

## AMX Tutorial Sage 50 HR as an Identity Source

This tutorial uses Sage 50 HR to show AMX facilities for extracting identities from a MySQL database:

- Export Employees from Sage as a CSV file and use IdentityReport to read it.
- Export a Sage Report as a CSV file and use IdentityReport to read it.
- Create a new administrative account in the Sage MySQL database.
- Extract employees from the Sage MySQL database.
- Using the Employment Ended On date to determine employment status active / terminated

AMX runs on Windows and must be setup as shown in the AMX Tutorial Setup document. In this tutorial identityReport and identitySync are run from the Command Line using AMXRun which sets the environment variables.

### 1. Export Employees from Sage as a CSV file.

AMX, specifically identitySync uses an Authoritative Source of Identities to synchronise the accounts in a resource. In this tutorial Sage will be used as the identity source. This exercise will use Sage to provide a CSV file of identities.

In the Sage 50 HR menu, select File, Data Export to export employee data to a CSV file. Save as EmployeeExport.csv or similar in the Tutorial1 directory. 80 attributes are exported, useful attributes for identitySync or accountMatch are for example:

- Title
- Surname
- Forename 1
- Forename 2
- Initials
- Known As
- Works Number

- Employment Type
- Job Title
- Employment Telephone
- Employment Mobile
- Employment Email

Export the report as a CSV file. Notice that the export does potentially contain a lot of personally identifiable data, and if this information is present the export is not suitable for use outside of the HR department.

```
Title,Surname,Forename 1,Forename 2,Initials,Known As,Address 1,Address 2,Address 3,Address 4,Address
5,Address 6,Post Code,Personal Telephone,Personal Mobile,Personal Email,Approval given for release,Ethnic
Origin,Nationality,Other Surname,Marital Status,Sex,NI Number,Disabled,Disability Reg No,Date of
Birth,Expected to Retire,Car Reg No,Driving Licence,Driving Licence Date,Employment Started On,Employment
Ended On,Works Number,Employment Type,Job Title,Grade,On Hold,Employment Telephone,Employment
Mobile,Employment Email,Employment Email Password,Pay Frequency,Payment Method,Tax Code,Contracted
Hours,Contracted Hours Period,Salary,Bank Name,Bank Address 1,Bank Address 2,Bank Address 3,Bank Address
4,Bank Address 5,Bank Address 6,Bank Post Code,Bank Telephone,Bank Fax,Bank Email,Bank Account
Type,Building Society Roll Number,Bank Account Name,Bank Account Number,Bank Sort Code,Eligible To Work
In UK,Passport Number,Work Permit Number,Work Permit Date,Statement of Employment Required,Notice
Period,Notice Period Details,Period of Employment,Period of Employment Until,Temporary Periods,Temporary
Periods Type,Period of Employment Details,SSP Terms,SSP Terms Details,Holiday Year is Based on,Holiday
Entitlement is in,Normal Working Hours per Day,Notes
"Miss.,""McGarey","Fiona",,"F",,"8 Roker Park","South Shields","Tyne and Wear",,"",,"",,"NE33 4ST","0191
278
1188",,"","fmc@black.cats","N","Asian","British",,"","Single","Female","BA482468B","Y",,"12/08/1971",,"K707
PPP",,"",,"15/07/1997",,"1","Contractor","Analyst","D13","Active",,,,,,"Monthly","BACS","599P",37.0000,"Week"
,20000.0000,"Barclays Bank Limited","1 The Square","The Town","The County",,"",,"",,"AB1 2AZ",,"",,"",,"Bank
Account",,"","F. McGarey","12345678","10-10-10","N",,"",,"Y",,"",,"",,"0",,"",,"",,"Employee Start
Date","Days",7.00,

"Mr","McTernan","Andrew","Robert","AR",,"35 St. James Crescent","Westerhope","Newcastle upon
Tyne",,"",,"",,"NE5 3DR","0191 566
2352",,"",,"N",,"",,"",,"Single","Male","JE875764C","N",,"12/11/1976",,,,,,"01/02/1999",,"2","Full-
```

```
time","Senior Analyst","D14","Active",,,,,,"Weekly","BACS","461L",30.0000,"Week",18000.0000,"Midland  
Bank","333 Friar Avenue","Westerhope","Newcastle upon Tyne","","",,"NE5 7EQ","0191 184 4814","0191 184  
4815",,"Bank Account","","A.R. McTernan","00045560","62-07-75","N",,,,"Y",,,,"",,"0",,"",,"",,"Employee  
Start Date","Days",7.00,
```

The column attribute names can be used to create a schema, which is SageSchema1.txt.

Copy the CSV file to the Tutorials1 directory or change the CSVIdentityResource1 property to contain the full path to the CSV file.

Right click on AMX Run in the Start Programs menu or AMXRun.bat in the installation directory bin, and Run as Administrator.



```
C:\WINDOWS\system32\cmd.exe  
C:\Dev\AMX\bin>echo off  
C:\Dev\AMX\bin>cmd /k @cd /d "C:\Dev\AMX\bin\..\work"  
C:\Dev\AMX\work>_
```

### In the command prompt run identityReport

```
C:\AMX\Tutorial1>identityReport.exe SageHR1.properties
Begins Thu, 23 Jun 2016 19:16:14 GMT identityReport
CSVIdentity1 C:\AMX\Tutorial1\EmployeeReport.csv
Last updated 23/06/2016 19:11:06
Extracted 25 Identities
CSVIdentity Finished Thu, 23 Jun 2016 19:16:14 GMT
Total of 25 Identities

Finished Thu, 23 Jun 2016 19:16:15 GMT

C:\AMX\Tutorial1>
```

Review the report in IdentityReportSageHR1.csv. If IdentityReport can read the file so can IdentitySync.

## 2. Export a Sage Report as a CSV file.

Using the Sage Report Designer wizard, a custom report can be created that includes the job description and the manager details. This is not a Sage Report Designer tutorial, this is a simple example.

"EmployeeReport" - Sage Report Designer

File Edit View Toolbox Sections Data Format Tools Help

Open | Arial | A | 8 | B I U | vw\_employment\_n | FirstName | Insert

Open | Export | Print | Page Setup | Printer Offsets | Zoom In | Zoom Out | Goto Page 0

10 20 30 40 50 60 70 80 90 100 110 120 130

Page Header

DESCRIPTION

Report Header

Detail

FirstName	Surname
KnownAs	MiddleNames
EmploymentID	Description
Title	LeaveDate
Status	
FirstName	Surname
MiddleNames	

Page Footer

CreatedOn

Report Footer 2

Properties

Style	Details
Conditional Formatting	
Formatting	(-\$.1.1, dd/MM/yyyy, HH:mm:ss)
Text Style	(Arial, 8pt)
Sign	Signed
Print On First Copy Only.	False
Border	(Border style)
Expression	<b>vw_employment_reports_to.FirstName</b>
Auto Grow	False
Suppress Printing	False
Function	None
Word Wrap	True
<b>Behaviour</b>	
Locked	False
Display Named Values	Readable Value
Reset Section	Detail
Is Cumulative	Automatic
Evaluate Section	(None)
Visible	True
Drill Down	(None)
Suppress Duplicates Section	(None)
Apply Sign After Group	False
<b>CSV Options</b>	
Output Length	0
<b>Design</b>	
Name	
<b>Layout</b>	
<b>Name</b>	
The name that other expressions can use to refer to the value of this expression.	

Export the report as a CSV file, for example EmployeeReport.csv. Notice that the CSV has no headers.

```
"Fiona","McGarey",,,1,"Analyst","Miss.",,"Active","Ian","Chandler",  
"Andrew","McTernan",,"Robert",2,"Senior Analyst","Mr",,"Active","Fiona","McGarey",  
"Paul","Davison",,,3,"Sales Rep","Mr",,"Active","Derek","Bradley",  
"Judith","Hart",,,4,"Sales Manager","Mrs",,"Active","Tracey","Neilson","Ann"  
"Derek","Bradley",,,5,"Technician","Mr",,"Active","Vanessa","Jordan",  
"David","Fairhurst",,,6,"Sales Rep","Mr","25/06/2007","Leaver","Tracey","Neilson","Ann"  
"Tracey","Neilson",,"Ann",7,"Sales Manager","Mrs",,"Active",,,  
"Vanessa","Jordan",,,8,"Marketing Manager","Miss.",,"Active",,,  
"John","Bampton",,,9,"Analyst","Mr",,"Active",,,
```

The sequence in the CSV is as designed in the report. The columns are:

```
firstname, lastName, knownAs, middleName, EmployeeID, job, title, leaveDate, active, managerFirstName,  
managerLastName, managerMiddleName.
```

The column attribute names can be used to create a schema, which is SageSchema2.txt. Alter the schema to suite any differences you have made to the report. Notice the staging attribute names are the column numbers starting at 0.

Copy or move the report file to the Tutorials1 directory or change the CSVIdentityReource1 property to contain the full path to the CSV file.

In the command prompt run identityReport

```
C:\AMX\Tutorial1>identityReport.exe SageHR2.properties  
Begins Thu, 23 Jun 2016 19:16:14 GMT identityReport  
CSVIdentity1 C:\AMX\Tutorial\EmployeeReport.csv  
Last updated 23/06/2016 19:11:06  
Extracted 25 Identities  
CSVIdentity Finished Thu, 23 Jun 2016 19:16:14 GMT  
Total of 25 Identities
```

Finished Thu, 23 Jun 2016 19:16:15 GMT

C:\AMX\Tutorial1>

Review the report in IdentityReportSageHR2.csv.

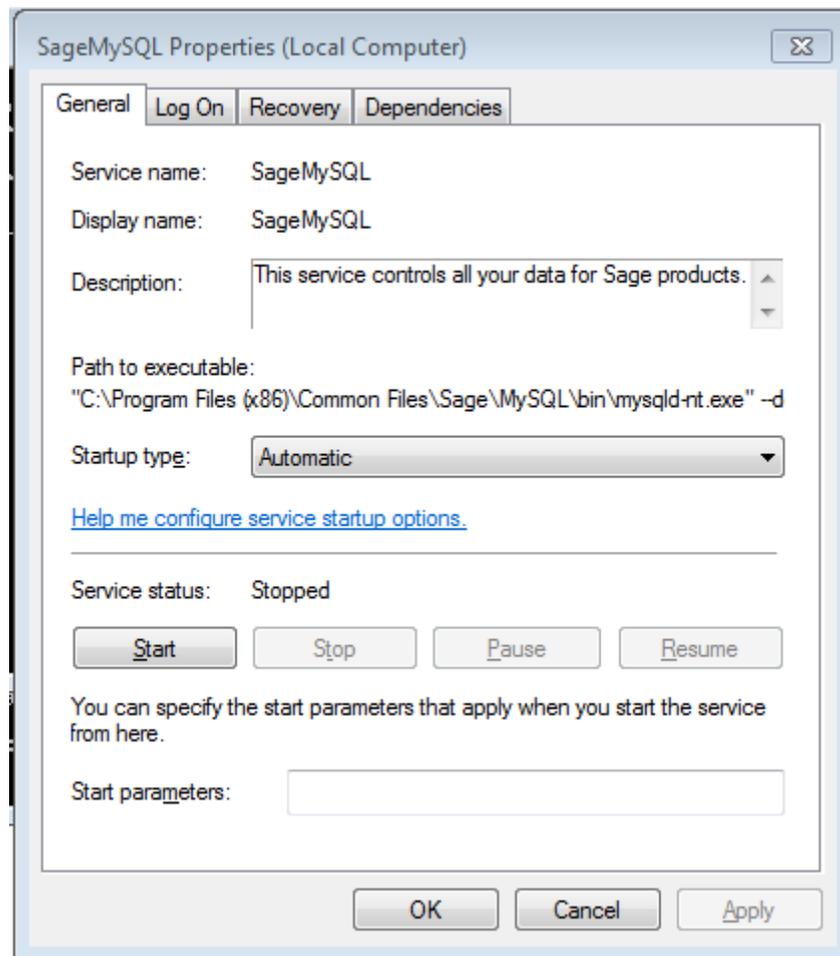
### 3. Create a new administrative account on MySQL

It will be necessary to create a database account for AMX with the appropriate read privileges. The Sage install changes the default database password for root. You may need the help of the MySQL Database administrator.

Restart the database with the start-up parameter `--skip-grant-tables` as described in

<http://dev.mysql.com/doc/refman/5.7/en/resetting-permissions.html>

Step1 stop the database service SageMySQL this also stops Sage 50 HR Service and while this is stopped no-one can use Sage HR.



Step 2 Open a command prompt cd to the Sage directory and restart the database with the skip-grant-tables option. Control is not returned while the database is running.

```
C:\Program Files (x86)\Common Files\Sage\MySQL\bin>mysqld-nt.exe --defaults-file  
="C:\Program Files (x86)\Common Files\Sage\MySQL\my.ini" --skip-grant-tables
```

### Step 3 Open another command prompt and login without a password.

```
C:\Program Files (x86)\Common Files\Sage\MySQL\bin>mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1
Server version: 5.0.40-enterprise-nt MySQL Enterprise Server (Commercial)
```

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

```
mysql> flush privileges;
Query OK, 0 rows affected (0.01 sec)
```

```
mysql>
```

### Step 4 create an administrative account, grant access to at least the tables Person, Employment, JobTitleLookup. To avoid having to do this procedure again, an account with full access.

```
mysql> create user 'admin'@'%' identified by 'secret';
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> grant all privileges on *.* to 'admin'@'%' with grant option;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> create user 'philn'@'%' identified by 'secret';
Query OK, 0 rows affected (0.06 sec)
```

```
mysql> Grant select on hr_company_0001.Person to 'philn'@'amx';
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> Grant select on hr_company_0001.Employment to 'philn'@'amx';
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> Grant select on hr_company_0001.JobTitleLookup to 'philn'@'amx';
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> exit  
Bye
```

```
C:\Program Files (x86)\Common Files\Sage\MySQL\bin>
```

Step 5 Close the CMD windows to stop the database. Restart the service and the Sage 50 HR Service.

#### 4. Test Connection

Use DbVisualiser or similar tool to test the connection. Notice the port is 4197 rather than the default 3306



AMX8 Sage

- hr\_company\_0001 (Default)
  - LOCAL TEMPORARY
  - SYSTEM TABLE
  - SYSTEM VIEW
  - TABLE
    - absence
    - absenceevent
    - absenceprofile
    - absencereason
    - address
    - appraisal
    - appraisalappraisalfactor
    - appraisalconductedby
    - appraisalevent
    - appraisalfactor
    - appraisalreview
    - appraisaltemplate
    - appraisaltemplateappraisalfactor
    - backgroundcheck
    - backgroundcheckauthority
    - backgroundcheckevent
    - bank
    - bankaccount
    - companyholiday
    - companypensionscheme
    - contactdetails
    - defaultabsenceevent
    - defaultappraisalevent
    - defaultbackgroundcheckevent

### Database Connection: AMX8 Sage

jdbc:mysql://amx8.corp.example.com:4197/hr\_company\_0001

#### Connection

##### Settings Format

Name	AMX8 Sage
Database Type	MySQL
Driver (JDBC)	MySQL
Database Server	amx8.corp.example.com
Database Port	4197
Database	hr_company_0001

##### Authentication

Database Userid	admin
Database Password	••••••••

##### Options

Auto Commit	<input checked="" type="checkbox"/>
Save Database Password	Save Between Sessions
Permission Mode	Development
Buffer All Rows for a Result	<input checked="" type="checkbox"/>

Reconnect Disconnect Ping Server

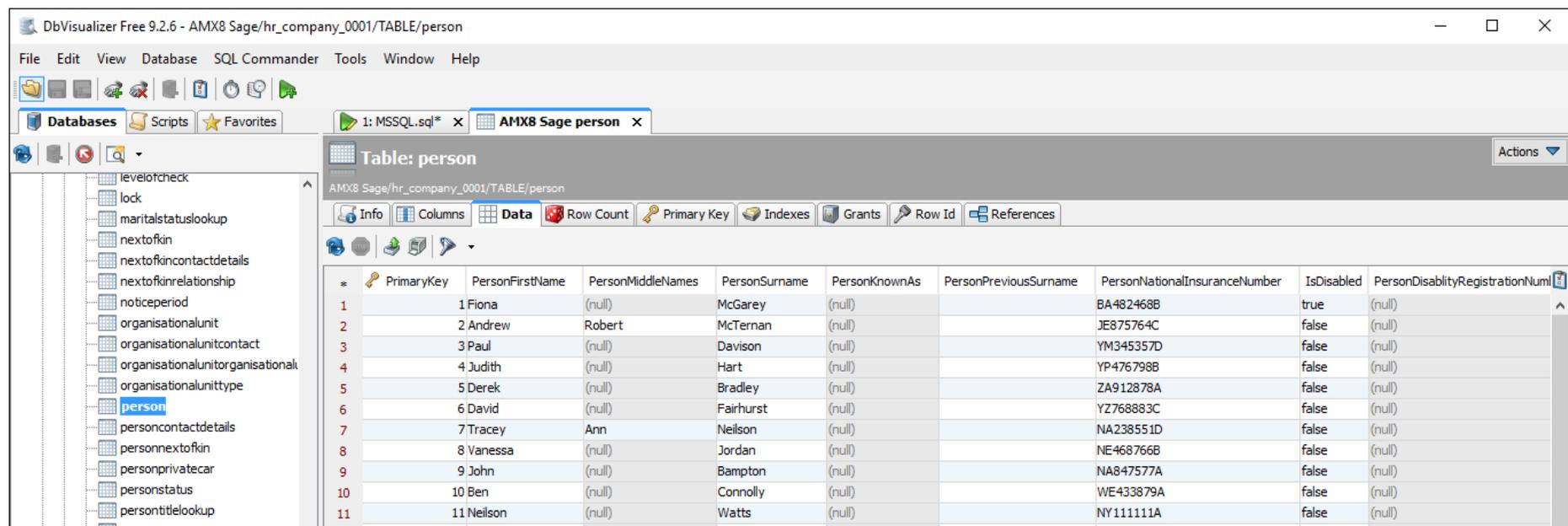
#### Connection Message

```
MySQL
5.0.40-enterprise-nt
MySQL Connector Java
mysql-connector-java-5.1.33 ( Revision: alexander.sokolov@oracle.com-20140908134200-8ukofe1izi0r2b63 )
```

Errors such as “Unable to connect to any of the specified MySQL hosts”, are typically caused by the wrong port or a firewall blocking access on the SageHR server. If dbVisualizer can connect AMX will be able to as well.

## 5. Review Views and Tables

Every HRMS system is different, AMX need the name of the view or table holding the employee details. In this case the table Person has been used as a richer source of information than the view. Tables Employment and JobTitleLookup were found to have the complete set.



The screenshot shows the DbVisualizer interface with the 'person' table selected. The table structure and data are as follows:

PrimaryKey	PersonFirstName	PersonMiddleNames	PersonSurname	PersonKnownAs	PersonPreviousSurname	PersonNationalInsuranceNumber	IsDisabled	PersonDisabilityRegistrationNum
1	Fiona	(null)	McGarey	(null)		BA482468B	true	(null)
2	Andrew	Robert	McTernan	(null)		JE875764C	false	(null)
3	Paul	(null)	Davison	(null)		YM345357D	false	(null)
4	Judith	(null)	Hart	(null)		YP476798B	false	(null)
5	Derek	(null)	Bradley	(null)		ZA912878A	false	(null)
6	David	(null)	Fairhurst	(null)		YZ768883C	false	(null)
7	Tracey	Ann	Neilson	(null)		NA238551D	false	(null)
8	Vanessa	(null)	Jordan	(null)		NE468766B	false	(null)
9	John	(null)	Bampton	(null)		NA847577A	false	(null)
10	Ben	(null)	Connolly	(null)		WE433879A	false	(null)
11	Neilson	(null)	Watts	(null)		NY111111A	false	(null)

## 6. Extract the Employees from MySQL

A select such as

```
select  
AddressID, e.ReportsToID, p.PrimaryKey, PersonKnownAs, j.JobTitleLookupDescription, PersonFirstName, PersonMidd
```

leNames, PersonInitials, PersonSurname, e.EmploymentLeaveDate from Person as p left join Employment as e on p.PrimaryKey = e.PersonID left join JobTitleLookup as j on e.JobTitleLookupID = j.PrimaryKey

returns the person's names, manager and job.

The screenshot shows the DbVisualizer Free 9.2.6 interface. The main window displays a SQL query in the editor:

```

1 select AddressID,e.ReportsToID,p.PrimaryKey,PersonKnownAs,j.JobTitleLookupDescription,PersonFirstName,PersonMiddleNames,PersonInitials,PersonSurname,e.Em
2

```

The results are displayed in a table with the following columns and data:

*	AddressID	ReportsToID	PrimaryKey	PersonKnownAs	JobTitleLookupDescription	PersonFirstName	PersonMiddleNames	PersonInitials	PersonSurname	EmploymentLeaveDate
1	2	25	1	(null)	Analyst	Fiona	(null)	F	McGarey	(null)
2	5	1	2	(null)	Senior Analyst	Andrew	Robert	AR	McTernan	(null)
3	8	5	3	(null)	Sales Rep	Paul	(null)	P	Davison	(null)
4	10	7	4	(null)	Sales Manager	Judith	(null)	J	Hart	(null)
5	12	8	5	(null)	Technician	Derek	(null)	D	Bradley	(null)
6	15	7	6	(null)	Sales Rep	David	(null)	D	Fairhurst	2007-06-25 00:00:00
7	17	(null)	7	(null)	Sales Manager	Tracey	Ann	TA	Neilson	(null)

Duplicating this with Identity Resource. Review the Sage3.properties file.

Change the system name in the Resource property

1. Change the administrator in the User property and create a file MySQLPasswd1.txt and add the password to the first line. The password will be encrypted when identitySync or identityReport first runs.

Note the SelectFrom property has the tables and joins from the select statement used in dbVisualizer. If you want to add additional information from other tables add the attribute to the schema SageSchema3.txt and add the table to the SelectFrom property with a suitable join. The most efficient way is to develop the select statement in a tool like dbVisualizer first.

In the command prompt run IdentityReport

```
C:\AMX\Tutorial1>identityReport.exe SageHR3.properties
Begins Thu, 23 Jun 2016 19:45:27 GMT identityReport
DatabaseIdentity1 SageHR
Extracted 25 Identities
DatabaseIdentity Finished Thu, 23 Jun 2016 19:45:28 GMT
Total of 25 Identities
```

```
Finished Thu, 23 Jun 2016 19:45:28 GMT
```

```
C:\AMX\Tutorial1>
```

The extract will be in the file IdentityReportSageHR3.csv

### [Using the end\\_date to determine employment status active / terminated](#)

The leaving date or ending date is the employee's last day at work. Normally access to email and applications continues until the end of the last day.



- Personal
- Employment**
- Terms
- Payroll
- Working Patterns
- Bank Details
- Eligibility
- Emergency Contacts
- Documents
- Notes
- Events
- Picture

Employment

Started On \* 9/9/1996

Current Status Active

Ended On 6/26/2016

On Hold

Works Number 7

**Organisational Units**

Type Part Time

Type	Unit	Ref
Cost Centre	Newcastle	
Department	Sales	

Job Title Sales Manager

Grade C11

Show Tree

Reports To

Telephone

Executive

Mobile

Security Group Default

Email

Email password

Close

AMX processes the leave date to determine the active attribute. Using the leave date as extracted from the Sage HR system will cause the active attribute to have the value Inactive on the last day.

## 7. Using the Employment Ended On date

### 7.1 Raw Leaving Date

Open SageSchema3.txt with a text editor. The raw leaving date will be reported by the active attribute is:

```
e.EmploymentLeaveDate, active
```

Run the IdentityReport SageHR3.properties, and review the report IdentityReportSageHR3.csv. The active attribute value is the leaving date. Find a leaver and notice it is in the format 24/06/2016 00:00:00

### 7.2 Leaving date and Time

Edit the SageSchema3.txt file and truncate the leave date to remove the time.

```
e.EmploymentLeaveDate, active; truncate10
```

Run the IdentityReport SageHR3.properties, and review the report IdentityReportSageHR3.csv. The active attribute value is the leaving date. Notice it is now the format 24/06/2016

identitySync will disable an account if the end date is in the future. This will disable a person's accounts on their leaving date which is unsuitable, so the end date can be transformed to include a time. Edit the SageSchema3.txt file and truncate the leave date and then add a suitable time to disable the account. The replace is a regular expression which will match a 10 character string and replace it with the string and an append of 17:30:00. Blank values remain blank.

```
e.EmploymentLeaveDate, active; truncate10; replace/(\S{10})/$1 17:30:00/
```

Run the IdentityReport SageHR3.properties, and review the report IdentityReportSageHR3.csv. The active attribute value is the leaving date. Notice it is now the format 24/06/2016 17:30:00 and no other blank dates have the time added.

### 7.3 The endDate attribute flag

Edit the schema SageSchema3.txt file and truncate the leave date and then add a suitable time to disable the account and flag it as an endDate. The endDate flag will evaluate the current time, if it is later than the leaving date and time the value will be active=N.

```
e.EmploymentLeaveDate,active;truncate10;replace/(\S{10})/$1 17:30:00;/enddate
```

Run the IdentityReport SageHR3.properties, and review the report IdentityReportSageHR3.csv. The active attribute value is Y or N for any identity with a leaving date.

Edit the SageSchema3.txt file and add a lookup. The lookup will replace a blank value with Y

```
e.EmploymentLeaveDate,active;truncate10;replace/(\S{10})/$1 17:30:00;/enddate;lookup=Active.txt
```

Run the IdentityReport SageHR3.properties, and review the report IdentityReportSageHR3.csv. The active attribute value is Y or N for every identity and will remain active until 17:30 on the last day.