



Kayxo Exchange Appliance Connector Technical Whitepaper

Understanding Kayxo Exchange Appliance Connector for Google Search Appliance

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Technical Whitepaper Abstract

The Google Search Appliance (GSA) is an integrated hardware/software solution, creating a single point for discovering information within corporate networks, intranets, and Web sites.

The Kayxo Exchange Appliance Connector for Google Search Appliance (KEAC) extends the Google Search Appliance, enabling users to search for emails, contacts, appointments, tasks, notes and documents stored in Microsoft Exchange, according each item's security.

This search feature takes advantage of the corporate search power of the Google Search Appliance and selectively unlocks the content stored in Microsoft Exchange

This paper introduces the latest release of the Kayxo Exchange Appliance Connector for Google Search Appliance, providing the technical user with a detailed description of the ways it can be used.

Prerequisites, Skills and Knowledge

To install, configure and administrate this product you must be at least moderately experienced with the use of the following technologies:

- Google Search Appliance.
- Windows Server 2003.
- Internet Information Server.
- SQL Server.
- Performance monitoring and optimization techniques.

Requirements

In order to be installed, the Kayxo Exchange Appliance Connector for Google Search Appliance requires the following:

1. Microsoft Exchange 2007 (32 / 64 bits) or Microsoft Exchange 2003.
2. Google Search Appliance (any version except Mini).
3. Windows 2003 Server (32 / 64 bits) with .Net 3.5 Framework.
4. Microsoft Visual C++ 2008 Redistributable Package (x86).
5. Internet Information Server 6.0 with the ASP.NET Allowed.
6. Microsoft SQL 2008/2005/2000.
7. Microsoft Exchange Server MAPI Client and Collaboration Data Objects 1.2.1 (32 bits).

What Kayko Exchange Appliance Connector Provides

- Support for Microsoft Exchange Server 2003 and Exchange Server 2007.
- Support of Public Folders and mailboxes in any language.
- Allows to mash information already available from ECM systems, CRMs and others with information in Microsoft Exchange in a single search, ranked according to Google relevance criteria.
- Honors the Microsoft Exchange's sharing policies or other Company policies. This means that only if you have permission to see something you will find it through the Google Search Appliance. If you don't have permission to see it, it will not appear in the search results.
- Increases the value of the investment made in the Enterprise Search Platform.

Solution Scenarios

Some relevant scenarios where the Kayko Exchange Appliance Connector for Google Search Appliance can be used:

- Hierarchical Search: allow managers to search inside the contact, mail or task folders of their employees. As KEAC searches in all Microsoft Exchange Folders where the manager has been granted permission, the data is available no matter which of his employees has it.
- Document public Search: Allow the whole company to search for the content of every attachment of any Microsoft Exchange object that has been declared as public.
- Department Knowledge Sharing: A particular company department can share all of its contacts and mail data so all of its members can access them. This scenario applies specially to Call Centers, Technical Support, Sales, etc.

Technical Overview

The KEAC architecture is build around two processes:

- The push process which retrieves information from Microsoft Exchange server and loads it into the GSA box.
- The authorization and retrieval process that allows users to access a particular Microsoft Exchange server message.

In the push process the *Synchronizer Service* executes an incremental synchronization for each mailbox configured (only selected folders are synchronized), and stores in the KEAC database the primary key for each inserted or MAPI message (mail, contacts, attachments, appointments or task). The *GSA loader* process takes each of these keys executes a query and sends the final Microsoft Exchange object to the GSA Server box. Both the *Query Engine* and the *Synchronizer* uses MAPI for the underlying communication, which is the most efficient protocol to access the Exchange Server and is also used by Microsoft Outlook.

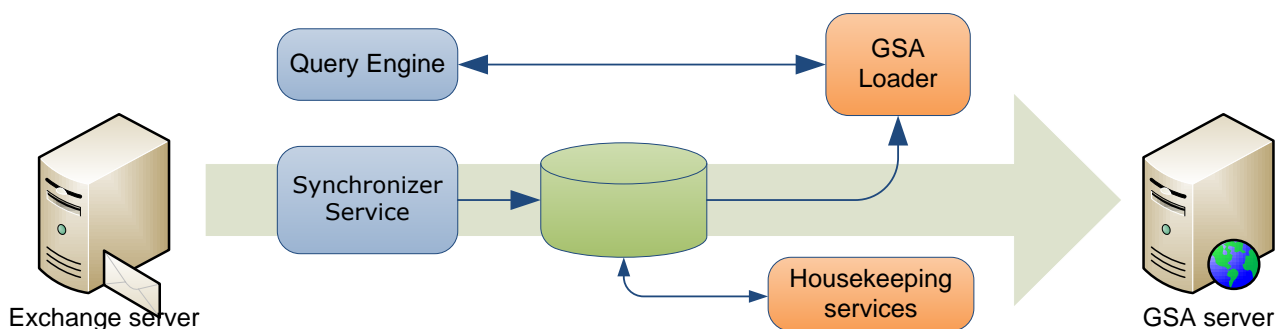


Figure 1

The first step in the retrieval process is to authorize the caller's access to the specified message. If the user folder is configured to have public access the *Authorization Service* allows the access to the item and passes the request to the *Query Engine* which constructs the response and sends it back to the client.

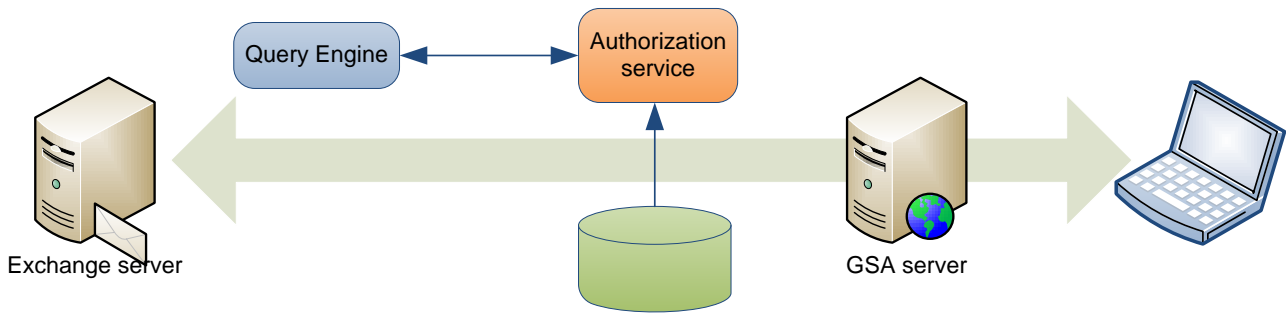


Figure 2

If the folder is marked as "non public", the *Authorization service* retrieves in real time the mailbox folder access control list from Microsoft Exchange and checks the caller's access.

To avoid stressing the Microsoft Exchange Server box the service implements a cache to store this information, given that a user can experience a minimal synchronization delay when he browses information.

You must take into account that the ACL information is modified when the owner of the mailbox changes the sharing permissions using Microsoft Outlook or when the Microsoft Exchange Administrator executes security maintenance tasks.

KEAC Layout

The adapter components and services leverage on:

- Windows OS.
- Microsoft SQL Server 2000 (or above).
- MAPI.
- IIS.
- NET framework 3.5.

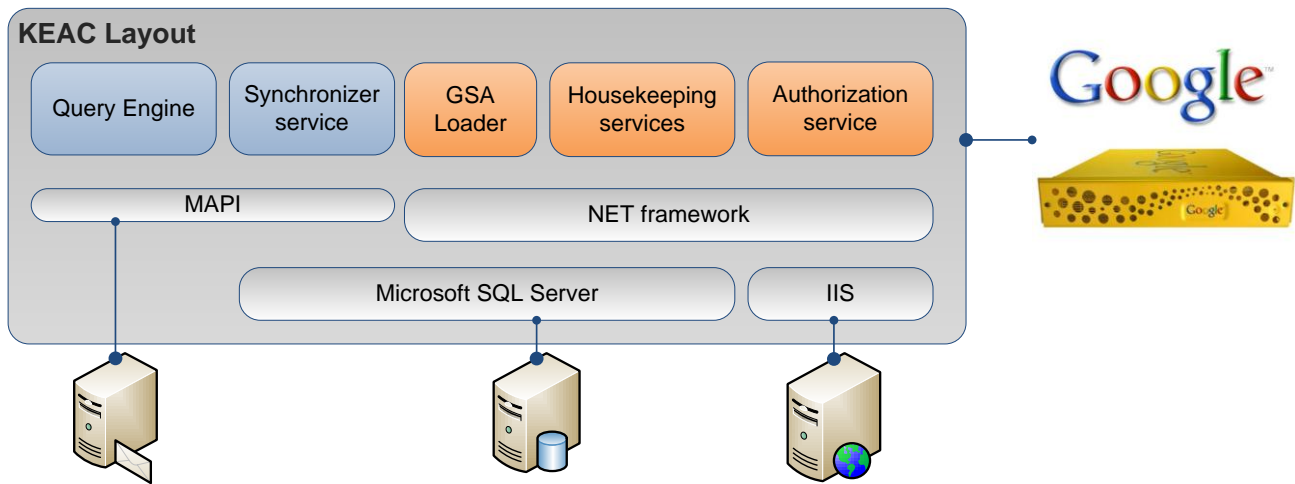


Figure 3

Security

KEAC makes documents and objects stored in your Microsoft Exchange discoverable through search. In addition to public content that is available to everyone, the search appliance can crawl and index documents that require authentication. To protect confidentiality, at serving time, KEAC determines if the user who is performing the search is authorized to view each document before the search result is shown. This is because the KEAC honours the Microsoft Exchange's sharing and security policies. This means: only if you have permission to see it you will find it through the Google Search Appliance. If you don't have permission to see it, it will not appear in search results.

It's important to understand that when controlled-access content is labeled as "public" in the index, it will be shown in all users' search results. Because public search results are served from the index without checking for authorization, users can discover all public content that the search appliance has access to, regardless of whether they have authorization to view that content or not.

Serving Results to the User

When a user performs a search request, the search appliance performs two checks before serving secure content:

- The search appliance acquires the user's credentials to enable impersonation, or performs an authentication check to establish the user's identity.
- The search appliance impersonates the user, or performs an authorization check to determine whether the user can view the content. If the user is authorized to view the content, the content will appear in the user's search results.

Here we will explain the second process. If a secure content item fails, the search appliance removes it from the list of results.

The following diagram shows the authorization sequence:

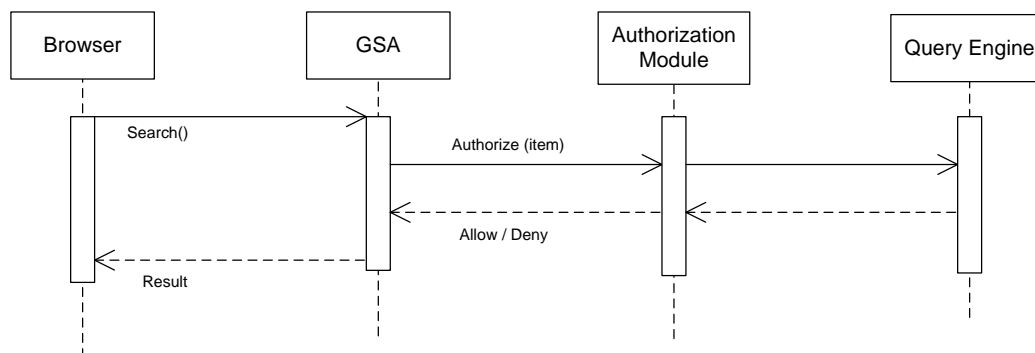


Figure 4

Configuration

Taking into account the complexity of the solution, the configuration process is little bit wide and detailed. Due to the big number of processes that take part on this solution several accounts and profiles have to be created and configured. This process could be difficult, but to simplify the administrators' tasks, the adapter has configuration consoles that make the administration process more user-friendly.

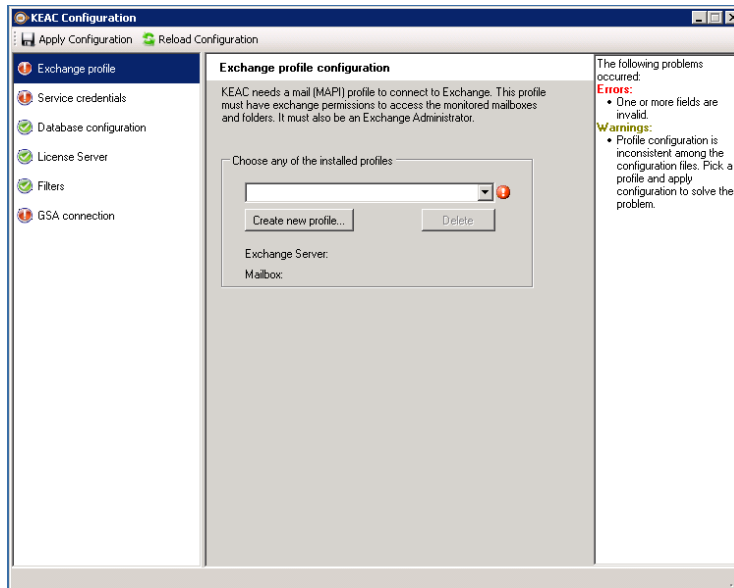


Figure 5

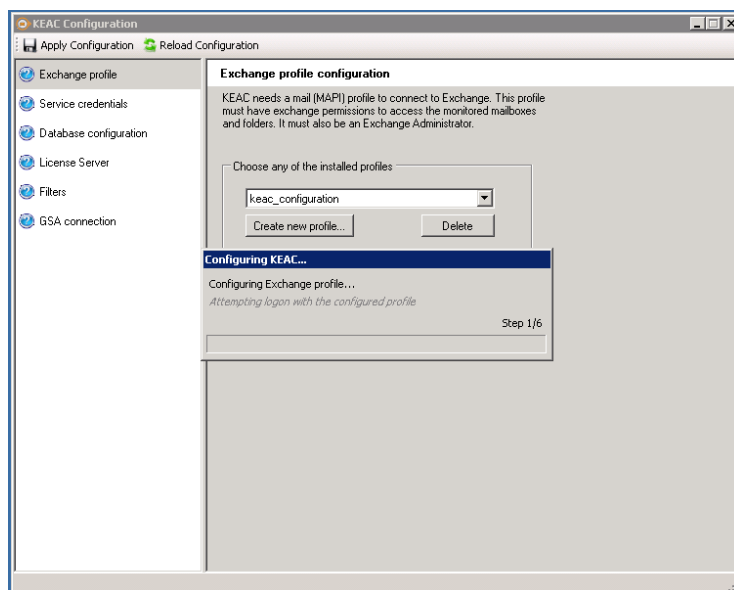


Figure 6

In addition KEAC provides a Mailbox Configuration Tool. This tool uses the MAPI profile configured previously to load and list all the folders and mailboxes that are accessible to KEAC's configured account. With this tool you can configure which folders and mailboxes will be monitored and made available through the GSA searches.

The mailboxes and folders together with Public Folders are displayed in a tree-like structure where the user can select which folders are going to be monitored and made available to the GSA.

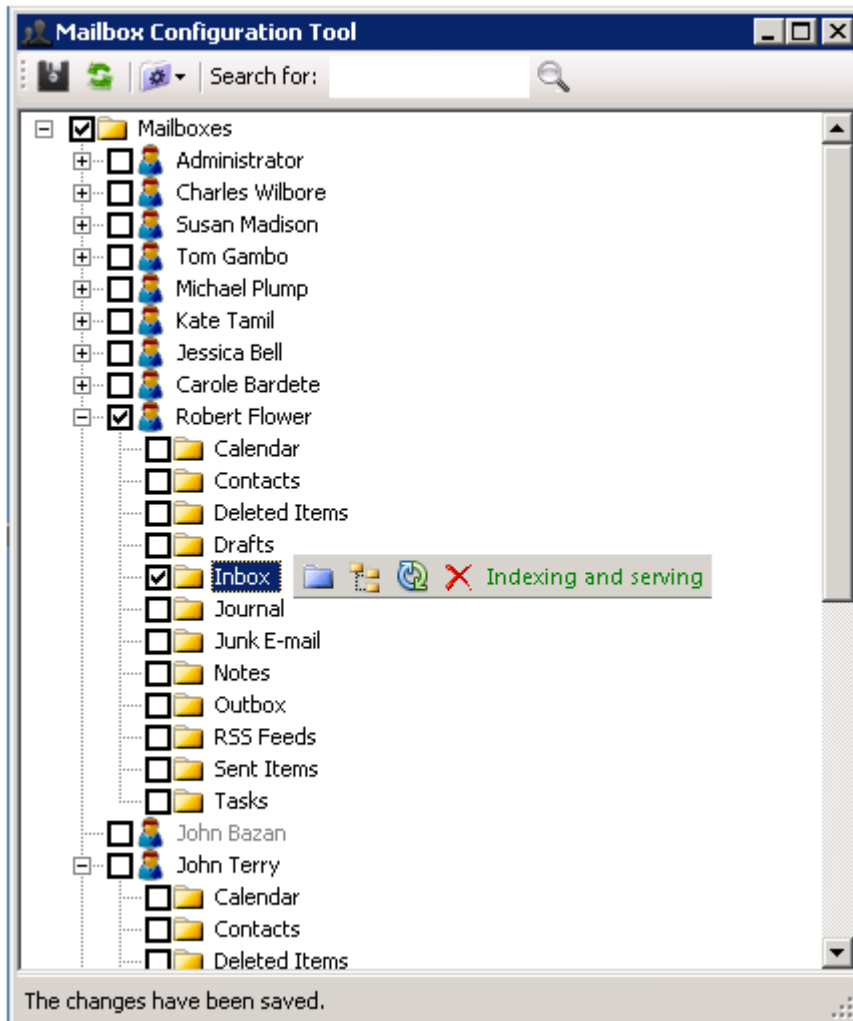


Figure 7

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