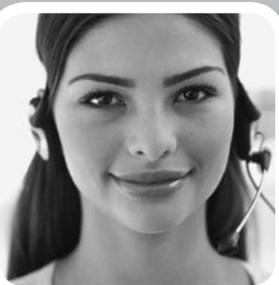SAGE SALESLOGIX

Implementing Sage SalesLogix in a Microsoft
Terminal Server or Citrix Presentation Server
Environment

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software
Your business in mind.

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Abstract

This White Paper discusses the benefits of deploying Sage SalesLogix v7.0 in a Microsoft Terminal Server or Citrix Presentation Server environment. This paper also outlines deployment requirements and recommendations, and provides installation and performance tips. It is intended for IT administrators and key decision makers considering a deployment of Sage SalesLogix using a Microsoft Terminal Server, with or without Citrix.

Ultimately, this paper answers the question, "Does Sage SalesLogix run on Citrix?" The answer to this question is an emphatic YES. All Sage SalesLogix features are available when deployed in a Terminal Server or Citrix environment.

This paper is not intended to provide product information for Microsoft Terminal Services or Citrix. For more information on these products, refer to the Microsoft or Citrix Web sites.

Introduction

Sage SalesLogix is the leading customer relationship management solution that enables medium-sized businesses and divisions of enterprises to acquire, retain, and develop profitable customer relationships through integrated Sales, Marketing, Customer Service, and Support automation solutions. Sage SalesLogix can be deployed in Windows, Web, and Mobile environments on devices such as Blackberry and PocketPC.

Due to the extensive functionality and customization capabilities available, many Sage SalesLogix customers select the Windows-based Sage SalesLogix Client. When the Sage SalesLogix Client is installed on one or more Microsoft Terminal Servers with Citrix, an organization can benefit from the extensive functionality, centralized deployment and maintenance, as well as "anywhere, anytime" access. In addition, support personnel can remotely "shadow"[1] a user session for training or troubleshooting.

Although there are some small differences in the deployment of Sage SalesLogix if Citrix is used, the differences are the same as for any application deployed on a Terminal Server. In this paper, statements regarding the use of Citrix also apply to the use of Terminal Services without Citrix, unless a difference is explicitly stated.

Sage SalesLogix can be deployed in Windows, Web, and Mobile environments on devices such as Blackberry and PocketPC.

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[1] This allows the help desk or support person to see the same display that the user sees, and possibly take control of the application for the user, from their support terminal.

Typical Deployment of Sage SalesLogix
with Terminal Server/Citrix

Sage SalesLogix is typically deployed in a Terminal Server or Citrix environment as shown in Figure1.
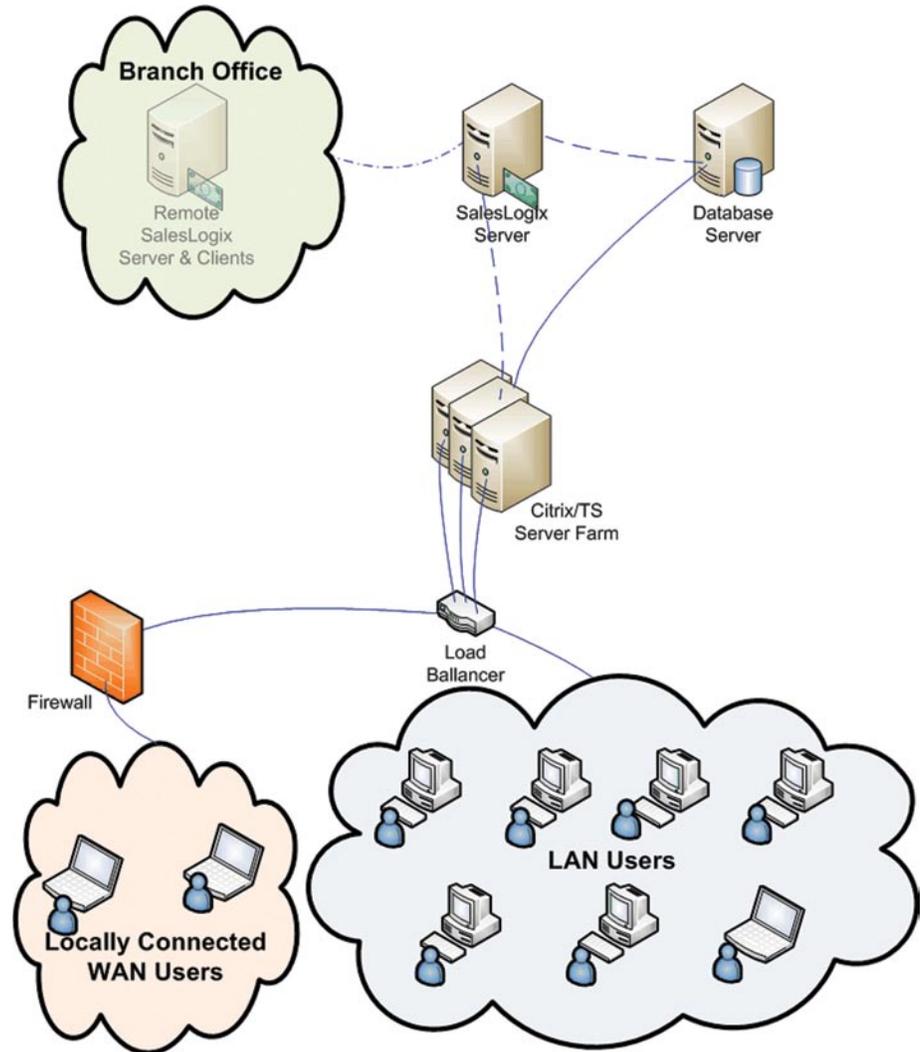

Figure 1 - Typical Deployment with the Sage SalesLogix Client installed on Terminal Server/Citrix

Sage SalesLogix utilizes a client-server data access model, but with a few significant enhancements over a traditional client-server architecture. Clients connect directly to the database through the Sage SalesLogix OLE DB provider. The Sage SalesLogix OLE DB provider provides the following benefits over using native OLE DB providers:

1. Underlying database username and password are passed to the Sage SalesLogix OLE DB provider by the Sage SalesLogix Server (encrypted), so Client machines do not require this level of configuration by an administrator.

2. Disconnected recordsets are used, freeing up connections at the database server level, which increases scalability.

3. The Sage SalesLogix OLE DB provider contains a "Virtual Server-side Cursor" technology that pages data behind the recordsets. This allows the client to work with the disconnected recordsets as if they were server-side cursor recordsets. Unlike traditional disconnected recordsets, data is only passed down to the Client as it is needed. This greatly increases performance in the Client application.

The Sage SalesLogix Server is responsible for:

1. Passing encrypted database connection strings to the Sage SalesLogix OLE DB provider.

2. Monitoring Client connections to enforce licensing.

3. Retrieving change information from the Client to support remote synchronization (if this feature is turned on).

When deployed in a Terminal Server/Citrix environment, the Sage SalesLogix Client software is installed on a small number of Terminal Server/Citrix Farm devices rather than the hundreds or potentially thousands of desktop, notebook, and thin client devices. A traditional desktop deployment would require the Sage SalesLogix Client to be installed on every client device used in the implementation. Although the administrator installs the Sage SalesLogix Client only once on a Terminal Server that supports many users, Sage SalesLogix Client licensing is based on a per-user licensing model (see the Sage SalesLogix licensing agreement for details).

Choosing Native Terminal Services or Citrix Presentation Server

Customers unfamiliar with Microsoft Terminal Services often ask Sage Software if they should use Terminal Services natively or add Citrix. Sage Software does not recommend one deployment solution as better than another. However, the following information is provided for you (along with your local Business Partner) to consider when deciding whether to deploy Sage SalesLogix using Microsoft Terminal Services, with or without Citrix Presentation Server.

Citrix Presentation Server is an add-on to Microsoft Terminal Services (TS). To use Citrix, you must have a server with Microsoft TS and Microsoft Client Access Licenses (CAL) from Microsoft.

Microsoft Terminal Server

Microsoft Terminal Services is an optional component of Windows 2000 Server and Windows Server 2003. Terminal Services allows for multiple, remote, user logins to the terminal server simultaneously, running applications independently, as if they were directly attached to that server. In Microsoft TS, the user connects to the server and, after logging on, sees a virtual desktop, that includes the Start menu. The keyboard, mouse, and monitor function as if they were directly connected to the server console. The individual sessions are separated, and each user's environment is isolated from every other user. Each user has their own personal documents area, as well as settings such as desktop background, icons, and application preferences.

With Microsoft TS, the device that the user connects from can be anything that has a keyboard, mouse, monitor, and software such as Microsoft Remote Desktop Connector. Microsoft Remote Desktop Connector is pre-installed on Windows XP and later operating systems from Microsoft, as well as many "thin client" [2] devices. This means that any PC, MAC, Linux, or thin client device with the appropriate software can be used as a Terminal Services client. Integration with local devices, such as printers, is also supported. When the Sage SalesLogix Client user makes a request to print information, the correct (local or network) printer can automatically be selected for the user.

Citrix Presentation Server

The primary benefits of Citrix over standard Terminal Services are that Citrix provides additional integration with the local client and a number of administrative management tools to help the system administrator manage the systems and applications.

With Citrix, in addition to having a published desktop like Terminal Services, users can also get individual published applications. In a published application environment, the display on the user's client computer is not replaced by the desktop display from the terminal server. Only the window associated with the application running on the server displays on the user's computer; visually looking just like another application window running locally. The Start menu the user sees is from their local computer. Copy and paste integration with locally installed applications is supported, and the server-based application can also have access to files on the local computer if desired. The Citrix single sign-on feature also allows

The primary benefits of Citrix over standard Terminal Services are that Citrix provides additional integration with the local client and a number of administrative management tools.

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[2] A "Thin Client" device is a low cost alternative to Desktop/Notebook PCs for use in a Terminal Server of Citrix environment where all applications are deployed on the server. These devices have limited computing and little or no storage.

the application to be started using credentials previously entered by the user when they logged on to the client computer (such as Active Directory credentials). This prevents users from being prompted for their user name and password each time they start a published application. In many cases, a user does not know that the application is not installed locally.

The client software used to access Citrix is different from that of Terminal Services and must be installed on the local computer to enable access.[3] There are also differences in the remote access protocols used by Terminal Services and Citrix. The Terminal Services protocol is RDP (Remote Desktop Protocol) and the Citrix protocol is ICA (Independent Computing Architecture).

Citrix offers additional hardware and software products, such as the Citrix Secure Gateway (CSG), the newer Citrix Access Gateway (CAG), and NetScaler, which are often used when remote access is required. Citrix Presentation Server 4 also supports a new feature called Application Isolation Environments (AIE). AIE is designed to increase the number of applications that can be installed on the Citrix Server by isolating applications from the operating system, and each other. Sage SalesLogix integrates with other software and relies on advanced operating system features like .NET 2.0. Therefore, the Sage SalesLogix Client cannot run in an isolated environment.[4]

Deciding which method not only involves consideration of costs, but also what other applications are to be deployed. Sage SalesLogix (possibly integrated with an office productivity suite) may be the main or only application users need, and they may keep the application running all day. This significantly reduces the need for published applications. There is nothing in the Sage SalesLogix software that inherently works "better" in a Terminal Services or Citrix environment. Your Business Partner is uniquely qualified to help you determine the best implementation for your Sage SalesLogix needs.

Deploying Sage SalesLogix on a Terminal Server

Whether you use Native Terminal Services or Citrix over Terminal Services to deploy the Sage SalesLogix Client software, deployment requires preparation and planning.

Terminal Server Requirements

You should review the latest guidelines from Microsoft and Citrix for server hardware requirements for their platforms. In addition, check the requirements of other applications that will be installed on the Terminal Server.

The Sage SalesLogix Client will run on Microsoft 2000 Server (SP4 with Rollup 1) and Server 2003 (SP1 or R2) with Terminal Services installed. Terminal Services is an option on all of these versions except Microsoft Server 2003 Web Edition. The Sage SalesLogix Client may also be installed on Windows XP desktops.

The Sage SalesLogix Client is supported on Native Terminal Services and also Citrix Presentation Servers 3.0 and 4.0 (see your Sage representative for updates as these vendors produce new releases).

The Sage SalesLogix Client requires additional software to be installed on the Terminal Server.[5]
This includes:

- Internet Explorer 6.0 or greater

- Microsoft MSI 3.1

- Microsoft .NET Framework 2.0

- MDAC 2.8 or later

If not detected, the Sage SalesLogix Client installation automatically installs .NET Framework and MDAC. If you plan to integrate the Sage SalesLogix Client with another productivity software package (such as Microsoft Outlook or Office, Lotus Notes, or Novell GroupWise) on the Terminal Server, you must install that software prior to installing the Sage SalesLogix Client. If you install the Sage SalesLogix Client as standalone software and later add other productivity software, it is recommended that you uninstall the Sage SalesLogix Client and then reinstall it to enable Intellisync integration.

Whether you use Native Terminal Services or Citrix over Terminal Services to deploy the Sage SalesLogix Client software, deployment requires preparation and planning.

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[3] There is also an option for the java Web client, which can use a locally installed Web browser instead of installing software on the client device. This is mostly used for internet kiosk access.
[4] Microsoft has Softricity SoftGrid, which also provides application isolation, as a purchasable add-on to Terminal Services. Sage SalesLogix cannot run within a SoftGrid 4.0.
[5] See Sage SalesLogix Release Notes for the latest information on these requirements.

The Sage SalesLogix Server and database are usually installed on a machine(s) other than the Terminal Server. See the Sage SalesLogix Implementation Guide for more information on installing the Sage SalesLogix Server.

Installing the Sage SalesLogix Client on a Terminal Server

After the prerequisites are installed, use these steps to install the Sage SalesLogix Client on a Terminal Server:[6]

1. Log on as an Administrator (local or domain user is acceptable).

2. From a command prompt, type **Change user / install**.

3. Insert the Sage SalesLogix DVD. If the installation program does not start automatically, locate and double-click **Install.exe**.

4. On the **Sage SalesLogix Installation** screen, click **Install SalesLogix Client**.

5. On the **Sage SalesLogix Client Installation** screen, click **Install SalesLogix Network Client**.

6. On the **Welcome** and **License Agreements** screens, read the information and accept the agreement, and then click **Next**.

7. On the **Setup Type** screen, click **Custom** and then click **Next**.
   No changes are needed to the selected default options.

8. Click **Install** and **Finish** to complete the installation.

At startup, the Sage SalesLogix Client starts the SLXSystem.exe as a background process (if it is not present) and continues running it. In a multiuser environment like a Terminal Server, this process needs to be started using a system or administrator account if normal user accounts are to share access. To enable user accounts to share access, install the executable as a service using the following command:

 Start | Run | cmd.exe

 "C:\Program Files\SalesLogix\SLXSystem.exe" /INSTALL

 Exit

From a command prompt, type **Change user / execute**

Unless missing prerequisites were installed during this process there is no need to restart the server after the client installation.

If there are multiple identical Terminal Servers in a load-balanced Server Farm, you should consider configuring the Path Manager (see the section titled "Path Manager" later in this document for information on Path Manager setup). This is especially important if roaming profiles are used.

Following installation of the Sage SalesLogix Client, the administrator should run the Client and connect to the Sage SalesLogix Server both to configure the Client and to test the installation.
Use the following steps for this process:

1. Log on as Administrator, and then start the Sage SalesLogix Client.

   (**Start | Programs | Sage SalesLogix | SalesLogix Client**).

2. On the **Port** screen, click **Next**.

3. In the **Please log on** dialog box, click the **ellipsis** button in the **Log on to** box.

4. In the **Data Link Manager** dialog box, click **Add**.

5. In the **DataLink Properties** dialog box, click the **Connection** tab to create a connection to the database.

6. In the **Select or enter the SalesLogix Server** box, select or type the name of the computer where the SalesLogix OLE DB Provider is installed. (The drop-down menu may initially be blank.)

7. In the **Select SalesLogix database connection** box, select the name of the SalesLogix connection configured for your database using the SalesLogix Connection Manager.

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[6] If the .NET Framework or MDAC is not pre-installed additional steps may appear so that those components may be installed. Typical options may be used when installing those components.

8. In the **SalesLogix User Name** and **SalesLogix Password** boxes, type the user name and password used to log on to the SalesLogix database. Ensure this is a SalesLogix logon name and password (in the evaluation database you can log on with the admin user name and no password).

9. Click **Test Connection**.

10. Click **OK** to accept the changes.

11. Log on with a SalesLogix user name and password.

12. Click **OK**.

Publishing the Sage SalesLogix Application

If there are multiple identical Citrix Servers in a Farm, you must install and test on each Citrix Server before publishing the application. You only need to publish the application once on the server Farm. On a Citrix Server, publish the Client executable as an ICA published application (these instructions are for Citrix Presentation Server 4).

1. Open **Presentation Server Console** and log on.

2. **Publish Application**.

3. Enter a display name and description for the application.

4. Choose the **publish as application** option.

5. Enter a name and description.

6. Select server and "**C:\Program Files\SalesLogix\SalesLogix.exe**" as the application and starting folder.

7. Select settings (shortcuts, and so on), if necessary.

8. Select appearance options, if necessary.

9. Select client requirement options, if necessary.

10. Select limits, if necessary.

11. Select access control options, if necessary.

12. Select servers.

13. Authorize users.
    No file type associations needed.

14. Click **Finish**.

With Native Terminal Services (2000/2003) publishing is accomplished via the user Start menu and desktop as directed during the Sage SalesLogix Client installation.

By default, user names and passwords for logging on to Sage SalesLogix are independent from the Windows (Active Directory) user names and passwords. Sage SalesLogix supports an option to use Windows logon credentials to automatically log on to the Sage SalesLogix Client using the same user name and password. See the Sage SalesLogix Administrator online Help for more information on Windows Authentication.

Path Manager

The Path Manager is a new feature in Sage SalesLogix version 7.0. The Path Manager supports redirection of a number of files and folders associated with the Sage SalesLogix Client. The Path Manager is built into the Sage SalesLogix Client. However, by default, the feature is disabled and default folders are used. Folder redirection is necessary whenever multiple users share a computer (as is the case on a Terminal Server) or when roaming profiles are used.

If there are multiple identical Citrix Servers in a Farm, you must install and test on each Citrix Server before publishing the application.

Roaming profiles is an option of the Microsoft operating system that allows important per-user information, both per-user files and registry keys (generically referred to as the User's Profile), to follow users whenever they log onto a different machine. The most common use of roaming profiles is on Terminal Servers. Often, enterprises will build several Terminal Servers identically and use a load balancer to split the load between them. When users log on to a server, they are automatically directed to the least loaded server for their logon session. The operating system then checks to determine whether it has an up-to-date cache of the User's Profile. If it does not, it will copy it to that Terminal Server from a central data store. Using Roaming Profiles, all user configuration and state (including window size and position) follow the user no matter which server they log on to.

The size of a User's Profile may grow quite large over time. Therefore, enterprises commonly take steps to reduce its size. One common technique is the use of home folders. A home folder is a centralized folder on a file server that is remotely mounted on any server the user logs on to. Rather than having those files (potentially) copied when the user logs on to a server, the files are referenced on an as-needed basis. Additional techniques such as Mandatory and Hybrid Profiles are also used; however, these techniques are beyond the scope of this document. If Mandatory or Hybrid Profiles are being used, please contact your reseller for assistance.

While the Sage SalesLogix Client software is inherently multiuser, portions of the product (such as Intellisync, which is used to integrate with external e-mail software packages) use, by default, folders for per-user information. These folders are stored in areas of the server that do not fall within the standard User's Profile.[7] Using the Path Manager, these folders can be directed to be within a central share such as a mounted home directory.

The Path Manager can also be used to move other folders associated with per-user data out of the User's Profile to the home directory.

Finally, the Path Manager has a unique use in advanced scenarios such as when the Sage SalesLogix Client is installed on the Terminal Server and is integrated with a productivity application that is installed on the local client. This happens in some environments when another application predates the purchase of the Terminal Server, for example. In essence, Path Manager can be used to instruct the Sage SalesLogix Client to use a shared folder that would also be accessible to the productivity application on the client computer.

Enabling Path Manager on Terminal Server/Citrix

Use of the Path Manager is enabled by creating a registry key in the Local Machine Hive of the Windows Registry:

> **HKEY_LOCAL_MACHINE\Software\SalesLogix\PathManager**

This is a registry key and not a registry name. When the Sage SalesLogix Client starts up it looks for the existence of this key to enable Path Manager to override default folder locations.

If there are no registry name/value pairs under this key, they will be created using environmental information available at that time including the logged on windows user information. Once created, these values must be manually modified in a multiuser situation such as exists in a Terminal Server. The values generally point to subfolders under one of three areas:

• The folder on the server for common data (All Users)

• The folder on the server for the logged on user data

• The folder on the server that the Sage SalesLogix Client was installed to

The Administrator should review each registry name/value for possible modification as directed in the next three sections.

While the Sage SalesLogix Client software is inherently multiuser, portions of the product use folders for per-user information.

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[7] Specifically, these per user folders are created in the Program Files area by default. This is an issue when multiple, load-balanced, terminal servers are in use.

Values Pointing to the Common Data Folders

When multiple, load-balanced, Terminal Servers are in use, it is best practice to use a single remote share for the Sage SalesLogix common data. This ensures that documents created by a user for sharing (when on one server) are available to all users when logged into a different server (including the user who created it). Typically this will be a mounted share from a File Server. If a single Sage SalesLogix Server is in use, this can be a share added to that server. With remote branch servers, it may be desirable to have separate shares at each site to reduce WAN traffic (although users at each site would not see other user documents). The Administrator should review the registry values pointing to the All Users area for redirection to this Sage SalesLogix common data share.

Values Pointing to the User Data Folders

The best approach for locating user data folders on Terminal Servers (in general, not specific to Sage SalesLogix), especially when roaming profiles are in use, is to create individual home folders for each user that are centralized on a common file server. Configuring Windows to use home folders in this way is common practice in Terminal Servers. However, this configuration is not detailed in this document. Once set up, no matter what user logs on inside their session, there would be a consistently-named mounted drive (often H:) that points to that user's private home folder no matter which server they log on to. This significantly reduces logon delays due to roaming profiles being copied to a server.

If the same reference home folder is in use by the administrator that first runs the Sage SalesLogix Client after enabling the Path Manager by creating the key, then the registry values that point to the logged on user data folders can be used.

Values Pointing to Program Files Folders

There are three values that default to folders within the Sage SalesLogix installation path (typically in Program Files). These three registry names are:

- LocalisationPath
- IntelliSyncPath
- IntelliSyncUserPath

The first name is used for language localization and need not be modified because of Terminal Server installation. The second two registry name/values are used by Intellisync for integration with an external productivity application.

- IntelliSyncPath points to the folder which contains the Intellisync executable and other components on the Terminal Server. Normally, the default values should not be changed.
- IntelliSyncUserPath points to a folder that is the base for user specific sub-folders. Two subfolders that use the Windows User Name are used. For example, if the User Name is "George", the subfolders "George" and "George.cfg" are used for that user. Although IntelliSyncUserPath will default to the same value as IntelliSyncPath, it has a different purpose and needs to be modified in a multiuser environment. This will be described further in the following sections.

Integrating with External Productivity Applications

Sage SalesLogix can integrate with certain external productivity applications like Microsoft Outlook/Office, Lotus Notes, and Novel GroupWise. This integration enables users to make use of familiar infrastructure and tools. Depending on the application, this integration might be accomplished between the Sage SalesLogix Server and an Application Server, or it might be accomplished between the Sage SalesLogix Client and Application Client software.

Integrating with an Exchange Server using Exchange Link

Enterprises that use Microsoft Office with an Exchange Server should note that the preferred integration with Exchange is to directly integrate the Sage SalesLogix Server with the Exchange Server rather than integrate at the Client level. Information on integrating with an Exchange Server can be found in Exchange Link documentation.

When multiple, load-balanced, Terminal Servers are in use, it is best practice to use a single remote share for the Sage SalesLogix common data.

Integrating with Productivity Applications Installed on the Terminal Server

The Sage SalesLogix Client integrates with other productivity applications using Intellisync connectors. When the Sage SalesLogix Client is installed on the Terminal Server, it looks to see if these productivity applications are installed. If an application is detected, the installation uses the appropriate connectors. Connectors allow a level of individual integration, which provide information transfer between the productivity application and the Sage SalesLogix Client software, and thus require individual attention.

After enabling Path Manager and starting the Sage SalesLogix Client once, the Windows Local Machine Registry Hive will contain path entries that may require modification as indicated in the Path Manager section. The IntelliSyncUserPath registry name/value is used by Intellisync for integrating with the productivity application via a connector. Under the folder named by this registry value, there are two folders used for Intellisync integration per user. By default, IntelliSyncUserPath will now point to the SlxIntelliSync program folder. For example, for a Windows user named "George," the folders would be:

      C:\Program Files\SalesLogix\SlxIntelliSync\George

      C:\Program Files\SalesLogix\SlxIntelliSync\George.cfg

While this would be acceptable in a single Terminal Server scenario, with multiple Terminal Servers, the IntelliSyncUserPath should be modified to use a central folder. When home directories are used, the administrator should modify this registry value to point to the home drive, where these two user folders will be created.

NOTE: The scenario where the Sage SalesLogix Client is installed on the Terminal Server and the external productivity applications are installed on the client PC is not supported at this time.

Summary

Sage SalesLogix can be effectively deployed using Microsoft Terminal Services and/or Citrix. Savings from reduced installation and maintenance activities will be achieved (because the client need only be installed on a few Terminal Servers rather than hundreds or thousands of desktop PCs). However, it is important to allow more time for planning an installation to best meet the needs of any given organization. This is often done as part of a pilot installation, which customizes the installation procedures to fit into existing organization best practices specific to Terminal Server deployments.

Sage SalesLogix Client integration with certain other productivity applications that are also installed on the Terminal Server (such as Microsoft Outlook/Office, Lotus Notes, or Novell Groupwise) may be achieved via Intellisync and the Path Manager. Path Manager settings must be customized to take into account the existing practices, such as roaming profiles and home drives. When Microsoft Exchange is used, Exchange Link can be used on the Sage SalesLogix Server to simplify integration.

A deployment of the Sage SalesLogix Client via Terminal Services and/or Citrix enables end-user productivity while saving the enterprise significant installation and maintenance costs, as well as time, over a traditional client PC deployment.

Substantial savings from reduced installation and maintenance activities will be achieved when deploying Sage SalesLogix on a Microsoft Terminal Services and/or Citrix environment.

Addendum

Sage SalesLogix Best Practices for Optimized Performance on Citrix

The recommendations outlined in this document are intended for use on the current release of Sage SalesLogix.

⚠️ The following recommendations can cause serious performance issues if not performed correctly. Changes may also impact Sage SalesLogix during future upgrades. Contact the Sage SalesLogix Professional Services Group or your Sage SalesLogix Business Partner for information and guidelines if you choose to implement performance optimizations.

The following recommendations maximize performance when running Sage SalesLogix in a Citrix environment. Suggested optimizations include:

- Changing display-only controls
- Removing controls that overlap
- Customizing Menus and Toolbars
- Unreleasing unused plugins
- Running the SLXSystem.exe as a Windows Service

Display-Only Controls

Optimization Area: A screen takes too long to refresh and the controls seem to flicker and slowly paint themselves on the screen.

Recommendation: In the following graphic, all controls must be loaded and re-drawn. Over Citrix this task can take noticeably longer. If the controls are display-only, consider changing them to a Browser control. Use HTML to present the data in a table which reduces the screen painting and flickering.

	2003	2004	2005	2006	2007
Row 1					
Row 2					
Row 3					
Row 4					
Row 5					
Row 6					
Row 7					
Row 8					
Row 9					
Row 10					
Row 11					
Row 12					
Row 13					
Row 14					
Row 15					
Row 16					
Row 17					
Row 18					
Row 19					
Row 20					

Control Overlap

Optimization Area: There are few controls on the screen, but flickering still seems to occur when the screen is re-drawing or when moving the mouse over the controls. This includes tool tips and the hints property.

Recommendation: The WM_Paint message indicates that the Windows application is making a request to paint an area of that active window. If controls are too close together, moving the mouse through the overlapping controls causes the WM_Paint event to trigger through the mouse handler. To avoid repainting controls unnecessarily, space controls at least 1 pixel apart. Try to restrict using bevels and panels which also affect rendering. Avoid using tool tips when deploying Sage SalesLogix over Citrix.

Menus and Toolbars

Optimization Area: CPU Utilization seems to increase when custom Menus & Toolbars are implemented.

Recommendation: When deploying Sage SalesLogix over Citrix, consider creating custom Menus and Toolbars inside the Standard Menus & Toolbars or Sales Toolbar as this reduces overhead. Sage SalesLogix polls all available Menus and Toolbars to determine if any actions need to occur. If the Menus or Toolbars have been altered extensively, it will cause more global scripts to trigger and increase the CPU utilization.

Un-release Unused Plugins

Optimization Area: The Citrix server seems to be using increased amounts of memory once customizations are implemented.

Recommendation: If your database has extensive customizations, this will increase the overall footprint for Sage SalesLogix and decrease the amount of memory available on the Citrix server. As many global scripts and core plugins are not needed for every Sage SalesLogix environment, consider un-releasing plugins not in use. This will decrease the amount of memory used per Sage SalesLogix Client, and ultimately increase the number of users on Citrix. For example, if a customer will never use the Tickets or Support modules, un-release them.

Caution: Many scripts and forms are shared. Ensure the plugins you are un-releasing do not cause issues in other areas of the application otherwise error messages may display as "Plugin not found."

Running the SLXSystem.exe as a Windows Service

Optimization Area: When running the SLXSystem.exe as a Windows Server, you can set the service to remain open for a set amount of time before shutting down.
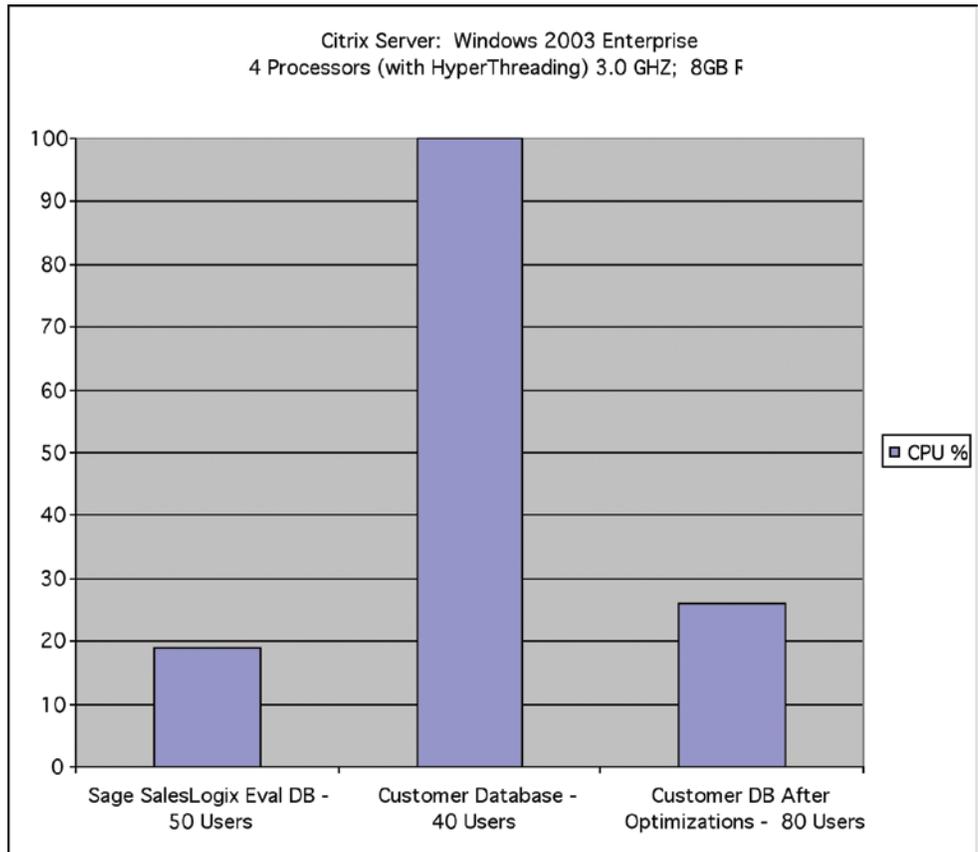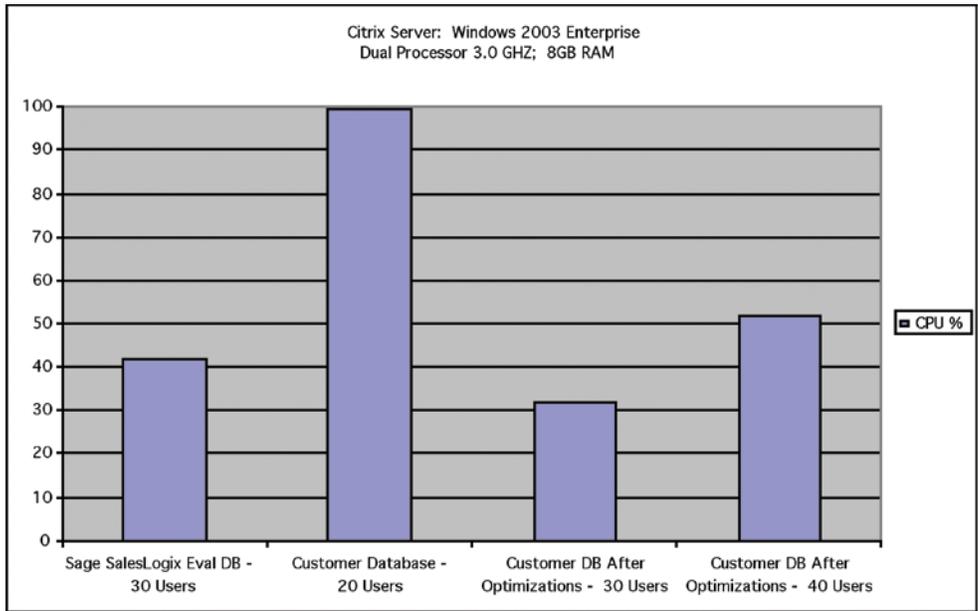
Recommendation: Add the registry key HKEY_LOCAL_MACHINE\SOFTWARE\SalesLogix\ ShutdownDelay(DWORD). The key accepts values 1 through 1440, where the value indicates the number of minutes the service will run before shutting down (after it detects no activity). Setting the value to 0 indicates the service never shuts down. By default, the SLXSystem.exe service is set to Automatic with a registry value of 0 so that it is always on.

The following is an example registry entry that allows the same Data Link to be available for users logging on to Sage SalesLogix.

```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\SalesLogix\CUD]
[HKEY_LOCAL_MACHINE\SOFTWARE\SalesLogix\CUD\ADOLogin]
[HKEY_LOCAL_MACHINE\SOFTWARE\SalesLogix\CUD\ADOLogin\Connection1]
"Data Source"="SLX"
"DBPassword"=""
"DBUser"=""
"Extended Properties"="PORT=19026;LOG=ON"
"Initial Catalog"="SLX"
"Provider"="SLXOLEDB.1"
"Alias"="SLX"
@=""
```

Sage SalesLogix Performance Metrics

The following data represents the standard Sage SalesLogix evaluation database and a customized production database on Citrix. After applying recommended optimizations, the customer was able to increase users while decreasing CPU percentage.

Citrix Server: Windows 2003 Enterprise
Dual Processor 3.0 GHZ; 8GB RAM

Citrix Server: Windows 2003 Enterprise
4 Processors (with HyperThreading) 3.0 GHZ; 8GB F

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