

# Using LDAP to Optimize EMC SourceOne Administration in Microsoft Exchange Environments

*Best Practices Planning*

---

## **Abstract**

EMC SourceOne™ administration requirements can significantly benefit from employing best practices planning to create and use a custom LDAP attribute to partition large Microsoft Exchange environments into manageable user subsets. EMC® SourceOne processing requirements can be spread across these user subsets to prevent delay or degradation in the Exchange e-mail system.

March 2010

---

---

Copyright © 2010 EMC Corporation. All rights reserved.

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED “AS IS.” EMC CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

For the most up-to-date listing of EMC product names, see EMC Corporation Trademarks on [EMC.com](http://EMC.com)

All other trademarks used herein are the property of their respective owners.

Part Number h7016

---

## Table of Contents

<b>Executive summary .....</b>	<b>4</b>
<b>Introduction .....</b>	<b>4</b>
Audience .....	4
<b>Overview of the best practices solution .....</b>	<b>5</b>
Understanding the challenge .....	5
Understanding the solution .....	5
Implementing the solution .....	6
<b>Defining a new LDAP attribute and a strategic set of attribute values .....</b>	<b>7</b>
Defining the new LDAP attribute.....	7
Defining a strategic set of values for the SourceOne attribute .....	7
<b>Creating the new LDAP attribute in Active Directory .....</b>	<b>8</b>
<b>Assigning values of the new EMC SourceOne attribute to Exchange users.</b>	<b>9</b>
<b>Creating EMC SourceOne policies and assigning folder permissions .....</b>	<b>9</b>
Using the new attribute to create EMC SourceOne archiving policies .....	9
Assigning permissions to mapped folders .....	11
<b>Handling Exchange 2007 Journaling activities and folders .....</b>	<b>11</b>
<b>Conclusion .....</b>	<b>12</b>
<b>References .....</b>	<b>12</b>

---

## Executive summary

In many large Microsoft Exchange e-mail environments, processing EMC SourceOne™ policy activities against the entire user base or against Exchange-based distribution groups can impact the Exchange e-mail environment and may require unnecessary administrative support.

You can eliminate this problem by following the best practices planning recommendations in this white paper to create a new Lightweight Data Access Protocol (LDAP) attribute that can be used in EMC® SourceOne policy activities to selectively process user subsets of the Microsoft Exchange e-mail system.

User subsets can be targeted by the value of the new EMC SourceOne attribute assigned to Exchange mailbox users. If necessary, these user subsets can be further partitioned by other LDAP attributes, such as mailNickName, to create user subsets that meet the processing requirements of your organization.

## Introduction

Best practices planning information and procedures for using LDAP to optimize EMC SourceOne administration in Microsoft Exchange environments are organized in the following sections:

- Overview of the best practices solution
- Defining a new LDAP attribute and a strategic set of attribute values
- Creating the new LDAP attribute in Active Directory
- Assigning values of the new EMC SourceOne attribute to Exchange users
- Creating EMC SourceOne policies and assigning folder permissions
- Handling Exchange 2007 Journaling activities and folders

## Audience

The information and procedures in this white paper are intended for IT administrators, Microsoft Exchange administrators, and Microsoft Active Directory administrators who are using the EMC SourceOne Email Management system for e-mail archiving requirements.

---

## Overview of the best practices solution

This section identifies the challenge addressed in this white paper, explains the recommended solution, and lists the steps that are required to implement the solution.

### *Understanding the challenge*

Processing EMC SourceOne activities against Microsoft Active Directory (AD) or Microsoft Exchange-based distribution groups in very large Exchange environments:

- Can result in excessive processing times for EMC SourceOne archiving activities and could impact e-mail messaging performance and processing tasks such as backups and upgrades.
- Requires administrator maintenance of distribution groups in Exchange.

The challenge is to find a scalable method of dispersing activity-processing requirements against large Exchange user databases that requires minimal administrative involvement.

### *Understanding the solution*

The recommended solution is to use an alternative method of partitioning Exchange mailbox users into manageable user subsets by creating a new Active Directory LDAP attribute for Exchange mailbox users.

You can then define a set of values for the new attribute that align closely with the organization and archive, retention, and disposition policies of your enterprise and:

- Assign one or more of the new LDAP attribute values to each Exchange mailbox user.
- Create policy-based archiving activities in EMC SourceOne that include an embedded LDAP query that restricts the activity to only the subset of Exchange users who match the attribute value or values specified in the LDAP query.

In effect, each EMC SourceOne activity applies only to those mailbox users who have been assigned the attribute values defined in the activity.

---

**Note:** LDAP queries cannot be used in EMC SourceOne activities for Exchange 2007 Journaling activities. An alternative solution is provided for Exchange 2007 Journaling activities in the last section of this paper.

---

Using a very small set of Exchange users as a simple example, Table 1 demonstrates how the values of a new LDAP attribute, EMC SourceOne, can be used to partition Exchange users into subsets and how EMC SourceOne can then process non-journaling activities against subsets of Exchange users.

**Table 1. Using a new LDAP attribute to target EMC SourceOne activities to Exchange user subsets**

Exchange			SourceOne	
Total users	Subset of users	Assigned value of new SourceOne attribute	Policy run day LDAP query includes	Result
120	40	east01	Archiving H1 Monday (SourceOne=*east01*)	The SourceOne policy, Archiving H1, is applied on Monday to only the 40 Exchange users with an assigned value of east01 for the new SourceOne attribute.
	40	east02	Archiving H2/ Wednesday (SourceOne=*east02*)	The SourceOne policy, Archiving H2, is applied on Monday to only the 40 Exchange users with an assigned value of east02 for the new SourceOne attribute.
	40	east03	Archiving H3 Friday (SourceOne=*east03*)	The SourceOne policy, Archiving H3, is applied on Monday to only the 40 Exchange users with an assigned value of east03 for the new SourceOne attribute.

Of course, this simplified example is not very useful in typical Exchange/EMC SourceOne environments. Later sections of this paper provide more detailed examples for the use of the new LDAP attribute.

### ***Implementing the solution***

Complete each of the following steps to implement this best practices solution:

1. Define a new LDAP attribute and a strategic set of attribute values for the new attribute.
2. Create the new LDAP attribute in Microsoft Active Directory.
3. Assign the new attribute values to Exchange mailbox users.
4. Use the vales of the new LDAP attribute to create EMC SourceOne archiving policies/activities and assign folder permissions.
5. Use an alternate solution to configure for Exchange 2007 Journaling Rules.

Best practices for each of these steps are detailed in the sections that follow.

---

## Defining a new LDAP attribute and a strategic set of attribute values

Best practices recommendations for defining a new LDAP attribute and a strategic set of attribute values are provided in the following subsections.

---

**Note:** Creating a new attribute in Microsoft Active Directory produces an irreversible Schema change. The new attribute can be disabled, but it cannot be undone without an authoritative restoration of the Active Directory.

---

### ***Defining the new LDAP attribute***

Best practices recommendations for defining the new EMC SourceOne LDAP attribute include:

- Create only a single new LDAP attribute.
- Dedicate use of the attribute to EMC SourceOne exclusively.
- For ease of use, employ a descriptive literal string to name the attribute.
- Though not required, it is recommended that the attribute name include a reference that indicates it is used exclusively for EMC SourceOne administration. Examples of recommended attribute names include “SourceOne” and “S1Policy”.
- The attribute value field should allow compound, comma-delimited values in an easy-to-read, parseable, literal string format.

### ***Defining a strategic set of values for the SourceOne attribute***

Best practices recommendations for defining a strategic set of values for the SourceOne attribute include:

---

**Note:** The recommendations that follow are just examples to illustrate how to define a strategic set of attribute values. It is essential that the set of attribute values you use matches the organization and archiving, retention, and disposition policies of your enterprise.

---

- Use easy-to-read literal strings instead of Boolean coding or numerical flags. The values you define must be specified in LDAP queries when you create EMC SourceOne activities.
- Decide on a logical grouping or set of organizational entities on which to base the attribute values.
- To retain flexibility, do not name or tie the attribute values to entities that are fixed, such as Organizational Units (OU) in Active Directory, or to folder and policy names in EMC SourceOne. For example, EMC SourceOne functions, policies, and folder names may change, but the attribute values are set permanently in Active Directory.
- For each organizational entity in your strategy, define a unique attribute value to correspond to each archiving activity policy that you will apply to the organizational entity.

For example, if your strategy is based on two organizational entities, east and west, and you plan to create four separate EMC SourceOne policies, each of which specifies a separate archiving activity (UDA, historical, shortcutting, and compliance), you could create the set of attribute values shown in Table 2.

---

**Note:** LDAP attributes cannot be used in EMC SourceOne journaling activities for Exchange servers that use Exchange 2007 Journaling Rules. The section “Handling Exchange 2007 Journaling” on page 11 has more information.

---

---

**Table 2. Example set of attribute values**

<b>EMC SourceOne</b>	<b>Microsoft Active Directory</b>
<b>Policy-based archiving activity</b>	<b>SourceOne attribute values</b>
UDA Archiving Policy A	east01
	west01
Historical Archiving Policy B	east02
	west02
Shortcutting Policy C	east03
	west03
Compliance Archiving Policy D <sup>1</sup>	east04
	west04

An alternative set of strategic attribute values is shown in Table 3.

**Table 3. Alternate example set of attribute values**

<b>EMC SourceOne</b>	<b>Microsoft Active Directory</b>
<b>Policy-based archiving activity</b>	<b>SourceOne attribute values</b>
UDA Archiving Policy A	east01
	west01
Mailbox Management Archiving Policy B (includes Historical and Shortcutting Activities)	east02
	west02
Compliance Archiving Policy D <sup>2</sup>	east03
	west03

## Creating the new LDAP attribute in Active Directory

Use your preferred editing tool to define the new attribute requirements in Active Directory.

---

**Note:** Changes to the Active Directory cannot be undone. Use care when making changes and ensure that you have defined a set of attribute values that meet the organization and the archiving, retention, and disposition policies of your organization before accessing the Active Directory.

---

---

<sup>1</sup> Does not apply to Exchange systems using Exchange 2007 Journaling Rules.

<sup>2</sup> Does not apply to Exchange systems using Exchange 2007 Journaling Rules.

---

## Assigning values of the new EMC SourceOne attribute to Exchange users

Best practices recommendations for assigning values of the new EMC SourceOne attribute to Exchange mailbox users in the Active Directory include:

- Use scripts, applications, or provisioning tools to populate values for the new attribute for each mailbox user in Active Directory.
- If possible, use configured Active Directory templates to assign the attribute values. Both the Active Directory templates and the set of attribute values should be configured to match the policies of your organization, ensuring an accurate assignment of the attribute values to mailbox users.
- Note that a mailbox user may be assigned more than one attribute value. Use a comma to separate multiple attribute values in the new attribute field.

## Creating EMC SourceOne policies and assigning folder permissions

Best practices recommendations for using the SourceOne attribute to create archiving-policy activities and to assign folder permissions are provided in the following subsections.

### *Using the new attribute to create EMC SourceOne archiving policies*

Best practices recommendations for creating archiving policies based on the SourceOne attribute include:

- Define each archiving policy to target a subset of Active Directory users by specifying one or more of the SourceOne attribute values in the activity (or activities) of the policies. The number of mailbox users to whom you assign the SourceOne attribute value specified in the policy activity determines the size of the user subset.
- Further partition the subset of users against whom a policy activity is run by creating multiple versions of each defined policy and designating each to run against a different alphabetical segment of targeted users, based on their mailNickName attribute.
- Although user subsets can be further partitioned against Department, Organizational Unit, or any other assigned attribute, the mailNickName attribute is recommended because:
  - It is more often populated in the Active Directory database than other “name” attributes, such as “LastNameSurname”/”sn”.
  - It includes only users who have an Exchange mailbox.
  - The 26 letters of the alphabet allow the most flexibility in combining users into desired user subsets.
- When you partition mailbox users alphabetically using the mailNickName attribute, ensure that you use alphabetical groupings of approximately the same size. To determine the alphabetical makeup of your organization, use LDAP queries to poll the Active Directory. An example set of LDAP queries that you can use for this purpose are shown below:
  - (&(objectClass=user)(mailNickName<=D)
  - (&(objectClass=user)(mailNickName>=C)(mailNickName<=G)
  - (&(objectClass=user)(mailNickName>=F)(mailNickName<=J)
  - (&(objectClass=user)(mailNickName>=I)(mailNickName<=M)
  - (&(objectClass=user)(mailNickName>=L)(mailNickName<=P)
  - (&(objectClass=user)(mailNickName>=O)(mailNickName<=S)
  - (&(objectClass=user)(mailNickName>=R)(mailNickName<=U)
  - (&(objectClass=user)(mailNickName>=T)

- User subsets should not exceed 3,000 mailbox users.
- LDAP queries allow the use of wildcards, which provides additional flexibility when you are creating EMC SourceOne policy activities.

Continuing with the example used earlier, Table 4 shows how policies can be defined to run against alphabetical subsets of Exchange mailbox users.

**Table 4. Partitioning users by SourceOne attribute and alphabet**

<b>Policy activity - Run day</b>	<b>Embedded LDAP query</b>	<b>SourceOne attribute value</b>	<b>Initial mailNickName letter</b>	<b>Result</b>
Historical Archiving B1 - Scheduled for Monday	(&(objectClass=user) (mailNickName<=G) (policy=*east01*))	east01	A - F	Historical archiving runs on the mailboxes of users who have the “east01” SourceOne attribute value and whose mailNickName attribute begins with any letter from A to F.
Historical Archiving B2 - Scheduled for Monday	(&(objectClass=user) (mailNickName>=F) (mailNickName<=M) (policy=*east01*))	east01	G - L	Historical archiving runs on the mailboxes of users who have the “east01” SourceOne attribute value and whose mailNickName attribute begins with any letter from G to L.
Historical Archiving B3 - Scheduled for Tuesday	(&(objectClass=user) (mailNickName>=L) (mailNickName<=S) (policy=*east01*))	east01	M - R	Historical archiving runs on the mailboxes of users who have the “east01” SourceOne attribute value and whose mailNickName attribute begins with any letter from M to R.
Historical Archiving B4 - Scheduled for Tuesday	(&(objectClass=user) (mailNickName>=R) (policy=*east01*))	east01	S - Z	Historical archiving runs on the mailboxes of users who have the “east01” SourceOne attribute value and whose mailNickName attribute begins with any letter from S to Z.
Historical Archiving B5 - Scheduled for Wednesday	(&(objectClass=user) (mailNickName<=G) (policy=*west01*))	west01	A - F	Historical archiving runs on the mailboxes of users who have the “west01” SourceOne attribute value and whose mailNickName attribute begins with any letter from A to F.
Historical Archiving B6 - Scheduled for Wednesday	(&(objectClass=user) (mailNickName>=F) (mailNickName<=M) (policy=*west01*))	west01	G - L	Historical archiving runs on the mailboxes of users who have the “west01” SourceOne attribute value and whose mailNickName attribute begins with any letter from G to L.
Historical Archiving B7 - Scheduled for Thursday	(&(objectClass=user) (mailNickName>=L) (mailNickName<=S) (policy=*west01*))	west01	M - R	Historical archiving runs on the mailboxes of users who have the “west01” SourceOne attribute value and whose mailNickName attribute begins with any letter from M to R.
Historical Archiving B8 - Scheduled for Thursday	(&(objectClass=user) (mailNickName>=R) (policy=*west01*))	west01	S - Z	Historical archiving runs on the mailboxes of users who have the “west01” SourceOne attribute value and whose mailNickName attribute begins with any letter from S to Z.

---

## Assigning permissions to mapped folders

You can take advantage of the SourceOne attribute values to efficiently assign permissions to, or change permissions for, a mapped folder.

When you use an LDAP query to identify Active Directory user permissions you can:

- Include a SourceOne attribute value, for example: (&(objectClass=user)(SourceOne=\*east01\*))
- Include multiple SourceOne attributes, for example: (&(objectClass=user)(SourceOne=\*east01,west01\*))
- Use a wildcard to specify all users from the organizational entity or logical grouping on which your SourceOne values are based, for example: (&(objectClass=user)(SourceOne=\*east\*))

---

**Note:** You cannot use the attribute values for the new SourceOne LDAP attribute to assign permissions to mapped folders that are associated with Exchange 2007 Journaling activities. Refer to the section “Handling Exchange 2007 Journaling activities and folders.”

---

## Handling Exchange 2007 Journaling activities and folders

In Exchange 2007 systems that use Exchange 2007 Journaling Rules, new requirements for the creation of dynamic distribution groups do not allow the use of non-standard LDAP attributes. Therefore, the best practices recommended in previous sections of this white paper cannot be used in EMC SourceOne compliance/journaling activities.

Exchange 2007 requires that the dynamic distribution groups be created using the new Exchange 2007 “OPath” syntax and the LDAP “RecipientFilter” parameter. Because non-standard attributes created and added to the Active Directory cannot be specified with the RecipientFilter parameter, a new SourceOne attribute cannot be used to partition Exchange mailbox users.

However, the equivalent user partitioning can be achieved specifying the journaling mailboxes of the dynamic distribution groups in the EMC SourceOne journaling activities that you create.

In addition, the RecipientFilter parameter can include any of the standard 15 Active Directory CustomAttribute/ExtensionAttribute attributes, so you can assign a SourceOne attribute value to one of the CustomAttributes and include the SourceOne attribute value in LDAP queries to assign permissions to compliance/journaling folders.

Use the following procedure to partition EMC SourceOne journaling activities against user subsets in Exchange environments that use Exchange 2007 Journaling Rules:

1. Create dynamic distribution groups in Exchange using the Exchange “Set-DynamicDistributionGroup” Powershell cmdlet.

Each dynamic distribution group is associated with a journaling mailbox.

2. When you create a journaling activity in EMC SourceOne, instead of specifying an LDAP query, select the journaling mailbox associated with an existing dynamic distribution group.
3. For each mailbox user who will be subject to an EMC SourceOne compliance/journaling policy, assign the appropriate SourceOne attribute value to the new SourceOne attribute or to an unused LDAP user attribute, such as “CustomAttribute15/extensionAttribute15.”

You can then assign permissions to the journaling message folder with an LDAP query. For example:

```
(&(objectClass=user)(extensionAttribute15=*east10*))
```

---

**Note:** For more information on DynamicDistributionLists, including recipient filtering and the use of the OPath syntax, refer to [http://technet.microsoft.com/en-us/library/bb124268\(EXCHG.80\).aspx](http://technet.microsoft.com/en-us/library/bb124268(EXCHG.80).aspx)

---

---

## Conclusion

You can create a custom LDAP attribute in the Microsoft Active Directory of large Microsoft Exchange environments and use it to partition mailbox users into manageable user subsets. You can then create EMC SourceOne policy activities that are targeted to specific user subsets that are defined by the new attribute value and can be further refined by other LDAP attributes, such as mailNickName.

By following these best practices planning recommendations, you eliminate the impact of processing EMC SourceOne policy activities against an entire Microsoft Exchange user base.

## References

More information on the information in this white paper is available in the sources identified in Table 5.

**Table 5. Related information**

For information about	Refer to
EMC SourceOne policies, activities, and permissions	<i>EMC SourceOne Email Management Version 6.5 Administration Guide</i> (P/N 300-008-038)
Microsoft Exchange and Microsoft Active Directory	Microsoft TechNet Exchange Server Library: <a href="http://technet.microsoft.com/en-us/library/aa996058%28EXCHG.80%29.aspx">http://technet.microsoft.com/en-us/library/aa996058%28EXCHG.80%29.aspx</a>
LDAP	Adding a New LDAP Attribute: RFC 4521, <i>Considerations for Lightweight Directory Access Protocol (LDAP) Extensions</i> <a href="http://www.rfc-editor.org/rfc/rfc4521.txt">http://www.rfc-editor.org/rfc/rfc4521.txt</a> RFC2252, <i>Lightweight Directory Access Protocol (v3): Attribute Syntax Definitions</i> <a href="http://www.rfc-editor.org/rfc/rfc2252.txt">http://www.rfc-editor.org/rfc/rfc2252.txt</a>