Deploy GetADobjects assembly

Open SQL Management Studio and connect to the SQL server you will use.

Note – if you are already using the AdchangeTracker [Active Directory change tracking - CodeProject](#) you will use the database you created for that.

Create a database:

```sql
CREATE DATABASE [AD_DW];

ALTER DATABASE [AD_DW] SET TRUSTWORTHY ON;

USE [AD_DW];
GO
```

Create (import) the assembly that is needed to query the Active Directory:

```sql
CREATE ASSEMBLY [System.DirectoryServices.AccountManagement] from
'C:\Windows\Microsoft.NET\Framework64\v4.0.30319\System.DirectoryServices.AccountManag
ement.dll' with permission_set = UNSAFE --Fails if not 64 on 64 bit machines
GO
```

Note – you will get three warnings – but thats expected:
Warning: The Microsoft .NET Framework assembly
'system.directoryservices.accountmanagement, version=4.0.0.0, culture=neutral,
publickeytoken=b77a5c561934e089, processorarchitecture=msil.' you are registering is not
fully tested in the SQL Server hosted environment and is not supported. In the future, if
you upgrade or service this assembly or the .NET Framework, your CLR integration routine
may stop working. Please refer SQL Server Books Online for more details.
Warning: The Microsoft .NET Framework assembly 'system.directoryservices.protocols,
version=4.0.0.0, culture=neutral, publickeytoken=b03f5f7f11d50a3a,
processorarchitecture=msil.' you are registering is not fully tested in the SQL Server
hosted environment and is not supported. In the future, if you upgrade or service this
assembly or the .NET Framework, your CLR integration routine may stop working. Please
refer SQL Server Books Online for more details.
Warning: The Microsoft .NET Framework assembly 'system.directoryservices,
version=4.0.0.0, culture=neutral, publickeytoken=b03f5f7f11d50a3a,
processorarchitecture=msil.' you are registering is not fully tested in the SQL Server
hosted environment and is not supported. In the future, if you upgrade or service this
assembly or the .NET Framework, your CLR integration routine may stop working. Please
refer SQL Server Books Online for more details.

Create the assembly and the two stored procedures that use the assembly:
Copy the GetADobjects.dll file to C:\Temp on your SQL server.

```sql
CREATE ASSEMBLY [GetADobjects] FROM 'C:\Temp\GetADobjects.dll' WITH PERMISSION_SET =
UNSAFE;
GO

CREATE PROCEDURE [dbo].[clr_GetADobjects]
        @ADpath [nvarchar](max),
        @ADfilter [nvarchar](max),
        @MemberList [xml] OUTPUT
WITH EXECUTE AS CALLER
AS EXTERNAL NAME [GetADobjects].[StoredProcedures].[clr_GetADobjects];
GO
CREATE PROCEDURE [dbo].[clr_GetADusersPhotos]
        @ADpath [nvarchar](max),
        @ADfilter [nvarchar](max)
WITH EXECUTE AS CALLER
```

```
AS EXTERNAL NAME [GetADobjects].[StoredProcedures].[clr_GetADusersPhotos]
GO
```

Test if it is working - get all users:

```
DECLARE @ADpath nvarchar(64) = 'LDAP://DC=contoso,DC=com';
DECLARE @ADfilter nvarchar(64) = '(&(objectCategory=person)(objectClass=user))';
DECLARE @Members XML;
EXEC clr_GetADobjects @ADpath, @ADfilter, @Members OUTPUT;
```

Note – the code that queries the Active Directory is running as the SQL service user. If that user is a domain user you should not have any problem because by default any domain user can query the AD. I have not tested this when the service user is the NT Authority\NETWORK SERCVICE account. See this: http://stackoverflow.com/questions/63749/what-user-account-would-you-recommend-running-the-sql-server-express-2008-servic

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Note:
Got this error following a Windows Update on the SQL server:
Date   28.2.2016 04:05:00
Log   Job History (Update AD_DW)

Step ID   1
Server   SANDMAN\DEVELOPMENT
Job Name   Update AD_DW
Step Name   Call usp_UpdateADall_tables
Duration   00:00:03
Sql Severity   16
Sql Message ID   0
Operator Emailed
Operator Net sent
Operator Paged
Retries Attempted   0

Message
Executed as user: VECA\sandman_development_. A .NET Framework error occurred during execution of user-defined routine or aggregate "clr_GetADobjects": System.IO.FileLoadException: Could not load file or assembly 'System.DirectoryServices, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b03f5f7f11d50a3a' or one of its dependencies. Assembly in host store has a different signature than assembly in GAC. (Exception from HRESULT: 0x80131050) See Microsoft Knowledge Base article 949080 for more information. System.IO.FileLoadException: at StoredProcedures.clr_GetADobjects(SqlString ADpath, SqlString ADfilter, SqlXml& MemberList) . [SQLSTATE 42000] (Error 6522) -- [SQLSTATE 01000] (Error 0) Get Users from AD INTO ADusers table. [SQLSTATE 01000] (Error 0) Error - Get Users - Operation aborted. [SQLSTATE 01000] (Error 0). The step failed.

Deleting the assemblies and SP's and reinstalling fixed this issue.

Use the follwing script to un-install the stored procedures and the assembly:

```
USE [AD_DW]
GO
DROP PROCEDURE [dbo].[clr_GetADobjects]
GO
DROP PROCEDURE [dbo].[clr_GetADusersPhotos]
GO
DROP ASSEMBLY [GetADobjects]
GO
```

Deploy UpdateAD_DataWarehouse

Run the **UpdateAD_DataWarehouse_Create(modified).sql** script.

And the **Create_SQL_Agent_job.sql** script – if using SQL Agent to update AD_DW. Remeber to modify where indicatred.

Use the UpdateAD_DW.ps1 Powershell script if not using SQL Agent (when SQL Express is used for example).