Profile synchronization guide for Microsoft SharePoint Server 2010

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Abstract

This book describes how to plan and configure profile synchronization in Microsoft SharePoint Server 2010. Also included is technical reference information about profile properties, data types, and permissions.

The content in this book is a copy of selected content in the SharePoint Server 2010 technical library (*http://go.microsoft.com/fwlink/?LinkId=181463*) as of the publication date. For the most current content, see the technical library on the Web.

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Getting help

Every effort has been made to ensure the accuracy of this book. This content is also available online in the Office System TechNet Library, so if you run into problems you can check for updates at:

http://technet.microsoft.com/office

If you do not find your answer in our online content, you can send an e-mail message to the Microsoft Office System and Servers content team at:

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If your question is about Microsoft Office products, and not about the content of this book, please search the Microsoft Help and Support Center or the Microsoft Knowledge Base at:

http://support.microsoft.com

I. Planning for profile synchronization

In this section:

- Profile synchronization overview (SharePoint Server 2010)
- Plan user profiles (SharePoint Server 2010)
- Plan for profile synchronization (SharePoint Server 2010)

Profile synchronization overview (SharePoint Server 2010)

Published: April 7, 2011

This article describes profile synchronization, also referred to as "profile sync," in Microsoft SharePoint Server 2010.

A user profile is a collection of properties that describes a SharePoint user. Features such as My Sites and People Search use user profiles to provide a rich, personalized experience for the users in your organization. You can create user profiles by importing data from directory services, such as Active Directory Domain Services (AD DS). You can augment user profiles by importing data from business systems, such as SAP or Microsoft SQL Server. If users update their profiles in Microsoft SharePoint Server 2010, you can write the modified data back to directory services. The process of importing profile data from external systems and writing data back to these systems is called *profile synchronization*.

When you synchronize user profiles, you can also synchronize groups. Synchronizing groups gives SharePoint Server 2010 information about which users are members of which group.

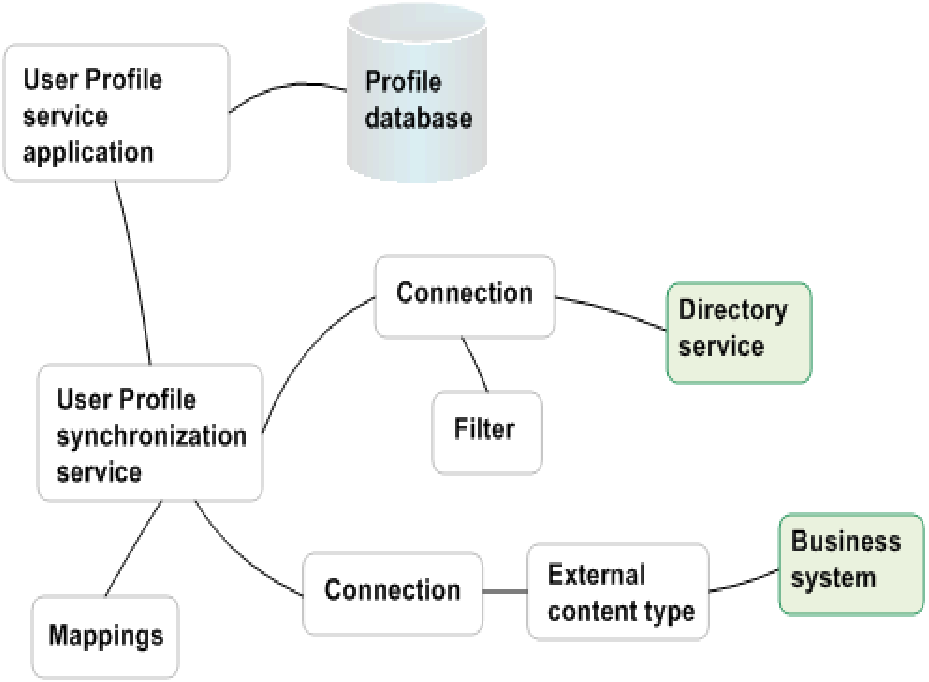
In this article:

Synchronization components

The following figure shows the components that are involved in synchronizing profiles in SharePoint Server 2010. Shaded boxes represent external systems. The SharePoint Server components are described in the paragraphs that follow the figure.

Note:

Throughout this topic, the phrase "business system" is used to mean an external system that is not a directory service. SAP, Siebel, SQL Server, and custom applications are all examples of business systems.



Your solution must have a User Profile service application to use any of the social computing features in SharePoint Server 2010. When you create the User Profile service application, you can specify the *synchronization server* (also known as the *profile synchronization instance*), which is the computer that will be used to synchronize profile information. Creating the User Profile service application creates several databases, such as the profile database.

The User Profile Synchronization service is the core of the synchronization architecture in SharePoint Server 2010. When you start the User Profile Synchronization service on the synchronization server, SharePoint Server 2010 provisions a version of Microsoft Forefront Identity Manager (FIM) to participate in synchronization. A User Profile service application can only have one User Profile Synchronization service. A User Profile Synchronization service is associated with *connections* and *mappings*.

A connection is a way to access profile data in an external system. A User Profile Synchronization service can have multiple connections, and each external system requires its own connection. Connections can be divided into two types: connections to directory services, and connections to business systems.

When you create a connection to a directory service, you specify which containers in the directory service contain the information that you want to synchronize. You can also create a *filter* to exclude users and groups that you do not want to import. For example, you could synchronize with the Users container in AD DS, but filter out users whose accounts are disabled.

When you create a connection to a business system, you specify the external content type that represents the information from the business system.

Mappings define how SharePoint user profile properties relate to data in external systems. A mapping for a particular user profile property consists of three things:

- The connection that identifies the external system.
- The attribute from the external system that the user profile property is related to.
- The direction of the mapping, which can be either "import" for a property that receives its value from the external attribute, or "export" for an external attribute whose value is provided by the SharePoint user profile property.

Importing profiles from a directory service

You can create new profiles and import profile properties by synchronizing with a directory service. When you synchronize with a directory service, SharePoint Server 2010 does the following:

- Creates a user profile for each new user in the directory service containers that are being synchronized, and fills in the properties of each new profile with data from the directory service.
- Deletes the profile of any user that was removed from the directory service.
- For properties that are being imported, updates the property in the SharePoint user profile if the corresponding value in the directory service has changed.

If you synchronize with multiple directory services, each directory service must provide unique users. You cannot synchronize a single user profile with multiple directory services.

Note:

Active Directory resource and logon forests present the only case in which you can synchronize the same users with two directory services. The connection to the logon forest provides the users. The connection to the resource forest merely augments the properties of existing profiles, similarly to a connection to a business system.

Importing properties from a business system

You can populate the properties of existing user profiles from a business system. You cannot create new user profiles in this manner, and you cannot write data back to a business system.

To import data from a business system, you must first create an external content type to bring the data from the business system into SharePoint Server 2010. Then you can synchronize user profiles with the external content type. For more information about external content types, see Business Connectivity Services overview (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee661740.aspx*).

There must be some information that is shared by the external content type and a user profile. SharePoint Server 2010 uses this shared information to match an instance of the external content type to the correct user profile during synchronization. When you define the external content type, you specify that the field to match against is the identifier for the external content type. You specify which user profile property to match against when you create a synchronization connection to a business system. For example, if the business system contains an employee's email address, birth date, and office location, you could specify the email address as the identifier of the external content type, and create a connection that matches against the WorkEmail profile property. For each user profile, SharePoint Server 2010 would synchronize information from the instance of the external content type whose email address matched the WorkEmail property of the user profile.

Exporting properties to a directory service

Once user profiles exist, you can let users modify the values of certain profile properties. You can configure these properties so that data that is changed in SharePoint Server 2010 will be written back to a directory service. Each property can be either imported or exported. You cannot both import and export the same property. You can only export data about a user to the directory service from which the user was imported. You cannot create new user accounts in the directory service by exporting user profile information.

Creating user profiles without synchronizing

You can create a custom solution that uses the SharePoint object model to create user profiles. If your solution does not use profile synchronization, you can remove the profile synchronization features from the SharePoint user interface by selecting the **Enable External Identity Manager** option on the Configure Synchronization Settings page of Central Administration.

Synchronizing groups

If you synchronize groups in addition to users, SharePoint Server 2010 imports information about the groups that exist in the directory service containers that you are synchronizing with, as well as about which SharePoint Server 2010 users are members of these groups. Each time that you synchronize, SharePoint Server 2010 updates the group and membership information. Groups do not have profiles, and you cannot manipulate them by using SharePoint Server. You must manage groups and their membership in the directory service itself. Within SharePoint Server, groups are only used to create audiences (see Audience and content targeting planning (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc261958.aspx*)) and to display which memberships a visitor has in common with the person whose My Site the person is visiting (see My Sites overview (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ff382643.aspx*)).

Types of synchronization

You can perform two kinds of synchronization: full and incremental. Full synchronization can take a long time—for directories that contain hundreds of thousands of users, it could take several days. Incremental synchronization only synchronizes data that has changed in the external system or SharePoint Server 2010, and is more efficient. You must perform a full synchronization the first time that you synchronize. After that, you can use incremental synchronization unless one of the following conditions is true:

- A mapped property has changed. For example, you mapped a new property, or added or changed a mapping associated with a property.
- You changed the containers that a connection uses to synchronize with a directory service.
- You changed or added a filter.
- An external content type that you are synchronizing with has changed.
- You added or deleted a connection.

You can configure a timer job to run an incremental synchronization on a set schedule, ranging from every few minutes through monthly. You can also start either a full synchronization or an incremental synchronization manually.

Supported directory services

With SharePoint Server 2010 you can create connections to the following directory services:

- Active Directory Domain Services (AD DS) 2003 SP2 and AD DS 2008
- Sun Java System Directory Server version 5.2
- Novell eDirectory version 8.7.3
- IBM Tivoli version 5.2

You can use any of these directory services to synchronize users. Synchronizing groups is only supported for AD DS.

All of these directory services support full synchronization. All except Novell eDirectory support incremental synchronization.

You can also import data from other Lightweight Directory Access Protocol (LDAP) providers by using a Lightweight Directory Interchange Format (LDIF) file. For more information about how to import LDIF data, see Configure profile synchronization using a Lightweight Directory Interchange Format (LDIF) file (SharePoint Server 2010).

Concepts

Plan for profile synchronization (SharePoint Server 2010)

Plan user profiles (SharePoint Server 2010)

Configure profile synchronization using a Lightweight Directory Interchange Format (LDIF) file (SharePoint Server 2010)

Other Resources

Audience and content targeting planning (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc261958.aspx*)

My Sites overview (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ff382643.aspx*)

Business Connectivity Services overview (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee661740.aspx*)

Plan user profiles (SharePoint Server 2010)

Published: May 12, 2010

This article describes the Microsoft SharePoint Server 2010 user profiles feature and gives guidance on planning user profiles.

In this article:

- What are user profiles?
- About user profile properties
- About property policies
- Planning user profiles

Note:

Profile synchronization is the process of synchronizing data from directory services and business systems with user profiles. Along with understanding the concepts and activities described in this article, you should read the related article Profile synchronization overview (SharePoint Server 2010).

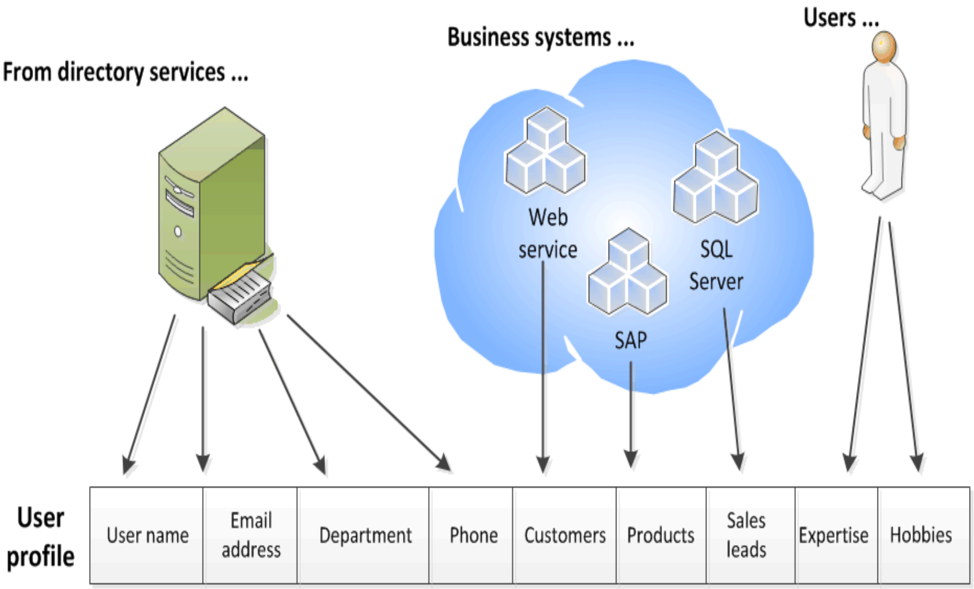
What are user profiles?

A user profile is a collection of properties that describes a single user, along with the policies and other settings associated with each property. The user that a profile describes is represented by a unique identifier in the profile, and the remaining properties provide information about that user, such as the user's phone numbers, manager, office number, job title, and so forth. The set of user profiles for a SharePoint deployment are stored in the profiles database associated with a User Profile Service application.

User profiles help identify connections between users in an enterprise, such as their common managers, workgroups, group membership, and common Web sites. They can also contain critical information about a user, such as the products the user works on, the user's interests or areas of expertise, and the user's place in the organization's structure. By exposing this information in features such as My Sites, user profiles provide the basis for enterprise social networking in SharePoint Server. Some of the enterprise social networking features that user profiles support are:

- My Sites
- Profile pages
- People searching
- Organizational charts
- Expertise search
- Social tagging
- Audiences

As shown in the following illustration, user profiles can be composed of properties that are imported from a directory service, imported from business systems, and supplied by users.



For example, a directory service could supply essential information needed across the organization, such as users' account names, work telephone numbers, titles, and work e-mail addresses. Business systems could supply business-related critical information, such as the customer accounts or product lines managed by each team member. Users could supply supplemental information about themselves, such as their areas of expertise or hobbies.

New user profiles are created in the following ways:

- If an authenticated user does not have a user profile, a new one is created using properties taken from the appropriate directory service when that user initially accesses his or her My Site.
- One or more new user profiles can be created using profile synchronization. For details, see Plan for profile synchronization (SharePoint Server 2010).

- A custom solution can be developed to create user profiles. For more information, see How to: Create User Profiles and Organization Profiles (*http://msdn.microsoft.com/en-us/library/ms545122.aspx*).

Note:

User profiles are distinct from SharePoint Server user accounts and exist in their own data store. User accounts provide security and access rights to objects in SharePoint Server. User profiles are used to organize information about users and about the relationships among users. Updating a user's profile has no effect on that user's user account.

About user profile properties

A user profile is composed of a set of user properties. Each user property provides an item of information related to a user. User property values can come from directory services, business systems, or user input. You can configure some properties so that they can be exported to a directory service. Many of the decisions you make in planning user profiles are about which user properties to include and how their values are set.

A rich set of data types is available for user properties. For a list of the supported data types and their definitions, see PropertyDataType Fields (*http://msdn.microsoft.com/en-us/library/microsoft.office.server.userprofiles.propertydatatype_fields.aspx*).

User profiles include a set of default user profile properties. Many of these properties are included because they are used by SharePoint Server social networking or personalization features, and a subset of the properties are mapped automatically to their corresponding directory service attributes after you run profile synchronization. For a list of default user properties, see Default user profile properties (SharePoint Server 2010).

SharePoint Server includes a managed metadata feature. Managed metadata is a hierarchical collection of centrally managed terms that you can define and then use as attributes for items in SharePoint Server. A set of managed terms is a term set. You can associate a term set with an editable user profile property. By doing this, you can govern the values associated with that property and make it easier for users to enter appropriate values for it. For example, by associating a term set that defines the job titles in an enterprise, you can help promote consistent use of those titles in user profiles. For information on planning managed metadata, see Plan managed metadata (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee530389.aspx*).

About property policies

As described above, user profiles are used in many SharePoint Server 2010 social networking features. You can set policies on each user property in a user profile to help govern how the information in that property can be used. You can specify:

- Whether or not a property is included in user profiles
- Whether or not it is required
- Whether or not users can change the default privacy setting of a property
- Who the property is visible to, based on their role in the organization

The following table describes each policy setting option.

Policy setting option	Description
Enabled or Disabled	You can configure a property to be available for use in features that incorporate it, or you can disable the use of that property.
Required	You can specify that a property must contain information.
Optional	You can specify that a property is not required to have a value. Each user can provide values for the property or leave the property empty.
Default privacy setting	This determines who can see information for a property, as follows: • Everyone: Every user who has viewer or higher permissions to a site can see the relevant information. **Note:** Only properties that have a privacy setting of Everyone will be used by search. • My colleagues: Every user in the user's My Colleagues list can see the information for this user. • My team: Every colleague in the user's

Policy setting option	Description
	immediate team, a subset of the My Colleagues list, can see the information. • My manager: Only the user and the user's immediate manager can see the information. • Only Me: Only the user can see the information. **Note:** User Profile service administrators can always view the information in a user profile regardless of its default privacy setting.
Users Can Override	When this option is selected, users can change the property's default privacy setting. When this option is not selected, only administrators of the User Profile Service can change default privacy settings.
Replicable	The property's value will be replicated to user information lists in other sites when its value changes. For a property to be replicable, its default privacy setting must be set to Everyone and the User can override policy must not be selected.

Along with setting policies on each user profile property, you can set similar policies on some SharePoint Server features that provide profile-related information in lists, Web parts, or Web sites. The personalization feature settings that you can set policies on include:

- The display of SharePoint site memberships
- The display of distribution list memberships
- The display of colleagues on My Sites
- Auto-population of colleagues based on organizational hierarchy

- The display of colleague recommendations
- The display of links on My Sites
- Other sites pinned to My Sites

For example, if the display of distribution list memberships is enabled with a privacy setting of "My Team," then only members of a user's team will be able to view which distribution lists that user belongs to.

The following considerations can help you determine which policies are appropriate for your organization:

- **Which properties should be required?** Some properties are required by default and can be configured so that they cannot be overridden or changed by users. In most organizations, these properties are key ways to enable collaboration and develop relationships across the organization. SharePoint Server 2010 also uses many of them to enable other features, such as colleagues and audiences. For more information, see Audience and content targeting planning (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc261958.aspx*) and Default user profile properties (SharePoint Server 2010).
- **Which properties should be visible to everyone?** By default, most properties are visible to everyone, but sensitive information can be configured to have limited visibility. For example, a company that has many employees in the field might decide that mobile phone information is important for everyone to see. Other organizations might choose to keep all non-work telephone numbers private.
- **Which properties policies can be changed by users?** Some property policies have settings that can be changed by users. For example, some users might not want automatic population of colleague lists. Other users might want to change the default visibility setting for a property.

When planning the policy setting for a property or personalization feature, consider the factors shown in the following table.

Condition	Disable the property	Make the property optional	Make the property required
The property is used by key user features.			X
The property is associated with key business data for applications in the Microsoft Business Connectivity Services.			X

Condition	Disable the property	Make the property optional	Make the property required
The property is used when you create audiences.			X
User Profile Service administrators expect consistent and meaningful values for the property.			X
The property will rarely be used.	X		
The property will distract from more important properties. **Note:** You can change the display settings for properties to hide them.	X		
You decide to provide default values for properties, but want users to be able to change or remove those values.		X	

When you plan the default visibility settings for properties, consider the factors shown in the following table.

Condition	Action
You want to use the property in search so that users can be found by searches for the property.	Set the default access policy to Everyone. **Note:** Only properties that have a

Condition	Action
	privacy setting of **Everyone** will be used by search.
The property is useful across workgroups and other divisions in your organization and does not contain sensitive information.	Make the property visible to everyone.
The property is mostly useful for collaboration inside an immediate workgroup or with a specific group of individually selected colleagues.	Make the property visible only to colleagues.
The property is of a private or sensitive nature. **Note:** What is considered private information can vary from organization to organization.	Make the property visible only to the immediate manager, or in some cases, only the individual user.

Planning user profiles

This section provides guidance to help in planning user profiles. It is recommended that your planning tasks are done in the following order:

1. Identify stakeholders
2. Identify how the profile information will be used
3. Identify directory services and business systems
4. Determine which properties to include
5. Determine property details
6. Determine personalization settings policies
7. Plan for capacity

Some sections below refer to the User Profile Properties Planning worksheet (*http://go.microsoft.com/fwlink/?LinkId=202832*). Use this workbook to record your user profile properties configuration decisions along with personalization feature settings. The workbook also has a place to record contact information for the profiles stakeholders in your enterprise and for members of the governing body that oversees profile properties decisions.

Identify stakeholders

User profiles are part of an enterprise's information architecture and must meet the needs of workgroups that depend on the profile information. Decisions about which properties to include in profiles should be based on input from stakeholders representing the workgroups that use My Sites and other social computing features.

Decisions about user profiles must strike a balance between meeting the social computing needs of the organization and its security, privacy, and regulatory responsibilities. Therefore, decisions about which information to expose in user profiles and which properties to include should be made with the participation of executive sponsors, legal advisors, and human resources team members. This helps to ensure that the use of profile information is compliant with enterprise policies and legal requirements. If your solution spans multiple locales, it is a recommended practice to include represents from the various locales in making these decisions.

Use the **Stakeholders** tab on the User Profile Properties Planning worksheet to record the contact information for the members of your profiles stakeholders.

Identify how profile information will be used

How user profile information is intended to be used in your SharePoint solution is the key determinant in planning user profile properties. Your functional specifications and architectural documents should provide this information and should help guide you in designing effective user profiles to meet your users' needs. As with any SharePoint Server solution, it is recommended that you develop your solutions using standard best practices such as functional specifications, software development and configuration management tools, pilot projects, and other standard techniques. Your development team's functional specification, architecture diagrams, and other artifacts will be key resources in determining requirements for user profile properties.

Identify directory services and business systems

User profiles contain data from directory services and business systems. Directory services can supply the members of your user community and provide data about those users. Additional user information can be imported from business systems such as external databases or Web services. The particular directory services and business systems to use depend on your enterprise's environment.

For more information about integrating user profiles with directory services and business systems, see Plan for profile synchronization (SharePoint Server 2010). That article includes information on planning directory service and business system integration and includes a Connection Planning worksheet in which you should list the directory services and business systems required by your solution.

Determine which properties to include

Review the article Default user profile properties (SharePoint Server 2010). Those properties that are mapped by default support basic SharePoint Server social computing and personalization features.

Also, determine which additional custom properties to include based on your social computing solution goals, your solution's functional requirements, and the data available from directory services and business systems.

In the Property column of the User Profile Properties Planning worksheet, list each property to include. Information about filling in the rest of the worksheet is provided in the following section.

Determine property details

Use the User Profile Properties Planning worksheet to record the set of properties to include in user profiles, as shown in the following table.

Property	Information to provide
Source	Indicate the source for the property: a directory service, business system, or "user input" for a write-in field. For business systems, it is recommended that you enter the particular business system, such as "HR system".
Type	Indicate the property's type. A list of the supported data types and their definitions is available at PropertyDataType Fields (*http://msdn.microsoft.com/en-us/library/microsoft.office.server.userprofiles.propertydatatype_fields.aspx*).
Description	Define the property and describe its intended use.
Enable	Indicate if this property should be enabled. Enabling a property makes it available for use in features such as My Sites. Disabled properties are only visible to administrators of the User Profile service.
Require	Indicate if the property is required to have a

Property	Information to provide
	value.
Editable	Indicate if users can edit this property's value.
Term set	If this is an editable property, you can optionally supply the name of a term set containing acceptable values for the property.
Default privacy setting	Indicate who can see information for the property: everyone, colleagues, team members, manager, or only the user.
Privacy setting override	Indicate if users can change the property's default privacy setting.
Display options	Indicate if this property's value should appear in the following places: • On My Profile pages • On the page on which users edit their profile information • On a user's newsfeed, when the property value changes
Replication	Indicate if the property can be configured to be replicated to user information lists on other sites when a user changes its value. This requires that the property's default privacy setting is Everyone and that users cannot override the property's default privacy setting.
Search-related attributes	There are two search-related attributes: • Alias to user name: Indicate if the property's value should be treated as an equivalent to the user's name for searching. • Index: Indicate if the value of this property should be indexed for searching. For tips on designing user profiles that are

Property	Information to provide
	searchable, see Build a My Site profile to help people find you (*http://office.microsoft.com/en-us/sharepoint-server-help/build-a-my-site-profile-to-help-people-find-you-HA102507597.aspx*).
Connection attributes	There are three connection-related attributes: Connection name, Direction, and Attribute name. For descriptions, see Plan for profile synchronization (SharePoint Server 2010).

Determine personalization settings policies

Along with setting policies on each user profile property in the User Profile service application, you can set similar policies on SharePoint Server features that provide profile-related information in lists, Web parts, or Web sites. You do this on the Manage Policies page of the User Profile service application.

Use the **Personalization** tab of the User Profile Properties Planning worksheet to record the set of policies related to personalization features. You can set policies to give users the capabilities show in the following table.

Feature	Information to provide
SharePoint site memberships	Enable this capability if users' SharePoint site memberships should be displayed in My Sites, lists, and Web parts.
Distribution list memberships	Enable this capability if distribution list memberships should be displayed in My Sites, lists, and Web parts.
Colleagues	Enable this capability if users' colleagues should be displayed in My Sites.
Auto-population of colleagues from organizations	Indicates if the user's colleagues list should be auto-populated based on organizational hierarchy.
Display colleagues recommendations	Indicates if the list of colleague recommendations (based on email usage

Feature	Information to provide
	and other factors) should be displayed in My Sites, lists, and Web parts.
Display links on My Sites	Enable this capability if links to users' frequently visited Web sites should be displayed in My Sites.
Display other sites pinned to My Sites	Indicates if the sites that users have pinned to their My Sites can be viewed by other users.

You can enable or disable personalization features, and you can configure privacy settings on them. In the User Profile Properties Planning worksheet, record your privacy policy preferences for each personalization features, as shown in the following table.

Setting	Information to provide
Enable	Indicate if this personalization feature should be enabled. Enabling a capability makes it available for use in features such as My Sites.
Default privacy setting	Indicate who can see information provided by the feature: everyone, colleagues, team members, manager, or only the user.
Privacy setting override	Indicate if users can change the feature's default privacy setting.

Plan for capacity

The number and types of properties in your user profiles can affect your system's performance during profile synchronization and other operations. It is beyond the scope of this article to provide guidance about how to plan user profile properties with capacity and performance in mind. The white paper "Capacity Planning for Microsoft SharePoint 2010 My Sites and Social Computing features (MySitesSocialComputingCapacityPlanningDoc.docx)," available from the Microsoft Download Center, uses test data to describe the performance and capacity impact of a range of choices in configuring user profiles and other social computing features in SharePoint Server. Read this white paper to help determine the best way to design your user profile properties to achieve your performance and capacity planning goals.

Other Resources

User profile properties and profile synchronization planning worksheets (*http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=16076*)

Plan for social computing and collaboration (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee662531.aspx*)

Understanding Forefront Identity Manager 2010 (*http://technet.microsoft.com/en-us/library/ff621362(WS.10).aspx*)

Resource Center: Enterprise Collaboration in SharePoint Server 2010 (*http://technet.microsoft.com/en-us/sharepoint/ff191265.aspx*)

Resource Center: Social Computing in SharePoint Server 2010 (*http://technet.microsoft.com/en-us/sharepoint/ee263906.aspx*)

Plan for profile synchronization (SharePoint Server 2010)

Updated: August 12, 2010

This article provides guidance to help you plan how to implement profile synchronization in Microsoft SharePoint Server 2010. Profile synchronization (also known as "profile sync") allows you to create user profiles by importing information from other systems that are used in your organization. Before you read this article you should understand the concepts introduced in the article Profile synchronization overview (SharePoint Server 2010).

This article will explain:

- How to get the information that you will need to configure profile synchronization.
- Who you will need to work with to gather the necessary information.
- The external content types that will have to be created, if any.

As you go through this article, you can fill out Worksheets to record your decisions. When you have finished this article and completed the worksheets, you will have the information that you need to configure profile synchronization by using Central Administration. You can either give the completed worksheets to the profile synchronization administrator, or you can use them to do the configuration yourself. If you will need external content types to represent information from external business systems, you will have specified the requirements for these external content types. You can give the specifications to the developer who will create the external content types.

This article will not describe how to implement your plan. That information is covered in the article Configure profile synchronization (SharePoint Server 2010).

Before you work through the planning tasks in this article, you should already:

- Know which users you want to have profiles in SharePoint Server.
- Know what properties a user profile will have, and have filled out the User Profile Properties Planning worksheet as explained in the article Plan user profiles (SharePoint Server 2010).
- Understand general concepts about directory services.

In this article:

About planning for profile synchronization

As the first step towards planning for profile synchronization, you will identify synchronization connections, and gather information that you will need when you create the connection. If you will need any external content types, you will document the requirements for those external content types, provide the requirements to a developer, and receive the details that you will use to specify a synchronization connection to the business system.

Next, you will figure out how to map user profile properties to information in the external systems so that they can be synchronized.

Finally, you will answer more straightforward questions such as whether you will synchronize groups, which server you will use to run the synchronization service, and how often you will synchronize profile information.

Plan synchronization connections

Each property in a user's profile can come from an external system. There are two types of external systems: directory services and business systems. Throughout this article, the phrase *business system* is used to mean an external system that is not a directory service. SAP, Siebel, SQL Server, and custom applications are all examples of business systems.

Note:

For a list of supported directory services, see the Supported directory services section in the "Profile synchronization overview" article.

In SharePoint Server, a *synchronization connection* is a means to get user profile information from an external system. To import profiles from one of the supported directory services, you create a synchronization connection to the directory service. To import additional profile properties from a business system, you create an external content type to bring the data from the business system into SharePoint Server, and then create a synchronization connection to the external content type. The following sections explain how to gather the information that you will need about each synchronization connection.

Note:

To import profiles from an unsupported directory service, you can import a Lightweight Directory Interchange Format (LDIF) file. To create user profiles in any other manner, you must write a custom program. See Configure profile synchronization using a Lightweight Directory Interchange Format (LDIF) file (SharePoint Server 2010) for more information about how to import an LDIF file.

Connections to directory services

Each user that you want to have a profile in SharePoint Server must have an identity in a directory service. (If users are not represented in a directory service, you cannot synchronize user profiles.) Identify which directory services contain information about these users. Unless you are able to access the directory service yourself, you should also identify an administrator of the directory service. You will need this person's help to gather some of the information that will be needed to create synchronization connections.

The Connection Planning worksheet (*http://go.microsoft.com/fwlink/?LinkId=202832*) contains templates for the information that you need to gather for each type of connection. Each template is in a separate tab that is labeled with the name of the directory service provider it applies to. Create a new tab for each directory service that you identified. Copy the template for the type of directory service into the new tab. Then fill in the information on each new tab according to the following table.

Row name in worksheet	Applies to connection type	Instructions
Synchronization connection name	All	Choose a name that will help you remember which directory service this is a connection to.
Connection type	All	The type of directory service that this is a connection to. This information is already filled in on each tab.
Forest	AD DS	The name of the directory service forest.
Domain controller	AD DS	The name of the preferred

Row name in worksheet	Applies to connection type	Instructions
		domain controller. You only need to identify the domain controller if there are multiple domain controllers in the forest and you want to synchronize with a specific domain controller.
Authentication provider type	All	The type of authentication SharePoint Server should use to connect to the directory service. This is one of the following: - Windows authentication - Forms-based authentication - Claims-based authentication The systems architect should be able to provide this information.
Authentication provider	All	If forms-based authentication or claims-based authentication will be used, fill in the name of the trusted provider. The systems architect should be able to provide this information. An authentication provider is not needed for Windows authentication.
Synchronization account	All	The account, including the domain, that will be used to connect to the directory service. It is likely that the directory service administrator will create a new account to be used for synchronization. **Note:** The permissions that the synchronization

Row name in worksheet	Applies to connection type	Instructions
		account must have are described in the Plan account permissions section of this topic.
Synchronization account password	All	The password for the synchronization account. **Security Note:** You will need to know the password for the synchronization account, but we recommend that you do not record the password in the worksheet.
Connection port	All	The port that will be used to connect to the directory service.
Use SSL?	AD DS	Whether to use an SSL-secured connection to connect to the directory service. SSL is only supported for connections to AD DS.
Directory service server	Tivoli, Sun, eDirectory	The name of the directory service server.
Username attribute	Tivoli, Sun, eDirectory	The name of the attribute in the directory service that serves as the unique identifier for each profile. In most cases, the default username attribute of "uid" is correct.

Row name in worksheet	Applies to connection type	Instructions
Containers	All	The names of the directory service containers, also known as organizational units (OU), that contain the profiles to synchronize.
Filter for users	All	See the detailed instructions in the section About exclusion filters.
Filter for groups	All	See the section Synchronizing groups.

About exclusion filters

SharePoint Server will synchronize all of the profiles from the containers that you identify unless you choose to exclude profiles by using a filter. For example, you might create a filter to exclude users whose accounts are disabled.

A filter consists of a set of clauses and the connector to use to join the clauses. Each clause has three parts:

- Attribute: The directory service attribute to compare.
- Value: The value to compare the attribute to.
- Operator: The type of comparison. For more information about which operators are available for each Active Directory Domain Services (AD DS) data type, see Connection filter data types and operators (SharePoint Server 2010).

There are two ways to join the clauses of an exclusion filter:

- All apply (AND): An account matches the filter if all of the clauses apply.
- Any apply (OR): An account matches the filter if any clause applies.

You cannot mix ANDs and ORs within a filter.

For example, assume that temporary employees in your organization are given Active Directory accounts that begin with "T-". You want to synchronize profiles for all permanent (non-temporary) users whose accounts are not disabled. You could create a filter that uses the clauses in the following table.

Attribute	Operator	Value
sAMAccountName	starts with	T-

Attribute	Operator	Value
userAccountControl	bit on equals	2

The filter would join the clauses by using Any apply (OR).

Note:

In AD DS, **userAccountControl** is a bitmask that represents several useful aspects about the status of the user account. For a list of some of the more frequently-used filters that you can create by using the **userAccountControl** attribute, see *http://go.microsoft.com/fwlink/?LinkId=217163*.

You cannot create a filter that is based on membership in a directory service group, such as a distribution list. For alternatives to importing users based on group membership, see *http://go.microsoft.com/fwlink/?LinkId=220892*.

Connections to business systems

To import properties from a business system, you will need an external content type that brings the property value from the external system into SharePoint Server 2010. This article does not cover how to create an external content type. That task is usually done by a developer. This article describes what data you must gather and give to the developer, and tell you what to do with the information that you receive. For developer information, see How to: Create External Content Types (*http://msdn.microsoft.com/en-us/library/ee557704.aspx*).

You can use the External Content Type Planning worksheet (*http://go.microsoft.com/fwlink/?LinkId=202832*) to specify the external content types to be created. Go through the User Profile Properties Planning worksheet that you completed when you read the article Plan user profiles (SharePoint Server 2010). In the External Content Type Planning worksheet, create one row for each user profile property that comes from a business system. Fill in the first three columns of each row according to the instructions in the following table.

Column in worksheet	Instructions
Business system	A name of your choosing that identifies the business system that contains the property.
Item	The data in the business system that corresponds to the property. Be as specific as possible. For example, if the business

Column in worksheet	Instructions
	system is a database, provide the name of the table and column, if known.
Possible identifiers	A list of the user profile properties that could uniquely identify a user.

After you have filled in the first three columns of each row, give the worksheet to the external content type developer. The developer should perform the following tasks, and then return the worksheet:

- Create external content types to provide the external system data that is described in the worksheet.
- Choose an appropriate identifier for each external content type.
- If user profiles will have a one-to-one relationship with items of the external content type, create a specific finder method. An external content type that contains a user's birthdate is an example of a one-to-one relationship. Each user profile will match one item of the external content type.
- If user profiles will have a one-to-many relationship with items of the external content type, create a finder method and a comparison filter. An external content type that contains the license plate of a vehicle the user owns is an example of a one-to-many relationship. A user might own multiple vehicles, so each user profile might match more than one item of the external content type.
- Update the worksheet to describe the external content types that were created.

The Connection Planning worksheet (*http://go.microsoft.com/fwlink/?LinkId=202832*) contains a tab for a connection to a business system. When you receive the information back from the external content type developer, group together all user profile properties that share the same external content type. Create a new tab in the Connection Planning worksheet for each external content type, and copy the information from the **Business systems** tab to each new tab. Fill in the information on each tab that you created according to the instructions in the following table.

Row in worksheet	Instructions
Synchronization connection name	Choose a name that will help you remember which business system this is a connection to.
Connection type	"Business data connectivity" This information is already filled in.

Row in worksheet	Instructions
Business data connectivity entity	The name of the external content type.
One-to-one or one-to-many mapping	The number of items of the external content type that might match a given user profile. Enter "one-to-one" or "one-to-many" as appropriate.
Profile property to match against	The name of the user profile property that corresponds to the external content type's identifier.
Comparison filter	The name of the comparison filter. A filter is only required for one-to-many mappings.

Identify property mappings

To indicate that a user profile property comes from an external system, you map the property to a specific attribute of the external system. Certain user profile properties are mapped by default. For a list of the default mappings for each type of directory service, see Default user profile property mappings (SharePoint Server 2010). You can only map a profile property to an attribute whose data type is compatible with the data type of the property. For example, you cannot map the **SPS-HireDate** user profile property to the **homePhone** Active Directory attribute because **SPS-HireDate** is a date and **homePhone** is a Unicode string. For a list of which user profile property data types are compatible with which AD DS data types, see User profile property data types (SharePoint Server 2010).

When you synchronize profile information, in addition to importing profile properties from external systems, you can also write data back to a directory service. You cannot write data back to a business system. To indicate that SharePoint Server should export a user profile property, you map the property, and set the direction of the mapping to **Export**. Each property can only be mapped in one direction. You cannot both import and export the same user profile property. The data that is exported overwrites any values that might already be present in the directory service. This is true for multivalued properties as well—the exported value is not appended to the existing values, it overwrites them.

Examine the User Profile Properties Planning worksheet that you completed as you read the Plan user profiles (SharePoint Server 2010) topic. For each row (property) whose value will be imported from an external system, fill in the final three columns according to the instructions in the following table.

Row in worksheet	Instructions
Direction	"Import", indicating that the property will be imported into SharePoint Server.
Synchronization connection	The name of the synchronization connection through which this property will be provided.
Attribute	The name of the external system element that will provide the value of the user profile property. If the synchronization connection is to a directory service, this is the name of the directory service attribute. If the synchronization connection is to a business system, this is the name of the column in the external content type.

Note:

You cannot use a connection to a business system to map a binary property to a property that implements the **Stream** accessor method.

For each row (property) whose value will be exported to a directory service, fill in the final three columns according to the instructions in the following table.

Row in worksheet	Instructions
Direction	"Export", indicating that the property will be exported from SharePoint Server to a directory service.
Synchronization connection	The name of the synchronization connection through which this property will be exported. This can only be a connection to a directory service.
Attribute	The name of the directory service attribute whose value should be updated with the

Row in worksheet	Instructions
	value of the user profile property.

Synchronizing groups

By default, SharePoint Server synchronizes groups, such as distribution lists, when it synchronizes user profiles. You can turn off this functionality from the Configure Synchronization Settings page of Central Administration. Synchronizing groups is only supported for AD DS.

If you synchronize groups in addition to users, SharePoint Server imports information about the groups as well as about which users are members of the groups. Synchronizing a group does not create a profile for the group, and does not cause any additional user profiles to be created. In SharePoint Server, groups are only used to create audiences and to display which memberships a visitor has in common with the person whose My Site the person is visiting.

If you decide to synchronize groups, SharePoint Server will import information about all of the groups that exist in the directory service containers that you are synchronizing unless you choose to exclude groups by using a filter. The filter for excluding groups is different than the filter for excluding users, although both follow the same format.

Return to the Connection Planning worksheet and fill in the Filter for groups cell.

Plan for the synchronization server

In addition to determining the synchronization connections and identifying the property mappings, you also have to plan for the more straightforward aspects of synchronizing profiles. The first of these is identifying the synchronization server.

You can only run one instance of the User Profile Synchronization service on a farm. The computer on which the User Profile Synchronization service runs is called the *synchronization server*. You specify the synchronization server when you create the User Profile service application. SharePoint Server provisions a version of Microsoft Forefront Identity Manager (FIM) on this computer to participate in synchronization.

When SharePoint Server synchronizes profiles, it makes heavy use of the network to communicate between the synchronization server and the domain controllers. Choosing a synchronization server that is physically close to the domain controllers will reduce the time it takes to synchronize.

Plan the synchronization schedule

The first time that you synchronize profile information between SharePoint Server and external systems, you must run a full synchronization. After that, you should configure the User Profile Incremental Synchronization timer job to perform an incremental synchronization on a recurring schedule. You can configure the timer job to run every few minutes, hourly, daily, weekly, or monthly. With the hourly, daily, weekly, and monthly options, you specify when you want the timer job to start.

The more often the synchronization timer job runs, the fewer changes there will be to synchronize, and therefore the quicker the job will finish. The default frequency is daily. We recommend that you schedule synchronization to start at a time when the network is lightly utilized.

For instructions about how to configure the User Profile Incremental Synchronization timer job, see Schedule profile synchronization (SharePoint Server 2010).

Plan account permissions

In the Connection Planning worksheet, you provided the name of a synchronization account for each directory service. These synchronization accounts must be granted specific permissions so that the synchronization service can obtain the information it needs from the directory service. The following sections identify which permissions are needed for each type of directory service. Work with the administrator of the directory service to grant the accounts the appropriate permissions.

Active Directory Domain Services (AD DS)

The synchronization account for a connection to Active Directory Domain Services (AD DS) must have the following permissions:

- It must have Replicate Directory Changes permission on the domain that you will synchronize with. For more information, see the Grant Replicate Directory Changes permission on a domain section of the "Grant Active Directory Domain Services permissions for profile synchronization" procedural reference article.

  Note:

  The Replicate Directory Changes permission allows an account to query for the changes in the directory. This permission does not allow an account to make any changes in the directory.

- If the domain controller is running Windows Server 2003, the synchronization account must be a member of the Pre-Windows 2000 Compatible Access built-in group. For more information, see the Add an account to the Pre-Windows 2000 Compatible Access group section of the "Grant Active Directory Domain Services permissions for profile synchronization" procedural reference article.

- If the NetBIOS name of the domain differs from the fully qualified domain name, the synchronization account must have Replicate Directory Changes permission on the cn=configuration container. For example, if the NetBIOS domain name is contoso and the fully qualified domain name is contoso-corp.com, you must grant Replicate Directory Changes permission on the cn=configuration container. For more information, see the Grant Replicate Directory Changes permission on the cn=configuration container section of the "Grant Active Directory Domain Services permissions for profile synchronization" procedural reference article.
- If you will export property values from SharePoint Server to AD DS, the synchronization account must have Create Child Objects (this object and all descendants) and Write All Properties (this object and all descendants) permissions on the organizational unit (OU) that you are synchronizing with. For more information, see the Grant Create Child Objects and Write permission section of the "Grant Active Directory Domain Services permissions for profile synchronization" procedural reference article.

Novell eDirectory version 8.7.3

The synchronization account for a connection to Novell eDirectory must have the following permissions:

- Entry Rights: Browse rights for the specified tree.
- All Attributes Rights: Read, Write, and Compare rights for the specified tree.

Sun Java System Directory Server version 5.2

The synchronization account for a connection to a Sun Java System Directory Server must have the following permissions:

- Read, Write, Compare, and Search permissions to the RootDSE.
- To perform incremental synchronization, the synchronization account must also have Read, Compare, and Search permissions to the change log (cn=changelog). If the change log does not exist, you must create it before synchronizing.

IBM Tivoli version 5.2

The synchronization account for a connection to IBM Tivoli must have the following permission:

- The synchronization account must be a member of an administrative group.

The farm account

The User Profile Synchronization service runs under the farm account. The farm account requires specific permissions in order to configure profile synchronization. A person with administrator rights on the synchronization server can grant these permissions.

- The account must be a member of the Administrators group on the synchronization server. You can remove this permission after you have configured the User Profile Synchronization service.

- The account must be able to log on locally to the synchronization server.

  Note:

  The farm account is not the same as the farm administrator account. To determine the farm account, from Central Administration, click **Configure service accounts**, and then click **Farm account**.

If you will synchronize user profiles with a business system by using an external content type, the farm account must also have permission to execute operations on the external content type. A farm administrator can use the procedure "Set permissions on an external content type" (*http://technet.microsoft.com/en-us/library/ee524076.aspx#setpermissions*) to give the farm account Execute permission on each external content type that you will synchronize with.

Next steps

To implement your profile synchronization plan, follow the instructions in the article Configure profile synchronization (SharePoint Server 2010). After you have configured profile synchronization and synchronized profile information for the first time, implement your synchronization schedule by following the procedure described in the article Schedule profile synchronization (SharePoint Server 2010).

Worksheets

Download the connection planning worksheet, the external content type planning worksheet, and the user profile planning worksheet from the following source: *http://go.microsoft.com/fwlink/?LinkId=202832*.

Concepts

Profile synchronization overview (SharePoint Server 2010)

Plan user profiles (SharePoint Server 2010)

Configure profile synchronization (SharePoint Server 2010)

Grant Active Directory Domain Services permissions for profile synchronization (SharePoint Server 2010)

Other Resources

Resource Center: Enterprise Collaboration in SharePoint Server 2010 (*http://technet.microsoft.com/en-us/sharepoint/ff191265.aspx*)

Resource Center: Social Computing in SharePoint Server 2010 (*http://technet.microsoft.com/en-us/sharepoint/ee263906.aspx*)

II. Profile synchronization operations

In this section:

- Best practices for people and profiles (SharePoint Server 2010)
- Configure profile synchronization (SharePoint Server 2010)
- Configure profile synchronization using a Lightweight Directory Interchange Format (LDIF) file (SharePoint Server 2010)
- Start profile synchronization manually (SharePoint Server 2010)
- Schedule profile synchronization (SharePoint Server 2010)
- Maintain profile synchronization (SharePoint Server 2010)
- Configure a profile synchronization connection in SharePoint Server 2010 (video)
- Configure a synchronization connection to a SQL Server database in SharePoint Server 2010 (video)

Best practices for people and profiles (SharePoint Server 2010)

Published: August 11, 2011

This article is one of a series of best practices articles for Microsoft SharePoint Server 2010. This article describes the typical characteristics and best practices for working with user profiles in SharePoint Server. For additional information and resources about best practices for SharePoint Server 2010, see Best Practices for SharePoint Server 2010 (*http://go.microsoft.com/fwlink/p/?LinkId=220280*).

1. Clean up the directory service

The organization of objects in your directory service has a large impact on how long it takes to synchronize profile information. To improve the performance of synchronization, prune the objects in the directory service.

- SharePoint Server uses Microsoft Forefront Identity Manager (FIM) to import all of the objects in the containers that you select, and then applies the synchronization filters to the imported objects. To the extent possible, move user accounts that you do not want to be imported into containers that are not synchronized. Similarly, move groups that you do not want to be synchronized into containers that you are not synchronizing with.
- Audit your organization's use of groups within the directory service, and delete any groups that are no longer needed.
- Ensure that you do not synchronize the same group membership information multiple times. For example, if you represent the same distribution group on multiple farms, place all except one instance of the distribution group into containers that you are not synchronizing.

2. Use synchronization filters

Use filters to synchronize only the users whom you want to have profiles in SharePoint Server. For example, if user accounts and service accounts both exist in a directory service container that you are synchronizing with, create a filter to exclude service accounts from synchronization. For more information about synchronization filters, see the About exclusion filters section in the Plan for profile synchronization (SharePoint Server 2010) article.

3. Configure policies for profile properties

Use policies to specify privacy settings for profile properties. There are default policies for properties. However, you should review them and determine whether to change them depending on your organization, company, and governmental rules. You can allow users to override a policy setting or specify that the policy cannot be changed.

For more information about these policies, see the About property policies section in the Plan user profiles (SharePoint Server 2010) article.

4. Specify the domain controller to synchronize with

When you create a synchronization connection to a forest that has multiple domain controllers, select a specific domain controller to synchronize with. The connection between the domain controller and the synchronization server should have as low latency as possible. For information about how to specify a domain controller when you create a profile synchronization connection, see the Create a synchronization connection to a directory service section in the Configure profile synchronization (SharePoint Server 2010) article.

In a very large directory services forest, optimize the domain controller itself. Move as much of the directory service database as possible to RAM, and use fast disk drives. This will reduce the time that is required for profile synchronization. For more information about the directory service database for Active Directory Domain Services (AD DS), see Administering the Active Directory Database (*http://go.microsoft.com/fwlink/p/?LinkId=225582*).

5. Make friends with the directory service administrator

Stay in contact with the administrators of the directory services that you synchronize with. Make sure that you are notified if the administrator plans to restart a domain controller or to make large changes to the directory service, and try to get those events scheduled for a time when profile synchronization is not occurring.

6. Restart the synchronization service after installing updates

Whenever you install an update to Microsoft SharePoint Server 2010, stop and then restart the User Profile Synchronization service.

When you start the User Profile Synchronization service, SharePoint Server provisions a version of Microsoft Forefront Identity Manager (FIM) to participate in synchronization. If you install a SharePoint Server 2010 service pack, cumulative update, or other update that modifies the SharePoint Server private version of FIM, the modification will not take effect until FIM is reprovisioned. To reprovision FIM, stop and then restart the User Profile Synchronization service. For instructions about how to start and stop a service, see Manage services on the server (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee704549.aspx*).

7. Run database maintenance jobs before synchronizing profiles

If profile synchronization will have to process many changes, run a full scan of the profiles database before starting profile synchronization.

Microsoft SQL Server uses historical statistics about a database to optimize queries. For the optimization to be as good as possible, the statistics should be as fresh as possible. Running a full scan generates the most accurate statistics. To update statistics with a full scan of the database, run the Health Analyzer rule *Databases used by SharePoint have outdated index statistics*.

8. Optimize the profile and synchronization databases

The configuration of the profile database and the synchronization database has a significant impact on the overall performance of profile synchronization. For recommendations about how to optimize database performance, see Storage and SQL Server capacity planning and configuration (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc298801.aspx*) and Best practices for SQL Server 2008 in a SharePoint Server 2010 farm (*http://technet.microsoft.com/en-us/library/hh292622.aspx*). In particular, if you have many user profiles, consider the following:

- Proactively manage the size of the profiles database. Use a fixed size data (.mdf) file and log file, but also enable autogrowth in case the size is too small.
- If you enable autogrowth, use a fixed growth size — for example, 100 MB — instead of a growth percentage.
- Profile synchronization creates a lot of disk I/O. For the profiles and synchronization databases, use disk drives that can perform high Input/Output Operations Per Second (IOPS), and consider using solid-state drives (SSD).
- If you have many profiles and you run profile synchronization frequently, consider placing the data (.mdf) file and the log file on separate physical disks.

- Have at least one data (.mdf) file for **tempdb** per CPU core. For more information about how to optimize **tempdb**, see Optimizing tempdb Performance (*http://go.microsoft.com/fwlink/p/?LinkId=225583*).
- In the event of heavy utilization, consider a dedicated SQL Server instance to support the User Profile service application databases.

9. Check timer job settings

Timer jobs propagate information through SharePoint Server and to and from directory services. In some cases, one timer job performs work that another timer job takes further action on. For example, the User Profile Incremental Import job updates SharePoint Server user profiles with information about the user that has changed in the directory service. The Activity Feed job computes activities to be shown in the Activity Feed section of a user's My Site. If a user's job title changes in the directory service, that change might not show up in the activity feeds of the user's colleagues, depending on the progress of one timer job relative to the other timer job. To get more consistent results and improve performance, adjust the timing at which timer jobs run.

For more information about the SharePoint Server timer jobs, see Timer job reference (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc678870.aspx*).

10. Do not synchronize during large directory service updates

Ensure that profile synchronization is not running while you are making large changes to the directory service. For example, stop profile synchronization if you are updating directory service schemas or preparing a Microsoft Exchange Server forest. When the directory service changes are complete, perform a full synchronization.

11. Avoid synchronizing large objects

A user's profile is probably not the best place to store large binary data. Consider storing binary large objects (BLOBs) elsewhere, such as in a database, and keeping only a link to the BLOB in the profile.

The time that is required to run profile synchronization is related to the size of the attributes being synchronized, and also the frequency with which the attributes change. If you replicate profile information across farms, the impact of storing large objects in profiles is even greater.

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Configure profile synchronization (SharePoint Server 2010)

Updated: June 28, 2011

Configuring profile synchronization (or profile sync) is a process that involves many steps. This article divides the process into shorter phases, both so that you can see progress and to reduce the number of steps through which you have to backtrack if you make an error. Depending on your organization's needs, you may not have to implement all of the phases.

In this article:

- Prerequisites

  This section identifies the information and accounts that you must have to perform these procedures. It also describes how your Microsoft SharePoint Server 2010 farm should be configured before you start the procedures.

- Procedures

  This section contains detailed instructions for each of the procedures that are required to configure profile synchronization.

Prerequisites

As you configure profile synchronization, you will need information to answer questions in the user interface. You will also need accounts that have the appropriate permissions and a SharePoint Server 2010 farm that is already partly configured. The subsections within this section explain the prerequisites that you must have before you configure profile synchronization.

In this section:

- Gather information
- Grant account permissions
- Install prerequisites

Gather information

Before you perform the procedures in this article, you should complete the following worksheets. You will use the information that you record in the worksheets as you perform the procedures in this article.

- Connection planning worksheet: Contains details about each profile synchronization connection that you will create. The article Plan for profile synchronization (SharePoint Server 2010) contains instructions for filling out the worksheet.
- User profile properties worksheet: Identifies user profile properties and how the properties are mapped to external data sources. The article Plan user profiles (SharePoint Server 2010) explains how to fill out most of the worksheet, and the article Plan for profile synchronization (SharePoint Server 2010) contains instructions for adding the property mapping information.
- Profile synchronization planning worksheet: Collects the information that you will need to create the User Profile service application and its prerequisites. If your farm already contains a User Profile service application, you can omit this worksheet.

The worksheets are available from the following source: *http://go.microsoft.com/fwlink/?LinkId=202832*.

You will need to know the name of the synchronization server. The synchronization server is the server on which the User Profile Synchronization service will run. The Plan for the synchronization server section of the "Plan for profile synchronization" article provides guidance on how to select the synchronization server.

Grant account permissions

To configure profile synchronization you will need to know the farm account and the farm account's password, and you will need a synchronization account for each directory service that you will synchronize with. The permissions that are required for each account are described in the Plan account permissions section of the "Plan for profile synchronization" article. If an account does not have the correct permissions, you might not know that the permissions are wrong until you have progressed part of the way through the configuration procedure.

Note:

Incorrect permissions are the most common cause of errors in configuring profile synchronization.

Install prerequisites

To set up profile synchronization you will need Microsoft SharePoint Server 2010 installed in a farm configuration. We recommend that you also install the most recent SharePoint Server 2010 Cumulative Update, because improvements to profile synchronization are present in most updates. For more information, see the Updates resource center (*http://go.microsoft.com/fwlink/?LinkID=220218*).

You must have a full installation of Microsoft SQL Server, not the Express edition. If you are using SQL Server 2008, you must have Service Pack 1 (SP1) and Cumulative Update 2 (CU2).

Procedures

There are four phases to configuring profile synchronization. Depending on your situation, you might not have to perform all of the phases. This article also includes Phase 0, which contains instructions for configuring the prerequisites that are required before you can configure profile synchronization. The phases are as follows:

Phase 0: Configure the farm

During this phase, you create a site collection to host My Sites and create a User Profile service application. You must be both a farm administrator and a member of the Administrators group on the computer that is running SharePoint Server to perform these tasks.

Phase 1: Start the User Profile Synchronization service

During this phase, you start the User Profile Synchronization service. You must be both a farm administrator and a member of the Administrators group on the computer that is running SharePoint Server to perform these tasks.

Phase 2: Configure connections and import data from directory services

During this phase, you create a synchronization connection to each directory service from which you want to import profile information, and then perform the initial synchronization. You must be a farm administrator or an administrator of the User Profile service application to perform these procedures.

Phase 3: Configure connections and import data from business systems

During this phase, you create a synchronization connection to each business system from which you want to import profile information, and then perform the synchronization. You must be a farm administrator or an administrator of both the User Profile service application and the Business Data Connectivity service application to perform these procedures.

Phase 4: Configure connections and export data to directory services

During this phase, you modify the profile property mappings that you created during Phase 2 to export data from SharePoint Server to directory services. You must be a farm administrator or an administrator of the User Profile service application to perform these procedures.

After you have configured profile synchronization, you can use the information in Schedule profile synchronization (SharePoint Server 2010) to set up a regular synchronization schedule.

Phase 0: Configure the farm

During this phase, you configure the infrastructure for synchronizing profiles.

This phase involves the following tasks:

1. Create a Web application to host My Sites
2. Create a managed path for My Sites
3. Create a My Site Host site collection
4. Create a User Profile service application
5. Enable NetBIOS domain names
6. Start the User Profile service

To perform the tasks in this phase, you must be a member of the Farm Administrators SharePoint group and a member of the Administrators group on the computer that is running SharePoint Server.

Create a Web application to host My Sites

In this procedure, you create the Web application that My Sites will reside in. We recommend that My Sites be in a separate Web application, although the Web application may be in an application pool that is shared with other collaboration sites, or it may be in a separate application pool but in a shared IIS Web site. For more information about SharePoint Server 2010 sites, application pools, and IIS Web sites, see Logical architecture components (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc263121.aspx*). For more detailed instructions about how to create a Web application, see Create a Web application (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc261875.aspx*).

To create a Web application

1. On the Central Administration Home page, in the **Application Management** section, click **Manage web applications**.
2. On the ribbon, click **New**.
3. On the Create New Web Application page, in the **Authentication** section, select the authentication mode that will be used for this Web application.
4. In the **IIS Web Site** section, you can configure the settings for your new Web application by selecting one of the following two options (see the Profile Synchronization Planning worksheet):
   - Click **Use an existing web site**, and then select the Web site on which to install your new Web application.
   - Click **Create a new IIS web site**, and then type the name of the Web site in the **Name** box.

     You may also provide the port number, host header, or path for the new IIS Web site.

5. In the **Security Configuration** section, select an authentication provider, whether to allow anonymous access, and whether to use Secure Sockets Layer (SSL).
6. In the **Application Pool** section, do one of the following:
   - If the My Site application pool (see the Profile Synchronization Planning worksheet) is an existing application pool, click **Use existing application pool**, and then select the My Site application pool from the drop-down menu.
   - If the My Site application pool (see the Profile Synchronization Planning worksheet) is a new application pool, click **Create a new application pool**, type the name of the My Site application pool, and either select the account that the application pool will run under (see the Profile Synchronization Planning worksheet) or create a new managed account for the application pool to run under.
7. In the **Database Name and Authentication** section, select the database server, database name, and authentication method for your new Web application.
8. If you use database mirroring, in the **Failover Server** section, in the **Failover Database Server** box, type the name of a specific failover database server that you want to associate with a content database.
9. In the **Service Application Connections** section, select the service application connections that will be available to the Web application.
10. In the **Customer Experience Improvement Program** section, click **Yes** or **No**.
11. Click **OK** to create the new Web application.
12. When the Application Created page appears, click **OK**.

Enter the name of the Web application in the **My Site Web application** row of the Profile Synchronization Planning worksheet. You will need this information later.

Create a managed path for My Sites

If you want the My Site host (and, therefore, users' My Sites) to be at a URL that does not already have a managed path, use the procedure in Define managed paths (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc261845.aspx*) to create the My Site managed path in the My Site Web application that you previously created. In most cases, the existing managed paths will be sufficient.

Create a My Site Host site collection

In this procedure, you create the site collection that will host users' My Sites. For more detailed instructions about how to create a site collection, see Create a site collection (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/cc263094.aspx*).

To create a My Site Host site collection

1. On the Central Administration Web site, in the **Application Management** section, click **Create site collections**.

2. On the Create Site Collection page, in the **Web Application** section, select the My Site Web application (see the Profile Synchronization Planning worksheet).
3. In the **Title and Description** section, type the title and description for the site collection.
4. In the **Web Site Address** section, select the path to use for the URL of the My Site host. In most cases, using the root directory (/) is appropriate.
5. In the **Template Selection** section, click the **Enterprise** tab, and then select **My Site Host**.
6. In the **Primary Site Collection Administrator** section, type the user name (in the form *<DOMAIN>**<username>*) for the user who will be the site collection administrator.
7. In the **Secondary Site Collection Administrator** section, type the user name for the secondary administrator of the site collection.
8. If you are using quotas to manage storage for site collections, in the **Quota Template** section, click a template in the **Select a quota template** list.
9. Click **OK**.

The Top-Level Site Successfully Created page will appear when the My Site Host site collection is created. Enter this URL in the **My Site Host site collection URL** row of the Profile Synchronization Planning worksheet. Although you can click the link to browse to the root of the site collection, doing so will result in an error because the user profile cannot be loaded. This behavior is to be expected; user profiles have not been imported at this point.

Create a User Profile service application

In this procedure, you create the User Profile service application through which you will manage profile synchronization.

For more detailed instructions about how to create a User Profile service application, see Create a User Profile Service application (*http://technet.microsoft.com/en-us/library/ee721052.aspx#createapp*).

To create a User Profile Service application

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Application page, on the ribbon, click **New**, and then click **User Profile Service Application**.
3. In the **Name** section, type the User Profile service application name (see the Profile Synchronization Planning worksheet).
4. In the **Application Pool** section, select the application pool that the User Profile service application will run in (if it exists), or create a new application pool. (See the Profile Synchronization Planning worksheet.)

5. Accept the defaults for the profile database, the synchronization database, and the social tagging database (unless you want different names), and specify failover servers if you are using them.
6. In the **Profile Synchronization Instance** section, select the synchronization server (see the Profile Synchronization Planning worksheet).
7. In the **My Site Host URL** section, enter the My Site Host site collection URL that you created in the previous step (see the Profile Synchronization Planning worksheet).
8. In the **My Site Managed Path** section, enter the part of the path which, when appended to the My Site host URL, will give the path to users' My Sites (see the Profile Synchronization Planning worksheet). For example, if the My Site host URL is http://server:12345/ and you want each user's My Site to be at http://server:12345/personal/<username>, enter **/personal** for the My Site managed path. The managed path that you enter is created; there does not already have to be a managed path with the name that you provide.
9. In the **Site Naming Format** section, select a naming scheme.
10. In the **Default Proxy Group** section, select whether you want the proxy of this User Profile Service to be a part of the default proxy group on this farm.
11. Click **Create**.
12. When the Create New User Profile Service Application page displays the message **Profile Service Application successfully created**, click **OK**.

To verify that the User Profile service application was created, refresh the Manage Service Applications page. You should see two entries whose value in the **Name** column is the name that you provided for the User Profile service application that you previously created. The first entry is the service application itself. The second entry is a connection (that is, a "proxy") to the service application.

Enable NetBIOS domain names

If the NetBIOS name of any domain that you are synchronizing with differs from its fully qualified domain name, you must enable NetBIOS domain names on the User Profile service application. If all NetBIOS names are the same as the domain names, you may skip this procedure.

To enable NetBIOS domain names

1. Verify that you meet the following minimum requirements:
   - See **Add-SPShellAdmin**.
   - You must read about_Execution_Policies (*http://go.microsoft.com/fwlink/?LinkId=193050*).
2. Copy the following code and paste it into a text editor, such as Notepad:

```
$ServiceApps = Get-SPServiceApplication
$UserProfileServiceApp = ""
foreach ($sa in $ServiceApps)
 {if ($sa.DisplayName -eq "<UPSAName>")
  {$UserProfileServiceApp = $sa}
 }
$UserProfileServiceApp.NetBIOSDomainNamesEnabled = 1
$UserProfileServiceApp.Update()
```

3. Replace *<UPSAName>* with the name of the User Profile service application.
4. Save the file, naming it EnableNetBIOS.ps1

   .

   Note:

   You can use a different file name, but you must save the file as an ANSI-encoded text file whose extension is .ps1.

5. On the **Start** menu, click **All Programs**.
6. Click **Microsoft SharePoint 2010 Products**.
7. Click **SharePoint 2010 Management Shell**.
8. Change to the directory where you saved the file.
9. At the Windows PowerShell command prompt, type the following command:

   .\EnableNetBIOS.ps1

Start the User Profile service

In this procedure, you start the User Profile service.

To start the User Profile service

1. On the Central Administration Web site, in the **System Settings** section, click **Manage services on server.**
2. On the Services on Server page, in the **Server** box, select the synchronization server (see the Profile Synchronization Planning worksheet).
3. Find the row whose **Service** column value is **User Profile Service**. If the value in the **Status** column is **Stopped**, click **Start** in the **Action** column.

Phase 1: Start the User Profile Synchronization service

During this phase, you start the User Profile Synchronization service.

This phase involves the following tasks:

1. Start the User Profile Synchronization service
2. Remove unnecessary permissions
3. Reset IIS

To perform the tasks in this phase, you must be a member of the Farm Administrators SharePoint group and a member of the Administrators group on the computer that is running SharePoint Server.

Start the User Profile Synchronization service

In this procedure, you start the User Profile Synchronization service. The User Profile Synchronization service interacts with Microsoft Forefront Identity Manager (FIM) to synchronize information with external systems.

To start the User Profile Synchronization service

1. On the Central Administration Web site, in the **System Settings** section, click **Manage services on server**.
2. On the Services on Server page, in the **Server** box, select the synchronization server.
3. Find the row whose **Service** column value is **User Profile Synchronization Service**. If the value in the **Status** column is **Stopped**, click **Start** in the **Action** column.
4. On the User Profile Synchronization Service page, in the **Select the User Profile Application** section, select the User Profile service application.
5. In the **Service Account Name and Password** section, the farm account is already selected. Enter the password for the farm account in the **Password** box, and enter it again in the **Confirm Password** box.
6. Click **OK**.

The Services on Server page shows that the User Profile Synchronization service has a status of **Starting**. When you start the User Profile Synchronization service, SharePoint Server provisions FIM to participate in synchronization. This may take up to 10 minutes. To determine whether the User Profile Synchronization service has started, refresh the Services on Server page.

If the User Profile Synchronization service does not start, confirm that the farm account has the necessary permissions on the synchronization server. For more information about which permissions are required, see the Plan account permissions section of the article "Plan for profile synchronization."

Remove unnecessary permissions

After the User Profile Synchronization service is started, the farm account is no longer required to be an administrator on the synchronization server. To improve the security of your SharePoint Server installation, remove the farm account from the Administrators group on the synchronization server.

Reset IIS

If the Central Administration Web site and the User Profile Synchronization service are running on the same server, you must reset IIS after the User Profile Synchronization service starts. If they are running on different servers, you may skip this procedure.

To reset IIS

1. On the synchronization server, click **Start**, click **All Programs**, expand **Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.
2. In the **User Account Control** dialog box, click **Yes**.
3. In the **Administrator: Command Prompt** window, type **iisreset** and then press ENTER.
4. When the message **Internet services successfully restarted** is displayed, close the **Administrator: Command Prompt** window.

Note:

After you reset IIS, pages of the Central Administration Web site will take several seconds to load.

Phase 2: Configure connections and import data from directory services

To import profiles, you must have at least one synchronization connection to a directory service. During this phase, you create a synchronization connection to each directory service that you want to import profiles from. You can synchronize after you create each connection, or you can synchronize one time, after you have created all of the connections. Synchronizing after each connection will take longer, but doing this will make it easier to troubleshoot any problems that you might encounter.

To watch a video that demonstrates the tasks in Phase 2, see Configure a profile synchronization connection in SharePoint Server 2010 (video).

You must be a farm administrator or an administrator of the User Profile service application to perform these procedures. If you are not a farm administrator, start each procedure by using the Manage Profile Service page.

This phase involves the following tasks:

1. Create a synchronization connection to a directory service
2. Define exclusion filters for a synchronization connection
3. Map user profile properties
4. Start profile synchronization

Create a synchronization connection to a directory service

In this procedure, you create a connection to a directory service. The connection identifies the items to synchronize and contains the credentials that are used to interact with the directory service. The information that you enter comes from the Connection Planning worksheet.

To create a Profile Synchronization connection to a directory service

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Applications page, select the User Profile service application.
3. On the Manage Profile Service page, in the **Synchronization** section, click **Configure Synchronization Connections**.
4. On the Synchronizations Connections page, click **Create New Connection**.
5. On the Add new synchronization connection page, type the synchronization connection name in the **Connection Name** box.
6. From the **Type** list, select the type of directory service to which you want to connect.
7. Fill in the **Connection Settings** section according to the directory service to which you are creating a connection.

   For Active Directory Domain Services (AD DS), perform the following steps:

    a) In the **Forest name** box, type the name of the forest.

    b) Do one of the following:

   - If there is only one domain controller in the forest, click **Auto discover domain controller**.
   - If there are multiple domain controllers in the forest, click **Specify a domain controller** and type the domain controller name in the **Domain controller name** box.

    a) In the **Authentication Provider Type** box, select the type of authentication provider.

    b) If you select **Forms Authentication** or **Trusted Claims Provider Authentication**, select an authentication provider from the **Authentication Provider Instance** box.

    The **Authentication Provider Instance** box lists only the authentication providers that are currently used by a Web application.

    Tip:

    You may have to select **Trusted Claims Provider Authentication** and then select **Forms authentication** in the **Authentication Provider Type** box before the list of authentication providers is displayed.

    c) In the **Account name** box, type the synchronization account.

    d) In the **Password** box, type the password for the synchronization account.

    e) In the **Confirm Password** box, type the password for the synchronization account again.

    f) In the **Port** box, enter the connection port.

g) If a Secure Sockets Layer (SSL) connection is required to connect to the directory service, select **Use SSL-secured connection**.

Important:

To create a connection that uses SSL, you must install the SharePoint Server 2010 August 31, 2010 Cumulative Update or a more recent cumulative update. For more information, see the Updates resource center (*http://go.microsoft.com/fwlink/?LinkID=220218*).

Important:

If you use an SSL connection, you must export the certificate of the domain controller from the Active Directory server and import the certificate into the synchronization server.

For Novell eDirectory, Sun Java System Directory Server, or IBM Tivoli Directory Server (ITDS), perform the following steps:

h) In the **Directory Service Server Name** box, type the name of the directory service server.

i) In the **Authentication Provider Type** box, select the type of authentication provider.

j) In the **Authentication Provider Instance** box, select the authentication provider.

The **Authentication Provider Instance** box lists only the authentication providers that are currently used by a Web application.

Tip:

You may have to select **Trusted Claims Provider Authentication** and then select **Forms authentication** in the **Authentication Provider Type** box before the list of authentication providers is displayed.

k) In the **Account name** box, type the synchronization account in LDAP format, for example, uid=username,ou=ouname,dc=yourcompany,dc=Com.

l) In the **Password** box, type the password for the synchronization account.

m) In the **Confirm Password** box, type the password for the synchronization account again.

n) In the **Port** box, enter the connection port.

o) Verify that the **Use SSL-secured connection** check box is not selected. SSL connections are not supported for these directory services.

p) In the **Username attribute** box, type the name of the attribute in the directory service that serves as the unique identifier of each profile.

8. In the **Containers** section, click **Populate Containers**, and then select the containers from the directory service that you want to synchronize.

9. Click **OK**.

Define exclusion filters for a synchronization connection

In this procedure, you define filters for the connection to indicate which user profiles and which groups to exclude from synchronization. The information that you enter comes from the Connection Planning worksheet.

To define connection filters

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Applications page, click the User Profile service application name.
3. On the Manage Profile Service page, in the **Synchronization** section, select **Configure Synchronization Connections**.
4. On the Synchronization Connections page, right-click the connection for which you want to configure Profile Synchronization connection filters, and then click **Edit Connection Filters**.
5. On the Edit connection filters page, in the **Exclusion Filters for Users** section, select the operator to use to join the clauses of the filter.
    - To specify that all of the clauses of the filter must be true, select **All apply (AND)**.
    - To specify that at least one of the clauses of the filter must be true, select **Any apply (OR)**.
6. In the **Attributes** list, select the directory service attribute to compare.
7. In the **Operator** list, select the comparison operator to use.

    Note:

    The operators that are available depend on the data type of the attribute that you selected. For a list of which operators are available for each data type, see Connection filter data types and operators (SharePoint Server 2010).
8. In the **Filter** box, type the value to compare the attribute to.
9. Click **Add**.

    The clause that you added is displayed in the **Exclusion Filter for Users** area.
10. To add additional clauses to the filter, repeat steps 6 through 9.
11. To filter which groups are synchronized, repeat steps 5 through 9, using the **Exclusion Filters for Groups** section of the page.
12. When you have finished adding connection filters, click **OK**.

Map user profile properties

In this procedure, you determine how the properties of SharePoint Server user profiles map to the user information that is retrieved from the directory service. You should have identified how you will map user profile properties on the **User profile properties** data sheet in the User Profile Properties worksheet.

You will come back to this procedure in later phases to map user profile properties to information that is retrieved from business systems and to map how user profile properties in SharePoint Server can be used to write information back to the directory service. If you have not yet reached these phases, ignore the parts of the procedure that deal with business systems and exporting data.

To map user profile properties

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Applications page, click the User Profile service application name.
3. On the Manage Profile Service page, in the **People** section, click **Manage User Properties**.
4. On the Manage User Properties page, right-click the SharePoint Server property that you want to map to a directory service property, and then click **Edit**.
5. To remove an existing mapping, in the **Property Mapping for Synchronization** section, select the mapping that you want to remove, and then click **Remove**.
6. To add a new mapping, do the following:
    a) In the **Add New Mapping** section, in the **Source Data Connection** list, select the data connection that represents the external system to which you want to map the SharePoint Server property.
    b) In the **Attribute** list, select the name of the attribute in the external system to which you want to map the property,

    Tip:

    You can only map a user profile property to an attribute of an external system if their data types are compatible. If you do not see an attribute listed when you try to create a new mapping, it might be due to a data type mismatch between the user profile property and the attribute. For more information about which data types are compatible, see User profile property data types (SharePoint Server 2010).

    c) In the **Direction** list, select the mapping direction.

    A direction of **Import** means that the value of the attribute in the external system will be imported into SharePoint Server and used to set the value of the SharePoint Server property. A direction of **Export** means that the value of the property in SharePoint Server will be exported to the external system and used to set the value of the attribute in the external system.

Note:

You cannot edit a mapping. To change the direction of a mapping, you must first remove the mapping with the old direction, and then create a mapping in the new direction and add the mapping.

d) Click **Add**.

7. Click **OK**.
8. Repeat steps 4 through 7 to map additional properties.

Start profile synchronization

Use this procedure to synchronize profile information between SharePoint Server 2010 and external systems such as directory services or business systems.

To start profile synchronization

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Applications page, click the User Profile service application name.
3. On the Manage Profile Service page, in the **Synchronization** section, click **Start Profile Synchronization**.
4. On the Start Profile Synchronization page, select **Start Full Synchronization** if this is the first time that you are synchronizing or if you have added or modified any synchronization connections or property mappings since the last time that you synchronized. Select **Start Incremental Synchronization** to synchronize only information that has changed since the last time that you synchronized.
5. Click **OK**.

   The Manage Profile Service page is displayed.

A full synchronization can take a long time. If you refresh the Manage Profile Service page, you will see the progress of the synchronization job on the right side of the page. Be aware that profile synchronization consists of several stages, and the profiles will not be imported immediately. The Manage Profile Service page is not refreshed automatically as synchronization progresses.

Phase 3: Configure connections and import data from business systems

You can import data from a business system, such as a personnel system or a financial system, and use that data to add properties to existing user profiles. You should already have created an external content type that brings the information from the external system into SharePoint Server 2010. For more information about creating an external content type to synchronize with a business system, see Plan for profile synchronization (SharePoint Server 2010).

To watch a video that demonstrates creating external content types and completing the tasks in Phase 3, see Configure a synchronization connection to a SQL Server database in SharePoint Server 2010 (video).

This phase is optional.

You must be a farm administrator, or an administrator of both the User Profile service application and the Business Data Connectivity service application, to perform these procedures. If you are not a farm administrator, start each procedure at the Manage Profile Service page.

This phase involves the following tasks:

1. Give the User Profile service application permission to use the external content type
2. Configure a Business Data Connectivity synchronization connection
3. Add or edit user profile properties
4. Import data

Give the User Profile service application permission to use the external content type

Use this procedure to give the farm account permission to execute operations on the external content type. For more information about how to set permissions on an external content type, see Set permissions on an external content type (*http://technet.microsoft.com/en-us/library/ee524076.aspx#setpermissions*).

Note:

Business Connectivity Services uses the permissions on the external content type and the permissions on the business system to determine authorization rules. You must ensure that the farm account also has permission to access the business system. For more information about authentication and permissions, see Business Connectivity Services security overview (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee661743.aspx*).

To perform this procedure, you must have one of the following administrative credentials:

- You must be a farm administrator.
- You must be an administrator of the Business Data Connectivity service application and have Set Permissions permission on the external content type that you are synchronizing with.

To give the User Profile service application permission to use the external content type

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.

2. On the Manage Service Application page, select **Business Data Connectivity Service**.
3. Select the check box of the external content type that represents the information that you want to synchronize with.
4. In the **Permissions** group, click **Set Object Permissions**.
5. In the box, type the farm account, and then click **Add**.
6. In the **Permissions for <account>** box, select **Execute**.

   Note:

   If the farm account is the only account listed in the **Permissions for <account>** box, you must also give the farm account Set Permissions to the external content type. At least one user, group, or claim in the external content type's access control list must have the Set Permissions permission.

7. Click **OK**.
8. Verify that the **Propagate permissions to all methods of this external content type. Doing so will overwrite existing permissions.** check box is selected.
9. Repeat steps 3 through 8 to set permissions on additional external content types.

Configure a Business Data Connectivity synchronization connection

In this procedure, you create a connection for each external content type. The connection specifies how the business system data relates to the profile properties. The information that you enter comes from the Connection Planning worksheet.

To create a Profile Synchronization connection

1. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
2. On the Manage Service Applications page, select the User Profile service application.
3. On the Manage Profile Service page, in the **Synchronization** section, click **Configure Synchronization Connections**.
4. On the Synchronizations Connections page, click **Create New Connection**.
5. On the Add new synchronization connection page, type a name for the synchronization connection in the **Connection Name** box.
6. From the **Type** list, select **Business Data Connectivity**.
7. In the **Business Data Connectivity Entity** box, type the name of the external content type.

Tip:

If you do not know the name of the external content type, click the **Select External Content Type** button to see all external content types. Select the external content type from the list, and then click **OK**.

8. If each user profile maps to only one external content type instance, do the following:

   a) Click **Connect User Profile Store to Business Data Connectivity Entity as a 1:1 mapping**.

   b) In the **Return items identified by this profile property** list, select the user profile property that is used to match user profiles to external content type instances. The user profile property and the external content type identifier define the 1:1 relationship between the user profiles and the external content type, and are used to ensure that the imported properties are applied to the correct user profile.

   Tip:

   The **Return items identified by this profile property** list returns all user profile properties that have a similar data type to the external content type identifier.

9. If a user profile can map to multiple external content type instances, do the following:

   a) Click **Connect User Profile Store to Business Data Connectivity Entity as a 1:many mapping**.

   b) In the **Filter items by** list, select the filter that is used to find the set of external content type instances that apply to a user profile.

   Note:

   The **Filter items by** list displays all filters that are defined in the external content type.

   c) In the **Use this profile property as the filter value** list, select the user profile property that is used to match user profiles to external content type instances.

10. Click **OK**.

11. Repeat steps 4 through 10 to add more connections.

Add or edit user profile properties

Before you can import the business system data, you must specify how the business system data maps to the user profile properties. The **User profile properties** data sheet in the User profile properties worksheet lists the business system properties that you want to import and how those properties map to the profile properties in the SharePoint Server profile store.

Follow the procedure in the Map user profile properties section to map additional user profile properties. If the data maps to an existing user profile property, edit the property and add a new mapping. If the data does not map to an existing user profile property, add a new custom property and then map the property.

Import data

To import data from the business system, you must perform a full synchronization. Follow the procedure in the Start profile synchronization section to start a full synchronization.

Phase 4: Configure connections and export data to directory services

In previous phases, you configured the profile synchronization connections that you need. To write profile information back to a directory service, you map the profile properties to attributes in the directory service with a mapping direction of **Export**. The next time that profile synchronization runs, properties will be imported and exported according to the mappings that you configured.

Note:

Although you can import profile data from business systems by using the Business Connectivity Service, you cannot export profile data to business systems.

This phase is optional.

You must be a farm administrator or an administrator of the User Profile service application to perform these procedures. If you are not a farm administrator, start each procedure by using the Manage Profile Service page.

Do not create a new synchronization connection to export properties. To export properties to a directory service, use the same synchronization connection that you created to import properties from the directory service. You cannot use a synchronization connection only to export properties.

Follow the procedure to Map user profile properties again, this time selecting **Export** for the mapping direction. The properties that you map will be exported from SharePoint Server to the directory service whose connection you select.

Follow the procedure to Start profile synchronization again, this time selecting to do an incremental synchronization. The values of any SharePoint Server profile properties that have been mapped to be exported to directory service attributes will be updated.

Note:

For certain directory services, additional permissions may be required to write data back to the directory service. Review the information in the Plan account permissions section of the "Plan for profile synchronization" article, and ensure that the synchronization account has the necessary permissions.

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Concepts

Schedule profile synchronization (SharePoint Server 2010)

Plan for profile synchronization (SharePoint Server 2010)

Configure a profile synchronization connection in SharePoint Server 2010 (video)

Configure a synchronization connection to a SQL Server database in SharePoint Server 2010 (video)

Configure profile synchronization using a Lightweight Directory Interchange Format (LDIF) file (SharePoint Server 2010)

Updated: March 10, 2011

This article describes how to use a Lightweight Directory Interchange Format (LDIF) file to synchronize user and group profile information between Microsoft SharePoint Server 2010 and a Lightweight Directory Access Protocol (LDAP) provider not directly supported by Microsoft SharePoint Server 2010. For a list of directly supported LDAP providers, such as Active Directory Domain Services (AD DS), see Identify directory services and business systems. We recommend that you only use the following procedures for those LDAP providers not in the directly supported LDAP provider list.

Overview

An LDIF file is an ASCII file that can be used to exchange information with LDAP Directory System Agents (DSAs). You can also use an LDIF file to synchronize profile information with SharePoint Server 2010. To do this, you must create an LDIF file by using your LDAP provider and save it to the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory on the server running SharePoint Server. The LDIF file must be saved to the LDIF <*MA_Name*> folder within this directory and must contain the profile information that you want to synchronize with SharePoint Server 2010. The schema for the LDIF file should be similar to the schema shown in the import.ldif sample file, which can be downloaded using the following link: *http://go.microsoft.com/fwlink/?LinkId=202107*. The configuration file that contains the schema shown in import.ldif can be downloaded using the following link: *http://go.microsoft.com/fwlink/?LinkId=202107*. This config.xml file contains the default properties that will be imported from the LDIF file into SharePoint Server. This schema is used to create an LDIF management agent (MA) that links the information in the LDIF file to SharePoint Server 2010. Creating an LDIF MA is done by using the Import Management Agent function in the SharePoint Server Synchronization Services Manager.

Once you have created an LDIF file that conforms to the schema shown in the sample LDIF file and created an LDIF MA, you can customize the default profile property schema by adding properties not included in the default schema. To do this, you must first use the

SharePoint Server Synchronization Service Manager to add the additional profile properties to the MOSS MA. After you have added any additional profile properties to the MOSS MA, you must then add the additional properties to the Forefront Identity Manager (FIM) metaverse by using the Synchronization Management Service. The final step is to add the additional profile properties to the LDIF MA.

Because the MOSS MA only imports profile properties into SharePoint Server if they are present in the LDIF file, unwanted profile properties can be excluded from synchronization by excluding them from the LDIF file. Although you can also exclude properties from import by excluding them from the MOSS MA schema, the preferred method is to exclude any unwanted profile properties from the LDIF file.

After you have created an LDIF MA and added any additional properties that you want to synchronize, you can then run Profile Synchronization from SharePoint Server 2010 Central Administration to import the profiles into SharePoint Server. This will synchronize the profile information in the LDIF file with the profile information in the SharePoint Server profile store and will also synchronize profile information from other directory services or business systems that are based on any other profile synchronization connections that you have configured.

Task requirements

Before you perform this procedure, confirm the following:

- The farm is running either the Standard or Enterprise version of SharePoint Server 2010 and you have run the farm configuration wizard. Profile Synchronization does not work on a single-server installation of SharePoint Server 2010.
- An instance of the User Profile service application exists and is started. For more information, see Create, edit, or delete a User Profile Service application (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee721052.aspx*).
- Profile Synchronization has been provisioned on the server where you plan to synchronize profile information from an LDIF file. For more information about provisioning Profile Synchronization, see Configure Profile Synchronization settings.
- If you are using Microsoft SQL Server 2008, Microsoft SQL Server 2008 with Service Pack 1 (SP1) with Cumulative Update 2 (CU2) (*http://go.microsoft.com/fwlink/?LinkId=165962*) is required.
- The WCF hotfix (*KB976462*) for Windows Server 2008 R2 is installed.

◆ **Important:**

See the SharePoint Server 2010 release notes for other task requirements that may be needed for Profile Synchronization.

Tasks in this article

- Create an LDIF MA
- Add custom profile properties to the default profile property schema

Create an LDIF MA

You can create an LDIF MA to synchronize user and group profile information between Microsoft SharePoint Server 2010 and a Lightweight Directory Access Protocol (LDAP) by using the Synchronization Service Manager.

To create an LDIF MA by using the Synchronization Service Manager

1. Verify that you have the following administrative credentials:
   - To use the Synchronization Service Manager to create an LDIF MA, you must be a Service Application Administrator for the User Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.
2. Download the default schema file (config.xml) from *http://go.microsoft.com/fwlink/?LinkId=202107* and save it to the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.
3. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
4. In the Synchronization Service Manager, click **Management Agents** and then, under **Actions**, click **Import Management Agent**.
5. Select the config.xml file and then click **Open**.
6. On the Create Management Agent page of the Create Management Agent wizard, type a name for the LDIF MA in the **Name** field. The name must be preceded by "MOSSLDAP-", for example, MOSSLDAP-TestLDIFMA.
7. Optionally, type a description for the LDIF MA in the **Description** box.
8. Click **Next** through the remaining pages of the Create Management Agent wizard.

9. On the Configure Extensions page of the Create Management Agent wizard, click **Finish**.
10. Save the LDIF file you generated by using your LDAP provider in the newly created LDIF <*MA_Name*> folder in the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.

    You can now run profile synchronization from Central Administration in SharePoint Server 2010 to import the profiles from the LDIF file into the SharePoint Server profile store. For more information about how to run profile synchronization in SharePoint Server 2010, see Start profile synchronization manually (SharePoint Server 2010).

    Note:

    If you need to add any custom profile properties to the default property schema, you should add them before running profile synchronization.

Add custom profile properties to the default profile property schema

Before you run profile synchronization, you can add a custom profile property to the default profile property schema by creating the following:

1. The custom property in SharePoint Server by using Central Administration
2. The custom property in the MOSS MA
3. The custom property in the FIM metaverse
4. The custom property in the LDIF MA
5. An export mapping from the LDIF MA to the FIM metaverse
6. An import mapping from the FIM metaverse to the MOSS MA

Important:

Complete the procedures in the following order to add a new profile property to the default profile property schema.

To create a custom profile property in SharePoint Server

- If the profile property does not exist in SharePoint Server, create a custom profile property in SharePoint Server by using Central Administration.

To create a custom profile property in the MOSS MA

1. Verify that you have the following administrative credentials:
    - To use the Synchronization Service Manager to create a new profile property in the MOSS MA, you must be a Service Application Administrator for the User

Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.

2. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
3. Select the MOSS MA from the Management Agent list in the Synchronization Service Manager and then, under **Actions**, click **Properties**.

   Note:

   The MOSS MA appears in the Management Agent list in the Synchronization Service Manager as "MOSS*GUID*".
4. On the Properties page, under **Management Agent Designer**, click **Configure Attributes**.
5. On the Properties page, under **Configure Attributes**, click **New**.
6. In the **New Attribute** dialog box, enter the name of the new profile property in the **Name** field. This name must be the same name as the profile property that you created in the SharePoint Server Central Administration.
7. Select a data type for the new profile property from the drop-down list. This data type must be the same as the one specified in SharePoint Server.
8. In the **New Attribute** dialog box, in the **Value constraints** section, enter a minimum and maximum character length for the new profile property and then click **OK**.
9. On the Properties page, under **Management Agent Designer**, click **Define Object Type**.
10. On the Properties page, under **Define Object Types**, select **User** and then click **Edit**.
11. In the **Edit Object Type** dialog box, in the **Select mandatory attributes** section, select the new profile property and then click **Add** to make the new profile property either a required profile property or an optional profile property. When you are done, click **OK**.

Create a new profile property in the FIM metaverse

1. Verify that you have the following administrative credentials:
   - To use the Synchronization Service Manager to create a new profile property in the FIM Metaverse, you must be a Service Application Administrator for the User Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.

2. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
3. Click **Metaverse Designer**.

   Under **Object Types**, select the **person** object.

   In the lower **Actions** section, click **Add Attribute**.
4. In the **Add Attribute To Object Type** dialog box, click **New attribute**.
5. In the **New Attribute** dialog box, type the name of the new profile property in the **Attribute name** field. This name must be the same name as the profile property that you created in the SharePoint Server Central Administration.
6. Select the data type from the **Attribute type** drop-down list. This data type must be the same as the one specified in SharePoint Server.
7. If the new profile property is a multi-valued property, click to select **Multi-valued** and then click **OK**.

Create a new profile property in the LDIF MA

1. Verify that you have the following administrative credentials:
   - To use the Synchronization Service Manager to a new profile property in the LDIF MA, you must be a Service Application Administrator for the User Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.
2. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
3. Select the LDIF MA from the Management Agent list in the Synchronization Service Manager and then, under **Actions**, click **Properties**.
4. On the Properties page, under **Management Agent Designer**, click **Configure Attributes**.
5. On the Properties page, under **Configure Attributes**, click **New**.
6. In the **New Attribute** dialog box, enter a name for the new profile property in the **Name** field. This name must be the same name as the profile property that you created in the SharePoint Server Central Administration.
7. Select a data type for the new profile property from the drop-down list. This data type must be the same as the one specified in SharePoint Server.
8. In the **New Attribute** dialog box, in the **Value constraints** section, enter a minimum and maximum character length for the new profile property and then click **OK.**
9. On the Properties page, under **Management Agent Designer**, click **Define Object Type**.

10. On the Properties page, under **Define Object Types**, select **User** and then click **Edit**.
11. In the **Edit Object Type** dialog box, in the **Select mandatory attributes** section, select the new profile property and then click **Add** to make the new profile property either a required profile property or an optional profile property. When you are done, click **OK**.

Create an import mapping from a new LDIF MA profile property to a new metaverse profile property

1. Verify that you have the following administrative credentials:
   - To use the Synchronization Service Manager to create an import mapping from a new LDIF MA profile property to a new Metaverse profile property, you must be a Service Application Administrator for the User Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.
2. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
3. Select the LDIF MA from the Management Agent list in the Synchronization Service Manager and then, under **Actions**, select **Properties**.

   Under **Management Agent Designer**, click **Configure Attribute Flow**.
4. In the **Configure Attribute Flows** section, select **Object Type: User** from the **Data Source Attribute** column.
5. In the **Build Attribute Flow** section, under **Flow Direction**, select **Import**.
6. In the **Build Attribute Flows** section, under **Data source attribute**, select the name of the new profile property.
7. In the **Build Attribute Flows** section, under **Metaverse attribute**, select the name of the new profile property, click **New**, and then click **OK**. The new import mapping should now show in the **Configure Attribute Flow** section of the **Properties** pane.

Create an export mapping from a new metaverse profile property to a new MOSS MA profile property

1. Verify that you have the following administrative credentials:
   - To use the Synchronization Service Manager to create an export mapping from a new Metaverse profile property to a new MOSS MA profile property, you must be a Service Application Administrator for the User Profile Service application. The Service Application Administrator for the User Profile Service application must also have write permissions on the *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\Ma-data\ directory.

2. Open the Synchronization Service Manager by browsing to *%rootdir%*\Program Files\Microsoft Office Servers\14.0\Synchronization Service\UIShell\ and double-clicking miisclient.exe.
3. Select the MOSS MA from the Management Agent list in the Synchronization Service Manager and then, under **Actions**, select **Properties**.

   Under **Management Agent Designer**, click **Configure Attribute Flow**.
4. In the **Configure Attribute Flows** section, select **Object Type: User** from the **Data Source Attribute** column.
5. In the **Build Attribute Flow** section, under **Flow Direction**, select **Export**.
6. In the **Build Attribute Flows** section, under **Data source attribute**, select the name of the new profile property.
7. In the **Build Attribute Flows** section, under **Metaverse attribute**, select the name of the new profile property, click **New**, and then click **OK**. The new export mapping should now show in the **Configure Attribute Flow** section of the **Properties** pane.

Concepts

Plan for profile synchronization (SharePoint Server 2010)

Configure profile synchronization (SharePoint Server 2010)

Start profile synchronization manually (SharePoint Server 2010)

Schedule profile synchronization (SharePoint Server 2010)

Start profile synchronization manually (SharePoint Server 2010)

Updated: June 28, 2011

This article describes how to start profile synchronization for Microsoft SharePoint Server 2010 manually. You can start a full synchronization or an incremental synchronization of profile information. You might want to consider starting profile synchronization manually if you have made considerable changes to user profiles, for example if you want to test the profile synchronization feature.

For information about when to use full or incremental synchronization, see Types of synchronization in Profile synchronization overview (SharePoint Server 2010).

You can also schedule profile synchronization to run automatically according to a schedule. For more information, see Schedule profile synchronization (SharePoint Server 2010).

Before you perform this procedure, ensure that you have completed the steps that are described in Configure profile synchronization (SharePoint Server 2010).

To start profile synchronization manually

1. Verify that you have the following administrative credentials:
    - You must be a farm administrator or an administrator of the User Profile service application to perform this procedure. If you are not a farm administrator, start this procedure by using the Manage Profile Service page.
2. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click in the **Name** column of the User Profile Service Application row.
4. On the Manage Profile Service page, in the **Synchronization** section, click **Start Profile Synchronization**.
5. On the Start Profile Synchronization page, select **Start Incremental Synchronization** to synchronize only profiles that have changed since the last synchronization, or select **Start Full Synchronization** to synchronize all profiles.

Note:

Full synchronization can take a long time. For more information about when to use full synchronization and incremental synchronization, see Types of synchronization in Profile synchronization overview (SharePoint Server 2010).

6. Click **OK**.

   Note:

   Refresh the Manage Profile Service page to view the profile synchronization status.

Concepts

Profile synchronization overview (SharePoint Server 2010)

Plan for profile synchronization (SharePoint Server 2010)

Configure profile synchronization (SharePoint Server 2010)

Schedule profile synchronization (SharePoint Server 2010)

Schedule profile synchronization (SharePoint Server 2010)

Updated: June 28, 2011

This article describes how to configure the Profile Incremental Synchronization timer job to define the schedule for running incremental profile synchronization. You must have first performed a full synchronization before you can set the incremental synchronization schedule. For more information, see Plan for profile synchronization (SharePoint Server 2010).

Before you perform this procedure, ensure that you have completed the steps that are described in Configure profile synchronization (SharePoint Server 2010).

To schedule profile synchronization

1. Verify that you have the following administrative credentials:
    - You must be a farm administrator or an administrator of the User Profile service application to perform these procedures. If you are not a farm administrator, start this procedure by using the Manage Profile Service page.
2. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click in the **Name** column of the User Profile service application row.
4. On the Manage Profile Service page, in the **Synchronization** section, click **Configure Synchronization Timer Job**.
5. On the Edit Timer Job page, in the **Recurring Schedule** section, select the frequency at which you want recurring profile synchronization to occur.
    - If you select **Minutes**, type the number of minutes that should pass between the start of each timer job.
    - If you select **Hourly**, type the number of minutes past every hour that the timer job should start to run at the earliest, and type the number of minutes past every hour that the timer job should start to run at the latest.
    - If you select **Daily**, select the time at which the timer job should start to run, at the earliest and at the latest, every day.
    - If you select **Weekly**, select the earliest and latest day and time at which the timer job should start to run every week.

- If you select **Monthly**, either select the earliest and latest date and time at which the timer job should start to run every month, or select a day and time at which the timer job should start to run every month.

  Note:

  If you want to specify an exact starting time for the timer job to run, set the same value in the start and end times of the interval in which the timer job should start.

6. Click **OK**.

   If you want to start the profile synchronization immediately, click **Run Now**.

Concepts

Configure profile synchronization (SharePoint Server 2010)

Start profile synchronization manually (SharePoint Server 2010)

Plan for profile synchronization (SharePoint Server 2010)

Other Resources

Timer jobs cmdlets (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee906546.aspx*)

Maintain profile synchronization (SharePoint Server 2010)

Published: May 12, 2010

Profile Synchronization in SharePoint Server 2010 enables an administrator of an instance of the user profile service to synchronize user and group profile information that is stored in the SharePoint Server 2010 profile store with profile information that is stored in directory services across the enterprise. After you have configured Profile Synchronization, you must complete tasks to maintain those settings. These tasks include, for example, removing users whose accounts have been disabled or deleted, moving or renaming a server, and starting or stopping the User Profile Synchronization service. For more information, see Plan for profile synchronization (SharePoint Server 2010).

Before you complete the procedures in this article, you must have completed the procedures in Configure profile synchronization (SharePoint Server 2010).

Task requirements

- The farm is running either the Standard or Enterprise version of SharePoint Server 2010 and you have run the farm configuration wizard.

  ⚠ **Caution:**

  Profile Synchronization does not work on a stand-alone installation of SharePoint Server 2010.

- An instance of the User Profile service application exists and is started. For more information, see Create, edit, or delete a User Profile service application (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee721052.aspx*).
- If you are using Microsoft SQL Server 2008, Microsoft SQL Server 2008 with Service Pack 1 (SP1) with Cumulative Update 2 (CU2) (*http://go.microsoft.com/fwlink/?LinkId=165962*) is required.
- The WCF hotfix (*KB976462*) for Windows Server 2008 R2 is installed.

Important:

See release notes for other task requirements that may be needed for Profile Synchronization.

Procedures in this article

- Rename users or change user domains
- Exclude users whose accounts have been disabled
- Remove obsolete users and groups
- Maintain profile schema changes
- Rename a profile synchronization server
- Move the User Profile Synchronization service to a new server
- Reset profile synchronization
- Restrict profile synchronization communication to a specific domain controller
- Adjust profile synchronization time-outs

Rename users or change user domains

SharePoint Server 2010 provides a way to handle several different user migration scenarios. The following are examples of the scenarios handled for Active Directory Domain Services (AD DS):

- Account name (**sAMAccountName**) changes in the AD DS where the user exists.
- Security Identifier (SID) changes.
- Distinguished Name (DN) changes that include changes in the Organizational Unit (OU) container in the AD DS where the user account exists. This is new in SharePoint Server 2010. For example, if a user's DN is moved in AD DS from "User= EUROPE\John Smith, Manager=CN=John Rodman, OU=Users, DC=EMEA1, DC=corp, DC=contoso, DC=com" to "User= EUROPE\John Smith, Manager=CN=John Rodman, OU=Managers, DC=EMEA1, DC=corp, DC=contoso,DC=com", the **MigrateUser** command updates the user profile store for this user. The user profile for John Smith is updated when synchronizing user profiles from the EMEA1.corp.contoso.com AD DS to the SharePoint Server user profile store.

To rename users or to change user domains

1. Verify that you have the following administrative credentials:
    - See **Add-SPShellAdmin**.

- You must be a member of the Farm Administrators group on the computer that is running the SharePoint Central Administration Web site.
- The Farm Administrator account, which is created during the SharePoint farm setup, must also be a Local Administrator on the server where the User Profile Synchronization service is deployed.

2. If a profile synchronization run is in progress, go to the Central Administration page and click **Manage service applications** in the Application Management section. Select the appropriate User Profile service application from the list of service applications. On the Manage service application page, click **Stop Profile Synchronization**.
3. Disable the incremental Profile Synchronization timer job.
4. Ensure that user migration by using stsadm -o migrateuser

   has succeeded.
5. Ensure that the profile of the migrated user can be accessed by browsing to the My Site for that user, for example, http://mysite/person.aspx?accountname=<new account name>.
6. Run Profile Synchronization. For more information, see Perform a nonrecurring profile synchronization.
7. Recheck access to the profile of the migrated user by browsing to the My Site for that user.
8. Enable the incremental Profile Synchronization timer job.

Exclude users whose accounts have been disabled

You can exclude users whose accounts have been disabled in AD DS by using exclusion filters in SharePoint Server 2010. For the steps that are needed to exclude users whose accounts have been disabled, see Edit Profile Synchronization connection filters.

Remove obsolete users and groups

There are two reasons why obsolete users or groups can exist in the SharePoint Server 2010 user profile store:

- **Obsolete users**: The My Site cleanup timer job is not active. The User Profile Synchronization timer job marks for deletion users who have been deleted from the directory source. When the My Site cleanup job runs, it looks for all users marked for deletion and deletes their profiles. Respective My Sites are then assigned to the manager for the deleted user and an e-mail message notifies the manager of this deletion.

- **Obsolete users and groups**: Users and groups that were not imported by Profile Synchronization exist in the user profile store. This can occur, for example, if you upgraded from an earlier version of SharePoint Server and chose to only synchronize a subset of domains with SharePoint Server 2010.

To find and remove obsolete users and groups by using Windows PowerShell

1. Verify that you meet the following minimum requirements:
   - See **Add-SPShellAdmin**.
   - You must have Execute permission on the **ImportExport_GetNonimportedObjects** and the **ImportExport_PurgeNonimportedObjects** stored procedures in the profile database.

     You can use SQL Management Studio or Transact-SQL to grant permissions. For more information, see GRANT Object Permissions (Transact-SQL) (*http://go.microsoft.com/fwlink/?LinkId=213464*).
2. On the **Start** menu, click **All Programs**.
3. Click **Microsoft SharePoint 2010 Products**.
4. Right-click **SharePoint 2010 Management Shell** and then click **Run as administrator**.
5. In the **User Account Control** dialog box, click **Yes**.
6. At the Windows PowerShell command prompt, type the following commands:
   a) To get the User Profile Service application object, type the following command:

      $upa = Get-spserviceapplication *<identity>*

      Where *<identity>* is the GUID of the User Profile Synchronization service application.

   b) To view the users and groups to delete, type the following command:

      Set-SPProfileServiceApplication $upa -GetNonImportedObjects $true

   c) To delete the obsolete users and groups, type the following command:

      ⚠ **Warning:**

      This action cannot be undone.

      Set-SPProfileServiceApplication $upa -PurgeNonImportedObjects $true

For more information, see Get-SPServiceApplication (*http://technet.microsoft.com/en-us/library/ff607714.aspx*) and Set-SPProfileServiceApplication (*http://technet.microsoft.com/en-us/library/ff608004.aspx*).

Maintain profile schema changes

Profile schema changes include things such as adding a new user profile property, changing a user profile property mapping, or changing a Profile Synchronization connection filter. When the profile schema changes, you must first perform a full nonrecurring synchronization before scheduling recurring profile synchronization. For the steps that are needed to perform full nonrecurring profile synchronization, see Start profile synchronization manually (SharePoint Server 2010).

Rename a profile synchronization server

Use the following procedure to rename a profile synchronization server.

To rename a profile synchronization server by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See **Add-SPShellAdmin**.
2. On the **Start** menu, click **All Programs**.
3. Click **Microsoft SharePoint 2010 Products**.
4. Click **SharePoint 2010 Management Shell**.
5. At the Windows PowerShell command prompt, type the following command:

   Rename-SPServer <*Identity*> -Name <*newName*>

   Where:

   - *Identity* is the old name of the server.
   - *newName* is the new name for the server.

For more information about renaming a server by using Windows PowerShell, see Rename-SPServer (*http://technet.microsoft.com/en-us/library/ff607556.aspx*).

Move the User Profile Synchronization service to a new server

Use the following procedure to move the User Profile Synchronization service to a new server.

To move the User Profile Synchronization service to a new server by using Central Administration

1. Verify that you have the following administrative credentials:

   - See **Add-SPShellAdmin**.
   - You must be a member of the Farm Administrators group on the computer that is running the SharePoint Central Administration Web site.

- The farm account, which is created during the SharePoint farm setup, must also be a Local Administrator on the server where the User Profile Synchronization service is deployed.

  This is required to start the User Profile Synchronization service. After the User Profile Synchronization service is started you can remove the farm account from the Administrators group.

2. On the current Profile Synchronization server, on the SharePoint Central Administration Web site, in the **System Settings** section, click **Manage services on Server**.
3. Next to the **User Profile Synchronization Service**, click **Stop** to stop the User Profile Synchronization service.
4. On the new Profile Synchronization server, on the SharePoint Central Administration Web site, in the **System Settings** section, click **Manage services on Server**.
5. Next to the **User Profile Synchronization Service**, click **Start** to start the User Profile Synchronization service.
6. On the new Profile Synchronization server, on the SharePoint Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
7. On the Service Applications page, click the link for the name of the appropriate User Profile service application.
8. On the User Profile Service Application page, in the **Synchronization** section, click **Start Profile Synchronization**.
9. On the Start Profile Synchronization page, select **Start Full Synchronization**, and then click **OK**.

Reset profile synchronization

The User Profile Synchronization database serves as a staging area for user profile information. User Profile information that is stored in the profile store and synchronization database is consumed by the User Profile service. By following the below steps, you can safely reset a User Profile Synchronization database without losing information in the profile store.

To reset profile synchronization by using Windows PowerShell

1. Verify that you meet the following minimum requirements:
   - See **Add-SPShellAdmin**.
   - You must be a member of the Farm Administrators group on the computer that is running the SharePoint Central Administration Web site.

   - The farm account, which is created during the SharePoint farm setup, must also be a Local Administrator on the server where the User Profile Synchronization service is deployed.

     This is required to start the User Profile Synchronization service. After the User Profile Synchronization service is started you can remove the farm account from the Administrators group.

2. As a precaution, back up the User Profile service application. For more information, see Back up a service application (SharePoint Server 2010) (*http://technet.microsoft.com/en-us/library/ee428318.aspx*).
3. On the **Start** menu, click **All Programs**.
4. Click **Microsoft SharePoint 2010 Products**.
5. Right-click **SharePoint 2010 Management Shell** and then click **Run as administrator**.
6. In the **User Account Control** dialog box, click **Yes**.
7. At the Windows PowerShell command prompt, type the following command to stop the SharePoint 2010 Timer service:

   ```
   net stop sptimerv4
   ```

8. Copy the following code and paste it into a text editor, such as Notepad:

   ```
   $syncdb=Get-SPDatabase <SyncDBGUID>
   $syncdb.Unprovision()
   $syncdb.Status='Offline'
   $upa=Get-SPServiceApplication <USPAppGUID>
   $upa.ResetSynchronizationMachine()
   $upa.ResetSynchronizationDatabase()
   $syncdb.Provision()
   ```

9. Replace the following placeholders with values where:
   - *<SyncDBGUID>* is the GUID of the synchronization database.
   - *<UPSAppGUID>* is the GUID of the User Profile Service application.
10. Save the file as an ANSI-encoded text file and name the file ResetSyncDB.ps1.
11. At the Windows PowerShell change to the directory where you saved the file.
12. Type the following command:

    ```
    ./ResetSyncDB.ps1
    ```

13. Using SQL Server Management Studio, create a login in SQL Server for the User Profile Synchronization service account (that is, the farm account). Then, in the Sync database, create a database user that maps to the login and grant it access to the **db_owner** database role. For more information, see How to: Create a SQL Server

Login (*http://go.microsoft.com/fwlink/?LinkId=211993*), How to: Create a Database User (*http://go.microsoft.com/fwlink/?LinkId=211994*), and Database-Level Roles (*http://go.microsoft.com/fwlink/?LinkId=211995*).

14. At the Windows PowerShell command prompt, type the following command to start the SharePoint 2010 Timer service:

    net start sptimerv4

15. Start the Profile Synchronization service. For more information, see the Start the User Profile Synchronization service section of the "Configure profile synchronization" topic.
16. Reset IIS. For more information about how to reset IIS, see the Reset IIS section of the "Configure profile synchronization" topic.
17. Create connections to the data sources. For more information, see Restore a service application (Search Server 2010) (*http://technet.microsoft.com/en-us/library/ff428105.aspx*).
18. Run full profile synchronization. For more information, see Perform a nonrecurring profile synchronization.

For more information, see Get-SPDatabase (*http://technet.microsoft.com/en-us/library/ff607889.aspx*).

Restrict profile synchronization communication to a specific domain controller

Use the following procedure to restrict profile synchronization communication to a specific domain controller.

To restrict profile synchronization communication to a specific domain controller by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See **Add-SPShellAdmin**.
2. On the **Start** menu, click **All Programs**.
3. Click **Microsoft SharePoint 2010 Products**.
4. Right-click **SharePoint 2010 Management Shell** and then click **Run as administrator**.
5. In the **User Account Control** dialog box, click **Yes**.
6. At the Windows PowerShell command prompt, type the following commands:
    a) To get the User Profile Service application object, type the following command:

$upa=Get-SPServiceApplication *<GUID>*

Where *<GUID>* is the GUID of the User Profile Synchronization Service application.

b) To restrict profile synchronization communication to a specific domain controller, type the following command:

Set-SPProfileServiceApplication $upa -UseOnlyPreferredDomainControllers $true

Note:

It may take up to five minutes for the changed property value to propagate to the Central Administration Web site. Resetting IIS on the Central Administration server will force the new value to be loaded immediately. For more information about resetting IIS, see IIS Reset Activity (*http://go.microsoft.com/fwlink/?LinkId=179336*).

For more information, see Get-SPServiceApplication (*http://technet.microsoft.com/en-us/library/ff607714.aspx*) and Set-SPProfileServiceApplication (*http://technet.microsoft.com/en-us/library/ff608004.aspx*).

Adjust profile synchronization time-outs

A time-out can occur on the following occasions:

- When trying to connect to the directory service server on the Add/Edit a synchronization connection page in Central Administration.

  Note:

  This time-out is available in the Microsoft SharePoint Server 2010 June 2010 Cumulative Update. For more information about the cumulative update, see *http://support.microsoft.com/kb/983497*.

- When trying to populate the list of containers on the Add/Edit a synchronization connection page in Central Administration. This will occur as a JavaScript timeout error in the status bar.
- When clicking **OK** on the Add/Edit a synchronization connection page in Central Administration. This will result in the following error message and occurs because of a timeout by the Forefront Identity Manager Web service when creating or updating a profile synchronization connection:

  "The request channel timed out while waiting for a reply after 00:01:29.9062626. Increase the timeout value passed to the call to Request or increase the SendTimeout value on the Binding. The time allocated to this operation may have been a part of a longer timeout."

To adjust profile synchronization timeouts by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See **Add-SPShellAdmin**.

2. If you want to change the time-out value for connecting to the directory service server, do the following:

    a) Copy the following code and paste it into a text editor, such as Notepad:

    ```
    $upsAppProxy = Get-SPServiceApplicationProxy <UPSAppProxyGUID>
    $upsAppProxy.LDAPConnectionTimeout = <NewTimeout>
    $upsAppProxy.Update()
    ```

    b) Replace <*UPSAppProxyGUID*> with the GUID of the User Profile service application proxy and <*NewTimeout*> with the new time-out value in seconds. The default time-out is 120 seconds.

    c) Save the file as an ANSI-encoded text file whose extension is .ps1.

3. If you want to change the time-out value for the Populate Containers control, do the following:

    a) Copy the following code and paste it into a text editor, such as Notepad:

    ```
    $upsAppProxy = Get-SPServiceApplicationProxy <UPSAppProxyGUID>
    $upsAppProxy.ImportConnAsyncTimeout = <NewTimeout>
    $upsAppProxy.Update()
    ```

    b) Replace <*UPSAppProxyGUID*> with the GUID of the User Profile service application proxy and <*NewTimeout*> with the new time-out value in seconds. The default time-out is 1,000 seconds (approximately 17 minutes).

    c) Save the file as an ANSI-encoded text file whose extension is .ps1.

4. If you want to change the time-out value for calls into the Forefront Identity Manager Web service, do the following:

    a) Copy the following code and paste it into a text editor, such as Notepad:

    ```
    $upsApp = Get-SPServiceApplication <UPSAppGUID>
    $upsApp.FIMWebClientTimeOut = <NewTimeout>
    $upsApp.Update()
    ```

    b) Replace <*UPSAppGUID*> with the GUID of the User Profile service application and <*NewTimeout*> with the new time-out value in milliseconds. The default time-out is 300,000 milliseconds (5 minutes).

    c) Save the file as an ANSI-encoded text file whose extension is .ps1.

5. On the **Start** menu, click **All Programs**.
6. Click **Microsoft SharePoint 2010 Products**.
7. Click **SharePoint 2010 Management Shell**.
8. Change to the directory where you saved the file(s).
9. At the Windows PowerShell command prompt, type the following command to execute a script file:

./<*filename*>.ps1

Where <*filename*> is the name of the file to execute.

For more information, see Get-SPServiceApplicationProxy (*http://technet.microsoft.com/en-us/library/ff607727.aspx*) and Get-SPServiceApplication (*http://technet.microsoft.com/en-us/library/ff607714.aspx*).

Configure a profile synchronization connection in SharePoint Server 2010 (video)

Published: February 10, 2011

This video shows the process of creating a profile synchronization connection in Microsoft SharePoint Server 2010. It demonstrates creating a connection to Active Directory Domain Services (AD DS), creating a synchronization filter, and mapping profile properties. The video includes both importing profile properties and exporting profile properties.

Configuring profile synchronization connections in SharePoint Server 2010 Running time: 12:26	Watch the "Configuring a profile synchronization connection in SharePoint Server 2010" video *(http://go.microsoft.com/fwlink/?LinkId=210718)* For an optimal viewing experience, download the "Configuring a profile synchronization connection in SharePoint Server 2010" video. *(http://go.microsoft.com/fwlink/?LinkId=210717)* Right-click the link, and then click **Save Target As** to download a copy. Clicking the link will open a .wmv file in the default video viewer for full-resolution viewing.

Related resources

Resource	Description
Plan for profile synchronization (SharePoint Server 2010)	This article provides guidance to help you plan how to implement profile synchronization in SharePoint Server 2010.

Resource	Description
	Profile synchronization allows you to create user profiles by importing information from other systems that are used in your organization.
Configure profile synchronization (SharePoint Server 2010)	Configuring profile synchronization is a process that involves many steps. This article divides the process into shorter phases, both so that you can see progress and to reduce the number of steps through which you have to backtrack if you make an error. Depending on your organization's needs, you may not have to implement all of the phases.
SharePoint Products Tech Center (*http://technet.microsoft.com/en-us/sharepoint/default.aspx*)	Find details about related technologies, downloads, and additional resources.

Other Resources

Video demos and training for SharePoint Server 2010 (*http://technet.microsoft.com/en-us/library/cc262880.aspx*)

Configure a synchronization connection to a SQL Server database in SharePoint Server 2010 (video)

Published: June 16, 2011

This video shows how to perform profile synchronization (also known as "profile sync") with a business system in Microsoft SharePoint Server 2010. It demonstrates creating external content types from data in Microsoft SQL Server tables, creating synchronization connections, and mapping user profile properties.

 Running time: 9:48	Watch the "Configuring a profile synchronization connection to a SQL Server database in SharePoint Server 2010" video *(http://go.microsoft.com/fwlink/?LinkId=221193)* For an optimal viewing experience, download the "Configuring a profile synchronization connection to a SQL Server database in SharePoint Server 2010" video. *(http://go.microsoft.com/fwlink/?LinkId=221194)* Right-click the link, and then click **Save Target As** to download a copy. Clicking the link will open a .wmv file in the default video viewer for full-resolution viewing.

Related resources

Resource	Description
Plan for profile synchronization (SharePoint Server 2010)	This article provides guidance to help you plan how to implement profile synchronization in SharePoint Server 2010. Profile synchronization allows you to create

Resource	Description
	user profiles by importing information from other systems that are used in your organization.
Configure profile synchronization (SharePoint Server 2010)	Configuring profile synchronization is a process that involves many steps. This article divides the process into shorter phases, both so that you can see progress and to reduce the number of steps through which you have to backtrack if you make an error. Depending on your organization's needs, you may not have to implement all of the phases.
SharePoint Products Tech Center (http://technet.microsoft.com/en-us/sharepoint/default.aspx)	Find details about related technologies, downloads, and additional resources.

Other Resources

Video demos and training for SharePoint Server 2010 (*http://technet.microsoft.com/en-us/library/cc262880.aspx*)

III. Profile synchronization reference

In this section:

Default user profile properties (SharePoint Server 2010)

Published: April 28, 2011

This article lists the user profile properties that SharePoint Server 2010 provides by default.

The following table lists the default user profile properties.

Use profile property	Display name	User profile service data type
AboutMe	About me	HTML
AccountName	Account name	Person
ADGuid	Active Directory Id	binary
Assistant	Assistant	Person
CellPhone	Mobile phone	string (single-value)
Department	Department	string (single-value)
Fax	Fax	string (single-value)
FirstName	First name	string (single-value)
HomePhone	Home phone	string (single-value
LastName	Last name	string (single-value)
Manager	Manager	Person
Office	Office	string (single-value)
PersonalSpace	Personal site	URL
PictureURL	Picture	URL
PreferredName	Name	string (single-value)
PublicSiteRedirect	Public site redirect	URL
QuickLinks	Quick links	string (single-value)

Use profile property	Display name	User profile service data type
SID	SID	binary
SPS-Birthday	Birthday	date no year
SPS-ClaimID	Claim User Identifier	string (single-value)
SPS-ClaimProviderID	Claim Provider Identifier	string (single-value)
SPS-ClaimProviderType	Claim Provider Type	string (single-value)
SPS-DataSource	Data source	string (single-value)
SPS-DisplayOrder	Display Order	integer
SPS-DistinguishedName	Distinguished Name	string (single-value)
SPS-DontSuggestList	Don't Suggest List	Person
SPS-Dotted-line	Dotted-line Manager	Person
SPS-EmailOptin	Email Notifications	integer
SPS-HireDate	Hire date	date
SPS-Interests	Interests	string (multi-value)
SPS-JobTitle	Job Title	string (single-value)
SPS-LastColleagueAdded	Last Colleague Added	date
SPS-LastKeywordAdded	Last Keyword Added	date
SPS-Location	Office Location	string (single-value)
SPS-MemberOf	MemberOf	string (multi-value)
SPS-MySiteUpgrade	My Site Upgrade	boolean
SPS-ObjectExists	Object Exists	string (single-value)
SPS-OWAUrl	Outlook Web Access URL	URL
SPS-PastProjects	Past projects	string (multi-value)
SPS-Peers	Peers	string (single-value)
SPS-PhoneticDisplayName	Phonetic Display Name	string (single-value)
SPS-PhoneticFirstName	Phonetic First Name	string (single-value)

Use profile property	Display name	User profile service data type
SPS-PhoneticLastName	Phonetic Last Name	string (single-value)
SPS-ProxyAddresses	Proxy addresses	string (multi-value)
SPS-ResourceSID	Resource Forest SID	binary
SPS-Responsibility	Ask Me About	string (multi-value)
SPS-SavedAccountName	Saved Account Name	string (single-value)
SPS-SavedSID	Saved SID	binary
SPS-School	Schools	string (multi-value)
SPS-SipAddress	SIP Address	string (single-value)
SPS-Skills	Skills	string (multi-value)
SPS-SourceObjectDN	Source Object Distinguished Name	string (multi-value)
SPS-StatusNotes	Status Message	string (single-value)
SPS-TimeZone	Time Zone	time zone
Title	Title	string (single-value)
UserName	User name	string (single-value)
UserProfile_GUID	Id	unique identifier
WebSite	Web site	URL
WorkEmail	Work e-mail	E-mail
WorkPhone	Work phone	string (single-value)

Concepts

Plan for profile synchronization (SharePoint Server 2010)

Default user profile property mappings (SharePoint Server 2010)

Default user profile property mappings (SharePoint Server 2010)

Published: April 28, 2011

Some user profile properties are mapped automatically to their corresponding directory service attributes after you run a profile synchronization. This topic describes the user profile properties that are mapped by default.

In this topic:

- Default user profile property mappings for Active Directory Domain Services
- Default user profile property mappings for Novell eDirectory, Sun Java System Directory Server, or IBM Tivoli Directory Server

Default user profile property mappings for Active Directory Domain Services

The following table describes the user profile properties that are automatically mapped when you import user profiles from Active Directory Domain Services (AD DS).

User profile property	AD DS attribute
SPS-DistinguishedName	dn
SID	objectSid
Manager	manager
PreferredName	displayName
FirstName	givenName
LastName	sn
SPS-PhoneticDisplayName	msDS-PhoneticDisplayName
SPS-PhoneticFirstName	msDS-PhoneticFirstName
SPS-PhoneticLastName	msDS-PhoneticLastName
WorkPhone	telephoneNumber
WorkEmail	mail

User profile property	AD DS attribute
Office	physicalDeliveryOfficeName
SPS-JobTitle	title
Department	department
UserName	sAMAccountName
PublicSiteRedirect	wWWHomePage
SPS-ProxyAddresses	proxyAddresses
SPS-SourceObjectDN	msDS-SourceObjectDN
SPS-ClaimID	<specific to connection>
SPS-ClaimProviderID	<specific to connection>
SPS-ClaimProviderType	<specific to connection>

Default user profile property mappings for Novell eDirectory, Sun Java System Directory Server, or IBM Tivoli Directory Server

The following table describes the user profile properties that are mapped automatically when you import user profiles from Novell eDirectory, Sun Java System Directory Server, or IBM Tivoli Directory Server.

User profile property	Directory service attribute
SPS-DistinguishedName	dn
FirstName	givenName
LastName	sn
WorkPhone	telephoneNumber
WorkEmail	mail
Office	physicalDeliveryOfficeName
SPS-JobTitle	title
UserName	<specific to connection>

User profile property	Directory service attribute
SPS-ClaimID	<specific to connection>
SPS-ClaimProviderID	<specific to connection>
SPS-ClaimProviderType	<specific to connection>

Concepts

Plan for profile synchronization (SharePoint Server 2010)

Configure profile synchronization (SharePoint Server 2010)

Default user profile properties (SharePoint Server 2010)

Connection filter data types and operators (SharePoint Server 2010)

Published: June 3, 2011

When you synchronize profile information with a directory service in Microsoft SharePoint Server 2010, you can provide a filter that identifies the users or groups to exclude from synchronization. A filter consists of a set of clauses in the format *<attribute><operator><value>*, and the way to join the clauses. The data type of the attribute determines which operators are available. For more information about filters and how to create them, see Plan for profile synchronization (SharePoint Server 2010).

The following table identifies the operators that are available for each Active Directory Domain Services (AD DS) data type.

AD DS data type	Operators
Boolean	is present, is not present, true, false
Case insensitive string	is present, is not present, equals, does not equal, starts with, does not start with, ends with, does not end with, contains, does not contain
Distinguished name	is present, is not present, equals, does not equal, starts with, does not start with, ends with, does not end with, contains, does not contain
IA5-String	is present, is not present, equals, does not equal, starts with, does not start with, ends with, does not end with, contains, does not contain
Integer	is present, is not present, equals, does not equal, less than, less than or equal, greater than, greater than or equal, bit on equals, bit off equals
Large integer or interval	is present, is not present
Numerical string	is present, is not present, equals, does not

AD DS data type	Operators
	equal, starts with, does not start with, ends with, does not end with, contains, does not contain
Octet string	is present, is not present **Note:** The AD DS attribute **unicodePwd** is an octet string, but SharePoint Server treats it as a Unicode string for the purpose of profile synchronization.
SID	is present, is not present
Unicode string	is present, is not present, equals, does not equal, starts with, does not start with, ends with, does not end with, contains, does not contain
UTC coded time	is present, is not present, equals, does not equal, starts with, does not start with, ends with, does not end with, contains, does not contain

Note:

The bit on equals operator checks whether specific bits are turned on. For example, the clause "userAccountControl bit on equals 2" is true if the second bit of the **userAccountControl** attribute is a one. Similarly, the bit off equals operator checks whether specific bits are turned off (zero). The value that you provide for the bit comparison operators is the decimal equivalent of the bitmask you want to compare with. If, for example, you want to check the fifth bit (0000 0000 0001 0000), you would use the value 16.

Concepts

Plan for profile synchronization (SharePoint Server 2010)

User profile property data types (SharePoint Server 2010)

Published: June 3, 2011

When you map a SharePoint Server 2010 user profile property to an element in an external system, the property and the element must have compatible data types. This article identifies Active Directory Domain Services (AD DS) data types and the .NET data types that are compatible with the data types of SharePoint Server 2010 user profile properties.

In this article:

- AD DS data type compatibility
- .NET data type compatibility

AD DS data type compatibility

The following table lists the AD DS data types that are compatible with each user profile data type.

User profile service data type	AD DS data type
big integer	Large Integer, Integer
binary	Octet String, SID
boolean	Boolean
date	UTC Coded Time
date no year	UTC Coded Time
date time	UTC Coded Time
E-mail	Unicode String, IA5-String, Case Insensitive String
float	Unicode String
HTML	Unicode String, IA5-String, Case Insensitive String
integer	Integer

User profile service data type	AD DS data type
Person	Distinguished Name
string (multi-value)	Unicode String, IA5-String, Case Insensitive String
string (single-value)	Unicode String, IA5-String, Case Insensitive String
time zone	Integer
unique identifier	Octet String, SID
URL	Unicode String, IA5-String, Case Insensitive String

Note:

The AD DS attribute **unicodePwd** is an octet string, but SharePoint Server treats it as a Unicode string for the purpose of profile synchronization.

.NET data type compatibility

When you create an external content type in SharePoint Server 2010, you specify the .NET data type of each column of the external content type. If you map user profile properties to columns of an external content type by using a Business Data Connectivity connection, the data types must be compatible. The following table lists the user profile property data types that are compatible with each .NET data type.

.NET data type	User Profile service data type
System.Boolean	Boolean
System.String	String (Only multi-value string is supported)
System.DateTime	Date/DateTime
System.Int64	BigInteger
System.Int32	BigInteger/Integer
System.Int16	BigInteger/Integer

System.SByte	BigInteger/Integer
System.UInt64	BigInteger
System.UInt32	BigInteger/Integer
System.UInt16	BigInteger/Integer
System.Byte	BigInteger/Integer
System.Single	Float
System.Double	Float

Note:

You cannot use a business data connectivity connection to map a binary property to a property that implements the Stream accessor method.

Concepts

Default user profile properties (SharePoint Server 2010)

Plan for profile synchronization (SharePoint Server 2010)

Grant Active Directory Domain Services permissions for profile synchronization (SharePoint Server 2010)

Published: June 16, 2011

This article contains procedures that an Active Directory Domain Services (AD DS) administrator can use to configure the permissions that are required to synchronize profile information with Microsoft SharePoint Server 2010. The Plan account permissions section of the "Plan for profile synchronization" article describes which permissions are needed in which circumstances.

The procedures in this article use the phrase "synchronization account" for the account to which you grant permissions. The synchronization account is the account that SharePoint Server uses to connect to AD DS during profile synchronization.

In this article:

Grant Replicate Directory Changes permission on a domain

Use this procedure to grant Replicate Directory Changes permission on a domain to an account.

The Replicate Directory Changes permission enables the synchronization account to read AD DS objects and to discover AD DS objects that have been changed in the domain. The Grant Replicate Directory Changes permission does not enable an account to create, modify or delete AD DS objects.

To grant Replicate Directory Changes permission on a domain

1. On the domain controller, click **Start**, click **Administrative Tools**, and then click **Active Directory Users and Computers**.
2. In Active Directory Users and Computers, right-click the domain, and then click **Delegate Control**.
3. On the first page of the Delegation of Control Wizard, click **Next**.

4. On the Users or Groups page, click **Add**.
5. Type the name of the synchronization account, and then click **OK**.
6. Click **Next**.
7. On the Tasks to Delegate page, select **Create a custom task to delegate**, and then click **Next**.
8. On the Active Directory Object Type page, select **This folder, existing objects in this folder, and creation of new objects in this folder**, and then click **Next**.
9. On the Permissions page, in the **Permissions** box, select **Replicating Directory Changes** (select **Replicate Directory Changes** on Windows Server 2003), and then click **Next**.
10. Click **Finish**.

Add an account to the Pre-Windows 2000 Compatible Access group

Use this procedure to add an account to the Pre-Windows 2000 Compatible Access group.

To add an account to the Pre-Windows 2000 Compatible Access group

1. On the domain controller, click **Start**, click **Administrative Tools**, and then click **Active Directory Users and Computers**.
2. In Active Directory Users and Computers, expand the domain, expand **Builtin**, right-click **Pre-Windows 2000 Compatible Access**, and then click **Properties**.
3. In the **Properties** dialog box, click the **Members** tab, and then click **Add**.
4. Type the name of the synchronization account, and then click **OK**.
5. Click **OK**.

Grant Replicate Directory Changes permission on the cn=configuration container

Use this procedure to grant Replicate Directory Changes permission on the cn=configuration container to an account.

To grant Replicate Directory Changes permission on the cn=configuration container

1. On the domain controller, click **Start**, click **Run**, type **adsiedit.msc**, and then click **OK**.
2. If the **Configuration** node is not already present, do the following:
   a) In the navigation pane, click **ADSI Edit**.
   b) On the **Action** menu, click **Connect to**.

    c) In the **Connection Point** area of the **Connection Settings** dialog box, click **Select a well know Naming Context**, select **Configuration** from the drop-down list, and then click **OK**.

3. Expand the **Configuration** node, right-click the **CN=Configuration...** node, and then click **Properties**.
4. In the **Properties** dialog box, click the **Security** tab.
5. In the **Group or user names** section, click **Add**.
6. Type the name of the synchronization account, and then click **OK**.
7. In the **Group or user names** section, select the synchronization account.
8. In the **Permissions** section, select the **Allow** check box next to the **Replicating Directory Changes** (**Replicate Directory Changes** on Windows Server 2003) permission, and then click **OK.**

Grant Create Child Objects and Write permission

Use this procedure to grant Create Child Objects and Write permission to an account.

To grant Create Child Objects and Write permission

1. On the domain controller, click **Start**, click **Run**, type **adsiedit.msc**, and then click **OK**.
2. If the **Default naming context** node is not already present, do the following:
    a) In the navigation pane, click **ADSI Edit**.
    b) On the **Action** menu, click **Connect to**.
    c) In the **Connection Point** area of the **Connection Settings** dialog box, click **Select a well know Naming Context**, select **Default naming context** from the drop-down list, and then click **OK**.
3. In the navigation pane of the **ADSI Edit** window, expand the domain, expand the **DC=...** node, right-click the OU to which you want to grant permission, and then click **Properties**.
4. On the **Security** tab of the **Properties** dialog box, click **Advanced**.
5. In the **Advanced Security Settings** dialog box, select the row whose value in the **Name** column is the synchronization account and whose value in the **Inherited From** column is **<not inherited>**, and then click **Edit**. If this row is not present, click **Add**, click **Locations**, select **Entire Directory**, click **OK**, type the synchronization account, and then click **OK**. This adds the appropriate row, which you can now select.

Note:

Do not select the row for the synchronization account that is inherited from another location. Doing so would only enable you to apply the permissions to the OU and not to the contents of the OU.

6. In the **Permission Entry** dialog box, select **This object and all descendant objects** from the **Apply to** box, (select **This object and all child objects** on Windows Server 2003), select the **Allow** check box in the rows for the **Write all properties** and **Create all child objects** properties, and then click **OK**.
7. Click **OK** to close the **Advanced Security Settings** dialog box.
8. Click **OK** to close the **Properties** dialog box.
9. Repeat steps 3 through 8 to grant permissions on any additional OUs.

Concepts

Plan for profile synchronization (SharePoint Server 2010)

Configure profile synchronization (SharePoint Server 2010)