The Publishing Settings page appears.



Publishing Settings

CONNECTED TO AD FS
adfs1.isapi.com

Specify the publishing settings for this web application.

Name:
Entrust Demo - test app
This name will appear in the list of published web applications.

External URL:
https://adfs1.isapi.com/webclaim/

External certificate:
adfs1.isapi.com

Backend server URL:
https://adfs1.isapi.com/webclaim/

7. On the **Publishing Settings** page

a. In the **Name** box, enter a friendly name for the application.

b. This name is used only in the list of published applications in the Remote Access Management console.

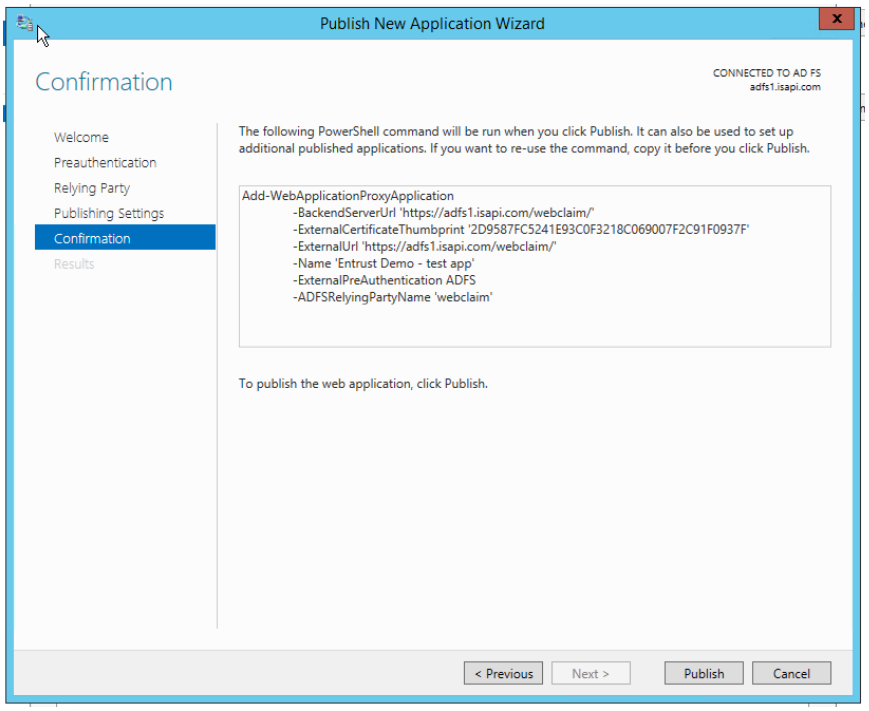
c. In the **External URL** box, enter the external URL for this application.

d. In the **Backend server URL** box, enter the URL of the backend server. Note that this value is automatically entered when you enter the external URL and you should change it only if the backend server URL is different.

e. **Note:** Web Application Proxy can translate host names in URLs, but cannot translate path names. Therefore, you can enter different host names, but you must enter the same path name.

f. Click **Next**.

The Confirmation page appears.



The following PowerShell command will be run when you click Publish. It can also be used to set up additional published applications. If you want to re-use the command, copy it before you click Publish.

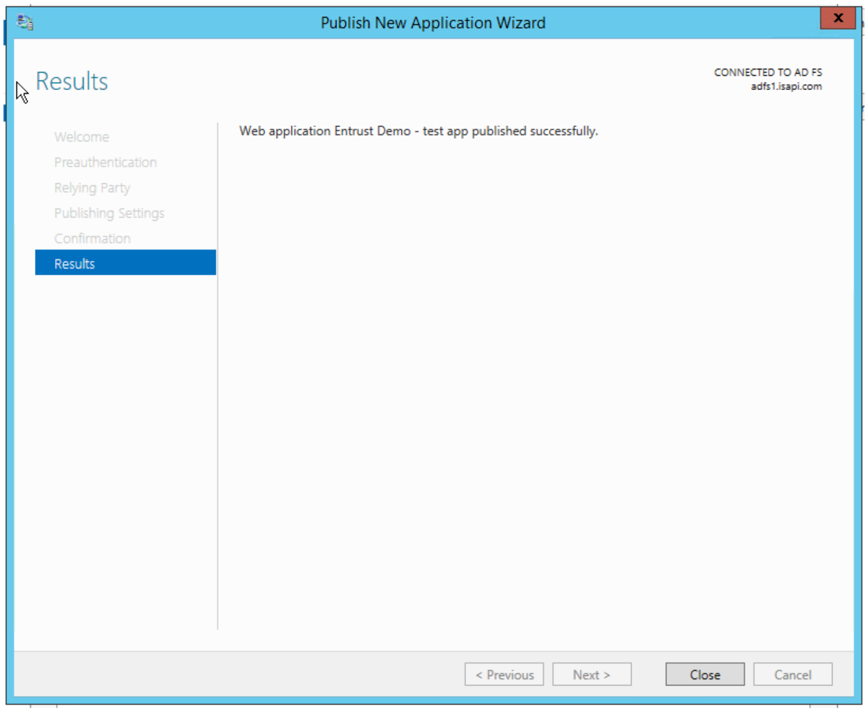
```
Add-WebApplicationProxyApplication
        -BackendServerUrl 'https://adfs1.isapi.com/webclaim/'
        -ExternalCertificateThumbprint '2D9587FC5241E93C0F3218C069007F2C91F0937F'
        -ExternalUrl 'https://adfs1.isapi.com/webclaim/'
        -Name 'Entrust Demo - test app'
        -ExternalPreAuthentication ADFS
        -ADFSRelyingPartyName 'webclaim'
```

To publish the web application, click Publish.

8. Review the settings on the Confirmation page and then click **Publish**.

9. **Note:** If required, you can copy the PowerShell command to set up additional published applications.

The Results page appears.



Web application Entrust Demo - test app published successfully.

10. On the Results page, make sure the application published successfully and then click **Close**. You are returned to the Remote Access Management Console.

Appendix B: Configuring failover for Entrust IdentityGuard Servers

You can set up a failover architecture by increasing the number of Entrust IdentityGuard Servers. With multiple Entrust IdentityGuard Servers, failover works as follows:

1. Upon startup, the first Entrust IdentityGuard Server in the list, (also called the preferred server), is used to process all authentication requests.
2. When a successful connection cannot be made to the current, active Entrust IdentityGuard Server, then the solution fails over to the next available Entrust IdentityGuard Server, always starting from the preferred server, and skipping over any unavailable servers.
3. At defined intervals that you can configure, the solution attempts to reconnect to the preferred Entrust IdentityGuard Server. The default interval is one hour.

You can configure failover for Entrust IdentityGuard Servers by editing the Entrust IdentityGuard AD FS Adapter file.

To configure failover for Entrust IdentityGuard Servers

1. Stop Active Directory Federation Services.
2. Open the file `eigadfsplugin.xml`.
3. Find the IdentityGuardServers element under AuthenticationProvider. For example:

```
<AuthenticationProvider>

      <IdentityGuardServers>

            ...

      </IdentityGuardServers>

            ...

</AuthenticationProvider>
```

   Define the attributes of `IdentityGuardServers` as described in the following sub-steps. The attributes defined within this element apply to all the Entrust IdentityGuard Servers.

   a. Define the `numberOfRetries` attribute. For example:

```
<IdentityGuardServers numberOfRetries="1">
   ...
</IdentityGuardServers>
```

   If the first connection attempt to a server fails, this setting indicates how many further attempts must be made before marking this server as failed. If not specified, the default value is `1`; that is, after an initial (failed) attempt, one further attempt is made.

   b. Define the `delayBetweenRetries` attribute. For example:

```
<IdentityGuardServers numberOfRetries="1"
   delayBetweenRetries=”500>
...
</IdentityGuardServers>
```

delayBetweenRetries is used with the numberOfRetries attribute. It specifies how long to wait (in milliseconds) between connection attempts. The default value, if not specified, is 500 milliseconds. If numberOfRetries is 0, then delayBetweenRetries is not used.

c. Define the failedServerHoldOffTime attribute. For example:

```
<IdentityGuardServers numberOfRetries="1"
   delayBetweenRetries=”500”
   failedServerHoldOffTime=”600”>
...
</IdentityGuardServers>
```

failedServerHoldOffTime defines the minimum amount of time (in seconds) that must elapse before attempting to contact a server that has previously been marked as failed. The default value, if not specified, is 600 seconds (10 minutes).

d. Define the restoreTimeToPreferred attribute. For example:

```
<IdentityGuardServers numberOfRetries="1"
   delayBetweenRetries=”500”
   failedServerHoldOffTime=”600”
   restoreTimeToPreferred="3600">
...
</IdentityGuardServers>
```

When the current active, connected server is not the preferred server (that is, the first server in the list), then the restoreTimeToPreferred setting defines how frequently (in seconds) to try to reconnect to the preferred server. The default value, if not specified, is 3600 seconds (one hour). Setting a value of 0 (zero) means that the solution continues to use the current active server, and does not attempt to reconnect to the preferred server.

4. Find the ServerList element under IdentityGuardServers. For example:

```
<IdentityGuardServers numberOfRetries="1"
      delayBetweenRetries=”500”
        restoreTimeToPreferred="3600">
      <ServerList>
      ...
      </ServerList>
</IdentityGuardServers>
```

ServerList contains definitions of all the Entrust IdentityGuard Servers in your environment.

5. Add an IdentityGuardServer element under ServerList. For example:

6. <ServerList>

```
      <IdentityGuardServer>
                  ...
      </IdentityGuardServer>
</ServerList>
```

Each IdentityGuardServer element defines one of the Entrust IdentityGuard Servers in your environment.

7. Add an AuthenticationService element under IdentityGuardServer. For example:

```
<ServerList>
      <IdentityGuardServer>
        <AuthenticationService />
      </IdentityGuardServer>
</ServerList>
```

The `AuthenticationService` element contains the URL for the authentication service of the Entrust IdentityGuard Server being defined.

8. In the `AuthenticationService` element, enter the URL for your first Entrust IdentityGuard Server. For example:

```
<ServerList>
      <IdentityGuardServer>
        <AuthenticationService
url="https://igserver1.mydomain.com:8443/IdentityGuardAuthService/servi
ces/AuthenticationServiceV9"/>
      </IdentityGuardServer>
</ServerList>
```

This completes the definition of one Entrust IdentityGuard Server.

9. Repeat steps 4 to 6 for each additional Entrust IdentityGuard Server in your environment. For example:

```
<ServerList>
      <IdentityGuardServer>
        <AuthenticationService
url="https://igserver1.mydomain.com:8443/IdentityGuardAuthService/servi
ces/AuthenticationServiceV9"/>
      </IdentityGuardServer>

      <IdentityGuardServer>
        <AuthenticationService
url="https://igserver2.mydomain.com:8443/IdentityGuardAuthService/servi
ces/AuthenticationServiceV9"/>
      </IdentityGuardServer>

      <IdentityGuardServer>
        <AuthenticationService
url="https://igserver3.mydomain.com:8443/IdentityGuardAuthService/servi
ces/AuthenticationServiceV9"/>
      </IdentityGuardServer>
</ServerList>
```

10. Save and close `eigadfsplugin.xml`.

11. Restart Active Direction Federation Services for your configuration changes to take effect.

You have completed the configuration of failover for your Entrust IdentityGuard Servers.

Appendix C: Known issues

There are no known issues.