Isode

Synchronising Directories

Synchronising data between two LDAP Directories using Isode's Sodium Sync. Includes advanced sync configuration options and "cached scan" syncs for situations where access to the target directory is not available and syncs need to be generated for indirect transfer

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Introduction

The purpose of this guide is to introduce Isode's directory synchronization product, Sodium Sync, to users who are unfamiliar with that product but who have some familiarity with directory concepts and with Isode's M-Vault directory product.

***Use of TLS**: Due to UK Export Controls we are unable to provide Evaluation Licenses to certain Geographic regions that would allow the use of TLS so this guide will not configure any TLS. Should you wish to use TLS please contact your Account Manager and if you are located in an approved region we can provide a license (MAC Address of Server required) and additional instructions for configuring TLS.*

Objectives

During this evaluation you will:

- Run a simple manual sync, that changes one attribute in a single record, between two M-Vault DSAs, both of which Sodium Sync is able to bind to.
- Briefly explore Advanced Synchronization options.
- Learn how to configure syncs so that they generate warnings should defined conditions be met (in this case where more than 10% of the target data would be changed by application of the sync).
- Learn how to run a Cached Scan sync for situations where access to the target directory is not available and an LDIF file of changes is to be generated for indirect transfer (file transfer by email (FTBE), air-gap sync etc).

Using Isode Support

You will be given access to Isode support resources when carrying out your evaluation. Any queries you have during your evaluation should be sent to *support@isode.com*. Please note that access to the Self-Service Portal for web-based ticket submission and tracking is not available to evaluators.

Preparation

You should visit *www.isode.com/products/supported-platforms.html* to discover which operating systems are supported for Isode evaluations. Please note that in addition to the server platforms listed, we support the use of Isode servers on Windows 8, Windows 8.1 and Windows 10 for simple evaluations and demonstrations.

This guide does not cover initial M-Vault setup activities. Before running this guide you should have gained experience with M-Vault and the Sodium management GUI either by following the main M-Vault Evaluation Guide or as a result of your own operational experience with M-Vault.

To follow this guide, you will need access to two DSAs. The screenshots and examples within the guide have been generated from two DSAs running on a single machine. The Source DSA is the '*Headquarters.net*' directory created during the M-Vault Evaluation Guide. The Target DSA is a modified repeat of that guide, creating a target directory, *'Field.net'*, which is populated with the same data.

Isode Products

Product downloads are held in a password-protected section of the Isode website. If you have not already done so you should apply for a username/password by filling in the form located at *www.isode.com/evaluate/evalrequest.html*.

Products can be obtained by clicking on the links in the “Download Links” section of the Evaluation page (*www.isode.com/evaluate/evaluate-directory.html*). The downloads page will give installation instructions specific to your platform.

Product Activation Key

Isode server products require a valid Product Activation Key from Isode before they will run correctly. Keys are issued by Isode Customer Services. If you haven't already been sent a Key when requesting access to the evaluation files, please send a message to request one to *support@isode.com* remembering to specify which Isode server products you need a Key for.

By default, the file you receive needs to be placed in *\Isode\etc* (Windows) or */etc/isode/* (Linux), renamed as 'license.dat'. You may have chosen an alternative installation directory when installing the software, in which case you will have to place the license file there.

Sodium Sync Overview

Sodium Sync provides a mechanism to copy a set of data from a source Directory Server to a target Directory Server, and to ensure that the target remains up to date by performing regular updates to take account of any subsequent changes in the source Directory Server.

Synchronization occurs in one direction only: whilst changes, additions and deletions made to data held on the source Directory Server will be copied to the target, any local changes made to data in the target Directory Server will not be copied back to the source, and will normally be lost when the next synchronization operation takes place.

In particular Sodium Sync is designed to be able to handle synchronization from non-Isode DSAs (for example Active Directory) to Isode's M-Vault. Sodium Sync has a number of features to make it easier to deal with translation between directories which are not completely compatible with one another.

When configuring the synchronization operation, Sodium requires that you specify:

- the base of a subtree in the source Directory from which entries will be copied.
- the location of the entry in the target Directory that will form the base of the copied subtree; any existing entries under this base entry on the target will be deleted.

Sodium Sync will automatically rename entries if the source and target base DNs are different, and it is possible to synchronize between two separate subtrees on the same Directory.

Running a Simple Sync (M-Vault to M-Vault)

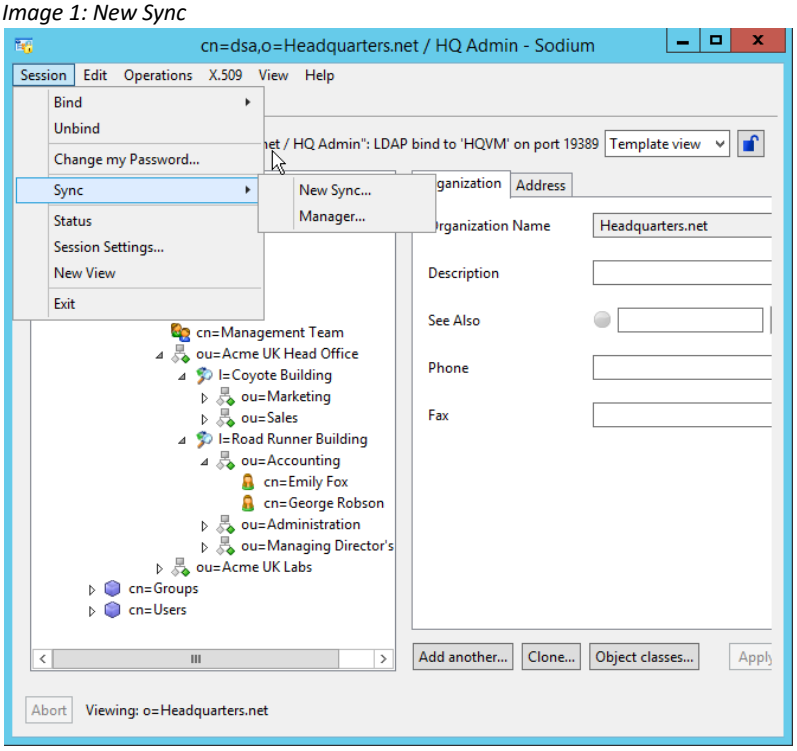
If you followed the M-Vault Evaluation guide you would have loaded a sample LDIF (LDAP Data Interchange Format) file, you will need to do this on both the headquarters.net server and field.net server before continuing with this guide.

In this example we will configure a simple synchronization between two M-Vault directories (Headquarters.net and Field.net) using Sodium Sync.

You can also configure a synchronization between M-Vault and Active Directory by following these steps and selecting the "Sync Active Directory to M-Vault" option.

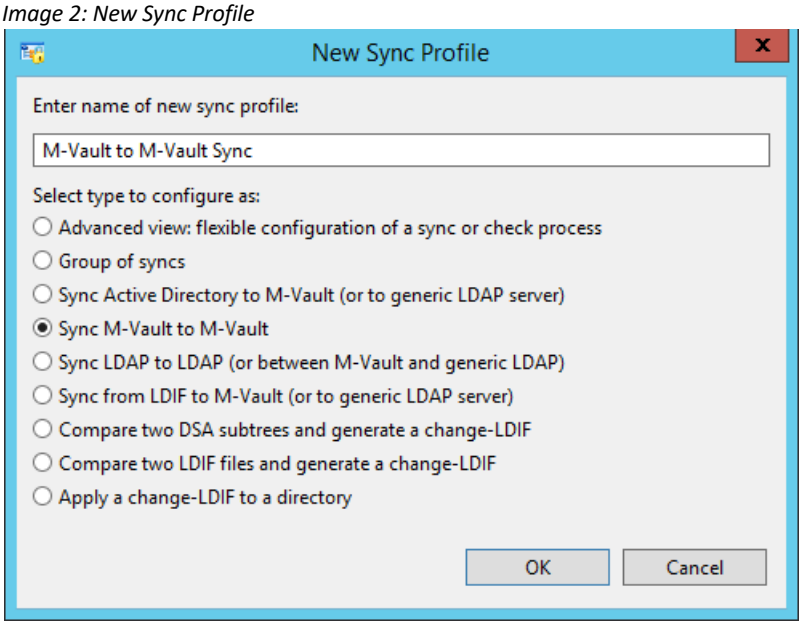
Sodium Sync is an option within the main Sodium management GUI (which you will have used previously with M-Vault). Synchronizations are configured and controlled from within the Sync Profile Manager, accessed by selecting "Session > Sync > New Sync" from with Sodium:

Image 1: New Sync



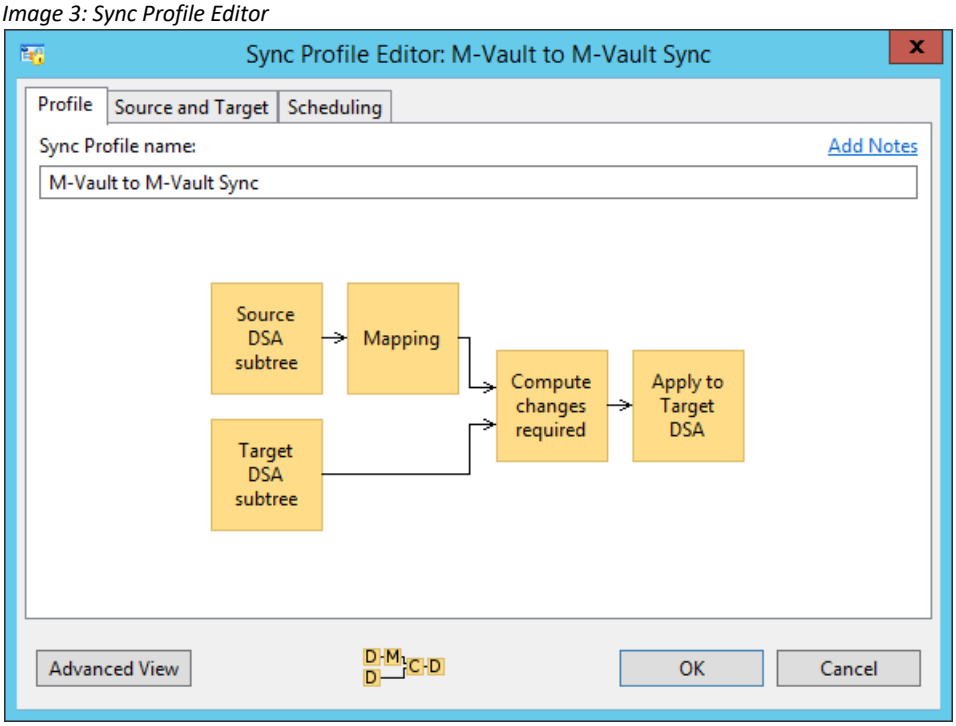
A New Sync Profile screen will pop up to prompt you to create a new Sync, select the "Sync M-Vault to M-Vault" radio button and give your profile a name. Then click [**OK**] to proceed.

Image 2: New Sync Profile



The "Sync Profile Editor" is displayed, the flow diagram shown in the editor illustrates the flow of data during the synchronization process: in this case, source DSA subtree entries are read, then mapped, and glue entries added if required. This is then compared to the target DSA subtree to find what changes need to be made, which are finally applied to the target DSA.

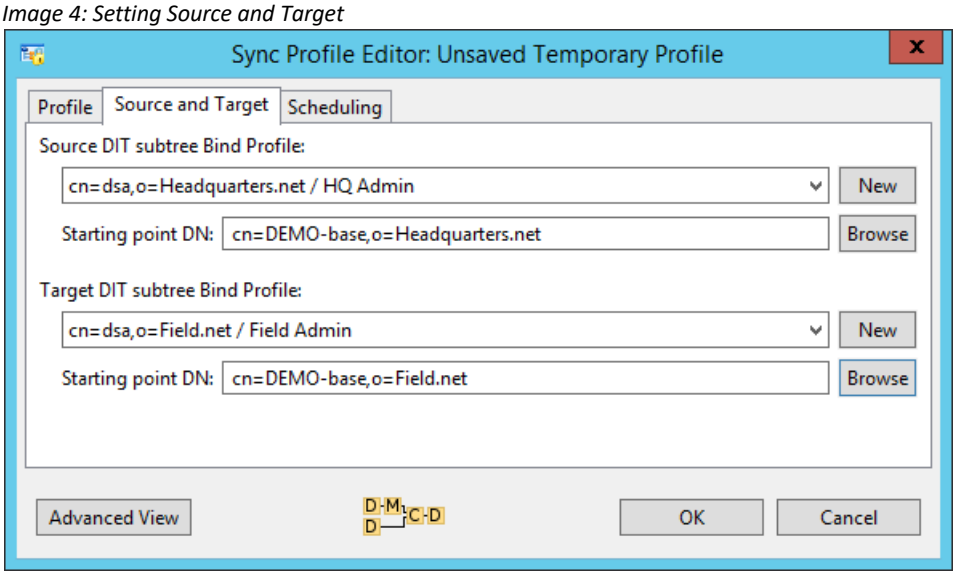
Image 3: Sync Profile Editor



Setting Source and Target

Click on the "Source and Target" tab. If Sodium is already bound to both directories, simply select Source and Target using the drop-downs. If not, you can Bind to the relevant directories by clicking the [**New**] button next to each drop-down. Then select a starting point below which entries will be read (source) and applied (target).

Image 4: Setting Source and Target



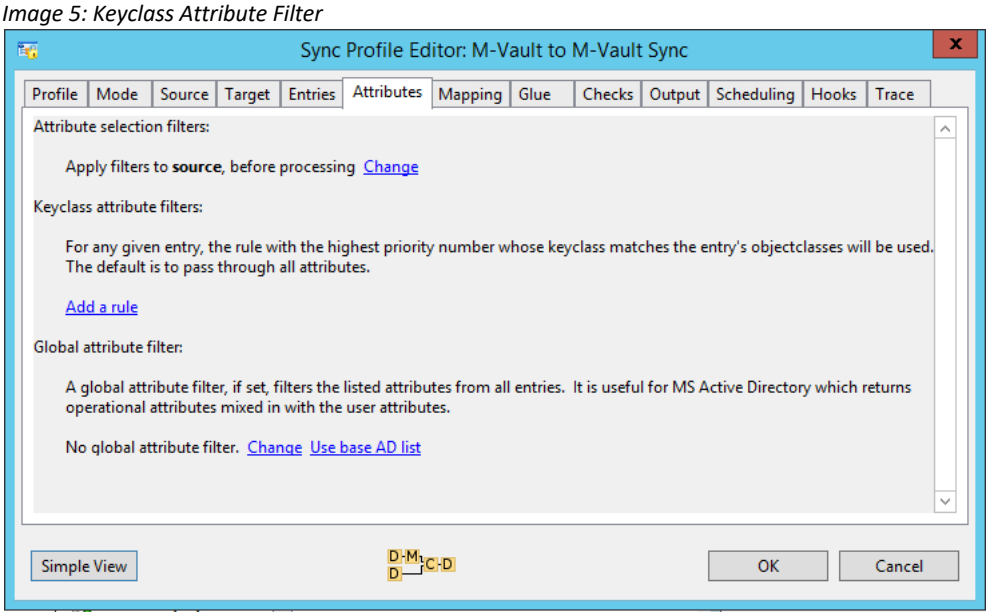
Filtering using Attributes

The advanced view in the Sync Profile Editor exposes the full functionality of Sodium Sync. We're going to make a number of changes using capabilities exposed by this view so, click on the [**Advanced View**] button to switch.

We're going to exclude from our sync all telephone numbers associated with people in the ACME directory (in other words, set up a rule that excludes the telephoneNumber attribute from the Person objectclass). We can do this by using the Attributes tab to filter the source data before processing.

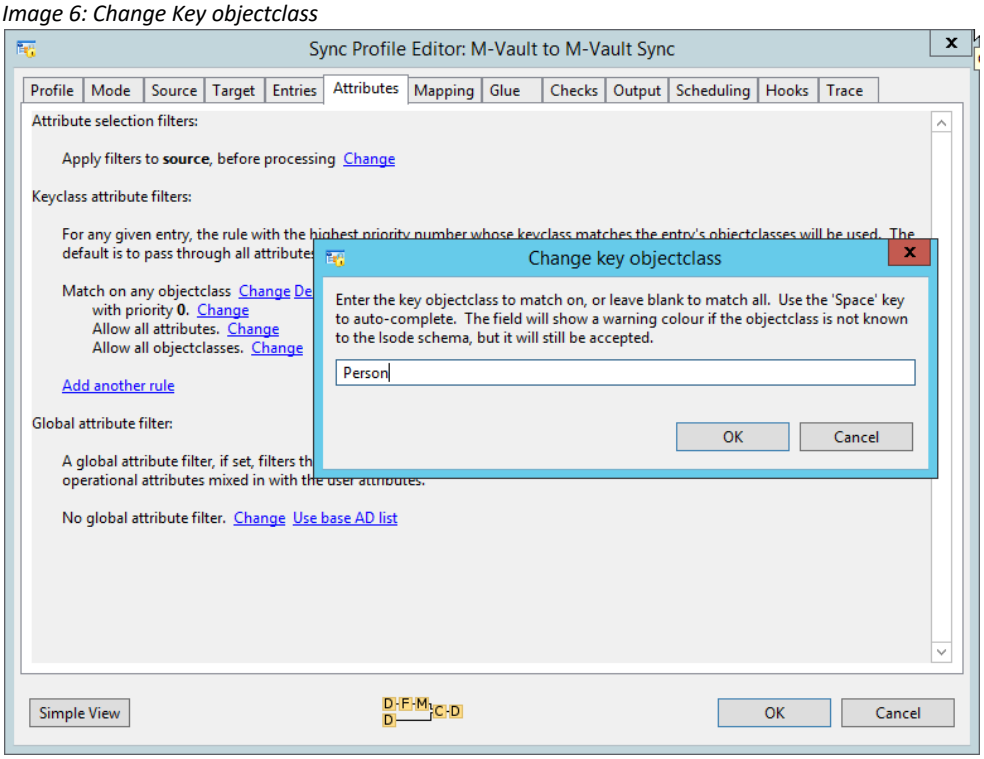
Click on [**Add a rule**] under Keyclass attribute filters:

Image 5: Keyclass Attribute Filter



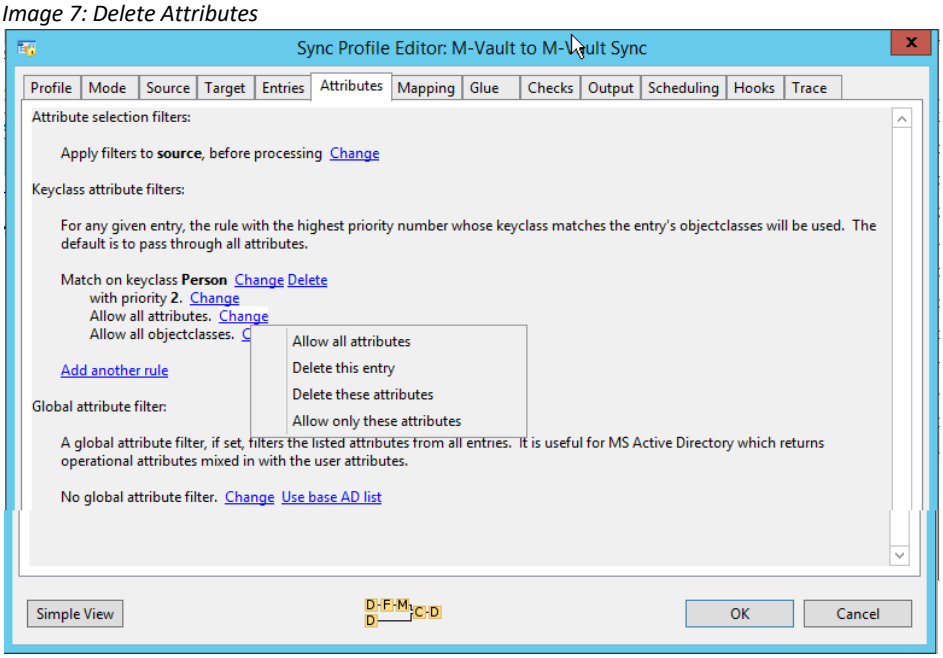
Select “Change” next to“Match on any objectclass”, In the 'Change key objectclass' pop-up, type in "Person" and then click on [**OK**] to commit this change.

Image 6: Change Key objectclass



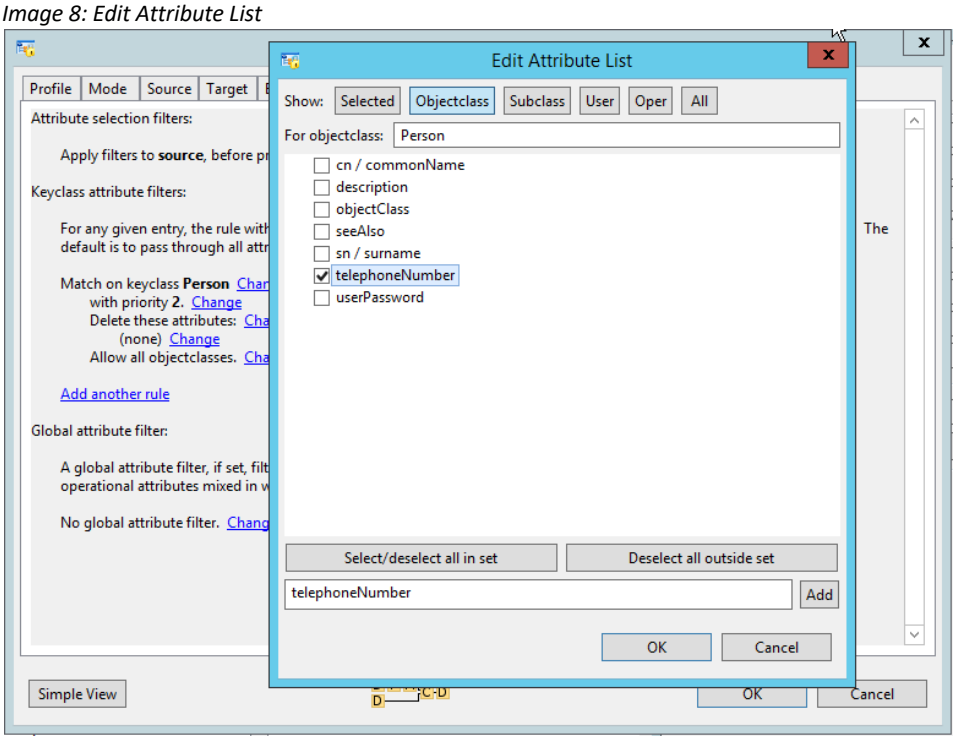
Next to 'Allow all attributes', click on Change and select Delete these attributes from the pop-up menu:

Image 7: Delete Attributes



Click on Change next to none and in the Edit Attribute List screen, select telephoneNumber and click on [**OK**] to complete the rule:

Image 8: Edit Attribute List



Dropping back into the main Sodium Sync screen you can see that a new filter rule has been set up telling Sodium Sync that, when running this Sync it should delete the 'telephoneNumber' attributes of the 'Person' objectclass.

In this short introduction to Sodium Sync we won't be making any changes to either the Mapping or Glue tabs:

- The Mapping tab allows selection of various preset mapping rule-sets. These are defined in the mapping-rulesets.xml file shipped with Sodium, and may be reconfigured if necessary.
- The Glue tab can be used to handle the situation where the mapping or filtering has left a child without parents. This may happen especially as a result of the force-conformity options on the Mapping page (which may be implied by other rule-sets as well) when the source DSA contains parent entries with completely unknown schema.

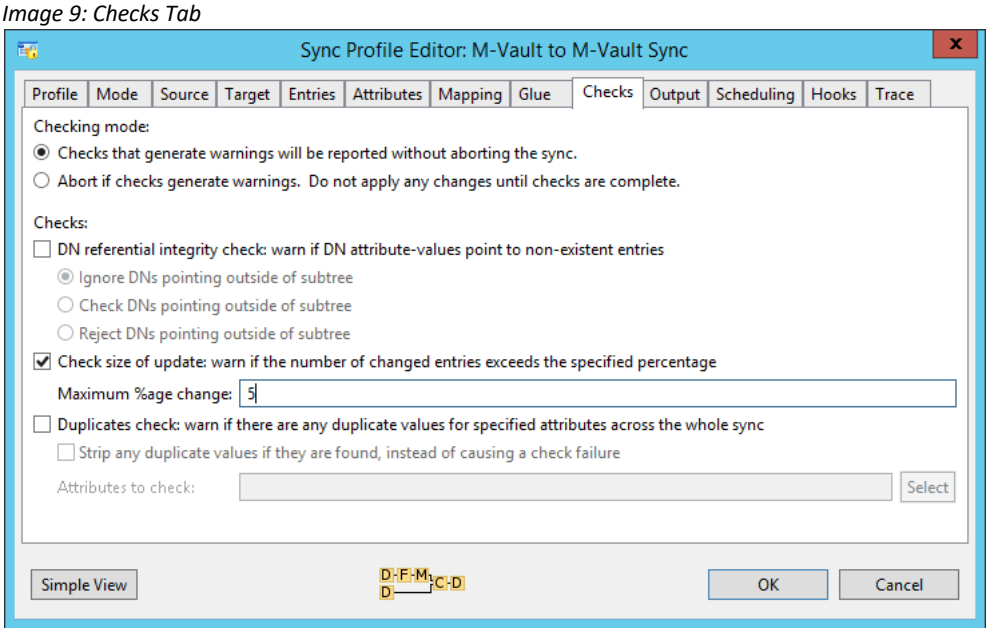
If you'd like to explore these tabs further see the M-Vault Administration Guide available from *www.isode.com/support/help.html*.

Setting Checks

Sodium Sync allows for checks to be configured as part of a sync. The checks may be used simply to give warnings, or may be used to stop the sync from applying changes until all the checks have passed. It is possible to run a sync simply for the checks and make it throw away its results, either by running a Source Only sync (set on the Mode page), or by selecting Discard changes on the Output page.

We're going to set a check on our Sync so that it will generate a warning (but not stop the Sync) if applying our Sync will result in more than 5% changed entries in our Target directory. Start by clicking on the **Checks** tab.

Image 9: Checks Tab



Leave the Checking mode as the default value of "Checks that generate warnings will be reported without aborting the sync". Tick the “Check size of update” box and enter the percentage as "5" and click on [**OK**] to commit this rule.

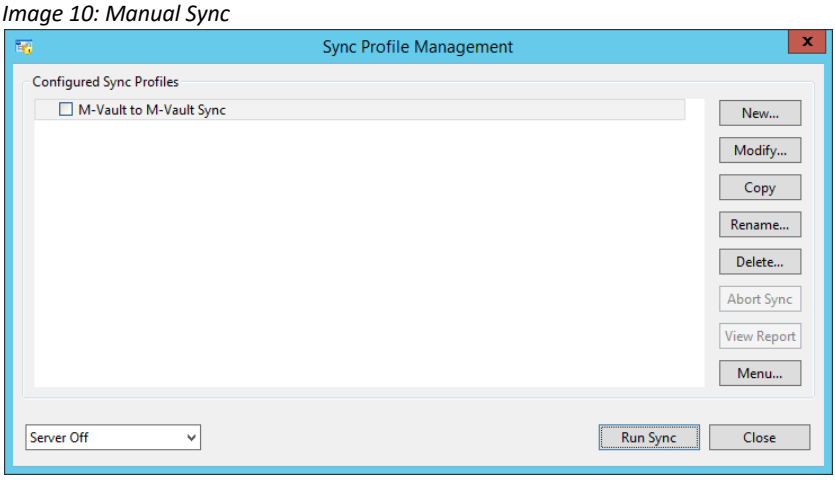
Running a Manual Sync

You've now set up a Sync Profile that will:

- Scan all entries below cn=Demo-base, o=Headquarters.net in the Headquarters.net source directory.
- Filter our source directory to exclude the telephoneNumber attribute from the Peron objectclass
- Copy the resulting data into the Field.net target directory starting at cn=Demo-base, o=Field.net.
- Generate a warning (but not halt the sync) if more than 10% of the target directory is changed

Now you need to run the Sync, which we'll do manually. Switch to the Sync Profile Management screen, highlight the M-Vault to M-Vault Sync that you've just created and click on [**Run Sync**].

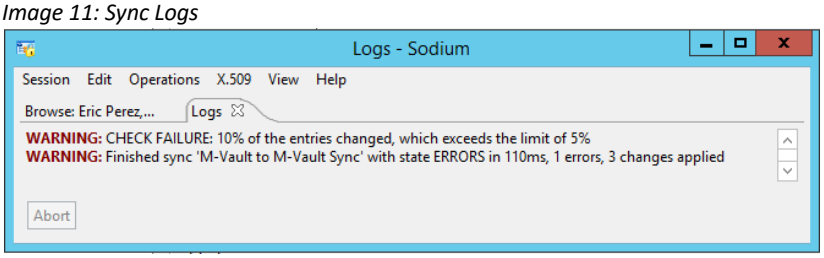
Image 10: Manual Sync



After the Sync is run, you'll see a confirmation box showing that the Sync has been completed but with 1 error.

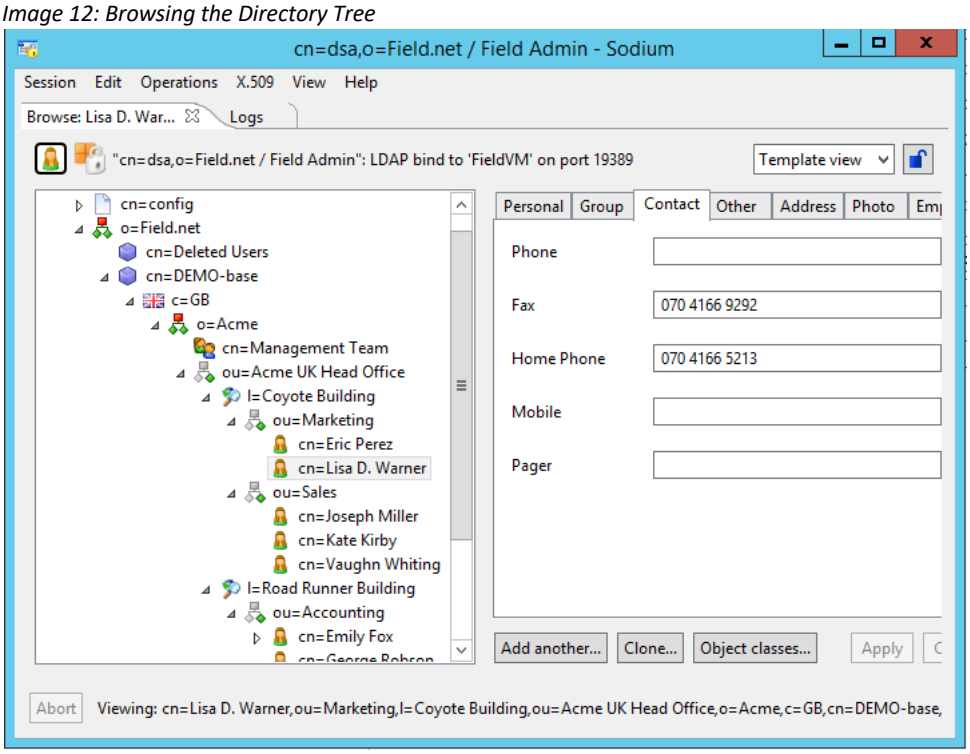
Viewing the Logs tab, which will automatically open in Sodium when your Sync is completed, shows us that the 'Error' reported by Sodium Sync is the check you previously set up to warn if more than 5% of the target was changed by a Sync:

Image 11: Sync Logs



By browsing the *Field.net* Directory in Sodium, you can see that there are now no telephone numbers associated with Person entries below cn=Demo-base.

Image 12: Browsing the Directory Tree

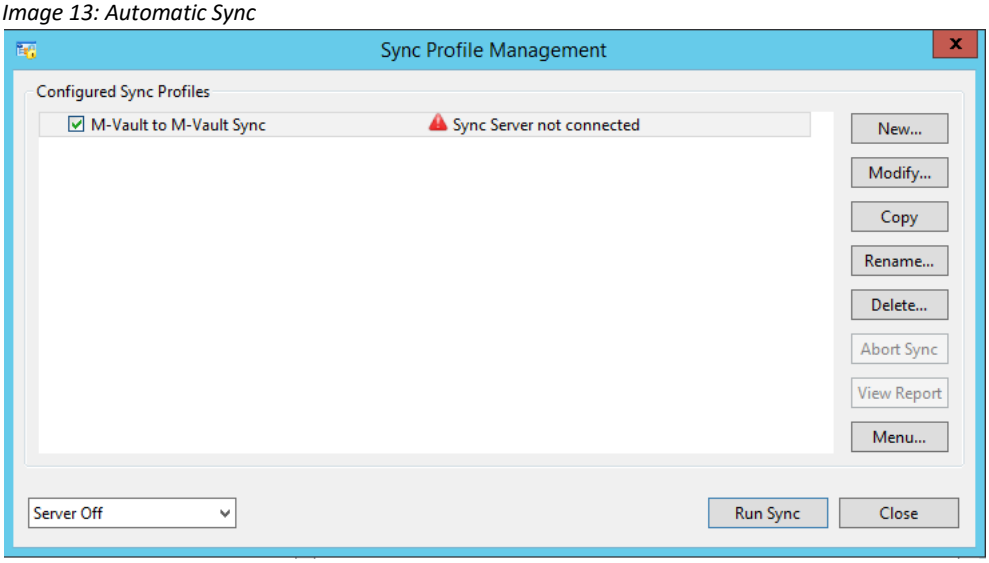


Running an Automatic Sync

To run syncs automatically at regular scheduled intervals, you must start the Sync Server. This is a background process that runs continuously, even over system reboots, and which runs the scheduled syncs without needing to have the Sodium GUI application running.

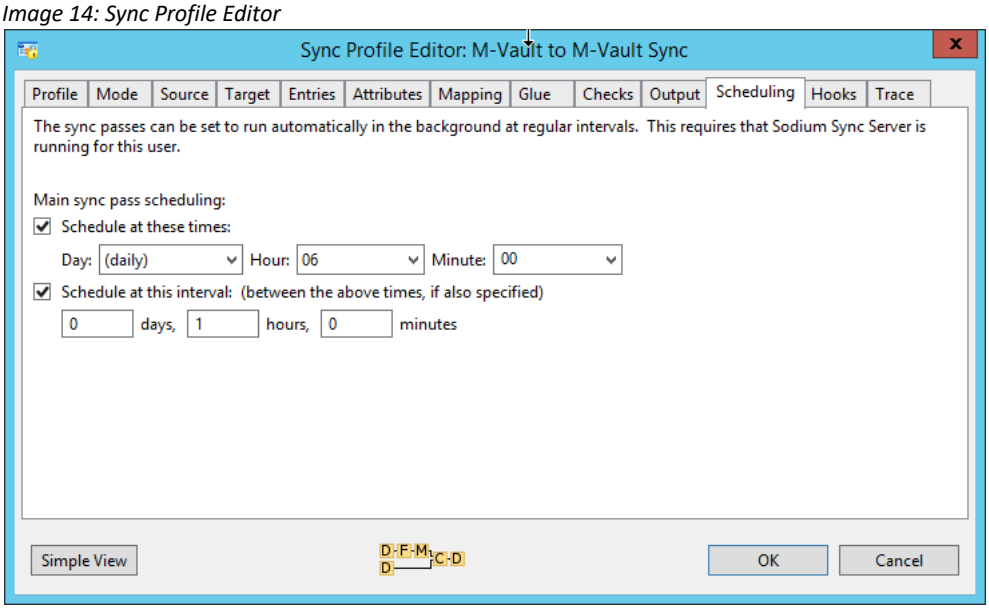
When the Sync Server is not running, scheduled syncs are displayed in the Sync Profile Management window with an error triangle to warn that the server is not running:

Image 13: Automatic Sync



Sync schedules can be set up using the “Scheduling” tab in “Advanced” view:

Image 14: Sync Profile Editor



For information on setting up the Sync Server, see the Chapter on "Configuring the Sodium Sync Server", of the M-Vault Administration Guide.

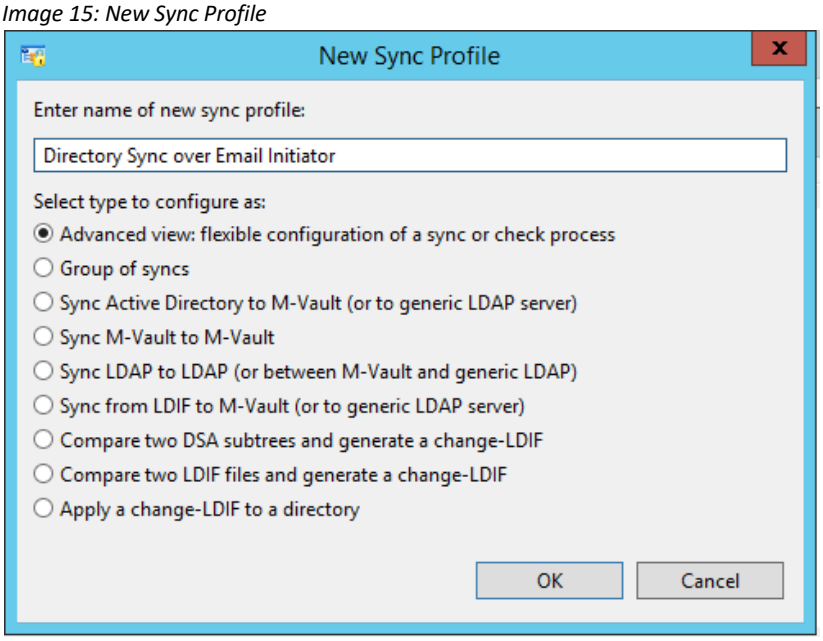
Cached Scan Synchronization

Cached Scan sync is for situations where access to the target directory is not available and an LDIF file of changes is to be generated for indirect transfer (file transfer by email (FTBE), air-gap sync etc).

Configuring Source (Send)

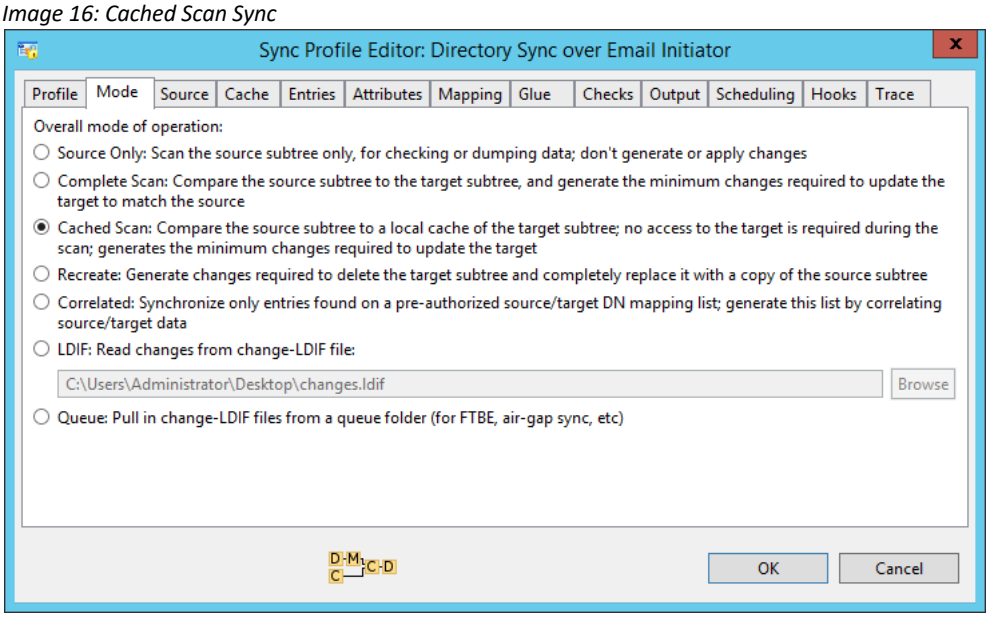
From the Sync Profile Manager click [**New**], type in a sync profile name, select "View" then Click [**OK**].

Image 15: New Sync Profile



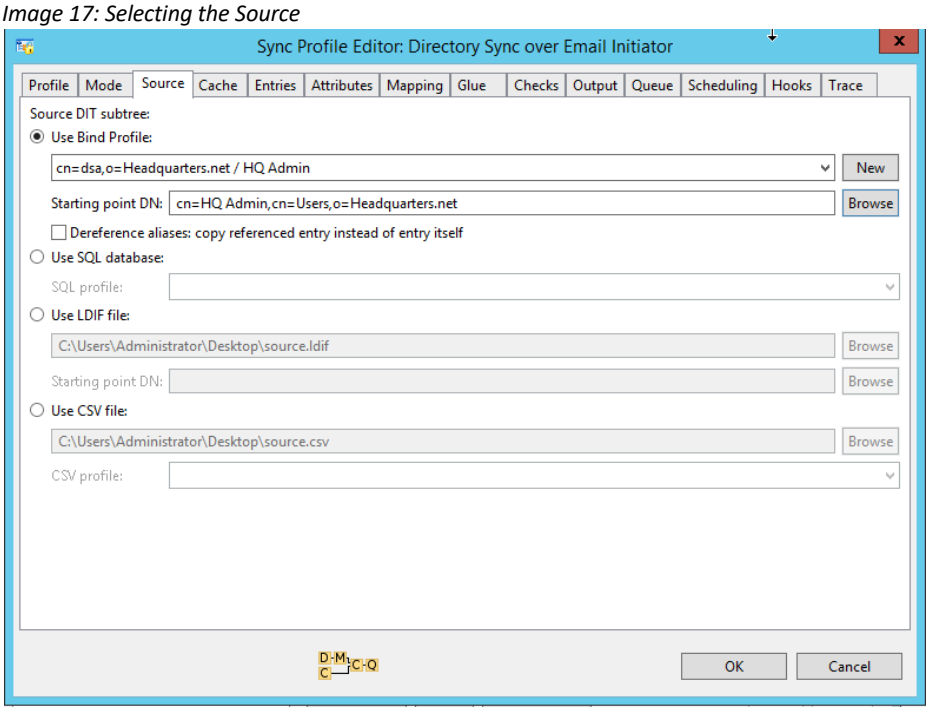
Select the Mode tab then select the "Cached Scan" radio button:

Image 16: Cached Scan Sync



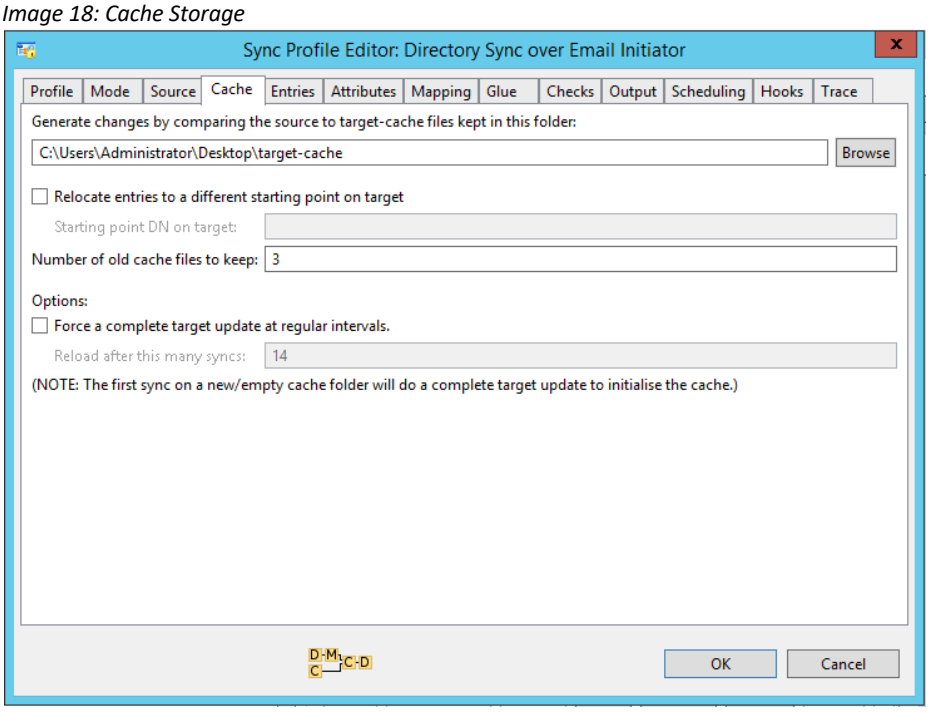
Click the "Source" tab, select the "Use Bind Profile" radio button and choose a bind profile to M-Vault, the data to be replicated is now chosen:

Image 17: Selecting the Source



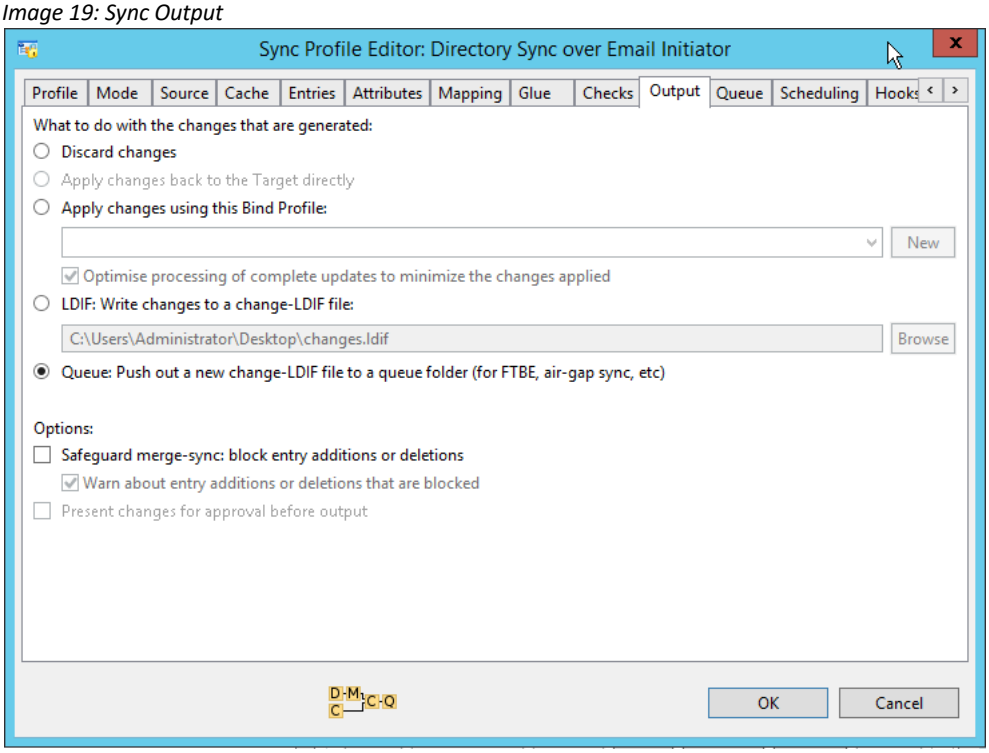
Click on the "Cache" tab, the next step is to specify the location in the file system where cached data is stored (you will need to create this location). The cache will hold a reference copy of the directory being replicated to, so that deltas can be calculated.

Image 18: Cache Storage



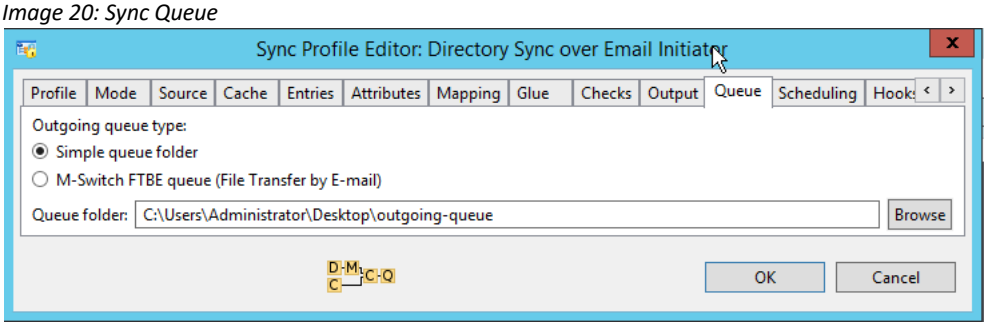
Next click on the "Output" tab and select the Queue: Push out a new change-LDIF file to a queue folder (for FTBE, air-gap sync, etc) Radio button:

Image 19: Sync Output



From the "Queue" tab select the Simple queue folder radio button. Next you will need to select the √ folder, firstly you will need to create this folder, once created click the Browse button select the folder you just created. This is where the LDIF files will be written. Click [**OK**].

Image 20: Sync Queue

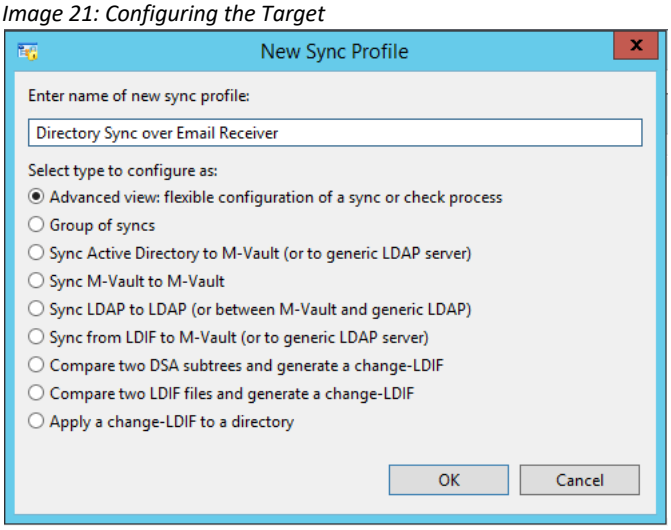


The Sync Profile for the initiator is now created, returning to the Sync Profile Management screen you can either run a manual sync or schedule an automatic sync if the Sync Server has been activated. After the sync, directory changes will be generated as LDIF and sent by email.

Configuring Target (Receive)

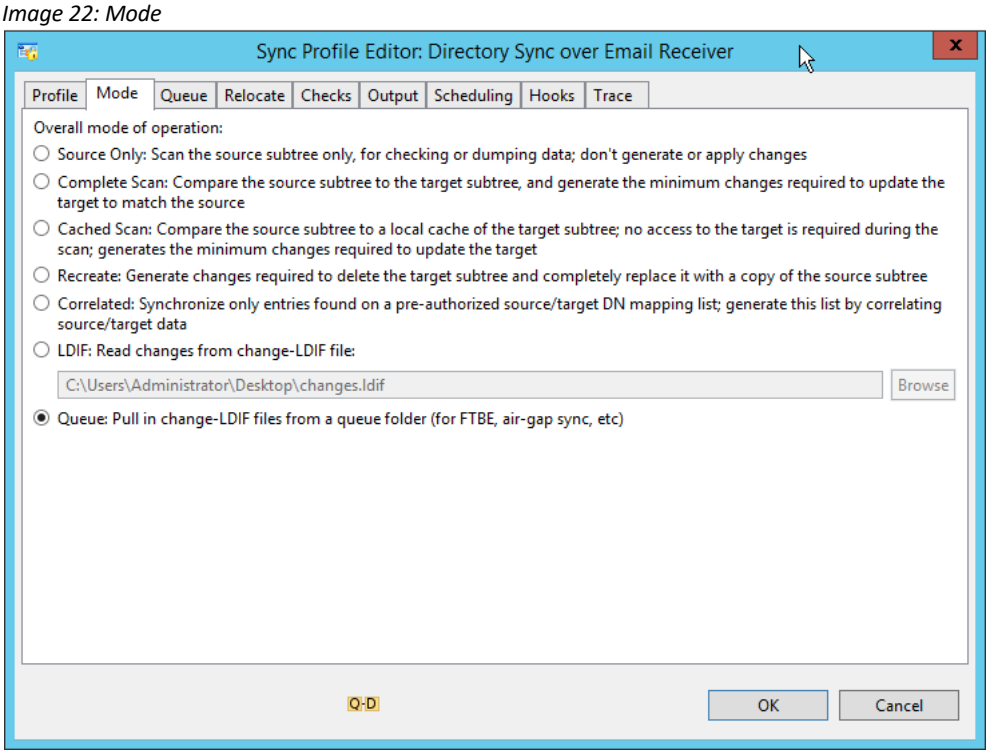
Now the receive side should be configured. Create a new Sync, give it a profile name, select Advanced view and Click [**OK**]:

Image 21: Configuring the Target



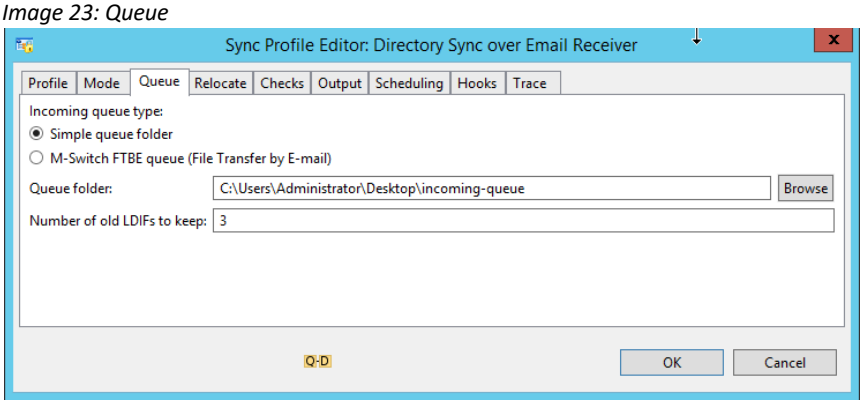
From the "Mode tab", select the "Queue: Pull in change-LDIF files from a queue folder" radio button.

Image 22: Mode



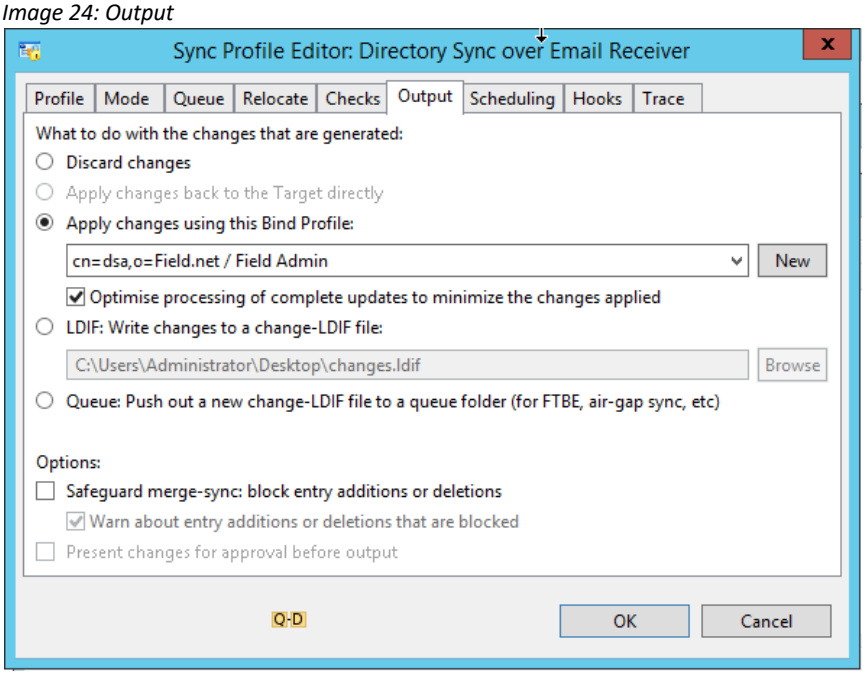
From the Queue tab select the Simple queue folder, next you will need to select the Queue folder, firstly you will need to create this folder, once created click the Browse button select the folder you just created. This is where the LDIF files will be written. Click [**OK**].

Image 23: Queue



At the Output tab you should point at the M-Vault directory on the target (receiver). Scheduling and starting the sync is the same as for the initiator. The target should be scheduled to run frequently, to check for new inbound LDIF files

Image 24: Output



Directory changes will now be replicated.

What Next?

More information on Sodium-Sync can be found on the Isode website at *www.isode.com/products/sodium-sync.html*.

Detailed configuration and operational information on Sodium-Sync can be found in the M-Vault Administration Guide available from the Isode website at *www.isode.com/support/help.html*.

Other Evaluations

This guide is one of two relating to Isode's Directory products:

- Setting up a Directory Server
- Synchronising Directories (this guide)

Information on these evaluations can be found at *www.isode.com/evaluate/evaluate-directory.html*. For Directory evaluations outside of the scope of these guides, please contact us.

Whitepapers

Isode regularly publishes whitepapers on technical and market topics related to its products. A full list of these can be found at *www.isode.com/whitepapers/*.

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