SourceOne Email Management

Version 7.2 SP9

Installation Guide

REV 01

February 2020

DELL EMC

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Preface

As part of an effort to improve the product lines, revisions of the software and hardware are periodically released. Therefore, some functions that are described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact the technical support professional when a product does not function correctly or does not function as described in this document.

Note: This document was accurate at publication time. To find the latest version of this document, go to Online Support (https://support.EMC.com).

Purpose

This document describes how to install SourceOne Email Management.

Audience

This document is part of the SourceOne Email Management documentation set, and is intended for use by installers of the product, SourceOne system administrators, and mail server administrators.

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
01	February 3, 2020	GA release of the *SourceOne Email Management 7.2 SP9 Installation Guide*.

Related documentation

The SourceOne documentation set includes the following publications.

SourceOne Products:

- *SourceOne Products Compatibility Guide*
- *SourceOne Products Security Configuration Guide*

SourceOne Email Management:

- *SourceOne Email Management Installation Guide*
- *SourceOne Email Management Administration Guide*
- *SourceOne Email Management Release Notes*
- *SourceOne Email Management Localized Product Release Notes*
- *SourceOne Auditing and Reporting Installation and Administration Guide*
- *SourceOne Management Pack for Microsoft System Center Operations Manager Guide*
- *SourceOne Search User Guide*
- *SourceOne Disaster Recovery Solution Guide*
- *SourceOne 7.0 and later SNMP Trap Monitoring Solution Technical Notes*

SourceOne Discovery Manager:

- *SourceOne Discovery Manager Installation and Administration Guide*
- *SourceOne Discovery Manager Desktop User Guide*
- *SourceOne Discovery Manager Web Application User Guide*
- *SourceOne Discovery Manager Release Notes*
- *SourceOne Discovery Manager Localized Product Release Notes*
- SourceOne Discovery Manager Desktop Quick Reference Cards

SourceOne for File Systems:

- *SourceOne for File Systems Installation Guide*
- *SourceOne for File Systems Administration Guide*
- *SourceOne for File Systems Release Notes*

SourceOne Offline Access:

- *SourceOne Offline Access Installation and Administration Guide*
- *SourceOne Offline Access User Guide*
- *SourceOne Offline Access Release Notes*

SourceOne Archiving for Microsoft SharePoint:

- *SourceOne Archiving for Microsoft SharePoint Installation Guide*
- *SourceOne Archiving for Microsoft SharePoint Administration Guide*
- *SourceOne Archiving for Microsoft SharePoint Release Notes*
- SourceOne Archiving for Microsoft SharePoint Archive Search Quick Reference Card

SourceOne for Microsoft SharePoint Storage Management:

- *SourceOne for Microsoft SharePoint Storage Management Installation Guide*
- *SourceOne for Microsoft SharePoint Storage Management Administration Guide*
- *SourceOne for Microsoft SharePoint Storage Management Release Notes*

SourceOne Email Supervisor:

- *SourceOne Email Supervisor Installation Guide*
- *SourceOne Email Supervisor Administration Guide*
- *SourceOne Email Supervisor Web Application (Reviewer and Reports) Guide*
- *SourceOne Email Supervisor Release Notes*

Special notice conventions that are used in this document

The following conventions are used for special notices:

NOTICE Identifies content that warns of potential business or data loss.

Note: Contains information that is incidental, but not essential, to the topic.

Typographical conventions

The following type style conventions are used in this document:

Table 2 Style conventions

Bold	Used for interface elements that a user specifically selects or clicks, for example, names of buttons, fields, tab names, and menu paths.

Table 2 Style conventions (continued)

	Also used for the name of a dialog box, page, pane, screen area with title, table label, and window.
Italic	Used for full titles of publications that are referenced in text.
`Monospace`	Used for: • System code • System output, such as an error message or script • Pathnames, file names, file name extensions, prompts, and syntax • Commands and options
Monospace italic	Used for variables.
`Monospace bold`	Used for user input.
[ ]	Square brackets enclose optional values.
|	Vertical line indicates alternate selections. The vertical line means or for the alternate selections.
{ }	Braces enclose content that the user must specify, such as x, y, or z.
...	Ellipses indicate non-essential information that is omitted from the example.

You can use the following resources to find more information about this product, obtain support, and provide feedback.

Where to find product documentation

- https://www.dell.com/support
- https://community.emc.com

Where to get support

The Support website https://www.dell.com/support provides access to product licensing, documentation, advisories, downloads, and how-to and troubleshooting information. The information can enable you to resolve a product issue before you contact Support.

To access a product-specific page:

1. Go to https://www.dell.com/support.
2. In the search box, type a product name, and then from the list that appears, select the product.

Knowledgebase

The Knowledgebase contains applicable solutions that you can search for either by solution number (for example, KB000xxxxxx) or by keyword.

To search the Knowledgebase:

1. Go to https://www.dell.com/support.
2. On the **Support** tab, click **Knowledge Base**.
3. In the search box, type either the solution number or keywords. Optionally, you can limit the search to specific products by typing a product name in the search box, and then selecting the product from the list that appears.

Live chat

To participate in a live interactive chat with a support agent:

1. Go to https://www.dell.com/support.
2. On the **Support** tab, click **Contact Support**.
3. On the **Contact Information** page, click the relevant support, and then proceed.

Service requests

To obtain in-depth help from Licensing, submit a service request. To submit a service request:

1. Go to https://www.dell.com/support.
2. On the **Support** tab, click **Service Requests**.

Note: To create a service request, you must have a valid support agreement. For details about either an account or obtaining a valid support agreement, contact a sales representative. To find the details of a service request, in the `Service Request Number` field, type the service request number, and then click the right arrow.

To review an open service request:

1. Go to https://www.dell.com/support.
2. On the **Support** tab, click **Service Requests**.
3. On the **Service Requests** page, under **Manage Your Service Requests**, click **View All Dell Service Requests**.

Online communities

For peer contacts, conversations, and content on product support and solutions, go to the Community Network https://community.emc.com. Interactively engage with customers, partners, and certified professionals online.

How to provide feedback

Feedback helps to improve the accuracy, organization, and overall quality of publications. You can send feedback to DPAD.Doc.Feedback@emc.com.

CHAPTER 1

Introduction

This section contains the following topics:

Product overview

SourceOne products comprise an enterprise solution which you can use to reduce the space that is required for email, file, and Microsoft SharePoint environments, and to aid in complying with legal requirements for archiving content.

SourceOne products archive, retain, and organize content from Microsoft Exchange, IBM Lotus Domino, SMTP mail servers, Microsoft SharePoint, and network file servers. Archived content is stored in the Native Archive, and can be searched by administrators and end-users with appropriate permissions.

SourceOne Email Management

Email Management is the base application or platform that is required for other SourceOne products.

The other SourceOne products include the following:

- SourceOne for Microsoft SharePoint
- SourceOne for Microsoft SharePoint Storage Management
- SourceOne for File Systems
- SourceOne Discovery Manager
- SourceOne Offline Access
- SourceOne Email Supervisor

Providing core architecture

The Email Management product provides the core architecture to support other SourceOne products. This architecture includes the components to support the core processing services, databases, archives, storage, and applications that are needed for both the Email Management product and other SourceOne products.

Email Management features

Email Management supports the archiving of messaging content to enable companies to meet storage management, compliance, and legal discovery requirements.

The Email Management software helps to:

- Reduce the storage load on messaging servers while still providing users with seamless, efficient access to messages stored on lower-cost storage.
- Retain messages for a specified time to meet mandated requirements such as the U.S. Securities and Exchange Commission (SEC) 17a-4 regulations, or to meet company-defined compliance requirements.
- Preserve messages that may be required for litigation to satisfy legal discovery requirements.
- Provide advanced search capabilities that are designed for the discovery and management of messages for the purposes of complying with email regulations and policies.
- Enable role-based searches of messaging archives to support administrative and end-user requirements.
- Enable administrators to search for email and export it to PST or NSF format using Discovery Manager express edition.

For information about using the Email Management product, refer to the *SourceOne Email Management Administration Guide.*

Archiving messages

Email Management performs the following types of email archiving.

- Journaling (archiving messages in real time)
- Historical archiving
- User-directed archiving

Real-time archiving

Email Management performs real-time archiving (also referred to as journaling) of messages from the following data sources.

- Microsoft® Exchange mail servers
- IBM® Lotus Domino® mail servers
- Drop directories into which SMTP mail is placed

Historical archiving

Email Management performs historical archiving of messages from the following data sources.

- Microsoft Exchange mailboxes and PST files
- Lotus Domino mailboxes and NSF files

User-directed Archiving

Email Management enables a mail user or mail application to direct messages to a specific folder in SourceOne Email Management for archiving.

Searching messages

Email Management enables the following types of searches.

- Using the SourceOne Search web-based application.
  - Administrator searches–Administrators can perform search and restore operations on archived messages for other users in the company.
  - End-user searches–End-users can perform searches for archived messages with which they are associated.
- Using Discovery Manager express edition, administrators can search for email and export it to PST or NSF format.

Related products

This section provides a brief description of additional SourceOne products. Specific information about how each product integrates with Email Management is provided in the documentation set which accompanies each product.

SourceOne Archiving for Microsoft SharePoint

SourceOne Archiving for Microsoft SharePoint is an add-on product to Email Management that addresses long-term or specialized content archiving strategies. The product leverages the SourceOne Email Management architecture to provide access to archived content using search user interfaces.

SourceOne Archiving for Microsoft SharePoint requires that the SourceOne Email Management software be installed, regardless of whether you are using the email management features.

Archiving

SourceOne Archiving for Microsoft SharePoint supports the policy-based archiving of Microsoft SharePoint content in the SourceOne archive to provide efficient storage of Microsoft SharePoint content.

Search

SourceOne Archiving for Microsoft SharePoint provides the following options for searching for archived Microsoft SharePoint content.

- End-users can search for archived content using an Archive Search site that is integrated into Microsoft SharePoint.
- Administrative users can use the SourceOne Search application to search for archived Microsoft SharePoint content.

External BLOB Storage

SourceOne Archiving for Microsoft SharePoint provides the ability to offload the storing of binary large objects (BLOBs) from a SharePoint SQL Server to external storage.

For more information about installing, configuring, and using SourceOne Archiving for Microsoft SharePoint, refer to the SourceOne Archiving for Microsoft SharePoint documentation set.

SourceOne for Microsoft SharePoint Storage Management

SourceOne for Microsoft SharePoint Storage Management supports Remote BLOB Storage (RBS) which is used with Microsoft SharePoint Foundation 2010/2013 and Microsoft SharePoint Server 2010/2013.

Remote BLOB Storage

Remote BLOB Storage provides the following:

- The ability to externalize the storage of BLOBs outside of the SharePoint SQL Server and on remote storage.
- BLOBs are stored directly on the selected storage.
- BLOB storage is configured at the content database level.

For more information about installing, configuring, and using SourceOne for Microsoft SharePoint Storage Management, refer to the SourceOne for Microsoft SharePoint Storage Management documentation set.

SourceOne for File Systems

SourceOne for File Systems is an add-on component to SourceOne Email Management that enables your organization to gain control over unmanaged information residing on file share systems. By archiving content from file servers across the organization, administrators and end-users can leverage content indexing and search capabilities that are provided by SourceOne to support information governance, compliance discovery, and data protection.

SourceOne for File Systems requires the SourceOne Email Management software be installed, regardless of whether you are using the email management features.

For more information about installing, configuring, and using SourceOne for File Systems, refer to the SourceOne for File Systems documentation set.

SourceOne Discovery Manager

There are two editions of SourceOne Discovery Manager.

These editions include:

- The Full edition of SourceOne Discovery Manager is an add-on component to SourceOnee Email Management that offers advanced search capabilities that are designed for the discovery and collection of archived content for the purposes of:
  - Litigation support.
  - Compliance with organizational or industry-driven regulations and policies.

- The Express edition of SourceOne Discovery Manager is included with SourceOne Email Management. Use the Express edition for quick search and export of archived email to PST or NSF files.

Note: You cannot install the Express edition of SourceOne Discovery Manager over the Full edition.

For more information about installing, configuring, and using SourceOne Discovery Manager, refer to the SourceOne Discovery Manager documentation set.

SourceOne Offline Access

SourceOne Email Management can remove messages and attachments from the mail server and replace them with space-efficient stubs also referred to as shortcuts, which point to copies of the messages that are stored in the archive.

SourceOne Offline Access supports the following:

- Resolution of shortcut messages using Microsoft Outlook.
- The creation and maintenance of a local cache of messages and attachments which the Microsoft Outlook user can access offline.

For more information about installing, configuring, and using SourceOne Offline Access, refer to the SourceOne Offline Access documentation set.

SourceOne Email Supervisor

SourceOne Email Supervisor is an add-on component to SourceOne Email Management that offers additional advanced surveillance capabilities that are designed for compliance with email regulations and policies, including message sampling, customizable automated procedures, intelligent cross-mailbox searching, and deleting.

For more information about installing, configuring, and using SourceOne Email Supervisor, refer to the SourceOne Supervisor documentation set.

SourceOne Kazeon eDiscovery

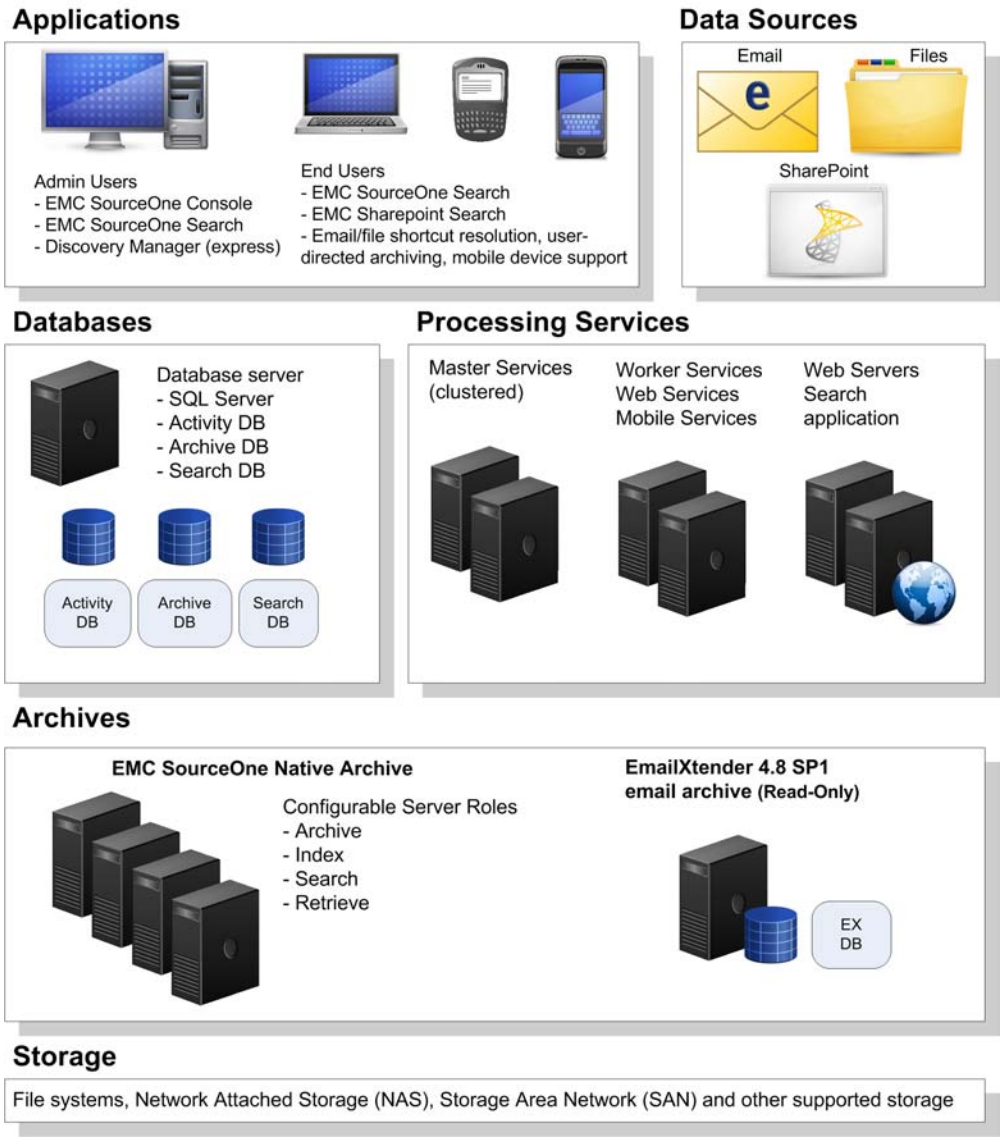
SourceOne Kazeon eDiscovery enables organizations to efficiently and cost-effectively classify, manage, and retrieve data.

For more information about installing, configuring, and using SourceOne Kazeon eDiscovery, refer to the SourceOne for Kazeon eDiscovery documentation set.

System architecture

The following figure depicts a sample SourceOne system architecture.

Figure 1 SourceOne architecture



System components

The following sections describe the components of the SourceOne system architecture.

Processing services

The SourceOne processing services include Master Services software, Worker Services software, Web Services software, Mobile Services software, and a database server hosting the SourceOne databases.

The SourceOne processing services architecture is scalable, supporting the installation of all components on a single host computer or allowing you to distribute them across multiple host computers depending on the requirements of the environment.

Master Services software

Master Services software schedules and distributes jobs that are processed by Worker Services software that is installed on the same computer or on multiple computers, depending on the size and processing requirements of the environment.

Worker Services software

Worker Services software performs archiving activities from various data sources. Worker Services software can be installed on the same computer on which the Master Services software is installed or you can install Worker Services software on additional computers as needed. Each Worker Services computer can be configured to process only specific activities. Worker Services computers assume control of jobs that are based on the type of tasks the Worker Services computer is configured to process.

Note: The Discovery Manager Worker Services software is now installed as part of the Email Management Worker Services software.

Web Services software

Web Services software processes search requests from administrators and end-users and performs shortcut resolution for Email Management users. The Web Services software is installed on one or more computers on which Worker Services software is installed.

Mobile Services software

Installing Mobile Services software creates an IIS website (ExShortcut).

Mobile Services software works along with Web Services software to support the resolution of shortcuts for the following Email Management and File System users accessing them using a URL:

- Mobile users
- Outlook Web Access users
- Outlook users who do not have the SourceOne Offline Access installed.

For File Systems users, the Universal URL also supports resolution of links to files in the Native Archive which were archived from a file server.

Databases

The following section lists the core Microsoft SQL Server databases are installed with Email Management.

Activity database

Maintains data that is associated with SourceOne system processing.

Native Archive database

Manages data that is associated with the SourceOne Native Archive, a role-based architecture that manages the archiving, indexing, searching, and retrieving of content.

Search database

Maintains data that is associated with the SourceOne Search application.

Note: Additional databases may be required for other SourceOne products. Refer to the product's documentation for details.

Archives

SourceOne supports the SourceOne Native Archive.

The SourceOne Native Archive can be connected to one or more storage environments.

Native Archive software

The Native Archive software uses an architecture which can be configured to perform the following roles.

- Archive
- Index
- Search
- Retrieve

The Native Archive software can be installed on a single host or multiple hosts, enabling you to dedicate hardware to specific roles to match the organization's archiving policies. For example, in small-to-medium business environments, the Native Archive software can perform all roles using one physical host. In enterprise environments, the Native Archive software can be installed and configured on multiple physical hosts that act as a single virtual host.

Storage

A storage environment is required to house the large amount of data that is archived by SourceOne as well as databases, program disk data, and other configuration data.

Storage Area Network (SAN) storage can consist of a SAN or Network Attached Storage (NAS), or a combination of both depending on the size and throughput requirements of the specific environment. For details on the available storage options, refer to the *SourceOne Email Management Administration Guide*.

Connectivity to the storage devices can be provided using current device connectivity methods such as Fibre Channel, or iSCSI over Ethernet, depending on the type of storage environment being used.

Applications

SourceOne applications provide administrators with the ability to manage the SourceOne system and search the archives. End-user applications enable users to search for and retrieve archived content.

SourceOne common applications

The following section describes the common applications which are packaged with the Email Management product.

SourceOne applications

Common applications are used with the following products.

- SourceOne Email Management
- SourceOne for Microsoft SharePoint

- SourceOne for File Systems
- SourceOne Console

SourceOne Console

The SourceOne Console is a Microsoft Management Console snap-in that can be run from an administrator's desktop or other system that meets the system requirements. Administrators can use the SourceOne Console to configure and manage the following.

- Archives, archive folders, and mapped folders
- Organizational policies
- Activities
- Filtering rules
- Job processing
- Applications and Web services

For more information about SourceOne Console features and capabilities, refer to the *administration guide* for the product. Also, the SourceOne Console includes a single online help system which supports all applicable SourceOne products.

SourceOne Search

The SourceOne Search application is typically installed on a web server and securely communicates with Web Services software installed on one or more Worker Services computers behind the firewall. You can alternatively install the Search application on a Worker Services computer.

SourceOne Search supports administrative searches for archived email, SharePoint, and file system content in the same user interface.

CHAPTER 2

Planning the Installation

This section contains the following topics:

Pre-deployment planning

The following section describes the planning activities that take place when deploying SourceOne products within the context of a Professional Services engagement. In cases where Professional Services is not used, similar planning activities are required.

Customer engagement

When Professional Services is engaged to plan and deploy one or more SourceOne products, the engagement is driven using a detailed customer engagement model. Resources from various organizations including Professional Services work with the organization's internal IT organizations to plan and run the deployment.

The timeline for customer engagement spans presale activities, deployment planning, deployment, and production.

Activities which take place before deployment include the following:

- Solution requirements definition–Typically takes place during the presale phase. The activity includes gathering customer requirements, and determining initial license counts, service deliverables, and deployment timeline.
- Business requirements definition–Includes collecting and analyzing customer business requirements, metrics, and processes.
- Solution design–Includes translating business requirements into technical requirements, including license counts, hardware and storage requirements, and services estimate.

Roles and resources

Before installing SourceOne products, Professional Services works with the organization to define archiving and computer use policies which protect business interests. This policy defines the rights and obligations of employees regarding the use of company systems. It also clearly defines restrictions.

After this policy is defined, it must be clearly communicated to all employees in the organization. Conduct employee training and awareness sessions to ensure that employees understand each policy and its purpose.

The personnel that can be included in an installation of SourceOne products include:

- Professional Services and authorized partners–Trained to scope, install, and configure SourceOne components.
- Compliance officer–Defines and enforces company-wide compliance policies. Included before, during, and post installation as a consulting entity to enable administrators to configure the system to support compliance policies.
- Email administrator–Implements policies that are related to the organization's messaging environment.
- Network administrator–Ensures the deployment team has the network environment that is configured to support the SourceOne system.
- Database administrator–Ensures the deployment team has the database environment to support the SourceOne system.
- Storage administrator–Ensures the deployment team has the storage environment and resources to support the SourceOne system.

- Backup administrator–Ensures that the deployment team understands the requirements to back up the SourceOne system.

Analysis and design

The analysis and design effort includes the following environmental elements.

- Data infrastructure
- Network and storage environment
- Hardware and software requirements
- Impact of implementation to infrastructure
- Software configuration parameters
- Hardware and storage sizing

After these factors are understood, the Professional Services team can create a project plan which defines the solution and a plan for enterprise rollout.

Example configurations

The configuration examples described in this section provide a basic deployment example designed to support high availability and can be scaled as the organization's requirements grow and change.

Information resources

Your account team can provide configuration options and details that are based on the size and scope of the SourceOne deployment. Also, several customer-facing white papers are available on the Online Support site.

Blueprints

Professional Services can provide assistance in sizing the environment, recommending a configuration, and deploying the configuration. SourceOne blueprints are available to assist with this process.

SourceOne example configurations

The following section describes two example configurations: one used by a small-to-medium business customer, and one used by an enterprise customer. This information is intended only to provide examples of typical configurations.

SourceOne deployment details can vary greatly depending on the size of the environment and specific product features. This can include considerations for Email Management, Microsoft SharePoint, File Systems, and other products.

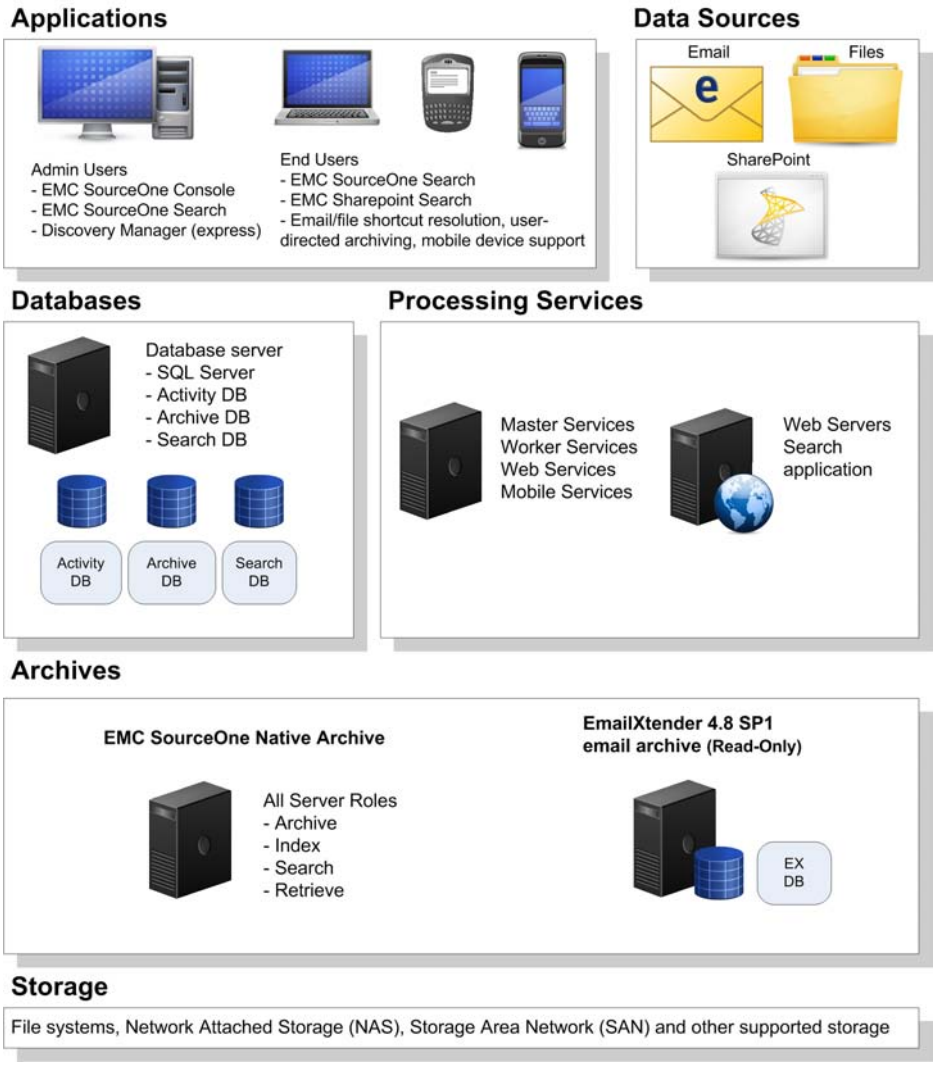
The examples that are depicted in this section include Email Management, Microsoft SharePoint, and File Systems:

- Small-to-medium business example configuration
- Enterprise configuration example

Small-to-medium business configuration example

The following configuration can support the site using an architecture that distributes processing and archiving functionality across a minimal number of physical computers and storage.

Figure 2 SourceOne SMB configuration example



Basic configuration

SourceOne supports the installation of the following software on a single computer.

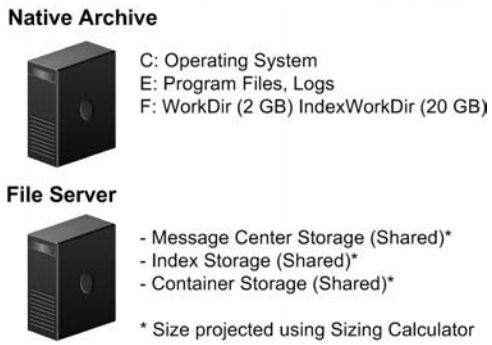
- Master Services software
- Worker Services software
- Web Services software
- Native Archive Services software
- Console application (can be installed on this computer, one or more client computers, or both)
- SourceOne for Microsoft SharePoint Business Components Extensions (BCE)
- SourceOne for File Systems Business Component Extensions (BCE)

- Search application (can alternatively be installed on a web server)
- Discovery Manager Server, express edition
- Mobile Services software
- DiskXtender (if used)
- Installation Agent
- Language Packs (Email Management, Discovery Manager, SharePoint, File Systems)

Native Archive disk configuration and storage

The following figure depicts a disk configuration and storage example for the SourceOne Native Archive.

Figure 3 Native Archive SMB disk/storage configuration example



The configuration that is described in this section is an example.

Sizing details

The SourceOne Sizing Calculator and other resources can provide details on storage capacity, server configuration, and disk layout recommendations that are based on an analysis of your requirements. Contact your representative for details.

Disk configuration

In this example, drive configuration is as follows.

- C: = Operating system
- E: = Program files and trace log files
- F: = Work directories for temporary processing.

Work directories

Work directories include the following:

- **SourceOne Work directory**
  - Temporary area that is required for SourceOne processing (excluding indexing)
  - Created during Master software installation (subsequent Worker and Native Archive software installations confirm that this directory exists)
  - Requires a minimum of 1 GB of free space
- **SourceOne Index Work directory**
  - Temporary area that is required for Native Archive computers performing the index role
  - Created during Native Archive software installation

- Requires a minimum of 20 GB of free space
- Must be on a local drive
- Cannot be on the operating system drive

Storage

In this example, shares are configured on a separate file server as follows.

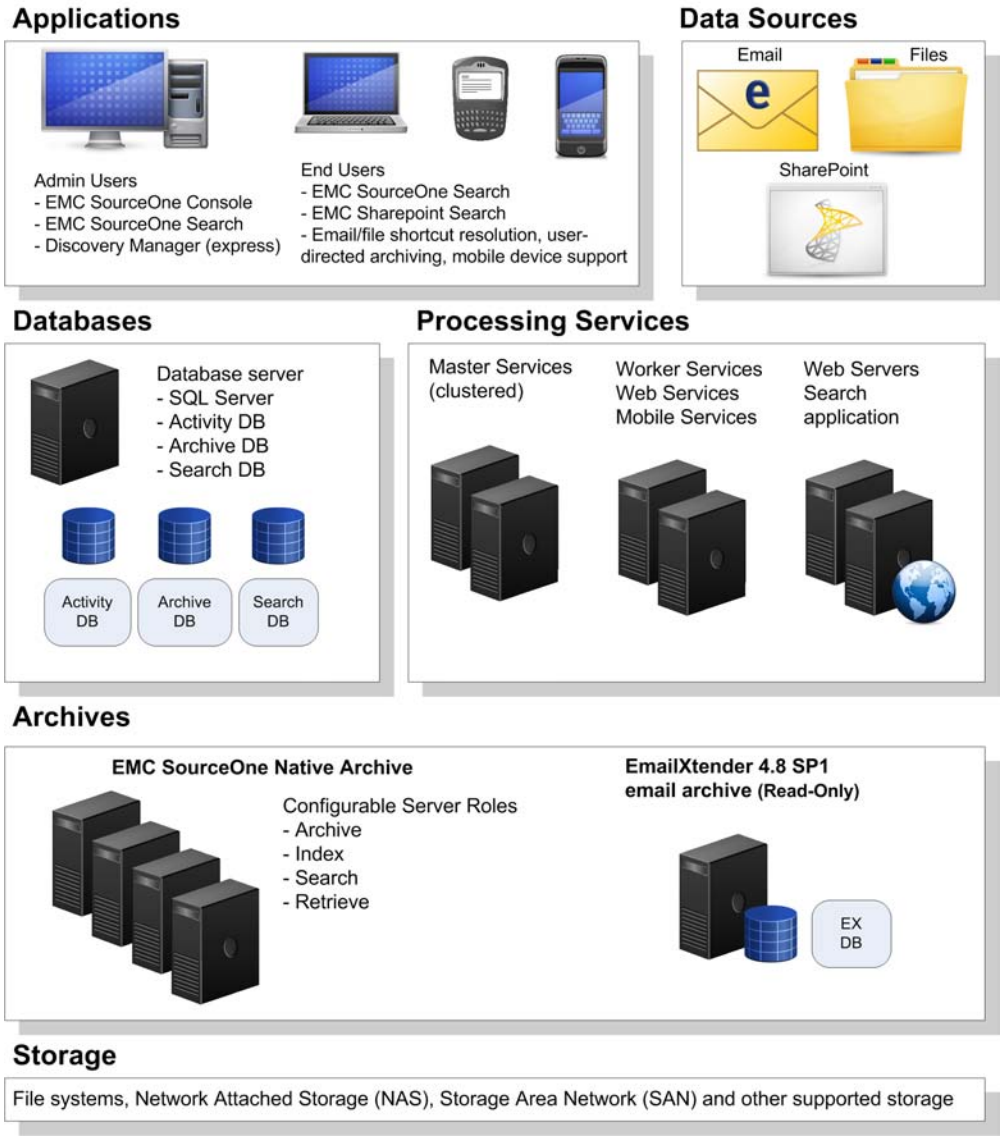
- The Message Center folder is configured as a share and sized using the SourceOne Sizing Calculator
- The Index folder is configured as a share and sized using the SourceOne Sizing Calculator
- The Container folder is configured as a share and sized using the SourceOne Sizing Calculator. Direct storage is also supported on Centera, Celerra, Data Domain, and NetApp

Note: Specific permissions for each share are configured as described in Assigning permissions on page 39.

Enterprise configuration example

The following configuration can support large sites using an architecture which distributes processing and archiving functions across hardware and storage.

Figure 4 SourceOne enterprise configuration example



Basic configuration

SourceOne software can be distributed across several computers.

For example, you can configure separate computers as follows:

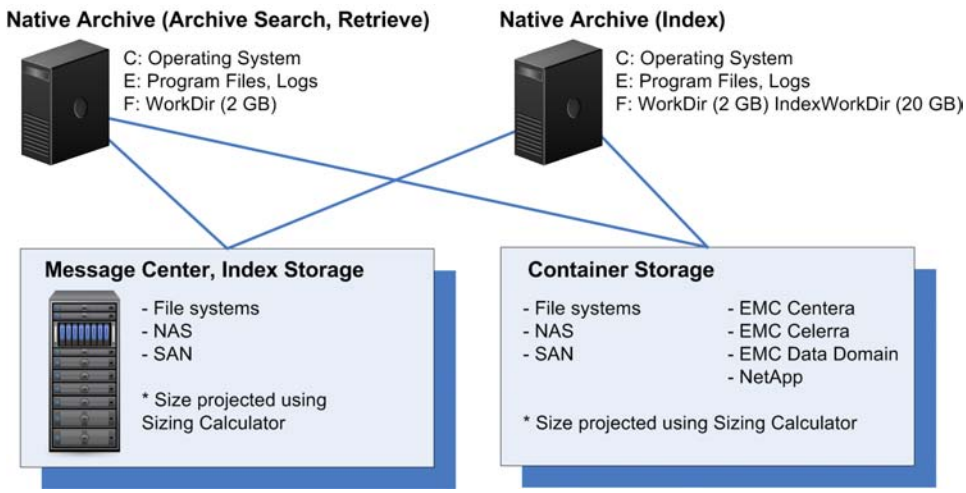
- Dedicated SQL Server database host computer
- Master Services software that is installed on two computers which are clustered using Microsoft Clustering
- Two or more Worker Services computers with the following software installed:

  - Worker Services
  - Web Services (on at least one Worker Services computer)
  - Mobile Services
  - Discovery Manager Server, express edition
  - SourceOne for Microsoft SharePoint Business Component Extensions
  - SourceOne for File Systems Business Component Extensions
- One or more computers (Master Services computer or a client computer) with the following software installed:
  - SourceOne Console application
  - SourceOne for Microsoft SharePoint Business Component Extensions
  - SourceOne for File Systems Business Component Extensions
- The SourceOne Search application:
  - Installed on one or more Worker Services computers and configured to communicate with Web Services.
  - Installed on an IIS web server and configured to communicate with Web Services on one or more Worker Services computers.
- One or more computers with Native Archive Services software installed. Disk configuration and storage configured.
- The Discovery Manager client application that is installed on one or more client computers and configured to communicate with the Discovery Manager Server, express edition.

Native Archive disk configuration and storage

The following figure depicts a disk configuration and storage example for the Native Archive.

Figure 5 Native Archive enterprise disk/storage configuration example



Sizing details

The configuration that is described in this section is an example. The SourceOne Sizing Calculator and other resources can provide details on storage capacity, server configuration, and disk layout recommendations that are based on an analysis of your requirements. Contact your representative for details.

Disk configuration

In this example, each Native Archive computer has the following disk configuration.

- C: = Operating system
- E: = Program files and trace log files
- F: = Work directories for temporary processing.

Work directories

The following section list the SourceOne Work directories.

- **SourceOne Work directory**
  - Temporary area that is required for SourceOne processing (excluding indexing)
  - Created during Native Archive software installation
  - Requires a minimum of 1 GB of free space
- **SourceOne Index Work directory**
  - Temporary area that is required for Native Archive computers performing the index role
  - Created during Native Archive software installation
  - Requires a minimum of 20 GB of free space
  - Must be on a local drive
  - Cannot be on the operating system drive

Storage configuration

In this example, the two Native Archive computers can share the following storage configurations.

- Message Center stored on a separate file share, SAN, or NAS device
- Indexes that are stored on a separate file share, SAN, or NAS device
- Containers that are stored on a separate file share, SAN, or NAS device. Direct storage is also supported on Centera, Celerra, Data Domain, and NetApp

Note: Specific permissions for each share are configured as described in Assigning permissions on page 39.

Sizing and scalability

Understanding specific information about the environment into which SourceOne is deployed is key to determining the hardware, software, and storage resources required. Although SourceOne example configurations provide base guidelines for these required resources, certain aspects can be adjusted to meet the specific needs of the environment.

uses various tools to gather key information by working with the customer before a deployment to scope the environment. These tools include the Sizing Calculator. The resulting information is then applied to the framework of the configuration where components of the configuration can be scaled or extended.

For example, when sizing an Email Management environment, some of the factors that are examined include:

- Total number of users.
- Number of messages per day.
- Percentage of messages with attachments.

- Average size of attachments.
- Average size without attachments.
- Average number of recipients per message.
- Message deduplication percentage.
- Annual email usage growth.
- Typical business processing requirements.

The information that is provided by the SourceOne Sizing Calculator includes:

- Archive storage capacity.
- Additional storage considerations.
- Server and processing requirements.
- Standard server configurations (disk layout, spindle speeds, and other information).

For more information about the SourceOne Sizing Calculator, contact your account team.

Performance metrics

Professional Services uses information resulting from performance testing to establish a performance baseline for a base configuration. SourceOne components can then be adjusted to achieve an expected level of performance.

High-availability

As an enterprise-class solution, SourceOne components must be configured to support high availability and minimize system downtime. High availability is a combination of data protection, failover, and appropriate planning to eliminate both planned and unplanned downtime.

SourceOne is designed to support high availability by forming an infrastructure which includes hardware and software redundancy for all system components.

Also, it is important for the organization to have policies and procedures in place to support business continuity objectives. These objectives are defined and documented as part of the engagement between and key personnel representing the organization.

Backup and restore

Information and procedures for performing backups of the SourceOne system is described in the *SourceOne Email Management Administration Guide*.

For backup and restore information for other SourceOne products, refer to the documentation set that accompanies each product.

Disaster recovery

The *SourceOne Disaster Recovery Solution Guide* provides configuration, failover, and failback information for supported SourceOne configurations.

CHAPTER 3

Pre-installation

This section contains the following topics:

Pre-installation checklist overview

Specific permissions, system requirements, and considerations for all products (common) and Email Management are provided as subsections.

As you complete the tasks in each checklist, you can indicate it using the checklist that is provided in the following table.

Table 3 Checklist overview

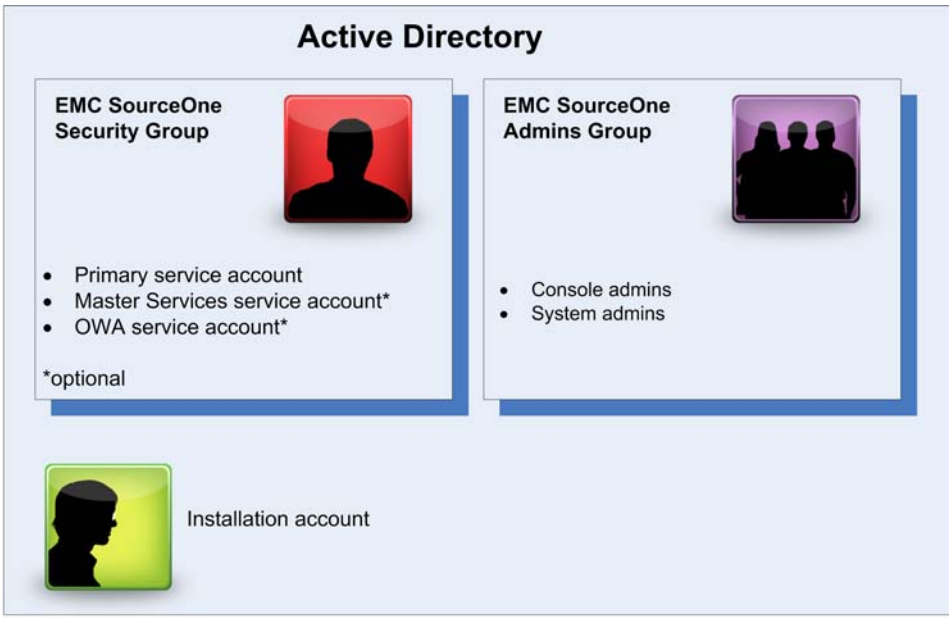
Done	Task Checklist
❑	• Creating accounts in Active Directory on page 35.
❑	• Assigning permissions on page 39 • Common permissions assignment on page 39 • Email Management permissions assignment on page 44
❑	• Establishing system requirements on page 49 • Common computer requirements on page 50 • Email Management computer requirements on page 58
❑	• Important Installation Considerations on page 61 • Common considerations (all products) on page 62 • Email Management considerations on page 67

Note: Before you begin implementing the accounts, permissions, and system requirements, review Important Installation Considerations on page 61 for information that may be relevant to the environment.

Creating accounts in Active Directory

The following section provides a checklist for the tasks that are required to configure groups and accounts in Active Directory.

Figure 6 Active Directory groups and accounts



Note: Users who are using the Full or Express edition of SourceOne Discovery Manager must be in Active Directory. Email users whose email is searched do not need to be in Active Directory.

Table 4 Accounts and permissions checklist Active Directory

Done	Task	Details	Validation
❑	Create the primary service account	**All environments** The SourceOne primary service account is required in all environments to process SourceOne activities. Details are as follows: • Password does not need to be changed at next login. • Account does not expire. • Password does not expire. See Service account passwords on	Ensure account is successfully created.

Table 4 Accounts and permissions checklist Active Directory (continued)

Done	Task	Details	Validation
		page 66 for considerations. • Must be in the same domain as the SourceOne servers. **Email Management environments only** In Exchange environments, optionally create an Exchange mailbox for the primary service account. If the site disallows creating a mailbox for a service account, see Service account mailbox restrictions and workaround on page 67.	
❑	Create Master Services service account (optional)	**All environments** The optional SourceOne Master Services service account is specified during Master Services installation. You can alternatively use the primary service account. See Additional service accounts to support least privileges on page 66 for considerations. Details are as follows: • Password does not need to be changed at next login. • Account does not expire. • Password does not expire. See Service account passwords on page 66 for considerations. • Must be in the same domain as the SourceOne servers.	Ensure account is successfully created.

Table 4 Accounts and permissions checklist Active Directory (continued)

Done	Task	Details	Validation
❑	Identify or create OWA service account (optional)	**Email Management environments only** The SourceOne OWA service account is specified during Extensions for OWA installation on Exchange. You can alternatively use the primary service account. See Additional service accounts to support least privileges on page 66 for considerations. Details are as follows: • Password does not need to be changed at next login. • Account does not expire. • Password does not expire. See Service account passwords on page 66 for considerations. • Must be in the same domain as the SourceOne servers.	Ensure account is successfully created.
❑	Create security group	**All environments** Create the SourceOne security group. This group houses the service accounts used with SourceOne. Details are as follows: • Created in a domain that is fully trusted by the domains SourceOne applications are running. • Group scope is Universal or Global if Universal is not available in the environment. • Group type is Security.	Ensure group is successfully created.

Table 4 Accounts and permissions checklist Active Directory (continued)

Done	Task	Details	Validation
		• Group name does not contain special characters.	
❑	Add service accounts to security group	**All environments** Add the following accounts. • SourceOne primary service account. • SourceOne Master Services service account (if used). • SourceOne OWA service account (if used).	Ensure accounts successfully added.
❑	Create Admins group	**All environments** Create the SourceOne Admins group. This group houses the accounts for designated administrators who will use the SourceOne Console application. Details are as follows: • Created in a domain that is fully trusted by the domains SourceOne applications are running. • Group scope is Universal (or Global if Universal is not available in the environment). • Group type is Security. • Optionally create an Exchange email address.	Ensure group is successfully created.
❑	Identify or create administrative accounts	**All environments** Identify or create one or more administrative user accounts used to run the SourceOne Console.	Ensure account exists or is successfully created.
❑	Add administrative accounts to Admins Group	**All environments**	Ensure accounts successfully added.

Table 4 Accounts and permissions checklist Active Directory (continued)

Done	Task	Details	Validation
		Add administrative accounts to the SourceOne Admins Group.	
❑	Identify or create installation account	**All environments** Identify or create one or more installation user accounts used to install SourceOne software.	Ensure accounts successfully added.

Assigning permissions

The following section provides a checklist for the tasks that are required to assign permissions to SQL Server, computers, share locations, and data source environments.

Note: For information about permissions that are required for Discovery Manager (express edition or full edition), refer to the *SourceOne Discovery Manager Installation and Administration Guide*.

Common permissions assignment

The following section describes how to assign permissions to SQL Server, computers, share locations, and data source environments.

Task overview

Review the following.

Figure 7 SQL Server

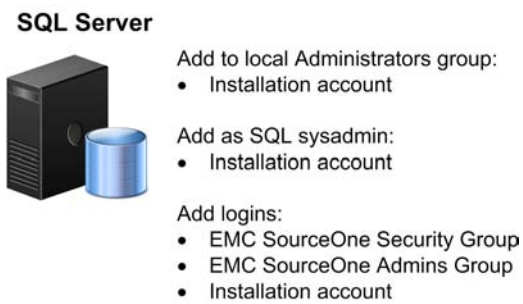


Figure 8 Master

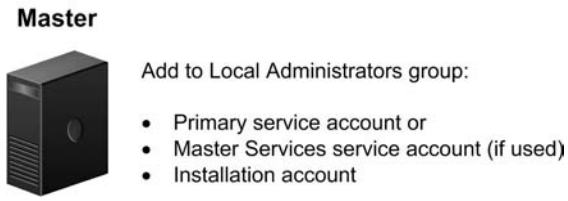


Figure 9 Worker, Native Archive, Console computers

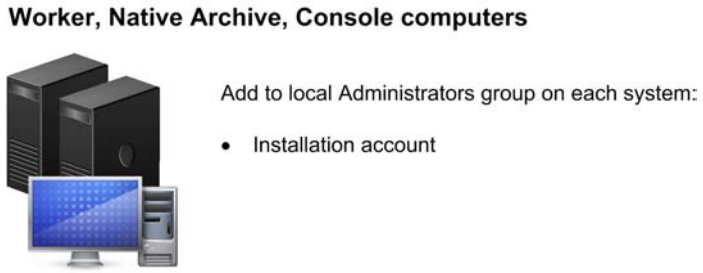
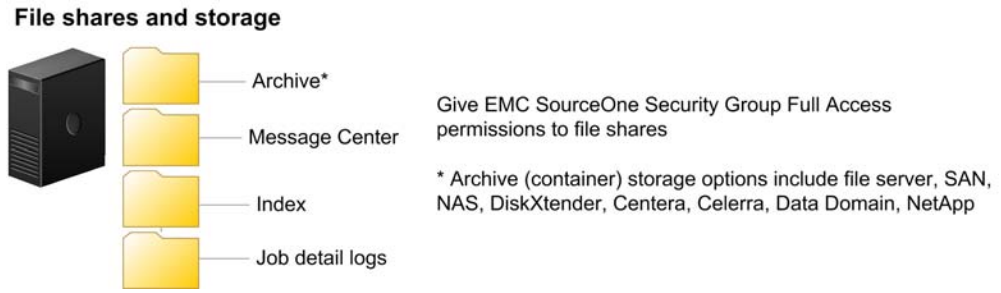


Figure 10 File shares and storage



Task checklist

The following checklist describes how to assign permissions common to all SourceOne environments.

Table 5 Accounts and permissions - permissions assignment

Done	Environment /System	Task	Details	Validation
❑	SQL Server	Configure SQL database install permissions and Security Logins	Ensure that the installation account is a local administrator and has the SQL system administrator role. Configure the following groups and accounts as Security Logins in SQL Server: • SourceOne security group • SourceOne Admins group • SourceOne installation accounts You will later assign individual database	After SourceOne is installed, use the ODBC Test Connection function to confirm the connection.

Table 5 Accounts and permissions - permissions assignment (continued)

Done	Environment /System	Task	Details	Validation
			privileges to these logins after SourceOne databases are installed.	
❑	Master computers	Add service account to local administrators group	Add one of the following service accounts as a member of the local administrators group for this computer: • Primary service account, or • Master Services service account (if used) This account is required to be a member of this group to run the SourceOne Job Scheduler service.	Ensure that the account was added.
❑	Master computers	Add installation account to local administrators group	Add the SourceOne installation account as a member of the local administrators group for this computer. You can remove this user from the group after the installation completes. Alternatively you can use an existing account that is a member of the local administrators group to install the software.	Ensure that you can log in using the account.
❑	Worker computers	Add installation account to local administrators group	Add the SourceOne installation account as a member of the local administrators group for this computer.	Ensure that you can log in using the account.

Table 5 Accounts and permissions - permissions assignment (continued)

Done	Environment /System	Task	Details	Validation
			You can remove this user from the group after the installation completes. Alternatively you can use an existing account that is a member of the local administrators group to install the software.	
❑	Native Archive computers	Add installation account to local administrators group	Add the SourceOne installation account as a member of the local administrators group for this computer. You can remove this user from the group after the installation completes. Alternatively you can use an existing account that is a member of the local administrators group to install the software.	Ensure that you can log in using the account.
❑	Console client computers	Add installation account to local administrators group	Add the SourceOne installation account as a member of the local administrators group for this computer. You can remove this user from the group after the installation completes. Alternatively you can use an existing account that is a member of the local administrators group to install the software.	Ensure that you can log in using the account.

Table 5 Accounts and permissions - permissions assignment (continued)

Done	Environment /System	Task	Details	Validation
❑	Storage	Configure storage location permissions	Configure SourceOne Security Group with permissions for the following storage locations: • Message Center location • Archive location • Index location • Job detail log file location Configure the following permissions for each location: • Sharing tab. Configure the security group with Full Control permissions to the share. • Security tab. Configure the security group with Full Control permissions to the share.	1. Log in to a system as the primary service account. 2. Access the share and create a text file. 3. Delete the text file.
❑	DiskXtender	Add security group to DX administrators group	If using DiskXtender, add the SourceOne Security Group to the DxAdministrators group on the DiskXtender server.	Ensure that the group was added.

Email Management permissions assignment

This section provides a task overview and checklists for the tasks that are required to assign permissions specific to your email environment.

Figure 11 Drop directories

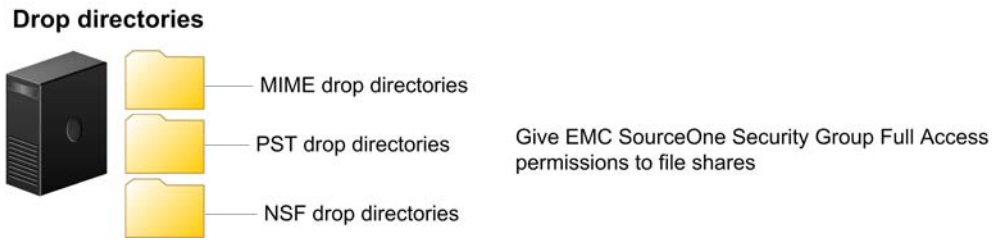


Figure 12 Network computers

Figure 13 Network computers: Microsoft Exchange

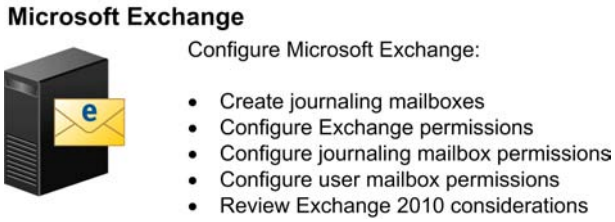
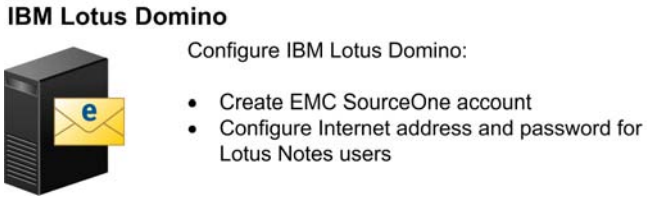


Figure 14 Network computers: IBM Lotus Domino



General permissions

This section describes general permissions that are associated with SourceOne Email Management.

Table 6 Accounts and permissions - permissions assignment

Done	Environment /System	Task	Details	Validation
❑	MIME drop directories	Configure drop directory permissions for MIME management	For drop directories into which you place MIME messages to be archived by SourceOne: • Sharing tab. Configure the security group with Full Control permissions to the share. • Security tab. Configure the security group with Full Control permissions to the share.	1. Log in to a system as the primary service account. 2. Access the share and create a text file. 3. Delete the text file.
❑	NSF drop directories	Configure drop directory permissions for NSF management	For drop directories into which you place NSF files to be archived by SourceOne: • Sharing tab. Configure the security group with Full Control permissions to the share. • Security tab. Configure the security group with Full Control permissions to the share.	1. Log in to a system as the primary service account. 2. Access the share and create a text file. 3. Delete the text file.
❑	PST drop directories	Configure drop directory permissions for PST management	For drop directories into which you place PST files to be archived by SourceOne in a single Exchange forest configuration: • Sharing tab. Configure the security group with Full Control permissions to the share. • Security tab. Configure the security group with Full Control permissions to the share. See the *SourceOne Email Management Administration Guide* for considerations in an Exchange resource forest configuration.	1. Log in to a system as the SourceOne primary service account. 2. Access the share and create a text file. 3. Delete the text file.
❑	Network computers	Configure PST discovery permissions	To support PST discovery and management on network computers in a single Exchange forest configuration, add the SourceOne security group as member of local Administrators group for these computers.	Network computers: 1. Log in to a system as the SourceOne primary service account.

Table 6 Accounts and permissions - permissions assignment (continued)

Done	Environment /System	Task	Details	Validation
			See the *SourceOne Email Management Administration Guide* for considerations in an Exchange resource forest configuration.	2. Access a computer from My Network Places. 3. Access C$ drive.

Microsoft Exchange permissions

This section provides a checklist for the tasks that are required to configure permissions in Microsoft Exchange.

Table 7 Accounts and permissions - Microsoft Exchange

Done	Task	Details	Validation
☐	Create Exchange journaling mailboxes	Create one or more Microsoft Exchange journaling mailboxes. A journaling user account is associated with a Microsoft Exchange journaling mailbox that collects messages that are generated on a Mailbox Store. Most configurations consist of several journaling users and mailboxes. Envelope journaling is required for SourceOne. See Microsoft Exchange environment requirements on page 58 for details. A journaling user account is created in Active Directory and must have the following characteristics: • Member of Domain Users group. • Password does not need to be changed at next login. • Password does not expire. • Account does not expire. • Journaling users/mailboxes	Ensure that the mailboxes are created.
☐	Configure general Exchange permissions	Grant the SourceOne primary service account *and* the SourceOne Admins group the following permissions: Microsoft Exchange View-Only Administrator (at the Organization level) **Note:** If using Microsoft Exchange 2010 in a mixed environment (which includes both Microsoft Exchange 2010 and a previous Microsoft Exchange version), you must explicitly configure these permissions in Microsoft Exchange 2010. They do not automatically propagate over from previous Microsoft Exchange versions.	1. Start the SourceOne Console. 2. Check that the administrator can view the mail server hierarchy from the SourceOne Console.

Table 7 Accounts and permissions - Microsoft Exchange (continued)

Done	Task	Details	Validation
❑	Configure permissions for journaling mailboxes	Grant the SourceOne primary service account Full mailbox access to each journaling mailbox.	Test journaling mailbox access: 1. Open Microsoft Outlook as the primary service account. 2. Open the journal mailbox Inbox folder. 3. Add and delete a message.
❑	Configure permissions for user mailboxes	To support storage management that requires a higher level of permissions to access and change mailbox contents, configure the following permissions, depending on Microsoft Exchange version. ⓘ **Note:** In a mixed environment of Microsoft Exchange 2010 and Microsoft Exchange 2013, mail does not get pulled from the Microsoft Exchange 2013 journaling mailboxes. When logging in to the Worker, errors occur. When pulling mail from the journals on the Microsoft Exchange 2013 server, jobs fail. To work around these limitations, from the Account Settings, change the Microsoft Outlook configuration on the workers by selecting the Connect to Microsoft Exchange using HTTP checkbox: • Microsoft Exchange 2013 and 2016 – Grant the SourceOne primary service account the Receive As extended permissions. ⓘ **Note:** In a mixed environment (Microsoft Exchange 2013 and a previous version of Microsoft Exchange), grant these permissions at the mailbox database level, targeting only the mailboxes on Microsoft Exchange 2013. You can then use the permissions that are described in the following section for mailboxes that are hosted on previous Microsoft Exchange versions. • Microsoft Exchange 2010 – Grant the SourceOne primary service account the Receive As extended permissions: ⓘ **Note:** In a mixed environment (Microsoft Exchange 2010 and a previous version of Microsoft Exchange), grant these permissions at the mailbox database level, targeting only the mailboxes on Microsoft Exchange 2010. You can then use the permissions that are described in the following section for mailboxes	Storage management: 1. Open Microsoft Outlook as the primary service account. 2. Open a test user mailbox Inbox folder. 3. Add and delete a message.

Table 7 Accounts and permissions - Microsoft Exchange (continued)

Done	Task	Details	Validation
		that are hosted on previous Microsoft Exchange versions. • Microsoft Exchange 2007 – Grant the SourceOne primary service account the following extended permissions: ▪ Receive As ▪ Send As **Note:** These permissions can be granted at the Organization level (highest) to the individual mailbox level (lowest).	
☐	Review Microsoft Exchange 2010 considerations	Review the following considerations if using SourceOne in an environment that includes Microsoft Exchange 2010: • Microsoft Exchange 2010 replaced the permissions model that is used in Microsoft Exchange 2007 with a Role Based Access Control (RBAC) permissions model. Refer to the Microsoft Exchange 2010 documentation set for more information. • Microsoft Exchange 2010 takes two hours to update the permissions cache. Restart the Microsoft Exchange Information Store after applying permissions to activate the changes.	None.
☐	Review Microsoft Exchange 2013 considerations	Review the following consideration if using SourceOne in an environment that includes Microsoft Exchange 2010. Microsoft Exchange 2013 takes two hours to update the permissions cache. Restart the Microsoft Exchange Information Store after applying permissions to activate the changes.	None.
☐	Review Microsoft Exchange 2016 considerations	Review the following consideration if using SourceOne in an environment that includes Microsoft Exchange 2010. Microsoft Exchange 2016 takes two hours to update the permissions cache. Restart the Microsoft Exchange Information Store after applying permissions to activate the changes.	None.

IBM Lotus Domino permissions

The following section provides a checklist for the tasks that are required to configure permissions in IBM Lotus Domino.

Table 8 Accounts and permissions - IBM Lotus Domino

Done	Task	Details	Validation
☐	Create Lotus Notes account	This account will later be specified on SourceOne host computers to support message processing in a Domino environment. To support all SourceOne activities, configure the account with the following: • Manager privileges for all users mail files • Delete access to all mailboxes Perform the following to support all SourceOne activities except archiving messages based on read or unread status, restoring messages from SourceOne Search, and user-directed archiving: • Editor privileges for all users mail files • Delete access to all mailboxes Account name	1. Open a user NSF file for test purposes as the SourceOne Notes user. 2. Add data. 3. Delete the data.
☐	Configure Internet address and password for Lotus Notes users	Ensure Lotus Notes users have an Internet address and password configured. This is required for Notes users to use SourceOne Search.	After SourceOne is installed, confirm that a Notes user can log in to SourceOne Search.

Establishing system requirements

The following section provides minimum hardware, operating system, network connectivity, and prerequisite software requirements for components comprising a typical SourceOne system configuration.

Note: Before you begin implementing the system requirements, review Important Installation Considerations on page 61 for information that may be relevant to the environment.

For information about requirements for SourceOne Discovery Manager, refer to the *SourceOne Discovery Manager Installation and Administration Guide*.

Common computer requirements

The following section describes system requirements for host computers common to all SourceOne environments.

Database host computer requirements

The following table describes the requirements for a dedicated Microsoft SQL Server database host computer.

Table 9 Database host computer base requirements

Component	Description	
Hardware	The SourceOne Sizing Calculator provides recommendations that are based on the environment. Important guidelines for the database administrator are also provided in Important SQL Server considerations on page 63.	
OS	Refer to the *SourceOne Products Compatibility Guide* for detailed operating system requirements.	
Disk configuration	The SourceOne Sizing Calculator provides recommendations that are based on the environment. General guidelines for your database administrator are also provided in Important SQL Server considerations on page 63.	
Software Network	High-speed connection to all components and systems in the configuration with sufficient bandwidth to process the expected workload. Refer to the *SourceOne Products Compatibility Guide* for more detailed information about supported versions of the software that is described in this section.	
	Microsoft SQL Server	• Enterprise Edition (recommended) or Standard Edition • General guidelines for the database administrator are also provided in Important SQL Server considerations on page 63.
	Windows Server 2008 only configure firewall rules	If using Windows Server 2008, configure the SQL Server executable (`Sqlservr.exe`) as an exception to the blocked programs list.

Table 9 Database host computer base requirements (continued)

Component	Description	
		Refer to Microsoft's documentation for details on configuring firewall rules using Windows Firewall with Advanced Security in Windows Server 2008.

Important Considerations

Ensure that you review the important information in Important SQL Server considerations on page 63.

Topics include the following:

- Database installation permissions
- SQL Server disk configuration
- Database partitioning
- Database installation options
- Collation settings
- Disaster recovery configuration

Master Services host computer requirements

The following table describes the requirements for the host computers on which Master Services software is installed.

Table 10 Master Services host computer base requirements

Component	Description	
Hardware	The SourceOne Sizing Calculator provides detailed recommendations that are based on the environment.	
OS	Refer to the *SourceOne Products Compatibility Guide* for detailed operating system requirements.	
Disk configuration	The SourceOne Sizing Calculator provides detailed recommendations that are based on the environment.	
Network	High-speed connection to all components and systems in the configuration with sufficient bandwidth to process the expected workload.	
Software	Refer to the *SourceOne Products Compatibility Guide* for more detailed information about supported versions of the software that is described in this section.	
	Email software (Exchange)	• No client software required.
	Email software (Domino)	• Install Notes client. • Configure the Notes ID as the SourceOne Notes user account. • Validate by ensuring the client can access the mail server.

Table 10 Master Services host computer base requirements (continued)

Component	Description	
		• Notes 8.5 Shared Login feature is not supported. • Do not update or change the version of Lotus Notes client software after SourceOne components are installed.
	Email software (general)	Mixed-mail environments (Exchange and Domino): • Ensure that Outlook is the default mail client. • In SMTP mail environment – No email client is required. • Validated by SourceOne software installation that email client version is supported.
	Microsoft .NET Framework Redistributable Package	• Manually install. • Validated by SourceOne software installation.
	Microsoft Management Console 3.0	• Manually install if planning to install SourceOne Console on the computer. • Validated by SourceOne Console software installation.
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the redistributable package specific to the supported language.
	Microsoft SQL Server Native Client Redistributable Package	• Automatically installed with SourceOne software if not present.
	Microsoft SQL Server Native Client (SNAC)	• Install the version of SNAC that best suits the operating system of the SourceOne server. • Install the version of the Microsoft SQL Server that hosts the SourceOne databases.
	Core XML Services (MSXML) 6.0	• Not validated by SourceOne software installation.

Worker Services host computer requirements

The following table describes the requirements for the host computers which may be running the following SourceOne software.

- Worker Services

Note: The Discovery Manager Worker Services software is now installed as part of the Email Management Worker Services software.

- Web Services
- Mobile Services
- SourceOne Search
- SourceOne for Microsoft SharePoint Business Components Extensions
- SourceOne for File Systems Business Component Extensions

Table 11 SourceOne Worker Services host computer base requirements

Component	Description	
Hardware	The SourceOne Sizing Calculator provides detailed recommendations that are based on your environment.	
OS	Refer to the *SourceOne Products Compatibility Guide* for detailed operating system requirements.	
Disk configuration	The SourceOne Sizing Calculator provides detailed recommendations that are based on your environment.	
Network	High-speed connection to all components and systems in the configuration with sufficient bandwidth to process the expected workload.	
Software	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.	
	Email software (Exchange)	• Install Outlook 2007. Ensure that Cached Exchange Mode is disabled. • Log in using the service account and ensure the MAPI profile that is named **SourceOne** is configured for the mailbox that is associated with the service account. See Service account mailbox restrictions and workaround on page 67 for details on service account mailbox configuration. • Validate by using **Control Panel** > **Mail** > **Show Profiles** to ensure that the profile name is **SourceOne**.
	Email software (Domino)	• Install Notes client. • Configure the Notes ID as the SourceOne Notes user account. • Validate by ensuring the client can access the mail server. • Notes 8.5 Shared Login feature is not supported.

Table 11 SourceOne Worker Services host computer base requirements (continued)

Component	Description	
		• Do not update or change the version of Lotus Notes client software after SourceOne components are installed.
	Email software (general)	Mixed-mail environments (Exchange and Domino): • Ensure that Outlook is the default mail client in the Exchange environment. • No email client is required for SMTP mail environments. • Ensure that the SourceOne software installation has validated that the email client version is supported.
	Core XML Services (MSXML) 6.0	• Not validated by SourceOne software installation.
	Microsoft .NET Framework Redistributable Package	• Manually install. • Validated by SourceOne software installation.
	Microsoft Internet Information Services (IIS)	• Manually install if installing Web Services on this computer. • Ensure .NET is installed before IIS. • Ensure ASP.NET option that is selected. • Validated by SourceOne Web Services software installation.
	Microsoft ASP.NET	• Manually install if installing Web Services on this computer. • Inherited authorization rules are set to Allow. • Validated by SourceOne software installation.
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or

Table 11 SourceOne Worker Services host computer base requirements (continued)

Component	Description	
		silently install the redistributable package specific to the supported language.
	Microsoft SQL Server Native Client Redistributable Package	• Automatically installed with SourceOne software if not present.
	Microsoft ASP.NET AJAX Extensions Redistributable Package	• Automatically installed with SourceOne software if not present.

Native Archive Services host computer requirements

The following table describes the requirements for the host computers on which Native Archive Services software is installed.

Table 12 Native Archive Services computer base requirements

Component	Description	
Hardware	The SourceOne Sizing Calculator provides detailed recommendations that are based on the environment.	
Operating system	A supported operating system.	
Disk configuration	Refer to the guidelines described in Example configurations on page 25 for the recommended disk configuration and storage options.	
Network connectivity	High-speed connection to all components and systems in the configuration with sufficient bandwidth to process the expected workload.	
Software	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.	
	Email client software	• Install Outlook 2007.
	Core XML Services (MSXML) 6.0	• Not validated by SourceOne software installation.
	Microsoft .NET Framework Redistributable Package	• Manually install. • Validated by SourceOne software installation.
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the

Table 12 Native Archive Services computer base requirements (continued)

Component	Description	
		redistributable package specific to the supported language.
	Microsoft SQL Server Native Client Redistributable Package	• Automatically installed with SourceOne software if not present.
	Internet Control Message Protocol (ICMP). Used by SourceOne software to manage network connection issues.	• Ensure that ICMP is enabled and functioning.
	Operating system language support (for indexing)	• For all languages for which you intend to index messages and files, install code page conversion tables. • For East Asian languages, install files for East Asian languages.

Storage environment requirements

A storage environment is required to house the large amount of data that is archived by SourceOne as well as databases, logs, program disk data, and other configuration data. Storage Area Network (SAN) storage can consist of a SAN, Network Attached Storage (NAS), or a combination of both depending on the size and throughput requirements of the specific environment.

Connectivity to the storage devices can be provided using current device connectivity methods such as Fibre Channel, or iSCSI over Ethernet, depending on the type of storage environment being used.

IIS Web Server requirements

Install the following SourceOne applications on a separate IIS web server.

- SourceOne Search software
- SourceOne Mobile Services software

Complete the following steps before installing SourceOne components that require IIS:

1. Apply all current Windows updates.
2. Ensure that the web server meets the following requirements.

Table 13 IIS Web Server host computer base requirements

Component	Description
OS	Must meet the same operating system requirements as a Worker Services computer. Refer to the *SourceOne Products Compatibility Guide* for detailed operating system requirements.
Network	High-speed connection to all components and systems in the configuration with sufficient bandwidth to process the expected workload.
Software	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.

Table 13 IIS Web Server host computer base requirements (continued)

Component	Description	
	Microsoft .NET Framework Redistributable Package	• Manually install. • Validated by SourceOne software installation.
	Microsoft Internet Information Services (IIS)	• Manually install if installing Web Services on this computer. • Ensure .NET is installed before IIS. • Ensure ASP.NET option that is selected. • Validated by SourceOne Web Services software installation.
	Microsoft ASP.NET	• Manually install if installing Web Services on this computer. • Inherited authorization rules are set to Allow. • Validated by SourceOne software installation.
	Microsoft ASP.NET AJAX Extensions Redistributable Package	• Automatically installed with SourceOne software if not present.

SourceOne Console client computer requirements

The following table describes the requirements for client computers running the SourceOne Console software.

Table 14 SourceOne Console client computer base requirements

Component	Description	
Hardware	Standard desktop or laptop that is used in a corporate environment.	
OS	Refer to the *SourceOne Products Compatibility Guide* for detailed operating system requirements.	
Network	Standard connection to the corporate network.	
Software	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.	
	Email software (Exchange)	• Ensure Microsoft Outlook installed.
	Email software (Domino)	• Ensure IBM Lotus Notes installed. • If this computer is also an SourceOne Master or Worker, the Notes 8.5 Shared Login feature is not supported. • Do not update or change the version of Lotus Notes client software after SourceOne components are installed.
	Email software (general)	In an SMTP mail environment: • No email client is required.

Table 14 SourceOne Console client computer base requirements (continued)

Component	Description	
		• Supported email client software versions that are validated if present.
	Core XML Services (MSXML) 6.0	• Not validated by SourceOne software installation.
	Microsoft .NET Framework Redistributable Package	• Manually or silently install. • Validated by SourceOne software installation.
	Microsoft Management Console	• Manually or silently install. • Validated by SourceOne software installation.
	Microsoft Windows Installer	• Automatically installed with SourceOne software if not present.
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the redistributable package specific to the supported language.
	Microsoft SQL Server Native Client Redistributable Package	• Automatically installed with SourceOne software if not present.

Email Management computer requirements

The following section describes system requirements for host computers in an Email Management environment.

Microsoft Exchange environment requirements

The following table describes the software and configuration that is required for each Microsoft Exchange Server on which you also plan to install the SourceOne Extensions for Microsoft Outlook Web Access software.

Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.

Table 15 Microsoft Exchange Server software prerequisites

Component	Software	Description
Software	Microsoft .NET Framework Redistributable Package	• Manually install. • Validated by SourceOne software installation.

Table 15 Microsoft Exchange Server software prerequisites (continued)

Component	Software	Description
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the redistributable package specific to the supported language.
Configuration specifics	Microsoft Exchange 2016 envelope journaling	• For Microsoft Exchange 2016, envelope journaling is not optional and is enabled by default.
	Microsoft Exchange 2013 envelope journaling	• For Microsoft Exchange 2013, envelope journaling is not optional and is enabled by default.
	Microsoft Exchange 2007 and 2010 envelope journaling	• For Microsoft Exchange 2007 and 2010, envelope journaling is not optional and is enabled by default.

IBM Lotus Domino environment requirements

The following table describes the prerequisite software that is required on each Domino server on which you also plan to install the SourceOne Extensions for Domino software.

Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.

Table 16 IBM Lotus Domino server software prerequisites

Software	Description
Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the redistributable package specific to the supported language.
(Red Hat Enterprise Linux only) Required compatibility GCC package.	• Manually install.

Table 16 IBM Lotus Domino server software prerequisites (continued)

Software	Description
Refer to the *SourceOne Products Compatibility Guide* for the specific version.	

ONM Viewer client computer requirements

The following table describes the requirements for client computers running the SourceOne ONM Viewer software.

Table 17 SourceOne ONM Viewer client computer base requirements

Hardware	Standard desktop or laptop that is used in a corporate environment.	
OS	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on operating system requirements.	
Software Network	Standard connection to the corporate network.	
	Refer to the *SourceOne Products Compatibility Guide* for more detailed information on supported versions of the software that is described in this section.	
	Email software (Domino)	• Ensure that IBM Lotus Notes is installed. • Validated by the SourceOne software installation that the email client version is supported.
	Microsoft .NET Framework Redistributable Package	• Manual or silent install. • Validated by the SourceOne software installation.
	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)	• English, French, Italian, German, and Spanish language systems. Automatically installed with SourceOne software if not present. • Chinese, Japanese, and Korean language systems. Manually or silently install the redistributable package specific to the supported language.

Mobile device requirements

Refer to the *SourceOne Products Compatibility Guide* for more detailed information about mobile device support. For information about how to configure mobile device support, see the *SourceOne Email Management Administration Guide.*

CHAPTER 4

Important Installation Considerations

This section contains the following topics:

Common considerations (all products)

The following section describes considerations for all SourceOne products.

Native Archive Index Work directory considerations

SourceOne performs all indexing locally on the Native Archive computer. To support this requirement, allocate a local directory, referred to as the Index Work directory, with at least 20 GB of space on all Native Archive indexing computers to serve as a temporary space for indexing.

This directory:

- Must be regarded as a local drive by the operating system.
- Cannot be the operating system drive, for example, C: drive.
- Can be on local disk or SAN storage, if it is regarded as a local drive by the Native Archive server. For best performance, use a dedicated physical disk.
- Requires a minimum of 20 GB of free disk space be available.

Ideally, allocate the required space before installing Native Archive software on the indexing servers. Then, when installing the Native Archive software, select a destination folder on the drive.

Although you are required to specify this location when installing the Native Archive software, you can bypass the 20 GB requirement during the installation. This is necessary when installing Native Archive software on a server which is not designated for indexing. If you later decide to enable indexing, perform one of the following:

- Free up space on the current Index Work directory drive.
- Move the Index Work directory to another drive which has enough space.

Example

You install Native Archive software on a computer that is not originally intended to perform indexing, but you later decide to enable the indexing role. The current Index Work directory that you established when you installed the Native Archive software is on a 30 GB drive, but has only 5 GB of free disk space. In this case, perform one of the following:

- Move or delete files to free up 20 GB space, and then enable the indexing role on this server.
- Use a utility, provided in the SourceOne Email Management software kit, to move the Index Work directory to another drive with at least 20 GB of free space. You can then enable the indexing role.

Details about both of these options are provided in the Maintaining SourceOne section in the *SourceOne Email Management Administration Guide*.

Hardware repurposing considerations

When procuring systems to install SourceOne server components on (for example, Master Services, Worker Services, Web Services, Native Archive Services) use clean systems to avoid issues resulting from conflicts with previously installed software.

If you must re-purpose a computer for use with SourceOne, reformat the system and re-install the operating system.

Important SQL Server considerations

The following section applies to the SQL Server used to host the SourceOne databases.

Enterprise Edition versus Standard Edition

SQL Server Enterprise Edition is recommended, as it supports database partitioning, online index maintenance, and provides data management and performance benefits for the Native Archive and Activity databases.

Review considerations with your representative to determine the advantages or disadvantages of selecting Enterprise or Standard Edition for your deployment.

For more information about comparing Standard and Enterprise edition features, refer to the following resource:

http://www.microsoft.com/sqlserver/2008/en/us/editions.aspx

For information on configuring partitioning using the SourceOne console, refer to the SourceOne Administration Guide.

SQL Server disk configuration

Review the following recommendations.

For SQL Server host computers:

- Because of the critical nature of the processing that is performed by SourceOne, use a dedicated SQL Server host.
- Do not use the same SourceOne SQL Server host for other databases or applications.

For SourceOne databases and logs:

- When you install SourceOne databases, the databases and log files are created on the default data and log location that is configured in SQL Server. For best performance, depending on the available disks and storage, detach, move, and attach the SourceOne databases and logs to separate disks attached to adequate storage:
  - Ideally, configure each SourceOne database (Archive, Activity, Search) to reside on a dedicated drive that is connected to Tier 1 storage.
  - If this is not feasible, configure the Archive database to be on a dedicated drive, the Activity and Search databases can be co-located on the same drive.
  - Configure the Archive database logs to be on a dedicated drive (separate from the database drives).

For SQL Server system databases and logs:

- Configure the SQL Server TempDB database to be on a dedicated drive in accordance with Microsoft's best practices. Refer to the following resource: http://technet.microsoft.com/en-us/library/cc966534.aspx
- Configure SQL Server logs to be on a dedicated drive.

Database partitioning

Review the following recommendations.

The *SourceOne Administration Guide* provides information and recommendations for configuring and managing database partitioning.

Note: SourceOne versions before version 6.6 SP1 allowed you to specify the number of files a partition can host equal to one half the number of CPUs on the SQL Server host. When you

upgrade to version 6.6 SP1, the number of files per partition is reset to a default of 1. The *SourceOne Administration Guide* provides information on changing this option.

Disk partition alignment best practices

Observe the following best practices that are related to disk partition alignment.

- Align sectors and tracks on the disk. This can result in significant performance gains for IO intensive system such as SourceOne.
- Consult your storage hardware vendor and ask for proof of successful disk partition alignment.
- Microsoft recommends stripe size of 128K/256K for SQL Server 2008.

Review the following resource for disk partition alignment best practices:

http://msdn.microsoft.com/en-us/library/dd758814%28SQL.100%29.aspx

Memory allocation in 64-bit SQL Server

To prevent performance issues with 64-bit versions of SQL Server, lock the memory that is allocated for the buffer pool in physical memory.

This practice applies to physical environments and may not be true in virtualized environments. Consult with your virtualization vendor. Refer to the following resource for details: http://support.microsoft.com/kb/918483.

Note: This option is set to off by default. For 64-bit SQL Server Standard Edition, this setting can be ignored.

Page file size

Microsoft recommends the page file to be 1.5 times physical RAM but not more than three times.

Data and log files are created on default SQL data and log directory.
It is recommended that you move data and log files to appropriate drives. For details, see http://support.microsoft.com/kb/889654/en-us.

General SQL Server information

The following section provides general information to describe how SourceOne uses Microsoft SQL Server.

- SourceOne uses Windows authentication (not SQL authentication).
- As a security consideration, do not use IIS on the SQL Server host.
- SourceOne does not use hard-coded SQL accounts.

SQL database installation permissions

To successfully install or update the SourceOne databases, ensure that the following requirements are met.

The installation account that is used to log in to the SQL Server host computer:

- Is a member of the local administrators group
- Has SQL system administrator server role privileges

By default in SQL Server the system administrator role contains all members of the Windows BUILTIN\Administrators group and the local administrator's group. If the default configuration exists, and the installation account is a member of either of these groups, it already has the system administrator role. In customer scenarios where this is not the case, temporarily establish the previously described permissions.

The system administrator role for the installation account is required to add system-level error codes in the sys messages table and is not used for any other purpose.

The permissions requirement is temporary and is only needed until you complete all database installations or updates and verified success by reviewing the database installation log files. For security purposes, you can remove this installation account from the local administrators group and revoke the system administrator role after installation or update of the databases is complete.

SourceOne database installation methods

Install the SourceOne databases using either an MSI installation program or scripts, as described below.

- Using the installation scripts allows you to inspect the database installation process before running. Installation errors are presented in stream during installation.
- The MSI program installs the three SourceOne databases. Manually review the installation log to check for errors indicating installation success or failure.

Alias configuration for SQL Server host computer

To provide the flexibility to move SourceOne databases from one physical SQL Server host computer to another to support disaster recovery, configure a CNAME alias for the SQL Server before installing SourceOne software.

- When an SourceOne component installation program asks you to type the SQL Server host computer, provide the CNAME alias instead of the physical hostname.
- This is the required configuration to support re-directing SourceOne servers to an alternate database server at the disaster recovery site during failover. For details about this configuration, refer to the *SourceOne Disaster Recovery Solution Guide.*

Recovery model considerations

SQL Server recovery models are designed to control transaction log maintenance and prepare the environment for disaster recovery. Three recovery models exist: simple, full, and bulk-logged. Each of these models represents a different approach to balance the trade-off of conserving disk space against providing for more granular disaster recovery options.

Typically a database uses the full or simple recovery model. By default, SourceOne databases are installed in the simple recovery model to conserve log space. This model may not be suitable for all environments depending on the database backup method and tools used. If required, change to a full recovery model if this better suits the environment.

For details on recovery models and their use, refer to the following resource:

http://msdn.microsoft.com/en-us/library/ms189275.aspx

SQL Server collation settings

SourceOne databases are case insensitive, and can be installed in a case insensitive or case sensitive SQL Server environment.

SourceOne requires the default SQL Server collation settings as described in this table.

Table 18 SQL Server collation settings

Server collation	Operating system
SQL_Latin1_General_CP1_CI_AS	English
Latin1_General_CI_AS	French

Table 18 SQL Server collation settings (continued)

Server collation	Operating system
Latin1_General_CI_AS	Italian
Latin1_General_CI_AS	German
Latin1_General_CI_AS	Spanish
Japanese_CI_AS	Japanese
Chinese_PRC_CI_AS	Simplified Chinese

Storage best practices

Review the following resource for SQL Server storage best practices.

http://technet.microsoft.com/en-us/library/cc966534.aspx

Note: Best practice number 8 in the preceding link generally applies to the TempDB only, not necessarily user databases such as SourceOne databases.

Additional service accounts to support least privileges

SourceOne requires at least one primary service account to operate. The service account is placed in the SourceOne security group. Optionally create additional service accounts (and place them in the security group) in environments which require the least possible permissions.

- Master Services service account–This optional service account can be specified when installing Master Services software instead of the primary service account. Details are as follows:
  - This account is associated *only* with a dedicated Master Services computer, as the Master Services software requires that the service account remain a member of the local administrators group to interact with the Windows Job Scheduler service.
  - Other computers in the SourceOne configuration do not require the primary service account to be a member of the local administrators group.
  - If you are also installing Worker Services software on this computer, use the primary service account.
- OWA service account (Email Management environments only)–This optional service account can be specified when installing Extensions for OWA software on Exchange servers to limit the access to Exchange to a dedicated service account rather than using the primary service account.

Service account passwords

To ensure continuous operation, recommends configuring service accounts that are used with SourceOne to have passwords which do not expire. If a service account is configured to expire, authentication errors that are written to the event logs occur.

Change the password before it expires to avoid interrupting SourceOne processing. After you have changed the password in the Active Directory, re-run the installation to access the Repair function.

Note: When creating or resetting a password, do not use a backslash or double quote.

For more information about resetting service account passwords, see the SourceOne Email Management Administration Guide.

Built in file level retention for NAS devices

SourceOne supports built in file level retention for several NAS devices when the NAS devices are configured as native archive destinations.

Examples of supported NAS devices include:

- NetApp Data ONTAP (SnapLock)
- Celerra or VNX DART (FLR)
- Data Domain (Retention Lock)
- Isilon OneFS (SmartLock)

The *SourceOne Products Compatibility Guide* includes specific information about supported NAS devices.

SourceOne applies retention to containers that are written to NAS devices based on the dates of the content within those containers, and the retention period that is specified for associated archive folders. For SourceOne to apply retention to containers, the volumes that are specified for those archive folders must be configured to be retention that is enabled. Refer to the NAS device documentation for more information about how to configure retention on NAS devices.

Email Management considerations

The following section describes considerations for all Email Management environments.

Service account mailbox restrictions and workaround

Some sites prohibit the creation of a mailbox for a service account. SourceOne requires that the primary service account have full mailbox rights to a mailbox to function in an Exchange environment.

About this task

Perform the following steps to address this scenario.

Procedure

1. Create a separate mailbox that is not directly associated with the service account, for example, **ES1 Mailbox**.
2. Grant the primary service account Full Mailbox access to this mailbox.
3. Configure the SourceOne MAPI profile that is used on the Worker Services computers to point to this mailbox. See Worker Services host computer requirements on page 52 for details.

Indexing support for embedded Exchange messages

Install Microsoft Outlook on all Native Archive computer to support full-text indexing of embedded Exchange messages.

Note the following:

- You can select not to install Microsoft Outlook. For example, if you are installing SourceOne in an IBM Lotus Domino or SourceOne for Microsoft SharePoint environment, Microsoft Outlook is not required.

- It is recommended that you install Microsoft Outlook in a IBM Domino environment to support the scenario in which a Microsoft Exchange message (**.msg**) is embedded in a IBM Domino message.
- Unlike Master or Worker computers, a MAPI profile is not required.
- If running Native Archive Services software on the same computer on which Worker Services are installed, ensure that the Outlook client software which must be installed as a prerequisite for the Worker Services software is installed.

Search service startup

After initial installation and system restart, the Search Service may not start and will display a corresponding error message. This message can be safely ignored, as the Search Service starts when it receives the first search request.

Modifying the SourceOne Notes user account

Do not modify the Notes user account. If you modify the Notes user account that is configured for use by SourceOne services, IBM Domino-related features, including address book synchronization, may not function.

Notes users cannot log in to the Search client and receive the following error:

```
Padding is invalid and cannot be removed
```

If this issue occurs, contact Support.

Microsoft Exchange

In a Microsoft Exchange environment, when configuring a proxy connection, ensure that you set the security type to NTLM Authentication for the HTTP connection. SourceOne does not support Basic Authentication.

TLS 1.2 support

The following sections provide information about using TLS 1.2 for communication between SourceOne servers, or SourceOne servers and third party components.

TLS 1.2 requirements

Ensure that the following software is updated or installed:

- **Microsoft SQL Server Native Access Client (SNAC)**
  SourceOne versions that are earlier than 7.2 SP6 are installed with SNAC 9.0, which does not support communication using TLS 1.2.

  SourceOne Administrators can install SNAC version 10.5 or 11. SourceOne products are only compatible with SNAC version 10.5 or 11.

  When you install or update the SNAC software, install the 64-bit version.

  Note: SourceOne analyzes all versions of SNAC that have been installed on the system during the initial installation and uses the latest version.
- **Microsoft .NET Framework**

To communicate between SourceOne servers and third party components using TLS 1.2, Microsoft .NET Framework version 4.6 or later is required. You can update Microsoft .NET Framework either before or after installing or updating the SourceOne software.

To ensure that communication between SourceOne components is successful, you must update the Microsoft .NET Framework before forcing TLS 1.2 communication.

Update Microsoft SQL Server Native Access Client (SNAC)

To support communication using TLS 1.2, install a version of the SNAC software that is compatible with TLS 1.2 before you install or upgrade the SourceOne software.

About this task

If the SNAC software is installed before the SourceOne upgrade, the SourceOne upgrade process automatically updates the existing database connections to use the latest version of SNAC.

If a compatible version of the SNAC software was not installed before the SourceOne installation or upgrade, use the following procedure to add new DSN connections that support the updated SNAC software.

Ensure that the following software is installed:

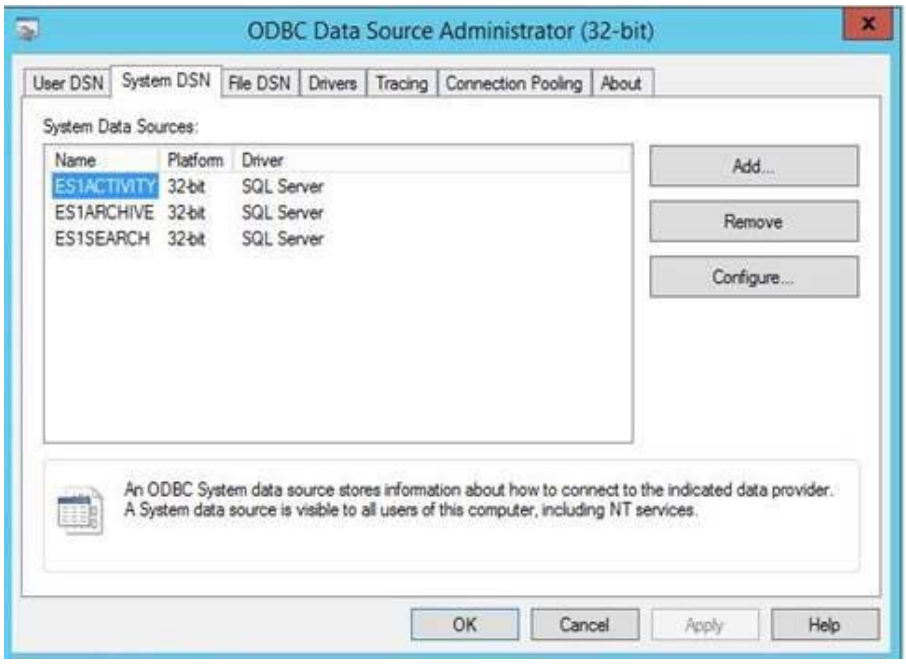
- The version of SNAC that best suits the operating system of the SourceOne server.
  Note: SourceOne products are only compatible with SNAC version 10.5 or 11.
- The version of the Microsoft SQL Server that hosts the SourceOne databases.

For more information, see the Microsoft documentation set and best practices.

Procedure

1. Stop all SourceOne services:
   a. Open **Control Panel** > **Administrative Tools** > **Services**.
   b. Stop all SourceOne services.
2. Open the **Microsoft Windows ODBC Data Source Administrator**:
   a. Open **Administrative Tools**.
   b. Start the ODBC Data Sources (32-bit) application.
   The **ODBC Data Source Administrator** window appears.
3. Select the **System DSN** tab.
   The **System DSN** tab lists the DSNs for accessing the SourceOne Activity, Archive, and Search databases.

Figure 15 System DSN tab



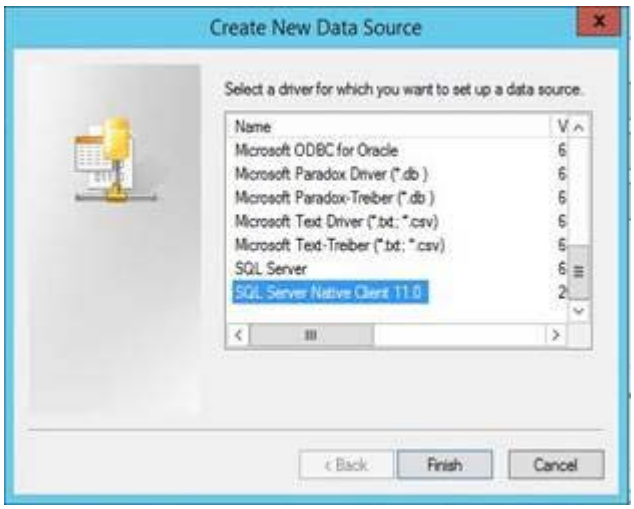
4. Note the name, description, and server details for each DSN. This information is required in a subsequent step.

   To view details for a DSN, select the DSN, and then click **Configure**.

5. Click **Add**.

   The **Create New Data Source** window appears.

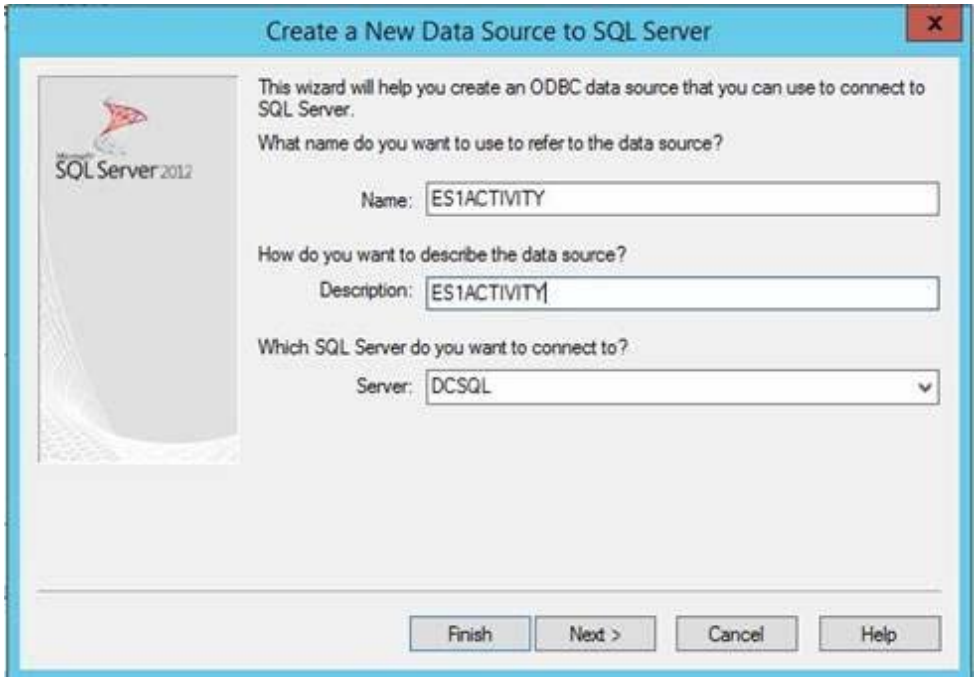
Figure 16 Create New Data Source window



6. Select the version of the SQL Server Native Client that you installed, and then click **Finish**.

   The **Create a New Data Source to SQL Server** wizard appears.

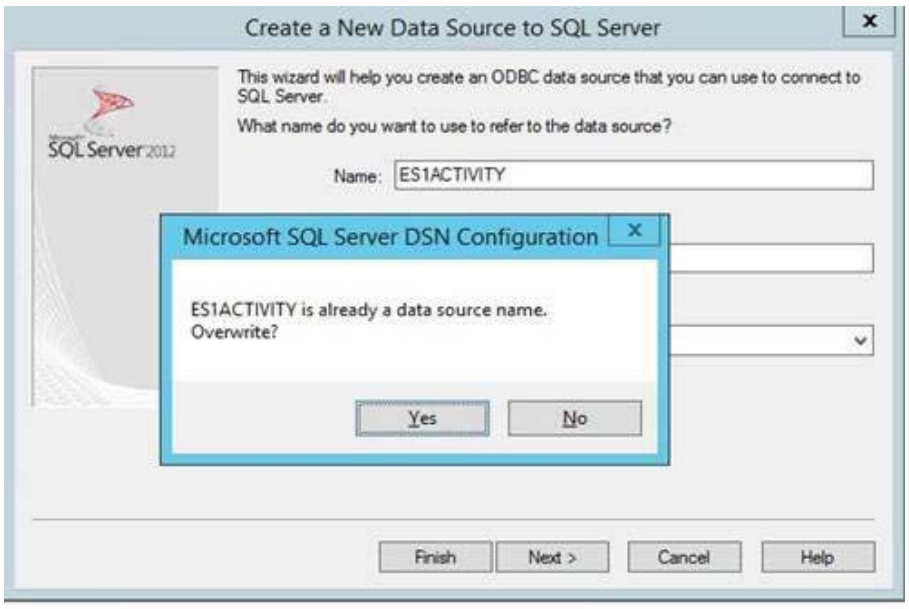
Figure 17 Create a New Data Source to SQL Server wizard



7. Complete the following fields by using the information that you previously noted for each DSN:
   - Name
   - Description
   - Server
8. Click **Next**.

   A message appears indicating that a DSN exists with the same name.

Figure 18 Overwrite existing DSN message

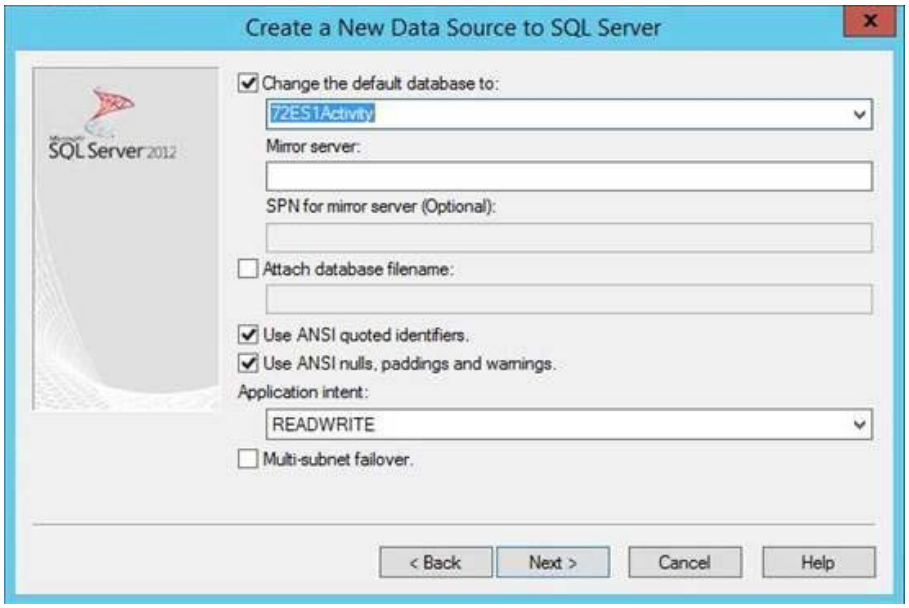


9. To overwrite the existing DSN, click **Yes**.
10. Select **With Integrated Windows authentication**, and then click **Next**.

Figure 19 SQL Server authentication page

11. In the **Change the default database to:** drop-down list, select the application database, and then click **Next**.

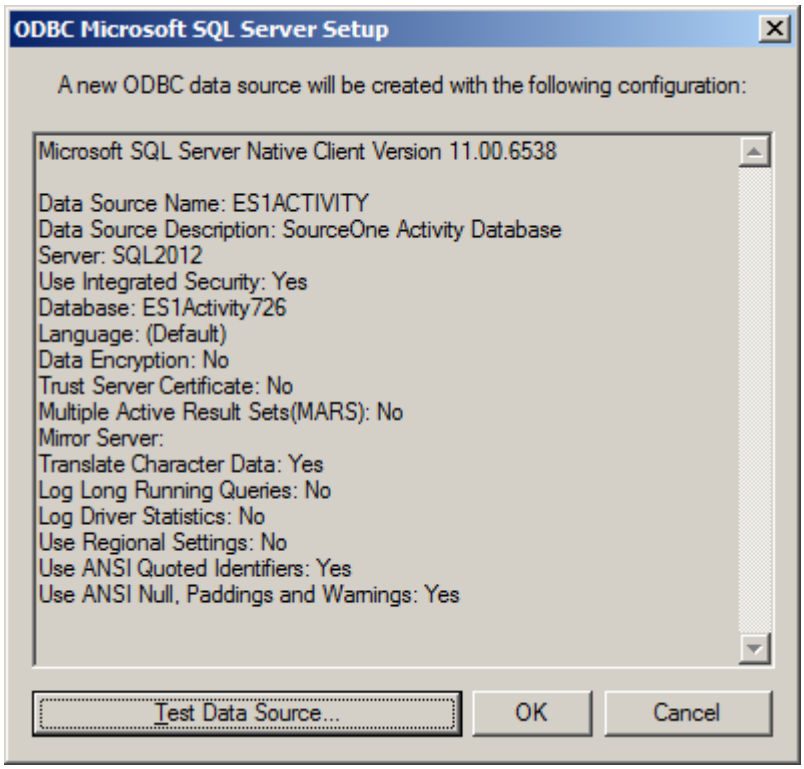
Figure 20 Database selection page



12. To complete the configuration for the SQL Server Native Client connection in Windows, click **Finish**.

    The **ODBC Microsoft SQL Server Setup** window appears and displays the configuration details for the Microsoft SQL Server Native Client.

Figure 21 ODBC data source configuration details



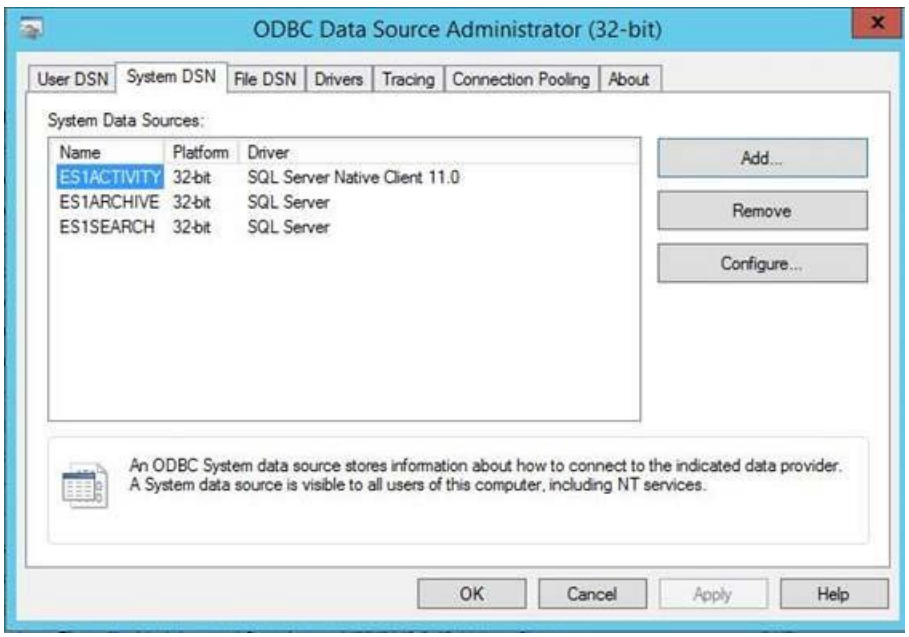
13. To test the data connection, click **Test Data Source**, and then click **OK**.

    If the following message displays, the test was successful:
    `Test Completed Successfully`

14. In the **ODBC Microsoft SQL Server Setup** window, click **OK**.

    On the **System DSN** tab, the new data source appears in the list.

Figure 22 New data source with updated SQL Server Native Client



15. Repeat this procedure for all existing database connections (ES1ACTIVITY, ES1ARCHIVE, and ES1SEARCH).

16. When all the existing SourceOne database connections are replaced, start all SourceOne services:
    a. Open **Control Panel** > **Administrative Tools** > **Services**.
    b. Start all SourceOne services.

CHAPTER 5

Updating from a previous release of SourceOne

This section contains the following topics:

Updating the software

This section provides an overview of the process for updating the following products.

- SourceOne Email Management
- SourceOne Discovery Manager (Full edition)

Important considerations

The Email Management software kit includes the SourceOne core components required for all additional SourceOne products.

Updating Discovery Manager Full edition

Information on updating Discovery Manager Full edition is integrated into each update procedure as a convenience for sites that have both products and prefer to upgrade both products at once.

Updating Discovery Manager Express edition

Information on updating Discovery Manager Express edition is in the update instructions for Discovery Manager.

Supported update scenarios

This section includes information about supported update scenarios.

The *SourceOne Email Management Release Notes* include information about the update paths that are supported.

Preparing for the update

Perform the following tasks before updating to SourceOne Email Management 7.3.

Estimate database update time

The database update scripts for the Activity and Archive databases include an update analysis report that provides detailed database statistics and a time estimate for completing the database update that is based on your specific environment.

Details:

- Depending on the database environment, running each update analysis report can take time.
- To avoid unnecessary downtime when performing the analysis, you can run the update analysis reports by temporarily making SourceOne inactive or disabled (for example, only pausing activities).
- Running the update analysis report allows you to determine the amount of planned downtime to expect for the databases updates to take place.
- To ensure an accurate estimate, you should plan on performing the actual database update within 24 hours of running the update analysis report.

Note: Follow the instructions carefully and DO NOT update the databases yet. Updating the databases while SourceOne is still running causes serious problems.

Pausing activities

The estimation consumes some SQL Server resources which can affect running SourceOne activities. You must pause current activities while performing the estimation. Use the following procedure to pause activities.

Procedure

1. In the SourceOne console, select the **Organizational Policies** node.
2. In the Organizational Policies area:
   a. Expand the organizational policy that contains the activity you want to pause.
   b. Select the activity.
3. Select **Action** > **Pause**

   In the Organizational Policies area, the status of the activity changes from Active to Paused.

Estimating SourceOne Activity database update time

Use the following procedure to estimate the time that is required to update the Activity database that is used by SourceOne.

Procedure

1. Log in to the SQL Server host computer by using an account with local administrator permissions on the SQL Server host computer and the SQL system administrator role.
2. Browse the `Database\Activity` directory on the SourceOne software kit.
3. Copy the contents of the `Activity` directory to the database server computer.
4. Run the `ES1_ActivityDB_Update_mssql.bat` batch file on the database server from the command line prompt and respond to the prompts:

   ```
   D:\scripts> ES1_ActivityDB_Update_mssql.bat
   EMC SourceOne 7.2 Activity Database Update Program
   ```

5. Type the name of the SQL Server server computer on which the SourceOne databases are installed in response to the prompt. If you press **Enter**, the default, `localhost`, is used:

   ```
   Specify SQL Server for Activity database (default: localhost):
   ```

   Note: If you are using a named instance, type the SQL Server name and instance in the following format:
   `hostname\instance`

6. Type the name that you assigned to the activity database when you installed SourceOne. If you press **Enter**, the default, ES1Activity, is used as the activity database name.

   ```
   Specify Activity Database Name (default: ES1Activity):
   ```

7. Choose **Y** to display an update analysis report which displays database statistics and a time estimate for completing the update.

   ```
   Display database statistics and upgrade estimates? (Y/N default:Y):
   ```

8. Choose **Y** to view the log file, as the estimation information displays in the console.

   ```
   View log file (Y/N)? (default: N)
   ```

   A log file detailing analysis results is produced in the directory that contains the update script. The log file is appended each time the update script is run. Do not delete the log file.

9. The script outputs an analysis report similar to the following:

Figure 23 Analysis Report SourceOne Activity database update time

10. Review the update analysis information. You are prompted to perform the database update:

```
Upgrade the database (Y/N)? (default: Y)
```

Note: DO NOT update the databases yet. Updating the databases while SourceOne is still running causes serious problems.

11. Choose **N** and exit the console.

Estimating SourceOne Native Archive database update time

To estimate the time that is required to update the Native Archive database that is used by SourceOne, perform the following steps.

Procedure

1. Log in to the SQL Server host computer by using an account with local administrator permissions on the SQL Server host computer and the SQL **sysadmin** role.
2. Browse to the `Database\Archive` directory on the SourceOne software kit.
3. Copy the contents of the Archive directory to the database server computer.
4. Run the `ES1_ArchiveDB_Update_mssql.bat` batch file on the database server from the command line prompt and respond to the prompts:

```
D:\scripts> ES1_ArchiveDB_Update_mssql.bat

EMC SourceOne 7.2 Archive Database Update Program
```

5. Type the name of the SQL Server server computer on which the SourceOne databases are installed in response to the prompt. If you press **Enter**, the default, local host, is used.

```
Specify SQL Server for Archive database (default: localhost):
```

Note: If you are using a named instance, type the SQL Server name and instance in the following format:
`hostname\instance`

6. Type the name that you assigned to the archive database when you installed SourceOne. If you press **Enter**, the default, `ES1Archive`, is used as the activity database name.

   ```
   Specify Archive Database Name (default: ES1Archive):
   ```

7. Choose **Y** to display an update analysis report which displays database statistics and a time estimate for completing the update.

   ```
   Display database statistics and upgrade estimates? (Y/N default:Y):
   ```

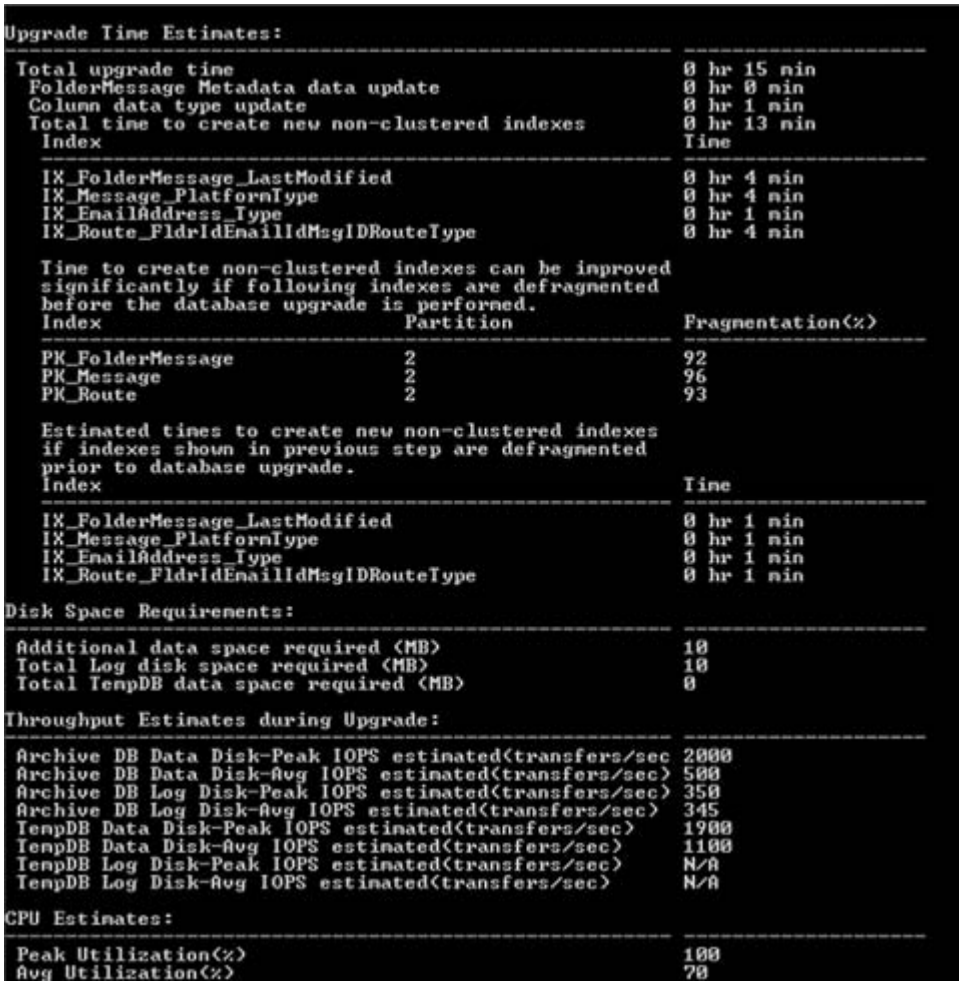
8. Choose **Y** to view the log file, as the estimation information displays in the console.

   ```
   View log file (Y/N)? (default: N)
   ```

   A log file detailing analysis results is produced in the directory that contains the update script. The log file is appended each time the update script is run. Do not delete the log file.

9. The script outputs an analysis report similar to the following:

   Figure 24 Analysis Report SourceOne Native Archive database update time



```
Upgrade Time Estimates:
-------------------------------------------------- --------------------
Total upgrade time                                 0 hr 15 min
  FolderMessage Metadata data update               0 hr 0 min
  Column data type update                          0 hr 1 min
  Total time to create new non-clustered indexes   0 hr 13 min
    Index                                          Time
    ---------------------------------------------- --------------------
    IX_FolderMessage_LastModified                  0 hr 4 min
    IX_Message_PlatformType                        0 hr 4 min
    IX_EmailAddress_Type                           0 hr 1 min
    IX_Route_FldrIdEmailIdMsgIDRouteType           0 hr 4 min

    Time to create non-clustered indexes can be improved
    significantly if following indexes are defragmented
    before the database upgrade is performed.
    Index                          Partition       Fragmentation(%)
    ------------------------------ --------------- --------------------
    PK_FolderMessage               2               92
    PK_Message                     2               96
    PK_Route                       2               93

    Estimated times to create new non-clustered indexes
    if indexes shown in previous step are defragmented
    prior to database upgrade.
    Index                                          Time
    ---------------------------------------------- --------------------
    IX_FolderMessage_LastModified                  0 hr 1 min
    IX_Message_PlatformType                        0 hr 1 min
    IX_EmailAddress_Type                           0 hr 1 min
    IX_Route_FldrIdEmailIdMsgIDRouteType           0 hr 1 min

Disk Space Requirements:
-------------------------------------------------- --------------------
  Additional data space required (MB)              10
  Total Log disk space required (MB)               10
  Total TempDB data space required (MB)            0

Throughput Estimates during Upgrade:
-------------------------------------------------- --------------------
  Archive DB Data Disk-Peak IOPS estimated(transfers/sec 2000
  Archive DB Data Disk-Avg IOPS estimated(transfers/sec) 500
  Archive DB Log Disk-Peak IOPS estimated(transfers/sec) 350
  Archive DB Log Disk-Avg IOPS estimated(transfers/sec)  345
  TempDB Data Disk-Peak IOPS estimated(transfers/sec)    1900
  TempDB Data Disk-Avg IOPS estimated(transfers/sec)     1100
  TempDB Log Disk-Peak IOPS estimated(transfers/sec)     N/A
  TempDB Log Disk-Avg IOPS estimated(transfers/sec)      N/A

CPU Estimates:
-------------------------------------------------- --------------------
  Peak Utilization(%)                              100
  Avg Utilization(%)                               70
```

10. Review the update analysis information. You are prompted to perform the database update:

    ```
    Upgrade the database (Y/N)? (default: Y)
    ```

> **Note:** DO NOT update the databases yet. Updating the databases while SourceOne is still running causes serious problems.

11. Choose **N** and exit the console.

Resuming activities

Use the following procedure to resume a paused activity.

Procedure

1. Select the activity.
2. Select **Action** > **Resume**.

Communicate update impact to users

While the update occurs, client-generated activities such as shortcut retrieval and search requests will not function. You should communicate a planned outage to reduce the number of client requests while the update occurs.

Preparing systems for update

This section describes how to prepare SourceOne systems for update. If the environment includes SourceOne Discovery Manager, the procedure for preparing these systems is also included.

Preparing Discovery Manager systems (if used)

Perform the following steps to prepare the SourceOne Discovery Manager systems for the update.

Procedure

1. Use the Discovery Manager backup process to temporarily make the Discovery Manager system inactive or disabled:
   a. Install and configure backup scripts and customize the scripts for the environment.
   b. Suspend Discovery Manager.

   > **Note:** The *SourceOne Discovery Manager Installation and Administration Guide* includes specific instructions for performing these steps.

2. Wait for all SourceOne Discovery Manager activities to complete. Depending on the SourceOne Discovery Manager activities which are running, this may take a significant amount of time, up to several hours sometimes.

Preparing SourceOne systems

Perform the following steps to prepare the SourceOne systems for the update.

Procedure

1. Perform a backup of the SourceOne system as described in the *SourceOne Email Management Administration Guide*.
2. Stop all active jobs using the SourceOne console as follows:
   a. Expand the **SourceOne** > **Organizational Policies** node.
   b. Right-click each policy and select **Stop**.
   c. Expand the **SourceOne** > **Operations** > **Job Management** node.
   d. Observe that all active jobs in the jobs view are stopped.

> **Note:** Client requests, such as jobs generated by users performing searches, also are listed in this view. These requests can remain in an active state. End users experience a service interruption until the systems are running again.

3. Close the SourceOne console.
4. Close any other open MMC consoles.
5. Stop the SourceOne web services within IIS.
6. Stop all SourceOne services on all computers on which SourceOne components are installed. However, if you are running the master computer in an active or passive cluster, perform the following:
   a. Do not manually stop the SourceOne Job Scheduler and SourceOne Address Cache master services.
   b. From the cluster administration console, take the SourceOne Job Scheduler and SourceOne Address Cache resources offline. This ensures that the master services are no longer running on either node.
7. Close the Services console if it is open.

Updating the SourceOne databases

You must update the databases before updating the rest of the SourceOne system.

Database scripts

You use batch files to update the schema and stored procedures in the SourceOne databases as described in the following sections.

> **Note:** The Search database does not need to be updated. Therefore, no update batch file is provided.

Update the Activity database

Use the following procedure to update the Activity database that is used by SourceOne.

Procedure

1. Log in to the SQL Server host computer by using an account with local administrator permissions on the SQL Server host computer and the SQL system administrator role.
2. Browse to the `Database\Activity` directory on the SourceOne software kit.
3. Copy the contents of the `Activity` directory to the database server computer.
4. Run the batch file `ES1_ActivityDB_Update_mssql.bat` batch file on the database server from the command line prompt and respond to the prompts:

   ```
   D:\scripts> ES1_ActivityDB_Update_mssql.bat

   EMC SourceOne 7.2 Activity Database Update Program
   ```

5. Type the name of the SQL Server server computer on which the SourceOne databases are installed in response to the prompt. If you press **Enter**, the default, local host, is used.

   ```
   Specify SQL Server for Activity database (default: localhost):
   ```

   > **Note:** If you are using a named instance, type the SQL Server name and instance in the following format:
   > `hostname\instance`

6. Type the name that you assigned to the activity database when you installed SourceOne. If you press **Enter**, the default, `ES1Activity`, is used as the activity database name.

   ```
   Specify Activity Database Name (default: ES1Activity):
   ```

7. Choose **N** when prompted to display an update analysis report which displays database statistics and a time estimate for completing the update.

   You already ran the analysis report earlier in the update process.

   ```
   Display database statistics and upgrade estimates? (Y/N default:Y):
   ```

8. Choose **Y** or **N** to specify whether you want to view the log file which is created after the update. If you choose **N**, the log file will not open after the update is complete. The `ES1_ActivityDB_Update_mssql.bat.log` log file is created in the same directory in which you placed the database update scripts.

   ```
   View log file (Y/N)? (default: N)
   ```

9. You are prompted to perform the database update:

   ```
   Upgrade the database (Y/N)? (default: Y)
   ```

10. Choose **Y**. Update progress information is displayed.
11. Review the resulting messages to ensure that the update completed successfully.
    - If the following message displays, the update was successful:

      ```
      [Date/Time]: SourceOne 7.2 Activity Database update program
      finished
      ```

    - The following message appears if there was a problem:

      ```
      Errors encountered during Activity Database update process.
      Please check log files for errors and re-run the update.
      ```

      Check the `ES1_ActivityDB_Update_mssql.bat.log` file for more information.

12. Review the `ES1_ActivityDB_Update_mssql.bat.log` log file. The file is generated in the temporary directory where you placed the database update scripts.

Update the Archive database

Use the following procedure to update the Native Archive database that is used by SourceOne.

Procedure

1. Log in to the SQL Server host computer by using an account with local administrator permissions on the SQL Server host computer and the SQL system administrator role.
2. Browse to the `Database\Archive` directory on the SourceOne software kit.
3. Copy the contents of the `Archive` directory to the database server computer.
4. Run the `ES1_ArchiveDB_Update_mssql.bat` batch file on the database server from the command line prompt and respond to the prompts:

   ```
   D:\scripts> ES1_ArchiveDB_Update_mssql.bat
   EMC SourceOne 7.2 Archive Database Update Program
   ```

5. Type the name of the SQL Server server computer on which the SourceOne databases are installed in response to the prompt.

   If you press **Enter** the default, local host, is used.

   ```
   Specify SQL Server for Archive database (default: localhost):
   ```

Note: If you are using a named instance, type the SQL Server name and instance in the following format:
`hostname\instance`

6. Type the name that you assigned to the archive database when you installed SourceOne. If you press **Enter**, the default, `ES1Archive`, is used as the activity database name.

   ```
   Specify Archive Database Name (default: ES1Archive):
   ```

7. Choose **N** when prompted to display an update analysis report which displays database statistics and a time estimate for completing the update.

   Note: You already ran the analysis report earlier in the update process.

   ```
   Display database statistics and upgrade estimates? (Y/N default:Y):
   ```

8. Choose **Y** or **N** to specify whether you want to view the log file which is created after the update. If you choose **N**, the log file will not open after the update is complete.

   The `ES1_ArchiveDB_Update_mssql.bat.log` log file is created in the same directory in which you placed the database update scripts.

   ```
   View log file (Y/N)? (default: N)
   ```

9. You are prompted to perform the database update:

   ```
   Upgrade the database (Y/N)? (default: Y)
   ```

10. Choose **Y**. Update progress information is displayed.
11. Review the resulting messages to ensure that the update completed successfully.
    - If the following message displays, the update was successful:

      ```
      [Date/Time]: SourceOne 7.2 Archive Database update program
      finished
      ```

    - If, the following message appears, there was a general problem. Check the file for more information:

      ```
      Errors encountered during Archive Database update process. Please
      check log files for errors and re-run the update.
      ```

12. Review the `ES1_ArchiveDB_Update_mssql.bat.log` log file. The file is generated in the temporary directory where you placed the database update scripts.

Updating the Discovery Manager database (if used)

Use the following procedure to update the SourceOne Discovery Manager database.

Procedure

1. Log in to the SQL Server host computer using an account with local administrator permissions on the SQL Server host computer and the SQL system administrator role.
2. Browse to the `Setup\Database\DiscoveryManager` directory on the SourceOne Email Management software kit.
3. Copy the contents of the `Database\DiscoveryManager` directory to the database server computer.
4. Run the batch file `ExDisCo_Update_mssql.bat` on the database server from the command line prompt and respond to the prompts:

   ```
   D:\scripts> ExDisCo_Update_mssql.bat
   ```

```
EMC SourceOne 7.2 Discovery Manager Database Update Program
```

5. At the following prompt, type the name of the SQL Server server computer on which the SourceOne Discovery Manager database is installed. If you press **Enter**, the default, local host, is used.

   ```
   Specify SQL Server for Discovery Manager database (default:
   localhost):
   ```

   Note: If you are using a named instance, type the SQL Server name and instance in the following format:
   `hostname\instance`

6. Type the name that you assigned to the SourceOne Discovery Manager database when you installed SourceOne Discovery Manager. If you press **Enter**, the default, `DiscoveryManager`, is used as the database name.

   ```
   Specify EMC SourceOne Discovery Manager Database Name (default:
   DiscoveryManager):
   ```

7. At the following prompt, type the server for the Activity database:

   ```
   Specify Server for Activity database (default:localhost)
   ```

8. At the following prompt, type the Activity database name:

   ```
   Specify Activity Database Name (default:ES1Activity)
   ```

9. Select **Y** or **N** to specify whether you want to display database statistics and upgrade estimates.

   ```
   Display database statistics and upgrade estimates? (Y/N default:Y)
   ```

   Note: Take advantage of the upgrade estimates for your deployment to correctly plan both time and space requirements. You must run the script once to perform only the estimate without the upgrade step.

10. Select **Y** or **N** to specify whether you want to view the log file that is created after the update. If you press **Enter**, the log file will not open after the update is complete. The `ExDisCo_Update_mssql.bat.log` log file is created in the temporary directory where you placed the database update scripts.

    ```
    View log file (Y/N)? (default: N)
    ```

11. If you chose **Y** in step 9, you are prompted to start the database update:

    ```
    Upgrade the database (Y/N)? (default: Y)
    ```

    When you are ready, select **Y** to start the database update.

12. Review the resulting messages to ensure that the update completed successfully.

    - If the following message appears, the update was successful:

      ```
      [Date/Time]:SourceOne 7.2 Discovery Manager Database update
      program finished
      ```

    - The following message appears if there was a problem:

      ```
      Errors encountered during Discovery Manager Database update
      process. Check the log files for errors and rerun the update.
      ```

    Check the log file for more information.

13. Review the `ExDisCo_Update_mssql.bat.log` log file. The file is generated in the temporary directory where you placed the database update scripts.

Updating SourceOne server and client software

For SourceOne MSI-based installations, you must run each installation executable on all applicable computers in your configuration.

Guidelines

Follow these guidelines when performing the update.

- Ensure that the installations are run using the accounts and permissions that are used in the original installation.
- Use the same values (account names, passwords, file shares, and so on) which were provided in the original installation. The installation programs detect most values that are entered during the original installation, as many of these values are stored in the SourceOne databases. If prompted, provide the same values that are provided in the original installation.

Note: Although some MSI software installations generate a dialog box stating that you must restart the system upon completion, you must defer restarting the system until all SourceOne software has been installed on that computer. Once all components have been installed for that specific computer, restart the system.

Procedure

Run the installation executables on each of the applicable computers on which the corresponding software is already installed.

Procedure

1. Ensure that you have updated the database stored procedures.
2. Update Master Services software (`ES1_MasterSetup.exe`).

   To install both nodes on an active/passive cluster:

   a. Update the software on the active node.

   b. Fail over to the passive node (making it active).

   c. Update the software on the second node.
3. Update the console application (`ES1_ConsoleSetup.exe`).
4. If present, uninstall previous releases of the Discovery Manager Worker Services software.

   Note: As of release 6.8, the worker functionality that is related to SourceOne Discovery Manager is now installed as part of the Email Management Worker Services software. If you have not already, you must uninstall previous releases of the Discovery Manager Worker Services software before you update the Email Management Worker Services software to 6.8 or higher.
5. Update Worker Service software (`ES1_WorkerSetup.exe`).
6. Update Web Services software (`ES1_WebServicesSetup.exe`).
7. Update Native Archive software (`ES1_ArchiveSetup.exe`).

   Note: If a warning related to East Asian Language Pack displays, you must ensure to install the Microsoft Visual C++ 2010 x86 SP1 Redistributable.

8. Restart the systems on which you installed the Web Services software.

   Note: The Search, Mobile Services, Discovery Manager Server (if used), Extensions for OWA, and Extensions for IBM Lotus Domino (which you upgrade in the steps that follow) check for communication with the Web Services IIS site during the upgrade.

9. Update Search software (`ES1_SearchSetup.exe`).
10. Update Mobile Services software (`ES1_MobileSetup.exe`).
11. Update Discovery Manager Server (if used) software.
    - If you are using the Full edition of Discovery Manager, run the `ES1_DiscoveryMgrServerSetup.exe` provided in the Discovery Manager software kit.
    - If you are using the Express edition of Discovery Manager, run the `ES1_DiscoveryMgrExpressServerSetup.exe` provided in the Email Management software kit.

    Note: You cannot install the Express edition of the Discovery Manager Server software (`ES1_DiscoveryMgrExpressServerSetup.exe`) over an installation of the Full edition of the Discovery Manager Server software. Install the same edition of Discovery Manager Server software on all host computers. Do not mix the Express edition and the Full edition.

12. Determine if you are required to update the SourceOne extensions software on the mail servers.
    - Extensions software for the mail servers is no longer part of the Email Management software kit, and is provided in separate kits which you download from the SourceOne Email Management software downloads area on https://support.emc.com.
    - Sometimes, it may not be necessary to update the extensions software, as the previously released version is supported with the current release of SourceOne Email Management software.
    - Check the *SourceOne Products Compatibility Guide* to determine if your extensions software requires updating for this release.

13. Update client software:
    - ONM Viewer (`ES1_ONMViewerSetup.exe`).
    - Discovery Manager client software (if used) (`ES1_DiscoveryMgrClientSetup.exe`).

    Note: The Discovery Manager client software is now in the Email Management software kit.

Post-update tasks

Review the important post-update information in this section.

Modifying custom web.config files

When you upgrade SourceOne systems, the web.config files that are used by the SourceOne ASP.NET web sites, (SearchWS, Search, and ExShortcut), are replaced with updated files, and the existing files are renamed.

If an administrator has manually modified these `web.config` files, or used the Microsoft Internet Information Server (IIS) Manager to modify those web sites, those changes are overwritten by the

updated files. The `web.config` files that were replaced remain in the installation folder and are named `web.config_Backup_date_time`, where `date_time` is the date and time at which the update occurred.

File locations:

- SourceOne Search application - `install_drive\Program Files\EMC SourceOne \Search\WebApp\`
- SourceOne Web Services - `install_drive\Program Files\EMC SourceOne \SearchWS\WebServer`
- SourceOne Mobile Services - `install_drive\Program Files\EMC SourceOne \ExShortcut`

To reapply the changes that are made to the SourceOne Email Management web sites before the update, the administrator must make those changes again by using either IIS Manager or by manually editing the `web.config` file using an automatically created backup of the original file as a reference.

Reconfiguring Single Sign-on (SSO)

If you configured SSO in the environment before upgrading, you must reconfigure SSO settings for SourceOne ASP.NET web sites (SearchWS, Search and ExShortcut) by using the Microsoft IIS Manager application.

If you configured SSO in the environment before upgrading, you must reconfigure SSO settings for SourceOne ASP.NET web sites (SearchWS, Search and ExShortcut) by using the Microsoft IIS Manager application.

Note: If you made additional customizations to these sites, you must re-establish them. You do not need to reconfigure Service Principle Names (SPNs), as this information is stored in Active Directory.

Address cache rebuild

After restarting SourceOne systems, this release includes the requirement to rebuild the address cache. The rebuild process is indicated by an Address Cache service warning in the Event Viewer which states the following.

```
NO USER ACTION NEEDED... The AddressCache is being rebuilt after
Activity Database upgrade. All workers will be in "Restart" state and
jobs will not run. System will be available after cache is completely
rebuilt.
```

Resuming operations

Use the following procedure to resume operations after updates are completed on all applicable systems.

Procedure

1. Ensure that all systems and SourceOne services are running.
2. Start the SourceOne console.
3. Expand the **SourceOne** > **Organizational Policies** node.
4. Right-click each policy and select **Resume**.
5. Click the **Servers** node:
   - If the address cache rebuild has not completed, the workers are in the Restart state. Wait until the rebuild completes.

- Once the rebuild is complete, the workers are in the Available state and ready to process jobs.

6. Expand the **SourceOne** > **Operations** > **Job Management** node.
7. Observe that all jobs in the Jobs (Active) view are Active.

   Note: If you stopped a daily activity which was running, the activity resumes in the next scheduled run.

Archiving content to complete the update

To complete the update, you must archive a single email, file, or SharePoint document.

CHAPTER 6

Installing Common SourceOne Components

This section contains the following topics:

Pre-installation checklist

Before beginning the installation procedures detailed in this section, ensure that the items in the following checklist are completed.

Table 19 Pre-installation checklist

Done	Activity	Description
❑	Review the product overview information	Review the product overview information and understand the features and options. See Product overview on page 14 and the *SourceOne Email Management Administration Guide*.
❑	Understand the system architecture	Review the components which comprise the SourceOne system. See System architecture on page 18 and System components on page 18.
❑	Complete analysis activities	Compile and analyze the organization's requirements, metrics, and processes. See Pre-deployment planning on page 24.
❑	Complete configuration planning activities	Size the environment and adjust variable components of the configuration to support it. See System architecture on page 18 and Example configurations on page 25.
❑	Configure accounts and permissions	Establish the accounts and permissions that are required to support SourceOne. See Pre-installation on page 33.
❑	Establish required hardware and network infrastructure	Ensure that hardware is available for installation and connected to the network. Hardware specifications, operating system, and network connectivity, and software prerequisites are detailed in Pre-installation on page 33.

Installing common SourceOne components

Use the following procedures to install common components that are required in all SourceOne environments.

Installing databases using scripts

The following section describes how to use scripts to create the databases that are required for SourceOne on a Microsoft SQL Server host computer. Install the databases on the default instance or a named instance of SQL server.

Note: Alternatively, you can use the MSI installer to install the databases.

You can install the following databases using scripts:

- Activity database
- Search database
- Native Archive database

For specific hardware, operating system, network connectivity, and prerequisite software requirements, see Database host computer requirements on page 50.

Also refer to Important SQL Server considerations on page 63.

Copying Database folder to the SQL Server host computer

Use the following procedure to copy the Database folder locally to the SQL Server host computer.

Procedure

1. Browse to the **\Setup** directory on the SourceOne software kit.
2. Copy the `Database` folder to a temporary location on the SQL Server host computer.

Installing the Activity database

Use the following procedure to install the Activity database.

Procedure

1. Log in to the SQL Server host computer using an account with local administrator permissions on the SQL Server host computer and the SQL system administrator role.

   Note: See Service account mailbox restrictions and workaround on page 67 for more information.

2. Open a command prompt and browse to the temporary location to which you copied the `Database` folder.
3. Run the following:

   ```
   ES1_ActivityDB_Create_mssql.bat
   ```

4. Specify the following information:
   - SQL Server information:
     - If you are using the default that is named instance, then type the SQL Server name in the following format:
       hostname
     - If you are using a named instance, then type the SQL Server name and instance in the following format:

hostname\instance

- If you are using a Failover Cluster Instance, then type the name and instance in the following format:
  FailoverClusterInstance\instance

- Database name

5. Ensure that you select the option to view the log file. Although the database may appear to install correctly, the log file is the only user interface that provides important information if an installation issue occurs.
6. Click **Enter**. The script is run and the database is installed.
7. Ensure that the installation was successful by reviewing the installation log file.

Installing the Search database

Use the following procedure to install the Search database.

Procedure

1. Open a command prompt and browse to the temporary location to which you copied the `Database` folder.
2. Run the following:

   ES1_SearchDB_Create_mssql.bat

3. Specify the following information:
   - SQL Server information:
     - If you are using the default that is named instance, then type the SQL Server name in the following format:
       hostname
     - If you are using a named instance, then type the SQL Server name and instance in the following format:
       hostname\instance
     - If you are using a Failover Cluster Instance, then type the name and instance in the following format:
       FailoverClusterInstance\instance
   - Search database name
4. Ensure that you select the option to view the log file. Although the database may appear to install correctly, the log file is the only user interface that provides important information if an installation issue occurs.
5. Click **Enter**. The script runs and installs the database.
6. Ensure that the installation was successful by reviewing the installation log file.

Installing the Native Archive database

Use the following procedure to install the Native Archive database.

Procedure

1. Open a command prompt and browse to the temporary location to which you copied the `Database` folder.
2. Run the following:

   ES1_ArchiveDB_Create_mssql.bat

3. Type the following information:

- SQL Server information
  - If you are using the default that is named instance, then type the SQL Server name in the following format:
    `hostname`
  - If you are using a named instance, then type the SQL Server name and instance in the following format:
    `hostname\instance`
  - If you are using a Failover Cluster Instance, then type the name and instance in the following format:
    `FailoverClusterInstance\instance`
- Native Archive database name

4. Ensure that you select the option to view the log file. Although the database may appear to install correctly, the log file is the only user interface that provides important information if an installation issue occurs.
5. Click **Enter**. The script is run and the database is installed.
6. Ensure that the installation was successful by reviewing the installation log file.
7. Configure database permissions. Refer to Configuring SQL permissions on page 96 to configure the permissions for each database.

Installing databases using the MSI installer

The following section describes how to create the databases that are required for SourceOne on a Microsoft SQL Server host computer using a Microsoft Installation (MSI) program. Install the databases on the default instance or a named instance of SQL server.

Note: Alternatively, you can use the database installation scripts as described in Installing databases using scripts on page 91.

You can install the following databases using the MSI installer:

- Activity database
- Search database
- Native Archive database

The default database locations and log locations that are configured in SQL Server are used.

Reference information

For specific hardware, operating system, network connectivity, and prerequisite software requirements, see Database host computer requirements on page 50.

For important database installation permissions, see SQL database installation permissions on page 64.

For important SQL Server considerations, see Important SQL Server considerations on page 63.

Copying the setup executable locally

Use the following procedure to setup executables for the databases locally to the SQL Server host computer.

Procedure

1. Log in to the SQL Server host computer using an account with local administrator permissions on the SQL Server host computer and the SQL **sysadmin** role.

   Note: See SQL database installation permissions on page 64 for more information.

2. Browse to the `Setup/Windows` directory on the SourceOne software kit.
3. Copy the `ES1_DatabaseSetup.exe` executable to a temporary location on the SQL Server host computer.

Installing databases

Review the database logs created in the folder that is specified during installation. Although the database may appear to install correctly, the log file is the only user interface that provides important information if an installation issue occurs.

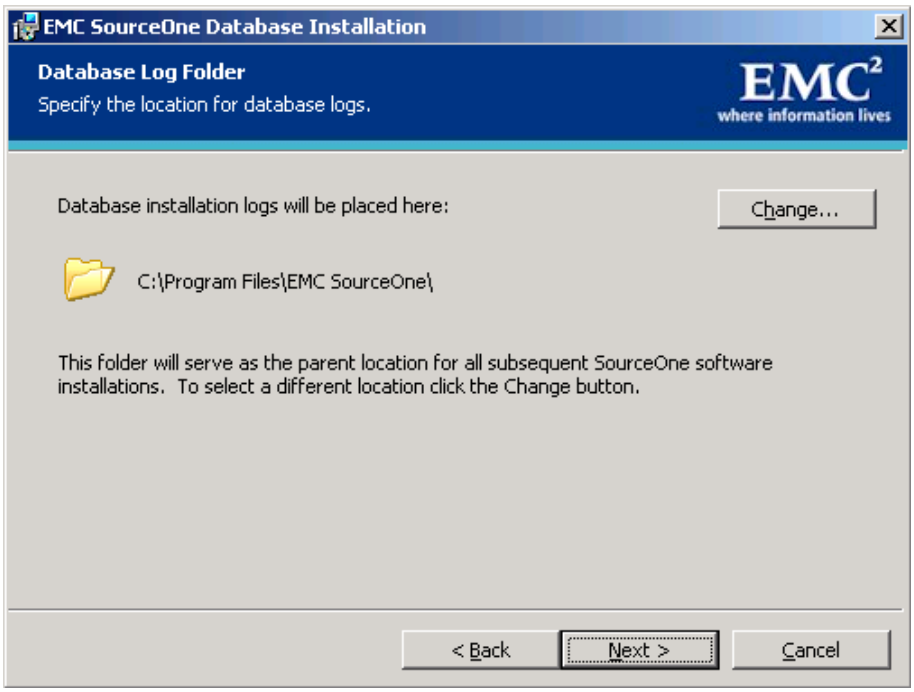
About this task

You can also verify the SourceOne databases were created by browsing to the databases in Microsoft SQL Server Management Studio. Refer to Configuring SQL permissions on page 96 to configure the permissions for each database.

Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_DatabaseSetup.exe` file and then click **Run**. The **Welcome** page appears.
3. Click **Next**. The **Database Log Folder** page appears.

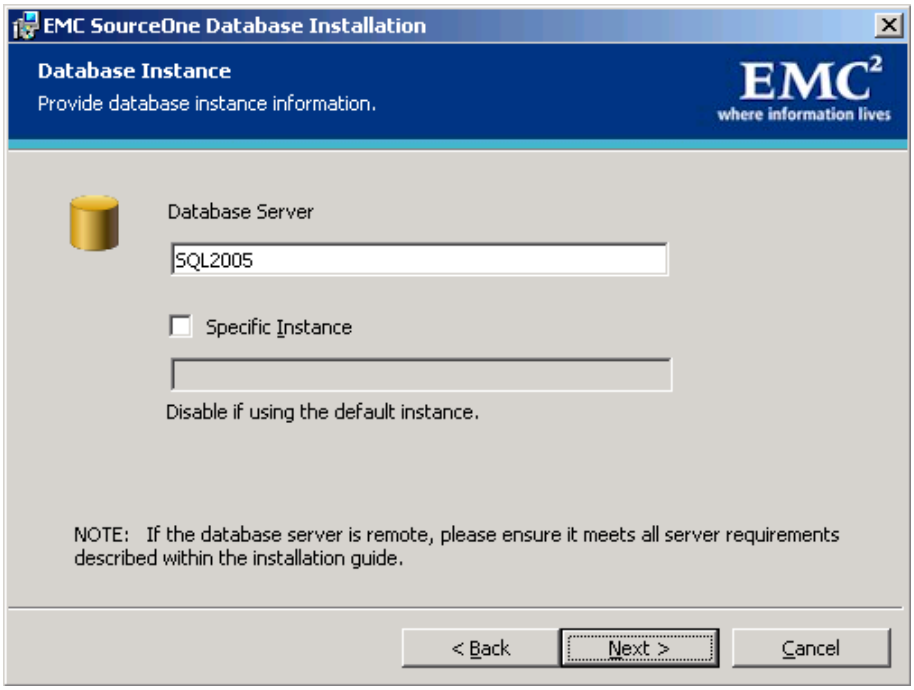
Figure 25 Database Log Folder page



Note: This folder contains only the logs detailing the results of the database installation.

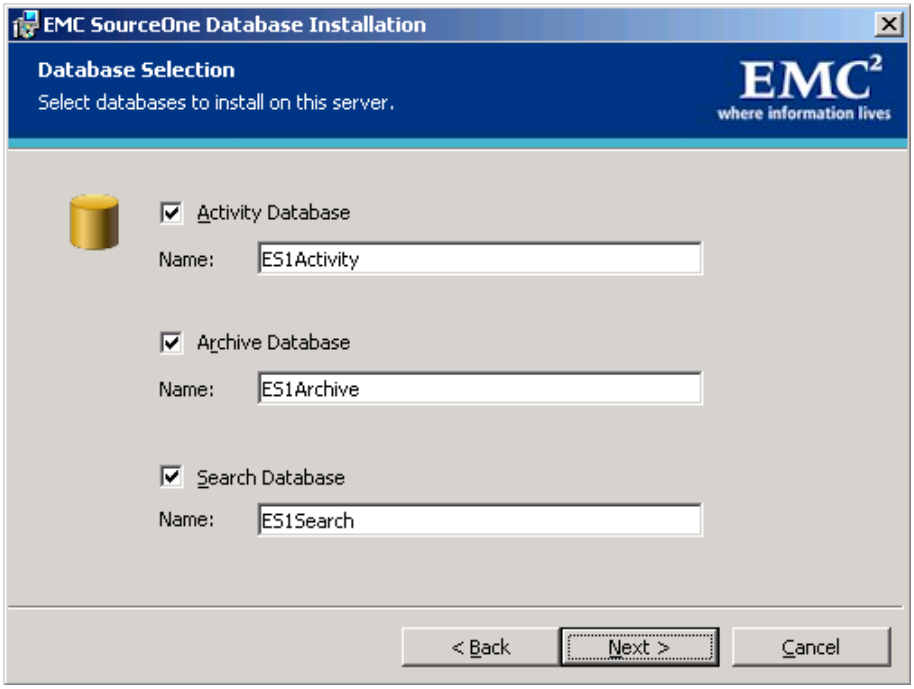
4. Specify the destination directory and then click **Next**. The **Database Instance** page appears.

Figure 26 Database Instance page



5. Perform one of the following:
   - If you are installing the database to the default named instance, clear the **Specific Instance** checkbox and then type the Database Server name or the Failover Cluster Instance name.
   - If you are installing the database to a named instance, select the **Specific Instance** checkbox and then type the name of the instance.
6. Click **Next**. The **Database Selection** page appears.

Figure 27 Database Selection page



7. Accept the default name or type a name for each of the following databases:
   - Activity Database—Used to manage SourceOne processing.
   - Native Archive Database—Used to manage SourceOne archiving, indexing, searching, and retrieving.
   - Search Database—Used to manage SourceOne Search.
8. Click **Next**. The **Ready for Installation** page appears.
9. Click **Install**. After the installation is complete, the **InstallShield Wizard Completed** page appears.
10. Click **Finish**.

Configuring SQL permissions

Configure Microsoft SQL database permissions for the following SourceOne security logins you created during the planning process.

- Security group
- Admins group
- Installation account

Security login considerations

SourceOne requires that the default schema for each of its databases be granted access rights to the SourceOne service account.

Assigning permissions to the security group instead of the SourceOne service account simplifies the configuration for the following reasons:

- If you add the service account as a SQL Server login (not recommended), by default it is assigned the *dbo* schema. For SourceOne to authenticate correctly, it requires that the service account's *own* schema be associated with its databases, not the default dbo schema, which does not have the required permissions. Take the extra step to configure each database to use the service account's schema.
- If you add the security group as a SQL Server login (recommended), it is not assigned the default *dbo* schema. When the service account authenticates indirectly through the security group, a schema that is associated with the service account user is automatically created.

Assigning security login roles

Use the following procedure to assign security roles.

1. Using Microsoft SQL Server Management Studio, map SourceOne security logins to the following databases roles for each of the SourceOne databases as shown in this table:
   - db_datareader
   - db_datawriter
2. Ensure that you click each database and apply the database role membership permissions.

Table 20 Database roles for security logins

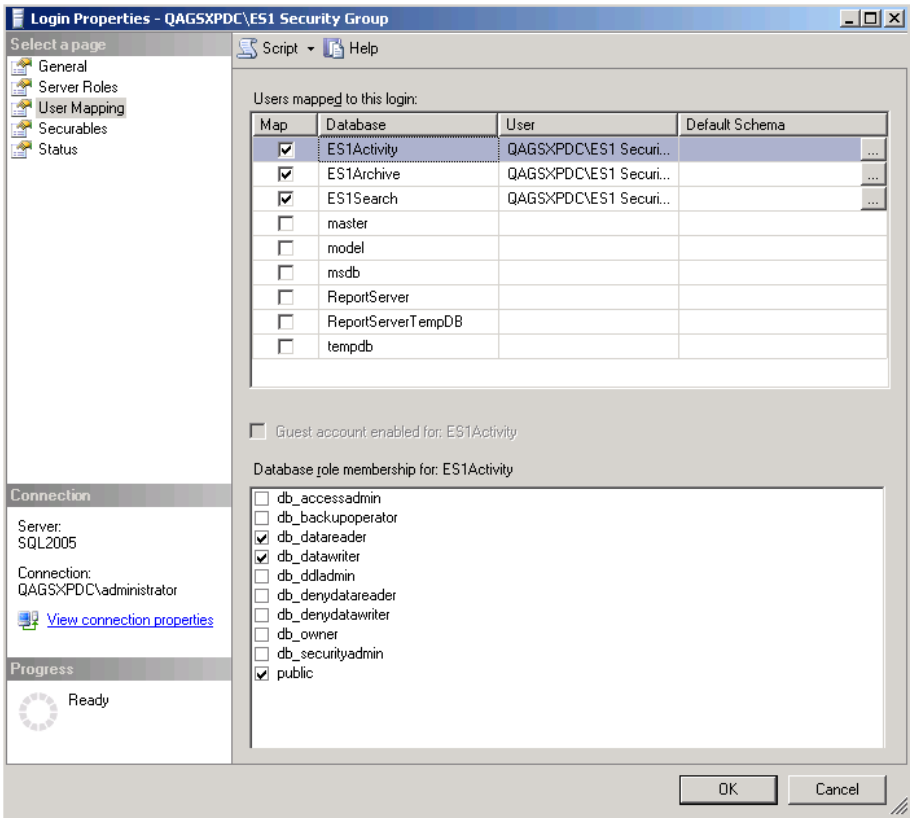
SourceOne Security Login	SourceOne Database	Database Role Membership
Admins group Security group	Activity	db_datareader db_datawriter

Table 20 Database roles for security logins (continued)

SourceOne Security Login	SourceOne Database	Database Role Membership
		public (default)
Admins group Security group	Native Archive	db_datareader db_datawriter public (default)
Admins group Security group	Search	db_datareader db_datawriter public (default)

This figure shows an example of the Login Properties dialog box from which you configure the database role membership for each of the SourceOne security logins.

Figure 28 Login Properties dialog box example



Configuring permissions for each database

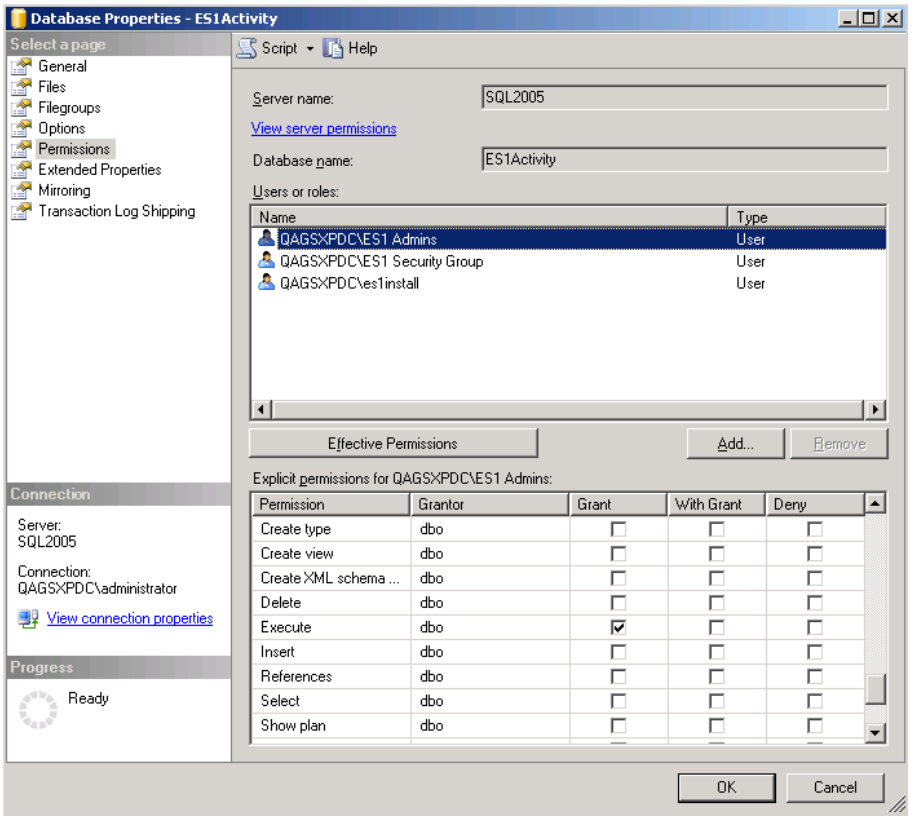
Configure explicit permissions for the security logins for each SourceOne database as shown in this table.

Table 21 Explicit permissions for SourceOne databases

SourceOne Database	SourceOne Security Login	Explicit Permissions
Activity	Security group	Alter*
		Connect (default)
		Execute
	Admins group	Alter**
		Connect (default)
		Execute
Native Archive	Security group	Alter
		Connect (default)
		Execute
	Admins group	Alter
		Connect (default)
		Execute
Search	Security group	Alter
		Create table
		Connect (default)
		Execute
	Admins group	Connect (default)
		Execute

This figure shows an example of the Database Properties dialog box from which you configure the explicit permissions.

Figure 29 Database Properties dialog box example



Installing Master Services software

The following section describes the prerequisites, software requirements, and installation procedures for installing Master Services software on a host computer. This section also describes how to configure two host computers running Master Services software for high availability using a Microsoft Clustering active or passive configuration.

The following table provides an overview of the prerequisites you must complete before installing software.

Table 22 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are described in Master Services host computer requirements on page 51.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed as described in Pre-installation on page 33.

Table 22 Prerequisites (continued)

Prerequisite	Details
	• Database permissions are configured as described in Configuring SQL permissions on page 96.

Copying the setup executable locally

Use the following procedure to copy the setup executable for Master Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_MasterSetup.exe` executable to a temporary location on the host computer.

Installing Master Services software

Use the following procedure to install the Master Services software.

Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_MasterSetup.exe` file.
3. Click **Run**.

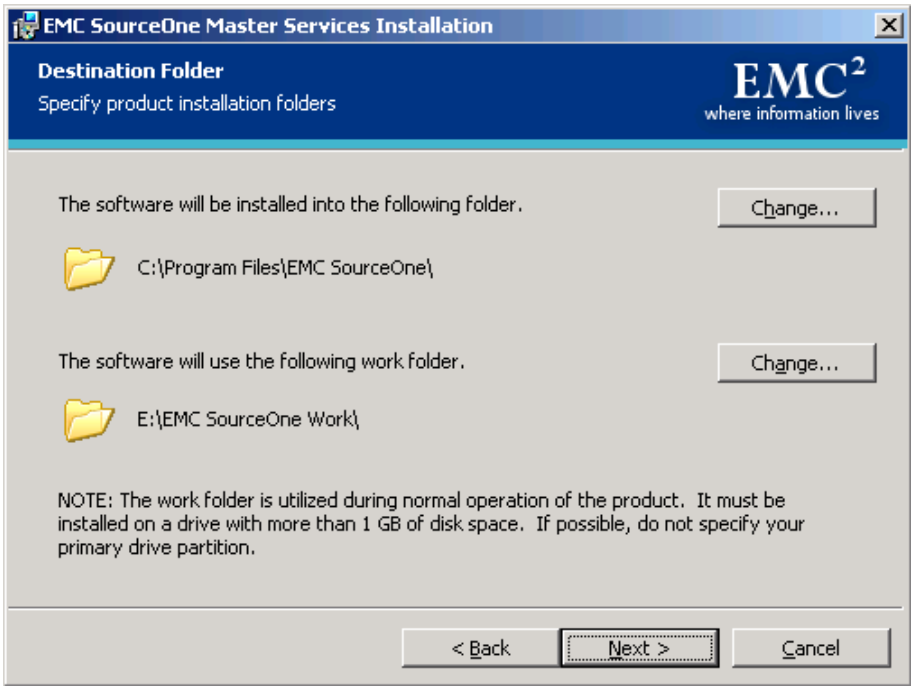
   The **Welcome** page appears.

   When the installer is run, it validates the system configuration to ensure that prerequisite components are installed. Depending on the system configuration, the installer may automatically install one or more prerequisite components before displaying the **Welcome** page. Automatically installed components are listed in Establishing system requirements on page 49.

4. Click **Next**.

   The **Destination Folder** page appears.

Figure 30 Destination Folder page



5. Specify the destination directories:

   a. The first destination determines where the primary Master Services software files are installed. To specify a different directory or accept the default directory, click **Change**.

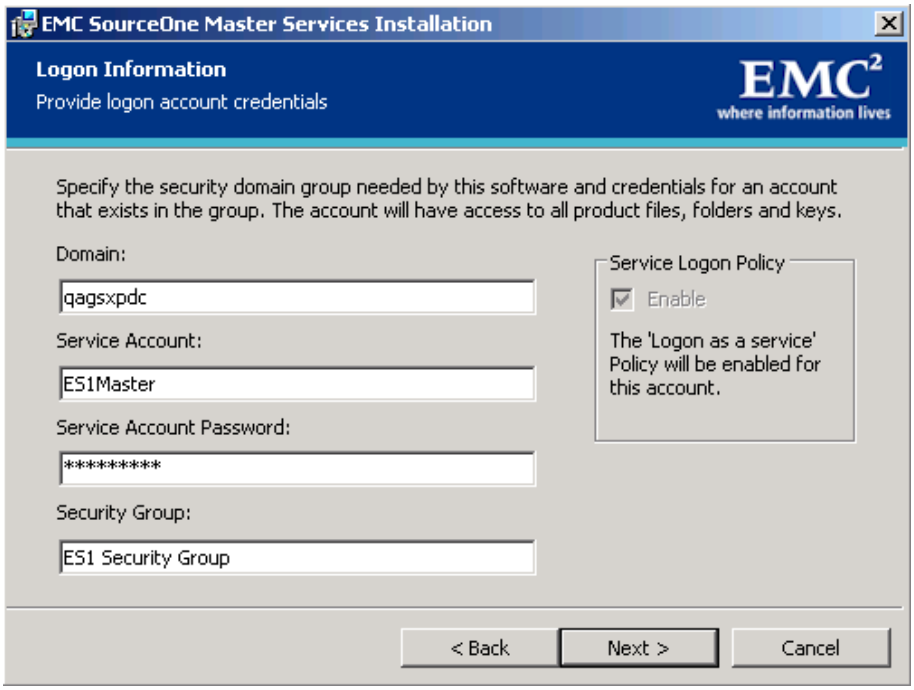
      Select a local drive other than the operating system drive. If you are installing Master Services software on an active or passive cluster, install the software to a local drive on each node.

   b. The second destination identifies the work directory, which is a temporary storage area for message processing. Specify a directory with at least 1 GB free space.

6. Click **Next**.

   The **Logon Information** page appears.

Figure 31 Logon Information page



7. Specify the logon information:
   a. Type the fully qualified **Domain**.
   b. Type the **Service Account** and the **Service Account Password**.

      Depending on the Active Directory accounts that you created during the planning process, the service account that is used when installing the Master Services software can be one of the following:

      - Primary service account
      - Master Services service account

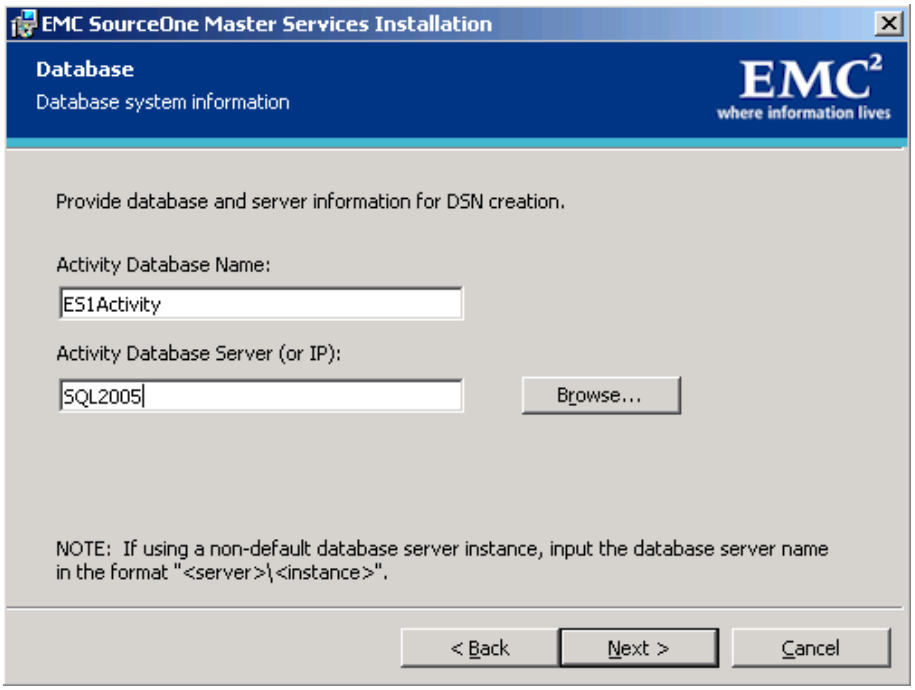
   c. Type the SourceOne **Security Group**. The service account that you select must be a member of this **Security Group**.
   d. Review the **Enable** checkbox setting in the **Service Logon Policy** region.

      This setting is required to enable services to run without a logged in user.

   e. Click **Next**.

      The credentials are validated and the **Database** page appears.

Figure 32 Database page



8. Type the database information:

   a. Type the **Activity Database** name.

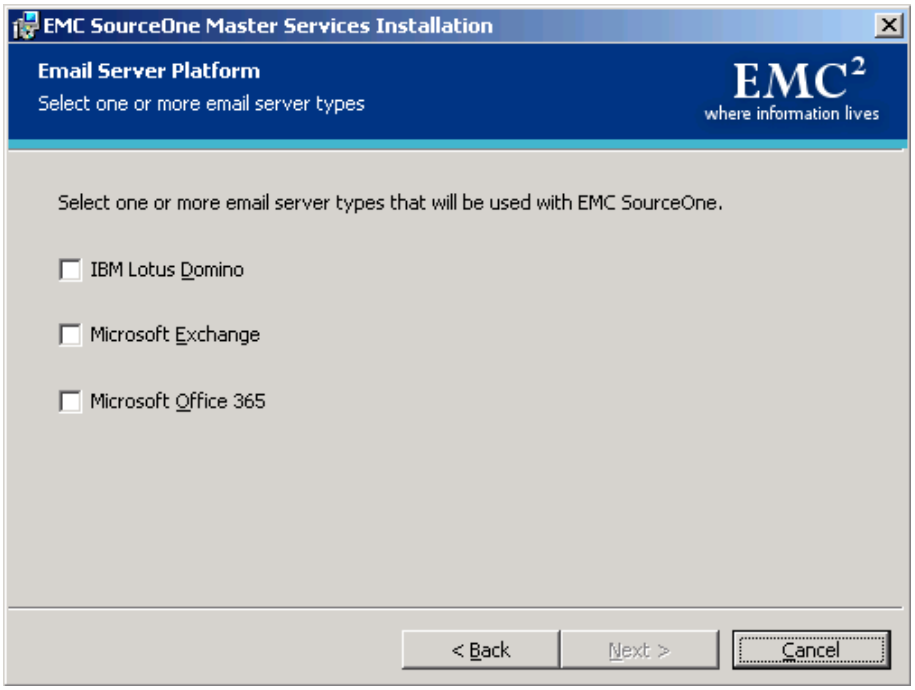
   b. Type the **Activity Database Server (or IP)** hostname.

   - If you are using the default named instance, type the SQL Server name in the following format:
     `hostname`
   - If you are using a named instance, type the SQL Server name and instance in the following format:
     `hostname\instance`

   c. Click **Next**.

   The **Email Server Platform** page appears.

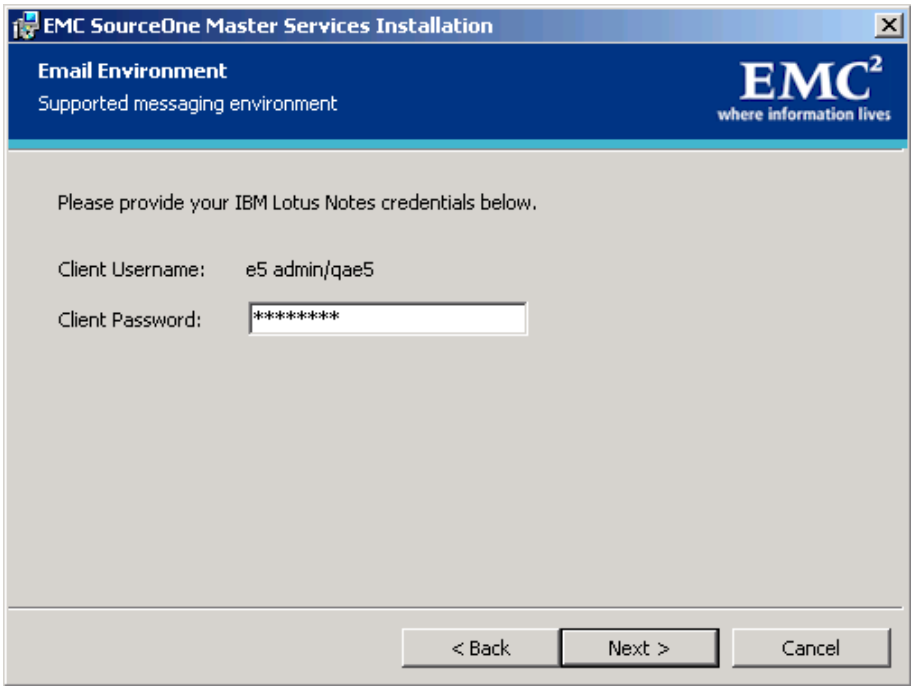
Figure 33 Email Server Platform page



9. Select one or more of the following email server types that are used with SourceOne:
   - IBM Domino
   - Microsoft Exchange
   - Microsoft Office 365
10. Click **Next**.

    If you are installing the Master Services software on a host on which IBM Notes is installed, the **Email Environment** page appears, otherwise the **Ready to Install the Program** page appears.

Figure 34 Email Environment page



11. (Optional) Type the Notes password for the SourceOne Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49, and then click **Next**.

    The password is validated and the **Ready to Install the Program** page appears.

12. Click **Install**.

    After the installation completes, the **InstallShield Wizard Completed** page appears.

13. Click **Finish**.

    One of the following occurs:

    - If you are installing Master Services software on a system on which only Microsoft Outlook is installed, a message appears indicating that you must restart the system.
    - If you are installing Master Services software on a system on which Notes software is installed, a Notes configuration wizard is launched. Perform the following:
        - Configure the Notes client software to use the Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49.
        - Ensure that you copy the Notes ID file locally when prompted by the wizard.
        - When the configuration is complete, exit the Notes client.

          NOTICE In a mixed-mail environment with Exchange and Domino, do not configure the Notes client as the default mail client. Outlook must be the default mail client.
        - Ensure that you have the **Run as Administrator** privilege, and then run the SourceOne Notes Client shortcut.

14. Restart the system.

Clustering SourceOne Master computers

For high availability, set up an active or passive Microsoft Clustering configuration for the two computers on which Master Services software is installed.

About this task

Follow the procedures in this section to:

1. Install the Master Services software on a second host computer.
2. Configure each host computer as active or passive nodes in a Microsoft Cluster by using the following guidelines:
   - Each computer requires Microsoft Cluster Administrator to support the configuration.
   - Configure each computer with dual Network Interface Cards (NICs) to support a private connection between each node and a public connection to the network.
   - Configure the shared quorum disk and data resource disk on a device that is accessible using the public network connection to both nodes.

For detailed background information and instructions on configuring Microsoft Clustering, refer to the Microsoft documentation set.

Copying the setup executable locally

Use the following procedure to copy the setup executable for Master Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_MasterSetup.exe` executable to a temporary location on the host computer.

Installing Master Services software

Use the following procedure to install the Master Services software.

Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_MasterSetup.exe` file.
3. Click **Run**.

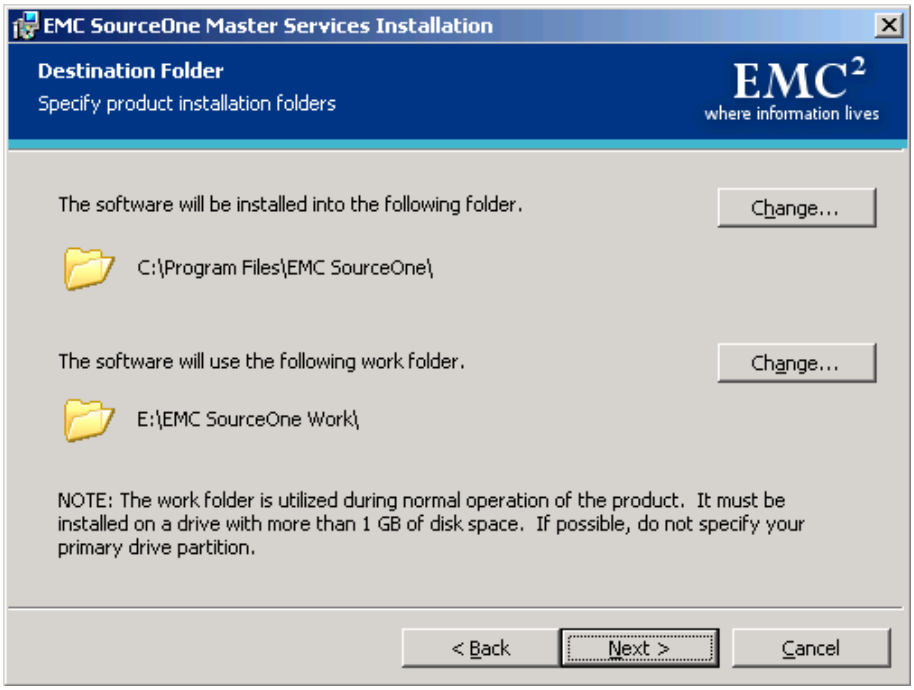
   The **Welcome** page appears.

   When the installer is run, it validates the system configuration to ensure that prerequisite components are installed. Depending on the system configuration, the installer may automatically install one or more prerequisite components before displaying the **Welcome** page. Automatically installed components are listed in Establishing system requirements on page 49.

4. Click **Next**.

   The **Destination Folder** page appears.

Figure 35 Destination Folder page



5. Specify the destination directories:

   a. The first destination determines where the primary Master Services software files are installed. To specify a different directory or accept the default directory, click **Change**.

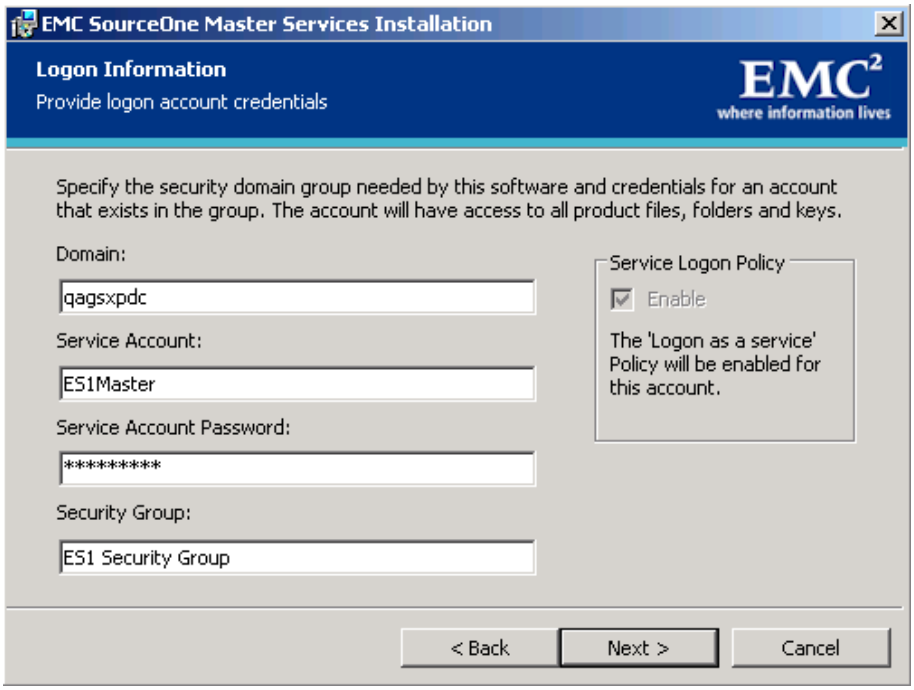
      Select a local drive other than the operating system drive. If you are installing Master Services software on an active or passive cluster, install the software to a local drive on each node.

   b. The second destination identifies the work directory, which is a temporary storage area for message processing. Specify a directory with at least 1 GB free space.

6. Click **Next**.

   The **Logon Information** page appears.

Figure 36 Logon Information page



7. Specify the logon information:
   a. Type the fully qualified **Domain**.
   b. Type the **Service Account** and the **Service Account Password**.

      Depending on the Active Directory accounts that you created during the planning process, the service account that is used when installing the Master Services software can be one of the following:

      - Primary service account
      - Master Services service account

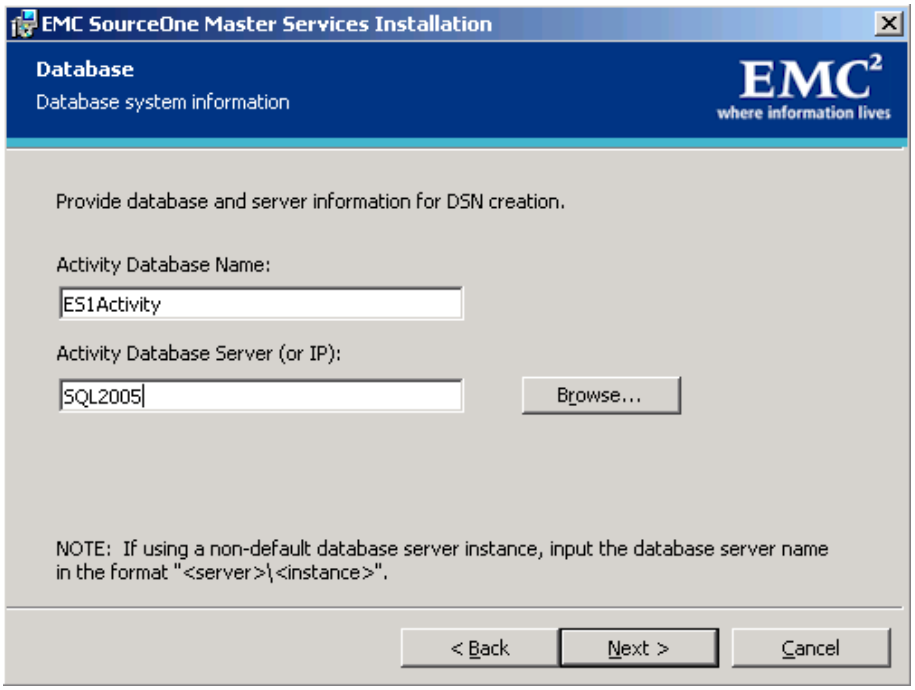
   c. Type the SourceOne **Security Group**. The service account that you select must be a member of this **Security Group**.
   d. Review the **Enable** checkbox setting in the **Service Logon Policy** region.

      This setting is required to enable services to run without a logged in user.

   e. Click **Next**.

      The credentials are validated and the **Database** page appears.

Figure 37 Database page



8. Type the database information:

   a. Type the **Activity Database** name.

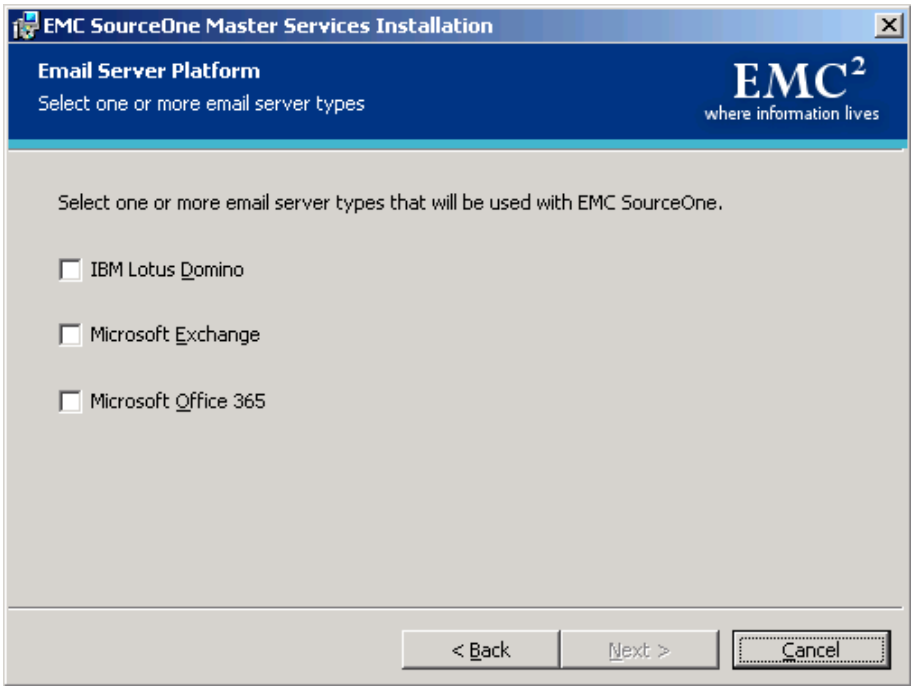
   b. Type the **Activity Database Server (or IP)** hostname.

   - If you are using the default named instance, type the SQL Server name in the following format:
     `hostname`
   - If you are using a named instance, type the SQL Server name and instance in the following format:
     `hostname\instance`

   c. Click **Next**.

   The **Email Server Platform** page appears.

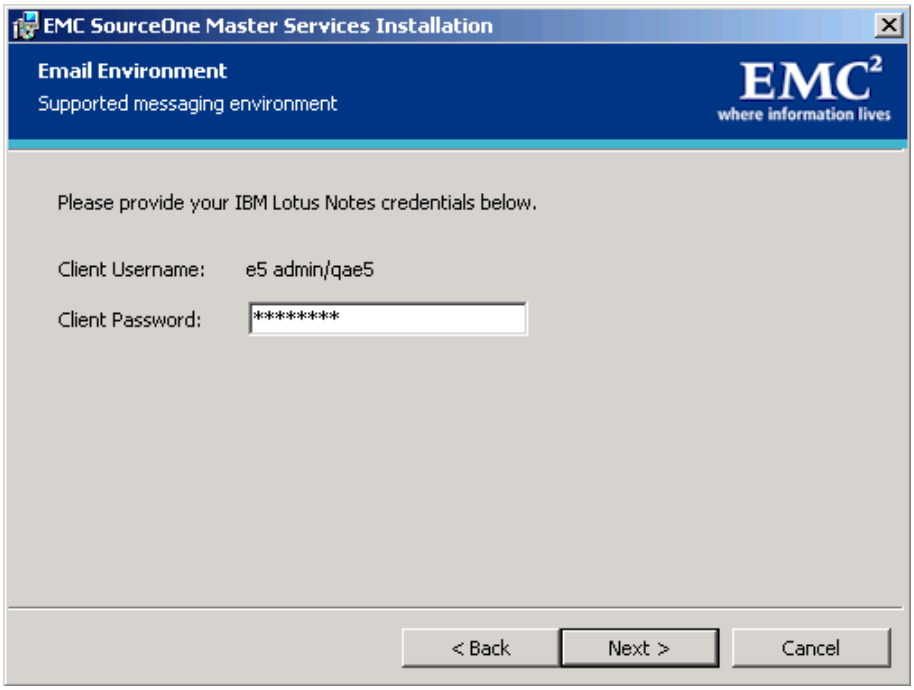
Figure 38 Email Server Platform page



9. Select one or more of the following email server types that are used with SourceOne:
   - IBM Domino
   - Microsoft Exchange
   - Microsoft Office 365
10. Click **Next**.

    If you are installing the Master Services software on a host on which IBM Notes is installed, the **Email Environment** page appears, otherwise the **Ready to Install the Program** page appears.

Figure 39 Email Environment page



11. (Optional) Type the Notes password for the SourceOne Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49, and then click **Next**.

    The password is validated and the **Ready to Install the Program** page appears.

12. Click **Install**.

    After the installation completes, the **InstallShield Wizard Completed** page appears.

13. Click **Finish**.

    One of the following occurs:

    - If you are installing Master Services software on a system on which only Microsoft Outlook is installed, a message appears indicating that you must restart the system.
    - If you are installing Master Services software on a system on which Notes software is installed, a Notes configuration wizard is launched. Perform the following:
        - Configure the Notes client software to use the Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49.
        - Ensure that you copy the Notes ID file locally when prompted by the wizard.
        - When the configuration is complete, exit the Notes client.

          NOTICE In a mixed-mail environment with Exchange and Domino, do not configure the Notes client as the default mail client. Outlook must be the default mail client.
        - Ensure that you have the **Run as Administrator** privilege, and then run the SourceOne Notes Client shortcut.

14. Restart the system.

Configuring each host computer as active or passive nodes in a Microsoft Cluster

Use the following procedure to create a Group and Resource for SourceOne services.

Procedure

1. On both nodes, set the following services to Manual:
   - SourceOne Address Cache (`ExAddressCacheService`)
   - SourceOne Job Scheduler (`ExJobScheduler`)
   - SourceOne File Mover Agent (`ES1MoverAgent`)

   Note: While the Address Cache and Job Scheduler services are present on all Master computers, the SourceOne File Mover Agent service is only installed if you selected Microsoft Office 365 support when installing the Master Services software.
2. On one of the nodes:
   a. Click **Start** > **Programs** > **Administrative Tools** > **Cluster Administrator**.
   b. Right-click **Groups** and click **New** > **Group**.
   c. Type a name for the group and click **Next**.
   d. Click **Finish**. The new group is displayed in the **Groups** folder.
3. Right-click the new group and select **New** > **Resource**.
   a. Type a name for the resource (for example, Master Service) in the **Name** field and select **Generic Services** from the **Resource type** drop-down list.
   b. Click **Next** to display the **Possible Owners** page.
   c. Click **Next** to display the **Dependencies** page.
   d. Click **Next** to display the **Generic Service Parameters** page.
   e. In the **Service Name** field, type **`ExJobScheduler`**.
   f. Click **Next** to display the **Registry Replication** page.
   g. Click **Finish**.
4. Right-click the service and select **Bring Online**. The **State** field indicates that the service is **Online**.
5. Repeat the previous steps to create a resource for the following service:

   ExAddressCacheService
6. If Microsoft Office 365 support is installed, repeat the previous steps to create a resource for the following service:

   ES1MoverAgent
7. Restart the Microsoft Cluster services.
8. Verify that the Group is Online.
9. Verify that the following services are set to Manual and are only running on one node:
   - **SourceOne Address Cache**
   - **SourceOne Job Scheduler**
   - **ES1MoverAgent**

Note: If the services are running simultaneously on each node, this may cause duplicate jobs to be processed. By shutting down the systems after the services are created in the cluster group, the cluster will take control of them and only allow them to run on one node at a time.

Installing the SourceOne Console application

Install the SourceOne Console application on the Master Services host computer or a client computer that meets the system requirements. You can install the SourceOne Console on one or more computers.

The following table provides an overview of the prerequisites you must complete before installing software.

Table 23 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements for installing the SourceOne Console application on one of the following: • Master Services host computer. Described in Master Services host computer requirements on page 51. • Client computer. Described in SourceOne Console client computer requirements on page 57.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed as described in Pre-installation on page 33. • Database permissions are configured as described in Configuring SQL permissions on page 96.

Copying the setup executable locally

Use the following procedure to copy the setup executable for the SourceOne Console software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_ConsoleSetup.exe` executable to a temporary location on the host computer.

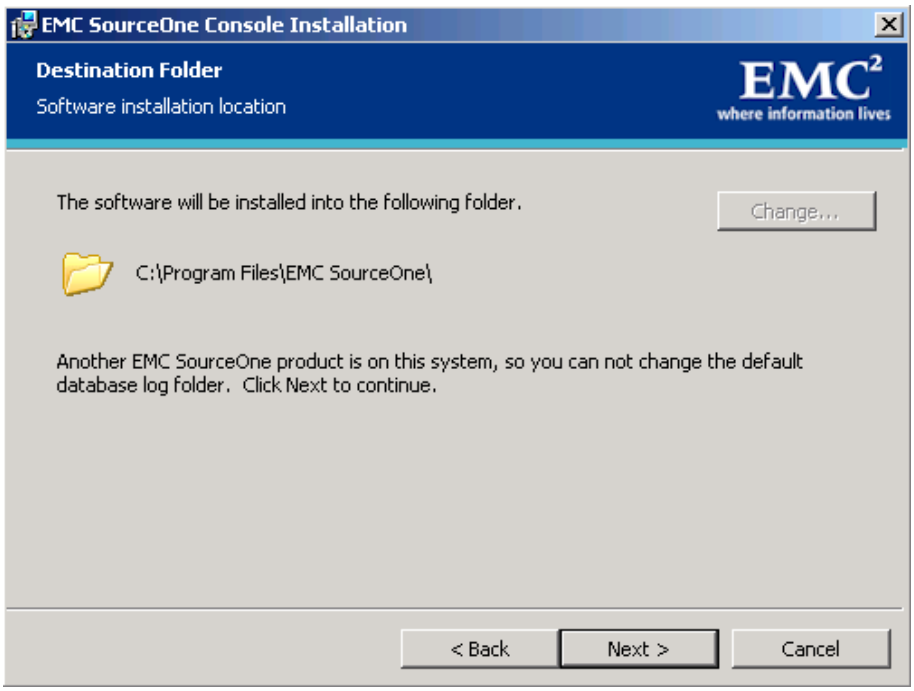
Installing SourceOne Console software

Use the following procedure to install the SourceOne Console software.

Procedure

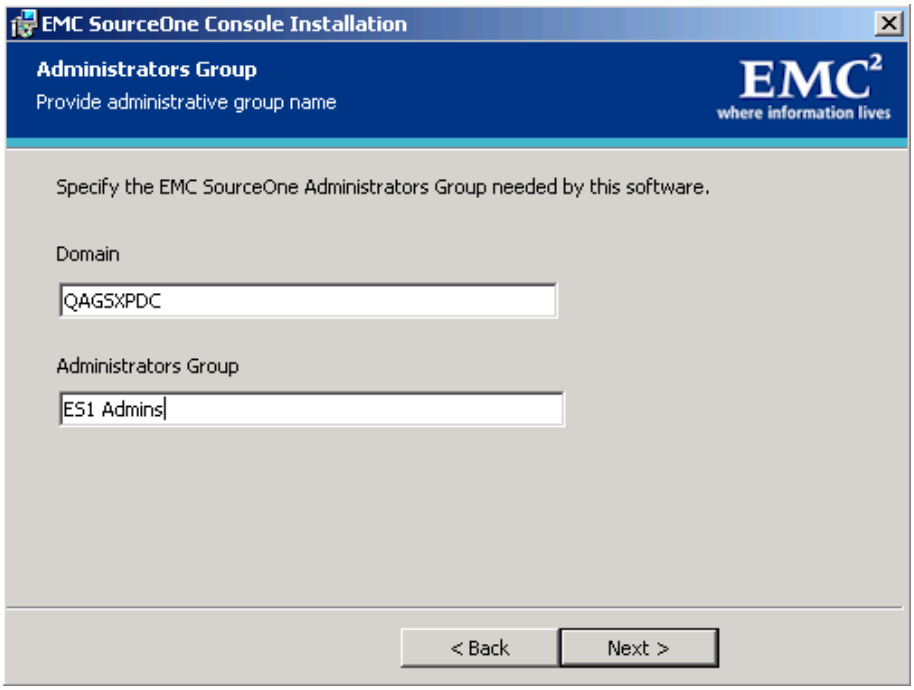
1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_ConsoleSetup.exe` file and click **Run**. The **Welcome** page appears.
3. Click **Next** to display the **Destination Folder** page.

Figure 40 Destination Folder page



4. Accept the default location and then click **Next** to display the **Administrators Group** page.

Figure 41 Administrators Group page



5. Specify the Administrators Group information:

   a. Accept the default **Domain**.

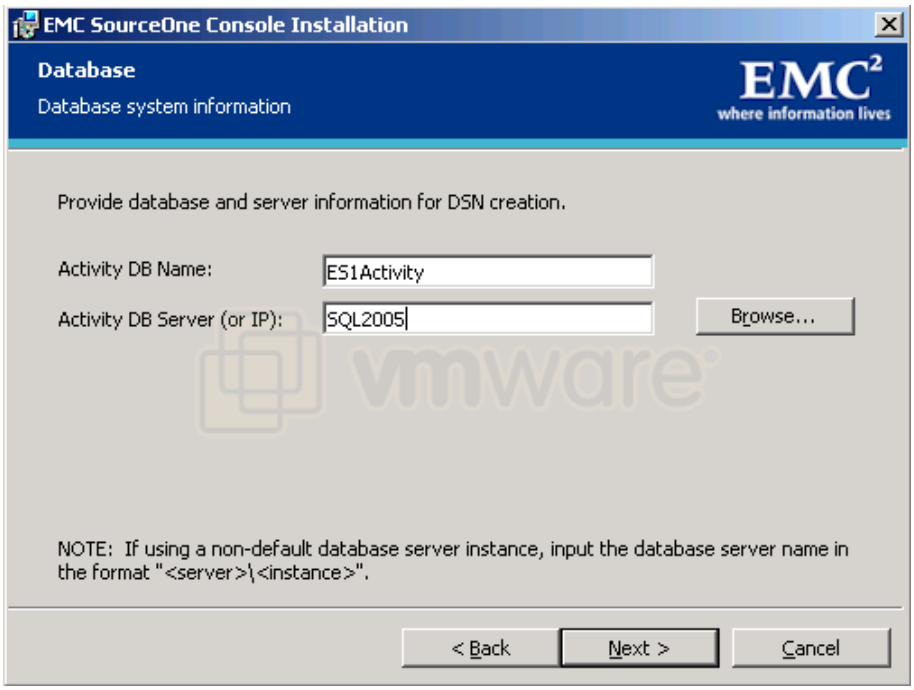
   b. Type the **Administrators Group**.

   - If this environment uses a separate SourceOne Admins group to house the console administrator accounts, type the name for this group.
   - If this environment houses console administrators in the SourceOne Security Group (which also houses the service accounts used by SourceOne), type the name for this group.

   Note: For details about the Admins and Security Group configuration, see Creating accounts in Active Directory on page 35.

6. Click **Next** to display the **Database** page.

Figure 42 Database page



7. Specify the following information:
   a. Type the **Activity Database** name.
   b. Type the **Activity Database Server** hostname.
      - If you are using the default that is named instance, type the SQL Server name in the following format:
        hostname
      - If you are using a named instance, type the SQL Server name and instance in the following format:
        *hostname**instance*
   c. Click **Next** to display the **Product Shortcuts** page.
8. Select the wanted options and click **Next** to display the **Ready to Install the Program** page.
9. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
10. A message appears indicating that you must restart the system. Click **Yes**.

Installing Worker Services software

The following section describes how to install the SourceOne Worker Services software on a host computer.

The table below provides an overview of the prerequisites you must complete before installing software.

Table 24 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are described in Worker Services host computer requirements on page 52.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed as described in Pre-installation on page 33. • Database permissions are configured as described in Configuring SQL permissions on page 96.

Copying setup executable locally

Use the following procedure to copy the setup executable for the Worker Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_WorkerSetup.exe` executable to a temporary location on the host computer.

Installing Worker Services software

Use the following procedure to install the Worker Services software.

Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_WorkerSetup.exe` file, and then click **Run**.

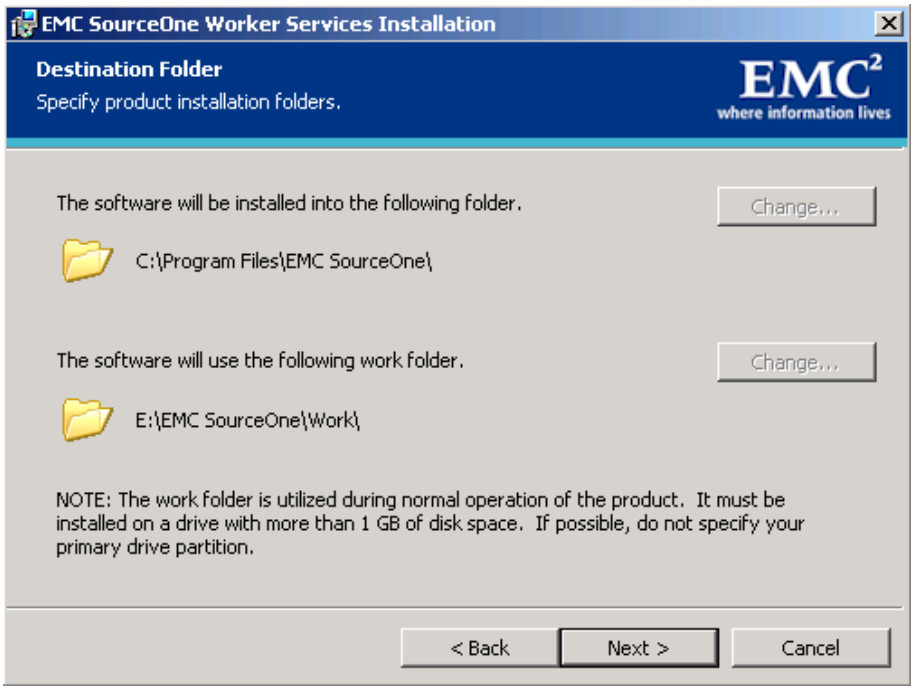
   The **Welcome** page appears.

   When the installer is run, it validates the system configuration to ensure that prerequisite components are installed. Depending on the system configuration, the installer may automatically install one or more prerequisite components before displaying the **Welcome** page. Automatically installed components are listed in Establishing system requirements on page 49.

3. Click **Next**.

   The **Destination Folder** page appears.

Figure 43 Destination Folder page



4. Specify the destination directories:

   a. The first destination determines where the primary Worker Services files are installed. To specify a different directory, or accept the default directory, click **Change**.

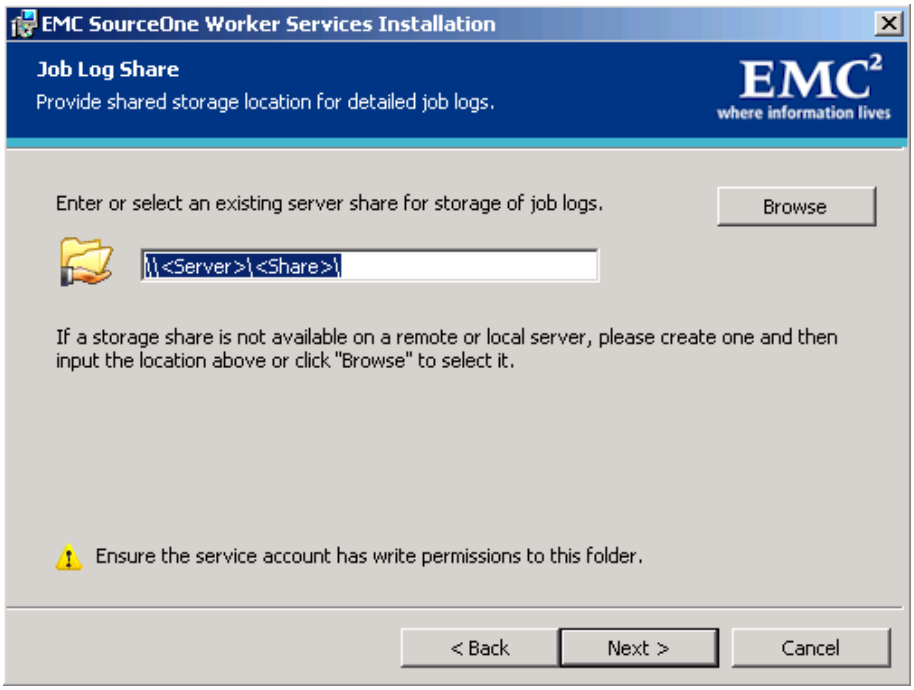
      Select a drive other than the operating system drive.

   b. The second destination identifies the work directory, which is a temporary storage area for message processing. Specify a directory with at least 1 GB free space.

5. Click **Next**.

   The **Job Log Folder** page appears.

Figure 44 Job log Folder page



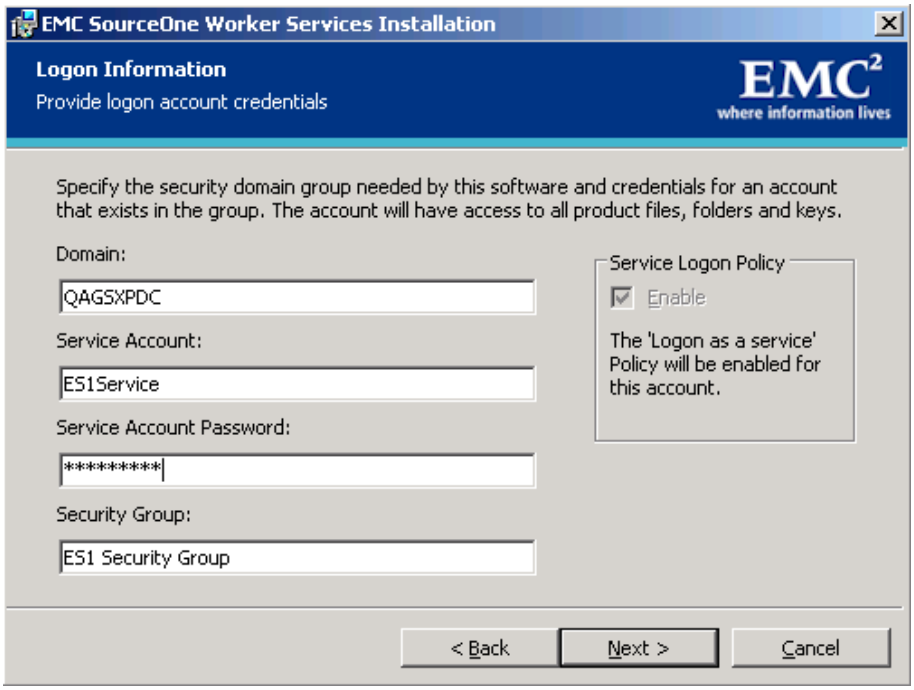
Consider the following:

- The location was established during the planning phase with permissions granted to the SourceOne security group. See Assigning permissions on page 39.
- This file share location contains job detail logs which support the viewing of job details from the SourceOne Console.
- You must configure all Worker Services hosts to use the same location.
- If you select to enable job detail logging in the SourceOne Console, ensure that this location includes sufficient space to allow for log growth or specify a location with expandable storage.

6. Specify a path, for example, `\\hostname\share`, or click **Browse**, and then browse to the location.
7. Click **Next**.

   The **Logon Information** page appears.

Figure 45 Logon Information page



8. Specify the logon information:
   a. Type the fully qualified **Domain**.
   b. Type the **Service Account** and **Service Account Password**.

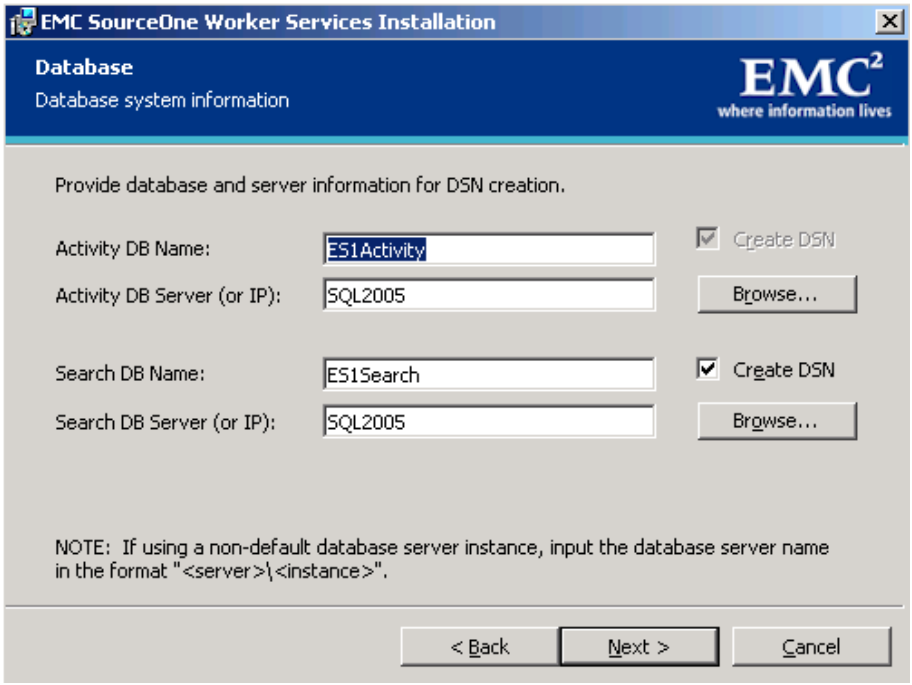
      This is the SourceOne primary service account username and password.
   c. Type the **SourceOne Security Group**.

      The service account must be a member of this **Security Group**.
   d. Review the **Enable** checkbox setting in the **Service Logon Policy** region.

      This setting is required to enable services to run without a logged in user.
   e. Click **Next**.

      Credentials are validated and the **Database** page appears.

Figure 46 Database page



9. Specify the database information:
   a. Type the **Activity Database** name.
   b. Type the **Activity Database Server** hostname.
      - If you are using the default named instance, type the SQL Server name in the following format:
        `hostname`
      - If you are using a named instance, type the SQL Server name and instance in the following format:
        `hostname\instance`
   c. Type the **Search Database** name.
   d. Type the **Search Database Server** hostname.
      - If you are using the default named instance, type the SQL Server name in the following format:
        `hostname`
      - If you are using a named instance, type the SQL Server name and instance in the following format:
        `hostname\instance`

   Some of this information may be pre-filled if you have already installed other SourceOne software, such as Master Services software, on this host. Accept the default values.

10. Click **Next**.

    If you are installing the Worker Services software on a host on which IBM Notes is installed, the **Email Environment** page appears, otherwise the **Ready to Install the Program** page appears.

11. (Optional) Specify the Notes password for the Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49, and then click **Next**.

The password is validated and the **Ready to Install the Program** page appears.

12. Click **Install**.

    After the installation completes, the **InstallShield Wizard Completed** page appears.

13. Click **Finish**.

    One of the following occurs:

    - If you are installing Worker Services software on a system on which only Microsoft Outlook is installed, or if you installed Master Services software on this host and have configured the IBM Notes client software, a message appears indicating that you must restart the system.
    - If you are installing Worker Services software on a system on which IBM Notes software is installed, a Notes configuration wizard is launched. Perform the following:
        - Configure the Notes client software to use the Notes account configured during the planning process, see IBM Lotus Domino permissions on page 49.
        - Ensure that you copy the Notes ID file locally when prompted by the wizard.
        - When the configuration is complete, exit the Notes client.

          NOTICE In a mixed-mail environment, for example, Microsoft Exchange and IBM Domino, do not configure the Notes client as the default mail client. Outlook must be the default mail client.
        - Ensure that you have the **Run as Administrator** privilege, and then run the SourceOne Notes Client shortcut.

14. Restart the system.
15. If required, repeat this procedure on other SourceOne Worker hosts.

Web Services software

Web Services software can be installed on one or more Worker Services computers to support underlying web functions such as fielding search requests and performing shortcut resolution. Installing Web Services software creates an IIS website (SearchWS).

The following section describes how to install the Web Services software on a host computer on which Worker Services is installed. This section also includes information on implementing load balancing for the Web Services application.

The table below provides an overview of the prerequisites you must complete before installing software.

Table 25 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are described in Worker Services host computer requirements on page 52.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is

Table 25 Prerequisites (continued)

Prerequisite	Details
	completed as described in Pre-installation on page 33. • Database permissions are configured as described in Configuring SQL permissions on page 96.
SourceOne software	Install Worker Services software on this computer before installing the Web Services software.

ASP.NET considerations

SourceOne uses several Microsoft Internet Information Services (IIS) websites to support product functionality. Register ASP.NET with IIS for all SourceOne websites.

The *SourceOne Products Compatibility Guide* includes information about the versions of ASP.NET that are compatible with SourceOne.

Copying setup executable locally

Use the following procedure to copy the setup executable to the Web Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_WebServicesSetup.exe` executable to a temporary location on the host computer.

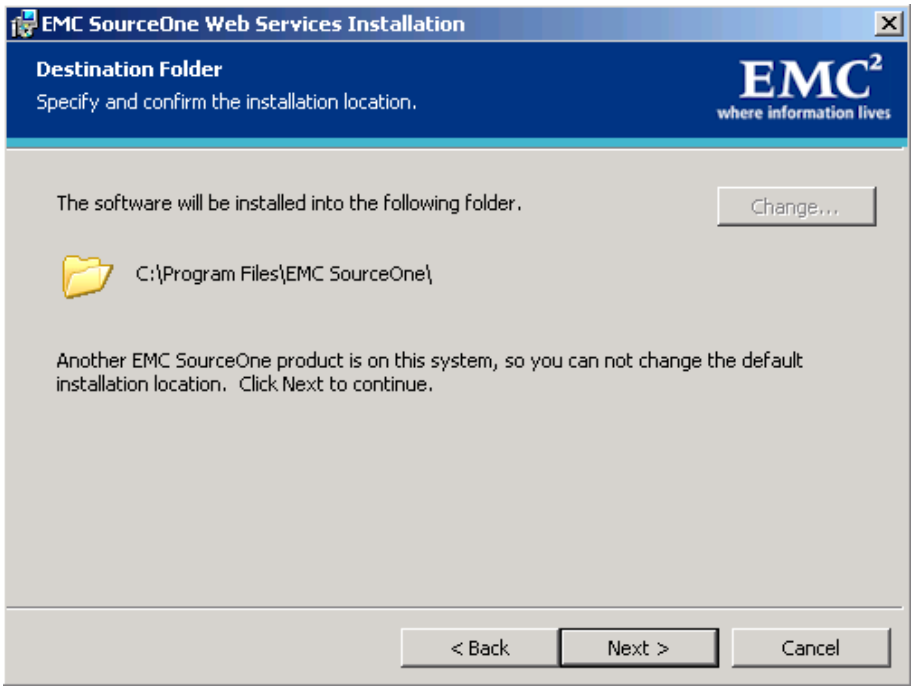
Installing Web Services software

Use the following procedure to install the web Services software.

Procedure

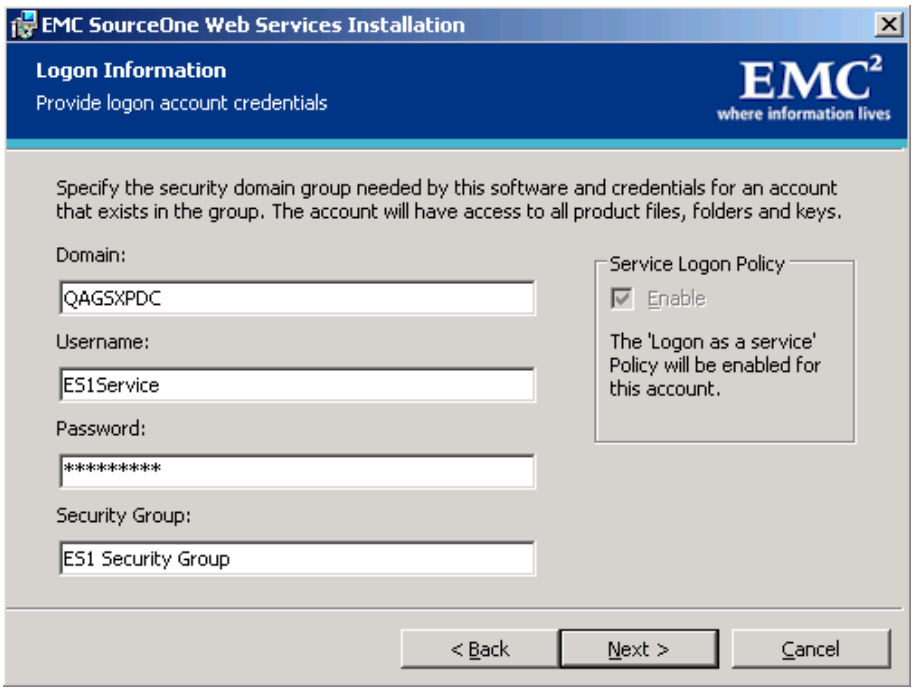
1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_WebServicesSetup.exe` file and then click **Run**. The **Welcome** page appears.
3. Click **Next** to display the **Destination Folder** page.

Figure 47 Destination Folder page



4. Accept the default location and then click **Next** to display the **Logon Information** page.

Figure 48 Logon Information page



5. Specify the logon information:
   a. Type the **Domain**.
   b. Type the **Username** and **Password**. This is the SourceOne primary service account username and password.
   c. Type the SourceOne **Security Group**. The service account must be a member of this **Security Group**.

d. The **Enable** checkbox is already checked in the **Service Logon Policy** region. This setting is required to enable services to run without a logged in user.

e. Click **Next** to validate the credentials and display the **Ready for Software Installation** page.

6. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
7. Click **Finish**.

Configuring load balancing

To support load balancing across two or more Worker Services computers running Web Services software, use network load balancing using an appliance or software solution such as the Microsoft Network Load Balancing Service (NLBS).

Install Web Services software on multiple Worker Services computers and configure SourceOne applications that require a Web Services location to access a virtual hostname that is configured using the load balancing solution. The service then distributes the requests to multiple servers to balance the load.

After you establish the virtual hostname, specify this host information when installing SourceOne applications that require you to provide the Web Services location. Several application installations require a Web Services location, depending on the environment.

All environments

- SourceOne Search
- Mobile Services

Email Management environments

- Extensions for OWA 2007 Support
- Extension for OWA 2010 Support
- Extensions for IBM Lotus Domino Support
- Offline Access

SharePoint environments

- SharePoint Archive Search

Details for selecting a virtual hostname when identifying the Web Services location are provided within the installation procedure for each of these components.

Configuring firewall rules (Windows Server 2008 R2 only)

If using Windows Server 2008 R2, create firewall inbound rules to allow connections to the following SourceOne services.

- SourceOne Document Management Service (`DocManageSvcHost.exe`)
- SourceOne Offline Access Retrieval Service (`DocManageSvcOAHost.exe`)

Refer to the following Microsoft article for details on configuring firewall rules using Windows Firewall with Advanced Security in Windows Server 2008 R2:

http://go.microsoft.com/fwlink/?linkid=137808

Configuring IIS 7.5 role services (Windows Server 2008 R2 only)

For Windows 2008 R2, use Server Manager to configure the role services using the information in the following table.

Table 26 IIS 7.5 Role Services and SourceOne SearchWS requirements

IIS Role Service	Required for SourceOne Web Services (SearchWS)
Common HTTP Features	
Static Content	Required
Default Document	Required
HTTP Errors	Required
Application Development Features	
ASP.NET	Required
.NET Extensibility	Required (for ASP.NET)
ISAPI Extensions	Required (for ASP.NET)
ISAPI Filters	Required (for ASP.NET)
Security Features	
Basic Authentication	Required
Windows Authentication	Required (if using SSO)
Request Filtering	Required
Management Tools	
IIS Management Console	Required **Note:** If using SSO, the IIS Management Console is required to perform the SSO configuration. A local instance is required if server is not remotely managed.
IIS Metabase Compatibility	Required

Configuring single sign-on (SSO)

For information on configuring SSO, refer to the following sections.

- Single Sign-on Support Example (Windows) on page 243.
- Single Sign-on Support Example (Domino) on page 255.

Note: Wait until all SourceOne IIS sites (Web Services, Search, and Mobile Services) are installed before configuring SSO.
Review IBM Lotus Domino consideration

If you are running SourceOne Web Services in a Domino-only environment, the Web Services installation creates a service that is called SourceOne Offline Access Retrieval Service. This service is configured to start automatically, but is only necessary in an Exchange environment. You can safely configure this service to start manually.

Installing the SourceOne Search application

The SourceOne Search application installs an IIS website (*Search*) which supports the web client interface to end-users and passes query and results data to and from the SourceOne Web Services software that is installed on a Worker Services computer.

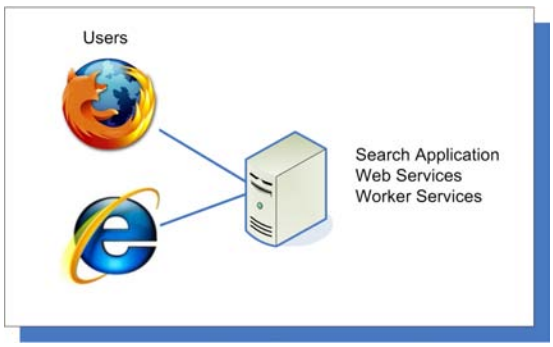
Deployment scenarios

Depending on the size of the environment, load balancing requirements, and security considerations, you can deploy the SourceOne application in several ways.

Single-box scenario

You can install the SourceOne Search application on a single SourceOne Web Services computer.

Figure 49 Search deployment single-box scenario

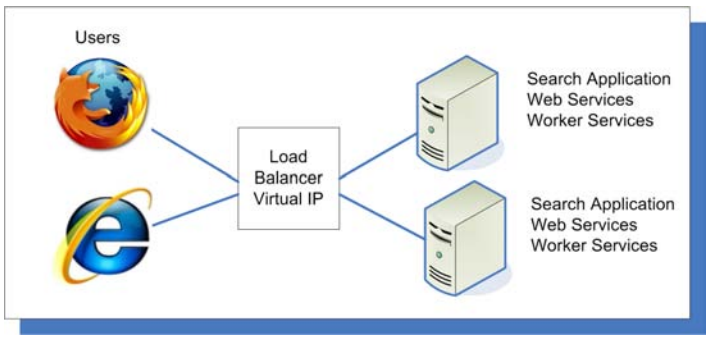


Load balancing scenario

You can install the SourceOne Search application on two or more SourceOne Web Services computers and configure network load balancing using an appliance or software solution such as Microsoft Network Load Balancing Service (NLBS).

When using a network load balancer, you must configure server affinity (also referred to as sticky sessions) to ensure that a web browser's requests are handled by the same Search server instance throughout the duration of the user's session.

Figure 50 Search deployment load balancing scenario



Secure Sockets Layer (SSL) considerations

Consider the following when using SSL with SourceOne Search.

- During the installation of SourceOne Search, you are presented with the option of enabling SSL. If you select this option and SSL is *not* enabled for the Web Services, SourceOne Search cannot communicate with the Web Services. Ensure that SSL is enabled for Web Services before selecting this option during the install.
- Sensitive data is transmitted between SourceOne Search and SourceOne Web Services. If you are installing SourceOne Search on an IIS web server (for example, not the same physical computer as the SourceOne Web Services), enable SSL when installing SourceOne Search.
- If you are installing SourceOne Search on an IIS web server, configure SSL for the web server itself. Sensitive information such as usernames and passwords are transferred between a user's web browser and the web server. This SSL configuration recommendation is unrelated to the Web Services SSL configuration and enabling SSL during SourceOne Search installation.

User access

Users can access the application from their browser using a URL and authenticate using their Microsoft Windows Logon or IBM Notes credentials as described in the *SourceOne Search User Guide*.

The following table provides an overview of the prerequisites to complete before installing software.

Table 27 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are described in Worker Services host computer requirements on page 52 if installing in the one of the following deployment scenarios: • Search deployment single-box • Search deployment load balancing If installing on an IIS Web server, see Storage environment requirements on page 56.
Accounts and permissions	Ensure that Active Directory accounts and groups and other permissions-related configuration is completed as described in Pre-installation on page 33.
SourceOne software	This installation requires that an SourceOne Web Services computer exists and is accessible on the network. You specify this hostname during the SourceOne Search installation. If you have configured two or more Web Services computers in a load balancing cluster, you will instead specify the virtual hostname during the SourceOne Search

Table 27 Prerequisites (continued)

Prerequisite	Details
	software installation. See Configuring load balancing on page 125 for more information.

Copying the setup executable locally

Use the following procedure to copy the setup executable for the SourceOne Search software locally to the host computer.

Procedure

1. If installing the software on an:
   - SourceOne Worker Services computer, log in to the host computer using the SourceOne installation account.
   - IIS web server, log in to the host computer using an account which is a member of the local administrators group.
2. Browse to the Setup\Windows directory on the SourceOne software kit.
3. Copy the ES1_SearchSetup.exe executable to a temporary location on the host computer.

Installing SourceOne Search software

Use the following procedure to install the SourceOne Search software.

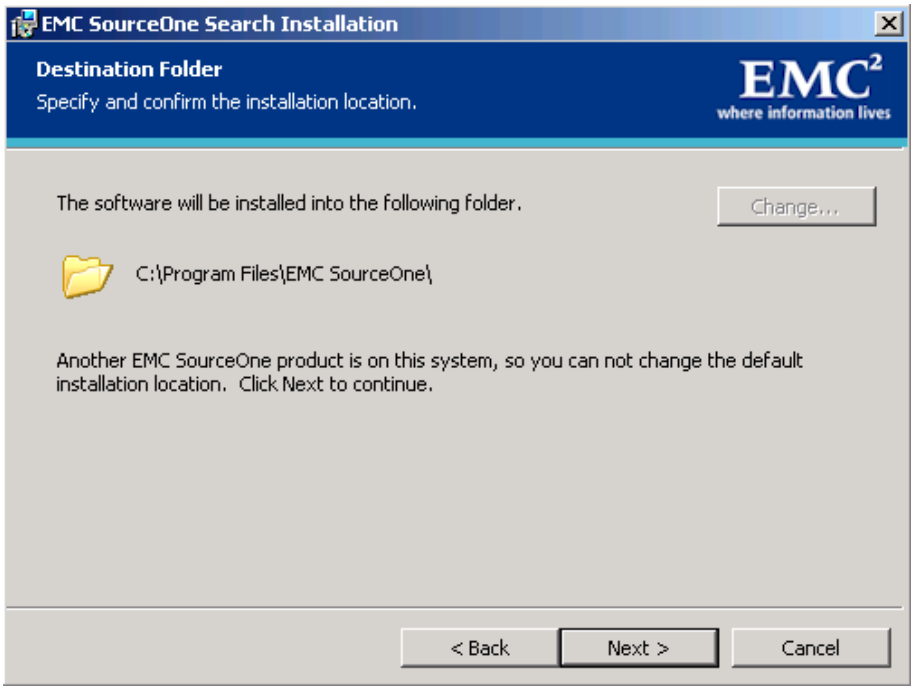
Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the ES1_SearchSetup.exe file and then click **Run**. The **Welcome** page appears.

   Note: When the installer is run, it validates the system configuration to ensure that prerequisite components are installed. Depending on your system configuration, the installer may automatically install one or more prerequisite components before displaying the Welcome page. Automatically installed components are listed in Establishing system requirements on page 49.

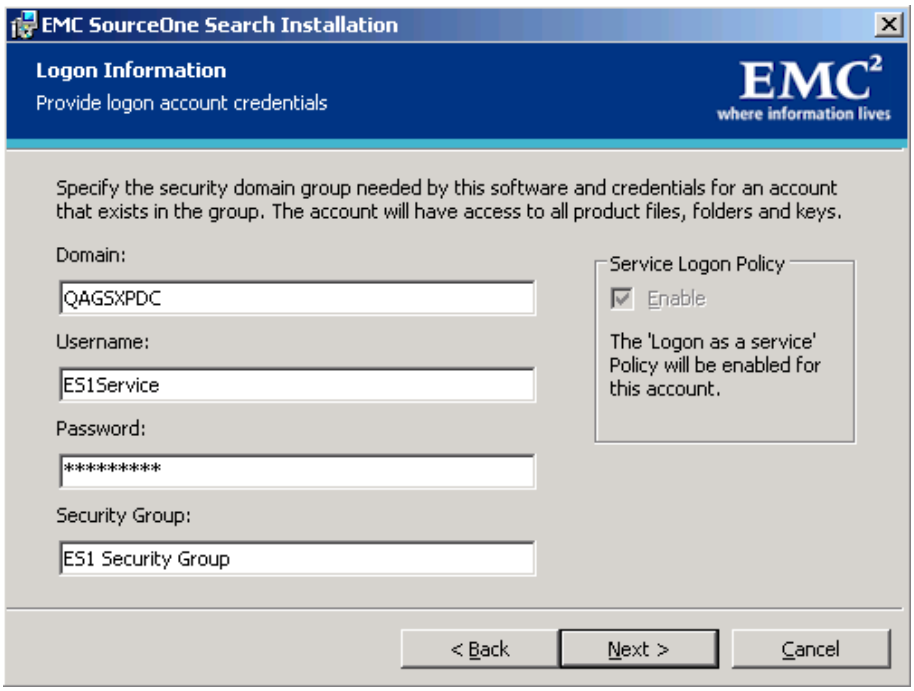
3. Click **Next** to display the **Destination Folder** page.

Figure 51 Destination Folder page



4. Accept the default location and then click **Next** to display the **Logon Information** page.

Figure 52 Logon Information page



Logon Information page

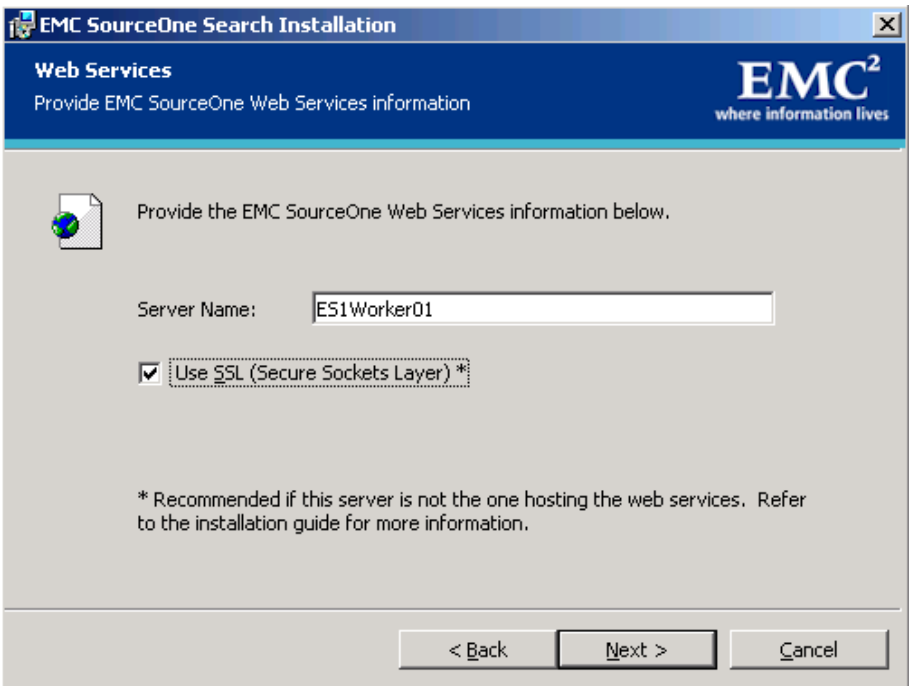
5. Specify the logon information:
   a. Type the **Domain**.
   b. Type the **Username** and **Password**. This is the SourceOne primary service account username and password.

c. Type the **SourceOne Security Group**. The service account must be a member of this **Security Group**.

d. The **Enable** checkbox is already checked in the **Service Logon Policy** region. This setting is required to enable services to run without a logged in user.

6. Click **Next** to display the Web Services page.

Figure 53 Web Services page



7. Specify the **Server Name** for the computer on which Web Services software is installed. If using SSL, type the server name or alias to which the SSL certificate was issued.
8. Optionally select the **Use SSL (Secure Sockets Layer)** checkbox to enable SourceOne Search to communicate with Web Services using an SSL connection only if you have already configured SSL for the Web Services. Review the considerations that are described in Secure Sockets Layer (SSL) considerations on page 128 before continuing.
9. Click **Next** to display the **Product Shortcuts** page.
10. Click **Next** to validate the credentials and display the **Ready for Software Installation** page.
11. Click **Install**. After the installation complete, the **InstallShield Wizard Completed** page appears.
12. Click **Finish**.
13. For Windows Server 2008 R2 only, configure IIS 7.5 role services.

    For Windows 2008 R2, use Server Manager to configure the role services using the information in this table.

Table 28 IIS 7.5 Role Services and SourceOne requirements (Search)

IIS Role Service	Required for SourceOne Search (Search)
Common HTTP Features	
Static Content	Required

Table 28 IIS 7.5 Role Services and SourceOne requirements (Search) (continued)

IIS Role Service	Required for SourceOne Search (Search)
Default Document	Required
HTTP Errors	Required
Application Development Features	
ASP.NET	Required
.NET Extensibility	Required (for ASP.NET)
ISAPI Extensions	Required (for ASP.NET)
ISAPI Filters	Required (for ASP.NET)
Security Features	
Basic Authentication	Required
Windows Authentication	Required (if using SSO)
Request Filtering	Required
Management Tools	
IIS Management Console	Required If using SSO, the IIS Management Console is required to perform the SSO configuration. A local instance is required if server is not remotely managed.
IIS Metabase Compatibility	Required

14. Configure single sign-on (SSO).

    For information on configuring SSO, refer to the following sections:

    - Single Sign-on Support Example (Windows) on page 243.
    - Single Sign-on Support Example (Domino) on page 255.

    Note: You can wait until all SourceOne IIS sites (Web Services, Search, and Mobile Services) are installed before configuring SSO.

Installing Mobile Services software

You can install the Mobile Services software on one or more Worker Services computers or on a separate IIS web server to provide Universal URL support for SourceOne Email Management users and includes the following.

- Mobile users.
- Outlook Web Access users.
- Outlook users who do not have the SourceOne Offline Access installed.

For SourceOne for File Systems users, the Universal URL also supports resolution of links to files in the Native Archive which were archived from a file server.

Installing Mobile Services software creates the `ExShortcut` IIS website.

This table provides an overview of the prerequisites you must complete before installing software.

Table 29 Prerequisites

Prerequisite	Details
System requirements	Worker Services computer. Hardware, operating system, network connectivity, and prerequisite software requirements are described in Worker Services host computer requirements on page 52. IIS Web server. Hardware, operating system, network connectivity, and prerequisite software requirements are described in Storage environment requirements on page 56.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed as described in Pre-installation on page 33. • Database permissions are configured as described in Configuring SQL permissions on page 96.
SourceOne software	This installation requires that a SourceOne Web Services computer exists and is accessible on the network. You specify this hostname during the SourceOne Mobile Services installation. If you have configured two or more Web Services computers in a load balancing cluster, you will instead specify the virtual hostname during the SourceOne Mobile Services software installation. See Configuring load balancing on page 125 for more information.

Copying the setup executable locally

Use the following procedure to copy the setup executable for the Mobile Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_MobileSetup.exe` executable to a temporary location on the host computer.

Installing Mobile Services software

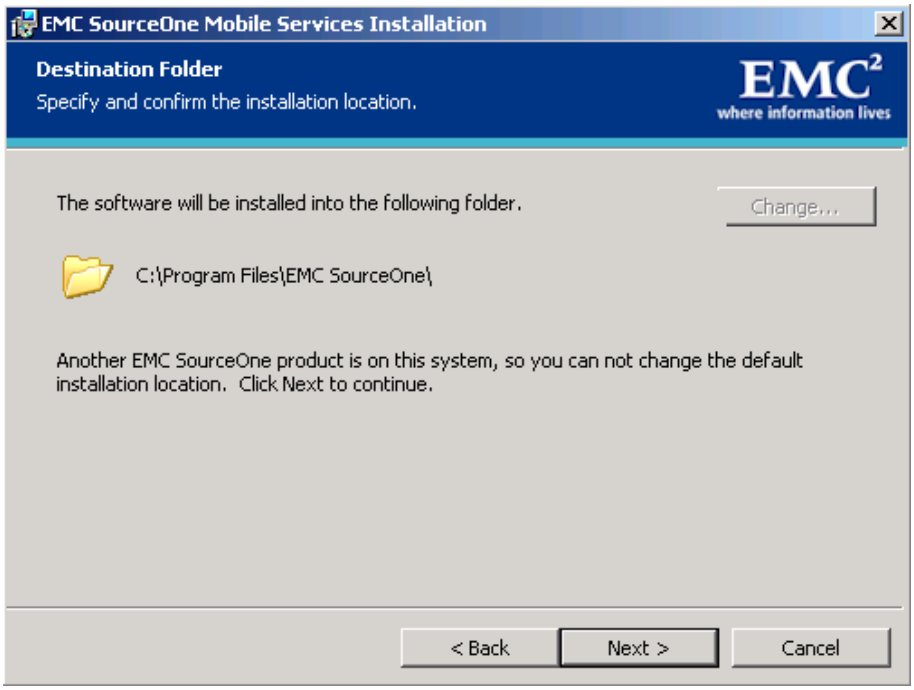
Use the following procedure to install the Mobile Services software.

Procedure

1. Browse to the temporary location to which you copied the setup executable.

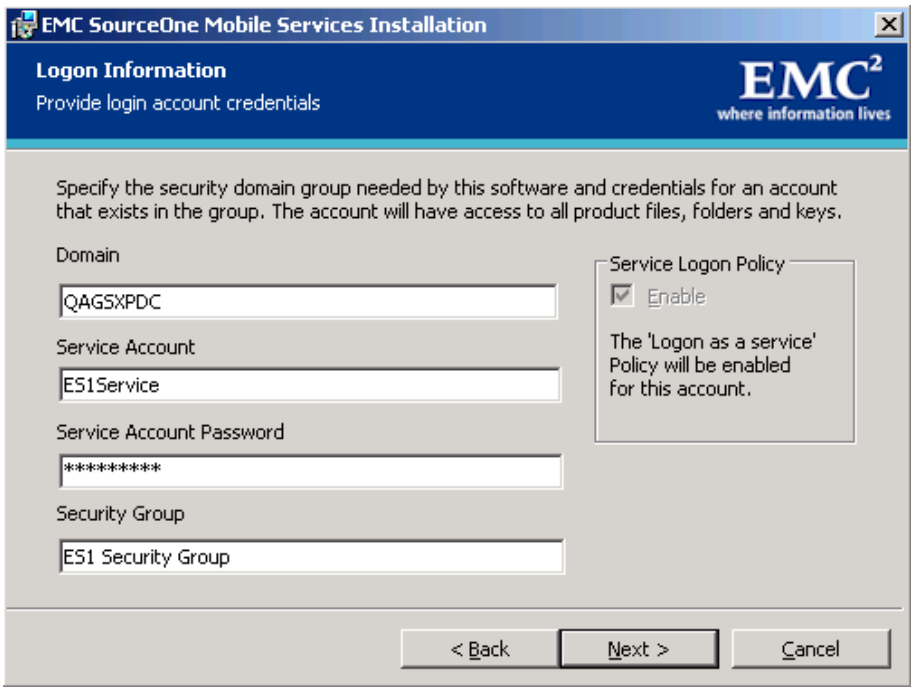
2. Double-click the `ES1_MobileSetup.exe` file and then click **Run**. The **Welcome** page appears.
3. Click **Next** to display the **Destination Folder** page.

Figure 54 Destination Folder page



4. Accept the default location and then click **Next** to display the **Logon Information** page.

Figure 55 Logon Information page



5. Specify the logon information:

   a. Type the **Domain**.

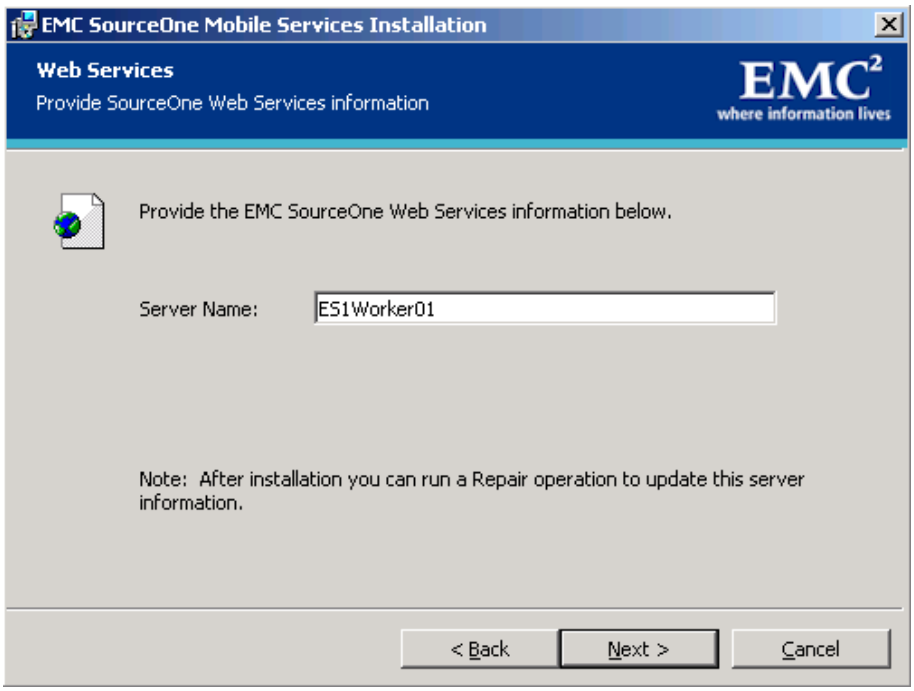
b. Type the **Username** and **Password**. This is the SourceOne primary service account username and password.

c. Type the **SourceOne Security Group**. The service account must be a member of this **Security Group**.

d. The **Enable** checkbox is already checked in the **Service Logon Policy** region. This setting is required to enable services to run without a logged in user.

6. Click **Next** to validate the credentials and display the **Web Services** page.

Figure 56 Web Services page



7. Specify the **Server Name** for the computer on which Web Services software is installed.

Note: If using load balancing such as Microsoft NLBS, type the virtual hostname. If using SSL, type the server name or alias to which the SSL certificate was issued.

8. Click **Next** to display the **Ready for Installation** page.
9. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
10. Click **Finish**.

Configuring IIS 7.5 role services (Windows Server 2008 R2 only)

For Windows 2008 R2, use Server Manager to configure the role services using the information in the following table.

Table 30 IIS 7.5 Role Services and SourceOne requirements

IIS Role Service	Required for SourceOne Mobile Services (ExShortcut)
Common HTTP Features	
Static Content	Required

Table 30 IIS 7.5 Role Services and SourceOne requirements (continued)

IIS Role Service	Required for SourceOne Mobile Services (ExShortcut)
Default Document	Required
HTTP Errors	Required
Application Development Features	
ASP.NET	Required
.NET Extensibility	Required (for ASP.NET)
ISAPI Extensions	Required (for ASP.NET)
ISAPI Filters	Required (for ASP.NET)
Security Features	
Basic Authentication	Required
Windows Authentication	Required (if using SSO)
Request Filtering	Required
Management Tools	
IIS Management Console	Required If using SSO, the IIS Management Console is required to perform the SSO configuration. A local instance is required if server is not remotely managed.
IIS Metabase Compatibility	Required

Configuring Single Sign-on (SSO)

For information on configuring SSO, refer to the following sections.

- Single Sign-on Support Example (Windows) on page 243.
- Single Sign-on Support Example (Domino) on page 255.

Note: You can wait until all SourceOne IIS sites (Web Services, Search, and Mobile Services) are installed before configuring SSO.

Installing Native Archive Services software

The following section describes how to install the Native Archive Services software on a host computer.

The table below provides an overview of the prerequisites you must complete before installing software.

Table 31 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are met.
Local disk space	If the Native Archive server is to be used for indexing, you must have a minimum amount of free disk space available to support local index processing.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is complete. • Database permissions are configured.

Copying the setup executable locally

Use the following procedure to copy the setup executable for the Native Archive Services software locally to the host computer.

Procedure

1. Log in to the host computer using the SourceOne installation account.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_ArchiveSetup.exe` file to a temporary location on the Native Archive services host computer.

Installing Native Archive Services software

The following section describes installing Native Archive Services software.

About this task

Note: For multiple Native Archive servers, Archive servers that share the same message center, archive, index, or unpack location must not share the same archive name because this action can result in data loss. However, archive servers can share folder names if they do not share the same storage location.

Use the following procedure to install the Native Archive Services software.

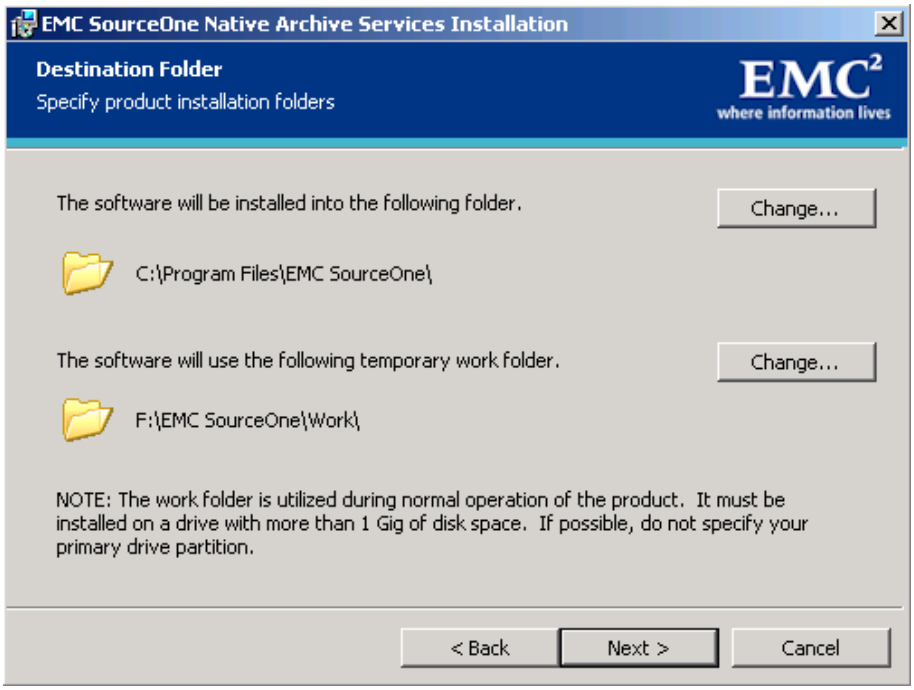
Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the `ES1_ArchiveSetup.exe` file and click **Run**. The **Welcome** page appears. The installer:
   - Validates the system configuration to ensure that prerequisite components are installed. Depending on the system configuration, the installer may automatically install one or more prerequisite components before displaying the **Welcome** page.
   - Inspects whether the Microsoft Windows East Asian Language Pack is installed. This language pack is required to support full-text indexing of East Asian content. If support is not installed, a warning message appears.
   - Inspects the local drives to determine if adequate space (20 GB) is available to support indexing:

- If this Native Archive server is to be used for indexing, you must have a minimum amount of free disk space available. Click **Yes** to cancel the setup and allocate the local space.
- If this server is *not* used for indexing, click **No** to ignore the warning and continue with the installation.

3. Click **Next** to display the **Destination Folder** page.

Figure 57 Destination Folder page

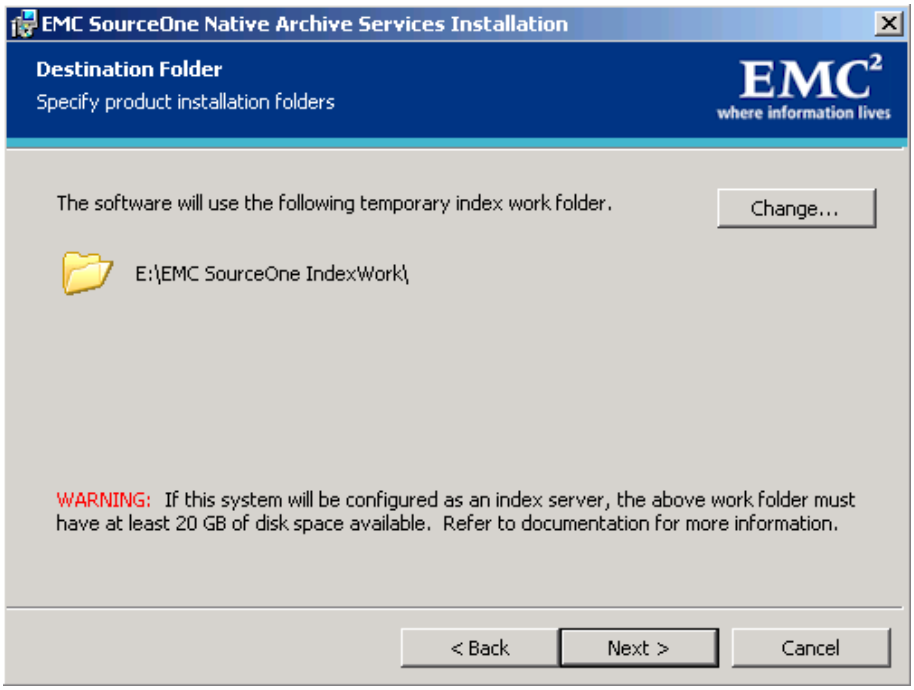


4. Specify the destination directories:
   a. The first destination determines where the primary Native Archive Services files are installed. Click **Change** to specify a different directory, or accept the default directory.

      Note: Select a drive other than the operating system drive.

   b. The second destination identifies the work directory, which is a temporary storage area for message processing. Specify a directory with at least 1 GB free space.
5. Click **Next** to display the **Destination Folder** page.

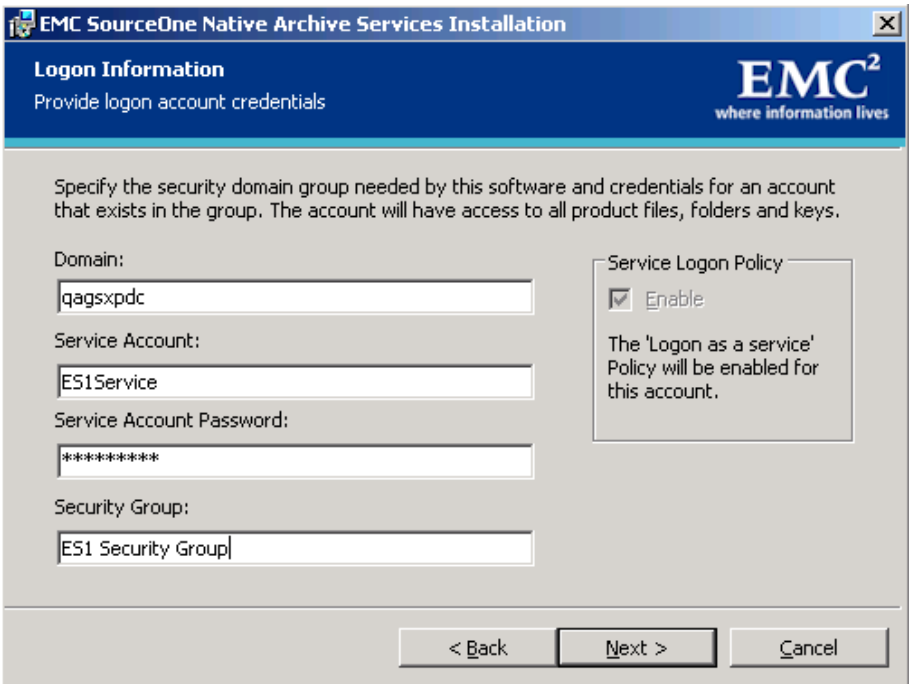
Figure 58 Destination Folder page



6. Specify a destination folder (Index Work directory) used to perform Native Archive indexing:
   - If this Native Archive server will not perform indexing, select a destination folder on a local drive (other than the operating system drive), ignore any warnings about insufficient disk space, and continue with the installation.
   - If this Native Archive server performs indexing, this location:
     - Must be regarded as a local drive by the operating system.
     - Cannot be the operating system drive, for example:
       C:
     - Can be on local disk or SAN storage, if it is regarded as a local drive by the Native Archive server. For best performance, use a dedicated physical disk.
     - Requires a minimum of 20 GB of free disk space be available if this Native Archive Server is to perform indexing.

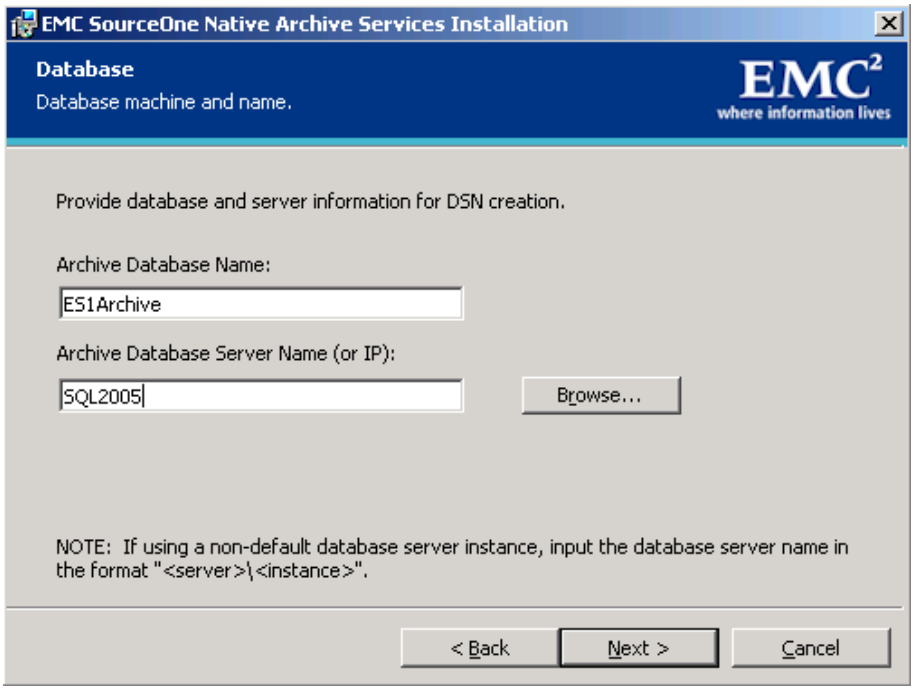
       Note: You can change the index work directory at any time after installation.
7. Click **Next** to display the **Logon Information** page.

Figure 59 Logon Information page



8. Specify the logon information:
   a. Type the **Domain**.
   b. Type the **Service Account** and **Service Account Password**. This is the SourceOne primary service account username and password.
   c. Type the SourceOne **Security Group**. The service account must be a member of this **Security Group**.
   d. The **Enable** checkbox is already checked in the **Service Logon Policy** region. This setting is required to enable services to run without a logged in user.
   e. Click **Next** to validate the credentials and display the **Database** page.

Figure 60 Database page



9. Specify the database information:
   a. Type the **Native Archive Database** name.
   b. Type the **Native Archive Database Server** hostname.
      - If you are using the default that is named instance, type the SQL Server name in the following format:
        `hostname`
      - If you are using a named instance, type the SQL Server name and instance in the following format:
        `hostname\instance`
10. Click **Next** to display the **Ready to Install the Program** page.
11. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
12. Click **Finish**.
13. A message appears indicating that you must restart the system. Click **Yes**.

Configuring firewall rules (Windows Server 2008 only)

If using Windows Server 2008, create inbound firewall rules using the following procedure.

Procedure

1. Create firewall inbound rules to allow connections to the following SourceOne services:
   - SourceOne Archive (`ExAsArchive.exe`)
   - SourceOne Query (`ExAsQuery.exe`)

     Refer to the following Microsoft article for details on configuring firewall rules using Windows Firewall with Advanced Security in Windows Server 2008:

     http://technet.microsoft.com/library/1378db20-de0d-476c-bc62-d6a0fda83984.aspx

2. Configure an inbound ICMP rule for ICMPv4.

   Refer to the following Microsoft article:

   http://technet.microsoft.com/en-us/library/cc972926(v=WS.10).aspx

3. Enable the firewall exception rule for Enable COM+ Network Access (DCOM-In).

   Refer to the following Microsoft article:

   http://technet.microsoft.com/en-us/library/cc774200(v=WS.10).aspx

Maintaining the installation

The following section provides information on maintaining the installation of components.

Removing a component

Perform the following steps to remove (uninstall) an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Using an account that is a member of the local Administrators group, access the Microsoft Windows Add or Remove Programs dialog box.
2. Select the component and click **Remove**.
3. Follow the prompts to remove the component.

Repairing a component

Repairing a component can fix missing or corrupt files, shortcuts, and Registry entries.

Microsoft Windows systems

Depending on the account you are logged in as, perform one of the following to repair an SourceOne product component that is installed on a Microsoft Windows system.

Local system administrator

If you are logged in as the local system administrator, use the following procedure to repair an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Access the **Microsoft Windows Program and Features** dialog box.
2. Select the component and then click **Change**.
3. Follow the prompts to repair the component.

Member of the local Administrators group

If you are logged in as a member of the local Administrators group, use the following procedure to repair an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Access the original setup executable for the SourceOne component.
2. Run the executable.
3. Follow the prompts to repair the component.

CHAPTER 7

Centralized Installation and Upgrading Method: SourceOne Components

This section contains the following topics:

About the Central Installation and Upgrade feature

Use the SourceOne Central Installation and Upgrade feature to centrally install Email Management, Discovery Manager, Microsoft SharePoint, and File Systems. You can also use this feature to upgrade to SourceOne product service packs and hotfixes.

The Central Installation and Upgrade feature relies on the SourceOne Management Agent. This agent performs the following functions:

- Centrally installs and upgrades SourceOne components.
- Monitors individual component file versions.
  Note: For more information, see Checking for file version mismatches on page 166.

Use the following procedures to centrally install and update SourceOne components:

- Deploying the agent software on page 147 describes how to install and deploy the Management Agent software.
- Installing the SourceOne software on new servers on page 148 describes how to use this new install feature for the first time.
- Upgrading the software by using the centralized method on page 156 describes how to upgrade the software.
- Monitoring the SourceOne installation or upgrade on page 162 describes how to use the SourceOne Upgrade Management Console to manage the installation and upgrade process or to review the system status.

Installing the SourceOne Management Agent

Use the following procedures to install and deploy the Management Agent (agent) software.

Creating a shared repository for the SourceOne installation files

Use the following procedure to create a shared repository for the SourceOne installation files. The agent software uses this folder to deploy the SourceOne software.

Procedure

1. Create a shared folder within the network that does not reside on a SourceOne server. The agent software accesses the shared folder to deploy the SourceOne software.

   For example:

   `\\fileserver\ES1Repository`

2. Create a folder for the software that you are about to install under the `ES1Repository` shared folder. The folder name must start with `ES1_`.

   For example:

   `\\fileserver\ES1Repository\ES1_7.2.2`

3. Ensure that the SourceOne Installation Account can read and write to all shared folders.

Downloading the agent software

Use the following procedure to download the agent software.

Procedure

1. Download the Email Management product software files from the Online Support site.
2. Unpack the software to an `ES1_x.x.x` shared folder.

   For example:

```
\\fileserver\ES1Repository\ES1_7.2.2
\Agent
\Database
\ElasticSearch
\Licenses
\Monitoring
\Reporting
\Utility
\Windows
```

   On the server hosting the repository share, the `<local drive>:\ES1Repository \ES1_x.x.x\Agent` folder is populated with the following files:

```
AgentDeploy.vbe
AgentList.xml
ES1ManagementAgent.exe
AgentDeploy.bat
PasswordEncrypter.exe
Init.vbs
InitPropertyList.xml
Undeploy.vbs
UpgradeManagementConsole.exe
```

Installing the Microsoft pstool software

To use the SourceOne agent software, first install the Microsoft pstool software.

Procedure

1. On the server hosting the repository share, download the pstool software from the Microsoft website:

   https://technet.microsoft.com/en-us/sysinternals/bb897553.aspx
2. Unzip the `pstools.zip` file.
3. Extract the `psexec.exe` file to the agent directory.

   For example:

   `<local drive>:\ES1Repository\ES1_7.2.2\Agent`

Configuring installation settings

To deploy the agent, modify the parameters in the `AgentList.xml` file with details that are specific to the environment configuration.

Use a text editor to edit the `AgentList.xml` file by adding the information from the following table.

For example:

`<local drive>:\ES1Repository\ES1_7.2.3\Agent`

Table 32 Properties for the AgentList.xml file

Tags	Description
InstallDir	SourceOne components installation directory path–For example, a typical path would be: • On 32-bit systems: `C:\Program Files\EMC SourceOne\` • On 64-bit systems: `C:\Program Files(x86)\EMC SourceOne\`
ForceOverwriteInstallDir	By default, the `ForceOverwriteInstallDir` is set to false. If the InstallDir value exists on the target machine, SourceOne will not overwrite the InstallDir. If the `ForceOverwriteInstallDir` is set to true, SourceOne will overwrite the InstallDir in the target machine's registry with the `AgentList.xml` file value.
UpgradeRepository	Shared Repository–This is the shared folder that you created to house the SourceOne installation files. This shared folder should be fully controlled by the installation account. For example: `\\fileserver\ES1Repository`
UpgradeWorkDirector	SourceOne Agent Working directory–The Agent software copies the installation files to this directory. This specified directory can be created for all SourceOne target servers.
ServiceAccount	Installation Account–The Agent software uses this account as its service running account.
Machine name	SourceOne Servers.

Example `AgentList.xml` file

The following section provides an example of the `AgentList.xml` file.

```
<?xml version="1.0" encoding="utf-8"?>
<EMCSourceOne>
 <Agent>
    <InstallDir>C:\Program Files\EMC SourceOne\</InstallDir>
    <UpgradeRepository>\\fileServer\ES1Repository</UpgradeRepository>
    <UpgradeWorkDirectory>D:\S1AgentWorking</UpgradeWorkDirectory>
    <ServiceAccount>domainx\es1install</ServiceAccount>
    <ForceOverwriteInstallDir>false</ForceOverwriteInstallDir>
 </Agent>
 <List>
    <Machine name="es1master"/>
```

```
    <Machine name="es1worker01"/>
    <Machine name="es1worker02"/>
    <Machine name="es1webapp"/>
    <Machine name="es1na01"/>
    <Machine name="es1na02"/>
 </List>
</EMCSourceOne>
```

Deploying the agent software

Use the following procedures to deploy the agent software centrally or locally on each target server within an SourceOne environment.

Deploying the agent centrally

Use the following procedure to deploy the agent centrally.

Procedure

1. Log in to the host computer on the network by using an account that has full control of all SourceOne servers. For example, sign in as the domain administrator.
2. From the command line, browse to the following location where you downloaded the agent software.

   For example:

   ```
   <local drive>:\ES1Repository\ES1_7.2.2\Agent
   ```

3. Run the following script to deploy the agent software:

   ```
   AgentDeploy.bat
   ```

4. At the prompt, specify the following information to install the agent software to the target SourceOne servers.

   The following table lists the available tags with descriptions.

Table 33 AgentDeploy.bat script

Tags	Description
SourceOne Installation Account password	The password for the SourceOne Installation Account.
SourceOne Primary Service Account password	The password for the SourceOne Primary Service Account.
SourceOne Lotus Notes Account password (optional)	The password that is used to log into Lotus Notes.

Deploying the agent locally

Use the following procedure to deploy the agent locally. Perform the following steps on all target servers.

Procedure

1. On the server hosting the repository share, from the command line, browse to the location where you downloaded the agent software.

   For example:

   ```
   <local drive>:\ES1Repository\ES1_7.2.2\Agent
   ```

2. Run the following command:

   ```
   ES1ManagementAgent.exe
   ```

3. In response to the prompts:

   a. Specify the target path.

   b. Unpack the agent files.

4. Browse to the target path and then run the following script:

   ```
   ES1Agent.bat
   ```

5. At the prompt, specify the following information to install the agent software to the target SourceOne servers.

   This table lists the available tags with descriptions.

Table 34 ES1Agent.bat script

Tags	Description
SourceOne Installation Account password	The password for the SourceOne Installation Account.
SourceOne Primary Service Account password	The password for the SourceOne Primary Service Account.
SourceOne Lotus Notes Account password (optional)	The password that is used to log into Lotus Notes.
SourceOne Installation Account	Installation Account. The Agent software uses this account as its service running account.
SourceOne Management Agent Upgrade Repository	Shared Repository. This is the shared folder that you created to house the SourceOne installation files. This shared folder should be fully controlled by the installation account. For example: `\\fileserver\ES1Repository`
SourceOne Management Agent Upgrade Work Repository	The agent software copies the installation files to this directory on all SourceOne servers.

Installing the SourceOne software on new servers

Use the following procedure to centrally install SourceOne components including Email Management, Discover Manager, Microsoft SharePoint, and File Systems.

Each section is presented in the order in which the software is to be installed and configured. Some installed components are dependent on the previously installed components.

Completing the pre-installation checklist

Before beginning the installation procedures detailed in this section, ensure that the items in the following checklist are completed.

Table 35 Pre-installation checklist

Activity	Description
Review the product overview information	Review the product overview information and understand the features and options.
Understand the system architecture	Review the components which comprise the SourceOne system.
Complete analysis activities	Compile and analyze the organization's requirements, metrics and processes.
Complete configuration planning activities	Size the environment and adjust variable components of the configuration to support it.
Configure accounts and permissions	Establish the accounts and permissions required to support SourceOne.
Establish required hardware and network infrastructure	Ensure that the appropriate hardware is available for installation and connected to the network.

Installing and deploying the SourceOne Agent software

If not previously installed, install and deploy the agent software. Deploying the agent software on page 147 provides details.

Updating the SourceOne account information

Perform the following steps to update the InitPropertyList.xml file with the SourceOne account information. You can modify the parameter in this file to customize the installation or upgrade operation.

Procedure

1. From the command line, browse to the local directory that you used to download the agent software.

   For example:

   ```
   <local drive>:\ES1Repository\ES1_7.2.2\Agent
   ```

2. Use a text editor to edit the `InitPropertyList.xml` file by adding the SourceOne account information and by modifying the parameters detailed in the following table.

   This table lists the available tags with descriptions.

Table 36 InitPropertyList.xml file

Tags	Description
Machine name= Role=	SourceOne server name and corresponding roles. Sever roles are separated by a comma. For example: `<Machine name=ES1Master" Role= "Master, Console"/>` The following roles are supported: • Console: Console application • Archive: Native Archive services software • Master: Master services software • Search: Search application • Worker: Worker services software • WebServices: Web Services software • Mobile: Mobile services software • DiscoveryManagerServer: SourceOne Discovery Manager software • DiscoveryManagerExpressServer: SourceOne Discovery Manager Express edition software • FileArchiveBCE: SourceOne for File Systems software • SharePointBCE: SourceOne for SharePoint software • DiscoveryManagerWeb: SourceOne Discovery Manager Web application software
WorkDir	SourceOne worker directory temporary path. For example, a local path such as: `<local drive>:\SourceOneWorkDir`
IndexWorkDir	SourceOne index work server temporary path. For example, a local path such as: `<local drive>:\SourceOneIndexWork`
JobLogDir	SourceOne job log directory path for the worker. For example, a shared folder such as: `\\fileserver\S1joblogdir`
Domain	Customer domain for SourceOne primary accounts and groups
Account	SourceOne primary account

Table 36 InitPropertyList.xml file (continued)

Tags	Description
Group	SourceOne security group
AdminGroup	SourceOne admin group
ActivityServer	Activity database server name
ArchiveServer	Archive database server name
SearchServer	Search database server name
DiscoServer	Discovery Manager database server name
ActivityDB	Activity database name. The default is Es1Activity.
ArchiveDB	Archive database name. The default is Es1Archive.
SearchDB	Search database name. The default is Es1Search.
DiscoDB	Discovery Manager database name. The default is Discovery Manager.
NetTcpServer	SourceOne web service server name
NetUseSSL	Use SSL to communicate with the web service server
DMServer	Discovery Manager server name
RequireSSL	Use SSL to communicate with the web service server from the Discovery Manager server side
WorkingFolder	Temporary working folder for SharePoint. For example, a shared folder such as: `\\fileserver\S1spworkingdir`
ExchangeEnabled	Allows SourceOne to work with Microsoft Exchange
DominoEnabled	Allows SourceOne to work with Lotus Domino
Office365Enabled	Allows SourceOne to work with Microsoft Office 365
EmailManagementLanguage	Email Management language
DiscoveryManagerServerLanguage	Discovery Manager language
SharePointBCELanguage	SharePoint BCE language
FileArchiveBCELanguage	File BCE language

Example InitPropertyList.xml file

Below is an example of the `InitPropertyList.xml` file.

```
<?xml version="1.0" encoding="utf-8"?>
<EMCSourceOne>
<AgentList>s
<Machine name="ES1Master" Role="Master,Console"/>
<Machine name="ES1WebApp" Role="Search,Mobile,DiscoveryManagerWeb"/>
<Machine name="ES1Worker01" Role="WebServices,Worker"/>
<Machine name="ES1Worker02" Role="Worker"/>
<Machine name="ES1Worker03" Role="Worker"/>
<Machine name="ES1Worker04" Role="Worker, DiscoveryMgrServer"/>
<Machine name="ES1Archive01" Role="Archive"/>
<Machine name="ES1Archive02" Role="Archive"/>
<Machine name="ES1Archive03" Role="Archive"/>
<Machine name="ES1Archive04" Role="Archive"/>
/AgentList>
<Parameters>
    <Directory>
        <WorkDir>F:\EMC SourceOne Work\</WorkDir>
        <IndexWorkDir>F:\EMC SourceOne Index\</IndexWorkDir>
        <JobLogDir>\\FileServer\S1JobLogs</JobLogDir>
    </Directory>
    <ServiceAccount>
        <Domain>domainx</Domain>
        <Account>es1service</Account>
        <Group>s1 security group</Group>
        <AdminGroup>s1 admin group</AdminGroup>
    </ServiceAccount>
    <Database>
        <ActivityServer>ES1ActDB</ActivityServer>
        <ArchiveServer>ES1ArchDB</ArchiveServer>
        <SearchServer>ES1SrchDB</SearchServer>
        <DiscoServer>ES1DMDB</DiscoServer>
        <ActivityDB>ES1Activity</ActivityDB>
        <ArchiveDB>ES1Archive</ArchiveDB>
        <SearchDB>ES1Search</SearchDB>
        <DiscoDB>DiscoveryManager</DiscoDB>
    </Database>
    <WebService>
        <NetTcpServer>ES1Worker01</NetTcpServer>
        <NetUseSSL>0</NetUseSSL>
    </WebService>
    <DMWeb>
        <DMServer>ES1Worker04</DMServer>
        <RequireSSL>false</RequireSSL>
    <DMWeb>
    <SharePoint>
        <WorkingFolder>\\FileServer\sharepoint_workingfolder
        </WorkingFolder>
    </SharePoint>
<InstallEnvironment>
        <ExchangeEnabled>false</ExchangeEnabled>
        <DominoEnabled>false</DominoEnabled>
        <Office365Enabled>false</Office365Enabled>
    </InstallEnvironment>
    <LanguagePack>
        <EmailManagementLanguage>EN</EmailManagementLanguage>
        <DiscoveryManagerServerLanguage>EN</DiscoveryManagerServerLanguage>
        <SharePointBCELanguage>EN</SharePointBCELanguage>
        <FileArchiveBCELanguage>EN</FileArchiveBCELanguage>
    </LanguagePack>
</Parameters>
</EMCSourceOne>
```

Initializing the installation

Use the following procedure to run the `cscript Init.vbs` script to initialize the installation.

Procedure

1. Log in to the host computer on the network by using an account that has full control of all SourceOne servers. For example, sign in as the domain administrator.
2. On the server hosting the repository share, from the command line, browse to the local directory that you used to download the agent software.

   For example:

   `<local drive>:\ES1Repository\ES1_7.2.2\Agent`

3. Run the following script from the local directory:

   `cscript Init.vbs`

Deploying IPM or several native archive databases with their corresponding servers

Use the following procedure to deploy IPM, or several native archive databases with their corresponding servers.

Procedure

1. Log in to the repository share host computer on the network by using an account that has full control of all SourceOne servers. For example, sign in as the domain administrator.
2. From the command line, browse to the local directory that you used to download the agent software.

   For example:

   `<local drive>:\ES1Repository\ES1_7.2.2\Agent`

3. Use a text editor to edit the `InitPropertyList.xml` file and specify the following:
   - The new servers.
   - The Master role of the existing Master server.

     For example:

     ```
     <Machine name=ES1Master” Role= “Master, Console”/>
     ```

4. Run the `script Init.vbs` script from the local directory, once for:
   - The SourceOne native archive database and its corresponding servers.
   - The IPM database and its corresponding servers.

Scaling out SourceOne products to more servers

Use the following procedure to scale out SourceOne products to more servers.

Procedure

1. Log in to the host computer on the network by using an account that has full control of all SourceOne servers. For example, sign in as the domain administrator.
2. From the command line, browse to the local directory that you used to download the agent software.

   For example:

```
<local drive>:\ES1Repository\ES1_7.2.2\Agent
```

3. Use a text editor to edit the `InitPropertyList.xml` file and specify the following:
   - The new servers.
   - The Master role of the existing Master server.

     For example:

     ```
     <Machine name=ES1Master" Role= "Master, Console"/>
     ```

4. Run the `script Init.vbs` script from the local directory.

Installing the SourceOne software to the shared repository

After the installation files are copied to the installation folder, the agent automatically installs the software across the SourceOne environment.

Procedure

1. Ensure that you have downloaded the SourceOne product software files from the Support site to a local directory.
2. Copy the SourceOne product installation files to the product specific subfolder of the shared folder that you previously created as a repository for the SourceOne product software. This shared folder was created when you installed the SourceOne agent software.

   For example:

   `\\fileserver\ES1Repository\ES1_7.2.3`

   The SourceOne agent software accesses the shared repository to centrally deploy the SourceOne software.

3. Ensure that you have downloaded the SourceOne product software files from the Support site to a local directory.

   Depending on the installation, you may need to download several SourceOne installation packages. For example:

   - For SourceOne Email Management, download the Email Management files along with any language packs.
   - For SourceOne Discovery Manager:
     a. Ensure that the Microsoft .NET Framework Redistributable package has been manually or silently installed onto all the client computers. For more information, refer to KB2836939 which is available on the Microsoft Support website.
     b. Ensure that a supported version of ASP.NET software is installed. The *SourceOne Products Compatibility Guide* includes information about the supported versions of ASP.NET that are compatible with SourceOne. For more information, refer to KB2600088 which is available on the Microsoft Support website.

        SourceOne uses several Microsoft Internet Information Services (IIS) websites to support product functionality. Register ASP.NET with IIS for all SourceOne websites.
     c. Download the Email Management files and the Discovery Manager packages along with any language packs.
   - For SourceOne for File Systems, download the Email Management files and the File Systems packages along with any language packs.
   - For Microsoft SharePoint, download the SharePoint packages along with any language packs.

4. From the SourceOne product subfolder, perform the following steps:

   a. Browse to the SourceOne directory.

   The shared folder is populated with the configuration and setup files. For example:

```
\\fileserver\ES1Repository\ES1_7.2.3
\Agent
\Database
\Elasticsearch
\Licenses
\Monitoring
\Reporting
\Utility
\Windows
\Configuration_install.xml
\Configuration_upgrade.xml
\Configuration.properties
\MSICode.txt
```

   b. Copy the `configuration_install.xml` file and then rename the file to `configuration.xml`.

   This step is also required when scaling out to more servers, additional native archive connections, or IPM.

   c. Run the executable program.

   For example, to install Email Management:

   `ES1_EM_7.2.3.1234.exe`

Starting the centralized SourceOne software installation process

Use the following procedure to modify the parameters in the configuration.properties file to start and customize the installation.

Procedure

1. Open the command line and browse to the configuration.properties file.

   For example:

   `\\fileserver\ES1Repository\ES1_7.2.2`

2. Use a text editor to edit the configuration.properties file by adding the information from the following table.

   Note: To immediately start the installation, in the **StartTime** field specify a time that has already past. For example, specify a start time that is ten minutes past the current time.

   The following table lists the available tags with descriptions.

Table 37 Properties for the configure.properties file

Tags	Description
StartTime	Start time of the upgrade/install operation. **Note:** To immediately start the installation, in the **StartTime** field specify a time that has already past. For example,

Table 37 Properties for the configure.properties file (continued)

Tags	Description
	specify a start time that is ten minutes past the current time.
RetryFailedTask	Automatically retry a failed task. Turn this option off, to not retry a failed task.
RetryTimes	Retry times.
RetryIntervalMs	Retry interval time in milliseconds.
RestartPromptSeconds	Restart server prompt in seconds.
TaskTimeoutMinutes	Upgrade task timeout in minutes.
StartStopServiceTimeoutMinutes	Start/stop services timeout in minutes.
RestartPromptMessage	Prompt message for restart server.
WaitForUpgradeDB	Turn this option off for all installation tasks.
WaitForBackup	Turn this option off if this is a partial installation or new installation.
WaitForSuspendIPMMigration	Generates a hook task to stop IPM migration. Turn this option off because this is a new installation.
WaitForPostActions	Generates a hook task for post configuration options. Turn this option off if post actions are not required. **Note:** You can use this option to wait to install and upgrade OWA and IBM Lotus Notes extensions.
WaitForResumeIPMMigration	Generates a hook task to resume IPM migration. Turn this option off because this is a new installation.

To monitor the installation or upgrade, see Monitoring the SourceOne installation or upgrade on page 162.

Upgrading the software by using the centralized method

Use the following procedure to centrally update SourceOne components and hotfixes from a previously installed release. The SourceOne components include Email Management, Discover Manager, Microsoft SharePoint, and File Systems.

Each section is presented in the order in which the software is to be installed and configured. Some installed components are dependent on previously installed components.

Note: The following procedure assumes that the centralized installation method was previously used to install the SourceOne components.

Completing the pre-installation checklist

Before beginning the installation procedures detailed in this section, ensure that the items in the following checklist are completed.

Table 38 Pre-installation checklist

Activity	Description
Review the product overview information	Review the product overview information and understand the features and options. See Product overview on page 14 and the *SourceOne Email Management Administration Guide*.
Understand the system architecture	Review the components which comprise SourceOne system. See System architecture on page 18 and System components on page 18.
Complete analysis activities	Compile and analyze the organization's requirements, metrics, and processes. See Pre-deployment planning on page 24.
Complete configuration planning activities	Size the environment and adjust variable components of the configuration to support it. See System architecture on page 18 and Example configurations on page 25.
Configure accounts and permissions	Establish the accounts and permissions required to support SourceOne. See Pre-installation on page 33.
Establish required hardware and network infrastructure	Ensure that hardware is available for installation and connected to the network. Hardware specifications, operating system, and network connectivity, and software prerequisites are detailed in Pre-installation on page 33.
For SourceOne Discovery Manager, ensure that the installation account has the necessary role and privileges.	Ensure that the installation account has the Backup Operator role. Refer to the *SourceOne Discovery Manager Desktop User Guide* or the *SourceOne Discovery Manager Web Application User Guide* for information about assigning Discovery Manager roles to accounts. Ensure that the account has privileges to start and stop services. The privileges are necessary because the scripts use the WindowsSC command to start and stop services.

Installing and deploying the SourceOne agent software

If not previously installed, install and deploy the agent software.

Installing the SourceOne software to the shared repository

After the installation files have been copied to the installation folder, the agent automatically installs the software across the SourceOne environment.

About this task

Perform the following steps to upgrade to the latest version of the SourceOne software.

Procedure

1. Log in to the host computer on the network by using the SourceOne installation account.
2. Ensure that you have downloaded the SourceOne product software files from the Support site to a local directory.

   Depending on the installation, you may need to download several SourceOne installation packages. For example:

   - For SourceOne Email Management, download the Email Management files along with any language packs.
   - For SourceOne Discovery Manager:
     a. Ensure that the Microsoft .NET Framework Redistributable package has been manually or silently installed onto all of the client computers. For more information, refer to KB2836939 which is available on the Microsoft Support website.
     b. Ensure that a supported version of ASP.NET is installed. The *SourceOne Products Compatibility Guide* includes information about the versions of ASP.NET that are compatible with SourceOne. For more information, refer to KB2600088 which is available on the Microsoft Support website.

        SourceOne uses several Microsoft Internet Information Services (IIS) websites to support product functionality. Register ASP.NET with IIS for all SourceOne websites.
     c. Download the Email Management files and the Discovery Manager packages along with any language packs.
   - For SourceOne for File Systems, download the Email Management files and the File Systems packages along with any language packs.
   - For Microsoft SharePoint, download the SharePoint packages along with any language packs.
3. Access the shared folder that you previously created as a repository for the SourceOne product software. This shared folder was created when you installed the SourceOne agent software.

   For example:

   ```
   \\filesever\ES1Repository
   ```

4. Within the SourceOne product repository, create subfolders for the latest SourceOne product software.

   The following are examples:

   - `\\fileserver\ES1Repository\ES1_7.2.3`
   - `\\fileserver\ES1Repository\ES1_7.2.3hotfix1234`

5. Copy the SourceOne product installation files to the sub folder you just created. The SourceOne agent software accesses the shared repository to centrally deploy the SourceOne software.
6. From the SourceOne product subfolder, perform the following steps:
   a. Browse to the SourceOne directory.

      The shared folder is populated with the configuration and setup files. For example:

      ```
      \\Fileserver\ES1Repository\ES1_7.2.3
      \Configuration_install.xml
      \Configuration_upgrade.xml
      \Configuration.properties
      \MSICode.txt
      \Windows\
      ```

   b. Copy the `configuration_upgrade.xml` file and then rename the file to `configuration.xml`.

      This step is also required when scaling out to more servers, additional native archive connections, or IPM.

   c. Run the executable programs. For example:

      `ES1_EM_7.2.3.1234.exe`

      `ES1_DM_7.2.3.1234.exe`

      `ES1_FA_7.2.2.1234.exe`

      `ES1_SP_7.2.3.1234.exe`

Starting the centralized SourceOne software installation or upgrade process

Use the following procedure to modify the parameters in the `configuration.properties` file to start and customize the installation. The install begins after the StartTime that you specified in the `configuration.properties` file passes.

Procedure

1. Open the command line and browse to the `configuration.properties` file.

   For example:

   `\\Fileserver\ES1Repository\ES1_7.2.2`

2. Use a text editor to edit the `configuration.properties` file.

   The following table includes Information about the tags that appear in the `configuration.properties` file.

Table 39 Tags in the configure.properties file

Tags	Description
StartTime	Start time of the upgrade/install operation. **Note:** To immediately start the installation, in the **StartTime** field specify a time that has already past. For example,

Table 39 Tags in the configure.properties file (continued)

Tags	Description
	specify a start time that is ten minutes past the current time.
RetryFailedTask	Automatically retry a failed task. Turn this option off to not retry a failed task.
RetryTimes	Retry times
RetryIntervalMs	Retry interval time in milliseconds
RestartPromptSeconds	Restart server prompt in seconds
TaskTimeoutMinutes	Upgrade task timeout in minutes
StartStopServiceTimeoutMinutes	Start/stop services timeout in minutes
RestartPromptMessage	Prompt message for restart server
WaitForUpgradeDB	Generate a hook task to upgrade the database. Turn this option off if the database has been manually upgraded before the designated start time.
WaitForBackup	Generates a hook task for the backup. Turn this option off if the backup was manually started before the designated start time.
WaitForSuspendIPMMigration	Generates a hook task to stop IPM migration. Turn this option off, under the following conditions: • If the IPM software was not installed. • If the IPM migration was suspended before the designated start time.
WaitForPostActions	Generates a hook task to upgrade the database. Turn this option off if post actions are not required. **Note:** You can use this option to install OWA and IBM Lotus Notes extensions.

To monitor the installation or upgrade, see Monitoring the SourceOne installation or upgrade on page 162.

Completing the upgrade

Upgrading the SourceOne software by using the SourceOne Central Installation and Upgrade feature requires that some of the upgrading steps be performed manually.

About this task

During the upgrade, you can use the SourceOne Upgrade Management Console to monitor the progress of the upgrade and then to start and stop some upgrade operations.

Perform the following steps to complete the upgrade.

Procedure

1. Start the **SourceOne Upgrade Management Console**.
2. Review the status of the SourceOne upgrade instances for the **Waiting for Manual Execution** tag. This tag indicates that a task must be manually run and completed.
3. For each upgrade instance that has been marked with **Waiting for Manual Execution**, perform the following actions:
   a. Manually perform the stated task. For example, run a backup or upgrade the database.
   b. When the task has been completed, use the **SourceOne Upgrade Management Console** to mark the **Waiting for Manual Execution** instance as **Completed**.
   c. Complete the above steps for each task marked with the **Waiting for Manual Execution** tag until all tasks have been manually performs and all the entries have been marked as **Completed** in the **SourceOne Upgrade Management Console**.
4. For each upgrade instance that has been marked with **Failed**, perform the following actions. **Failed** indicates that the task failed and manual intervention is required:
   a. Review the logs to determine the root cause of the failed task.
   b. Manually fix the issue.
   c. Click **Rerun** to verify that the status has moved from either **Failed**, **Not Started**, **Waiting**, **Running**, to **Completed**.
5. Optional, if the *WaitForPostActions* variable was previously enabled in the `configuration.properties` file, perform the following:
   a. Ensure that all components have been upgraded and all post configuration options have been deployed. Post configurations can include the installation or upgrade of SSO or `web.config`.
   b. Mark the **postaction** task as completed in the **SourceOne Upgrade Management Console**.

   This action restarts the servers and applies the new version of the SourceOne software to the SourceOne server.
6. In the **Reports** tab, click **File Version Mismatch Report**. Ensure that the **File Version Mismatch Report** does not contain any records.

Monitoring the SourceOne installation or upgrade

You can use the SourceOne Upgrade Management Console to manage the installation, upgrade, and system status.

Reviewing the status of the upgrade

Click the **Upgrades** tab and perform the following steps to check the status of the upgrade process.

Procedure

1. On the left pane, review the SourceOne upgrade instances.

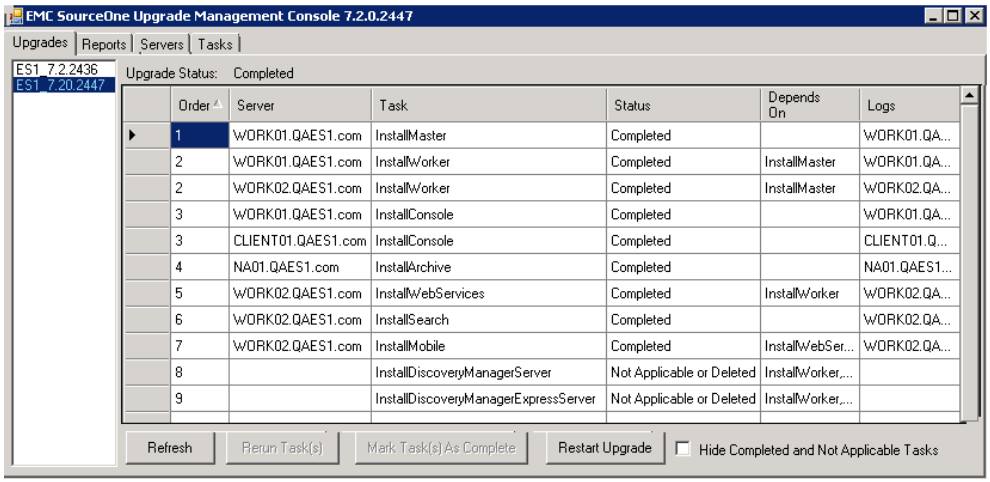
   The color of the SourceOne upgrade item indicates its status:

   - **Red** indicates that the upgrade is invalid.
   - **Blue** indicates that the upgrade is complete.
   - **Black** indicates a running, not started, or expired status.

2. On the left pane, click a SourceOne upgrade instance. The upgrade task results appear in the right panel.
   - The color of the SourceOne upgrade task, and the text in the Status column, indicate the status of the task:
     - **Red** indicates that the task has failed.
     - **Blue** indicates that the task must be run manually. For example, run a backup or upgrade the database.
   - The text in the Status column indicates the status of the task:
     - **Completed** indicates that the task has successfully completed.
     - **Failed** indicates that the task failed and manual intervention is required. Review the logs for more information. After fixing a failed task, click **Rerun** to check that the status has moved from **Failed** to **Completed**.
       If the **UpgradeManagementConsole** task failed:
       a. Rerun the task.
       b. Close all of the opened `Upgrade Management Consoles ASAP`.
     - **Waiting for Manual Execution** indicates that the task must be run manually. For example, run a backup or upgrade the database.
     - **Not Started** indicates that the task did not start.
     - **Running** indicates that the task has started but it has not yet completed.
     - **Not Applicable** or **Deleted** indicates that the task is not applicable or manually deleted from repository for this install or upgrade procedure.
3. Review the status of the upgrade:
   - To review details for a task:
     a. Select a task.
     b. Double-click the **Logs** cell that corresponds to the task. The **Logs** window appears.
     c. Open the log file to review the error details:
     - Click **Open** to open the log with a system defined program.

  - Click **Open With...**, to select a program to open the log.
- To check the latest status of a task, click **Refresh**.
- To rerun a failed task, click **Rerun Tasks**.
- To change the status of tasks that are marked as **Waiting for Manual Execution**, perform the stated task and once you have determined that the task was successfully completed, click **Complete**.
- To hide completed tasks and not applicable tasks, check the **Hide Completed Tasks and Not Applicable Tasks** checkbox.
- To restart the upgrade, click **Restart Upgrade**.

Figure 61 Upgrade tab



Reviewing the status of the SourceOne server

You can review the status of the SourceOne server by reviewing the Servers tab or by generating a Server report.

Servers tab

Click the **Servers** tab to check the status of a SourceOne Server during the upgrade. The Servers tab lists SourceOne servers, installed components, versions, properties, and files.

About this task

Use the following procedure to check the status of a SourceOne server.

Procedure

1. On the left pane, review the SourceOne server instances. The color of the SourceOne server item indicates its status:
   - The color **Black** indicates that the server is active.
   - The color **Red** indicates that the server or the server's ES1Agent service has been inactive for three days or longer.

   If the server does not exist in the network and will not be added back to the network in the future, perform either of the following tasks:

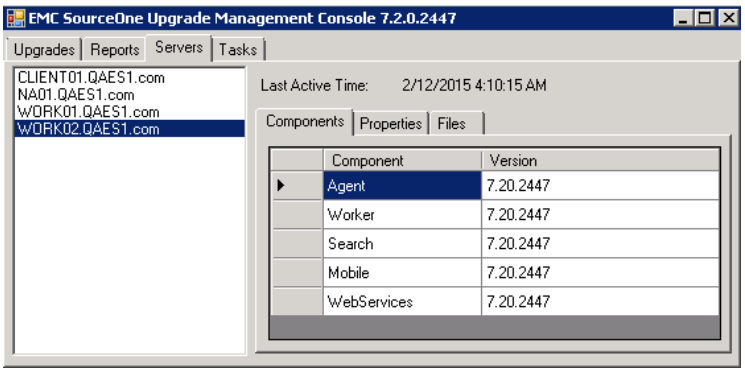
   - Delete the server flag file. For example:
     `\\fileserver\ES1Repository\ES1_7.2.2\Servers\Es1worker25.company.com.agent`

- Delete all files under the following directory:
  `\\fileserver\ES1Repository\ES1_7.2.2\Servers`

The SourceOne Agent software regenerates all server flag files for each active server.

2. To check the status of the SourceOne server:
   a. Select a server instance. The **Last Active Time** appears at the top of the right panel.
   b. Select a folder:
      - The **Components** tab lists the installed components and their corresponding versions.
      - The **Properties** tab lists the name of the major properties and their corresponding value.
      - The **Files** tab lists the binary files and their corresponding path and version.

Figure 62 Servers tab



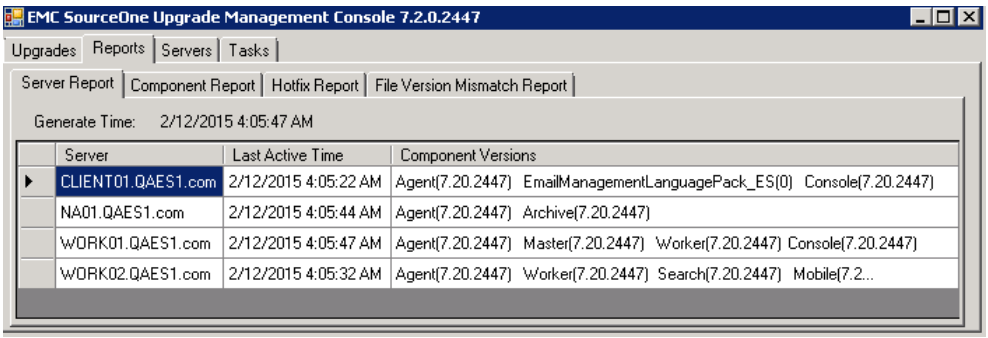
Server report

Select **Reports** > **Server** to review the list of all the SourceOne servers with their installed SourceOne components and versions.

The Server Report provides the following information:

- The **Server** column lists all of the SourceOne servers.
- The **Last Active Time** column lists the last time that the specified SourceOne server performed an install or upgrade process.
- The **Component Versions** column lists all of the installed SourceOne components and versions for the server. For example: Agent, Worker, Mobile, Search, Email Management, and Discovery Manager.
  To view a detailed list of the components and version, double-click **Component Versions**. The **Detail List** window appears.

Figure 63 Servers Report



Reviewing the list of installed components

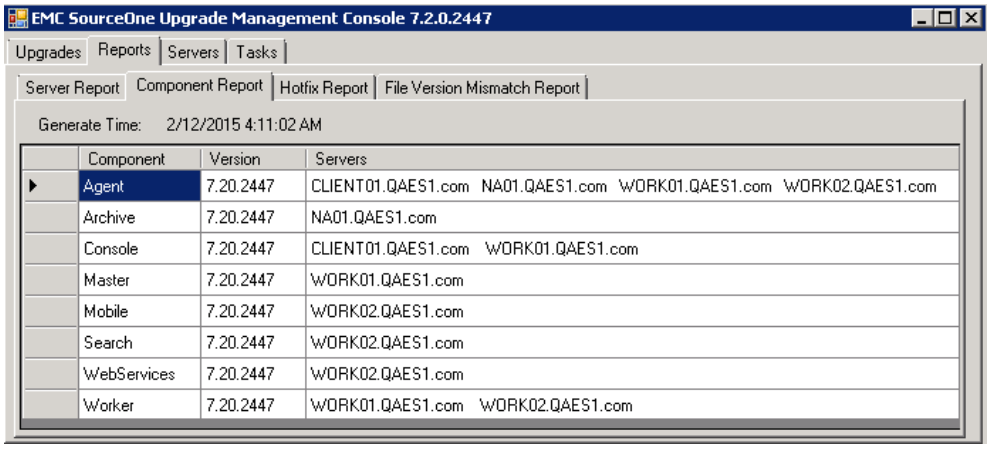
Select **Reports** > **Component** to review the list of installed SourceOne components with corresponding versions for each SourceOne server.

The Component Report provides the following information:

- The **Component** column lists the installed SourceOne components.
- The **Version** column lists the installed version for the corresponding component in the same row.

  Note: If a component lists several rows with different versions and the upgrade or installation procedures fails, update the SourceOne software to the latest version on the affected lower version servers. If the versioning is not corrected, the agent software stops all SourceOne services on that particular server.
- The **Servers** column lists the servers installed for the corresponding component in the same row.
  To view a detailed list of the components and versions on the server, double-click **Servers**. The **Detail List** window appears.

Figure 64 Component Report



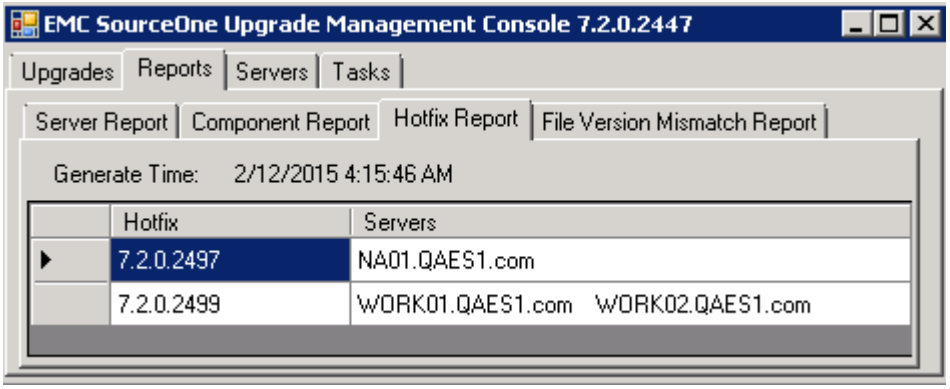
Reviewing the list of installed hotfixes

Select **Reports** > **Hotfixes** to review the list of installed SourceOne hotfixes for each SourceOne server.

The Hotfix Report provides the following information:

- The **Hotfix** column lists the installed version of the hotfix.
- The **Servers** column lists the servers installed for the corresponding hotfix version in the same row.
  To view a detailed list of the components and versions on the server, double-click **Servers**. The **Detail List** window appears.

Figure 65 Hotfixes Report



Checking for file version mismatches

Select **Reports** > **File Version Mismatch Report** to determine if a file version mismatch occurred between versions of the SourceOne server software.

About this task

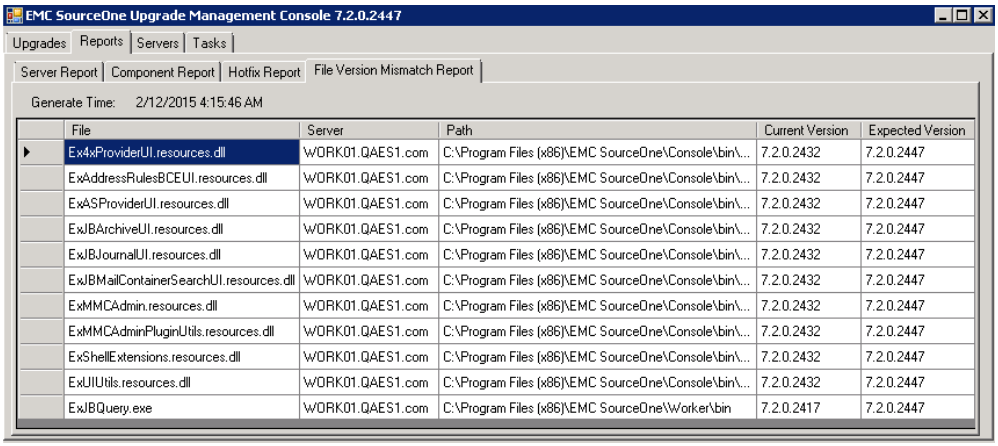
Note:
If a File Version Mismatch Report generates, it must be addressed immediately. Failing to resolve the mismatch causes the SourceOne Management Agent to stop all SourceOne services on the servers that are listed in the report.

For example, if a hotfix is applied on Worker Server A but not on Worker Server B, the SourceOne Management Agent detects a file version mismatch between the servers. As a result, the SourceOne services on Worker Server B are shut down because it has the lower file version.

The File Version Mismatch Report provides the following information:

- The **File** column lists the name of the file that has been installed with different versions within the SourceOne environment.
- The **Server** column lists the server installed with the corresponding file in the same row. The server has a lower version file.
- The **Path** column lists the location of the corresponding file in the same row.
- The **Current Version** column lists the current version of the installed file in the same row. The version of the file should be upgraded to the version listed in the **Expected Version** column.
- The **Expected Version** column lists the installed version of the installed file in the same row.

Figure 66 File Version Mismatch Report



To monitor tasks on mismatched server versions, perform the following steps.

Procedure

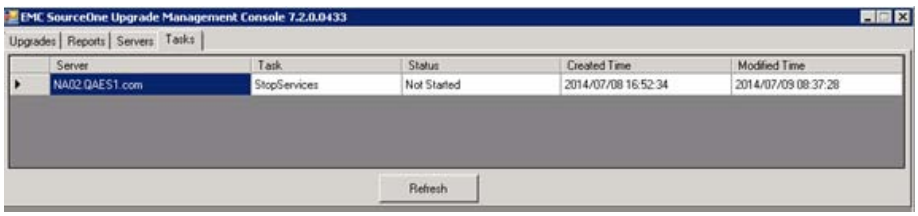
1. Select the **Tasks** tab from the main menu.
2. Review the task listed in the **Tasks** column.

   Note: A StopServices operation is performed on the server with the file mismatches.

3. Click the text in the **Status** column to review the status. There are four status types:
   - Not started
   - Running
   - Failed
   - Completed

     The agent stops all SourceOne services on the server and starts the task.
4. Review the following columns to check if the task was updated:
   - **Created Time** is the task generated time.
   - **Modified Time** is the task updated time.
5. If a task runs, then the status changes to **Completed** and the modified time changes to a later time than the created time.
6. Once the task completes, click **Refresh**. The latest status displays.

Figure 67 Tasks tab



CHAPTER 8

Installing Email Management Support

This section contains the following topics:

Pre-installation checklist

Before beginning the installation procedures detailed in this section, ensure that the items in the following checklist are completed.

Table 40 Pre-installation checklist

Done	Activity	Description
❑	Review the product overview information	Review the product overview information and understand the features and options. See Product overview on page 14 and the *SourceOne Email Management Administration Guide*.
❑	Understand the system architecture	Review the components which comprise SourceOne system. See System architecture on page 18 and System components on page 18.
❑	Complete analysis activities	Compile and analyze the organization's requirements, metrics, and processes. See Pre-deployment planning on page 24.
❑	Complete configuration planning activities	Size the environment and adjust variable components of the configuration to support it. See System architecture on page 18 and Example configurations on page 25.
❑	Configure accounts and permissions	Establish the accounts and permissions required to support SourceOne. See Pre-installation on page 33.
❑	Establish required hardware and network infrastructure	Ensure that the appropriate hardware is available for installation and connected to the network. Hardware specifications, operating system, and network connectivity, and software prerequisites are detailed in Pre-installation on page 33.
❑	Install common SourceOne infrastructure	Establish the SourceOne common infrastructure as described in Installing

Table 40 Pre-installation checklist (continued)

Done	Activity	Description
		Common SourceOne Components on page 89.

Installation overview

The following table provides an overview of the Email Management installations presented in the order in which you should perform them.

Table 41 Installation procedure overview

Installation/ Configuration	Details
Extensions for OWA software	If applicable in your environment, install extensions on Microsoft Exchange to support Outlook Web Access.
Extensions for IBM Lotus Domino	If applicable in your environment, install and configure support for journaling and shortcutting on Lotus Domino servers.
ONM Viewer software	Installs the ONM Viewer software on client computers. Enables users to open Lotus Notes messages from SourceOne Search results.

Installing Email Management components for Exchange

The SourceOne Extensions for Microsoft Outlook Web Access software is installed on a computer running Microsoft Exchange Server. A separate installation procedure is provided for each of the supported Microsoft Exchange versions.

Review the considerations in the following sections before installing the software.

Installing Extensions for OWA 2016

The following section describes how to install the SourceOne Extensions for Microsoft Outlook Web Access software on a computer running Microsoft Exchange Server 2016.

The following table provides an overview of the prerequisites you must complete before installing the software.

Table 42 Prerequisites

Prerequisite	Details
System requirements	This software is installed with Microsoft Exchange Server 2016 versions supported by SourceOne. Refer to the *SourceOne Products Compatibility Guide* for details.

Table 42 Prerequisites (continued)

Prerequisite	Details
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed. • Database permissions are configured.
SourceOne software	This installation requires that a SourceOne Web Services computer exists and is accessible on the network. You specify this hostname during the SourceOne Extensions for OWA 2016 Support software installation process. If you have configured two or more Web Services computers in a load balancing cluster, you specify the virtual hostname during this installation.

Considerations

Review the following considerations before installing the software.

Server type

Install this software only on Microsoft Exchange Server 2016 running the Client Mailbox Server role.

Exchange version

A separate SourceOne Extensions for Microsoft Outlook Web Access installer is provided for Microsoft Exchange Server 2016.

ASP.NET considerations

SourceOne uses several Microsoft Internet Information Services (IIS) websites to support product functionality. These sites require ASP.NET 2.0). If the default website on the IIS server is configured to use ASP.NET 1.1, the SourceOne installation changes the version to ASP.NET 2.0, resulting in a restart of IIS.

An error message similar to the following may be observed as a result of the IIS restart.

```
Failed while restarting W3SVC.  Error code: 0x80070420
```

You can avoid this error being generated by ensuring that the default website on your IIS server is configured to use ASP.NET 2.0 before installing SourceOne software.

Copying the setup executable locally

Perform the following steps to copy the setup executable for the Extensions for OWA 2013 software locally to the Microsoft Exchange Server 2016 host computer.

Procedure

1. Browse to the `Setup\Windows` directory on the Email Management Extensions for OWA software kit.
2. Copy the `ExOWA2016Setup.exe` file to a temporary location on the Microsoft Exchange computer.

Installing Extensions for OWA 2016 software

Perform the following steps to install the SourceOne Extensions for OWA 2016 Support software.

Procedure

1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the setup executable file for your Exchange Server version.

   For example, `ExOwa2016Setup`.
3. Click **Run**.

   The **Welcome** page appears.
4. To display the **Destination Folder** page, click **Next**.
5. Specify the destination directory. To specify a different directory, or accept the default directory, click **Change**.
6. To display the **Logon Information** page, click **Next**.
7. Specify the logon information:
   a. Type the **Domain**.
   b. Type the **Service Account** and the **Service Account Password**.

      Depending on the Active Directory accounts you created during the planning process, the service account that is used when installing the Extensions for OWA Support software can be one of the following:

      - Primary service account
      - OWA service account

   c. Type the **SourceOne Security Group**.

      The service account must be a member of this **Security Group**.
   d. The **Enable** checkbox is already selected in the **Service Logon Policy** region.

      This setting is required to enable services to run without a logged in user.
8. To validate the credentials and display the **Web Services** page, click **Next**.
9. Specify the **Server Name** for the computer on which Web Services software is installed.

   Note: If using load balancing such as Microsoft NLBS, type the virtual hostname. If using SSL, type the server name or alias to which the SSL certificate was issued.
10. To display the **Ready for Installation** page, click **Next**.
11. Click **Install**.

After the installation completes, the **InstallShield Wizard Completed** page appears.

12. Click **Finish**.
13. On one Microsoft Exchange 2016 server:
    a. Log in as Administrator.
    b. Open the following files for editing:

    ```
    C:\Program Files\EMC SourceOne\ES1OWA2016\ES1OWA2016Web
    \ES1OWA2016.xml
    ```

    c. Replace the `~remoteAppUrl` with the External Exchange OWA URL.

    For example:

    `https://ExternalOWAURL.YourCompany.com/owa/ES1OWA2016Web/Restore.aspx`
14. To enable the OWA 2016 Mail Application for all users inside the organization, go to:

    All Programs > **Microsoft Exchange Server 2016** > **Exchange Management Shell**
15. Run the following:

```
$Data = Get-Content -Path "C:\Program Files\EMC SourceOne
\ES1OWA2016\ES1OWA2016Web\ES1OWA2016.xml" -Encoding Byte -ReadCount 0
New-App -FileData $Data -OrganizationApp -ProvidedTo Everyone -
Enabled:$true -DefaultStateForUser Enabled
```

Note: The Mail App fails to launch the first time. This is a known issue of the Microsoft Mail App. For more information about the Add Mail App, refer to the Microsoft documentation site.

Uninstalling the OWA 2016 Mail Application

Procedure

1. Login to the **Exchange admin center**.
2. From the menu on the left, click **organization**.
3. Click **Add-ins**.
4. From the provider, select **View original item**.
5. From the menu on the right, click **Disable**.
6. Click the **Delete** icon.

   A message appears confirming that you want to delete the Mail App.
7. Click **Yes**.

Installing Extensions for OWA 2007 or 2010 Support

The following section describes how to install the SourceOne Extensions for Microsoft Outlook Web Access software on a computer running one of the following.

- Microsoft Exchange Server 2007
- Microsoft Exchange Server 2010

The table below provides an overview of the prerequisites you must complete before installing software.

Table 43 Prerequisites

Prerequisite	Details
System requirements	This software is installed with Microsoft Exchange Server 2007 or Exchange Server 2010 versions supported by SourceOne. Refer to the *SourceOne Compatibility Guide* for details.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed. • Database permissions are configured.
SourceOne software	This installation requires that an SourceOne Web Services computer exists and is accessible on the network. You specify this hostname during the SourceOne Extensions for OWA 2007 Support or SourceOne Extensions for OWA 2010 Support software installation. If you have configured two or more Web Services computers in a load balancing cluster, you specify the virtual hostname during this installation.

Server type

You install this software only on Exchange Server 2007 or Exchange Server 2010 running the Client Access Server role.

You *do not* need to install this software on Exchange Server 2007 or Exchange Server 2010 running only the Mailbox Server role.

Exchange version

A separate SourceOne Extensions for Microsoft Outlook Web Access installer is provided for Exchange Server versions. The installer interface for either version of Exchange is essentially the same. Differences between Exchange versions are provided in the text.

ASP.NET considerations

SourceOne uses several Microsoft Internet Information Services (IIS) websites to support product functionality. Register ASP.NET with IIS for all SourceOne websites.

The *SourceOne Products Compatibility Guide* includes information about the versions of ASP.NET that are compatible with SourceOne.

Copying the setup executable locally

Perform the following steps to copy the setup executable for the Extensions for OWA 2007 or Extensions for OWA 2010 software locally to the Exchange Server 2007 or Exchange Server 2010 host computer.

Procedure

1. Browse to the `Setup\Windows` directory on the Email Management Extensions for OWA software kit.
2. Copy the `ExOWA2007Setup.exe` or `ExOWA2010Setup.exe` file to a temporary location on the Exchange computer.

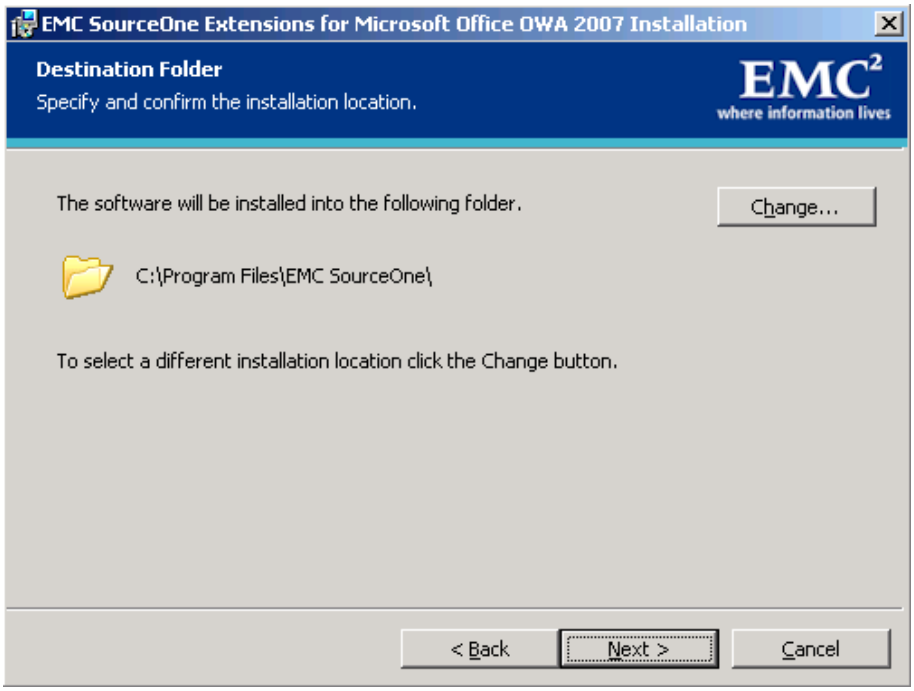
Installing Extensions for OWA 2007 or 2010 software

Perform the following steps to install the SourceOne Extensions for OWA 2007 Support or Extensions for OWA 2010 Support software.

Procedure

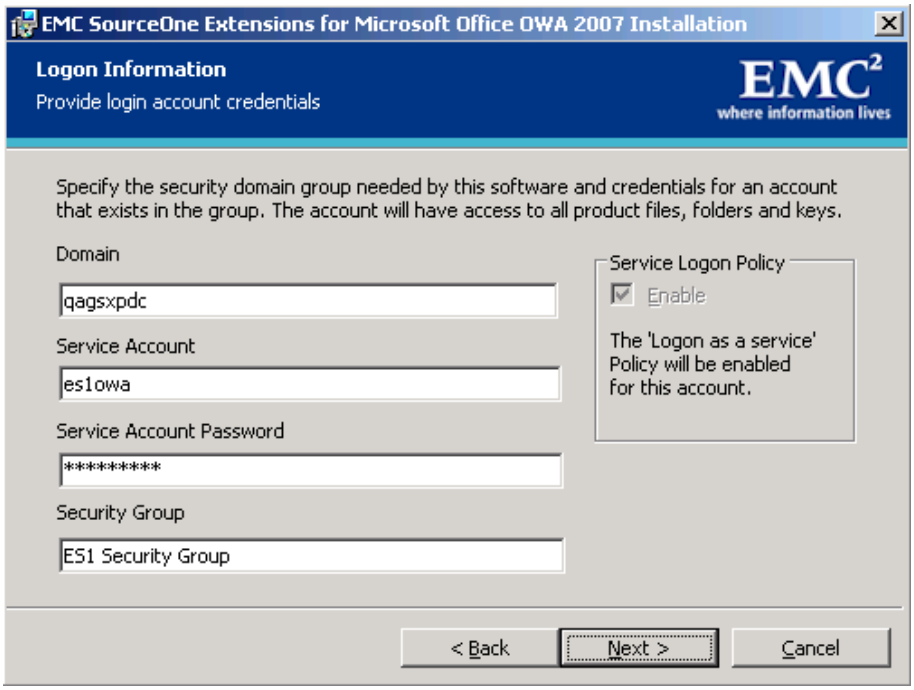
1. Browse to the temporary location to which you copied the setup executable.
2. Double-click the setup executable file for your Exchange Server version (`ExOwa2007Setup.exe` or `ExOWA2010Setup.exe`) and click **Run**. The **Welcome** page appears.
3. Click **Next** to display the **Destination Folder** page.

Figure 68 Destination Folder page



4. Specify the destination directory. Click **Change** to specify a different directory, or accept the default directory.
5. Click **Next** to display the **Logon Information** page.

Figure 69 Logon Information page



6. Specify the logon information:

   a. Type the **Domain**.

      Type the **Service Account** and the **Service Account Password**.

      Depending on the Active Directory accounts you created during the planning process, the service account used when installing the Extensions for OWA Support software can be one of the following:

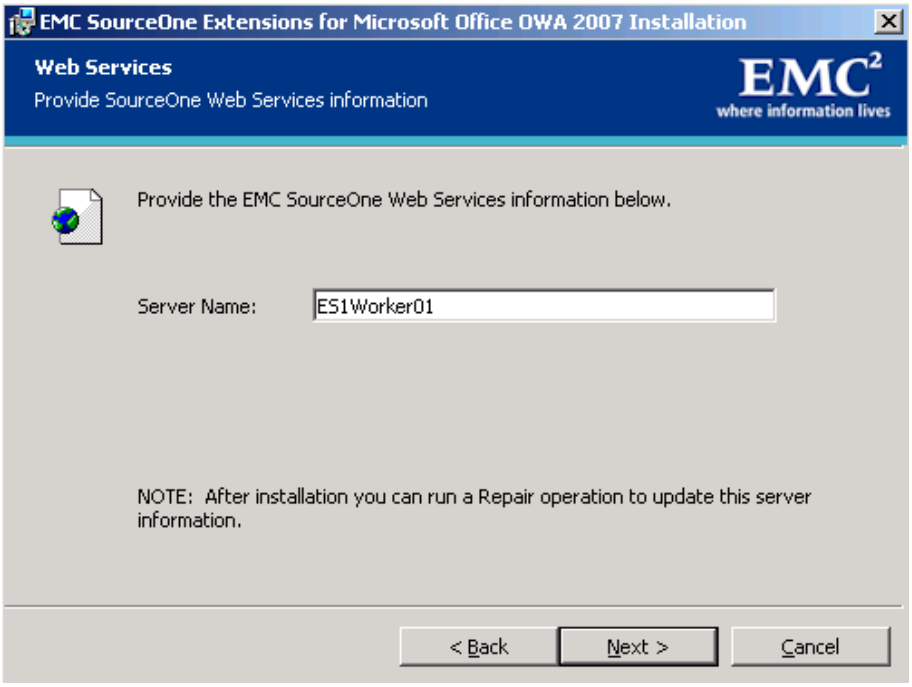
      - Primary service account
      - OWA service account

   b. Type the SourceOne **Security Group**. The service account must be a member of this **Security Group**.

   c. The **Enable** checkbox is already selected in the **Service Logon Policy** region. This setting is required to enable services to run without a logged in user.

7. Click **Next** to validate the credentials and display the **Web Services** page.

Figure 70 Web Services page



8. Type the **Server Name** for the computer on which Web Services software is installed.

   Note: If using load balancing such as Microsoft NLBS, type the virtual hostname. If using SSL, type the server name or alias to which the SSL certificate was issued.

9. Click **Next** to display the **Ready for Installation** page.
10. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
11. Click **Finish**.

Installing Email Management components for Domino

The following section describes how to install the following software to support an IBM Lotus Domino environment.

- The SourceOne Extensions for IBM Lotus Domino software is installed on IBM Lotus Domino servers to support journaling and shortcutting on IBM Lotus Domino servers running on Microsoft Windows, Sun Solaris, Red Hat Linux, or IBM AIX operating systems.
- The ONM Viewer software provides end-users on client computers the ability to view Lotus Notes messages from SourceOne Search results in Lotus Notes.

IBM Domino support overview

Email Management provides real-time archiving, also referred to as journaling, shortcutting, and historical archiving support for IBM Domino mail servers.

Journaling

Journaling copies messages processed by the IBM Domino server to a designated database from which SourceOne can then archive them.

To support journaling, you have the following options:

- Install SourceOne journaling extensions software on your IBM Domino servers. The extensions automatically create and maintain journaling databases from which you can archive messages using the SourceOne Console.
- Use a native IBM Domino journaling database. You can then target journaling activities against the native IBM Domino journaling database using the SourceOne Console.

Using SourceOne journaling

You must install the SourceOne journaling extensions to support this journaling option. During message journaling, the SourceOne Journaling Extension Manager copies each message on the Domino server to a journaling database. A journaling database (ExJournal.nsf) is created for the Domino mail.box database on the Domino server. If there is more than one mail.box database (mail2.box, mail3.box and so on), the Domino Extensions installer creates corresponding journaling databases using the same numbering scheme (ExJournal1.nsf, ExJournal2.nsf, and so on).

Note: Before installing, ensure that you review the considerations for using SourceOne journaling. For details, refer to SourceOne journaling considerations on page 236.

Using Native Domino journaling

Native Domino mail journaling enables administrators to capture a copy of specified messages that the Router processes by the Domino system. Journaling can capture all messages handled by the Router or only messages that meet specific defined criteria. When mail journaling is enabled, Domino examines messages as they pass through **mail.box** and saves copies of selected messages to a Domino Mail Journaling database (for example, **mailjrn.nsf**).

Note: Before installing, ensure that you review the considerations for using native Domino journaling. In this information are important settings required for SourceOne to function against a native Domino journaling database. For details, refer to Native Domino journaling considerations on page 237.

Shortcutting

Shortcutting replaces email messages archived by SourceOne with smaller files called *shortcuts* on the Domino server. Shortcuts are pointers to email messages archived in the SourceOne repository. Mail users and mobile users can double-click the shortcut to retrieve the full archived message.

To support email shortcutting, you install the optional Shortcut Extension Manager on the Domino server. The Shortcut Extension Manager allows mail users to view the original message in the following ways:

- In the preview pane
- Opening the full message (double-click)

Shortcut messages are retrieved during replication. The mobile user experience is unchanged.

Historical archiving

Historical archiving support is inherently provided through permissions granted to SourceOne to mail databases on your Domino servers. You do not need to install any SourceOne software to support historical archiving.

Supported Domino platforms

You can archive mail and support shortcutting on Lotus Domino servers running on the Microsoft Windows, Sun Solaris, Red Hat Linux, or IBM AIX operating systems.

Configuring administrator access to journaling databases

Configuring access enables SourceOne administrators to configure Domino-related activities.

About this task

Before installing journaling functionality, configure a group in Domino which corresponds to the SourceOne Admins Group created in Active Directory which contains users of the SourceOne console (see Creating accounts in Active Directory on page 35 for details on the Admins Group). You then associate the Domino group with each journal database used by SourceOne.

Use the following procedure to configure administrator access to the journaling databases.

Procedure

1. Create a group using Domino Administrator. Use these guidelines:
   - Group name – Use a contextual name such as *SourceOne Admins.*
   - Members – Add the same users in the Active Directory Admins Group to the Domino group.
2. Run the Notes client application using the SourceOne Notes User account, typically on the Master Services computer or a Worker Services computer.
3. Configure the access control for each journal database by adding the Domino group with Reader access.

Maintaining the configuration

Ensure the following.

- As the SourceOne Admins Group in Active Directory changes, ensure that users are added and deleted in the corresponding Domino group.
- As mail.box databases are created (and corresponding journal mailboxes), ensure that you repeat this procedure to configure administrative access to the new journaling databases.

Installing Extensions for IBM Domino

The procedures for installing and configuring the IBM Domino extensions software are different depending on the operating system.

Installing Extensions for IBM Domino on Microsoft Windows

The following sections describe how to install extensions for IBM Domino servers running on Microsoft Windows to support journaling and shortcutting.

Before installing SourceOne Extensions for Domino, ensure that you have installed all the common components as described in Installing Common SourceOne Components on page 89.

The SourceOne Extensions for IBM Domino install program allows you install support for journaling by installing the optional Journaling Extension Manager and shortcutting by installing the Shortcut Extension Manager.

You optionally can use native IBM Domino journaling or SourceOne journaling. Ensure that you review the considerations for each type of journaling support as described in Journaling on page 178, as this information may impact your choices when installing the software.

You must run the SourceOne Extensions for IBM Domino on each IBM Domino server from which you want to journal or shortcut messages.

Copying the setup executable to the host

Use the following procedure to copy the setup executable for the SourceOne Extensions for Domino software locally to the IBM Domino host.

Procedure

1. Browse to the `Setup\Windows` directory on the Email Management Extensions for IBM Domino software kit.
2. If you are installing on a:
   - 32-bit system – Copy the `ES1_DominoExtSetup.exe` file to a temporary location on the IBM Domino host.
   - 64-bit system – Copy the `ES1_DominoExtSetupx64.exe` file to a temporary location on the IBM Domino host.

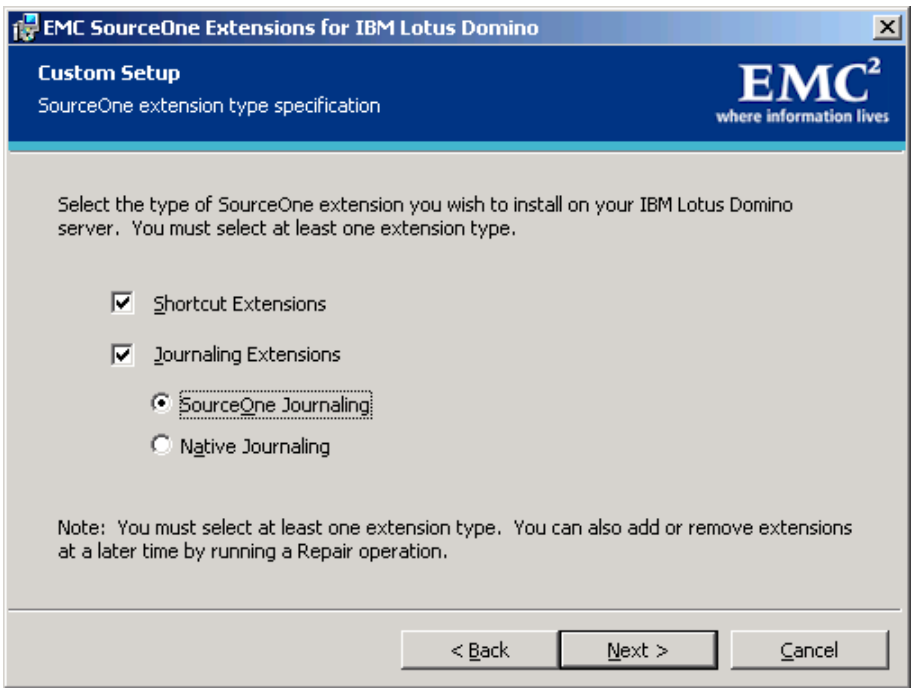
Running the IBM Domino Extensions installer

Perform the following steps to run the SourceOne Extensions for IBM Domino install program.

Procedure

1. Shut down the IBM Domino Server application by typing **q** and pressing **Enter** in the **Console** window.
2. Double-click the setup file. The **Welcome** page appears.
3. Click **Next** to display the **Custom Setup** page.

Figure 71 Custom Setup page



4. Specify the custom setup information:

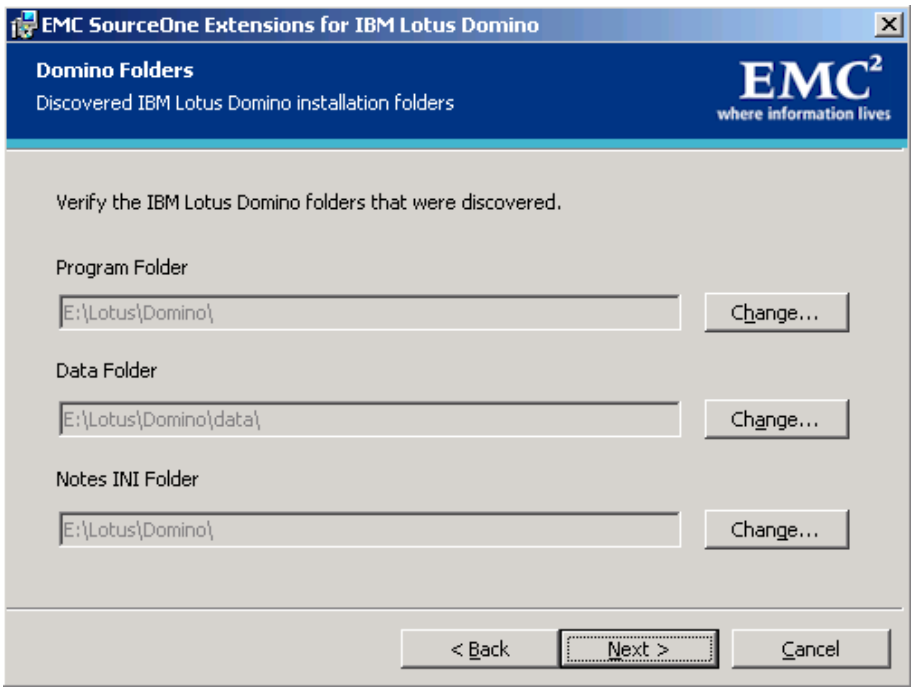
a. Select **Shortcut Extensions** to install SourceOne shortcutting functionality.

b. Select **Journaling Extensions** to install journaling functionality. You have the following choices:

- **SourceOne Journaling**. Use SourceOne journaling functionality
- **Native Journaling**. Use native IBM Domino journaling functionality and install an agent used to automate the clean up of the Bad Documents Folder.
- Clear the **Journaling Extensions** checkbox. No additional journaling software is installed. Select this option if you want to use native IBM Domino journaling, but do not want to install the cleanup agent.
  Refer to Journaling on page 178 for information about supported types of journaling and specific considerations for each.

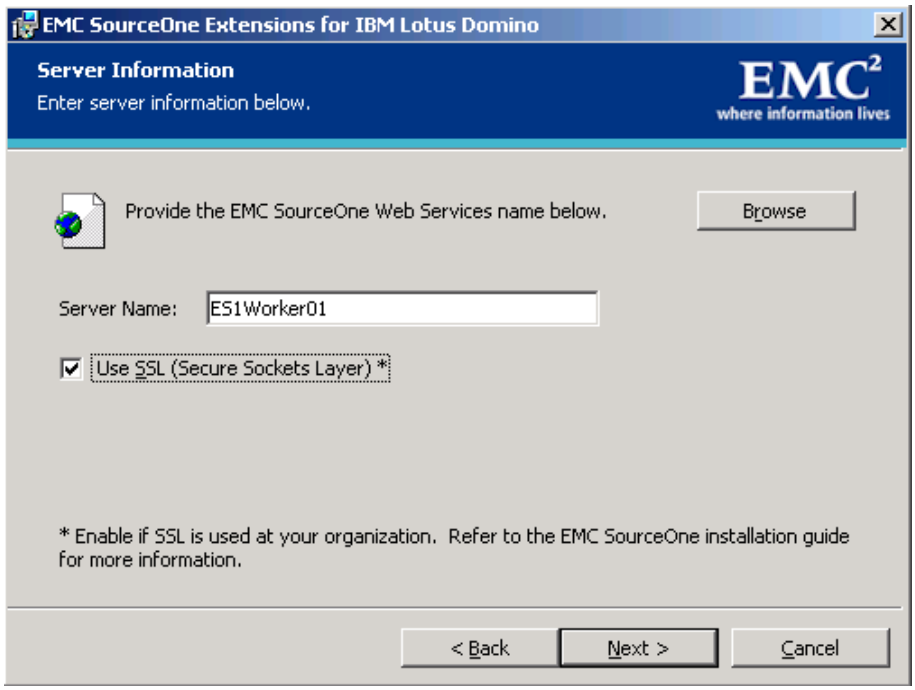
c. Click **Next** to display the **Notes Folders** page.

Figure 72 Notes Folders page



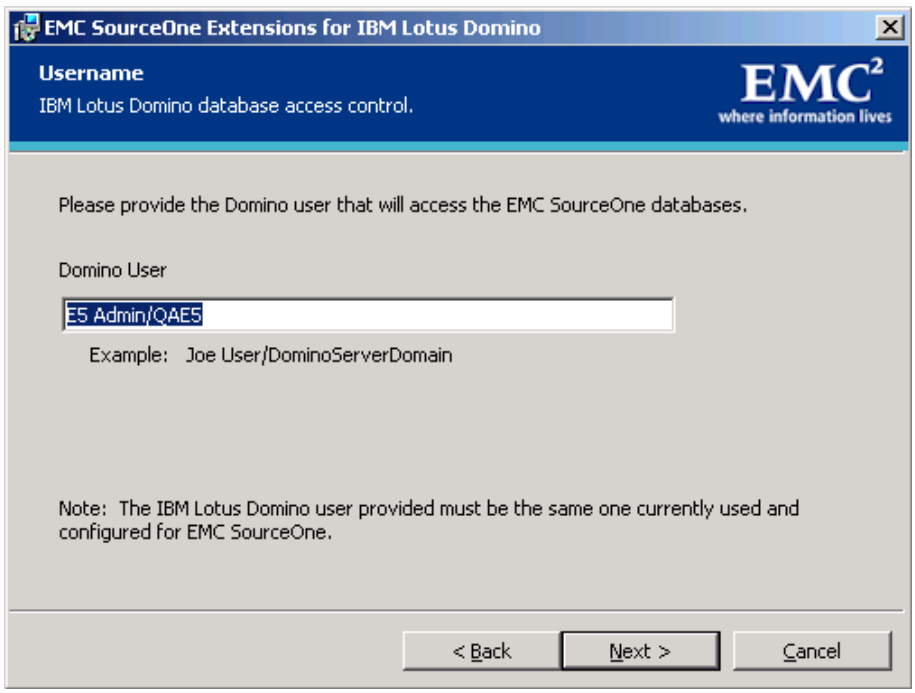
5. Validate that the **Notes** folders that appear are accurate and then click **Next** to display the **Product Servers** page.

Figure 73 Server Information page



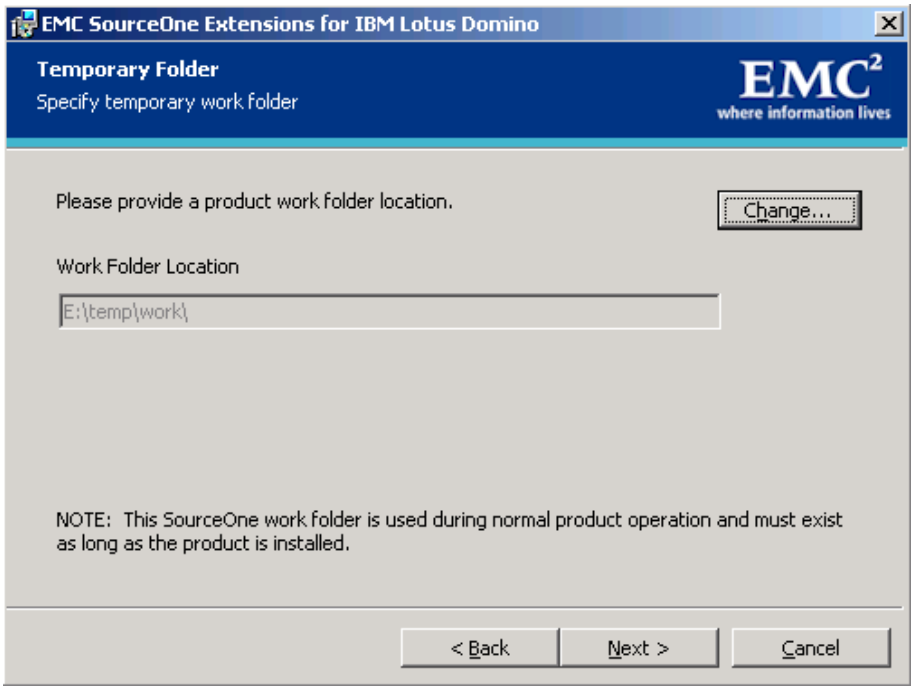
6. Type the name of Worker services host on which the SourceOne web services software is installed.
   - If using load balancing such as Microsoft NLBS, type the virtual hostname. See Configuring load balancing on page 125 for more information
   - If using SSL on 32-bit systems only, select the **Use SSL (Secure Sockets Layer)*** checkbox.
7. Click **Next** to display the **Username** page.

Figure 74 Username page



8. Type the fully qualified hierarchical name of the Lotus Notes user configured during the planning process, see IBM Lotus Domino permissions on page 49.
9. Click **Next** to validate the account and display the **Choose Temporary Folder** page.

Figure 75 Temporary Folder page



10. Select a temporary journaling folder and then click **Next** to display the **Ready to Install the Program** page.
11. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
12. Click **Finish**.
13. Start the IBM Domino server application. The results depend on the type of journaling support you selected during the installation.

SourceOne journaling

If you selected SourceOne journaling, the following occurs:

- Installs `ExNotesJournal.dll`.
- Installs the template on which `ExJournal.nsf` databases are based. The `ExJournal.nsf` databases are created the first time the Domino server is run after the installation.
  Two templates are provided. One template enables transactional logging by default and one does not. You can configure which one to use by editing the `Notes.ini` file. See Journaling templates on page 236 for details.
- Configures the journaling database and makes necessary changes to the `Notes.ini` file.
- Installs and configures the `ExProcBadDocs` agent. This cleanup agent processes corrupt and **$Readers** field messages by placing them in an envelope message that can be archived.

- Adds the `ExProcBadDocs` agent to the **ServerTasks=** line in the `Notes.ini` file.

Domino journaling

If you selected native IBM Domino journaling, the following occurs:

- Installs and configures the `ExProcBadDocs` agent. This agent processes corrupt and **$Readers** field messages by placing them in an envelope message that can be archived.
- Adds the `ExProcBadDocs` agent to the **ServerTasks** line in the `Notes.ini` file.

Shortcutting

For shortcutting, the SourceOne Extensions for IBM Domino installer:

- Creates the `exshortcut.nsfdatabase`.
- Creates a user called **ES1 Shortcut** which is used to restore shortcuts.

Note: In a clustered IBM Domino environment, in which you run the installation on each host, a duplicate **ES1 Shortcut** user is created which may cause shortcut problems. Manually delete one of the users. Update the **Comments** field on the **Miscellaneous** tab for the **ES1 Shortcut** user to include the name of the web services host, or virtual hostname if using load balancing, that you specified when you installed IBM Domino Extensions.

Consideration for 64-bit OS

If running 32-bit Domino on a 64-bit Microsoft Windows operating system, and then installing the 32-bit version of the SourceOne Extensions for IBM Lotus Domino, an error such as the following occurs.

About this task

```
Error attempting to load or run ExProcBadDocsx64.EXE: Unable to locate program
```

Use the following procedure to edit the `notes.ini` file and update references to two 64-bit entries.

Procedure

1. Open the `notes.ini` file.
2. Edit the ServerTasks line:
   a. Change the **ExProcBadDocsx64** entry to **ExProcBadDocs**.
   b. Remove the **x64** from the entry.
3. Edit the **EXTMGR_Addins** line:
   a. Change the **ExNotesJournalx64** entry to **ExNotesJournal**
   b. Remove the **x64** from the entry.
4. Restart the Domino server.
5. Review the information provided in the Domino Configuration and Administration on page 233 and perform any tasks required for the environment.

Installing Extensions for Domino on Solaris, Linux, or AIX

The following section describes how to configure extensions to Domino servers running on Sun Solaris, Red Hat Linux, or IBM AIX to support journaling and shortcutting.

- For journaling support, you are prompted during the installation to:
  - Install the Journaling Extension Manager which supports journaling on each Domino server.
  - Use native Domino journaling.
- For shortcutting support, you must install the Shortcut Extension Manager.

Running the journaling script on Solaris, Linux, or AIX

Perform the following steps to run the Domino journaling script.

Procedure

1. Log in as root.
2. Copy the `exnotesjournal.tgz` file from the `Setup/Unix/Notes_Extensions/Journal` directory in the SourceOne Email Management Extensions for IBM Domino installation kit to a local directory.
3. Set the current default directory to the directory to which you are going to extract the installation files.
4. Extract the installation files from the `exnotesjournal.tgz` file, which was compressed using the **tar** and **gzip** utilities, into the current default directory using the following command:

   ```
   # gunzip -c exnotesjournal.tgz | tar xvf -
   ```

   The installation kit files are created in the current default directory, and in the newly created **Aix**, or **Linux**, or **Solaris** subdirectory.

5. Execute the install script, `install.sh`, using the following command:

   `./install.sh`

6. When prompted, type the directory in which IBM Domino is installed. In the following example, the IBM Domino install directory is:

   `/opt/lotus`

   Specify the IBM Domino Install directory:

   `/opt/lotus`

   Installing IBM Notes Journal Extension Manager in:

   `/opt/lotus/notes/latest/linux`

7. When prompted, type the IBM Notes data directory so that the install script can update the `Notes.ini` file. In the following example, the IBM Notes data directory is:

   `/local/notesdataUpdating notes/local/notesdata/notes.ini`

8. When prompted, indicate whether you want to use native IBM Domino journaling or SourceOne journaling. Type **N** for native IBM Domino journaling or **E** for SourceOne journaling.

   ```
   Do you want to install IBM Lotus Domino Native Journaling or EMC
   SourceOne Domino Journaling Extensions? (N/E)
   ```

9. When prompted, type the fully qualified hierarchical name of an IBM Notes administrative user configured during the planning process, see IBM Lotus Domino permissions on page 49, and the IBM Domino domain for the user. Enter them as `NotesUser/NotesDomain`, where `NotesUser` is the canonical name of the IBM Notes user and `NotesDomain` is the IBM Domino domain for that user.

   In the following example, the username is `NotesAdmin` and the IBM Domino domain is `CompanyDomain`.

```
Specify the EMC SourceOne user name:
[UserName]/[NotesDomain]
NotesAdmin/CompanyDomain
```

10. When prompted, type a directory where attachments can be temporarily saved. You can type either an existing directory or a new directory that the install script will create.

    In the following example, `/local/notesdata/extemp` is an existing directory that will be used as the temporary directory for attachments and other SourceOne temporary data.

```
Specify path of directory where attachments can be saved temporarily:
/local/notesdata/extemp
Existing directory /local/notesdata/extemp
```

11. After you type the temporary directory for attachments, the installation completes and prompts you to stop and then restart the IBM Domino server.

Installation results

The results depend on the type of journaling support you select when running the installation script.

SourceOne journaling

If you selected SourceOne journaling when running the journaling script on a Solaris, Linux, or AIX server completes the following:

- Installs `libexnotesjournal.so` in the program folder of the Domino server. The `libexnotesjournal.so` monitors incoming and outgoing mail and forwards a copy of all mail to the `ExJournal.nsf` database.
- Installs templates on which `ExJournal.nsf` databases are based. The `ExJournal.nsf` databases are created the first time the Domino server is run after the installation.
- There are two templates provided - one which enables transactional logging by default and one that does not. You can configure which one to use by editing the `notes.ini` file. See Journaling templates on page 236 for details.

  Note: When you use antivirus software on the mail server, the antivirus software may remove infected messages in the `ExJournal.nsf` journaling databases for that mail server. If infected messages are removed from the journaling database, SourceOne does not archive or index the messages. If you have antivirus software that is causing issues with the SourceOne software, contact Customer Support.
- Installs the `ExProcBadDocs` cleanup agent in the Lotus Domino binary directory and places a template in the `exbaddocs.ntf` Lotus Domino data directory.
- Installs **$Reader** field support, which allows SourceOne to access and archive all documents in a journal database, regardless of the value of the **$Reader** field.

- As part of the **$Reader** field support, `ExProcBadDocs` cleanup agent creates a SourceOne compound document in the journal database that contains the documents found in the `ExBadDocs` folder. It then deletes those documents from the journal database. The `ExProcBadDocs` cleanup agent runs at a default interval of 60 minutes, which you can modify by editing the `Notes.ini` file for the Domino server.
- Makes the following changes to the `Notes.ini` file as outlined in the following table.

Table 44 Journaling script changes to `Notes.ini` File - SourceOne journaling

LINE Change or Addition	Description
`EXTMGR_ADDINS=libexnotesjournal.so`	Supports the SourceOne Notes Journaling Extension Utility.
`ServerTasks=exprocbaddocs`	Adds `exprocbaddocs` as a server task that is needed for **$Reader** field support.

Native Domino journaling

If you selected native IBM Domino journaling when running the journaling script on a Solaris, Linux, or AIX server completes the following:

- Installs the `ExProcBadDocs` cleanup agent in the IBM Domino binary directory and places a template in the `exbaddocs.ntf` IBM Domino data directory.
- Makes the following changes to the `Notes.ini` file as outlined in the following table:

Table 45 Journaling script changes to `Notes.ini`File - native Domino journaling

LINE Change or Addition	Description
`ServerTasks=exprocbaddocs`	Adds `exprocbaddocs` as a server task that is needed for **$Reader** field support.

Running the shortcutting script on Solaris, Linux, and AIX

If you plan to use SourceOne to create shortcuts of messages on the IBM Domino server, run the IBM Domino shortcutting script to install the Shortcut Extension Manager. The Shortcut Extension Manager allows mail users to view the original message either in the preview pane or when they double-click the shortcut to open the message. It also allows mobile users to view shortcut messages.

About this task

Shortcuts are replicated between server-based mail database replicas, but full messages are replicated to local mail database replicas. The shortcut messages reside on the IBM Domino server, and full messages are in the local mail database for offline use.

You must run the shortcutting script on each IBM Domino server from which you want to shortcut messages.

Use the following procedure to run the shortcutting script on Solaris, Linux, or AIX.

Procedure

1. Log in as **root**.
2. Copy the `exnotesshortcut.tgz` file from the `Setup/Unix/Notes_Extensions/Shortcut` directory on the SourceOne Email Management Extensions for IBM Domino software kit to a local directory.
3. Set the current default directory to the directory where you are going to extract the installation files.

4. Extract the installation files from the `exshortcut.tgz` file, which was compressed using the **tar** and **gzip** utilities, into the current default directory using the following command:

   `# gunzip -c exnotesshortcut.tgz | tar xvf -`
   The installation kit files are created in the current default directory, and in the newly created **Aix**, or **Linux**, or **Solaris** subdirectories.

5. Execute the install script, `install.sh`, using the following command:

   `install.sh`

6. When prompted, type the directory in which IBM Domino is installed. The Shortcut Extension Manager will be installed in this location.

   In the following example, the IBM Domino install directory is `/opt/lotus`:

   ```
   Specify the Domino Install directory:
   /opt/lotus
   Installing Notes Shortcut Extension Manager in
   /opt/lotus/notes/latest/linu
   ```
   The install script automatically identifies the correct operating system and installs the IBM Notes Shortcut Extension Manager.

7. When prompted, type the IBM Notes data directory so that the install script can update the `Notes.ini` file. In the following example, the IBM Notes data directory is `/local/notesdata`:

   ```
   Specify the Notes data directory:
   /local/notesdata
   Updating notes/local/notesdata/notes.ini.
   ```

8. When prompted, type the fully qualified hierarchical name of the IBM Notes administrative user configured during the planning process, see IBM Lotus Domino permissions on page 49, and the IBM Domino domain for the user. Enter them as `NotesAdmin/CompanyDomain`, where `NotesAdmin` is the canonical name of the IBM Notes user and `CompanyDomain` is the IBM Domino domain for that user.
9. When prompted, type a directory where attachments and other SourceOne temporary data can be temporarily saved. You can type either an existing directory or a new directory that the install script will create. In the following example, `/local/notesdata/extemp` is an existing directory that will be used as the temporary attachments directory:

   ```
   Specify path of directory where attachments can be saved temporarily:
   /local/notesdata/extemp
   Existing directory /local/notesdata/extemp
   ```

10. After you type the temporary directory for attachments, the installation completes and prompts you to stop and then restart the Domino server.

    ```
    Installation complete.
    Stop the Lotus Domino server and restart it.
    ```

11. Add a person record called **ES1 Shortcut** to the public name and address book.
    a. Set the **User Name** field to **ES1 Shortcut**.
    b. Set the **First Name** field to **ES1**.

c. Set the **Last Name** field to **Shortcut**.

d. Set the **Full Name** field to **ES1 Shortcut**.

e. Edit the **Comments** field on the **Miscellaneous** tab to include the SourceOne Worker services host on which SourceOne web services is installed:

- If you are using a single web services host, type the hostname of that host.
- If you are using a load balancing solution which configures a virtual hostname pointing to multiple web services hosts, type the virtual hostname.
- If you have installed two or more Web Services hosts but you are not using load balancing, you can type multiple host names by placing each name on a new line using the **Enter** key.

When you install the Shortcut Extension Manager on a Solaris, Linux, or AIX server, the install script makes the following changes to the `Notes.ini` file.

Table 46 Shortcut Extension Manager changes to the `Notes.ini` file

Notes.ini Change or Addition	Description
`EXTMGR_ADDINS=libexnotesshortcutext.so`	Creates the Shortcut Extension Manager, `ExNotesShortcutExt`.
`ServerTasks=ExNotesShortcutCache`	Adds `ExNotesShortcutCache` as a server task and allows SourceOne to manage the shortcut cache.

Review the information provided in Domino Configuration and Administration on page 233 and perform any tasks required for your environment.

Errors when restarting Domino console after uninstalling extensions

If you uninstall SourceOne extensions on a Domino server, errors indicating that files related to the extensions cannot be found may be displayed in the console when it is restarted.

For example:

```
File not found or not a Notes database: e:\Lotus\Domino\data\exjournal.nsf:
File does not exist
```

The errors only appear the first time you restart the Domino console after uninstalling the extensions, and can be safely ignored.

Installing the ONM Viewer software

The ONM Viewer software provides end users on client computers the ability to view Lotus Notes messages from SourceOne Search results in Lotus Notes.

This section includes procedures for installing this software manually using the MSI installation, or silently using a distribution package such as Microsoft SMS. It also includes information on allowing end users to install the software dynamically from the SourceOne Search application.

This table provides an overview of the prerequisites that you must complete before installing software.

Table 47 Prerequisites

Prerequisite	Details
System requirements	Hardware, operating system, network connectivity, and prerequisite software requirements are described in "EMC SourceOne ONM Viewer client computer base requirements" on page 54.
Accounts and permissions	Ensure that: • Active Directory accounts and groups and other permissions-related configuration is completed. • Database permissions are configured.

Considerations

If installing the ONM Viewer software on a system on which you intend to also install the SourceOne Console software, ensure that you install the Console software first.

Installing the ONM Viewer software manually

Use the following procedure to install the ONM Viewer software manually.

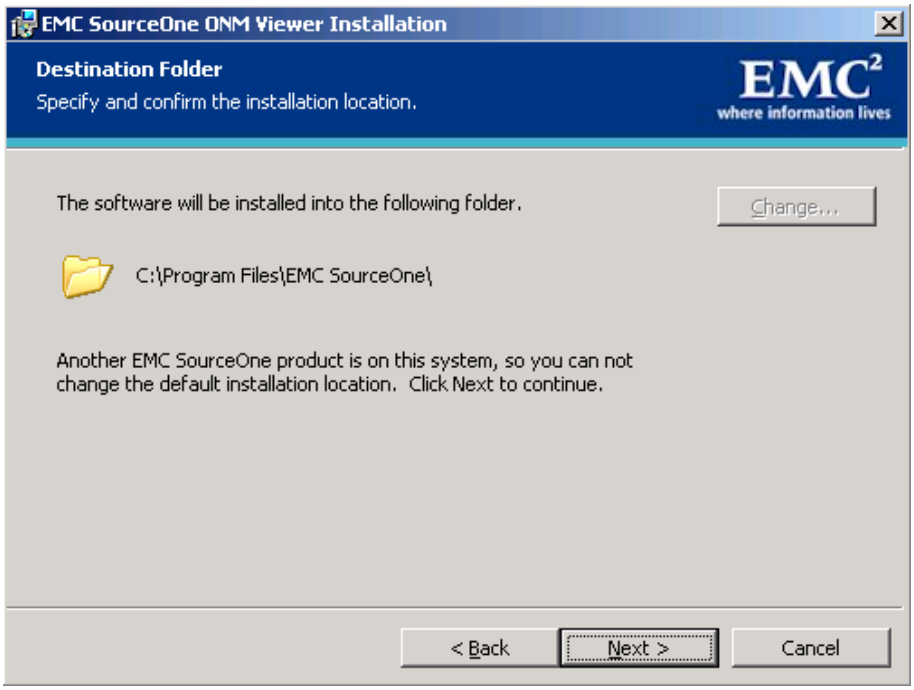
Procedure

1. Log in to the host computer using an account with local administrator privileges.
2. Browse to the `Setup\Windows` directory on the SourceOne software kit.
3. Copy the `ES1_ONMViewerSetup.exe` executable to a temporary location on the host computer.
4. Browse to the temporary location to which you copied the setup executable.
5. Double-click the `ES1_ONMViewerSetup.exe` file and then click **Run**. The **Welcome** page appears.

   Note: When the installer is run, it validates the system configuration to ensure that prerequisite components are installed. Depending on your system configuration, the installer may automatically install one or more prerequisite components before displaying the **Welcome** page. Automatically installed components are listed in Establishing system requirements on page 49.

6. Click **Next** to display the **Destination Folder** page.

Figure 76 Destination Folder page



7. Click **Next** to display the **Ready for Installation** page.
8. Click **Install**. After the installation completes, the **InstallShield Wizard Completed** page appears.
9. Click **Finish**.
10. If manually installing the ONM Viewer for all users, you can disable the prompt to the end users to automatically install the ONM Viewer software. See Allow users to install the ONM software on page 193.

Installing the ONM Viewer software silently

You can silently install the ONM Viewer software.

This method can be used in environments in which:

- Users are not granted local administrator rights on their computers. Local administrator rights are required to install this software.
- Users have local administrator rights, but the administrator prefers to distribute the software using silent installation.

The `ES1_ONMViewerSetup.exe` program confirms that the correct version of the Microsoft Installer (MSI) is on the system and it launches the MSI with the applicable parameters.

Note: If the organization provides local administrator rights to users, you can alternatively allow users to install the software from the SourceOne Search application.

Use the following syntax to silently install the ONM Viewer:

```
ES1_ONMViewerSetup.exe /s /v"/qn REBOOT=ReallySuppress "
```

Disable the prompt to the end users to automatically install the ONM Viewer software.

For more information about standard command line parameters, refer to the Microsoft Installer documentation.

Allow users to install the ONM software

You can allow end users to install the ONM Viewer software in environments in which users have local administrator rights, and the administrator prefers to let users control the installation.

SourceOne Search users are presented with the option to dynamically install the ONM Viewer software the first time they try to view a Lotus Notes message. The user can choose to install the software immediately or postpone the installation. The user can also choose to suppress the installation message. For more information, refer to the *SourceOne Search User Guide*.

Note: If your organization does not provide local administrator rights to users, you can alternatively use a silent installation method to install the software.

Disabling end user prompt for install

If you choose to manually or silently install the ONM Viewer software, you can use the SourceOne console to disable the prompt to SourceOne Search end users to install the ONM Viewer software. Refer to the *SourceOne Administration Guide* for more information.

Maintaining the installation

The following section provides information on maintaining the installation of components.

Upgrading

Refer to the product release notes for detailed instructions on upgrading SourceOne product databases and components.

Repairing a component

Repairing a component can fix missing or corrupt files, shortcuts, and registry entries.

Microsoft Windows systems

To repair an SourceOne product component that is installed on a Microsoft Windows system, perform one of the following, depending on the account that you are logged in as.

Local system Administrator

If you are logged in as the local system Administrator, use the following procedure to repair an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Access the Microsoft Windows **Program and Features** dialog box.
2. Select the component and then click **Change**.
3. Follow the prompts to repair the component.

Member of the local Administrators group

If you are logged in as a member of the local Administrators group, use the following procedure to repair an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Access the original setup executable for the SourceOne component.
2. Run the executable.
3. Follow the prompts to repair the component.

Removing a component

Perform the following steps to remove (uninstall) an SourceOne product component that is installed on a Microsoft Windows system.

Procedure

1. Using an account that is a member of the local Administrators group, access the Microsoft Windows Add or Remove Programs dialog box.
2. Select the component and click **Remove**.
3. Follow the prompts to remove the component.

CHAPTER 9

Installing Elasticsearch

This section describes how to install and configure Elasticsearch support for SourceOne. Topics include:

Overview

The Elasticsearch feature is an indexing and searching platform that is used by SourceOne products. Elasticsearch enhances indexing and search performance and addresses scalability issues. The system supports the same set of document types that ISYS currently supports.

By default, SourceOne uses ISYS as its indexing and search platform. You can install and configure Elasticsearch to enhance index and search performance.

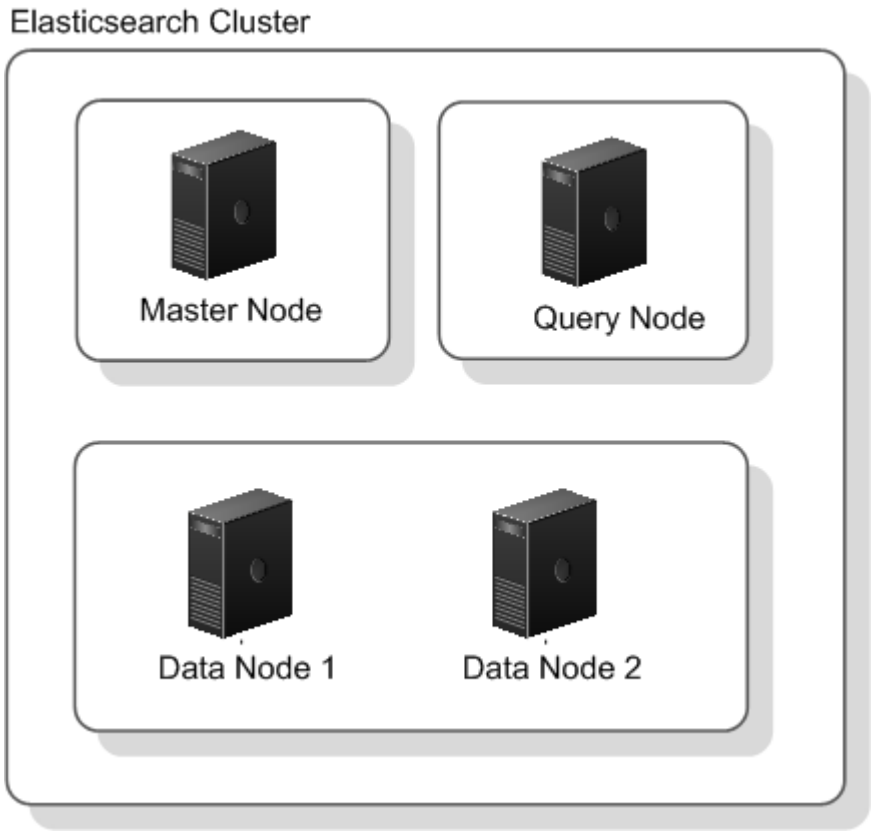
Supported Elasticsearch configuration

The following is the minimum Elasticsearch configuration that SourceOne supports:

- 1 Master Node
- 1 Query Node
- 2 Data Nodes

The following figure displays the supported Elasticsearch clusters.

Figure 77 Supported Elasticsearch cluster configuration



Master Node

The master node maintains the Elasticsearch cluster state. It joins the nodes to the cluster, creates indexes, and evenly distributes shards. SourceOne currently only supports Elasticsearch clusters that contain a single master node.

Data Node

Data Nodes are the workers of the cluster. They store the shards that make up the indexes and perform all of the indexing and querying operations on those shards.

The amount of disk space is relative to the amount of data that is stored and the performance that is required. For example, if a data node holds 1000 shards and a query is run against all of those shards, it may take X time to complete. If you add another data node and Elasticsearch rebalances the shards so that they each contain 500 shards, the query time may decrease to approximately ½ X. The amount of index space required for Elasticsearch indexes (primary + 1 replica) is less than the amount of space that is required for ISYS indexes with content cache enabled.

Query Node

Query nodes are used for distributing queries and aggregating hits in the cluster. The more complex the query and the data being returned, results in an increased load on the query node. Because query nodes perform their tasks in memory and do not store shards, they do not require much storage.

Installing Elasticsearch

Learn about how to configure Elasticsearch nodes in a SourceOne environment.

Ensure that the Elasticsearch cluster has been installed and configured.

Refer to the Elasticsearch website at www.elastic.co for instructions on setting up an Elasticsearch cluster.

Installing the Elasticsearch software

Learn about how to download and install Elasticsearch for SourceOne.

Procedure

1. Ensure that you have configured an Elasticsearch cluster for use by SourceOne. Refer to the Elasticsearch website for instructions on setting up an Elasticsearch cluster.
2. Ensure that the latest version of the Java Development Kit (JDK) software is installed on all Elasticsearch nodes in the environment.

   Note: The same version of Java software should be installed on each Elasticsearch node.

   For a list of supported matrixes, refer to the Elasticsearch website at https://www.elastic.co/support/matrix.
3. After you have installed the JDK software in Windows, set the JAVA_HOME environment variable to point to the JDK installation directory.
4. Download the Elasticsearch software from the Elasticsearch website.

   Note: All nodes in the cluster must be of the same Elasticsearch version.

   Refer to the *SourceOne Products Compatibility Guide* for a listing of the latest supported versions of Elasticsearch.
5. On the target server, decompress the Elasticsearch `.zip` file into the SourceOne Native Archive installation directory. For example:

   `C:\Program Files\EMC SourceOne\EXPBA\bin\Elastic\elasticsearch`
6. Remove the Elasticsearch version number from the directory name.

   For example, rename the *elasticsearch- x.x.x* folder to the following:

   `elasticsearch`

7. Install the Elasticsearch software as a service:
   a. Open a command window with elevated Administrator permissions.
   b. Run the following file that is packaged with the Elasticsearch binaries:

      `elasticsearch-service.bat`

      Note: SourceOne indexing service does not spawn any components when the service is not running. If the service is not running, errors appear in the event log.

8. Change the Elasticsearch software from **Manual** startup to **Automatic** startup.

   For example:

   a. Browse to **Explorer** > **Services** or use the `service.bat` manager file that is packaged with the Elasticsearch binaries.
   b. In the **Services** window, locate and double-click the Elasticsearch installation file. For example:

      `Elasticsearch x.x.x elasticsearch-service-x86)`

      The **Properties** window appears.

   c. Edit the fields in the **Properties** window:
      a. For the startup type field, choose **Automatic**.
      b. Click **Apply**.
      c. Click **Start**.
      d. Click **OK**.

9. In the `elasticsearch.bat` file, edit the following line:

   From: `ES_JVM_OPTIONS=%~dp0\..\config\jvm.options`

   To: `ES_JVM_OPTIONS=..\config\jvm.options`

10. In the `elasticsearch-service.bat` file, edit the following line:

    From: `ES_JVM_OPTIONS=%ES_HOME%\config\jvm.options`

    To: `ES_JVM_OPTIONS=..\config\jvm.options`

11. To verify that the Elasticsearch cluster has been correctly setup, perform the following steps:
    a. Open a browser. For example, **Internet Explorer**.
    b. In the **Address** field, type the following:

       `http://localhost:9200/`

    c. Click **Search**.

       Elasticsearch displays output similar to the following. Depending on the browser, you might be prompted to download an additional file.

```
{
“status” :  200
“name”  :  “Force”,
“version”  :   (
    “number”  :  “1.2.1”,
```

```
"build_hash"   :   "6c95b759f9e7ef0f8e17f77dB50da43ce8a4b364"
"build_timestamp"  :  "2014-06-03T15: 02:52Z",
"build_snapshot" :  false,
"lucene_verison"  :  "4.8"
},
"tagline"  :  "You know, for search"

}
```

Configuring Elasticsearch data nodes

SourceOne requires that Elasticsearch data nodes in the existing cluster be configured for SourceOne queries. Note that this is a SourceOne query specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure Elasticsearch data nodes for use by the SourceOne query, perform the following procedure.

Procedure

1. In your preconfigured Elasticsearch environment, locate the data nodes that will be used for the SourceOne query.
2. For each Elasticsearch data node in the cluster, edit the `elasticsearch.yml` file and include the following updates:
   a. Ensure that each data node in the Elasticsearch cluster has a unique name.

      For example:

      ```
      node.name: <node_name>
      ```

   b. Do not allow the deletion of all the indexes with one command.

      For example:

      ```
      action.destructive_requires_name: true
      ```

   c. Disable dynamic scripting for security reasons.

      For example:

      ```
      script.allowed_types: none

      sript.allowed_contexts: none
      ```

   d. Do not allow the operating system to swap out the Elasticsearch Java process.
   e. Change the default paths for logs and index data.

      For example:

      ```
      path.logs: PATH

      path.data: PATH
      ```

   For more information about modifying the `elasticsearch.yml` file, refer to the Elasticsearch documentation.
3. Restart the Elasticsearch data node.
4. On Linux, change the virtual memory settings by setting limits on the mmap counts.
   a. Edit the `/etc/sysctl.conf` file.
   b. Modify the **vm.max_map_count** setting to a large number. For example, 262144.

5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:
   a. Browse to the Elasticsearch binary directory and open a command prompt.
   b. Run `elasticsearch-service.bat manager Nameoftheservice`
   c. In the **Properties** window, click **Java**.
   d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

      For example, if the Worker contains 24GB of memory, type 12288.

Configuring the Elasticsearch master node

SourceOne requires that one or more nodes in the Elastisearch cluster are configured to service SourceOne queries. Note that this is a SourceOne query specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure the Elasticsearch master node for use by the SourceOne query, perform the following procedure.

Procedure

1. In your preconfigured Elasticsearch environment, locate the master node.
2. On the Elasticsearch master node, edit the `elasticsearch.yml` file and include the following updates:
   a. Ensure that each master node in the Elasticsearch cluster has a unique name.

      For example:

      ```
      node.name: <node_name>
      ```

   b. Do not allow the deletion of all the indexes with one command.

      For example:

      ```
      action.destructive_requires_name: true
      ```

   c. Disable dynamic scripting for security reasons.

      For example:

      ```
      script.allowed_types: none

      script.allowed_contexts: none
      ```

   d. Do not allow the operating system to swap out the Elasticsearch Java process.
   e. You can change the default paths for logs and index data.

      For example:

      ```
      path.logs: PATH

      path.data: PATH
      ```

   For more information about modifying the `elasticsearch.yml` file, refer to the Elasticsearch documentation.
3. Restart the Elasticsearch master node.
4. On Linux, change the virtual memory settings by setting limits on the mmap counts.

a. Edit the `/etc/sysctl.conf` file.

b. Modify the **vm.max_map_count** setting to a large number.

For example, 262144.

5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:

a. Browse to the Elasticsearch binary directory and open a command prompt.

b. Run **elasticsearch-service.bat manager *Nameoftheservice***

c. In the **Properties** window, click **Java**.

d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

For example, if the Worker contains 24GB of memory, type 12288.

Configuring the Elasticsearch query node

SourceOne requires that Elasticsearch nodes in the existing cluster be configured for SourceOne queries. This process is a SourceOne query-specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure Elasticsearch nodes for use by the SourceOne query, perform the following procedure:

Procedure

1. In the preconfigured Elasticsearch environment, locate a node or nodes that are used for the SourceOne query.
2. For each Elasticsearch query node in the cluster, edit the `elasticsearch.yml` file and include the following updates:

a. Change the name of the cluster, even when testing the configuration. By default, all clusters have the name elasticsearch.

For example:

```
cluster.name: <cluster_name>
```

b. Ensure that all nodes in the cluster have a unique name.

For example:

```
node.name: <node_name>
```

c. Add the following SourceOne configuration attribute:

```
node.attr.is_query: true
```

d. To ensure that the node binds to port 9200 for http communication, add the following attribute:

```
http.port: 9200
```

e. Configure the cluster so that each Elasticsearch node can discover each other by using unicast discovery.

For example:

```
discovery.zen.ping.unicast.hosts: ["fqdn-of-master-node"]
```

f. Do not allow the deletion of all the indexes with one command.

   For example:

   ```
   action.destructive_requires_name: true
   ```

g. Disable dynamic scripting for security reasons.

   For example:

   ```
   script.allowed_types: none

   script.allowed_contexts: none
   ```

h. Configure query nodes as tribe nodes. SourceOne uses tribe nodes for multi-cluster support.

   The nodes that are installed on the Native Archive servers are configured by the index service as a tribe node.

   For example:

   ```
   tribe.mycluster.cluster.name: MyCluster
   ```

   The following setting is required to prevent the Elasticsearch cluster service from failing on the tribe node:

   `tribe.on_conflict: prefer_<cluster_name>`

   Where:

   <cluster_name> is the name of the cluster that is associated with a node.

   A merged view cannot handle indexes with the same name in multiple clusters. By default, the tribe node selects a cluster. If this conflict occurs, this setting specifies which cluster is preferred. For more information, see the following article:

   Elasticsearch tribe node settings

   Note: For new installations, Elasticsearch automatically adds this setting to the `elasticsearch.yml` file on the tribe node when documents are added to an index for the first time. This setting is applied when other changes to the `elasticsearch.yml` file are applied only on the tribe node. When upgrading from an existing installation, you are required to manually add this setting to prevent the Elasticsearch service from failing on the tribe node.

i. Do not allow the operating system to swap out the Elasticsearch Java process.

j. Change the default value for http requests from 4096 to 65536.

   For example:

   ```
   http.max_header_size: 65536
   ```

k. You can change the default paths for logs and index data.

   For example:

   ```
   path.logs: PATH

   path.data: PATH
   ```

For more information about modifying the `elasticsearch.yml` file, see the Elasticsearch documentation.

3. Restart the Elasticsearch node.
4. On Linux, change the virtual memory settings by setting limits on the mmap counts.

a. Edit the `/etc/sysctl.conf` file.

b. Modify the **vm.max_map_count** setting to a large number. For example, 262144.

5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:

   a. Browse to the Elasticsearch binary directory, and open a command prompt.

   b. Run **`elasticsearch-service.bat manager Nameoftheservice`**

   c. In the **Properties** window, click **Java**.

   d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

      For example, if the Worker contains 24 GB of memory, type 12288.

6. Verify that you have configured each node in the cluster correctly by performing the following steps:

   a. Open up a browser. For example, Internet Explorer.

   b. In the **address** field, type the following:

      `http://[MASTER-NODE-IP]:9200/_nodes/is_query:true/settings?pretty`

      Where [MASTER-NODE-IP] is the IP address of the Elasticsearch master node.

   c. Depending on the browser, you might be required to download an additional file.

   The response from Elasticsearch contains a list of nodes that were configured for the SourceOne query. For example:

```
"cluster_name" : "CentOSCluster",
  "nodes" : {
    "5fWynKmaT-ywTDI-dYjsBQ" : {
      "name" : "QueryNode1/CentOSCluster",
      "transport_address" : "inet[/192.168.2.25:9302]",
      "host" : "QueryNode1",
      "ip" : "192.168.2.25",
      "version" : "1.7.5",
      "build" : "00f95f4",
      "attributes" : {
        "is_query" : "true",
        "client" : "true",
        "data" : "false"
      },
      "settings" : {
        "node" : {
          "is_query" : "true",
          "name" : "QueryNode1/CentOSCluster",
          "client" : "true"
        },
        "cluster" : {
          "name" : "CentOSCluster"
        },
        "path" : {
          "logs" : "/logs"
        },
        "tribe" : {
          "name" : "CentOSCluster"
        },
        "discovery" : {
          "zen" : {
            "ping" : {
              "unicast" : {
                "hosts" : [ "192.168.2.31" ]
```

```
            }
          }
        }
      },
      "name" : "QueryNode1/CentOSCluster",
      "http" : {
        "enabled" : "false"
      },
      "client" : {
        "type" : "node"
      },
      "config" : {
        "ignore_system_properties" : "true"
      }
    }
```

Validating that the Elasticsearch Cluster has been correctly configured

To ensure that the data nodes and query node within an Elasticsearch cluster have been correctly configured to support SourceOne software, perform the following procedures.

Validating each data node in the Elasticsearch cluster

To ensure that each data node within the cluster has been correctly configured to support SourceOne, perform this procedure.

Before you begin

Ensure that the cluster only includes one data node when performing this validation test. The Elasticsearch software routes the document that you created to only one data node in the cluster and that is the node that you are validating. By removing all but one data node, you can ensure that the document is routed to the correct node.

If data has already been indexed for SourceOne, do not shut down all of the data nodes. You can validate the data node by joining the data node to a test cluster.

Procedure

1. Create an index with the following mapping:

```
curl -XPOST 'localhost:9200/emc' -d'{
  "mappings": {
    "doc": {
      "_source" : {
        "includes" : [ "rest" ],
        "excludes" : [ "name", "price"]
      },
      "properties": {
        "name" : {
          "type" : "string",
          "index" : "not_analyzed",
          "store" : "yes"
        },
        "price" : {
          "type" : "string",
          "index" : "not_analyzed",
          "store" : "yes"
        },
        "rest" : {
          "type" : "string",
          "index" : "not_analyzed"
        }
```

```
      }
    }
  }
}'
```

2. Index a document.

   For example:

```
curl -XPOST 'localhost:9200/emc/doc/1/' -d '{
 "name" : "Test 1",
 "price" : "70",
 "rest" : "Rest of the content"
}'
```

3. View the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty'
```

4. View all of the fields in the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty&fields=name,price,rest'
```

5. Update the document.

   For example:

```
curl -XPOST 'localhost:9200/emc/doc/1/_update' -d '{
  "script" : "s1update",
  "params" : {
    "debug" : true,
    "appenddatamap" : { "name" : ["updated name"]},
    "replacedatamap" : { "price" : [999]},
    "fields_to_load" : [ "name", "price" ]
  },
  "lang" : "groovy"
}'
```

6. View the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty'
```

7. View all of the fields in the document.

For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty&fields=name,price,rest'
```

Validating the query node

To ensure that each query node within the cluster has been correctly configured to support SourceOne, perform the following procedure.

Procedure

1. Open up a browser.

   For example, Internet Explorer.

2. In the **address** field, type the following command:

   ```
   http://[MASTER-NODE-IP]:9200/_nodes/is_query:true/settings?pretty
   ```

   where [MASTER-NODE-IP] is the IP address of the Elasticsearch master node.

3. Depending on your browser, you might be required to download an additional file.

   The response from Elasticsearch contains a list of nodes that were configured for the SourceOne query. For example:

```
"cluster_name" : "CentOSCluster",
  "nodes" : {
    "5fWynKmaT-ywTDI-dYjsBQ" : {
      "name" : "QueryNode1/CentOSCluster",
      "transport_address" : "inet[/192.168.2.25:9302]",
      "host" : "QueryNode1",
      "ip" : "192.168.2.25",
      "version" : "1.7.5",
      "build" : "00f95f4",
      "attributes" : {
        "is_query" : "true",
        "client" : "true",
        "data" : "false"
      },
      "settings" : {
        "node" : {
          "is_query" : "true",
          "name" : "QueryNode1/CentOSCluster",
          "client" : "true"
        },
        "cluster" : {
          "name" : "CentOSCluster"
        },
        "path" : {
          "logs" : "/logs"
        },
        "tribe" : {
          "name" : "CentOSCluster"
        },
        "discovery" : {
          "zen" : {
            "ping" : {
              "unicast" : {
                "hosts" : [ "192.168.2.31" ]
              }
            }
```

```
        }
      },
      "name" : "QueryNode1/CentOSCluster",
      "http" : {
        "enabled" : "false"
      },
      "client" : {
        "type" : "node"
      },
      "config" : {
        "ignore_system_properties" : "true"
      }
    }
```

Configuring the Elasticsearch software

Learn about how to configure Elasticsearch for SourceOne.

Configuring archive folders to support Elasticsearch

After you have connected the SourceOne system to the one or more archives, you must add an archive folder to the Native Archive.

About this task

You use the **General** page of the New Archive Folder wizard when adding an archive folder. Complete the following steps to add an archive folder.

Procedure

1. Open the SourceOne Console.
2. In the left pane, select the **Archive Folders** node for the Native Archive.

   The archive folders area lists any folders for the selected Native Archive.

3. Select **Action** > **New Archive Folder**.

   The New Archive Folder wizard appears.

4. In the **General** page of the New Archive Folder wizard, specify the general options as follows:

   a. In the **Folder Name** field, type a name for the folder.

   b. (Optional) In the **Description** field, type a description for the folder.

   c. Click **Next**.

      The **Storage Options** page of the New Archive Folder wizard appears.

5. In the **Storage Options** page, for the **Storage Type** field, select the type of storage to be used for the new archive folder.

   Note: The other fields displayed on this page will vary depending on which storage type option you select. The *SourceOne Email Management Administration Guide* includes information about selecting a storage type.

   a. Click **Next**.

      The **Large Content** page of the New Archive Folder wizard appears.

   b. Select how to store large content.

> **Note:** **The Large Content** page is the same for most storage option types except for the Atmos Container, the Data Domain Storage System Container, and the Virtual Container storage. The *SourceOne Email Management Administration Guide* includes information about configuring large content storage for all storage types.

c. Click **Next**.

The **Organization Options** page of the New Archive Folder wizard appears.

6. In the **Organization Options** page, specify the organization options as follows:

a. For the **Organizing Method** field, select the method to be used by the archive folder.

b. Click **Next**.

The **Indexing** page of the New Archive Folder wizard appears.

7. Configure Elasticsearch indexing:

a. To enable full-text indexing on the archive folder, select the **Enable Indexing** option.

b. In the **Indexing Engine** field, select **Elasticsearch**.

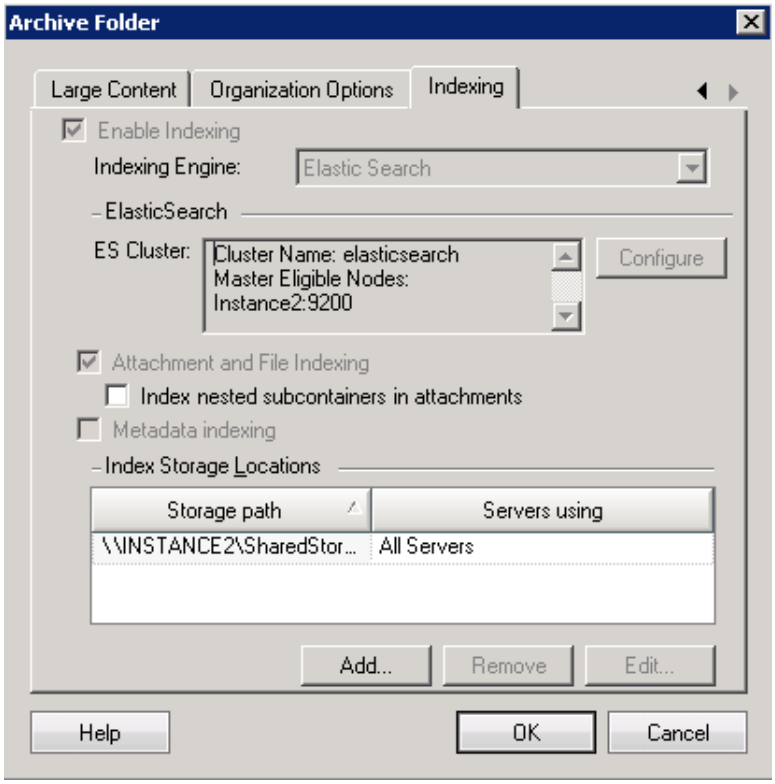
c. Select the **Attachment and File Indexing** option, and then click **Configure**.

The **Configure Elasticsearch Cluster** window appears.

For information about selecting indexing options such as **Attachment and File Indexing**, **Index nested subcontainers in attachments**, and **Metadata indexing**, refer to the *SourceOne Email Management Administration Guide*.

The following figure displays the **Archive Folder** window.

Figure 78 New Archive Folder- Indexing window



8. In the **Configure Elasticsearch Cluster** window, complete the following steps:

a. In the **FQDN** field, type one of the following:
   - The fully qualified domain name of a node inside of your Elasticsearch cluster.
   - The IP address of a node inside of your Elasticsearch cluster.

b. In the **Port** field, type the port number.

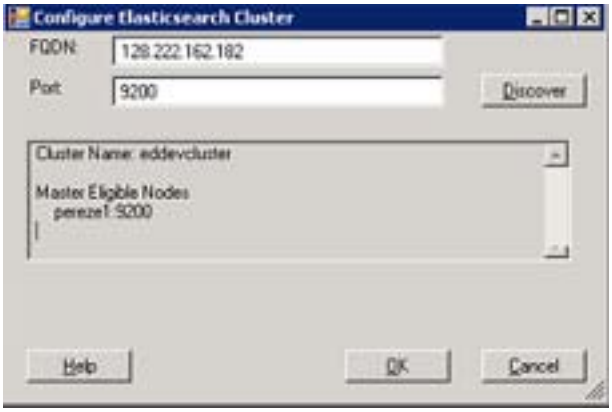
c. Click **Discover**.

d. Click **OK**.

The **Index Storage Location** window appears.

The following figure displays the **Configure Elasticsearch Cluster** window.

Figure 79 Configure Elasticsearch Cluster window



9. Specify the index storage location:
   a. Click **Browse**.
   b. Locate and select the storage location to be used.
   c. Click **OK**.
   d. Click **Finish**.

Verifying index types

To verify the index types, perform the following steps.

Procedure

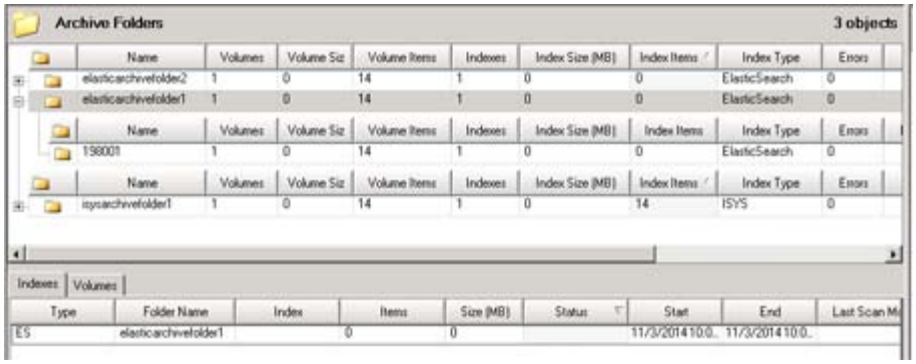
1. In the SourceOne Console, in the left pane, expand the **Native Archive Folder** node.
2. Double-click the **Archive Folders** node.

   The **Archive Folders** window appears.
3. In the **Archive Folder** window, review the status of the **Index Type** column.
   - **Elasticsearch**—Indicates that the folder has been indexed by using Elasticsearch.
   - **ISYS**—Indicates that the folder has been indexed by using ISYS.

   The index type for the selected folder should be marked as Elasticsearch.

   The following figure displays the **Archive Folders** window.

Figure 80 Elasticsearch Archive Folders



Converting indexes from ISYS to Elasticsearch

Elasticsearch enhances indexing and search performance and addresses scalability issues. The Elasticsearch system supports the same set of document types that ISYS supports.

About this task

To convert existing SourceOne ISYS indexes to Elasticsearch indexes, perform the following procedure. Before SourceOne 7.2, all SourceOne indexes were created by using ISYS indexing.

Procedure

1. Ensure that all volumes are closed before beginning the conversion of ISYS indexes to Elasticsearch indexes.
2. Open the SourceOne Console.
3. In the left pane, click the **Native Archive** node.
4. Right-click the ISYS archive folder that you want to convert to Elasticsearch and review the status of the **Index Type** column.

   The **Index Type** column specifies whether the index type is Elasticsearch or ISYS. For example:

   - **Converting**—Indicates that the index is converting from ISYS to Elasticsearch.
   - **Elasticsearch**—Indicates that the folder has been indexed using Elasticsearch.
   - **ISYS**—Indicates that the folder has been indexed using ISYS.

   The index type for the selected folder should be marked as Elasticsearch.
5. Click **Properties**.

   The **Archive Folder** window appears:

   a. Scroll to the **Indexing** tab.

      The **Indexing** page appears.

   b. In the **Indexing Engine** field, select **Elasticsearch**.

   c. Click **Configure**.

      The **Configure Elasticsearch Cluster** window appears.
6. Configure the Elasticsearch cluster:

   a. In the **FQDN** field, type the fully qualified domain name or IP address of a node inside of your Elasticsearch cluster.

b. Click **Discover**.

The configuration information displays in the window.

c. To close the window, click **OK**.

The **Archive Folder** window remains open.

7. To close the window, click **OK**.
8. Select the ISYS archive folder that you want to convert to Elasticsearch:
   a. Right-click the archive folder.
   b. Click **Convert**.

   The **Convert Folder** window appears.

   c. Click **Yes**.

CHAPTER 10

Upgrading Elasticsearch

This section describes how to upgrade Elasticsearch from a previously installed version.

Reindex Elasticsearch 1.x indexes

If you are using Elasticsearch 1.x indexes, you must reindex indexes with Elasticsearch 1.x and 2.4.4. This process ensures that indexes are compatible with Elasticsearch 5.5.0.

About this task

Use the `ES1IndexUpgrade.exe` utility to reindex Elasticsearch. Creating an index ensures that the most recent index mappings are compatible with Elasticsearch 2.4.4.

Note: Elasticsearch no longer supports version 1.7.5. It is recommended that you upgrade the Elasticsearch cluster.

Procedure

1. Download and install the `ES1IndexUpgrade.exe` utility.

   The `ES1IndexUpgrade.exe` utility is packaged with the SourceOne Email Management 7.2 SP5 software. You can download this utility from the following directory:

   `\Setup\Utility\ES1IndexUpgrade.exe`

2. On the server that has the SourceOne console installed, start the `ES1IndexUpgrade.exe` utility.

   The **ES1IndexUpgrade** window appears.

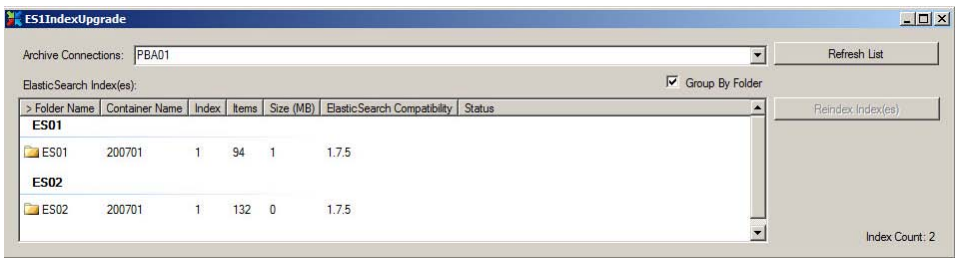
3. In the **Archive Connections** field, select the Native Archive that you want to upgrade.

   The list of indexes appears.

   Note: The Elasticsearch compatibility column indicates the latest Elasticsearch version that each index is compatible with.

4. To view the list of indexes grouped by folder, select **Group By Folder**.

   Figure 81 Reindexing Elasticsearch 1.x indexes



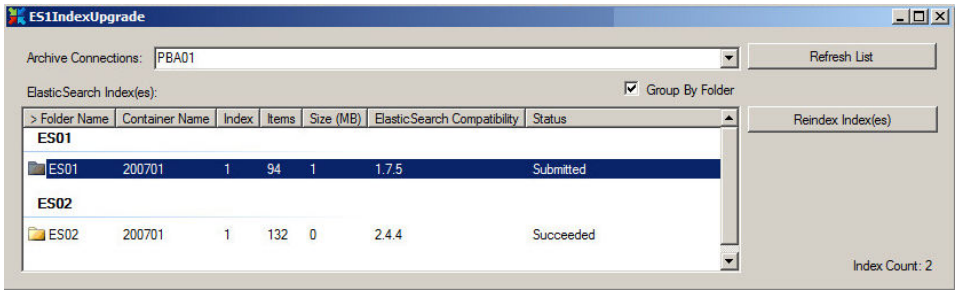
5. Select one or more indexes to reindex, and then click **Reindex Index(es)**.

   Note: To ensure that reindexing is successful, first run a single reindexing job. As you become more comfortable with the reindexing process, you can increase the number of reindexing jobs. The larger the index, the more time is required to complete the reindexing job. All reindexing jobs must complete before you can restart and troubleshoot a failed job. You cannot abort queued reindexing jobs.

   You can review the status of reindexing jobs in the **Status** column of the `ES1IndexUpgrade.exe` utility. The following status messages appear:

   - **Submitted**—indicates that the index in the list has been sent to be reindexed.
   - **Succeeded**—indicates that the index has successfully reindexed and is compatible with Elasticsearch 2.4.4.

Figure 82 Reindexing status



Increase or decrease the reindexing limit

If you are increasing or decreasing the reindexing limit on Elasticsearch indexes, consider the following information. By default, the Native Archive server allows a maximum of two reindexing jobs.

About this task

Note: You can use the **Convert** limit with ISYS to Elasticsearch index conversions, or if you are reindexing Elasticsearch indexes for upgrade. Use the **Convert** limit to restrict the number of jobs on each Native Archive server. This action allows specific servers to service specific job types.

Procedure

1. From the SourceOne Admin Console, display the properties of the Native Archive server that you want to use to process the reindexing jobs.

   The **Properties** dialog box appears.

2. In the **Properties** dialog box, select the **Index** tab.
3. In the **Convert** field, type a value between 0–4. This value indicates how many processes can run simultaneously.

   A value of 0 specifies that the Convert action does not occur. If you type a value of 0, a warning message appears.

4. To save changes, click **OK**.

Upgrade the Elasticsearch cluster to version 2.4.4

Before you begin

Ensure that all indexes are reindexed to Elasticsearch 2.4.4 before you upgrade the Elasticsearch software cluster. If you are using Elasticsearch 1.3.2, you must first delete the SourceOne scripts that were previously installed on the Elasticsearch data nodes. Refer to the SourceOne Email Management 7.2 SP4 release notes for more information.

Before upgrading the Elasticsearch cluster software, take the SourceOne Email Management software offline.

Procedure

1. Shut down the Elasticsearch software.
2. Install and configure the Elasticsearch cluster software.

   Refer to the Elasticsearch website for instructions on upgrading an Elasticsearch cluster.

3. After the Elasticsearch cluster software upgrade is complete, start the SourceOne Email Management software.

Reindex Elasticsearch 2.4.4 indexes

To create indexes that are compatible with Elasticsearch 5.5.0, you must reindex Elasticsearch 2.4.4 indexes.

About this task

To reindex Elasticsearch, copy documents from an existing index to a new index. Creating an index ensures that the most recent index mappings are compatible with the next version of Elasticsearch.

Procedure

1. Start the `ES1IndexUpgrade.exe` utility.

   The **ES1IndexUpgrade** window appears.

2. In the **Archive Connections** field, select the Native Archive that you want to upgrade.

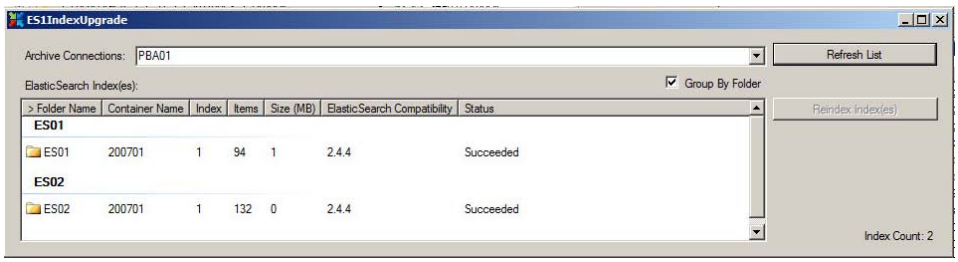
   The list of indexes appears.

   Note: The Elasticsearch compatibility column indicates the latest Elasticsearch version that each index is compatible with.

3. To view the list of indexes by group folder, select **Group By Folder**.

   The following figure displays the list of indexes in the **ES1IndexUpgrade** window.

   Figure 83 Reindexing Elasticsearch 2.4.4 indexes



4. Select one or more indexes to reindex, and then click **Reindex Index(es)**.

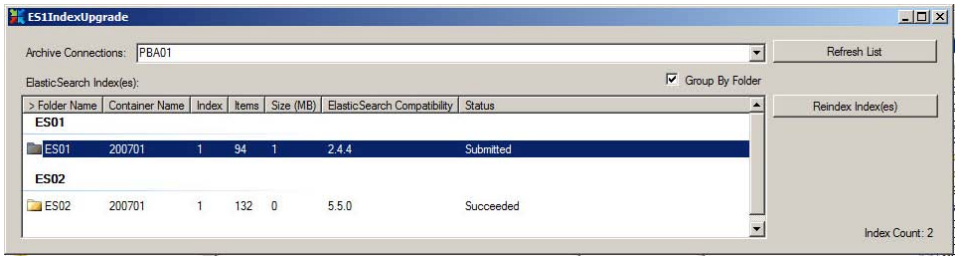
   Note: To ensure that reindexing is successful, first run a single reindexing job. As you become more comfortable with the reindexing process, you can increase the number of reindexing jobs. The larger the index, the more time is required to complete the reindexing job. All reindexing jobs must complete before you can restart and troubleshoot a failed job. You cannot abort queued reindexing jobs.

   You can review the status of reindexing jobs in the **Status** column of the `ES1IndexUpgrade.exe` utility. The following status messages appear:

   - **Submitted**—indicates that the index in the list has been sent to be reindexed.
   - **Succeeded**—indicates that the index has successfully reindexed and is compatible with Elasticsearch 5.5.0.

   The following figure displays the status of reindexing jobs.

Figure 84 Reindexing status



Increase or decrease the reindexing limit

If you are increasing or decreasing the reindexing limit on Elasticsearch indexes, consider the following information. By default, the Native Archive server allows a maximum of two reindexing jobs.

About this task

Note: You can use the **Convert** limit with ISYS to Elasticsearch index conversions, or if you are reindexing Elasticsearch indexes for upgrade. Use the **Convert** limit to restrict the number of jobs on each Native Archive server. This action allows specific servers to service specific job types.

Procedure

1. From the SourceOne Admin Console, display the properties of the Native Archive server that you want to use to process the reindexing jobs.

   The **Properties** dialog box appears.

2. In the **Properties** dialog box, select the **Index** tab.
3. In the **Convert** field, type a value between 0–4. This value indicates how many processes can run simultaneously.

   A value of 0 specifies that the Convert action does not occur. If you type a value of 0, a warning message appears.

4. To save changes, click **OK**.

Upgrade the Elasticsearch cluster to version 5.5.0

Before you begin

Ensure that all indexes are reindexed to Elasticsearch 5.5.0 before you upgrade the Elasticsearch software cluster.

Before upgrading the Elasticsearch cluster software, take the SourceOne Email Management software offline.

Procedure

1. Shut down Elasticsearch software.
2. Install and configure the Elasticsearch cluster software.

   Refer to the Elasticsearch website for instructions on upgrading an Elasticsearch cluster.

3. After the Elasticsearch cluster software upgrade is complete, start the SourceOne Email Management software.

Upgrading to Elasticsearch 6.6.0 from Elasticsearch 5.x

Note: Before you reindex Elasticsearch indexes and upgrade to Elasticsearch 6.6.0, upgrade the SourceOne software to version 7.2 SP9.

The procedure to upgrade the Elasticsearch software to 6.6.0 is the same procedure that is used to upgrade to earlier versions of Elasticsearch. The following steps outline the upgrade procedure:

1. Upgrade to SourceOne 7.2 SP9.
2. Reindex all Elasticsearch 5.x indexes
3. Upgrade the Elasticsearch cluster to Elasticsearch 6.6.0

To upgrade and configure Elasticsearch from Elasticsearch 5.x, use the procedures in the following sections.

Reindex Elasticsearch 5.x indexes

To create indexes that are compatible with Elasticsearch 6.6.0, you must reindex Elasticsearch 5.x indexes.

About this task

To reindex Elasticsearch, copy documents from an existing index to a new index. Creating an index ensures that the most recent index mappings are compatible with Elasticsearch 6.6.0.

Procedure

1. Download and install the `ES1IndexUpgrade.exe` utility.

   The `ES1IndexUpgrade.exe` utility is packaged with the SourceOne Email Management 7.2 SP8 software. You can download this utility from the following directory:

   `\Setup\Utility\ES1IndexUpgrade.exe`

2. On the server that has the SourceOne console installed, start the `ES1IndexUpgrade.exe` utility.

   The **ES1IndexUpgrade** window appears.

3. In the **Archive Connections** field, select the Native Archive that you want to upgrade.

   The list of indexes appears.

   Note: The Elasticsearch compatibility column indicates the latest Elasticsearch version that each index is compatible with.

4. To view the list of indexes by group folder, select **Group By Folder**.
5. Select one or more indexes to reindex, and then click **Reindex Index(es)**.

   Note: To ensure that reindexing is successful, first run a single reindexing job. As you become more comfortable with the reindexing process, you can increase the number of reindexing jobs. The larger the index, the more time is required to complete the reindexing job. All reindexing jobs must complete before you can restart and troubleshoot a failed job. You cannot abort queued reindexing jobs.

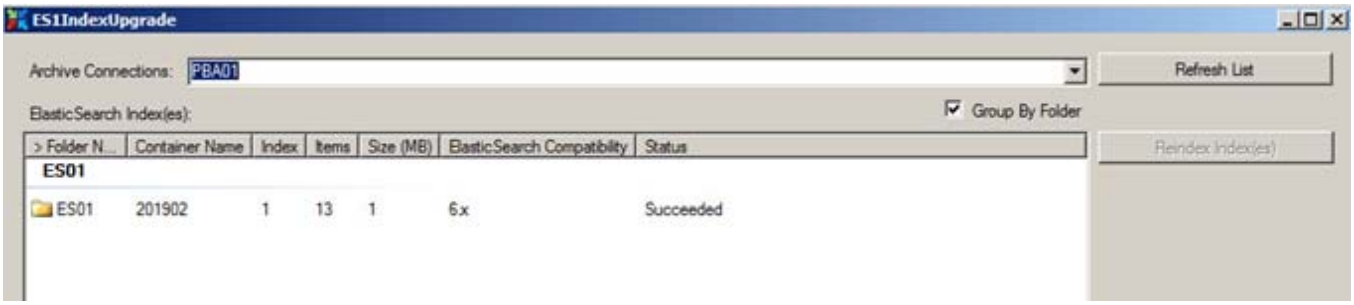
   You can review the status of reindexing jobs in the **Status** column of the `ES1IndexUpgrade.exe` utility. The following status messages appear:

   - **Submitted**—indicates that the index in the list has been sent to be reindexed.

- **Succeeded**—indicates that the index has successfully reindexed and is compatible with Elasticsearch 6.6.0.

The following figure displays the status of reindexing jobs.

Figure 85 Reindexing status



Increase or decrease the reindexing limit

If you are increasing or decreasing the reindexing limit on Elasticsearch indexes, consider the following information. By default, the Native Archive server allows a maximum of two reindexing jobs.

About this task

Note: You can use the **Convert** limit with ISYS to Elasticsearch index conversions, or if you are reindexing Elasticsearch indexes for upgrade. Use the **Convert** limit to restrict the number of jobs on each Native Archive server. This action allows specific servers to service specific job types.

Procedure

1. From the SourceOne Admin Console, display the properties of the Native Archive server that you want to use to process the reindexing jobs.

   The **Properties** dialog box appears.

2. In the **Properties** dialog box, select the **Index** tab.
3. In the **Convert** field, type a value between 0–4. This value indicates how many processes can run simultaneously.

   A value of 0 specifies that the Convert action does not occur. If you type a value of 0, a warning message appears.

4. To save changes, click **OK**.

Upgrade the Elasticsearch cluster to version 6.6.0

Before you begin

Before upgrading the Elasticsearch cluster, ensure that the following requirements are met:

- All indexes are reindexed to Elasticsearch 6.6.0.
- The SourceOne Email Management software is offline.
- Back up the indexes in your cluster.

Procedure

1. Shut down the Elasticsearch software.
2. Install and configure the Elasticsearch cluster software.

Upgrade all Elasticsearch nodes in the cluster, including the tribe nodes on Native Archive servers.
See the Elasticsearch website for instructions on upgrading an Elasticsearch cluster.

3. After the Elasticsearch cluster software upgrade is complete, start the SourceOne Email Management software.

   All indexes are complete and searchable.

After you finish

After the cluster upgrade is complete, reattach the index storage to the cluster. Also, verify that the cluster is healthy and that all nodes (including tribe nodes) are included in the cluster.

Configuring the Elasticsearch master node

SourceOne requires that one or more nodes in the Elastisearch cluster are configured to service SourceOne queries. Note that this is a SourceOne query specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure the Elasticsearch master node for use by the SourceOne query, perform the following procedure.

Procedure

1. In your preconfigured Elasticsearch environment, locate the master node.
2. On the Elasticsearch master node, edit the `elasticsearch.yml` file and include the following updates:
   a. Ensure that each master node in the Elasticsearch cluster has a unique name.

      For example:

      ```
      node.name: <node_name>
      ```

   b. Do not allow the deletion of all the indexes with one command.

      For example:

      ```
      action.destructive_requires_name: true
      ```

   c. Disable dynamic scripting for security reasons.

      For example:

      ```
      script.allowed_types: none

      script.allowed_contexts: none
      ```

   d. Do not allow the operating system to swap out the Elasticsearch Java process.

   e. You can change the default paths for logs and index data.

      For example:

      ```
      path.logs: PATH

      path.data: PATH
      ```

   For more information about modifying the `elasticsearch.yml` file, refer to the Elasticsearch documentation.
3. Restart the Elasticsearch master node.

4. On Linux, change the virtual memory settings by setting limits on the mmap counts.
   a. Edit the `/etc/sysctl.conf` file.
   b. Modify the **vm.max_map_count** setting to a large number.

      For example, 262144.
5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:
   a. Browse to the Elasticsearch binary directory and open a command prompt.
   b. Run **`elasticsearch-service.bat manager`** ***`Nameoftheservice`***
   c. In the **Properties** window, click **Java**.
   d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

      For example, if the Worker contains 24GB of memory, type 12288.

Configuring the Elasticsearch query node

SourceOne requires that Elasticsearch nodes in the existing cluster be configured for SourceOne queries. This process is a SourceOne query-specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure Elasticsearch nodes for use by the SourceOne query, perform the following procedure:

Procedure

1. In the preconfigured Elasticsearch environment, locate a node or nodes that are used for the SourceOne query.
2. For each Elasticsearch query node in the cluster, edit the `elasticsearch.yml` file and include the following updates:
   a. Change the name of the cluster, even when testing the configuration. By default, all clusters have the name elasticsearch.

      For example:

      ```
      cluster.name: <cluster_name>
      ```

   b. Ensure that all nodes in the cluster have a unique name.

      For example:

      ```
      node.name: <node_name>
      ```

   c. Add the following SourceOne configuration attribute:

      ```
      node.attr.is_query: true
      ```

   d. To ensure that the node binds to port 9200 for http communication, add the following attribute:

      ```
      http.port: 9200
      ```

   e. Configure the cluster so that each Elasticsearch node can discover each other by using unicast discovery.

      For example:

```
discovery.zen.ping.unicast.hosts: ["fqdn-of-master-node"]
```

f. Do not allow the deletion of all the indexes with one command.

For example:

```
action.destructive_requires_name: true
```

g. Disable dynamic scripting for security reasons.

For example:

```
script.allowed_types: none

script.allowed_contexts: none
```

h. Configure query nodes as tribe nodes. SourceOne uses tribe nodes for multi-cluster support.

The nodes that are installed on the Native Archive servers are configured by the index service as a tribe node.

For example:

```
tribe.mycluster.cluster.name: MyCluster
```

The following setting is required to prevent the Elasticsearch cluster service from failing on the tribe node:

`tribe.on_conflict: prefer_<cluster_name>`

Where:

<cluster_name> is the name of the cluster that is associated with a node.

A merged view cannot handle indexes with the same name in multiple clusters. By default, the tribe node selects a cluster. If this conflict occurs, this setting specifies which cluster is preferred. For more information, see the following article:

Elasticsearch tribe node settings

Note: For new installations, Elasticsearch automatically adds this setting to the `elasticsearch.yml` file on the tribe node when documents are added to an index for the first time. This setting is applied when other changes to the `elasticsearch.yml` file are applied only on the tribe node. When upgrading from an existing installation, you are required to manually add this setting to prevent the Elasticsearch service from failing on the tribe node.

i. Do not allow the operating system to swap out the Elasticsearch Java process.

j. Change the default value for http requests from 4096 to 65536.

For example:

```
http.max_header_size: 65536
```

k. You can change the default paths for logs and index data.

For example:

```
path.logs: PATH

path.data: PATH
```

For more information about modifying the `elasticsearch.yml` file, see the Elasticsearch documentation.

3. Restart the Elasticsearch node.

4. On Linux, change the virtual memory settings by setting limits on the mmap counts.
   a. Edit the `/etc/sysctl.conf` file.
   b. Modify the **vm.max_map_count** setting to a large number. For example, 262144.
5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:
   a. Browse to the Elasticsearch binary directory, and open a command prompt.
   b. Run **`elasticsearch-service.bat manager Nameoftheservice`**
   c. In the **Properties** window, click **Java**.
   d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

      For example, if the Worker contains 24 GB of memory, type 12288.
6. Verify that you have configured each node in the cluster correctly by performing the following steps:
   a. Open up a browser. For example, Internet Explorer.
   b. In the **address** field, type the following:

      `http://[MASTER-NODE-IP]:9200/_nodes/is_query:true/settings?pretty`

      Where [MASTER-NODE-IP] is the IP address of the Elasticsearch master node.
   c. Depending on the browser, you might be required to download an additional file.

   The response from Elasticsearch contains a list of nodes that were configured for the SourceOne query. For example:

```
"cluster_name" : "CentOSCluster",
  "nodes" : {
    "5fWynKmaT-ywTDI-dYjsBQ" : {
      "name" : "QueryNode1/CentOSCluster",
      "transport_address" : "inet[/192.168.2.25:9302]",
      "host" : "QueryNode1",
      "ip" : "192.168.2.25",
      "version" : "1.7.5",
      "build" : "00f95f4",
      "attributes" : {
        "is_query" : "true",
        "client" : "true",
        "data" : "false"
      },
      "settings" : {
        "node" : {
          "is_query" : "true",
          "name" : "QueryNode1/CentOSCluster",
          "client" : "true"
        },
        "cluster" : {
          "name" : "CentOSCluster"
        },
        "path" : {
          "logs" : "/logs"
        },
        "tribe" : {
          "name" : "CentOSCluster"
        },
        "discovery" : {
          "zen" : {
            "ping" : {
```

```
            "unicast" : {
              "hosts" : [ "192.168.2.31" ]
            }
          }
        }
      },
      "name" : "QueryNode1/CentOSCluster",
      "http" : {
        "enabled" : "false"
      },
      "client" : {
        "type" : "node"
      },
      "config" : {
        "ignore_system_properties" : "true"
      }
    }
```

Configuring Elasticsearch data nodes

SourceOne requires that Elasticsearch data nodes in the existing cluster be configured for SourceOne queries. Note that this is a SourceOne query specific setting. SourceOne uses this setting to determine what node to contact when distributing queries.

About this task

To configure Elasticsearch data nodes for use by the SourceOne query, perform the following procedure.

Procedure

1. In your preconfigured Elasticsearch environment, locate the data nodes that will be used for the SourceOne query.
2. For each Elasticsearch data node in the cluster, edit the `elasticsearch.yml` file and include the following updates:
   a. Ensure that each data node in the Elasticsearch cluster has a unique name.

      For example:

      `node.name: <node_name>`

   b. Do not allow the deletion of all the indexes with one command.

      For example:

      `action.destructive_requires_name: true`

   c. Disable dynamic scripting for security reasons.

      For example:

      `script.allowed_types: none`

      `sript.allowed_contexts: none`

   d. Do not allow the operating system to swap out the Elasticsearch Java process.

   e. Change the default paths for logs and index data.

      For example:

      `path.logs: PATH`

      `path.data: PATH`

For more information about modifying the `elasticsearch.yml` file, refer to the Elasticsearch documentation.

3. Restart the Elasticsearch data node.
4. On Linux, change the virtual memory settings by setting limits on the mmap counts.
   a. Edit the `/etc/sysctl.conf` file.
   b. Modify the **vm.max_map_count** setting to a large number. For example, 262144.
5. To allocate memory for the Elasticsearch java process, change the Elasticsearch startup scripts for the operating system by setting **ES_HEAP_SIZE**:
   a. Browse to the Elasticsearch binary directory and open a command prompt.
   b. Run **`elasticsearch-service.bat manager`** ***`Nameoftheservice`***
   c. In the **Properties** window, click **Java**.
   d. In the **Initial memory pool** field and the **Thread stack size** field, change the value to half of the Worker memory.

      For example, if the Worker contains 24GB of memory, type 12288.

Validating that the Elasticsearch Cluster has been correctly configured

To ensure that the data nodes and query node within an Elasticsearch cluster have been correctly configured to support SourceOne software, perform the following procedures.

Validating each data node in the Elasticsearch cluster

To ensure that each data node within the cluster has been correctly configured to support SourceOne, perform this procedure.

Before you begin

Ensure that the cluster only includes one data node when performing this validation test. The Elasticsearch software routes the document that you created to only one data node in the cluster and that is the node that you are validating. By removing all but one data node, you can ensure that the document is routed to the correct node.

If data has already been indexed for SourceOne, do not shut down all of the data nodes. You can validate the data node by joining the data node to a test cluster.

Procedure

1. Create an index with the following mapping:

```
curl -XPOST 'localhost:9200/emc' -d'{
  "mappings": {
    "doc": {
      "_source" : {
        "includes" : [ "rest" ],
        "excludes" : [ "name", "price"]
      },
      "properties": {
        "name" : {
          "type" : "string",
          "index" : "not_analyzed",
          "store" : "yes"
        },
```

```
        "price" : {
          "type" : "string",
          "index" : "not_analyzed",
          "store" : "yes"
        },
        "rest" : {
          "type" : "string",
          "index" : "not_analyzed"
        }
      }
    }
  }
}'
```

2. Index a document.

   For example:

```
curl -XPOST 'localhost:9200/emc/doc/1/' -d '{
 "name" : "Test 1",
 "price" : "70",
 "rest" : "Rest of the content"
}'
```

3. View the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty'
```

4. View all of the fields in the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty&fields=name,price,rest'
```

5. Update the document.

   For example:

```
curl -XPOST 'localhost:9200/emc/doc/1/_update' -d '{
  "script" : "s1update",
  "params" : {
    "debug" : true,
    "appenddatamap" : { "name" : ["updated name"]},
    "replacedatamap" : { "price" : [999]},
    "fields_to_load" : [ "name", "price" ]
  },
  "lang" : "groovy"
}'
```

6. View the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty'
```

7. View all of the fields in the document.

   For example:

```
curl -XGET 'localhost:9200/emc/doc/1?pretty&fields=name,price,rest'
```

Validating the query node

To ensure that each query node within the cluster has been correctly configured to support SourceOne, perform the following procedure.

Procedure

1. Open up a browser.

   For example, Internet Explorer.

2. In the **address** field, type the following command:

```
http://[MASTER-NODE-IP]:9200/_nodes/is_query:true/settings?pretty
```

   where [MASTER-NODE-IP] is the IP address of the Elasticsearch master node.

3. Depending on your browser, you might be required to download an additional file.

   The response from Elasticsearch contains a list of nodes that were configured for the SourceOne query. For example:

```
"cluster_name" : "CentOSCluster",
  "nodes" : {
    "5fWynKmaT-ywTDI-dYjsBQ" : {
      "name" : "QueryNode1/CentOSCluster",
      "transport_address" : "inet[/192.168.2.25:9302]",
      "host" : "QueryNode1",
      "ip" : "192.168.2.25",
      "version" : "1.7.5",
      "build" : "00f95f4",
      "attributes" : {
        "is_query" : "true",
        "client" : "true",
        "data" : "false"
      },
      "settings" : {
        "node" : {
          "is_query" : "true",
          "name" : "QueryNode1/CentOSCluster",
          "client" : "true"
        },
        "cluster" : {
          "name" : "CentOSCluster"
        },
        "path" : {
          "logs" : "/logs"
        },
        "tribe" : {
          "name" : "CentOSCluster"
        },
        "discovery" : {
          "zen" : {
            "ping" : {
              "unicast" : {
                "hosts" : [ "192.168.2.31" ]
```

```
            }
          }
        }
      },
      "name" : "QueryNode1/CentOSCluster",
      "http" : {
        "enabled" : "false"
      },
      "client" : {
        "type" : "node"
      },
      "config" : {
        "ignore_system_properties" : "true"
      }
    }
```

Configuring the Elasticsearch software

Learn about how to configure Elasticsearch for SourceOne.

Configuring archive folders to support Elasticsearch

After you have connected the SourceOne system to the one or more archives, you must add an archive folder to the Native Archive.

About this task

You use the **General** page of the New Archive Folder wizard when adding an archive folder. Complete the following steps to add an archive folder.

Procedure

1. Open the SourceOne Console.
2. In the left pane, select the **Archive Folders** node for the Native Archive.

   The archive folders area lists any folders for the selected Native Archive.

3. Select **Action** > **New Archive Folder**.

   The New Archive Folder wizard appears.

4. In the **General** page of the New Archive Folder wizard, specify the general options as follows:

   a. In the **Folder Name** field, type a name for the folder.

   b. (Optional) In the **Description** field, type a description for the folder.

   c. Click **Next**.

   The **Storage Options** page of the New Archive Folder wizard appears.

5. In the **Storage Options** page, for the **Storage Type** field, select the type of storage to be used for the new archive folder.

   Note: The other fields displayed on this page will vary depending on which storage type option you select. The *SourceOne Email Management Administration Guide* includes information about selecting a storage type.

   a. Click **Next**.

   The **Large Content** page of the New Archive Folder wizard appears.

b. Select how to store large content.

> **Note: The Large Content** page is the same for most storage option types except for the Atmos Container, the Data Domain Storage System Container, and the Virtual Container storage. The *SourceOne Email Management Administration Guide* includes information about configuring large content storage for all storage types.

c. Click **Next**.

The **Organization Options** page of the New Archive Folder wizard appears.

6. In the **Organization Options** page, specify the organization options as follows:

a. For the **Organizing Method** field, select the method to be used by the archive folder.

b. Click **Next**.

The **Indexing** page of the New Archive Folder wizard appears.

7. Configure Elasticsearch indexing:

a. To enable full-text indexing on the archive folder, select the **Enable Indexing** option.

b. In the **Indexing Engine** field, select **Elasticsearch**.

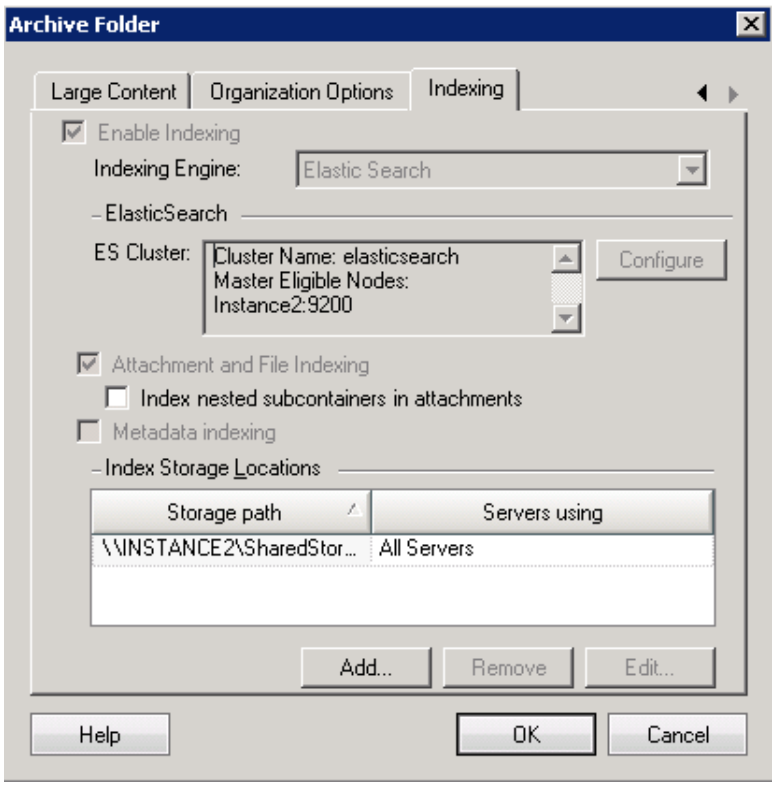
c. Select the **Attachment and File Indexing** option, and then click **Configure**.

The **Configure Elasticsearch Cluster** window appears.

For information about selecting indexing options such as **Attachment and File Indexing**, **Index nested subcontainers in attachments**, and **Metadata indexing**, refer to the *SourceOne Email Management Administration Guide*.

The following figure displays the **Archive Folder** window.

Figure 86 New Archive Folder- Indexing window

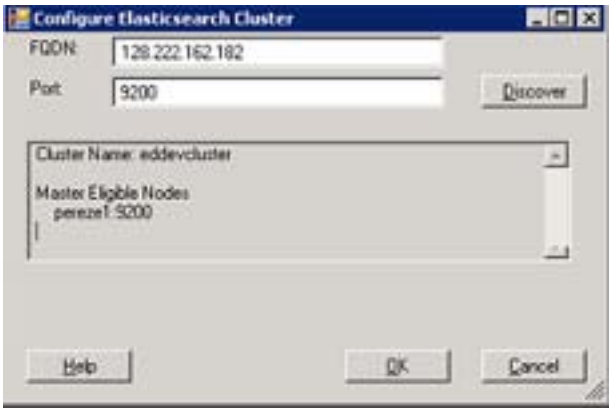


8. In the **Configure Elasticsearch Cluster** window, complete the following steps:
   a. In the **FQDN** field, type one of the following:
      - The fully qualified domain name of a node inside of your Elasticsearch cluster.
      - The IP address of a node inside of your Elasticsearch cluster.
   b. In the **Port** field, type the port number.
   c. Click **Discover**.
   d. Click **OK**.

      The **Index Storage Location** window appears.

      The following figure displays the **Configure Elasticsearch Cluster** window.

      Figure 87 Configure Elasticsearch Cluster window



9. Specify the index storage location:
   a. Click **Browse**.
   b. Locate and select the storage location to be used.
   c. Click **OK**.
   d. Click **Finish**.

Verifying index types

To verify the index types, perform the following steps.

Procedure

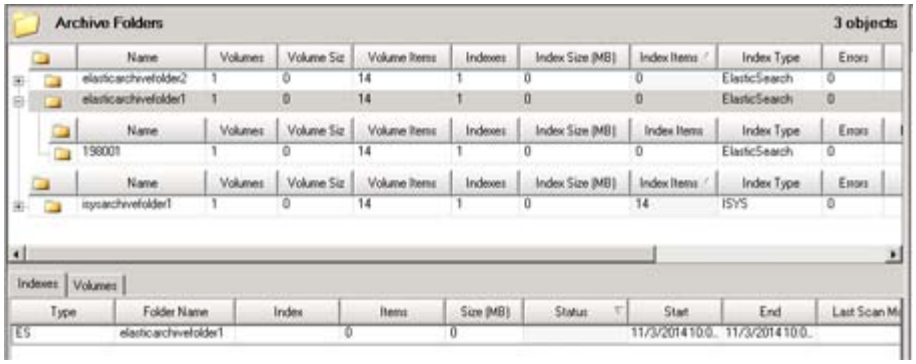
1. In the SourceOne Console, in the left pane, expand the **Native Archive Folder** node.
2. Double-click the **Archive Folders** node.

   The **Archive Folders** window appears.
3. In the **Archive Folder** window, review the status of the **Index Type** column.
   - **Elasticsearch**—Indicates that the folder has been indexed by using Elasticsearch.
   - **ISYS**—Indicates that the folder has been indexed by using ISYS.

   The index type for the selected folder should be marked as Elasticsearch.

   The following figure displays the **Archive Folders** window.

Figure 88 Elasticsearch Archive Folders



APPENDIX A

Domino Configuration and Administration

This section contains the following topics:

Journaling configuration and administration

This section provides information that is related to configuration and administration of journaling functionality.

Journaling administration

This section provides information on journaling administration.

Configuring administrator access to journaling databases

About this task

You must configure a group in Domino which corresponds to the SourceOne Admins Group created in Active Directory which contains users of the SourceOne console, see Creating accounts in Active Directory on page 35 for details. You then associate the Domino group with each journal database used by SourceOne.

Use the following procedure to configure administrator access to journaling databases.

Procedure

1. Create a group using Domino Administrator. Use the following guidelines:
   - Group name–Use a contextual name such as *SourceOne Admins* SourceOne
   - Members–Add the same users in the Active Directory Admins Group to the Domino group.
2. Run the Notes client application using the SourceOne Notes User account, typically on the Master Services computer or a Worker Services computer.
3. Configure the access control for each journal database by adding the Domino group with Reader access.

Results

To maintain the configuration, ensure the following:

- As the SourceOne Admins Group in Active Directory changes, ensure that users are added and deleted in the corresponding Domino group.
- As `mail.box` databases are created, and therefore corresponding journal mailboxes, ensure that you repeat this procedure to configure administrative access to the new journaling databases.

Starting and stopping SourceOne journaling

SourceOne journaling provides utilities to start and stop journaling for the supported platforms.

Microsoft Windows platforms

The SourceOne Extensions for Domino install program installs the `ExNotesCfg.exe` utility in the Domino program folder. This utility allows you to stop and start journaling without affecting the state of the Lotus Domino server.

About this task

When you run the utility, it creates an entry in the `Notes.ini` file. The command syntax depends on the relative location of the `Notes.ini` file and the `ExNotesCfg.exe` file.

Perform the following steps to stop or start journaling on the Domino server.

Procedure

1. Verify that the Domino server is running.
2. Verify the location of the `Notes.ini` file. This is likely the Domino program folder (`c:\Notes\Domino`).
3. Verify that the `ExNotesCfg.exe` file is in the Domino program folder.
4. Open a command prompt and run `ExNotesCfg.exe` in the directory where `Notes.ini` resides.
5. Type the command to enable or disable journaling.

Table 48 Commands to start or stop Domino journaling

File location	Command	Result
`Notes.ini` and `ExNotesCfg.exe` files are both in the `c:\Notes\Domino` directory	`c:\notes\domino>ExNotesCfg journal_enable`	Enable journaling
`Notes.ini` file is located in `c:\notes\data` and `ExNotesCfg.exe` is located in `c:\Notes\Domino`	`c:\notes\data>c:\notes\domino\ExNotesCfg journal_enable`	Enable journaling
`Notes.ini` and `ExNotesCfg.exe` files are both in the `c:\Notes\Domino` directory	`c:\notes\domino>ExNotesCfg journal_disable`	Disable journaling
`Notes.ini` file is located in `c:\notes\data` and `ExNotesCfg.exe` is located in `c:\Notes\Domino`	`c:\notes\data>c:\notes\domino\ExNotesCfg journal_disable`	Disable journaling

Solaris, Linux, or AIX platforms

The Journaling Extension Manager includes a Notes Add-in task (`exnotescfg`) that allows you to stop or start journaling from the Domino server console without affecting the state of the Domino server.

About this task

Follow these steps to start the Journaling Extension Manager.

Procedure

1. Verify that the Domino server is running.
2. Type the following command in the Domino server console:

   `load exnotescfg journal_enable`

3. To stop the Journaling Extension Manager, perform the following steps:
   a. Verify that the Domino server is running.
   b. Type the following command in the Domino server console:

      `load exnotescfg journal_disable`

4. To list the current setting for the Journaling Extension Manager, perform the following steps:

   a. Verify that the Domino server is running.

   b. Type the following command in the Domino server console:

   ```
   load exnotescfg 3
   ```

Starting and stopping journaling on partitioned Domino

Disabling SourceOne journaling on one partition of a Domino partitioned server disables all Domino servers on that computer.

When SourceOne journaling is started with two or more Domino partitioned servers on a computer, the messages that indicate journaling is starting are only displayed at the console for the first server journaled. Initialization messages for the journaling of the other servers are not displayed at the console. However, those messages are available in the `\Data\log.nsf` file for each server.

Managing the native Domino journaling environment

Refer to the IBM Lotus Domino documentation for information on configuring and managing the native Domino journaling environment.

Configuring journaling activities

Refer to the *SourceOne Administration Guide* for details and procedures for configuring Domino journaling activities against SourceOne or native Domino journaling databases.

SourceOne journaling considerations

This section describes journaling considerations when using SourceOne journaling extensions.

Journaling databases

Journaling databases are a holding place for messages before they are archived by SourceOne. The Journaling Extension Manager creates `ExJournal.nsf` using a template which is installed with the Journaling Extension Manager. A task running on an SourceOne Worker Services computer then archives messages from the journaling database to an SourceOne archive.

Journaling templates

Two templates are included with SourceOne journaling from which journaling databases (ExJournal.nsf) can be created.

- `ExJournal.ntf` – The base template that is used to create the journaling mailbox databases.
- `ExJournal_ntl.ntf` – This alternative template is the same as `ExJournal.ntf`, but does not have transactional logging enabled.

You can control which template is used as follows:

- To use the `ExJournal_ntl.ntf` template (transaction logging disabled), add the following line to the `notes.ini` file: **`ExDisableJournalTXNLogging=1`**
- To use the `ExJournal.ntf` template (transaction logging enabled), do not edit the `notes.ini` file.

Additional journaling databases

If the Domino administrator configures additional mail.box databases on the Domino server after you have installed the Journaling Extension Manager, the Journaling Extension Manager will create additional Notes databases and name them incrementally (such as ExJournal1.nsf, ExJournal2.nsf).

There must be a one-to-one relationship between the mail.box files for the journaling databases and the Notes databases for each journaling database.

Cleaning up the bad documents folder

Messages that could not be transferred from a Domino mail server are moved to the Bad Documents Folder of the Domino journaling database. Installing SourceOne journaling also installs a cleanup agent, named `ExProcBadDocs`, which takes messages from the Bad Documents Folder, places them in an NSF file and then places the NSF file into a message as an attachment. It then puts that message back in the All Documents view of the journaling database for processing.

ExFailover.nsf database

In the event of a failure to copy mail to one of the ExJournal.nsf databases, an ExFailover.nsf database is created. A corresponding message is written to the Domino console. If this occurs, you must configure an SourceOne activity to archive mail from this database.

Multiple Domino servers

When journaling messages in an environment in which there are multiple IBM Domino servers sending email messages, with some IBM Domino servers routing those messages, install SourceOne Journaling Extension Manager on all IBM Domino servers that are sending messages or are routing messages. Capturing messages at the source prevents recipient information in the message from being lost during the routing process.

Managing high-volume journaling databases

If you have corruption issues with high volume journaling databases, turn off Transactional Logging on all Notes databases that are created for SourceOne and then compact the databases. For instructions, refer to the Lotus Domino documentation. You can also control whether the template used to create SourceOne journaling databases enables or disables transactional logging when it creates journaling databases. Refer to Journaling templates on page 236.

Native Domino journaling considerations

This section describes journaling considerations when using native Domino journaling.

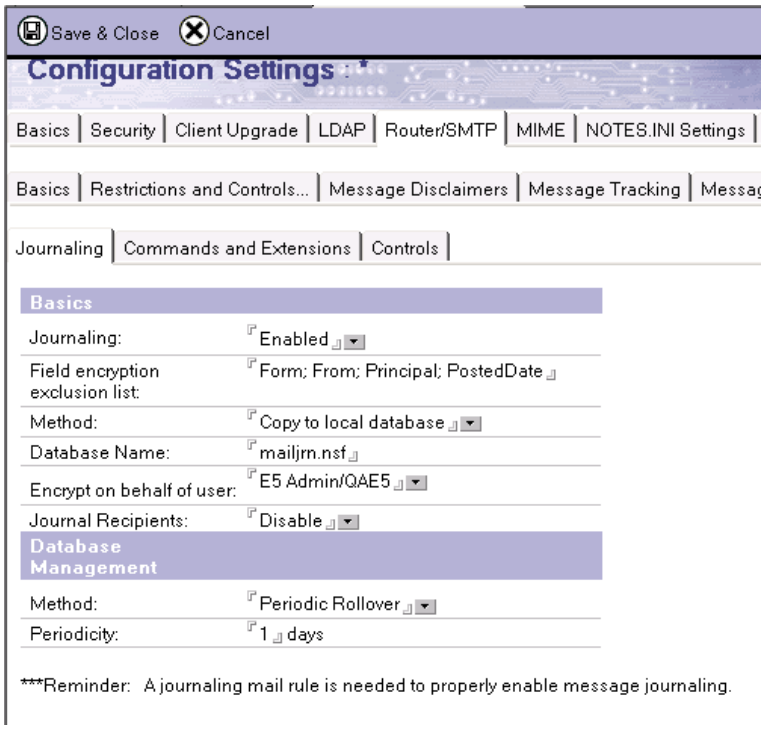
Note: For SourceOne journaling considerations, refer to Native Domino journaling considerations on page 237.

Journaling database configuration

To support native Domino journaling, you do not need to install any SourceOne software. However, SourceOne requires that the native Domino journaling database have the following minimum settings.

- **Journaling**–Specify **Enabled**.
- **Field encryption exclusion list** –Do not change the default fields (Form; From; Principal; PostedDate).
- **Encrypt on behalf of user**–Specify the SourceOne Lotus Notes user account (IBM Lotus Domino permissions on page 49).

Figure 89 Configuration Settings



Cleaning up the Bad Documents Folder

Messages that could not be transferred from a Domino mail server are moved to the Bad Documents Folder of the Domino journaling database. The following options are available, depending on the environment.

When you select the native Domino journaling options when installing SourceOne Extensions, the ExProcBadDocs agent is installed. This "cleanup" agent (ExProcBadDocs) takes messages from the Bad Documents Folder, places them in an NSF file and then places the NSF file into a message as an attachment. It then puts that message back in the All Documents view of the journaling database for processing.

To take advantage of this functionality, you must rename the native Domino journaling database from the Domino default name (for example, `mailjrn.nsf`) to the same name used with SourceOne journaling (`ExJournal.nsf`). This is required to enable the ExProcBadDocs agent to interact with the journaling database.

If you choose not to use ExProcBadDocs, the mail administrator is responsible for manually monitoring and cleaning up this folder.

Information resources

For information on enabling native Domino mail journaling and setting up the mail journaling database, refer to the IBM Lotus Domino documentation set for the version of Domino you are using.

Shortcutting configuration and administration

This section provides information that is related to configuration and administration of shortcutting functionality.

Shortcutting administration

This section includes the information on shortcutting administration.

Configuring antivirus software on the Domino server

When SourceOne creates a shortcut, it modifies the message by removing attachments from the message. If you have configured antivirus software on the Lotus Domino server to rescan email that is modified in a Notes user's mailbox, the antivirus software detects the modified message and rescans the message. This results in the Domino server trying to retrieve the shortcut message from the SourceOne archive using an HTTP call. Because SourceOne can quickly create thousands of shortcut messages, this can result in the Domino server being flooded with HTTP calls until it eventually fails. When this occurs, the SourceOne Shortcut Extension Manager signals multiple errors to the Domino console.

About this task

Use the following procedure to configure anti-virus software on the Domino server.

Procedure

1. If the antivirus software rescans modified messages, disable that option on Domino servers that contain SourceOne shortcuts.

   If you must run a full virus scan of user mail databases that contain shortcuts, disable the Shortcut Extension Manager by using the `exnotescfg` utility before running the scan.

2. Reload the Shortcut Extension Manager:

   a. Replace the file name in the `Notes.ini` file on the Domino server.

   b. Save the `Notes.ini` file.

   c. Stop and then restart the Domino server.

Starting and stopping shortcutting

SourceOne journaling provides utilities to start and stop shortcutting for the supported platforms.

Microsoft Windows platforms

The SourceOne Extensions for Domino install program installs the ExNotesCfg.exe utility in the Domino program folder. This utility allows you to stop and start shortcutting without affecting the state of the Lotus Domino server.

About this task

When you run the utility, it creates an entry in the `Notes.ini` file. The command syntax depends on the relative location of the `Notes.ini` file and the `ExNotesCfg.exe` file as described in Table 57 on page 181.

Perform the following steps to stop or start shortcutting on the Domino server.

Procedure

1. Verify that the Domino server is running.
2. Verify the location of the `Notes.ini` file. This is likely the Domino program folder (`c:\Notes\Domino`).
3. Verify that the `ExNotesCfg.exe` file is in the Domino program folder.
4. Open a command prompt and run `ExNotesCfg.exe` in the directory where `Notes.ini` resides.
5. Type the command to enable or disable shortcutting.

Table 49 Commands to start or stop Domino shortcutting

File location	Command	Result
`Notes.ini` and `ExNotesCfg.exe` files are both in the `c:\Notes\Domino` directory	`c:\notes\domino>ExNotesCfg shortcut_enable`	Enable shortcutting
`Notes.ini` file is located in `c:\notes\data` and `ExNotesCfg.exe` is located in `c:\Notes\Domino`	`c:\notes\data>c:\notes\domino\ExNotesCfg shortcut_enable`	Enable shortcutting
`Notes.ini` and `ExNotesCfg.exe` files are both in the `c:\Notes\Domino` directory	`c:\notes\domino>ExNotesCfg shortcut_disable`	Disable shortcutting
`Notes.ini` file is located in `c:\notes\data` and `ExNotesCfg.exe` is located in `c:\Notes\Domino`	`c:\notes\data>c:\notes\domino\ExNotesCfg shortcut_disable`	Disable shortcutting

Solaris, Linux, or AIX platforms

The `exnotescfg` utility allows you to stop or start shortcutting from the Domino server console without affecting the state of the Domino server.

About this task

To enable shortcutting, verify that the Domino server is running and then type the following command in the Domino server console:

`load exnotescfg shortcut_enable`

To stop shortcutting, verify that the Domino server is running and then type the following command in the Domino server console:

`load exnotescfg shortcut_disable`

To list the current setting for SourceOne shortcutting, verify that the Domino server is running and then type the following command in the Domino server console:

`load exnotescfg 3`

Configuring shortcutting activities

Refer to the *SourceOne Email Management Administration Guide* for details and procedures for configuring IBM Domino shortcutting activities.

Shortcutting considerations

This section describes shortcutting considerations.

SourceOne and SSL connections

If the SourceOne Worker Services computer with Web Services installed has been configured to only allow SSL connections, shortcuts cannot be retrieved in Notes using the Shortcut Extension Manager installed on the Domino server.

Agent issues

Agents such as the Out of Office agent can cause potential performance problems, causing large scale restoration of shortcut messages. The IBM Domino agent manager does not restore shortcuts.

IBM Domino local replicas and shortcuts

If using IBM Domino local replicas and shortcuts exist in a user's mail database, IBM Domino temporarily restores attachments to the mail database hosted on the IBM Domino server until a compact is run again.

Workaround

IBM Domino administrators should be aware of this issue and monitor server space and user mail database size limits.

IBM Domino compact operation and shortcut activity timing

If a shortcut activity is launched while IBM Domino is compacting databases, an error similar to the following is generated.

```
Failed to open note. [ExShortcutJBC.exe,
ExNotesUtils.cpp(3683).CExNotesUtils::OpenNote]
```

Workaround

Review the nightly compact schedule and adjust the timing of shortcut activities. You can also re-run activities against mail databases that failed to be shortcut.

Historical archiving configuration and administration

Historical archiving support is inherently provided through permissions that are granted to SourceOne to mail databases on the Domino servers. You do not need to install any SourceOne software to support historical archiving.

Refer to the *SourceOne Administration Guide* for details and procedures for configuring Domino historical archiving activities.

APPENDIX B

Single Sign-on Support Example (Windows)

This section contains the following topics:

Overview

SourceOne web applications can use the Microsoft trusted subsystem design in which the web service acts as a trusted subsystem to access additional resources.

This example configuration uses credentials that are provided in the configuration instead of the user's credentials to access the resource. For more information on this design, refer to:

http://msdn.microsoft.com/en-us/library/aa480587.aspx

Example details

This example allows a user to access SourceOne web applications and resolve shortcuts using the built-in Windows Integrated authentication mechanism of an IIS 7.5 server and a properly configured Internet Explorer web browser.

The goal of this example is that when an authenticated Windows user accesses the URL for the SourceOne web applications, for example, SourceOne Search and SourceOne SharePoint Archive Search, the user is not prompted for credentials. The user is automatically logged in to the application. When a user tries to resolve an email or file shortcut, the user is not prompted for credentials, and the message or file is restored.

SourceOne Kazeon eDiscovery considerations

SourceOne Kazeon eDiscovery enables organizations to efficiently and cost-effectively classify, manage, and retrieve data.

To integrate with the SourceOne core product, SourceOne Kazeon eDiscovery communicates with an SourceOne Web Services IIS website using the Basic authentication method, while the single sign-on example detailed in this section is based on Windows Integrated authentication.

Review the following options when implementing single sign-on support in an environment which includes SourceOne Kazeon eDiscovery:

- Mixed authentication
- Single sign-on for Universal URL only

Mixed authentication

You can provide a mixed authentication environment which simultaneously supports the following.

- SourceOne Search, SourceOne for Microsoft SharePoint Archive Search, and Universal URL authentication using Windows Integrated authentication.
- SourceOne Kazeon eDiscovery authentication using Basic authentication.

Perform the following to support this configuration:

1. Install Web Services software on separate Worker computers to provide separate instances of a Web Services IIS site (SearchWS) for Kazeon and Search.
2. Configure the first Web Services site (SearchWS) which supports Kazeon to use Basic authentication (for example, retain the default configuration). When you install Kazeon software, configure it to use this Web Services site.
3. Configure the second Web Services site (SearchWS) which supports Search to use Windows Integrated authentication as described in this section. When you install other SourceOne components, configure them to use this Web Services site.

4. Configure the Search site (Search) and Universal URL site (ExShortcut) to use Windows Integrated authentication as described in this section.

Single sign-on for Universal URL only

If single sign-on is needed only to support the Universal URL (ExShortcut) site, perform the following.

- Configure the Universal URL site (ExShortcut) site to use Windows Integrated authentication.
- Configure the Web Services and Search sites (SearchWS and Search) to use Basic authentication.

Single sign-on in Windows Server

The topics in this section provide an example of how to configure single sign-on for the SourceOne Search and shortcut web applications in a Microsoft Windows Server environment.

Note: This section describes an example configuration which includes specific environment components. Your environment may require different or additional components and configuration steps. Services are offered by Professional Services to assist organizations in deploying a single sign-on support solution.

Configuring Web Services site (SearchWS)

This section describes how to configure the Web Service site (SearchWS).

Before you begin, ensure that the required role services (including the ones that are required to support SSO) are installed.

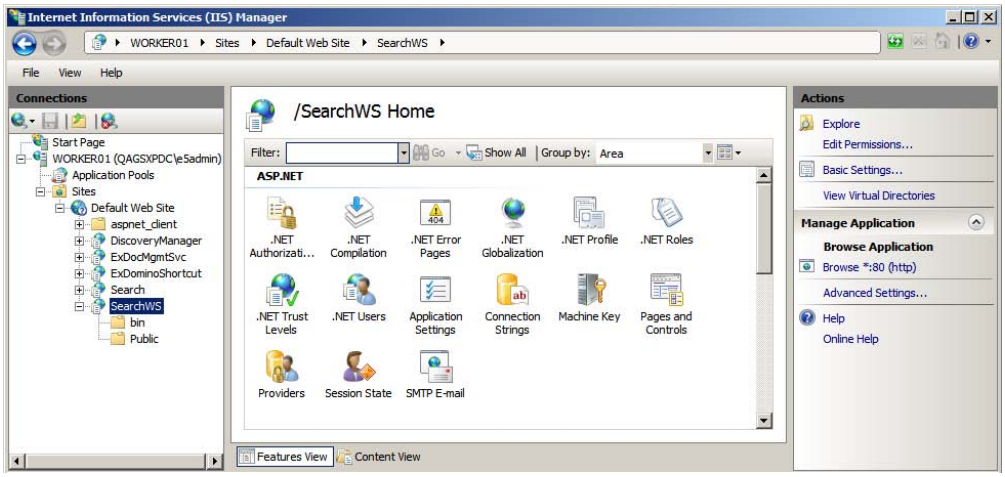
Configuring the site

Perform the following steps to configure the site.

Procedure

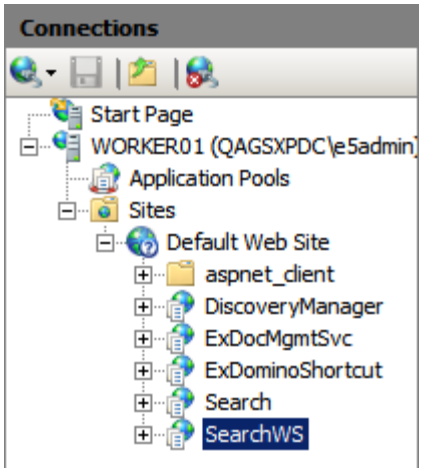
1. Open the computer on which Web Services is installed, open **Internet Information Services (IIS) Manager**.

Figure 90 Internet Information Services (IIS) Manager



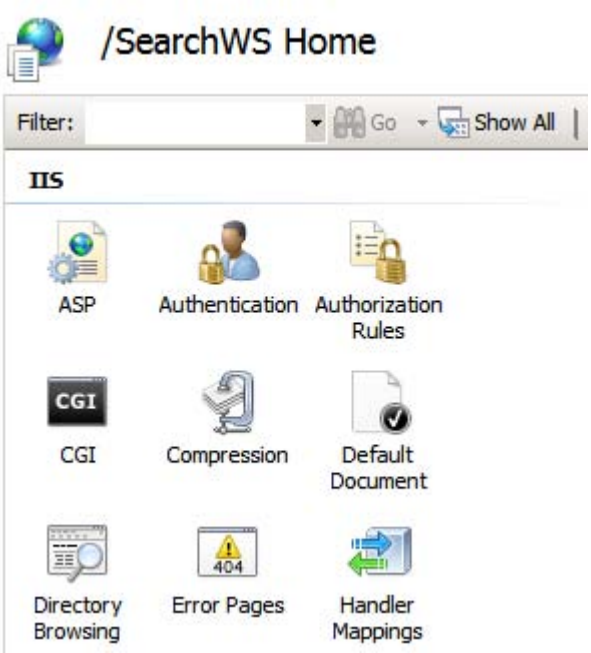
2. Browse to **SearchWS** in the **Connections** pane.

Figure 91 SearchWS



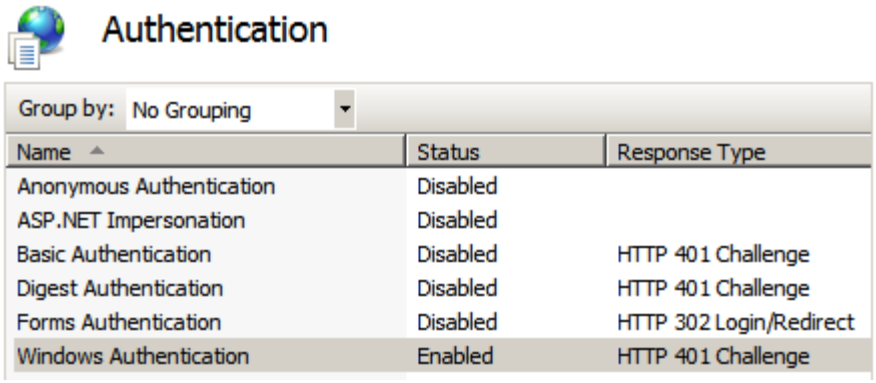
3. Click **SearchWS**. The configuration options for **SearchWS** are displayed in the center pane.
4. In the **IIS** section, double-click the **Authentication** icon.

Figure 92 Authentication icon



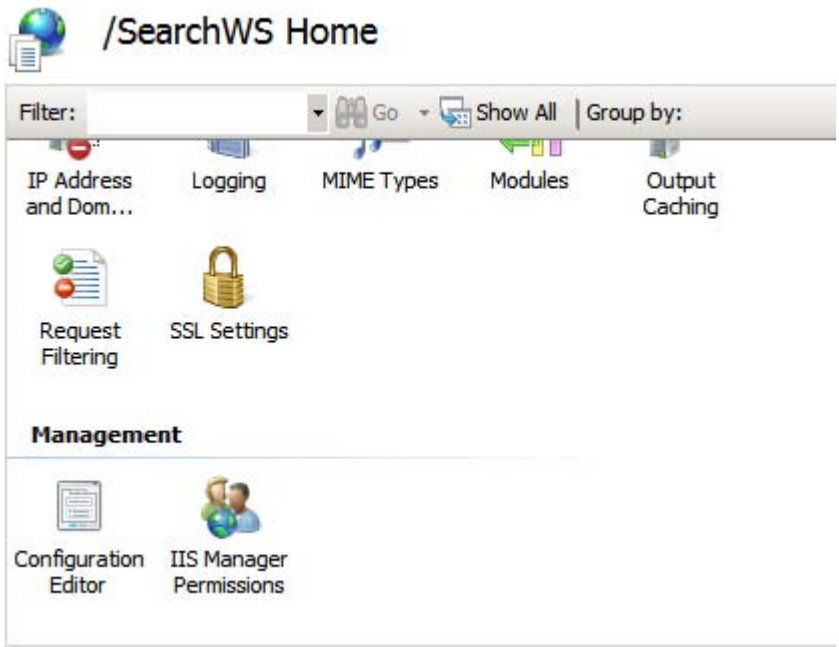
5. Configure the following settings:
   a. Disable **Anonymous Authentication**.
   b. Disable **Forms Authentication**.
   c. Enable **Windows Authentication**.

Figure 93 Enable Windows Authentication



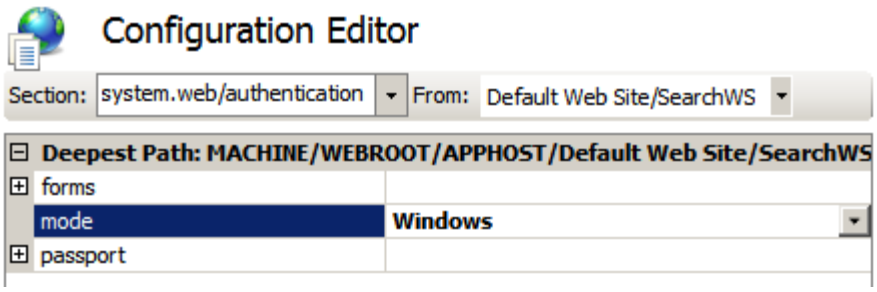
6. Click **SearchWS** in the location bar to return to **/SearchWS Home**.
7. Scroll to the **Management** section in the center pane.

Figure 94 Management section



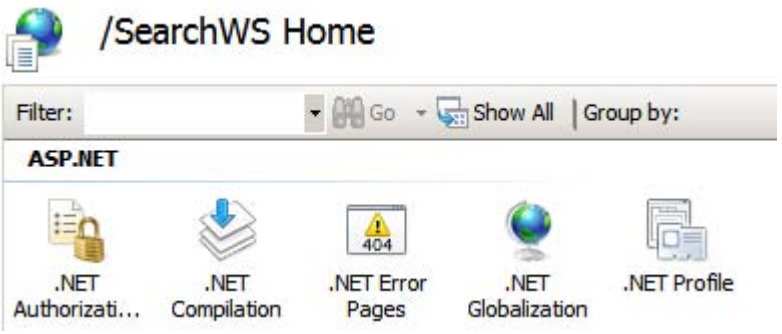
8. Double-click the **Configuration Editor** icon.
   a. From the **Section** drop-down list, select **system.web/authentication**.
   b. Set the **mode** to **Windows**.

Figure 95 Setting the mode to Windows



9. Click **SearchWS** in the location bar to return to **/SearchWS Home**.
   a. Scroll to the **ASP.NET** section in the center pane.

   Figure 96 ASP.NET section



   b. Double-click the **.NET Authorization** icon.
   c. Remove any existing rules.

   Note: You cannot remove the Inherited rule, **Allow** > **All Users** .

10. Create the following rules:
    a. Create an Allow rule for either of the following:
       - The SourceOne security group role by using the **Specified roles** or **user groups** entry fields.
         or
       - The SourceOne service account user by using the **Specified users** entry field.

    b. Add a Deny rule for **All Users**.

Note: The Allow rule must precede the Deny rule in the **.NET Authorization Rules** section.

Figure 97 .NET Authorization Rules

11. Click **SearchWS** in the location bar to return to **/SearchWS Home**.
12. Exit the **Internet Information Services (IIS) Manager** application.

Configuring the SourceOne Search site

This section describes how to configure the SourceOne Search site.

Before you begin, ensure that the required role services including the ones required to support SSO are installed.

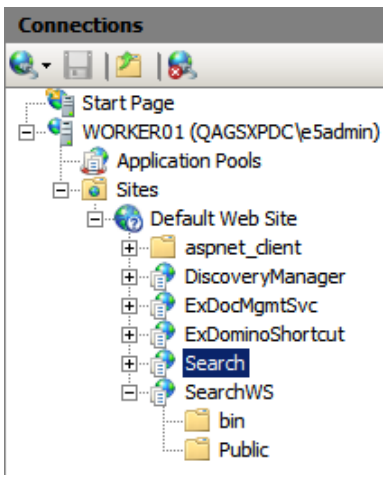
Configuring the site

Perform the following steps to configure the site.

Procedure

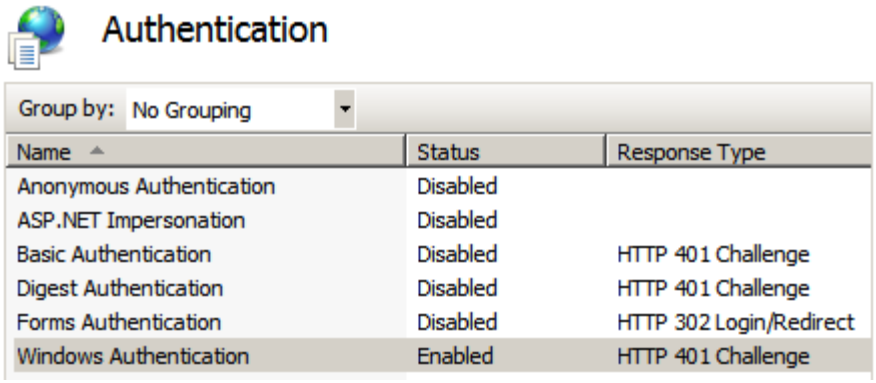
1. Open the computer on which Web Services is installed and then open Internet Information Services (IIS) Manager.
2. Browse to **Search** in the **Connections** pane.

Figure 98 Search in Connections pane



3. Click **Search**. The configuration options for Search are displayed in the center pane.
4. In the **IIS** section, double-click the **Authentication** icon.
5. Configure the following settings:
   a. Disable **Anonymous Authentication**.
   b. Disable **Forms Authentication**.
   c. Enable **Windows Authentication**.

Figure 99 Enabling Windows Authentication



6. Click **Search** in the location bar to return to **/Search Home**.
7. Exit the **Internet Information Services (IIS) Manager** application.

Configuring Mobile Services site (ExShortcut)

This section describes how to configure the Mobile Services site (ExShortcut).

Before you begin, ensure that the required role services (including the ones that are required to support SSO) are installed.

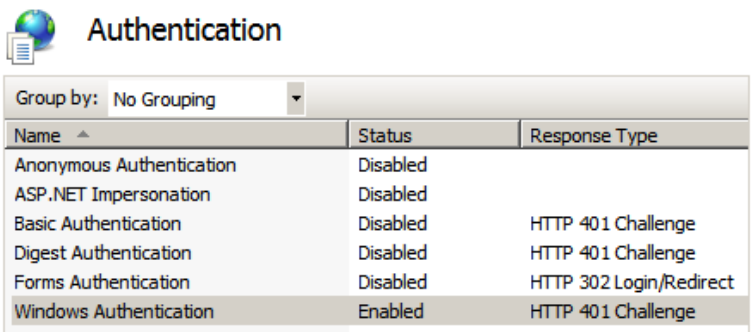
Configuring the site

Perform the following steps to configure the site.

Procedure

1. Open the computer on which Web Services is installed, open Internet Information Services (IIS) Manager.
2. Browse to **ExShortcut** in the **Connections** pane.
3. Click **ExShortcut**. The configuration options for ExShortcut are displayed in the center pane.
4. In the **IIS** section, double-click the **Authentication** icon.
5. Configure the following settings:
   a. Disable **Anonymous Authentication**.
   b. Disable **Forms Authentication**.
   c. Enable **Windows Authentication**.

Figure 100 Enabling Windows Authentication



6. Click **ExShortcut** in the location bar to return to **/ExShortcut Home**.
7. Exit the **Internet Information Services (IIS) Manager** application.

Restarting IIS

To ensure the configuration changes take effect, use the iisreset command to restart IIS.

Configuring IIS authentication

This section includes information about configuring IIS authentication.

Typical scenario

Usually, do not perform any further configuration for Windows Authentication, assuming that you are accessing the server by the NetBIOS or fully qualified domain name, for example, MyIISServerName or MyIISServerName.Domain.com. If this is not the case in your environment, refer to Alternate scenarios on page 251.

Alternate scenarios

There may be alternate scenarios, depending on the environment.

Custom hostname or host header names

If the environment uses a custom host or host header names, for example, `www.MySite.com`, an SPN must be added only for the **IIS server machine** account and not for the **Domain\Username** account. The **Setspn** utility is run on the domain controller.

For example:

```
setspn -A HTTP/site_custom_name netbios_name
```

Web farm

If you are running the IIS server in a web farm, the Kerberos Ticket Granting Server (KDC) cannot predict which individual server the request may go to decrypt tickets.

About this task

Recommended Scenario
In this scenario, instead of registering SPNs under a specific host account, use a domain account to perform the following operations:

1. Retain Kernel-mode authentication
2. Configure SPNs for the SourceOne service account.
3. Configure the `ApplicationHost.config` file to use the application pool credentials

Configure the SPNs

Use the following procedure to configure the SPNs.

Procedure

1. Use the Setspn utility to register SPN. Run the following commands from a command prompt:

a. Use the NetBIOS name of the SourceOne Web Services host computer. For example:

```
setspn -U -A
http/webservername
domain\serviceAccountUser
```

b. Use the fully qualified domain name (FQDN) of the SourceOne Web Services host computer. For example:

```
setspn -U -A
http/webservername.fqdn
domain\serviceAccountUser
```

2. Repeat this procedure for the remaining Web Services and host computers.
3. Configure a User Principal Name (UPN) for the service account.

Configure ApplicationHost.config file to use the application pool credentials

Perform the following steps to configure the ApplicationHost.config file to use the application pool credentials.

Procedure

1. Ensure that the application pool is run under the SourceOne service account (this should already be configured).
2. Locate the `ApplicationHost.config` file on the IIS server. For example:

```
<system_drive>/Windows/System32/inetsrv/config
```

3. Add the **useAppPoolCredentials** attribute to the file. For example:

```
<system.webServer>
<security>
<authentication>
<windowsAuthentication enabled="false" useKernelMode="true"
useAppPoolCredentials="true" />
</authentication>
</security>
</system.webServer>
```

Scenario B (not recommended)

You can disable Kernel-mode authentication and then configure SPNs for the SourceOne service account. However, you forfeit the performance benefits provided using Kernel-mode authentication.

Disable Kernel-mode authentication for SourceOne sites

Perform the following steps to disable Kernel-mode authentication for SourceOne sites.

Procedure

1. Open the computer on which Web Services is installed, open **Internet Information Services (IIS) Manager**.
2. Browse to **SearchWS** in the **Connections** pane.

3. Click **SearchWS**. The configuration options for Search are displayed in the center pane.
4. In the **IIS** section, double-click the **Authentication** icon.
5. Select **Windows Authentication**.
6. In the right pane, select **Advanced Settings**.
7. Uncheck **Kernel-mode Authentication**.
8. Repeat this procedure for the Search (Search) and Mobile Services (ExShortcut) site.

Configuring Internet Explorer

Follow these steps to configure Internet Explorer settings for client computers accessing the SourceOne Search, SharePoint Archive Search, and shortcut URLs.

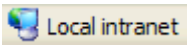
Procedure

1. Open **Internet Explorer**.
2. Select **Tools** > **Internet Options** and select the **Security** tab.
3. Click **Local intranet** and select **Custom Level**.
4. Scroll to the bottom of the **Settings** pane.
5. In the **User AuthenticationLogon** section, ensure that **Automatic logon only in Intranet zone** is selected.
6. Click **OK** to return to the **Security** tab.
7. Click **Sites**.
8. Click **Advanced**.
9. Add the URLs for the following web sites:
   - Search
   - SharePoint Archive Search
   - ExShortcut

Results

When this configuration is complete, the **Internet Security Properties** icon appears in the lower right side of the browser and indicates that the site is in the local intranet.

Figure 101 Local intranet



APPENDIX C

Single Sign-on Support Example (Domino)

This section contains the following topics:

Overview

This example of a single sign-on solution for SourceOne Search and shortcut resolution functionality requires the single sign-on solution that is published by IBM as a foundation.

IBM SSO solution

The IBM single sign-on (SSO) solution is based on a configuration between IBM Websphere Portal and IBM Domino. After this configuration is established, perform some additional configuration steps specific to SourceOne to complete the configuration.

For white papers detailing the concepts, implementation details, and troubleshooting information regarding understanding SSO between IBM WebSphere Portal and IBM Domino, refer to the IBM documentation.

SourceOne Kazeon eDiscovery considerations

SourceOne Kazeon eDiscovery enables organizations to efficiently and cost-effectively classify, manage, and retrieve data.

To integrate with the SourceOne core product, SourceOne Kazeon eDiscovery communicates with a SourceOne Web Services IIS website using the Basic authentication method, while the single sign-on configuration example detailed in this section is based on Windows Integrated authentication. You must review the following considerations before implementing single sign-on support if implementing SourceOne Kazeon eDiscovery with the SourceOne core product.

Mixed authentication

You can provide a mixed authentication environment which simultaneously supports the following.

- SourceOne Search and Universal URL authentication using Windows Integrated authentication.
- SourceOne Kazeon eDiscovery authentication using Basic authentication.

To support this configuration:

- Install Web Services software on separate Worker computers to provide separate instances of a Web Services IIS site (SearchWS) for Kazeon and Search.
  - Configure the first Web Services site (SearchWS) which supports Kazeon to use Basic authentication (for example, retain the default configuration). When you install Kazeon software, configure it to point to this Web Services site.
  - Configure the second Web Services site (SearchWS) which supports Search to use Windows Integrated authentication as described in this section. When you install other SourceOne components, configure them to point to this Web Services site.
- Configure the Search site (Search) and Universal URL site (ExShortcut) to use Windows Integrated authentication as described in this section.

Single sign-on for Universal URL only

If single sign-on is needed only to support the Universal URL (ExShortcut) site, you can do the following.

- Configure the Universal URL site (ExShortcut) site to use Windows Integrated authentication.
- Configure the Web Services and Search sites (SearchWS and Search) to use Basic authentication.

Single sign-on in Windows

Assuming the IBM single-sign on configuration between IBM WebSphere Portal and IBM Lotus Domino has been established, the following sections provide an example of the additional configuration steps that are required to complete the single sign-on configuration.

Note: This section describes an example configuration which includes specific environment components. Your environment may require different or additional components and configuration steps. Services are offered by Professional Services to assist organizations in deploying a single sign-on support solution.

Enabling the DIIOP task on the Domino server

The Domino Internet Inter-ORB Protocol (DIIOP) enables SourceOne to attach to and change Domino databases.

You can enable the DIIOP task by typing the load diiop command on the Domino server, or you can enable the DIIOP task to load automatically every time the Domino server starts by editing the notes.ini file in the Domino Program directory.

For details, refer to the IBM Lotus Domino documentation set. The following link provides relevant information:

http://publib.boulder.ibm.com/infocenter/wpdoc/v510/index.jsp?topic=/com.ibm.wp.zos.doc/collab/ksa_cfg_dommailptl.html

Installing the ExValidateLTPA web service

Deploy the ExValidateLTPA web service in WebSphere using the ExValidateLPTA_WS.war file which is packaged in a hotfix available on the Online Support site (SourceOne for IBM Lotus Domino SSO hotfix 1).

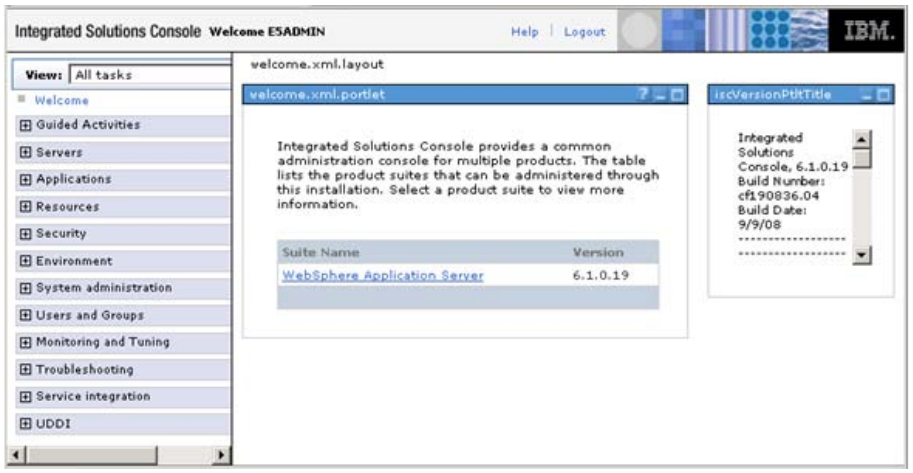
About this task

Perform the following steps to install the ExValidateLPTA web service on WebSphere.

Procedure

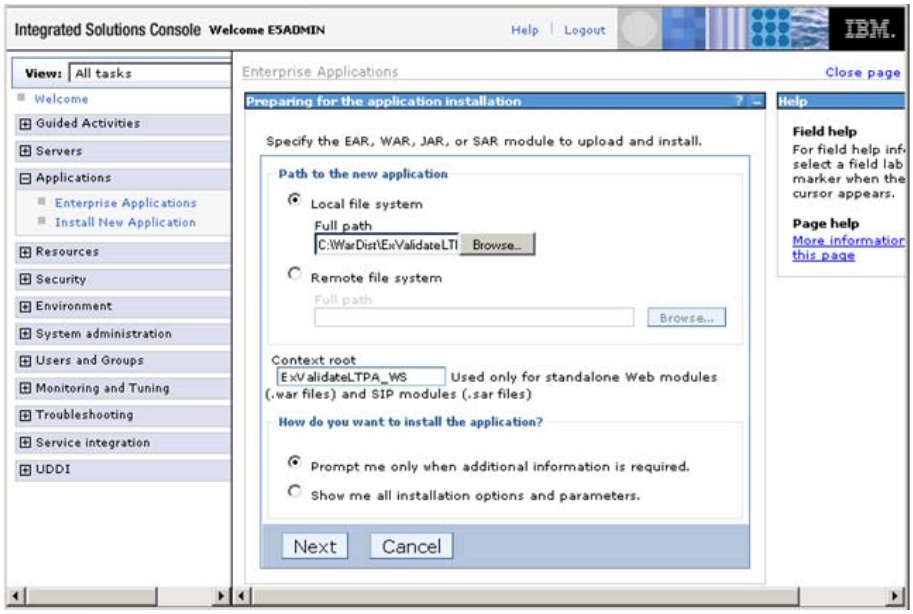
1. Unzip the hotfix package and copy the `ExValidateLPTA_WS.war` file to a location on the WebSphere server.
2. Log in to the **WebSphere Integrated Solutions Console** as a WebSphere administrator.

Figure 102 WebSphere Integrated Solutions Console



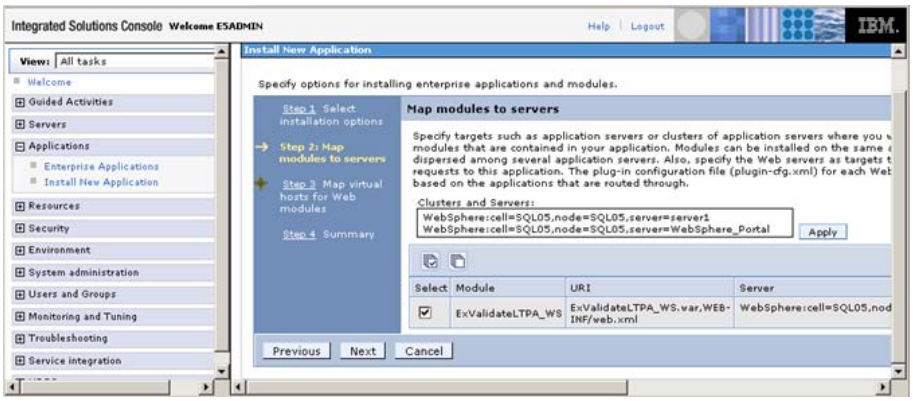
3. Expand the **Applications** node in the Tasks tree and then select **Install New Application**. The **Preparing for application installation** page appears.

Figure 103 Preparing for the application installation page



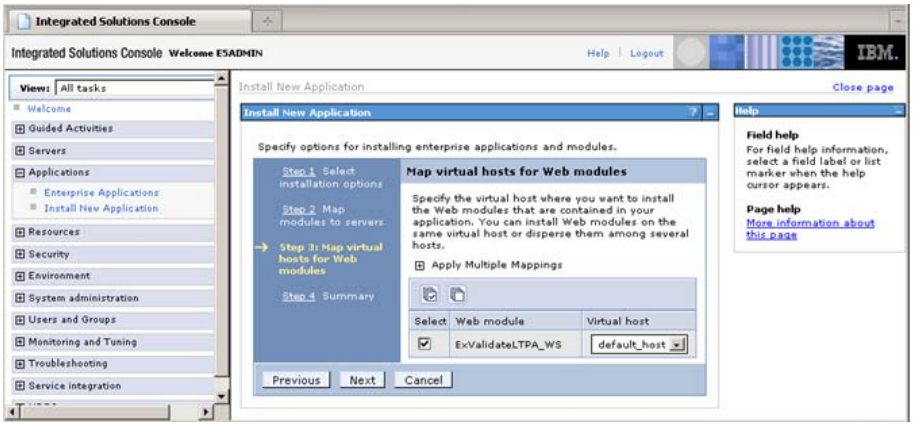
4. In the **Path to new application** section:
   a. Select **Local file system** and then browse to the path to which you copied the **ExValidateLTPA_WS.war** file.
   b. In the **Context root** text box, type **ExValidateLTPA_WS**.
   c. Click **Next**. The **Select installation options** page appears.
5. In the **Application name** text box:
   a. Remove the **_war** from the displayed text.
   b. Click **Next**. The **Map modules to servers** page appears.

Figure 104 Map modules to servers page



c. Select the **ExValidateLTPA_WS** module and then click **Next**. The **Map virtual hosts for Web modules** page appears.

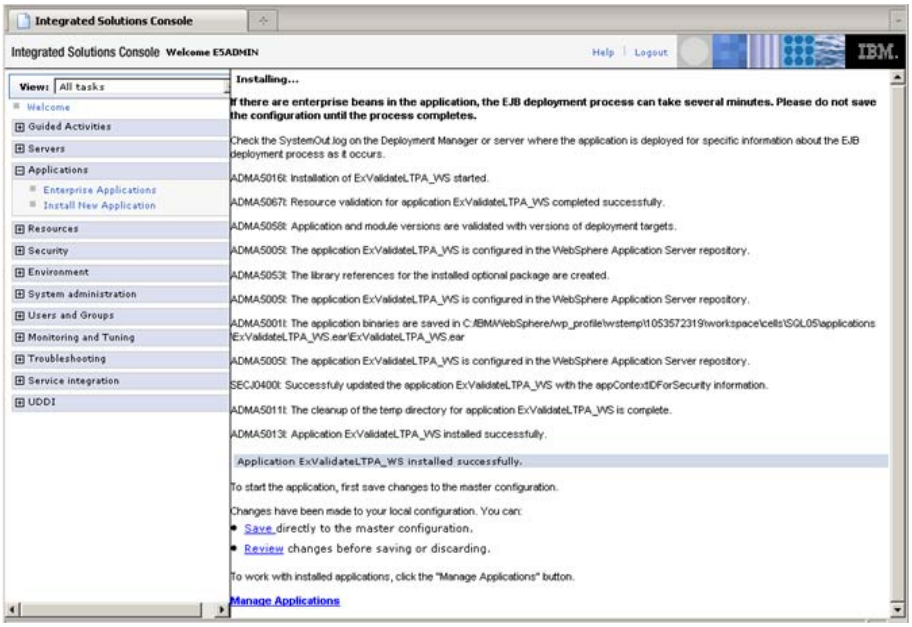
Figure 105 Map virtual hosts for web modules page



d. Select the **ExValidateLTPA_WS** module and then click **Next**. An **installation summary** page appears.

e. Click **Finish**. An **installation progress** page appears.

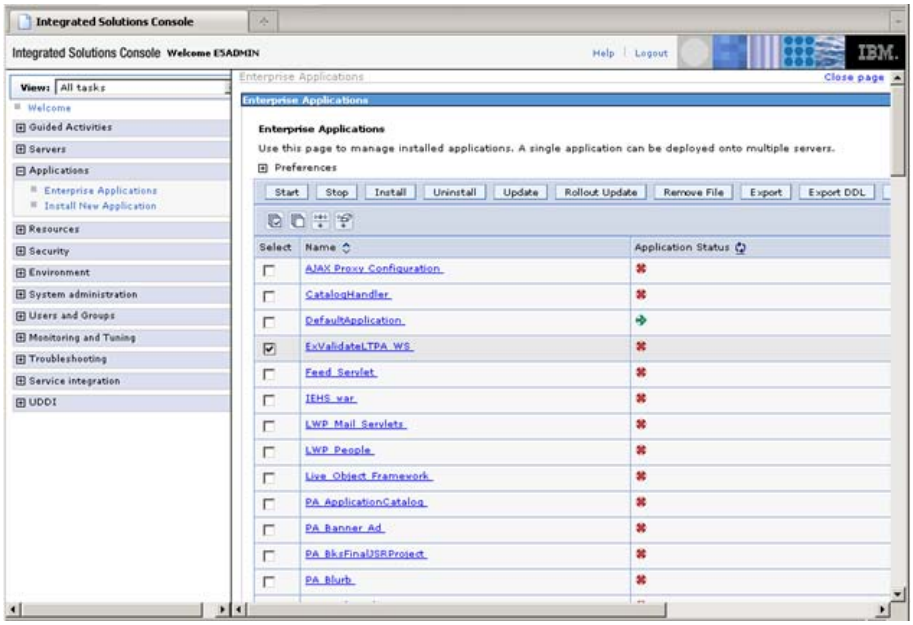
Figure 106 Installation progress page



f. After installation completes, click **Save**.

6. Expand the **Applications** node in the Tasks tree and then select **Enterprise Applications**. The **Enterprise Applications** page appears.

Figure 107 Enterprise Applications page



a. Select the **ExValidateLTPA_WS** application option and then click **Start**. The web service is now started.

b. Copy the `.mar` files from the installation directory to the lib directory, for example:

The default installation directory location is:

```
C:\Program Files\IBM\WebSphere\AppServer\profiles
\AppSrv01\installedApps\win2003r2se32Node01Cell\ExValidateLTPA_WS.ear
\ExValidateLTPA_WS.war\WEB-INF\modules
```

The lib directory location is:

```
C:\Program Files\IBM\WebSphere\AppServer\profiles
\AppSrv01\installedApps\win2003r2se32Node01Cell\ExValidateLTPA_WS.ear
\ExValidateLTPA_WS.war\WEB-INF\lib
.
```

c. For the copied files, rename the extensions from `.mar` to `.jar`.

7. Change the **Class Loader Order** to show **Class loaded with local class loader first (parent last)**. For example:

   a. Browse to the following:

   ```
   Enterprise Applications > ExValidateLTPA_WS > Manage Modules >
   ExValidateLTPA_WS.war
   ```

   b. Expand **Applications** > **Application Types** in the menu tree on the left of the Admin tool and then click **WebSphere enterprise applications**. The **Enterprise Applications** pane on the right appears.

   c. Click **ExValidateLTPA_WS**.

   d. In the **Modules** section, click **Manage Modules**. The **Manage Modules** page appears.

8. Click the **ExValidateLTPA_WS** module:

   a. In the **Configuration** tab of the page that you browsed to, select **Class loader order** > **Classes loaded with local class loader first (parent last)**.

   b. Click **OK** and save the changes to the Master Configuration.

9. Start a browser and go to URL to start the wsdl for the web service:

   ```
   http://ServerName:9080/ES1Test/services/ExValidateLTPAToken?wsdl
   ```

   Note: The port number for your installation might differ.

Configuring IIS websites in Windows

This section describes how to configure the SourceOne Search and Web Services IIS websites for single sign-on.

Configuring the Search website

Perform the following to configure the Search (Search) site.

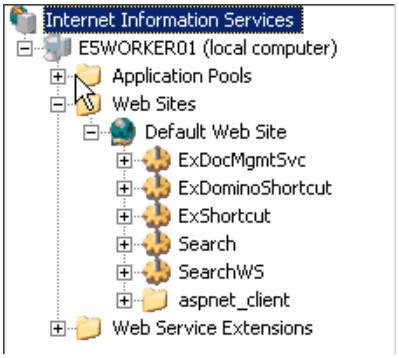
Procedure

1. Open the computer on which SourceOne Search is installed:

a. Open **IIS Manager**.

b. Browse to the Search virtual directory.

Figure 108 Search virtual directory

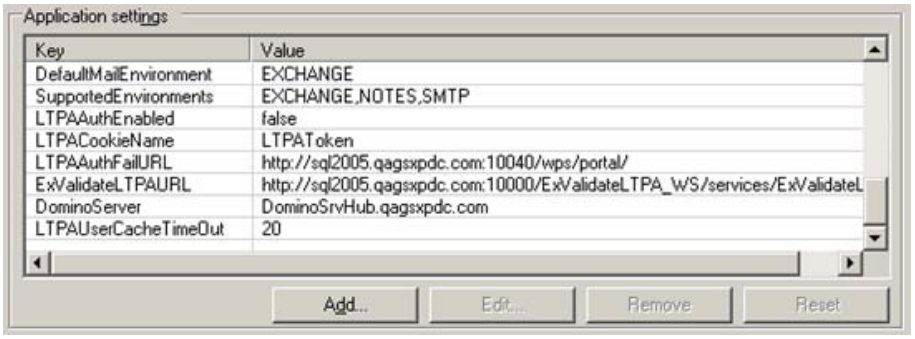


c. Right-click **Search** and then select **Properties**.

d. Click the **ASP.NET** tab.

e. Click **Edit Configuration**. The **ASP.NET Configuration Settings** page (General tab) appears.

Figure 109 ASP.NET Configuration Settings page (General tab)



2. In the **Application settings** section, perform the following:

a. Click the **LTPAAuthEnabled** key and then click **Edit**.

b. In the **Value** text box, type **true** and then click **OK** .

c. Click the **LTPAAuthFailURL** key and then click **Edit**.

d. In the **Value** text box, type the URL for the IBM Portal and then click **OK**. For example:

```
http://servername.domain.com:10040/wps/portal/
```

e. Click the **ExValidateLTPAURL** key and then click **Edit**.

f. In the **Value** text box, type the URL for the ExValidateLTPA Web service and then click **OK**. For example:

```
http://servername.domain.com:10000/ExValidateLTPA_WS/services/
ExValidateLTPAToken.ExValidateLTPATokenHttpSoap11Endpoint
```

g. Click the **DominoServer** key and then click **Edit**.

h. In the **Value** text box, type the fully qualified domain name of the Domino server and then click **OK**. For example:

```
servername.domain.com
```

3. Click the **Authentication** tab.
4. In the **Authentication settings** section, select **None** in the **Authentication mode** drop-down list.

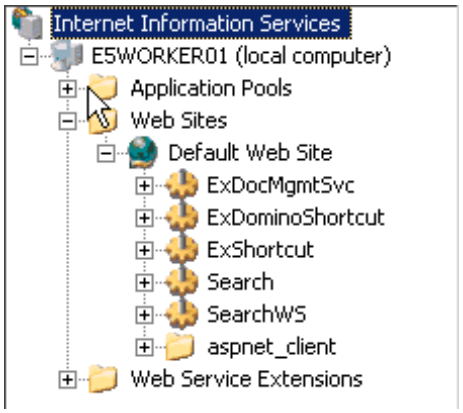
Enable Windows Authentication for the Web Services site

Perform the following steps to configure the SourceOne Web Services (SearchWS) site.

Procedure

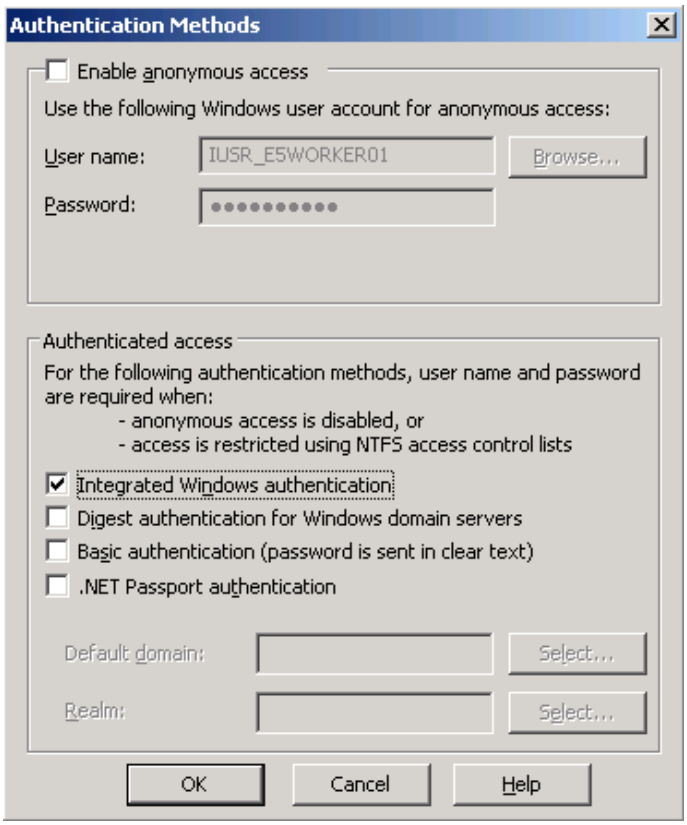
1. Open the computer on which Web Services is installed:
   a. Open **IIS Manager**.
   b. Browse to the **SearchWS** virtual directory.

Figure 110 SearchWS virtual directory



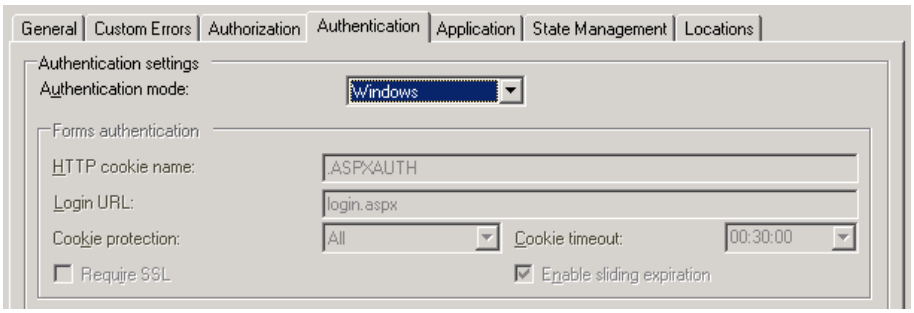
2. Right-click **SearchWS** and then select **Properties**.
3. Click the **Directory Security** tab.
   a. In the **Authentication and access control section**, click **Edit** to display the **Authentication Methods** page.
   b. Ensure that the **Anonymous access** checkbox is clear.
   c. Ensure that the **Integrated Windows authentication** checkbox selected. This should be the only checkbox that is selected.

Figure 111 Authentication Methods page



4. Click **OK** to return to the **SearchWS Properties** page.
   a. Select the **ASP.NET** tab.
   b. Click **Edit Configuration**.
   c. Click the **Authentication** tab.
   d. Change **Authentication mode** from **None** to **Windows**.

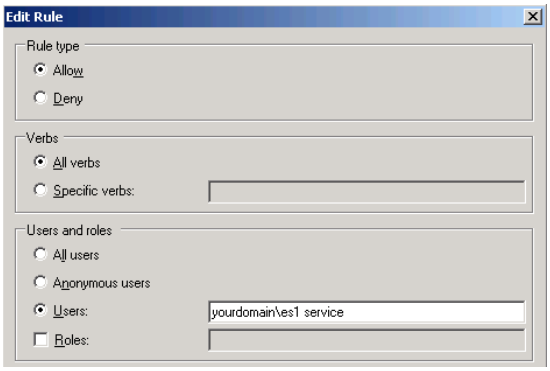
Figure 112 Changing the Authentication mode from None to Windows



5. Select the **Authorization** tab.
   a. Change the **Local authorization rules** section (bottom pane) to deny access to all users but the SourceOne service account or security group.
   b. Configure the first entry:
      - Set **Rule type** to `Allow`
      - Set **Verbs** to `All verbs`

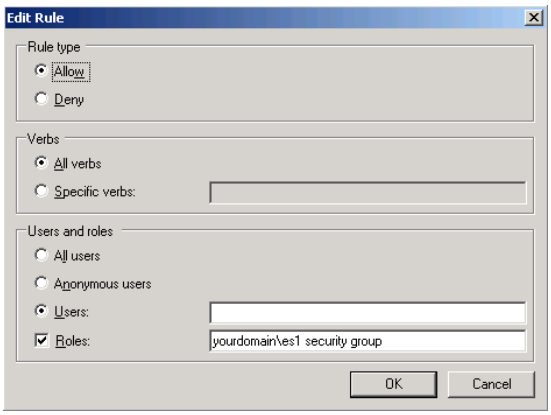
- Set **Users** to `DOMAIN\serviceAccountUser`

Figure 113 Setting the Users field



c. Alternatively, you can enter the SourceOne security group in the Role field.

Figure 114 Setting the Role field

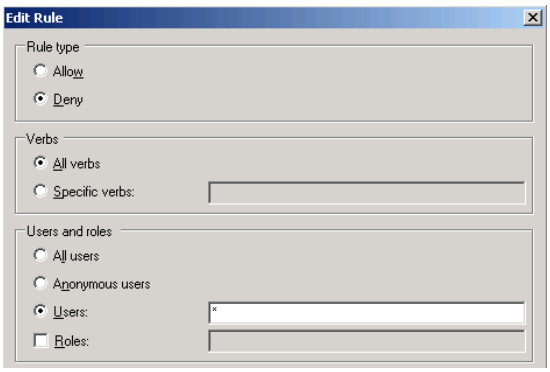


Note: Ensure that the Users field is blank if specifying the security group in the Roles field.

d. Configure the second entry:

- Set **Rule type** to `Deny`
- Set **Verbs** to `All verbs`
- Set **Users and roles** to `select All Users (*)`

Figure 115 Setting the Users and roles field



e. Click **OK** to save all changes and close the **Properties** dialog box.

Configuring IIS authentication

This section provides information for configuring IIS authentication.

Typical scenario

Usually, do not perform any further configuration for Windows Authentication, assuming that you are accessing the server by the NetBIOS or fully qualified domain name, for example, MyIISServerName or MyIISServerName.Domain.com. If this is not the case in your environment, refer to Alternate scenarios on page 251.

Alternate scenarios

There may be alternate scenarios, depending on the environment.

Custom hostname or host header names

If the environment uses a custom host or host header names, for example, `www.MySite.com`, an SPN must be added only for the **IIS server machine** account and not for the **Domain\Username** account. The **Setspn** utility is run on the domain controller.

For example:

```
setspn -A HTTP/site_custom_name netbios_name
```

Web farm

If you are running the IIS server in a web farm, the Kerberos Ticket Granting Server (KDC) cannot predict which individual server the request may go to decrypt tickets.

About this task

Recommended Scenario
In this scenario, instead of registering SPNs under a specific host account, use a domain account to perform the following operations:

1. Retain Kernel-mode authentication
2. Configure SPNs for the SourceOne service account.
3. Configure the `ApplicationHost.config` file to use the application pool credentials

Configure the SPNs

Use the following procedure to configure the SPNs.

Procedure

1. Use the Setspn utility to register SPN. Run the following commands from a command prompt:
   a. Use the NetBIOS name of the SourceOne Web Services host computer. For example:

```
setspn -U -A
http/webservername
domain\serviceAccountUser
```

b. Use the fully qualified domain name (FQDN) of the SourceOne Web Services host computer. For example:

```
setspn -U -A
http/webservername.fqdn
domain\serviceAccountUser
```

2. Repeat this procedure for the remaining Web Services and host computers.
3. Configure a User Principal Name (UPN) for the service account.

Configure ApplicationHost.config file to use the application pool credentials

Perform the following steps to configure the ApplicationHost.config file to use the application pool credentials.

Procedure

1. Ensure that the application pool is run under the SourceOne service account (this should already be configured).
2. Locate the `ApplicationHost.config` file on the IIS server. For example:

```
<system_drive>/Windows/System32/inetsrv/config
```

3. Add the **useAppPoolCredentials** attribute to the file. For example:

```
<system.webServer>
<security>
<authentication>
<windowsAuthentication enabled="false" useKernelMode="true"
useAppPoolCredentials="true" />
</authentication>
</security>
</system.webServer>
```

Scenario B (not recommended)

You can disable Kernel-mode authentication and then configure SPNs for the SourceOne service account. However, you forfeit the performance benefits provided using Kernel-mode authentication.

Disable Kernel-mode authentication for SourceOne sites

Perform the following steps to disable Kernel-mode authentication for SourceOne sites.

Procedure

1. Open the computer on which Web Services is installed, open **Internet Information Services (IIS) Manager**.
2. Browse to **SearchWS** in the **Connections** pane.
3. Click **SearchWS**. The configuration options for Search are displayed in the center pane.
4. In the **IIS** section, double-click the **Authentication** icon.
5. Select **Windows Authentication**.
6. In the right pane, select **Advanced Settings**.
7. Uncheck **Kernel-mode Authentication**.

8. Repeat this procedure for the Search (Search) and Mobile Services (ExShortcut) site.

Configuring Internet Explorer

Follow these steps to configure Internet Explorer settings for client computers accessing the SourceOne Search, SharePoint Archive Search, and shortcut URLs.

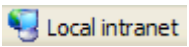
Procedure

1. Open **Internet Explorer**.
2. Select **Tools** > **Internet Options** and select the **Security** tab.
3. Click **Local intranet** and select **Custom Level**.
4. Scroll to the bottom of the **Settings** pane.
5. In the **User AuthenticationLogon** section, ensure that **Automatic logon only in Intranet zone** is selected.
6. Click **OK** to return to the **Security** tab.
7. Click **Sites**.
8. Click **Advanced**.
9. Add the URLs for the following web sites:
   - Search
   - SharePoint Archive Search
   - ExShortcut

Results

When this configuration is complete, the **Internet Security Properties** icon appears in the lower right side of the browser and indicates that the site is in the local intranet.

Figure 116 Local intranet



APPENDIX D

Shortcut and UDA Icon Support for Outlook

This section contains the following topics:

Overview

SourceOne uses custom icons to display message status information to Outlook users. The custom icons indicates the type of processing that occurred for the message, and whether it was successfully processed.

If your site has not configured user-directed archiving, then the icons that are shown in this table are used.

Table 50 Shortcut Icons

Icon	Description
	Normal
	Shortcut

If your site has configured user-directed archiving, then additional icons that are shown in this table are used.

Table 51 User-directed archive icons

Success	Failed	Type of processing and item
		Archive message
		Shortcut message
		Archive posted message
		Shortcut posted message
		Archive meeting request
		Archive task request

Publishing Custom Exchange forms

To support the display of shortcut and user-directed icons, you create an Exchange Public Organizational Forms library and publish the SourceOne Custom Exchange forms (.fdm files) to the library in Exchange.

Creating an Exchange Public Organizational Forms library

Microsoft Exchange does not create a default Public Organizational Forms library. You may have created a Public Organizational Forms library if you are using Exchange with other software, such as virus scanning software. If a library does exist, go to Configuring permissions for the library on page 271.

If you do not already have a Public Organizational Forms library in place on the Microsoft Exchange server, you must create one so that you can install the SourceOne forms used to display shortcut and user-directed archive icons.

Refer to the Microsoft documentation for your version of Exchange to create an Organizational Forms library. The following Microsoft links include relevant information:

- How to Create an Organizational Forms Library in Exchange 2007
  - http://support.microsoft.com/kb/933358
  - http://technet.microsoft.com/en-us/library/cc540468(EXCHG.80).aspx
- Understanding Public Folders (Exchange 2010)
  - http://technet.microsoft.com/en-us/library/bb397221(EXCHG.140).aspx

Configuring permissions for the library

Verify the following.

- You have an account that is configured with Owner permissions to the new library. You will log in to Outlook using the MAPI profile for this account to publish the forms.
- Client computers have permission to access the forms.

Refer to the Microsoft documentation for your version of Exchange to configure permissions for the library.

Replicating the forms library to other Exchange servers

Configure the forms library to replicate to any remaining Exchange servers on which you plan to create shortcuts or use user-directed archiving. Refer to the Microsoft documentation for the version of Exchange you are using.

Reviewing the forms you can publish

The Exchange forms that are used by SourceOne are provided in the product software kit in the `Setup\Windows\Forms` directory.

This table lists the forms that you add to the Organization Form Public Folder to display shortcut icons correctly, and their corresponding message classes. The forms with "Archived" or "Failed" in their names (indicated by gray shading) are used for user-directed archiving.

Table 52 SourceOne Exchange Forms and Message Classes

Outlook Template File	Message Class	Form Name	Indicates
ExMeetingRequestArchived.fdm	IPM.Schedule.Meeting.Request	EXArchived	User-directed archiving of meeting request was successful.
ExMeetingRequestFailed.fdm	IPM.Schedule.Meeting.Request	EXFailed	User-directed archiving of meeting request failed.
ExNoteArchived.fdm	IPM.Note	EXArchived	User-directed archiving of message was successful.
ExNoteFailed.fdm	IPM.Note	EXFailed	User-directed archiving of message failed.
ExPostArchived.fdm	IPM.Post	EXArchived	User-directed archiving of posted message was successful.
ExPostFailed.fdm	IPM.Post	EXFailed	User-directed archiving of message failed.

Table 52 SourceOne Exchange Forms and Message Classes (continued)

Outlook Template File	Message Class	Form Name	Indicates
ExPostShortcutArchived.fdm	IPM.Post	ExShortcut.EXArchived	User-directed archiving of shortcut posted message was successful.
ExPostShortcutFailed.fdm	IPM.Post	ExShortcut.EXFailed	User-directed archiving of message failed.
ExShortcut.fdm	IPM.Note	ExShortcut	Shortcut message
ExShortcutArchived.fdm	IPM.Note	ExShortcut.EXArchived	User-directed archiving of shortcut message was successful.
ExShortcutFailed.fdm	IPM.Note	ExShortcut.EXFailed	User-directed archiving of shortcut message failed.
ExShortcutPost.fdm	IPM.Post	ExShortcut	Shortcut posted message
ExTaskRequestArchived.fdm	IPM.TaskRequest	EXArchived	User-directed archiving of task request was successful.
ExTaskRequestFailed.fdm	IPM.TaskRequest	EXFailed	User-directed archiving of task request failed.

Publishing forms to the library

After you create a Public Organizational Forms library on the Microsoft Exchange server, install the SourceOne forms into the library.

About this task

Use this procedure to install forms using Outlook.

Procedure

1. Open Microsoft Outlook.
2. In the **Choose Profile** dialog box, select a MAPI profile that has:
   - Access to the Microsoft Exchange server that owns the Public Organizational Forms library
   - Owner permissions for the Public Organizational Forms library
   - Access to all address books and distribution lists that are supported by SourceOne

   To change the profile that is used by Microsoft Outlook, from the **Tools** menu select **Options**. Select the **Mail Services** tab and then select a different profile.
3. From the **Tools** menu:
   a. Select **Options**. The **Options** dialog box appears.
   b. Select the **Other** tab.
   c. Click **Advanced Options**. The **Advanced Options** dialog box appears.
4. Click **Custom Forms** to display the **Custom Forms** page.
5. Click **Manage Forms**. The **Forms Manager** dialog box appears.
6. Verify that both sides of the dialog box are set to **Organization Forms** or the name of the Public Organizational Forms library you created.

   If they are not, click the **Set** button next to the **Organization Forms** fields. When the **Set Library To** dialog box appears, select the Public Organizational Forms library that you created from the drop-down list and then click **OK**.

If **Personal Forms** is the only option that appears in the Public Organizational Forms library list, ensure that you created a Public Organizational Forms library, and that the profile you used to open Microsoft Outlook has owner privileges within that library.

7. Click **Install**.
8. In the **Open** dialog box:
   a. Locate the `.fdm` files that are provided with the SourceOne product software kit (`Setup\Windows\Forms`).
   b. In the **Files of Type** field, select the Form Message `.fdm` file type.
   c. Double-click the **ExShortcut.fdm** form.
9. In the **Form Properties** dialog box, click **OK**. The form installs.
10. Repeat step 9 to step 11 for the remaining `.fdm` files that you want to install. Refer to Reviewing the forms you can publish on page 271 for a list of the `.fdm` files that are used by SourceOne.
11. Save all changes and then close all dialog boxes.