SMART Directory Sync 4.5
Comprehensive User Guide for AD Migration/Synchronization and Exchange Migration

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Section 1. Introduction

1.1 Purpose
The purpose of this document is to provide information on how to use Binary Tree SMART Directory Sync to perform synchronizations from a source to a target Active Directory.

1.2 Audience for AD Migration/Synchronization and Exchange Migration
It is assumed the reader has the following technical expertise:

- Advanced Active Directory & Exchange Administration
- Windows Administration
- SQL Administration
- LDAP
- SMTP Routing
- DNS

1.3 About SMART Directory Sync for AD Migration/Synchronization and Exchange Migration
SMART Directory Sync allows you to synchronize objects from a source to a target Active Directory. Directory Sync has been carefully design and crafted to meet the challenging requirement for a solution that can deliver a reliable, secure, and automated solution that synchronizes and transforms directory data between Active Directory environments supporting Exchange 2003, 2007, 2010, 2013, and 2016.

Key Features and Functions

- Sync Reports allow you to view how objects will appear in the target directory before synchronizing a profile. This allows for the remediation of any data issues without impacting the target directory.
- Synchronize user objects from a source Active Directory to a target Active Directory
  - Synchronize objects ‘As-is’, as Contacts, as mail-enabled users or as disabled mail-enabled users
- Customizable attribute matching logic
- Synchronize Active Directory groups and distribution lists from a source Active Directory to a target Active Directory
- Three Conflict Resolution options for group and distribution list synchronization
  - Skip the object
- Rename the object
- Merge the source members into the Distribution List in the target Active Directory
- Three Collision options for User object synchronization
  - Skip the object
  - Rename the object
  - Update the object
- Ability to mail-enable matched users in the target Active Directory
- Customizable attribute mapping table
- Intra-Forest and Inter-Forest migration and synchronization
- sIDHistory and Password Synchronization is available in the AD Migration/Synchronization profile type*

*AD Migration/Synchronization profile type may require additional licensing.
Section 2. Configuring AD Migration/Synchronization and Exchange Migration Synchronization Profiles

The SMART Directory Sync Console provides an easy to follow wizard for creating directory synchronization profiles between Active Directories. It also allows you to quickly manage profiles and immediately start synchronization.

To begin configuring the synchronization, start the installed SMART Directory Sync Console.

2.1 Applying a License

All SMART Directory Sync profile types are licensed for the number of objects to be synchronized. Some options are either enabled or disabled (for example, Group migration). A license key must be added in order to synchronize objects to a Target.

To apply a license:

1. On the SMART Directory Sync Console, click the License button. The License dialog window appears.
2. Click the Apply License button.
3. Browse to and select the license (.lic) file obtained from Binary Tree, and then click Open.
4. The license details appear in the dialog window. Click Close to close the window.
2.2 Adding an AD Migration/Synchronization Profile

The SMART Directory Sync AD Migration/Synchronization profile is used for both AD to AD directory synchronization and in support of an Active Directory migration utilizing Binary Tree’s SMART Active Directory Migrator product. To add an AD Migration/Synchronization profile:

1. On the Profiles tab, click Add Profile.

2. In the Profile Type Selection window, select AD Migration/Synchronization and then click OK.

The following Profile Types are also available:

- **Exchange Migration** – used in support of an Exchange migration utilizing Binary Tree’s E2E Complete product.
- **Active Directory to Domino Directory** – used to synchronize objects from an Active Directory source to a Domino directory target.
- **Domino Directory to Active Directory** – used to synchronize objects from a Domino directory source to an Active Directory target.
- **Window Server Migration** – used in support of a Windows Server migration utilizing Binary Tree’s Windows Server Migration product.
3. A new pane appears at the bottom of the console which provides the ability to configure options for synchronization.

4. On the **General** tab, enter a name to identify the profile in the **Name** field.

5. Select the scope of the profile from the **Scope** drop-down list:
   - **Inter-Forest**– (default) will synchronize domains in different forests.
   - **Intra-Forest** – will synchronize domains within a forest. If selected, the **Add x500 Proxy to Source** and **Resource Forest** options must be set to **No** and msExch mappings are invalid. Before the profile can be saved with Intra-Forest chosen as the scope, the mappings for all of the msExch attributes will need to be removed.

6. Select the status of the profile from the **Status** drop-down list:
   - **Active**– will synchronize manually or as scheduled as soon as the profile is saved
   - **Suspended** – Not active, will not synchronize

7. Select the logging level of the profile from the **Logging** drop-down list:
   - **Low** – only errors are logged
   - **Medium** – errors and warnings are logged
   - **High** – all messages (errors, warnings, information, etc.) are logged (should be used for troubleshooting purposes only)

8. Select an **Audit Logging** option from the drop-down list:
   - **Enabled** – Records object and attribute changes in the Audit Log
   - **Disabled** – Object and attribute changes will not be recorded in the Audit Log
For Schedule, select the schedule:

- **By frequency** – enter the appropriate frequency or the specific time for the synchronization process to run for your environment. Zero (0) is not a valid value for frequency. The minimum interval is 15 minutes.

- **At specific times(s)** – enter one or more specific times or select times from the drop-down list of times.

  A selected time can be deleted by selecting the time and clicking the **Delete** key.

- **Manual only** – the synchronization process will not run until it is manually started.

If you choose the **By frequency** option, SMART Directory Sync will initiate a synchronization when an active profile is saved. Select the **At specific time(s)** option and select a time in the future or select the **Manual only** option if you want to save an active profile without it syncing right away. This would be helpful if you wanted to run a Sync Report or inspect items in SQL before pulling them into the target Active Directory.

10. Click the **AD Source** tab enter credentials that have read/write access to the source Active Directory. The required read access must extend to the Deleted Accounts container, which can require a privileged account.

11. In the **User Name** field, enter the Active Directory User Name.

   The credential should be entered as a user principal name (for example, jsmith@acmecorp.com)

12. In the **Password** field, enter the password assigned to the Active Directory user.
13. In the Global Catalog Server field, enter the IP Address or fully qualified domain name of the server (FQDN) for the Global Catalog Server or a Domain Controller that will be used for all read/write operations.

The entered credentials and Global Catalog Server/Domain Controller must have access to all Domains and subdomains that are required to synchronize.

If SID History will be synchronized, SMART Directory Sync will require access to the domain controller holding the PDC Emulator Active Directory FSMO role in all source and target domains.

14. Select an Attribute Change Detection option from the drop-down list:
   - Enabled – Only attributes changed on the source object will be synchronized
   - Disabled – All attributes on the source object will be synchronized

15. Select an Automatically Mark Objects as Ready to Sync option from the drop-down list:
   - No – (default) Objects are not marked as Ready to Sync. No should be selected if you are using SMART AD Migrator to perform an AD migration. Objects can be marked as ready to sync in the SMART AD Migrator Console.
   - Yes – Objects are marked as Ready to Sync. Objects will be synced during the synchronization. Yes should be selected if you are performing an AD to AD directory synchronization and not a full AD migration.

16. Click Add OU(s) to display a list of OU(s) (organizational units) available to synchronize.

Note that a synchronization profile that includes the OU where the computer objects reside should be created.

17. Select the appropriate source OU’s and click OK. The selected source OUs are displayed in the Source OUs table.
To deselect an OU from the source, select it and then click the **Remove OU** button and confirm or click the **Delete** key.

18. The following Source OU fields display at the bottom of the screen used in the above example.

- **Source OU** – Reflects the OU selected from the tree view.
- **Sub OUs** – Select this option to synchronize Sub-OUs. The checkbox is selected by default. Clear this option if you do not want to synchronize sub-OUs.
- **Groups** – The checkbox is selected by default. Clear this option to skip groups from being synchronized.
- **Disabled Users** – Select this option to synchronize Disabled Users. The checkbox is selected by default. Clear this option to prevent Disabled Users from being synchronized.
- **Non-Mail Enabled** – Select this option to synchronize Non-mail enabled objects. The checkbox is not selected by default. Clear this option to skip Non-mail enabled objects from being synchronized.
- **User Filter** – This is an LDAP filter and can be used to filter synchronization to specific object types or those objects exhibiting specific attribute properties. See the Using the User, Group, and Device LDAP Filter topic for more information.
- **Group Filter** – This is a LDAP filter and can be used to filter groups based on the entered criteria. See the Using the User, Group, and Device LDAP Filters topic for more information.
- **Device Filter** – This is a LDAP filter and can be used to filter devices based on the entered criteria. See the Using the User, Group, and Device LDAP Filters topic for more information.

It is recommended that you test the LDAP filter syntax prior to saving your changes and running a synchronization.

19. Click the **Source DCs** tab to define the list of Source Domain Controllers (DCs) used for synchronization.
20. Click **Add DC(s)** to open the Active Directory DC Selection window. Click **Refresh DCs** to find all available Domain Controllers. Available options include **Ping Servers** to test the availability of the selected Domain Controllers and **Test Connections** to test the connection to the LDAP server. Select one or more Domain Controller and click **OK** to add the Domain Controllers to the list of Source DCs.

If your Active Directory forest contains more than one domain it may be necessary to add at least one domain controller from each domain. When SMART Directory Sync attempts to resolve objects, such as group members or a user's manager, that are in another Domain (than the one specified on the Source tab), it will reference the domain controllers list to find a valid DC to use.

To ensure that group membership and manager/subordinate relationships are properly recreated, it is recommended to add the appropriate DC’s for alternate domains to the Source DC’s tab.
21. The Active Directory DC Selection window closes and the selected Domain Controllers appear in the Source DC’s list. The order the domain controllers are used for each Domain can be selected by entering a number value in the Priority column (lowest number = first). If the highest priority DC is unavailable, Directory Sync will use the next DC.

![Domain Controller Selection Table]

Domain Controllers with no priority set will be used after those with a priority.

If no priority is set for the servers in a Domain, they will be used in the order listed in the table.

A Domain Controller that is the Global Catalog Server selected on the AD Source tab is given top priority regardless of the value in the Priority field.

No two DC’s in a Domain can have the same priority.

22. Click the AD Target tab.

![AD Target Tab]

23. In the User Name field, enter the name of the Active Directory user that has the required rights to the Target directory.

The credential should be entered as a user principal name (for example, jsmith@acmecorp.com)

24. In the Password field, enter the password of the Active Directory user. These credentials should have write access to target OU, as well as any Domains or subdomains that may contain matched users.
25. In the **Global Catalog Server** field, enter the IP Address or fully qualified domain name of the server (FQDN) of the Global Catalog Server or Domain Controller that will be used for all write operations.

26. In the **Target OU**, Click **Browse** to select a target OU. Any newly created objects will be written to this OU.

27. Check the **Do not create source OUs in target** option if you do not want the source OU structure to be created as objects are synchronized to the target. All objects will be created directly in the Target OU specified for that profile.

28. Select an option from the **Synchronize Passwords** drop-down list:
   - **No** – (default) Passwords will not be copied to the target
   - **Yes** – Passwords will be copied to the target.

   **The password policy on the source must meet or exceed the password policy strength on the target.**
   An error will occur if the Administrator password contains double quotes ("), when performing password synchronization. To work around this, ensure the administrator password does not contain double quotes.

29. Enter a default password for new users in the **Default Password** field.

   **The default password cannot exceed 128 characters in length.**
   Even if Passwords are being copied, and default password value is still required as the initial account is created with the default password, and then the source password is copied over.

30. Select an option from the **Preserve Objects in Target** drop-down list to control what happens to target objects when the corresponding source objects are deleted:
   - **No** – (default) When objects are deleted in the source, the corresponding objects will be deleted from the target. This only applies to objects created in the target by SMART Directory Sync.
   - **Yes** – Objects that are deleted in the source will not be deleted in the target.

31. Select an option from the **Preserve Deleted Objects in Target As Is** drop-down list to control what happens to target objects if they are deleted:
   - **No** – (default) If an object previously synchronized is deleted on the target, it will be recreated.
   - **Yes** – If an object previously synchronized is deleted on the target, it will not be recreated.

32. Click the **AD Target Options** tab.
33. Click the **Users** sub-tab.

34. Select an option from the **Create Mail Enabled Users as** drop-down list:
   - For Inter-Forest:
     - **As Is** – (default)
       - Mail-Enabled Users in the source will be Mail-Enabled Users in the target
       - Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
       - The Active Directory User Account Control property for enabled or disabled will be copied as is. In other words, user accounts that are enabled in the source, will be enabled in the target.
       - Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target
     - **Mail-Enabled, AD Enabled** –
       - The Active Directory User Account Control property for enabled or disabled will always be set to Enabled. In other words, user accounts that are disabled in the source, will be enabled in the target
       - Mail-Enabled Users in the source will be Mail-Enabled Users in the target
       - Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
       - Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target
     - **Mail-Enabled, AD Disabled** –
       - The Active Directory User Account Control property for enabled or disabled will always be set to Disabled. In other words, user accounts that are enabled in the source, will be disabled in the target.
• Mail-Enabled Users in the source will be Mail-Enabled Users in the target
• Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
• Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target

- **Contact** –
  • This option IS NOT RECOMMENDED for Active Directory Migrator projects as user accounts will NOT be created in the target
  • Contacts, Mailbox-Enabled Users, Mail-Enabled Users will be created as Mail Enabled Contacts in the target
  • This option does not have logon capabilities, but can be used for maintaining mail flow for existing users, contacts and distribution lists

- **For Intra-Forest:**

  **Microsoft Exchange cannot have duplicate objects in the same organization. As a result, all mail-enabled objects will have Microsoft Exchange properties removed, effectively creating non-mail enabled objects regardless of the source object type.**

• **As Is** – (default)
  • Mail-Enabled Users in the source will be non-mail enabled users in the target
  • Mailbox-Enabled Users in the source will become non-mail enabled users in the target
  • The Active Directory User Account Control property for enabled or disabled will be copied as is. In other words, user accounts that are enabled in the source, will be enabled in the target
  • Mail-Enabled Contacts in the source will be Non-Mail Enabled Contacts in the target

• **Mail-Disabled, AD Enabled** –
  • The Active Directory User Account Control property for enabled or disabled will always be set to Enabled. In other words, user accounts that are disabled in the source, will be enabled in the target
  • Mail-Enabled Users in the source will be Non-Mail Enabled Users in the target
  • Mailbox-Enabled Users in the source will become Non-Mail Enabled Users in the target
  • Mail-Enabled Contacts in the source will be Non-Mail Enabled Contacts in the target

• **Mail-Disabled, AD Disabled** –
  • The Active Directory User Account Control property for enabled or disabled will always be set to Disabled. In other words, user accounts that are enabled in the source, will be disabled in the target.
  • Mail-Enabled Users in the source will be Non-Mail Enabled User in the target
  • Mailbox-Enabled Users in the source will become Non-Mail Enabled Users in the target
  • Mail Enabled Contacts in the source will be Non-Mail Enabled Contacts in the target
Contact –

- This option IS NOT RECOMMENDED for Active Directory Migrator projects as user accounts will NOT be created in the target.
- Contacts, Mailbox-Enabled Users, Mail-Enabled Users will be created as Non-Mail Enabled Contacts in the target.
- This option does not have logon capabilities, but can be used for maintaining mail flow for existing users, contacts and distribution lists.

The **Mail-Enabled, AD Enabled** option creates Active Directory users with logon capabilities in the target domain and all properties from the source’s object, including mail addresses.

The **Mail-Enabled, AD Enabled** option can override the properties found in the Source AD environment. For example, a Disabled Mail-Enabled User found in the source will be enabled in the target if the **Mail-Enabled, AD Enabled** option is selected. Conversely, an enabled user found in the source will be disabled in the target if the **Mail-Enabled, AD Disabled** option is selected.

Directory Sync will not create Mailbox-Enabled Users in the target directory.

Due to a sAMAccountName size limit of 20 characters in Active Directory, user objects with calculated sAMAccountName names greater than 20 characters in length are truncated to 20 characters. Truncated sAMAccountNames will be appended with a random number from 1 to 9999 to ensure uniqueness. This does not apply to group objects.

36. Select an option from the **Create Non-Mail Enabled Users** drop-down list:

   - **As Is** – (default) The Active Directory User Account Control property for enabled or disabled will be copied as is.
   - **Enabled** – The Active Directory User Account Control property for enabled or disabled will always be set to Enabled for Non-Mailed Enabled Contacts and Users. Non-Mailed Enabled contacts are always copied as is.
   - **Disabled** – The Active Directory User Account Control property for enabled or disabled will always be set to Disabled for Non-Mailed Enabled Users. Non-Mailed Enabled contacts are always copied as is.

37. Select an option for handling user account collisions when two users of the same name are found from the **Users Collisions** drop-down list:

   - **Update** – (default) If a user with the same name is found in the target domain, the users will be updated in the target AD. User collisions are determined based on the options selected on the Matching tab of the profile.
   - **Skip** – The user will not be synchronized into the target AD and a warning entry will be entered into the log entry stating that the source user will not be synchronized to the target directory.

A user that was previously synchronized to the target will fail to sync if a manual /repushpull /resync is run. This occurs because a target object with a matching sAMAccountName will already exist. If this is not the desired behavior, before running the /repushpull and /resync commands, administrators should clear the target directory of any previously created objects.
- **Rename** - This allows you to define a prefix or suffix to be added to the sAMAccountName of the user when it is written in the target directory. This option creates a new user using the existing name and the prefix or suffix to bypass the user collision when selected. Prefix is selected by default. To define a specific value for the prefix or suffix, select the **Specific Value** option and enter the value. To use a value from an internal field, select the **Internal Field** option and select a field from the drop-down list.

If selecting an internal field, a Boolean (True/False) field or an empty field should not be selected. User accounts where the sAMAccountName exceeds 20 characters will not be created in the Target and an error will be logged.

37. Select an option from the **Do not overwrite target Proxy Addresses** drop-down list:
   - **Yes** – Proxy Addresses will only be updated during initial sync if the target object has no proxy addresses. Proxy addresses will not be updated on subsequent syncs.
   - **No** – (default) Proxy Addresses on the target are overwritten.

38. Select an option from the **Sync Objects** drop-down list:
   - **One-Time** – objects are synced once after being marked as "Ready to Sync" in the SMART AD Migrator console. Additional syncs are not performed if there are changes in the source.
   - **Continuous** – (default) objects are continually synced between the source and target after being marked as "Ready to Sync" in the SMART AD Migrator console.

39. Select an option from the **Synchronize SID History** drop-down list:
   - **Yes** – SID history is synchronized. This option is not available for Intra-Forest profiles.
   - **No** – (default) SID history is not migrated.

   **Review the Requirements for more information on Synchronizing SID History Prerequisites.**

   Synchronizing SID History is recommended. Windows has built in processes that use SID History to update internal OS functions including Windows 8.x Modern Apps, Network Printers, and Microsoft Outlook.

40. Click the **Groups** sub-tab.
41. Select an option from the **Create Domain Local Groups as** drop-down list:
   - **Domain Local** – (default) Domain Local Groups in the source will be Domain Local Groups in the target.
   - **Universal** – Domain Local Groups in the source will be Universal Groups in the target.
   - **Do Not Create** – Domain Local Groups in the source will not be created in the target.

42. Select an option from the **Create Global Groups as** drop-down list:
   - **Global** – (default) Global Groups in the source will be Global Groups in the target.
   - **Universal** – Global Groups in the source will be Universal Groups in the target.
   - **Do Not Create** – Global Groups in the source will not be created in the target.

43. Select an option from the **Create Universal Groups as** drop-down list:
   - **Universal** – (default) Universal Groups in the source will be Universal Groups in the target.
   - **Domain Local** – Universal Groups in the source will be Domain Local Groups in the target.
   - **Do Not Create** – Universal Groups in the source will not be created in the target.

44. Select an option for handling group collisions when two groups of the same name are found from the **Group Collisions** drop-down list:
   - **Merge** – If a group with the same name is found in the target domain, the members of the source group will be added to the target group. Group collisions are determined based on Name first, then based on the options selected on the Matching tab of the profile.
   - **Skip** – The group will not be synchronized into the target AD and a warning entry will be entered into the log entry stating that the source group will not be synchronized to the target group.
A group that was previously synchronized to the target will fail to sync if a manual /repushpull /resync is run. This occurs because a target object with a matching sAMAccountName will already exist. If this is not the desired behavior, before running the /repushpull and /resync commands, administrators should clear the target directory of any previously created objects.

- **Rename** - This allows you to define a prefix or suffix to be added to the name of the group when it is written in the target directory. This option creates a new group using the existing name and the prefix or suffix to bypass the group collision when selected. Prefix is selected by default. To define a specific value for the prefix or suffix, select the **Specific Value** option and enter the value. To use a value from an internal field, select the **Internal Field** option and select a field from the drop-down list.

  If selecting an internal field, a Boolean (True/False) field or an empty field should not be selected.

No option is selected by default for the Group Collisions field and an error message will appear if attempting to save the profile without selecting an option.

Directory Sync will attempt to add a group member to the target if it can find the member in the source. If the member in the source is in a different Domain than the group, the member will only be added to the group in the target if it already exists in the target. If Directory Sync cannot find the member in the source, the member will not be added to the group in the target. The Sync Report will explain why a member could or could not be synchronized.

45. Click the **Devices** sub-tab.
A separate Synchronization Profile must be used when synchronizing device objects, and the Automatically Mark Objects as Ready to Sync option on the AD Source tab should be left as the default No, so the device objects are not inadvertently created in the target.

46. Select an option from the Create Devices as drop-down list:
   - **As Is** - (default)
     - Enabled devices in the source will be enabled devices in the target.
     - Disabled devices in the source will be disabled devices in the target.
   - **Enabled** - Enabled and disabled devices in the source will be enabled devices in the target.
   - **Disabled** - Enabled and disabled devices in the source will be disabled devices in the target.

47. Select an option for handling user account collisions when two devices of the same name are found from the Device Collisions drop-down list:
   - **Update** – (default) If a device with the same name is found in the target AD, the device will be updated in the target AD.
   - **Skip** – If a device with the same name is found in the target AD, the device will not be added to the target AD.
   - **Rename** – This allows you to define a prefix or suffix to be added to the name of the device when it is written in the target directory. This option creates a new device using the existing name and the prefix or suffix to bypass the device collision when selected. Prefix is selected by default. To define a specific value for the prefix or suffix, select the **Specific Value** option and enter the value. To use a value from an internal field, select the **Internal Field** option and select a field from the drop-down list.
     If selecting an internal field, a Boolean (True/False) field or an empty field should not be selected.

Devices where the sAMAccountName exceeds 20 characters will not be created in the Target and an error will be logged.

Child objects of an AD computer object will be migrated, specifically connectionPoint Object class items, during synchronization with the target. This is a one-time migration of these item objects.

48. Click the Exchange Target Options tab.
49. Select an option from the **GAL Visibility** drop-down list:

- **Visible** – (default) Users and groups are visible in the GAL.
- **Hidden** – Users and groups are hidden in the GAL.
- **As Is** – Users and groups that are hidden in the GAL in the source are hidden in the GAL in the target. Users and groups that are visible in the GAL in the source are visible in the GAL in the target.

When synchronizing objects into Exchange 2003 (only), the option to hide from the GAL will not function if the Recipient Update Service (RUS) is enabled.

If synchronizing to an Active Directory that does not have Exchange in the environment, select the Hidden option to avoid Active Directory constraint errors.

This option does not apply to Intra-Forest profiles.
50. If you select Yes for the **Only Update Mailbox Enabled Objects** option, only mailbox-enabled objects in the target directory will be updated with values from the source object based on the mapping table settings. If this is set to No (default), mailbox-enabled objects in the target directory will be skipped and noted in the sync report. If you intend to update both, you must use two separate profiles.

**CAUTION: This is not a commonly occurring preference as the authoritative object is most often where the mailbox is located.**

51. The **Add x500 Proxy to Source** option allows you to add the LegacyExchangeDN of any mail enabled object in the target as an additional X500 proxy address to the source mailboxes. If Yes is selected, an x500 proxy address is added to all corresponding objects in the AD Source forest. If selecting Yes, you must check the statement of understanding that appears below the option. No is selected by default.

This option must be set to **No** for Intra-Forest profiles.

52. The **Resource Forest** option allows you to define the AD Target as a Resource Forest. This is required if you plan to later migrate mailboxes to your Target forest. If Yes is selected, the Master Account SID will be set on the AD Target objects. No is selected by default.

This option must be set to **No** for Intra-Forest profiles.

53. The **Allow Enable/Disable of Mailbox Enabled Source Objects** option allows you to define if enabling or disabling Mailbox Enabled Source objects is allowed. If Yes is selected, the enabling or disabling of Mailbox Enabled Source objects is allowed. No is selected by default.

This option should be set to **Yes** if the ability to change the User Account Control (UAC) on the Source account is desired. If this is not changed, the Disable/Enable Source Actions in SMART AD Migrator will not work (for the Source account).

54. Select **Email Address Policy** options for Users, Contacts, and Groups:
   - **Unselected** (default) Directory Sync will not enable the target object attribute to ‘Automatically update email addresses based on email address policy’ in Exchange.
   - **Selected** Directory Sync will enable the target object attribute to ‘Automatically update email addresses based on email address policy’ in Exchange.

Directory Sync will only apply the attribute to ‘Automatically update email addresses based on email address policy’ to the target object. It cannot apply the email address policy.

This option does not apply to Intra-Forest profiles.

55. If selected the Email Address Policy option for User, Contacts, or Groups, a drop-down list appears with the following options:

- Enable email policy for objects created by DirSync
- Enable email policy for objects updated by DirSync
- Enable email policy for objects created or updated by DirSync
- Disable email policy for objects created by DirSync
- Disable email policy for objects updated by DirSync
- Disable email policy for objects created or updated by DirSync

56. Click the **Target DCs** tab to define the list of target Domain Controllers (DC's) to use when Directory Sync is searching for matched objects.

57. Click **Add DC(s)** to open the Active Directory DC Selection window. Click **Refresh DCs** to find all available Domain Controllers. Available options include **Ping Servers** to test the availability of the selected Domain Controllers and **Test Connections** to test the connection to the LDAP server. Select one or more Domain Controller (use Ctrl+Click to select more than one) and click **OK** to add the Domain Controllers to the list of Target DCs.
If you selected Domain level matching in the Target tab, only select Domain Controllers for the target Domain. No other Domains will be searched.

If you have selected Forest level matching in the Target tab, you must add at least one Domain Controller for each Domain that should be searched for matched objects. If you do not select at least one Domain Controller for a Domain, that Domain will not be searched during synchronization. Select more than one Domain Controller in a Domain for failover purposes.

Additionally defined Domain Controllers are only searched for matches if the previous Domain Controller is unavailable.

58. The Active Directory DC Selection window closes and the selected Domain Controllers appear in the Target DC’s list. The order the domain controllers are used can be selected by entering a number value in the Priority column (lowest number = first). Available options include Ping Servers to test the availability of the selected Domain Controllers and Test Connections to test the connection to the LDAP server.

Domain Controllers with no priority set will be used after those with a priority.

If no priority is set for the servers in a Domain, they will be used in the order listed in the table. A Domain Controller that is the Global Catalog Server selected on the AD Target tab is given top priority regardless of the value in the Priority field.

No two DC’s in a Domain can have the same priority.

59. Click the Matching tab.
AD attributes used for matching should be indexed. Follow the procedure at https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx to index AD attributes.

60. Select an option from the Matching Level drop-down list:
   - **Forest** – (default) Matching is done against the target Forest
   - **Domain** – Matching is done against the target Domain

   *This option is set to Domain for Intra-Forest profiles.*

61. Select an option from the Matching Action drop-down list:
   - **Create or Update** – (default) Creates objects that do not have matching objects in the Target and updates objects that have matching objects in the Target.
   - **Create only** – Creates objects that do not have matching objects in the Target. Objects that have matching objects in the Target are NOT updated, unless the object was created by Directory Sync. This means that even during an initial sync or a sync after a reset, objects previously created by Directory Sync will be updated.
   - **Update only** – Updates objects that have matching objects in the Target. Objects that do not have matching objects in the Target are NOT created.
   - **Match only, No Update** – Matching objects are updated in SQL, but no updates are done in the Target and no new objects are created in the Target.

62. Select the Match object types option to enable object type matching. Object types are Users, Contacts, Groups, and Devices. This option is enabled (checked) by default.

63. The default source to target attribute matching pairs are displayed. This defines what attributes Directory Sync will use to match objects in the Source to objects in the Target, as well as the order in which they will be used. The below table displays the default matching attribute pairs:

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>sAMAccountName</td>
<td>sAMAccountName</td>
</tr>
<tr>
<td>mail</td>
<td>mail</td>
</tr>
<tr>
<td>cn</td>
<td>cn</td>
</tr>
</tbody>
</table>

To customize the matching, select attributes from the drop-down lists under **Source** and/or **Target** or type in the names of attributes in the fields. The matching pairs are “either/or” statements (not “and” statements) with the first match attempted on the top row pair (Default: sAMAccountName -> sAMAccountName) and then proceeding in descending order to the next row pair and so on. At least one matching pair is required for the profile to be saved.
64. Select an option from the **Re-Link** drop-down list:

- **Enabled** – (default) SMART Directory Sync will attempt to re-link objects in the target by first looking for an object that has the adminDisplayName stamped with the source object’s unique identifier. If an object is found, then those two objects are linked and no other attempts at matching are performed. If an object is not found, then the process attempts to match to an object by searching based on the matching criteria. If a matching object is not found, then a new object is created.

- **Disabled** – SMART Directory Sync will not attempt to re-link objects in the target and will always match based on the matching criteria.

Whenever SMART Directory Sync creates a new object in the target or matches to an existing object in the target, it stamps the adminDisplayName attribute (for Active Directory) or the $BTSourceDirectoryID property (for Domino) of the target object with the source object’s unique identifier (objectGUID for AD objects and UNID for Domino objects). This effectively links these two objects together. This link is also maintained between the two objects in the SQL database and future updates are based on this SQL link. However, when a profile is reset, these SQL records are deleted.

When Re-Link is enabled, performance can be improved by indexing the adminDisplayName attribute. Follow the procedure at [https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx](https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx) to index AD attributes.

65. If the **Re-Link** option is enabled, select an option from the **Restore Ready to Sync** drop-down list:

- **Yes** – (default) The re-link process will set all re-linked objects to Ready To Sync.

- **No** – The re-link process will not reset the Ready To Sync setting on re-linked objects. This would allow you to prevent changes to objects until they are prepared.

66. Click the **Mapping** tab to view the default mapping or to edit how attributes should be translated from the source to the target Active Directory. Review the table and make the appropriate changes for your environment. Double-click a cell in the mapping table select a different field or type from a drop-down list. Click above the first row to create a new entry. Double-click on a cell in the Comments column to enter a comment. Appendix D contains the default mapping.

To revert to the default mappings, use CTRL+A to select all mappings, delete the mappings (Delete key), and click Yes when prompted to remove all entries.

The default mapping for attributes will be applied unless deleted. When creating custom mapping for an attribute, the default mapping for the attribute should be deleted.

There are two Target Type columns in the table. This allows you to restrict the type of object in the target directory that can be updated. If you set both types to the same value, then this mapping will only apply to that object type. If you set one to person and the other to group, the mapping will apply to user and group objects only. If both are set to any, the mapping is unrestricted and will apply to all object types.

The msExch mappings are not valid for Intra-Forest profiles.
Values that can be used for either mapping or matching can be entered manually or imported from a CSV file in the Mapped Values dialog box.

Mapped values for device objects is not currently supported. This feature will be supported in a future release.

1. Click the **Mapped Values** button. The Mapped Values window appears.
2. Values can be entered manually by clicking on the first row.

3. Values can also be imported from a CSV file by clicking the **Import** button.
4. Select a CSV file that has Source fields and values, Target fields and values, and the application of the mapping or matching. The final value of each row can be “Match”, “Map”, or “MatchMap”. “MatchMap” applies both matching and mapping.

67. Click **Save** to verify all required fields are populated and save the profile. You can save an incomplete profile as long as it is suspended.

68. Click **Overrides** to open the table of mapping overrides. These represent default system mappings specifically for the internal SQL fields, and are used to transpose values during creation and synchronization. Overrides are customizable and apply to all profiles. See Appendix E for more information on editing Overrides.

Overrides for device objects is not currently supported. This feature will be supported in a future release.

69. Create additional synchronization profiles as needed. To copy an existing profile, right-click on a profile in the table and select **Copy**. All profile settings will be copied into a new profile that can then be edited as necessary.

New profiles created by copy are suspended by default. Select the profile in the table and click **Activate Profile**.
2.3 Adding an Exchange Migration Synchronization Profile

The SMART Directory Sync Exchange Migration synchronization profile is used in support of an Exchange migration utilizing Binary Tree’s E2E Complete product. To add an Exchange Migration synchronization profile:

1. On the Profiles tab, click Add Profile.

2. In the Profile Type Selection window, select Exchange Migration and then click OK.

The following Profile Types are also available:

- **AD Migration/Synchronization** – used for both AD to AD directory synchronization and in support of an Active Directory migration utilizing Binary Tree’s SMART Active Directory Migrator product.
- **Active Directory to Domino Directory** – used to synchronize objects from an Active Directory source to a Domino directory target.
- **Domino Directory to Active Directory** – used to synchronize objects from a Domino directory source to an Active Directory target.
- **Windows Server Migration** – used in support of a Windows Server migration utilizing Binary Tree’s Windows Server Migration product.
3. A new pane appears at the bottom of the console which provides the ability to configure options for synchronization.

4. On the General tab, enter a name to identify the profile in the Name field.

5. Select the scope of the profile from the Scope drop-down list:
   - **Inter-Forest** – (default) will synchronize domains in different forests.
   - **Intra-Forest** – will synchronize domains within a forest. If selected, the Add x500 Proxy to Source and Resource Forest options must be set to No and msExch mappings are invalid. Before the profile can be saved with Intra-Forest chosen as the scope, the mappings for all of the msExch attributes will need to be removed.

6. Select the status of the profile from the Status drop-down list:
   - **Active** – will synchronize manually or as scheduled as soon as the profile is saved
   - **Suspended** – Not active, will not synchronize

7. Select the logging level of the profile from the Logging drop-down list:
   - **Low** – only errors are logged
   - **Medium** – errors and warnings are logged
   - **High** – all messages (errors, warnings, information, etc.) are logged (should be used for troubleshooting purposes only)

8. Select an Audit Logging option from the drop-down list:
   - **Enabled** – Records object and attribute changes in the Audit Log
   - **Disabled** – Object and attribute changes will not be recorded in the Audit Log
9. For **Schedule**, select the schedule:
   - **By frequency** – enter the appropriate frequency or the specific time for the synchronization process to run for your environment. Zero (0) is not a valid value for frequency. The minimum interval is 15 minutes.
   - **At specific times(s)** – enter one or more specific times or select times from the drop-down list of times.
     
     A selected time can be deleted by selecting the time and clicking the **Delete** key.
   - **Manual only** – the synchronization process will not run until it is manually started.

   If you choose the **By frequency** option, SMART Directory Sync will initiate a synchronization when an active profile is saved. Select the **At specific time(s)** option and select a time in the future or select the **Manual only** option if you want to save an active profile without it syncing right away. This would be helpful if you wanted to run a Sync Report or inspect items in SQL before pulling them into the target Active Directory.

10. Click the **AD Source** tab enter credentials that have read access to the source Active Directory. The required read access must extend to the Deleted Accounts container, which can require a privileged account.

11. In the **User Name** field, enter the Active Directory User Name.

   The credential should be entered as a user principal name (for example, jsmith@acmecorp.com)

12. In the **Password** field, enter the password assigned to the Active Directory user.

13. In the **Global Catalog Server** field, enter the IP Address or fully qualified domain name of the server (FQDN) for the Global Catalog Server or a Domain Controller that will be used for all read operations.
The entered credentials and Global Catalog Server/Domain Controller must have access to all Domains and subdomains that are required to synchronize.

14. Select an **Attribute Change Detection** option from the drop-down list:
   - **Enabled**– Only attributes changed on the source object will be synchronized
   - **Disabled**– All attributes on the source object will be synchronized

15. Click **Add OU(s)** to display a list of OU(s) (organizational units) available to synchronize.

16. Select the appropriate source OU’s and click **OK**. The selected source OUs are displayed in the Source OUs table.

17. The following Source OU fields display at the bottom of the screen used in the above example.
   - **Source OU** – Reflects the OU selected from the tree view.
   - **Sub OUs** – Select this option to synchronize Sub-OUs. The checkbox is selected by default. Clear this option if you do not want to synchronize sub-OUs.
   - **Groups** – checkbox is selected by default. Clear this option to skip groups from being synchronized.
   - **Disabled Users**– Select this option to synchronize Disabled Users. The checkbox is selected by default. Clear this option to prevent Disabled Users from being synchronized.
   - **Non-Mail Enabled** – Select this option to synchronize Non-mail enabled objects. The checkbox is not selected by default. Clear this option to skip Non-mail enabled objects from being synchronized.
- **User Filter**—This is a LDAP filter and can be used to filter synchronization to specific object types or those objects exhibiting specific attribute properties. See Using the User and Group LDAP Filters for more information.

- **Group Filter**—This is a LDAP filter and can be used to filter groups based on the entered criteria. See Using the User and Group LDAP Filters for more information.

The default User Filter and Group Filter values can be customized for your environment by editing the configuration file and changing the DefaultUserOUFilter and DefaultGroupOUFilter values. Binary Tree recommends that you test the LDAP filter syntax prior to saving your changes.

18. Click the **Source DCs** tab to define the list of Source Domain Controllers (DCs) used for synchronization.
19. Click **Add DC(s)** to open the Active Directory DC Selection window. Click **Refresh DCs** to find all available Domain Controllers. Available options include **Ping Servers** to test the availability of the selected Domain Controllers and **Test Connections** to test the connection to the LDAP server. Select one or more Domain Controllers and click **OK** to add the Domain Controllers to the list of Source DCs.

![Active Directory DC Selection window]

If your Active Directory forest contains more than one domain it may be necessary to add at least one domain controller from each domain. When SMART Directory Sync attempts to resolve objects, such as group members or a user’s manager, that are in another Domain (than the one specified on the Source tab), it will reference the domain controllers list to find a valid DC to use.

To ensure that group membership and manager/subordinate relationships are properly recreated, it is recommended to add the appropriate DC’s for alternate domains to the Source DC’s tab.

20. The Active Directory DC Selection window closes and the selected Domain Controllers appear in the Source DC’s list. The order the domain controllers are used for each Domain can be selected by entering a number value in the Priority column (lowest number = first). If the highest priority DC is unavailable, Directory Sync will use the next DC. Available options include **Ping Servers** to test the availability of the selected Domain Controllers and **Test Connections** to test the connection to the LDAP server.

Domain Controllers with no priority set will be used after those with a priority.

If no priority is set for the servers in a Domain, they will be used in the order listed in the table. A Domain Controller that is the Global Catalog Server selected on the AD Source tab is given top priority regardless of the value in the Priority field.

No two DC’s in a Domain can have the same priority.
21. Click the AD Target tab.

![SMART Directory Sync Console - Version 4.5.0.8](image)

22. In the **User Name** field, enter the name of the Active Directory user that has the required rights to the Target directory.

   **The credential should be entered as a user principal name (for example, jsmith@acmecorp.com)**

23. In the **Password** field, enter the password of the Active Directory user. These credentials should have write access to target OU, as well as any Domains or subdomains that may contain matched users.

24. In the **Global Catalog Server** field, enter the IP Address or fully qualified domain name of the server (FQDN) of the Global Catalog Server or Domain Controller that will be used for all write operations.

25. In the **Target OU**, Click **Browse** to select a target OU. Any newly created objects will be written to this OU.

26. Check the **Do not create source OUs in target** option if you do not want the source OU structure to be created as objects are synchronized to the target. All objects will be created directly in the Target OU specified for that profile.

27. Enter a default password for new users in the **Default Password** field.

   **Directory Sync does not validate the password policies present within your domains. Verify that the password entered complies with the password policy of your target environment. Objects will fail to be created if the password violates the target directory's password policy. The default password cannot exceed 128 characters in length.**
28. Select an option from the **Preserve Objects in Target** drop-down list to control what happens to target objects when the corresponding source objects are deleted:
   
   - **No** – (default) When objects are deleted in the source, the corresponding objects will be deleted from the target. This only applies to objects created in the target by SMART Directory Sync.
   
   - **Yes** – Objects that are deleted in the source will not be deleted in the target.

29. Select an option from the **Preserve Deleted Objects in Target As Is** drop-down list to control what happens to target objects if they are deleted:

   - **No** – (default) If an object previously synchronized is deleted on the target, it will be recreated.
   
   - **Yes** – If an object previously synchronized is deleted on the target, it will not be recreated.

30. Click the **AD Target Options** tab.

31. Click the **Users** sub-tab.

32. Select an option from the **Create Users as** drop-down list:

   - For Inter-Forest:
     
     - **As Is** – (default)
       
       - Mail-Enabled Users in the source will be Mail-Enabled Users in the target
       
       - Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
       
       - The Active Directory User Account Control property for enabled or disabled will be copied as is. In other words, user accounts that are enabled in the source, will be enabled in the target.
       
       - Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target
- **Mail-Enabled, AD Enabled** –
  - The Active Directory User Account Control property for enabled or disabled will always be set to Enabled. In other words, user accounts that are disabled in the source, will be enabled in the target.
  - Mail-Enabled Users in the source will be Mail-Enabled Users in the target
  - Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
  - Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target
- **Mail-Enabled, AD Disabled** –
  - The Active Directory User Account Control property for enabled or disabled will always be set to Disabled. In other words, user accounts that are enabled in the source, will be disabled in the target.
  - Mail-Enabled Users in the source will be Mail-Enabled Users in the target
  - Mailbox-Enabled Users in the source will become Mail-Enabled Users in the target
  - Mail-Enabled Contacts in the source will be Mail-Enabled Contacts in the target
- **Contact** –
  - Contacts, Mailbox-Enabled Users, Mail-Enabled Users will be created as Mail Enabled Contacts in the target
  - This option does not have logon capabilities, but can be used for maintaining mail flow for existing users, contacts and distribution lists
- **As Is** – (default)
  - Mail-Enabled Users in the source will be non-mail enabled users in the target
  - Mailbox-Enabled Users in the source will become non-mail enabled users in the target
  - The Active Directory User Account Control property for enabled or disabled will be copied as is. In other words, user accounts that are enabled in the source, will be enabled in the target
  - Mail-Enabled Contacts in the source will be Non-Mail Enabled Contacts in the target
- **Mail-Disabled, AD Enabled** –
  - The Active Directory User Account Control property for enabled or disabled will always be set to Enabled. In other words, user accounts that are disabled in the source, will be enabled in the target
  - Mail-Enabled Users in the source will be Non-Mail Enabled Users in the target
  - Mailbox-Enabled Users in the source will become Non-Mail Enabled Users in the target
  - Mail-Enabled Contacts in the source will be Non-Mail Enabled Contacts in the target

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**Microsoft Exchange cannot have duplicate objects in the same organization. As a result, all mail-enabled objects will have Microsoft Exchange properties removed, effectively creating non-mail enabled objects regardless of the source object type.**
- **Mail-Disabled, AD Disabled** –
  - The Active Directory User Account Control property for enabled or disabled will always be set to Disabled. In other words, user accounts that are enabled in the source, will be disabled in the target.
  - Mail-Enabled Users in the source will be Non-Mail Enabled User in the target
  - Mailbox-Enabled Users in the source will become Non-Mail Enabled Users in the target
  - Mail-Enabled Contacts in the source will be Non-Mail-Enabled Contacts in the target
- **Contact** –
  - Contacts, Mailbox-Enabled Users, Mail-Enabled Users will be created as Non-Mail Enabled Contacts in the target.
  - This option does not have logon capabilities, but can be used for maintaining mail flow for existing users, contacts and distribution lists.

<table>
<thead>
<tr>
<th>The Mail-Enabled, AD Enabled option creates Active Directory users with logon capabilities in the target domain and all properties from the source’s object, including mail addresses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Mail-Enabled, AD Enabled option can override the properties found in the Source AD environment. For example, a Disabled Mail-Enabled User found in the source will be enabled in the target if the Mail-Enabled, AD Enabled option is selected. Conversely, an enabled user found in the source will be disabled in the target if the Mail-Enabled, AD Disabled option is selected. Directory Sync will not create Mailbox-Enabled Users in the target directory.</td>
</tr>
<tr>
<td>Due to a sAMAccountName size limit of 20 characters in Active Directory, user objects with calculated sAMAccountName names greater than 20 characters in length are truncated to 20 characters. Truncated sAMAccountNames will be appended with a random number from 1 to 9999 to ensure uniqueness. This does not apply to group objects.</td>
</tr>
</tbody>
</table>

33. Select an option for handling user account collisions when two users of the same name are found from the Users Collisions drop-down list:

- **Update** – (default) If a user with the same name is found in the target domain, the users will be updated in the target AD. User collisions are determined based on the options selected on the Matching tab of the profile.
- **Skip** – The user will not be synchronized into the target AD and a warning entry will be entered into the log entry stating that the source user will not be synchronized to the target directory.

A user that was previously synchronized to the target will fail to sync if a manual /repushpull /resync is run. This occurs because a target object with a matching sAMAccountName will already exist. If this is not the desired behavior, before running the /repushpull and /resync commands, administrators should clear the target directory of any previously created objects.
• **Rename** - This allows you to define a prefix or suffix to be added to the sAMAccountName of the user when it is written in the target directory. This option creates a new user using the existing name and the prefix or suffix to bypass the user collision when selected. Prefix is selected by default. To define a specific value for the prefix or suffix, select the **Specific Value** option and enter the value. To use a value from an internal field, select the **Internal Field** option and select a field from the drop-down list.

If selecting an internal field, a Boolean (True/False) field or an empty field should not be selected. User accounts where the sAMAccountName exceeds 20 characters will not be created in the Target and an error will be logged.

34. Select an option from the **Do not overwrite target Proxy Addresses** drop-down list:
   - **Yes** – Proxy Addresses will only be updated during initial sync if the target object has no proxy addresses. Proxy addresses will not be updated on subsequent syncs.
   - **No** – (default) Proxy Addresses on the target are overwritten.

35. Click the **Groups** sub-tab.

36. Select an option from the **Create Groups as** drop-down list:
   - **As Is** – (default) Groups are created as they are in the source:
     - Global groups in the source will be Global groups in the target
     - Universal groups in the source will be Universal groups in the target
   - **Contact** – Groups will be contacts in the target.
   - **Global Group** – All groups in the source will be Global groups in the target.
   - **Universal Group** – All groups in the source will be Universal groups in the target.
Universal groups must be used if the target group will contain members from other AD Domains, otherwise those members will not be added to the group.

37. Select an option for handling group collisions when two groups of the same name are found from the Group Collisions drop-down list:

- **Merge** – If a group with the same name is found in the target domain, the members of the source group will be added to the target group. Group collisions are determined based on Name first, then based on the options selected on the Matching tab of the profile.

- **Skip** – (default) The group will not be synchronized into the target AD and a warning entry will be entered into the log entry stating that the source group will not be synchronized to the target group.

A group that was previously synchronized to the target will fail to sync if a manual /repushpull /resync is run. This occurs because a target object with a matching sAMAccountName will already exist. If this is not the desired behavior, before running the /repushpull and /resync commands, administrators should clear the target directory of any previously created objects.

- **Rename** - This allows you to define a prefix or suffix to be added to the name of the group when it is written in the target directory. This option creates a new group using the existing name and the prefix or suffix to bypass the group collision when selected. Prefix is selected by default. To define a specific value for the prefix or suffix, select the **Specific Value** option and enter the value. To use a value from an internal field, select the **Internal Field** option and select a field from the drop-down list.

If selecting an internal field, a Boolean (True/False) field or an empty field should not be selected.

Directory Sync will attempt to add a group member to the target if it can find the member in the source. If the member in the source is in a different Domain than the group, the member will only be added to the group in the target if it already exists in the target. If Directory Sync cannot find the member in the source, the member will not be added to the group in the target. The Sync Report will explain why a member could or could not be synchronized.
38. Click the Exchange Target Options tab.

![Image of SMART Directory Sync console]

39. Select an option from the **GAL Visibility** drop-down list:

   - **Visible** – (default) Users and groups are visible in the GAL.
   - **Hidden** – Users and groups are hidden in the GAL.
   - **As Is** – Users and groups that are hidden in the GAL in the source are hidden in the GAL in the target. Users and groups that are visible in the GAL in the source are visible in the GAL in the target.

When synching objects into Exchange 2003 (only), the option to hide from the GAL will not function if the Recipient Update Service (RUS) is enabled.

If synching to an Active Directory that does not have Exchange in the environment, select the Hidden option to avoid Active Directory constraint errors.

This option does not apply to Intra-Forest profiles.

40. If you select Yes for the **Only Update Mailbox Enabled Objects** option, only mailbox-enabled objects in the target directory will be updated with values from the source object based on the mapping table settings. If this is set to No (default), mailbox-enabled objects in the target directory will be skipped and noted in the sync report. If you intend to update both, you must use two separate profiles.

**USE WITH CAUTION!** This is not a commonly occurring preference as the authoritative object is most often where the mailbox is located.
41. The **Add X500 Proxy to Source** option allows you to add the LegacyExchangeDN of any mail enabled object in the target as an additional X500 proxy address to the source mailboxes. If **Yes** is selected, an X500 proxy address is added to all corresponding objects in the AD Source forest. If selecting **Yes**, you must check the statement of understanding that appears below the option. **No** is selected by default.

   **This option must be set to No for Intra-Forest profiles.**

42. The **Resource Forest** option allows you to define the AD Target as a Resource Forest. This is required if you plan to later migrate mailboxes to your Target forest. If **Yes** is selected, the Master Account SID will be set on the AD Target objects. **No** is selected by default.

   **This option must be set to No for Intra-Forest profiles.**

43. Select **Email Address Policy** options for Users, Contacts, and Groups:
   - **Unselected** – (default) Directory Sync will not enable the target object attribute to ‘Automatically update email addresses based on email address policy’ in Exchange.
   - **Selected** – Directory Sync will enable the target object attribute to ‘Automatically update email addresses based on email address policy’ in Exchange.

   **Directory Sync will only apply the attribute to ‘Automatically update email addresses based on email address policy’ to the target object. It cannot apply the email address policy.**

   **This option does not apply to Intra-Forest profiles.**

44. If selected the **Email Address Policy** option for User, Contacts, or Groups, a drop-down list appears with the following options:
   - Enable email policy for objects created by DirSync
   - Enable email policy for objects updated by DirSync
   - Enable email policy for objects created or updated by DirSync
   - Disable email policy for objects created by DirSync
   - Disable email policy for objects updated by DirSync
   - Disable email policy for objects created or updated by DirSync
Click the **Target DCs** tab to define the list of target Domain Controllers (DCs) to use when Directory Sync is searching for matched objects.

Click **Add DC(s)** to open the Active Directory DC Selection window. Click **Refresh DCs** to find all available Domain Controllers. Available options include **Ping Servers** to test the availability of the selected Domain Controllers and **Test Connections** to test the connection to the LDAP server. Select one or more Domain Controllers (use Ctrl+click to select more than one) and click **OK** to add the Domain Controllers to the list of Target DCs.
If you selected Domain level matching in the Target tab, only select Domain Controllers for the target Domain. No other Domains will be searched.

If you have selected Forest level matching in the Target tab, you must add at least one Domain Controller for each Domain that should be searched for matched objects. If you do not select at least one Domain Controller for a Domain, that Domain will not be searched during synchronization.

Select more than one Domain Controller in a Domain for failover purposes.

Additionally defined Domain Controllers are only searched for matches if the previous Domain Controller is unavailable.

47. The Active Directory DC Selection window closes and the selected Domain Controllers appear in the Target DC's list. The order the domain controllers are used can be selected by entering a number value in the Priority column (lowest number = first). Available options include Ping Servers to test the availability of the selected Domain Controllers and Test Connections to test the connection to the LDAP server.

Domain Controllers with no priority set will be used after those with a priority.

If no priority is set for the servers in a Domain, they will be used in the order listed in the table. A Domain Controller that is the Global Catalog Server selected on the AD Target tab is given top priority regardless of the value in the Priority field.

No two DC's in a Domain can have the same priority.

48. Click the Matching tab.
AD attributes used for matching should be indexed. Follow the procedure at https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx to index AD attributes.

49. Select an option from the **Matching Level** drop-down list:
   - **Forest** – (default) Matching is done against the target Forest.
   - **Domain** – Matching is done against the target Domain

   This option is set to **Domain** for Intra-Forest profiles.

50. Select an option from the **Matching Action** drop-down list:
   - **Create or Update** – (default) Creates objects that do not have matching objects in the Target and updates objects that have matching objects in the Target.
   - **Create only** – Creates objects that do not have matching objects in the Target. Objects that have matching objects in the Target are NOT updated, unless the object was created by Directory Sync. This means that even during an initial sync or a sync after a reset, objects previously created by Directory Sync will be updated.
   - **Update only** – Updates objects that have matching objects in the Target. Objects that do not have matching objects in the Target are NOT created.

   During synchronization, if a source object matches to more than one target object, the source object is skipped and a warning is generated in the sync report.

51. Select the **Match object types** option to enable object type matching. Object types are Users, Contacts, and Groups. This option is disabled (unchecked) by default.

52. The default source to target attribute matching pairs are displayed. This defines what attributes Directory Sync will use to match objects in the Source to objects in the Target, as well as the order in which they will be used. The below table displays the default matching attribute pairs:

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>sAMAccountName</td>
<td>sAMAccountName</td>
</tr>
<tr>
<td>mail</td>
<td>mail</td>
</tr>
<tr>
<td>cn</td>
<td>cn</td>
</tr>
</tbody>
</table>

To customize the matching, select attributes from the drop-down lists under **Source** and/or **Target** or type in the names of attributes in the fields. The matching pairs are “either/or” statements (not “and” statements) with the first match attempted on the top row pair (Default: sAMAccountName -> sAMAccountName) and then proceeding in descending order to the next row pair and so on. However, more than one Source attribute can be paired with a single Target attribute. At least one matching pair is required for the profile to be saved.

53. Select an option from the **Re-Link** drop-down list:
   - **Enabled** – (default) SMART Directory Sync will attempt to re-link objects in the target by first looking for an object that has the adminDisplayName stamped with the source object’s unique identifier. If an object is found, then those two objects are linked and no other attempts at matching are performed. If an
object is not found, then the process attempts to match to an object by searching based on the matching criteria. If a matching object is not found, then a new object is created.

- **Disabled** – SMART Directory Sync will not attempt to re-link objects in the target and will always match based on the matching criteria.

Whenever SMART Directory Sync creates a new object in the target or matches to an existing object in the target, it stamps the adminDisplayName attribute (for Active Directory) or the $BTSourceDirectoryID property (for Domino) of the target object with the source object’s unique identifier (objectGUID for AD objects and UNID for Domino objects). This effectively links these two objects together. This link is also maintained between the two objects in the SQL database and future updates are based on this SQL link. However, when a profile is reset, these SQL records are deleted.

When Re-Link is enabled, performance can be improved by indexing the adminDisplayName attribute. Follow the procedure at [https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx](https://technet.microsoft.com/en-us/library/aa995762(v=exchg.65).aspx) to index AD attributes.

54. Click the Mapping tab to view the default mapping or to edit how attributes should be translated from the source to the target Active Directory. Review the table and make the appropriate changes for your environment. Double-click a cell in the mapping table select a different field or type from a drop-down list. Click above the first row to create a new entry. Double-click on a cell in the Comments column to enter a comment. See AD Source – AD Target Default Mapping for the default mapping.

To revert to the default mappings, use CTRL+A to select all mappings, delete the mappings (Delete key), and click Yes when prompted to remove all entries.

The default mapping for attributes will be applied unless deleted. When creating custom mapping for an attribute, the default mapping for the attribute should be deleted.

When creating a custom mapping, use a CustomXX field (Custom01 to Custom99) that has not already been used for other mappings or in the overrides. Do not use a BTCustom0XX field. Either review this information in the SMART Directory Sync Mapping and Overrides user interface or in the SQL database.

There are two Target Type columns in the table. This allows you to restrict the type of object in the target directory that can be updated. If you set both types to the same value, then this mapping will only apply to that object type. If you set one to person and the other to group, the mapping will apply user and group objects only. If both are set to any, the mapping is unrestricted and will apply to all object types.

The msExch mappings are not valid for Intra-Forest profiles.
Values that can be used for either mapping or matching can be entered manually or imported from a CSV file in the Mapped Values dialog box.

1. Click the **Mapped Values** button. The Mapped Values window appears.
2. Values can be entered manually by clicking on the first row.
3. Values can also be imported from a CSV file by clicking the **Import** button.
4. Select a CSV file that has Source fields and values, Target fields and values, and the application of the mapping or matching. The final value of each row can be “Match”, “Map”, or “MatchMap”. “MatchMap” applies both matching and mapping.
55. Click **Save** to verify all required fields are populated and save the profile. Incomplete profiles can be suspended and completed at a later time by clicking **Suspend Profile**. You can save an incomplete profile as long as it is suspended.

56. Click **Overrides** to open the table of mapping overrides. These represent default system mappings that apply to all profiles. You may customize Overrides. See Customizing Overrides for more information on editing Overrides.

57. Create additional synchronization profiles as needed. To copy an existing profile, right-click on a profile in the table and select **Copy**. All profile settings will be copied into a new profile that can then be edited as necessary.

   New profiles created by copy are suspended by default. Select the profile in the table and click **Activate Profile**.

### 2.4 Importing and Exporting a Profile

Synchronization profiles can be imported and exported. The Export Profile option exports all of the configuration options for the selected profile and creates a DSProfile file that can be saved for backup purposes. The Import Profile option allows a DSProfile file to be imported and all of the configuration options for a profile restored.

Imported profiles are suspended by default and must be activated before they can be synchronized.

To import a synchronization profile:

1. Click **Import Profile**.
2. Select an import file and click **Open**. The imported profile is suspended by default and must be activated before it can be synchronized.
To export a synchronization profile:

1. When viewing a profile, click Export Profile. You can also right-click on a profile in the table and select Export.
2. Enter a file name for the export file and click Save.

### 2.5 Suspending and Activating a Profile

Suspending a synchronization profile disables the profile from synchronizing. Note that you also cannot manually run a synchronization of a suspended profile using the Sync Profile button, right-click menu, or command line commands. Suspended profiles remain in the list of profiles and can be reactivated at any time.

To suspend an active synchronization profile:

1. Select a profile you wish to suspend.
2. Click Suspend Profile. The status of the profile is changed to “Suspended”.

To activate a suspended synchronization profile:

1. Select a suspended profile you wish to activate.
2. Click Activate Profile. The status of the profile is changed to “Active”.

### 2.6 Removing a Profile

Removing a synchronization profile will delete it from the list of profiles. Removed profiles cannot be restored.

To remove a synchronization profile:

1. Select a profile you wish to remove.
2. Click Remove Profile.
3. Click Yes to confirm. The profile is deleted from the list of profiles.

### 2.7 Resetting a Profile

Resetting a synchronization profile causes the database for the profile to be cleared. This clears the sync database, not the profile properties.

If there are multiple profiles for the same AD Source and one of the profiles is reset, all data for the AD Source is deleted in the SQL database.

To reset a synchronization profile:

1. Select a profile you wish to reset.
2. Click Reset Profile.
3. Click Yes to confirm. The profile is reset.
Section 3. Running Sync Reports

Overview

The Sync Report has two primary functions. The first is as an analytical tool used prior to synchronizing any objects into a target directory, and the second is as a logging feature to view the details of each synchronization.

Prior to synchronizing any object into the target, the source directory(ies) must be analyzed to identify any objects that could be problematic. This is a critical step to a successful sync and should not be overlooked.

The Sync Report reads the source directory(ies) and writes the data into SQL. This is the same action taken if you were to initiate a Push command. The source data is analyzed to determine the result if you were to Pull the data into the target directory. The Sync report should be run prior to the first sync, as well as prior to running a sync after you have made a change to the profile, to confirm the intended results. The Sync Report is populated anytime a Sync Profile is actually run. Information at the top of the Sync Report will differentiate if the Sync Report is a result of a simulation or a synchronization.

Common issues that must be corrected prior to synchronizing Active Directories.

<table>
<thead>
<tr>
<th>SMTP Addresses</th>
<th>Duplicate SMTP Addresses - These objects will be skipped with a warning that the SMTP address is already in SQL. Any object you wish to sync must have a valid and <strong>unique</strong> SMTP Address.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Match Values</td>
<td>Dirsync allows you to define up to 4 field/attribute pairs to match objects in the source to objects in the target. If the source value matches to more than one target object value, Dirsync will skip the object. This must be corrected if you intend for this object to synchronize to the target directory. The Sync Report allows you to see the matched object between the source and target. These should be reviewed to ensure that your match criteria are valid for your environment.</td>
</tr>
</tbody>
</table>

Running a Sync Report

To run a Sync Report:

1. Once you have created a profile, click the **Sync Report** button. This opens the Sync Report window. The example in this section is a Domino to Active Directory profile.
2. Click **Run Simulation** and **Yes** to confirm. Click the **Refresh** button to populate the UI with the most recent data.

A sync report performs a Push into SQL, so it is important that you reset the profile prior to running a sync if you have made any changes to the source data or the profile settings. If you do not clear the profile, the data that is in SQL from the Sync Report will be pulled to the target directory.

**Objects tab**

The **Objects** tab contains all of the objects in the source and the action that would have been taken had the profile been synched to the target. All of the columns can be sorted, filtered or reordered (drag and drop). Review any objects that were skipped in the Operations column, as well as any warnings in the Status column. You can double click on any entry to open the details for that object. The Details windows displays all of the details for the object, including the attributes and values that would be written to Active Directory. The Internal Fields tab displays the values that are written to SQL. Once corrected, you can run another sync report to validate the changes.
Object Issues tab

The **Object Issues** is a filtered list showing all issues that would have occurred during a simulation or all issues that did occur during a synchronization.
Members tab

The Members tab displays details for group synchronization. Here you can see each member of all of the groups that would be synched to Active Directory. You can filter the Status column for warnings to easily view any issues that should be resolved. The most common reason that a member of a distribution list cannot be added to the target distribution list is because the member is not in the source Domain. See the example below.
Member Issues tab

The Member Issues is a filtered list showing all issues would have occurred during a simulation or all issues that did occur during a synchronization.

Object Summary tab

The Object Summary tab displays a summary of each object type, the operation performed, the status and the object count.
Members Summary tab

The Members Summary tab displays a summary of group membership synchronization. It displays the number of members added to groups, number of skipped members and the total number of errors or warnings.

Profile tab

The Profile tab lists all of the settings for the profile for which the Sync was run. This can easily be exported for troubleshooting purposes.
Source DCs tab

This tab appears on AD to Domino or AD to AD profiles only and displays the Domain Controllers listed in the Source AD tab of the profile.

Target DCs tab

The Target DCs tab will display all of the Domain Controllers configured in the Target DCs tab. It also shows the priority in which they will be used. The default will always be used unless it is unreachable.
Section 4. Running Directory Sync

There are four ways to run Directory Sync:

- Scheduling Directory Sync to run programmatically by defining a schedule for the synchronization profile to run. See Configuring Active Directory Synchronization for more info.
- Manually starting synchronization by selecting a profile and clicking the Sync Profile button.
- Manually starting a synchronization process by right-clicking on a profile and selecting a synchronization option.
- Manually run Directory Sync commands from a command line.

4.1 Manually Starting a Synchronization using a Sync Profile

A synchronization or sync report of a profile cannot be started if a synchronization or sync report of the profile is already running.

To manually start synchronization:

1. Select a profile to synchronize.
2. Click Sync Profile. The synchronization is started. This runs a complete sync of the profile (push/pull).

4.2 Manually Starting a Synchronization Process using the Right-Click Menu

A synchronization or sync report of a profile cannot be started if a synchronization or sync report of the profile is already running.

To manually start a synchronization process:

1. Right-click a profile to synchronize.
2. Click one of the following options:
   - **Push** - Pushes all changed entries in the source to SQL
   - **Pull** - Pulls all changed entries from SQL to the target
   - **Repush** - Pushes all source entries regardless of modification date to SQL (the profile is reset prior to running a Push or a full Sync)
   - **Repull** - Same as a Pull and will only pull changed objects or objects that need to be resynced (for example, because they failed on a prior pull)
   - **Repushpull** - Combines the Repush and Repull commands into one step (the profile is reset prior to running a Push or a full Sync)
   - **Cancel** - Cancels a Sync
4.3 Manually Starting a Synchronization Process from a Command Line

A synchronization or sync report of a profile cannot be started if a synchronization or sync report of the profile is already running.

To manually start a synchronization process from a command line:

1. Open a Command Prompt window.
2. Navigate to %Program Files%\Binary Tree\Dirsync

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>binarytree.dirsync.exchange.exe /validate &lt;Profile ID&gt;</td>
<td>Verifies that your settings are correct</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /push &lt;Profile ID&gt;</td>
<td>Pushes all changed entries in the source to SQL</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /pull &lt;Profile ID&gt;</td>
<td>Pulls all changed entries from SQL to the target</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /repush &lt;Profile ID&gt;</td>
<td>Pushes all source entries regardless of modification date to SQL</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /repull &lt;Profile ID&gt;</td>
<td>Same as a Pull and will only pull changed objects or objects that need to be resynced</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /repushpull &lt;Profile ID&gt;</td>
<td>Combines the /repush and /repull commands into one step</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /pushpull &lt;Profile ID&gt;</td>
<td>Combines the /push and /pull commands into one step</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /sync &lt;Profile ID&gt;</td>
<td>Performs the equivalent of a /pushpull on all saved profiles without prompting the user to select one</td>
</tr>
<tr>
<td>binarytree.dirsync.exchange.exe /resync &lt;Profile ID&gt;</td>
<td>Performs the equivalent of a /repushpull on all saved profiles without prompting the user to select one</td>
</tr>
</tbody>
</table>

Binary Tree recommends that you remove existing objects from the target OU before running Repush, Repull, or Repushpull.

If you do not include a Profile ID in the command, you will be prompted to choose one.
Section 5. Using the SMART Directory Sync Log Viewer to View Logs and Audits

The SMART Directory Sync Log Viewer allows you to view, search, export, and clear synchronization logs and audit reports on changes to all items in the target environment.

To open and view logs and audits in the SMART Directory Sync Log Viewer:

1. In the SMART Directory Sync Console, click the View Logs and Auditing button. The SMART Directory Sync Log Viewer opens.
2. Select the Logs tab to view the synchronization logs or the Audits tab to view the audit reports.
3. The Synchronization profile is automatically selected and log entries associated with the profile are displayed. To change the profile, select a different profile from the Profile drop-down list. Click the Refresh icon next to the Profile drop-down list to refresh the list of profiles and the log grid.

5.1 Searching Log or Audit Entries

To search for log or audit entries:

- Enter a search term in the Search field and then click the Find icon. The table refreshes to show the search results.

5.2 Pausing a Log

You can stop the continuous scrolling of the log to allow for easier reading. This feature pauses the display only, not the logging function.

To pause the log:

1. Click the Pause icon.
2. To restart the log display, click the Play icon (next to "Paused").
5.3 Showing Log or Audit Entries for a Time Period

To show all log or audit entries for a time period:

- Select a "Show..." option from the drop-down list near the upper right corner of the console. The table refreshes to show all log or audit entries for the selected time period.

5.4 Filtering the Log or Audits

To filter the log or audit:

1. Click the filter button on any column header to open the filter window.
2. Enter the filter criteria, and then click Filter. The table refreshes to the filtered log entries.
3. Use the Clear Filter button to clear the filter.
5.5 Grouping the Log or Audits by Column

To group the log or audits by a column:

- Drag a column header to the bar above the log table to group the log by a specific column. The table refreshes grouped by the selected column.

![Grouped log table example]

5.6 Viewing Log or Audit Entry Details

To view log or audit entry details:

- Click the plus icon in the log or audit entry. The entry expands to display the details of the log or audit entry.

Log entries:

![Log entry table example]

Audit entries:

![Audit entry table example]

Audit log displaying one entry:
Audit log displaying modified attributes:

5.7 Exporting Log or Audit Entries
To export the log or audit entries of the currently selected profile:

1. Click **Export All**.
2. Enter a File name, location, a file type, and then click **Save**.

5.8 Clearing Log Entries
To clear old log entries of the currently selected profile:

1. Click **Clear**. The Clear Log window opens.

   ![Clear Log window](image)

2. Select a number and time unit (Weeks, Days, or Hours) from the drop-down list to clear the log or audits of older entries and then click **OK**.

3. Also for Log entries, you have the option to clear the log entries of all profiles older than the selected time automatically by selecting **Clear log automatically**. The **Clear Log Automatically** option is not available for Audits.

   Binary Tree recommends that the logs be set to clear automatically to prevent the accumulated data from becoming too large.
To clear all log and audit entries of the currently selected profile:

1. Click **Clear All**. All log or audit entries of the currently selected profile are cleared.

If an Audit Log is cleared, the following is an example of the record that will be displayed showing that the entries were removed (cleared).

<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
<th>Object Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/30/2013 1:28:06 PM</td>
<td>Audit Clear</td>
<td>%ESE%SO%%ESE%1on</td>
<td>7 records removed</td>
</tr>
</tbody>
</table>
Section 6. Updating the Groups to Ignore List in SQL

By default, Directory Sync is configured with a list of typical AD and Exchange security groups that will not be synchronized. You can update the Groups to Ignore List in SQL by using either the SQL Server Management Studio (SSMS) or the SQL Import and Export Data tool.

You may also choose to not synchronize any Security groups via the Group Filter, which will prevent all groups matching the criteria from being entered into SQL. This must be configured before the initial synchronization, or you will have to remove all the security groups from SQL and AD prior to using this option.

6.1 Default List of Groups in the Groups to Ignore List for Active Directory Synchronization

The default list of groups in the Groups to Ignore List includes:

- NT Authority
- Dialup
- Network
- Batch
- Interactive
- Logon Session
- Service
- Anonymous
- Proxy
- Enterprise Domain Controllers
- Principal Self
- Authenticated Users
- Restricted Code
- Terminal Server Users
- Remote Interactive Logon
- This Organization
- Local System
- NT Authority
- Administrator
- Guest
- KRBTGT
- Domain Admins
- Domain Users
- Domain Guests
- Domain Computers
- Cert Publishers
- Schema Admins
- Enterprise Admins
- Group Policy Creator Owners
- RAS and IAS Servers
- Administrators
- Users
- Guests
- Power Users
- Account Operators
- Server Operators
- Print Operators
- Backup Operators
- Replicators
- NTLM Authentication
- SChannel Authentication
- Digest Authentication
- NT Service
- Untrusted Mandatory Level
- Delegated Setup
- Discovery Management
- Exchange All Hosted Organizations
- Exchange Organization Administrators
- Exchange Public Folder Administrators
- Exchange Recipient Administrators
- Exchange Servers
- Exchange Trusted Subsystem
- Exchange View-Only Administrators
- Exchange Windows Permissions
- ExchangeLegacyInterop
- Hygiene Management
- Organization Management
- Public Folder Management
- Recipient Management
- Records Management
- Server Management
- UM Management
- View-Only Organization Management
- Updating Groups to Ignore List in SQL
- By default, Directory

6.2 Updating the Groups to Ignore List with the SQL Server Management Studio (SSMS)

Perform the following steps from SSMS to add or remove groups from the Groups to Ignore List in SQL. This process is preferred if you have a small number of changes to make. Refer to Updating the Groups to Ignore List via the SQL Import and Export Data Tool for larger updates.

To add or remove groups from the Groups to Ignore List in SQL:

1. Launch the SQL Server Management Studio.
2. Navigate to the BTCodex server and database, expand Tables, and then right click on the `dbo.Dirsync_GroupsToIgnore`.
3. Select **Edit Top 200 Rows** from the list.
4. Add new entries at the bottom.

If you have more than 200 groups to ignore, you can increase the number of rows shown:

a. Run the SQL Server Management Studio.
b. Click **Tools -> Options**
c. Select **SQL Server Object Explorer**. Now you should be able to see the Table and View options:
   - Value for Edit Top Rows Command
   - Value for Select Top Rows Command
d. Set the Values to 0 to edit and select all the records.

6. The table displays the **Select All Rows** and **Edit All Rows** options.
6.3 Updating the Groups to Ignore List with the SQL Import and Export Tool

To use the SQL Import and Export Data tool to update the Groups to Ignore List in SQL:

1. Expand the Microsoft SQL Server 2008 R2 folder and select **Import and Export Data (32-bit)**.

2. Select the data source from which you want to copy data, and then click **Next**.

3. Select the destination where data is to be copied.
4. Select **Copy data from one or more tables or views**, and then click **Next** to continue.

5. Choose one or more tables and views to copy, and then click **Edit Mappings**.
6. Select **Append rows to the destination table** and fill in the values in the **Destination** column, then click **OK**.

![Column Mappings](image1.png)

7. Select **Run immediately** and then click **Finish**.

![SQL Server Import and Export Wizard](image2.png)

### 6.4 Excluding Security Groups from Synchronization with the Group Filter

Select the appropriate Profile and Source OU in the Directory Sync UI and double-click on Group Filter on the AD Source tab.

![Source OUs](image3.png)

Replace (objectClass=Group) with (objectClass=Group)!(groupType:=-2147483646) and click Save.
Binary Tree recommends that you use the Active Directory Users and Computers management console to test your filters to prevent Directory Synchronization from failing due to an invalid filter.

Synchronizing Rooms from Exchange 2003 to Exchange 2010

Due to the differences in the management of Rooms between Exchange 2003 and Exchange 2010, a custom mapping is required for Rooms from an Exchange 2003 source to appear as a Room object in a target Exchange 2010 environment. The following fields must appear in the target Room objects for them to display as Rooms.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSExchResourceDisplay</td>
<td>Room</td>
</tr>
<tr>
<td>MSExchResourceMetaData</td>
<td>Resource Type: Room</td>
</tr>
<tr>
<td>MSExchResourceSearchProperties</td>
<td>Room</td>
</tr>
<tr>
<td>MSExchResourceDisplayType</td>
<td>7</td>
</tr>
<tr>
<td>MSExchResourceRecipientTypeDetails</td>
<td>16</td>
</tr>
</tbody>
</table>

The Room must be a mailbox–enabled object in the source AD and cannot be a Public Folder

Binary Tree does not recommend manually editing any attributes from the target directory. All updates should be from the authoritative source directory or via custom mapping

There must be an identifying attribute in the source object that is used to distinguish these objects as Exchange 2003 Rooms. For this example, we have set the extension Attribute1 to “btroom”.

To customize the mapping so that Exchange 2003 rooms appear as rooms in Exchange 2010:

1. From the Mapping tab, click Overrides. The View Overrides window appears.
3. Click **Add**. The Override dialog appears.

4. Select a **Person** or **Groups** from the **View** drop-down list.

5. Enter the following values:
   - **FieldName**: Enter the name of the field from the view that you want to override (TargetAddress, BTCustom001, and so on)
   - **FieldValue**: Enter the SQL statement that is used to calculate the value for the field.

<table>
<thead>
<tr>
<th>View</th>
<th>Field Name</th>
<th>Field Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person</td>
<td>as msExchResourceDisplay</td>
<td>CASE WHEN P.msExchResourceDisplay IS NOT NULL THEN P.msExchResourceDisplay ELSE (CASE P.Extension1 WHEN 'btroom' THEN 'Room' ELSE NULL END) END</td>
</tr>
<tr>
<td>Person</td>
<td>msExchResourceMetaData</td>
<td>CASE WHEN P.msExchResourceMetaData IS NOT NULL THEN P.msExchResourceMetaData ELSE (CASE P.Extension1 WHEN 'btroom' THEN 'ResourceType:Room' ELSE NULL END) END</td>
</tr>
<tr>
<td>Person</td>
<td>msExchResourceSearchProperties</td>
<td>CASE WHEN P.msExchResourceSearchProperties IS NOT NULL THEN P.msExchResourceSearchProperties ELSE (CASE P.Extension1 WHEN 'btroom' THEN 'Room' ELSE NULL END) END</td>
</tr>
</tbody>
</table>

7. Once these rooms are in the target directory, go to the Exchange Management Console (EMC) in the target 2010 environment.

8. Expand the Organization Configuration folder, select Mailbox, and then select All Rooms.

9. Right click on All Rooms and then select Apply.
10. Click **Next** and then **Finish** to reapply the address list.
Appendix B: Additional Configuration Options

Changing the attribute used for "Created by Dirsync" or "Updated by Dirsync"

By default, the adminDescription attribute is stamped on objects on the Target that are created or updated by SMART Directory Sync with "Created by Dirsync" or "Updated by Dirsync" to define which objects can be safely deleted from the Target. An app setting is available in the config file to allow you to define a different attribute/field for this purpose.

To use an attribute other than adminDescription, define a new DirSyncAttribute setting in the <appSettings> section of the config file. For example, the below setting will use adminDisplayName instead of adminDescription:

```
Warning: This must be configured before the initial sync.

<appSettings>
<add key="DirSyncAttribute" value="adminDisplayName"/>
</appSettings>
```

Setting msExchRecipientDisplayType and msExchRecipientTypeDetails Exchange attributes

A configuration option to allow you to set msExchRecipientDisplayType and msExchRecipientTypeDetails Exchange attributes based on the value of a configurable attribute is available.

The configuration option must defined in the <appSettings> section of the config file, as shown below. “Value=” should contain the attribute to be used. (proxyAddresses shown below). If the value of the attribute is null, msExchRecipientDisplayType and msExchRecipientTypeDetails will be populated. See the list below for the values that will be populated.

```
<appSettings>
<add key="RecipientType_MailEnabledAttribute" value="proxyAddresses"/>
</appSettings>
```

Mail Enabled Users in the source:

- msExchRecipientDisplayType = 6
- msExchRecipientTypeDetails = 128

Room Mailbox in the source:

- msExchRecipientDisplayType = 7
- msExchRecipientTypeDetails = 16

Resource Mailbox in the source:

- msExchRecipientDisplayType = 8
- msExchRecipientTypeDetails = 32
Shared Mailbox in the source:

- msExchRecipientDisplayType = 0
- msExchRecipientTypeDetails = 4

**Allow objects with remote mailboxes to be treated as mailbox-enabled objects**

A setting that allows objects with remote mailboxes to be treated as mailbox-enabled objects is available. To enable this feature, add the RemoteMailboxAsMailboxEnabled option to the `<appSettings>` section of the BinaryTree.DirSync.Exchange.exe.config file as displayed below.

```xml
<appSettings>
  <add key="RemoteMailboxAsMailboxEnabled" value="True"/>
</appSettings>
```

If this setting is set to any value other than True or if omitted from the file, objects with remote mailboxes will be treated as non-mailbox-enabled. If set to True, objects with remote mailboxes will be treated as mailbox-enabled.

**Specify a timeout for password sync**

A configuration option in the appSettings section of the config file to specify a timeout for password sync is available. In large environments, it may take longer than the default 300 second timeout to complete the password sync process and may need to be lengthened.

This setting should be added to the BinaryTree.DirSync.Exchange.exe.config file.

```xml
<appSettings>
  <add key="PasswordSyncTimeoutSeconds" value="300"/>
</appSettings>
```

Set the value to configure the timeout to a specific number of seconds. If this setting is omitted, or set to an invalid value, the timeout will be set to 300 seconds (5 minutes). To disable the timeout functionality, set to -1 (or any negative value).

**Disable the caching of group members**

A configuration option can be used in the appSettings section of the config file to disable the caching of group members.

This setting should be added to the BinaryTree.DirSync.Exchange.exe.config file.

```xml
<appSettings>
  <add key="OptimizeGroupSyncMemoryUsage" value="true"/>
</appSettings>
```

Valid values are true and false. If this setting is omitted, or set to an invalid value, the value defaults to false. If set to false, group members will be cached during push and pull. If set to true, group members will not be cached during push and pull.
Disable the initialization of the sync report

A configuration option can be used in the appSettings section of the config file to disable the initialization of the sync report. If disabled, a sync report will still be recorded, but it will not be initialized between syncs. The result will be that an object will show data from the last time it was processed by SMART Directory Sync, rather than just the most recent time it was processed. In other words, if an object is inserted during a sync, it will show in the sync report as Inserted. Assuming a second sync does not touch this object, then if the sync report is initialized, a second sync will show this object as No Change, but if the sync report is not initialized, the object will still show as Inserted.

This setting should be added to the BinaryTree.DirSync.Exchange.exe.config file.

```xml
<appSettings>
  <add key="DisableSyncReportInitialization" value="true"/>
</appSettings>
```

Valid values are true and false. If this setting is omitted, or set to an invalid value, the value defaults to false. If set to false, the sync report will be initialized. If set to true, the sync report will not be initialized.

Set the maximum number of users and groups synced simultaneously

During pull processing, SMART Directory Sync will sync multiple Active Directory user and group objects simultaneously into the target AD. The maximum number of users and groups synced simultaneously can be changed using the ThreadCount setting in the config file. If this configuration option is not specified, the ThreadCount will be set to the same number of logical processor cores of the server on which SMART Directory Sync is running.

The configuration option is not included by default. To add, modify the BinaryTree.DirSync.Exchange.exe.config file located at C:\Program Files\Binary Tree\DirSync and add a new key to the <appSettings> section as follows:

```xml
<appSettings>
  <add key="ThreadCount" value="4"/>
</appSettings>
```

This option should never be set to a number greater than the number of processor cores on the server. However, you may need to specify a lower number if other applications also running on the server require a specific number of cores set aside for processing. Best practice is to leave the setting at the default value and lower it only if additional processing power is needed for other applications on the server.
Appendix C. Using the User, Group, and Device LDAP filters

Active Directory provides a powerful way of retrieving data through the use LDAP filters. Directory Synchronization exposes three filters during the creation of a synchronization profile: **User OU Filter**, **Group OU Filter**, and **Device OU Filter** whose defaults are:

- **Users**: 
  ```
  (&(!(adminDescription=Created By DirSync))((objectClass=Person)(objectClass=room))(!(objectClass=computer)))
  ```

- **Groups**: 
  ```
  (&(!(adminDescription=Created By DirSync))(objectClass=Group))
  ```

- **Devices**: 
  ```
  (&(!(adminDescription=Created By DirSync))(objectClass=computer)(!(primaryGroupID=516)))
  ```

These filters are per organizational unit and apply to sub-OUs when the **Sync Sub-OUs** option is selected.

Modifying these filters requires a basic understanding of the attributes, their value representations, and their data types. LDAP filters support any number of options including filtering by date ranges, wildcards, and the use of bitmasks as in the userAccountControl property.

The use of the objectClass and objectCategory properties can greatly reduce the number of records retrieved resulting in improved performance. You may use other attributes to further restrict your results.

The following are common examples of queries and their LDAP query syntax.

- Selecting users that are part of the 'Accounting' department:
  ```
  (&(objectClass=User)(objectCategory=Person)(department=Accounting))
  ```

- Selecting mailbox-enabled users:
  ```
  (&(objectClass=User)(objectCategory=Person)(homeMDB=*))
  ```

- Selecting mail-enabled users and contacts:
  ```
  (|(&(objectClass=User)(objectCategory=Person)(!homeMDB=*))(objectClass=Contact))
  ```

- Selecting users created after January 1, 2011:
  ```
  (&(objectClass=User)(objectCategory=Person)(whenCreated:>=20110101000000.0Z))
  ```

- Selecting distribution lists:
  ```
  (&(objectClass=Group)(groupType=2))
  ```

Binary Tree recommends that you use the Active Directory Users and Computers management console to test your filters to prevent Directory Synchronization from failing due to an invalid filter.
## Appendix D: Default Mapping

The below table displays the default values of the AD Source to AD Target mapping table.

<table>
<thead>
<tr>
<th>Source Field</th>
<th>Internal Field</th>
<th>Target Field</th>
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<th>Target Type 1</th>
<th>Target Type 2</th>
<th>Comments</th>
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SMART DIRECTORY SYNC 4.5 COMPREHENSIVE USER GUIDE FOR AD MIGRATION/SYNCHRONIZATION AND EXCHANGE MIGRATION
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<td>any</td>
<td>any</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wWWHomePage</td>
<td>WWWHomePage</td>
<td>wWWHomePage</td>
<td>any</td>
<td>any</td>
<td></td>
<td></td>
</tr>
<tr>
<td>managedBy</td>
<td>ManagedBy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>group contact</td>
</tr>
<tr>
<td>groupType</td>
<td>GroupType</td>
<td>groupType</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* thumbnailPhoto values are synced directly from the Source to the Target.
Appendix E: Customizing Overrides

In SMART Directory Sync, an override is used to transform values in the target directory based upon a formula.

The formula language used is T-SQL, used in Microsoft’s SQL Server product line. A valid select statement in T-SQL would be `Select (FirstName + LastName) from BT_Person`. When adding an override you do not need to include a full SQL select statement as portions of the SQL statement are generated for you. Specifically, you are not required to use the select or from commands in the override. It is only required to enter the columns that should be selected. To continue the example above, a valid override would only need to contain the value of `FirstName + LastName`.

To add a View Override:

1. From the Mapping tab, click Overrides. The View Overrides window appears.

2. Click Add. The Override dialog appears.

3. Select a Person or Groups from the View drop-down list.
4. Enter a Field Name for the new override. This must be a valid internal field name in SQL.
5. Enter a Field Value for the new override. This must be a correctly formatted SQL statement.
6. Enter Comments for the new override.
7. Click Save.
8. Click Yes for the confirmation message.
When you save an override, SMART Directory Sync re-generates the Person or Groups view. It does this by dynamically generating a single SQL statement using the snippet of SQL code that is part of all overrides. The max size for this SQL statement is 8000 total characters. If many new overrides are added, this limit could be exceeded and an error when adding the overrides will occur. In addition to the default overrides, approximately 15-20 more Person and 20-25 Group overrides can be added before hitting the size limit.

To edit a mapping override:

1. From the **Mapping** tab, click **Overrides**. The View Overrides window appears.

![View Overrides window](image)

2. Select an Override and click **Edit**. The Override dialog appears.

![Override dialog](image)

3. Edit the **Field Value** for the override. The View and Field Name cannot be edited.
4. Edit **Comments** for the override.
5. Click **Save**.
6. Click **Yes** for the confirmation message.
To delete a mapping override:

1. From the **Mapping** tab, click **Overrides**. The View Overrides window appears.

2. Select an Override and click **Delete**.
3. Click **Yes** for the confirmation message.

To export all mapping overrides:

1. From the **Mapping** tab, click **Overrides**. The View Overrides window appears.

2. Click **Export All**.
3. Select a location, enter a file name, and click **Save**.
Controlling actions with Overrides

SMART Directory Sync uses the TypeOfTransaction column from the BT_Person table, or the Operation column from the BT_Groups table to determine what action to perform on the target object. These may have overrides applied to them, to control what actions Directory Sync will take for an object. The below image shows an example of this kind of override.

Matching objects with Overrides

The values used for matching can have overrides applied to them. This is accomplished by setting up a new override using the field names MatchValue1, MatchValue2, MatchValue3 and MatchValue4. Each MatchValue1-4 corresponds the respective Source and Target pair on the matching tab.

These values are used for matching only. Values that get written to the target are based on the mappings, not the matching.
### Example Overrides

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Field Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TargetAddress</td>
<td><code>CASE EntryType WHEN 'user' THEN 'SMTP:' + P.Custom20 + '@domino.contoso.com' ELSE 'SMTP:' + dbo.ReplaceDomain(InternetAddress,'domino.contoso.com') END</code></td>
<td>This formula will dynamically set the targetaddress value based on the EntryType.</td>
</tr>
<tr>
<td>TargetAddress</td>
<td><code>'SMTP:' + dbo.UpdateInternetAddress(InternetAddress,'domino.')</code></td>
<td>This formula will set the TargetAddress value based on the InternetAddress and prefix the domain with the value specified, in this case &quot;domino.&quot;.</td>
</tr>
<tr>
<td>TargetAddress</td>
<td><code>'SMTP:' + dbo.ReplaceDomain(InternetAddress,'domino.contoso.com')</code></td>
<td>This formula will set the TargetAddress value based on the InternetAddress and replace the domain with the value specified, in this case &quot;domino.contoso.com&quot;.</td>
</tr>
<tr>
<td>TargetAddress</td>
<td><code>CASE WHEN InternetAddress LIKE '%@kodak.com' THEN 'smtp:' + dbo.UpdateInternetAddress(P.InternetAddress, 'domino.') WHEN InternetAddress LIKE '%@knotes.contoso.com' THEN 'smtp:' + dbo.ReplaceDomain(P.InternetAddress, 'domino.contoso.com') ELSE P.InternetAddress END</code></td>
<td>This formula will dynamically set the targetaddress value based on the existing InternetAddress domain name value. If the first domain is found then the TargetAddress will be set to one value, if the second domain is found another value will be used and if neither domain is found then the TargetAddress will be set the same as the current InternetAddress value.</td>
</tr>
<tr>
<td>CommonName</td>
<td><code>CASE EntryType WHEN 'user' THEN 'do$$' + SourceDirectoryID WHEN</code></td>
<td>This formula will</td>
</tr>
<tr>
<td>Field Name</td>
<td>Field Value</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>'sharedmail' THEN 'do$$' + SourceDirectoryID ELSE CommonName END</td>
<td>dynamically set the CommonName value based on the EntryType.</td>
<td></td>
</tr>
<tr>
<td>CommonName</td>
<td>CASE WHEN LEN(CommonName) &gt; 64 THEN LTRIM(RTRIM(LEFT(CommonName,64))) ELSE CommonName END</td>
<td>This formula will limit the CommonName value to 64 characters if it exceeds that limit.</td>
</tr>
<tr>
<td>ProxyAddresses</td>
<td>CASE ProxyAddresses WHEN &quot; THEN 'smtp:' + dbo.ReplaceDomain(InternetAddress,'@contoso.onmicrosoft.com;smtp:') + dbo.UpdateInternetAddress(InternetAddress,'domino.' END</td>
<td>This formula will set or append to the list of ProxyAddresses values the coexistence routing addresses. This example specifically is designed for Office 365.</td>
</tr>
<tr>
<td>Company</td>
<td>LTRIM(RTRIM(LEFT(company, 50)))</td>
<td>This formula will Trim, then limit the string value by 50 characters.</td>
</tr>
<tr>
<td>Custom001</td>
<td>&quot;this is a string&quot;</td>
<td>This formula will set any string value to the any SQL field.</td>
</tr>
<tr>
<td>Custom001</td>
<td>REPLACE(InternetAddress,'@', '.')</td>
<td>This formula will replace the '@' symbol with a period '.' to create a string like so. (i.e. first.last.contoso.com)</td>
</tr>
<tr>
<td>Custom001</td>
<td>LEFT(InternetAddress,CHARINDEX('@',InternetAddress)-1)</td>
<td>This formula will extract the localpart of Internet Address.</td>
</tr>
</tbody>
</table>
Appendix F: Directory Sync Fields with Special Processing

The below tables include fields with some kind of special processing in Directory Sync. Fields can be have the following characteristics:

- Cannot be mapped
- Can be mapped and have an override
- May be explicitly ignored or changed by Directory Sync if object meets certain conditions, even if mapping and override exists
- Actual attribute may be set via config file

Additional notes are available below for field marked with a *.

**Writing Users to AD**

Attributes that may be set by SMART Directory Sync regardless of mapping:

<table>
<thead>
<tr>
<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
</tr>
</thead>
<tbody>
<tr>
<td>distinguishedName</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>objectClass</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>userPassword</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>unicodePwd</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>userAccountControl</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>msExchRecipientDisplayType</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>msExchRecipientTypeDetails</td>
<td>•</td>
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<td></td>
</tr>
<tr>
<td>msExchResourceDisplay</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>msExchResourceSearchProperties</td>
<td>•</td>
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<tr>
<td>msExchResourceMetaData</td>
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<td></td>
</tr>
<tr>
<td>proxyAddresses*</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>showInAddressBook*</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>targetAddress*</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>msExchMasterAccountSid</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>
### Field Mapping Summary

<table>
<thead>
<tr>
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<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
</tr>
</thead>
<tbody>
<tr>
<td>msExchPoliciesExcluded</td>
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</tr>
<tr>
<td>msExchPoliciesIncluded</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>userAccountControl</td>
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<td></td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>pwdLastSet</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>adminDescription</td>
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<td>•</td>
</tr>
</tbody>
</table>

**Special processing if mapped:**

<table>
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<tr>
<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
</tr>
</thead>
<tbody>
<tr>
<td>mail</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>assistant*</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>manager*</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>managedBy*</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>altRecipient*</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>authoring</td>
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</tr>
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<td>unauthOrig</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dLMemSubmitPerms</td>
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<td>•</td>
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<td></td>
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<tr>
<td>dLMemRejectPerms</td>
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<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sAMAccountName</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>legacyExchangeDN*</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mailNickname</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
</tr>
</tbody>
</table>
Never set:

<table>
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<th>Can be mapped / have override</th>
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</tr>
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<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>name</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cn</td>
<td>•</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Writing Groups to AD**

Attributes that may be set by SMART Directory Sync regardless of mapping:

<table>
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<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
</tr>
</thead>
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<td>objectClass</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>msExchVersion</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>proxyAddresses*</td>
<td>•</td>
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<td>•</td>
<td></td>
</tr>
<tr>
<td>showInAddressBook*</td>
<td>•</td>
<td></td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>targetAddress*</td>
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</tr>
<tr>
<td>msExchPoliciesIncluded</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>adminDescription</td>
<td>•</td>
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<td></td>
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</tr>
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</table>
Special processing if mapped:

<table>
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<tr>
<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
</tr>
</thead>
<tbody>
<tr>
<td>mail</td>
<td></td>
<td>•</td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>assistant*</td>
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</tr>
<tr>
<td>manager*</td>
<td></td>
<td>•</td>
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<td></td>
</tr>
<tr>
<td>managedBy*</td>
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<td>•</td>
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<tr>
<td>altRecipient*</td>
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<tr>
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<td></td>
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<tr>
<td>unauthOrig</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>dLMemSubmitPerms</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>dLMemRejectPerms</td>
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<td>sAMAccountName</td>
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<td></td>
</tr>
<tr>
<td>groupType</td>
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</tr>
<tr>
<td>mailNickname</td>
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</table>

Never set:

<table>
<thead>
<tr>
<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
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<tr>
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</tr>
<tr>
<td>objectSid</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>whenCreated</td>
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<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>whenChanged</td>
<td></td>
<td>•</td>
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<td></td>
</tr>
<tr>
<td>uSNChanged</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>name</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cn</td>
<td></td>
<td>•</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Special processing by Internal Field Name:

<table>
<thead>
<tr>
<th>Field</th>
<th>Cannot be mapped</th>
<th>Can be mapped / have override</th>
<th>May be explicitly ignored</th>
<th>May be set with config file</th>
<th>If this internal field name is mapped and value is empty, actual value comes from different internal field</th>
</tr>
</thead>
<tbody>
<tr>
<td>DisplayName</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PrimaryAlias</td>
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<td>SAMAccountName</td>
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<td>InternetAddress</td>
<td>*</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CommonName</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Notes

1. **TargetDN** – this column contains the distinguishedName of the target object to be created or the existing distinguishedName of a matched target object. If the object is created, the following values are used:
   a. Non-group objects from Domino sources use the following columns (or override values if specified) in order until a non-NULL value is found:
      i. CommonName
      ii. DisplayName
      iii. PrimaryAlias
      iv. FullName
      v. PrimaryFullName
   b. Groups from Domino sources use the following columns (or override values if specified) in order until a non-NULL value is found:
      i. DisplayName
      ii. Name
      iii. CommonName
      iv. PrimaryAlias
   c. Non-group objects from AD sources use the DN column (or override value if specified) to compute a target object DN. This preserves the sub-OU hierarchy the object may be in from the source.
   d. Groups from AD sources, use the OU column (or override value if specified) to compute a target object DN. This preserves the sub-OU hierarchy the object may be in from the source.

2. **LegacyExchangeDN** – the legacyExchangeDN of the target object is computed by constructing a value relative to the target Exchange organization.

3. **TargetAddress**
   a. Uses override value from the TargetAddress column if one is specified.
b. Otherwise uses the primary SMTP from the list of source proxy addresses.
c. Or the InternetAddress from the source object.
d. Or the UserPrincipalName from the source object.

4. ProxyAddresses
   a. Includes all values from the ProxyAddress column (or override value if specified) for the source object.
   b. Adds the InternetAddress from the source. Makes it the primary SMTP address. Makes all others secondary SMTP addresses.
   c. Add an X500 address pointing to the legacyExchangeDN of the source object.
   d. Add an X500 address pointing to the legacyExchangeDN of the target object.
   e. Applies any Exchange email address policies from the target Exchange organization, if the Apply email policies option is enabled. All new addresses are added as secondary SMTP addresses regardless of the policy rules.

5. ShowInAddressBook – unless hiding from GAL is enabled. No override column is available for this field.
   a. Rooms are added to the All Rooms address book, except for Exchange 2003 which doesn’t have rooms or the All Rooms address book.
   b. Users are added to the All Users address book.
   c. Groups are added to the All Groups address book.
   d. All objects are added to the All Global Address Lists (GAL) address book.

6. Manager – all objects except Groups
   a. Uses the Manager column (or override value if specified) for the source object.
   b. Locates the referenced Manager in the target.
   c. If the referenced Manager is a reference to itself, the Manager on the target object will be set on the next sync.

7. ManagedBy – group objects only
   a. Uses the ManagedBy column (or override value if specified) for the source object.
   b. Follows the same process as Manager above.

8. Assistant – all objects
   a. Uses the Assistant column (or override value if specified) for the source object.
   b. Follows the same process as Manager above.

9. AltRecipient – all objects
   a. Uses the AltRecipient column (or override value if specified) for the source object.
   b. Follows the same process as Manager above.
About Binary Tree

Binary Tree provides organizations with the most direct and predictable path to a successful technology transformation. We offer software and services to integrate and migrate corporate email, directory and server environments. Our technology, methodology and expertise is uniquely suited to provide fast and manageable migrations, with low risk, little to no user downtime, and adapted to each customer's environment and requirements. Since 1993, Binary Tree has enabled thousands of enterprise customers to migrate more than 35 million email users and facilitated some of the most complex technology transformations on the planet. Binary Tree is a Microsoft Gold Partner and a globally preferred vendor for Microsoft Office 365 migrations and solutions. The Company is headquartered outside of New York City with offices in Hong Kong, London, Paris, Stockholm and Sydney. For more information, visit us at [www.binarytree.com](http://www.binarytree.com).

Binary Tree Social Media Resources

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