



# Test Lab Guide: Demonstrate profile synchronization in SharePoint Server 2013

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# Test Lab Guide: Demonstrate profile synchronization in SharePoint Server 2013

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June 2013

**Applies to:** SharePoint Server 2013

**Summary:** This paper contains a brief introduction to SharePoint Server 2013 Server and step-by-step instructions to create a test lab that contains the SharePoint Server synchronization tool and demonstrate how to set up the User Profile service application. This paper does not describe how to install and configure SharePoint Server in a pilot or production environment. For more information, see [Install and deploy SharePoint 2013](#).

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# Introduction

Microsoft SharePoint Server 2013 makes it easy for people to work together. SharePoint Server 2013 enables you and your employees to set up web sites to share information with others, manage documents from start to finish, and publish reports to help everyone make better decisions.

SharePoint Server 2013 has the following capabilities that are supported by the User Profile service application:

- **Search** User profiles enable you to search for and connect with people within your organization. User profile information is used by index and search services to provide better search results, and is used in targeting content to audiences.
- **Social computing** The User Profile service application stores information about users in a central location. Social computing features use this information to enable productive interactions so that users can collaborate efficiently. In order to provision My Sites, enable social computing features such as social tagging and newsfeeds, and create and distribute profiles across multiple sites and farms, you use the User Profile service application.

SharePoint Server 2013 supports three methods of profile synchronization:

- Using the SharePoint Server synchronization tool
- Active Directory import
- Using the Forefront Identity Manager connector for SharePoint identity

This TLG demonstrates the use of the SharePoint Server synchronization tool to synchronize profiles between SharePoint Server 2013 and a single Active Directory domain controller.

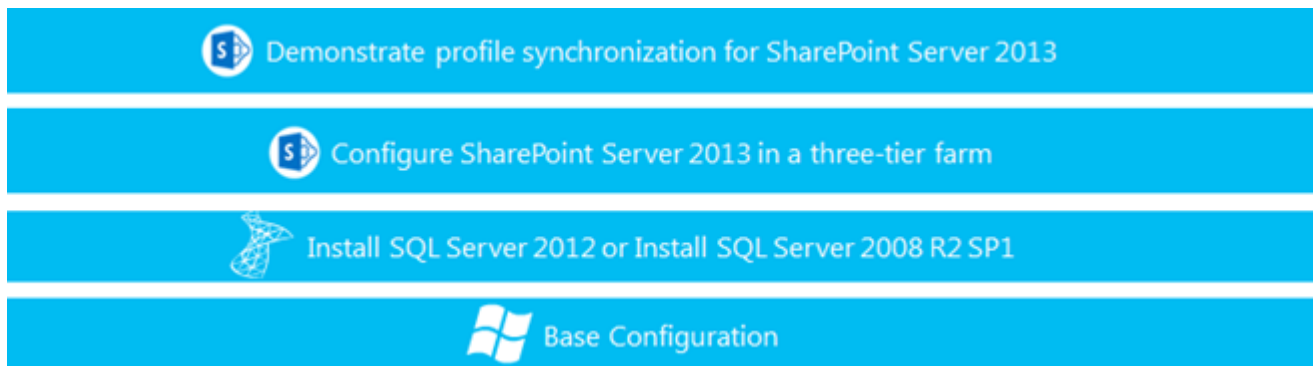
For more information about Microsoft SharePoint Server 2013, see the [SharePoint 2013 Product Information site](#) and [SharePoint 2013 for IT pros](#).

# Test Lab Guides

Microsoft Test Lab Guides (TLGs) are a set of documents that step you through the configuration and demonstration of a Microsoft technology or product in a standardized test lab environment, which starts with a common base configuration that mimics a simplified intranet and the Internet. TLGs are designed to be modular, extensible, and stackable to configure complex, multi-product solutions. TLGs make learning about products, technologies, and solutions easier by providing that crucial hands-on, "I built it out myself" experience.

For more information, see [Test Lab Guides](http://microsoft.com/testlabguides) at <http://microsoft.com/testlabguides>.

A TLG stack is a set of dependent TLGs that, when configured from the bottom of the stack, create a meaningful test lab configuration. This TLG is at the top of the following TLG stack:



**Figure 1:** TLG stack for the profile synchronization test lab

# In this guide

This paper contains instructions for setting up a test lab based on the following test lab guides:

- [Base Configuration test lab guide](#)
- [Install SQL Server 2012](#)
- [Configure a three-tier farm](#)

In addition, this paper contains instructions for configuring SharePoint Server 2013 using four server computers. The resulting test lab demonstrates using the SharePoint Server synchronization tool as described in [Manage user profile synchronization in SharePoint Server 2013](#).

## Important

The following instructions configure a profile synchronization test lab that uses the minimum number of computers. Individual computers are needed to separate the services that the network provides and to clearly show the desired functionality. This configuration is neither designed to reflect best practices nor does it reflect a desired or recommended configuration for a production network. The configuration, including IP addresses and all other configuration parameters, is designed only to work on a separate test lab network. Attempting to adapt this test lab configuration to a pilot or production deployment can result in configuration or functionality issues. For information about how to deploy SharePoint Server 2013 in a pilot or production environment, see [Install and deploy SharePoint 2013](#).

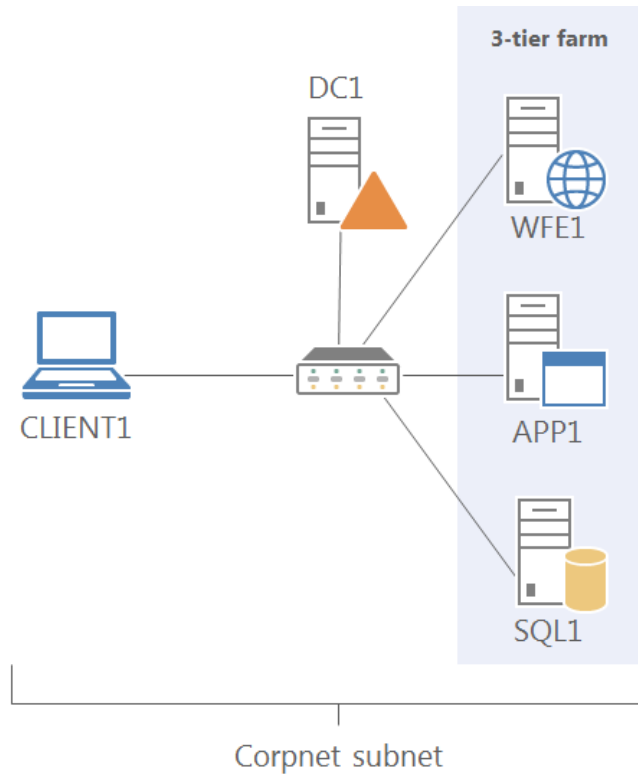
# Test lab overview

In this test lab, SharePoint Server 2013 User Profile synchronization functionality in a three-tier farm is demonstrated in a deployment that contains the following computers:

- One computer running Windows® Server® 2008 R2 Enterprise Edition named DC1 that is configured as an intranet domain controller, Domain Name System (DNS) server, DHCP server, and enterprise root certification authority (CA).
- One intranet member server running Windows Server 2008 R2 Enterprise Edition named SQL1 that is configured as a SQL Server database server.
- One intranet member server running Windows Server 2008 R2 Service Pack 1 Enterprise Edition named APP1 that is configured as the SharePoint Server 2013 application server.
- One intranet member server running Windows Server 2008 R2 Service Pack 1 Enterprise Edition named WFE1 that is configured as the SharePoint front-end web server.
- One member client computer, named CLIENT1, that runs Windows 7 Enterprise or Ultimate.

The SharePoint Server 2013 test lab consists of a single subnet named Corpnet (10.0.0.0/24) that simulates a private intranet. Computers on the Corpnet subnet connect by using a hub or switch.





**Figure 2:** Architecture of the Corpnet subnet for the profile synchronization test lab

## Hardware and software requirements

The following are required components of the profile synchronization test lab:

- The product disc or files for Windows Server 2008 R2 Service Pack 1
- The product disc or files for Microsoft SQL Server 2012 or Microsoft SQL Server 2008 R2 SP1
- The product disc or files for SharePoint Server 2013
- Four computers that meet the minimum hardware requirements for Windows Server 2008 R2 Enterprise Edition
- The product disc or files for Windows 7

# Profile synchronization test lab accounts and permissions

You must be logged on as a member of the Domain Admins group or a member of the Administrators group on each computer to complete the tasks in this guide. If you cannot complete a task while you are logged on with an account that is a member of the Administrators group, try to perform the task while you are logged on with an account that is a member of the Domain Admins group. The account that you use to complete these tasks should also be a member of the Farm Administrators group. Most tasks in this test lab guide use the CORP\User1 account.

## Steps to configure the profile synchronization test Lab

There are five steps to follow to set up the SharePoint Server 2013 profile synchronization test lab.

- **Step 1:** Set up the three-tier farm test lab
- **Step 2:** Create a managed metadata service application, My Site web application, and site collection and configure settings
- **Step 3:** Configure the User Profile service application
- 
- **Step 4:** Create a synchronization connection on APP1 to a directory service on DC1
- **Step 5:** Demonstrate user profile synchronization

## Step 1: Set up the three-tier farm test lab

Use the instructions in the [Test Lab Guide: Configure SharePoint Server 2013 in a Three-Tier Farm](#) to set up the SharePoint Server 2013 three-tier farm test lab. You can choose to install either SQL Server 2008 R2 SP1 or SQL Server 2012. The procedures in this test lab guide were written for SQL Server 2012.

## Step 2: Create a managed metadata service application, My Site web application, and site collection and configure settings

This step describes how to prepare the farm and configure required settings in the following sections:

- Provide Replicating Directory Changes permission to CORP\User1 on DC1
- Start the managed metadata service on APP1
- Create an instance of the managed metadata service application on APP1
- Create a My Sites web application on APP1
- Create a managed path for My Sites on APP1
- Create a My Site Host site collection on App1

### Provide Replicating Directory Changes permission to CORP\User1 on DC1

In this procedure, you will grant Replicating Directory Changes permission to CORP\User1.

▶ To provide Replicating Directory Changes permission to CORP\User1 on DC1:

1. Log on to DC1.corp.contoso.com as CORP\User1.
2. Click **Start**, click **Administrative Tools**, and then click **Active Directory Users and Computers**.
3. In **Active Directory Users and Computers**, right-click the **corp.contoso.com** domain, and then click **Delegate Control**.
4. On the first page of the **Delegation of Control Wizard**, click **Next**.
5. On the **Users or Groups** page, click **Add**.
6. In the **Enter the object names to select** box, type **User1**, and then click **OK**.

7. Click **Next**.
8. On the **Tasks to Delegate** page, select **Create a custom task to delegate**, and then click **Next**.
9. 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**.
10. On the **Permissions** page, in the **Permissions** box, select **Replicating Directory Changes**, and then click **Next**.
11. Click **Finish**.

## Start the managed metadata service on APP1

In this procedure, you start the managed metadata service on APP1.

▶ To start the managed metadata service on APP1:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **System Settings** section, click **Manage services on server**.
3. On the **Services on Server** page, in the **Server** list, make sure that **APP1.corp.contoso.com** is selected.
4. Find the row whose **Service** column value is **Managed Metadata Web Service**. If the value in the **Status** column is **Stopped**, click **Start** in the **Action** column.

## Create an instance of the managed metadata service application on APP1

In this procedure, you create a managed metadata service application on APP1.

▶ To create a managed metadata service application on APP1:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **Application Management** section, click **Manage service applications**.
3. In the **Create** group of the ribbon, click **New**, and then click **Managed Metadata Service**.

4. On the **Create New Managed Metadata Service** page, in the **Name** box, type **Managed Metadata service application**.
5. In the **Database Server** box, confirm that the database server is **SQL1**.
6. In the **Database Name** box, type **TLGTermStoreDB**.
7. In the **Application Pool** section, select **Create new application pool**, and then in the **Application pool name** box, type **ManagedMetadataAppPool**.
8. Select **Configurable**, and then select **CORP\user1**.
9. Click **OK**.

## Create a My Sites web application on APP1

In this procedure, you create a web application for My Sites on App1.

▶ To create a web application on APP1:

1. Log on to APP1.corp.contoso.com as CORP\user1.
2. On the SharePoint Central Administration web site, in the **Application Management** section, click **Manage web applications**.
3. In the **Contribute** group of the ribbon, click **New**.
4. On the **Create New Web Application** page, select **Create a new IIS web site**.
5. In the **Name** box, type **MySitesWebApp**.
6. In the **Port** box, type **33333**.
7. In the **Public URL** section, in the **URL** box, confirm that the URL is **http://APP1.corp.contoso.com:33333**.
8. In the **Application Pool** section, click **Create new application pool**, and then in the **Application pool name** box, type **MySitesAppPool – 33333**.
9. Click **Configurable**, and then select **CORP\User1**.
10. In the **Database Name and Authentication** section, in the **Database Name** box, type **MySitesWebAppDB**.
11. Click **OK**.

# Create a managed path for My Sites on APP1

In this procedure, you create a managed path on APP1.

▶ To create a managed path for My Sites on APP1:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **Application Management** section, click **Manage web applications**.
3. Click the **My Sites** web application.
4. In the **Manage** group of the ribbon, click **Managed Paths**.
5. On the **Define Managed Paths** page, in the **Add a New Path** section, in the **Path** box, type **/personal**.
6. Click **Check URL** to confirm the path name.
7. In the **Type** list, select **Wildcard** inclusion.
8. Click **Add Path**.
9. Click **OK**.

# Create a My Site Host site collection on APP1

In this procedure, you create a My Site Host site collection. The My Site Host site collection is a site collection that uses the Enterprise site template named My Site Host.

▶ To create a My Site Host site collection on APP1:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **Application Management** section, click **Create site collections**.
3. On the **Create site collections** page, in the **Web Application** section, make sure that **http://APP1.corp.contoso.com:33333/** is displayed for **Web Application**.
4. In the **Title and Description** section, in the **Title** box, type **MySitesSiteCollection**.
5. In the **Web Site Address** section, under **URL**, from the list, select **/personal/** and then in the box, type **my**.
6. In the **Template Selection** section, click the **Enterprise** tab, and then select **My Site Host**.

7. In the **Primary Site Collection Administrator** section, in the **User name** box, type **User1**, and then click the **Check Names** icon.
8. Click **OK**.

## Step 3: Configure the User Profile service application

In this step you will complete the following tasks:

- Start the User Profile service on APP1
- Create the User Profile service application on APP1
- Start the User Profile synchronization service on APP1

# Start the User Profile service on APP1

In this procedure, you start the User Profile service on APP1.

▶ To start the User Profile service on APP1:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **System Settings** section, click **Manage services on server**.
3. On the **Services on Server** page, in the **Server** list, make sure that **APP1.corp.contoso.com** is selected.
4. 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.

# Create the User Profile service application on APP1

In this procedure, you create the User Profile service application.

▶ To create the User Profile service application on APP1:


1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the SharePoint Central Administration web site, in the **Application Management** section, click **Manage service applications**.
3. On the **Manage Service Applications** page, click the **Service Applications** tab to enable the ribbon.
4. In the **Create** group of the ribbon, click **New**, and then click **User Profile Service Application**.
5. In the **Create New User Profile Service Application** dialog box, in the **Name** box, type **UserProfileServiceApp**.
6. In the **Application Pool** section, select **Create new application pool** and then in the **Application pool name** box, type **UserProfileAppPool**.
7. In the **Profile Database** section, in the **Database Server** box, make sure that **SQL1** is displayed. In the **Database Name** box, delete the default and type **TLGProfileDB**.




8. In the **Synchronization Database** section, in the **Database Server** box, make sure that **SQL1** is displayed. In the **Database Name** box, delete the default and type **TLGUPSyncDB**.
9. In the **Social Tagging Database** section, in the **Database Server** box, make sure that **SQL1** is displayed. In the **Database Name** box, delete the default and type **TLGTaggingDB**.
10. In the **Profile Synchronization Instance** section, select **APP1.corp.contoso.com**.
11. In the **My Site Host URL** section, type **http://APP1.corp.contoso.com:33333**.
12. In the **My Site Managed Path** section, type **/personal**.
13. In the **Site Naming Format** section, select **Domain and user name (will not have conflicts)**.
14. In the **Default Proxy Group** section, select **Yes**.
15. Click **Create**.

## Start the User Profile synchronization service on APP1

In this procedure, you start the User Profile synchronization service.

 **Important** Do not start the synchronization service before you start the User Profile service.

 To start the User Profile synchronization service on APP1:


1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the Central Administration web site, in the **System Settings** section, click **Manage services on server**.
3. On the **Services on Server** page, in the **Server** box, select **APP1.corp.contoso.com**.
4. Find the row whose **Service** column value is **User Profile Service**. Confirm that the value in the **Status** column is **Started**.

 **Important**

If the value is **Stopped**, do not proceed to the next step. Instead, click **Start** and wait until the service is **Started** before you proceed.

5. 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.
6. On the **User Profile Synchronization Service** page, in the **Select the User Profile Application** section, select **UserProfileServiceApp**.

7. In the **Service Account Name and Password** section, CORP\User1 is already selected. Enter the password for the CORP\User1 account in the **Password** box, and enter it again in the **Confirm Password** box.
8. Click **OK**.
9. After the synchronization service starts, click **Start**, right click **Command Prompt** and then click **Run as Administrator**.

 **Important** Do not reset IIS until the User Profile synchronization service is started. This can take a long time. The synchronization service is installing a version of Forefront Identity Manager (FIM) and provisioning data in the background. Interrupting this process could corrupt your environment and render it unstable or unusable.

10. At the command-line, type **iisreset** and then press **ENTER**.
11. When the "Internet services successfully restarted" message appears, close the **Administrator: Command Prompt** window.

## Step 4: Create a synchronization connection on APP1 to a directory service on DC1

In this step, you create a synchronization connection on APP1 to the directory service on DC1. The connection identifies the items to synchronize and contains the credentials that SharePoint Server uses to interact with the directory service.

 To create a synchronization connection to the directory service:

1. Log on to APP1.corp.contoso.com as CORP\User1.
2. On the Central Administration web site, in the **Application Management** section, click **Manage service applications**.
3. On the **Manage Service Applications** page, in the **Name** column, click **UserProfileServiceApp**.
4. On the **Manage Profile Service** page, in the **Synchronization** section, click **Configure Synchronization Connections**.
5. On the **Synchronizations Connections** page, click **Create New Connection**.

6. On the **Add new synchronization connection** page, type **ADConnection1** in the **Connection Name** box.
7. From the **Type** list, select **Active Directory**.
8. In the **Forest name** box, type **corp.contoso.com**.
9. In the **Authentication Provider Type** box, select **Windows Authentication**.
10. In the **Account name** box, type **CORP\User1**.
11. In the **Password** box, type the password for **CORP\User1**.
12. In the **Confirm Password** box, type the password again.
13. In the **Port** box, leave the default 389.
14. Do not select Use SSL-secured connection.
15. In the **Containers** section, click **Populate Containers**. When the containers appear, expand the **CORP** container and then select the **Users** container as shown in Figure 3.



**Figure 3:** Active Directory containers selected for synchronization

16. Click **OK**.

# Step 5: Demonstrate user profile synchronization

In this step you will complete the following tasks to demonstrate how profile synchronization works in SharePoint Server 2013:

- Perform full synchronization on APP1
- Verify that User1 appears in the profile database on SQL1
- Create User2 on DC1
- Confirm that User2 does not appear in People Picker
- Perform incremental synchronization on APP1
- Verify that User2 appears in the profile database on SQL1

## Perform full synchronization on APP1

12. This procedure synchronizes all objects in the Users container that you selected when you created the connection between the domain controller and SharePoint Server 2013 in “

Step 4: Create a synchronization connection on APP1 to a directory service on DC1”.

▶ To perform full profile synchronization on APP1:

1. On the Central Administration web site, in the **Application Management** section, click **Manage service applications**.
2. On the **Manage Service Applications** page, in the **Name** column, click **UserProfileServiceApp**.
3. On the **Manage Profile Service** page, in the **Synchronization** section, click **Start Profile Synchronization**.
4. On the **Start Profile Synchronization** page, click **Start Full Synchronization**.
5. Click **OK**.

# Verify that User1 appears in the profile database on SQL1

This procedure confirms that synchronization copied CORP\User1 from the domain controller to the profile database on SQL1.

## Important

This verification step is included in this Test Lab so that you can see the user entry inside the database and visualize how profile synchronization works. **Do not ever do this in a production SharePoint environment.**

▶ To verify that User1 appears in the profile database on SQL1:

1. Log on to SQL1 as CORP\User1.
2. Click **Start** and then click **SQL Server Management Studio**.
3. On the **Connect to Server** dialog box, in the **Server name** box, type **SQL1**, and then click **Connect**.
4. In **Object Explorer**, right-click **Databases**, and then click **New Query**.
5. In the **Query** window, type the following query:

```
USE [TLGProfileDB]
SELECT NTName, PreferredName, Email, [SID] FROM UserProfile_Full WITH (NOLOCK)
GO
```

6. Click **Execute**.
7. On the **Results** tab, in the **Name** column, confirm that **CORP\User1** appears in the list.

## Create User2 on DC1

This procedure adds a new user, CORP\User2, to the domain controller in the same container as CORP\User1.

▶ To add User2 on DC1:

1. Log on to DC1.corp.contoso.com as CORP\User1.
2. Click **Start**, then click **Active Directory Users and Computers**.

3. On the **Active Directory Users and Computers** window, expand **corp.contoso.com**, right-click the **Users** folder, click **New**, and then click **User**.
4. On the **New Object – User** dialog box, in the **Full name** box, type **User2**.
5. In the **User logon name** box, type **User2**.
6. Click **Next**.
7. In the **Password** box, enter a password for this user, confirm the password, and then click **Next**.
8. Click **Finish**.

## Confirm that User2 does not appear in People Picker

This procedure confirms that although the new user, CORP\User2, is in the domain, the user is not available in the SharePoint environment.

▶ To confirm CORP\User2 is not available through People Picker:

1. Log on to CLIENT1 as CORP\User1.
2. Start your browser and browse to <http://APP1.corp.contoso.com>.
3. On the **Contoso Corporation** page, click the settings icon (the cogged wheel) in the upper right corner of the page, and then click **Site settings**.
4. In **Users and Permissions**, click **Site permissions**.
5. Click the link for **Contoso Corporation Members**, and then click **New**.
6. In the **Share 'Contoso Corporation** box, type **use**.
7. Confirm that only User1 appears in the list.
8. Click **Cancel** and close the browser session.

# Perform incremental synchronization on APP1

Incremental synchronization only updates entries that have changed in SharePoint Server 2013 or in the external system, in this case the domain controller. For this test lab guide, the only change is the addition of User2 to the domain controller.

▶ To perform incremental profile synchronization on APP1:

1. On the Central Administration web site, in the **Application Management** section, click **Manage service applications**.
2. On the **Manage Service Applications** page, in the **Name** column, click **UserProfileServiceApp**.
3. On the **Manage Profile Service** page, in the **Synchronization** section, click **Start Profile Synchronization**.
4. On the **Start Profile Synchronization** page, click **Start Incremental Synchronization**.
5. Click **OK**.

## Verify that User2 appears in the profile database on SQL1

This procedure confirms that synchronization copied CORP\User2 from the domain controller to the profile database on SQL1.

### Important

This verification step is included in this Test Lab so that you can see the user entry inside the database and visualize how profile synchronization works. **Do not ever do this in a production SharePoint environment.**

▶ To verify that User2 appears in the profile database on SQL1:

1. Log on to SQL1 as CORP\User1.
2. Click **Start** and then click **SQL Server Management Studio**.
3. On the **Connect to Server** dialog box, in the **Server name** box, type **SQL1**, and then click **Connect**.

4. In **Object Explorer**, right-click **Databases**, and then click **New Query**.
5. In the **Query** window, type the following query:

```
USE [TLGProfileDB]
SELECT NTName, PreferredName, Email, [SID] FROM UserProfile_Full WITH (NOLOCK)
GO
```

6. Click **Execute**.
7. On the **Results** tab, in the **Name** column, confirm that **CORP\User2** appears in the list.

## Confirm that User2 appears in People Picker

This procedure confirms that the new user, CORP\User2, is available in the SharePoint environment.

▶ To confirm CORP\User2 is available through People Picker:

1. Log on to CLIENT1 as CORP\User1.
2. Start your browser and browse to <http://APP1.corp.contoso.com>.
3. On the **Contoso Corporation** page, click the settings icon (the cogged wheel) in the upper right corner of the page, and then click **Site settings**.
4. In **Users and Permissions**, click **Site permissions**.
5. Click the link for **Contoso Corporation Members**, and then click **New**.
6. In the **Share 'Contoso Corporation** box, type **use**.
7. Confirm that User1 and User2 appear in the list.
8. Click **Cancel** and close the browser session.

## Snapshot the Configuration

This completes the profile synchronization test lab. To save this configuration to use in subsequent tests and experimentation, do the following:

On all physical computers or virtual machines in the test lab, close all windows and then perform a graceful shutdown.

If your lab is based on virtual machines, save a snapshot of each virtual machine and name the snapshots **profile synchronization**. If your lab uses physical computers, create disk images to save the profile synchronization test lab configuration.



# Additional Resources

For more information about SharePoint Server 2013, see the [SharePoint 2013 product information web page](#) and [SharePoint 2013 for IT pros](#).

To provide the authors of this guide with feedback or suggestions for improvement, send an email message to [itspdocs@microsoft.com](mailto:itspdocs@microsoft.com).

To submit your questions about this test lab or SharePoint Server 2013, see the [SharePoint 2013 for IT Professionals Forum](#).

For a list of TLGs related to this test lab or extensions to demonstrate additional functionality, see [SharePoint Server 2013 Test Lab](#) in the TechNet Wiki.

Microsoft strongly encourages you to develop and publish your own TLG content for SharePoint Server 2013, either in the TechNet Wiki (example: [Test Lab Guide: Demonstrate Remote Access VPNs](#)) or in your own publishing forum (example: [Test Lab Guide \(Part 1\) - Demonstrate TMG PPTP, L2TP/IPsec and SSTP Remote Access VPN Server](#)). If you want to publish your TLG content in the TechNet wiki, see the [How to contribute series of TLG blog posts](#) for information about the types of content you can create and for links to templates and guidance.

For a list of additional Microsoft TLGs, see [Test Lab Guides](#) in the TechNet Wiki.