Multi-Server Environments
Load Balancing Guides
Introduction

This document outlines the implementation of a multi-server SmartSearch environment. Users may benefit from this type of deployment due to concurrent user counts, network configurations or specific performance requirements. Listed below are several of the most common scenarios where a multi-server environment would prove beneficial.

- **Load Balancing for Large User Counts** – Square 9 recommends that in deployments that exceed 100 concurrent user that the organization stand up multiple servers on the same network for performance/load balancing reasons. This would allow groups of users to access a particular server while other users accessed a different server to split the access load.

- **Segregation of Capture Processes** – Administrators may wish to isolate capture workflow engines for document processing performance reasons. All users would access the same server for retrieval, but document-processing operations may be spread across multiple servers. This approach can be highly beneficial when specific capture processes require higher resource utilization.

- **Distributed Network Configurations** – Administrators may wish to separate the application server and storage in each remote site, sharing a common SQL instance at a primary site. This configuration will allow documents to be stored and retrieved locally to each server instance for minimizing network traffic or stored in a common file share at a single site.

- **Departmental Capture Processes** – Capture workflows can be separated across instances and made to be only visible to users running from that server instance. In this scenario, batch management can be made common to the deployment, or isolated to the site/server.

- **Guest/ Read Only Server Instances** – All or part of a document repository can be copied to a separate server that is made publicly accessible. This approach minimizes the risk that secured document files can be accessed from the public/general access server.

Please note that there are specific licensing requirements for deploying a multi-server configuration that include an associated cost. For questions in regard to pricing a multi-server environment, please contact your Square 9 reseller or Regional Sales Director.

**WARNING: PERFORM A BACKUP OF ALL DATABASES AND FILES ON YOUR PRODUCTION SERVER BEFORE PROCEEDING. FAILURE TO DO SO MAY RESULT IN UNRECOVERABLE DATALOSS.**

SmartSearch Server Load-Balancing Configuration

For the purposes of this guide we have configured two servers:

- SS-SERVER (primary installation)
- SS-APP2 (secondary load balancing server)

The two servers are members of the same domain.
Installation/Configuration of Primary Server

The primary server installation follows the same procedure as any standard SmartSearch server installation.

The only special considerations for the configuration of the primary server are that the Archive/Inbox base paths be configured with UNC paths (\SS-SERVER\SmartSearch). This will ensure that the files are accessible from either server.

1. Select a custom installation from the SmartSearch installer (Figure 1.1).

2. Change the default Inbox location (Figure 1.2).

3. Change the Inbox destination folder to: \ss-server\SmartSearch (Figure 1.3).
4. Change the default Archive location (Figure 1.4).

5. Change the Archive destination folder to: \ss-server\SmartSearch\ (Figure 1.5).
Note: If you are configuring an existing installation to add a second server for load balancing you may need to update your SQL database to ensure that your archives base paths and your files paths are configured to use UNC paths for reference.

Installation/Configuration of Secondary Server

When installing the secondary server proceed with a custom installation as with your primary server’s configuration using the same UNC file paths for the Archives and Inboxes; however, you must be prepared to select a different database from your primary server during the installation.

Note: Failure to select an alternate SQL instance may result in the corruption of data.

Following the initial temporary database selection, proceed to configure the custom installation paths for your primary servers Archive and Inbox UNC paths.

1. Change the default Inbox location (Figure 1.6).

2. Change the Inbox destination folder to: \ss-server\SmartSearch\ (Figure 1.7).
3. Change the default Archive location (Figure 1.8).

4. Change the Archive destination folder to: \\ss-server\\SmartSearch\ (Figure 1.9).

5. At the database configuration screen, select either a new instance to be created temporarily on the secondary server or select another instance (Figure 1.10) that is NOT your primary SmartSearch servers SQL instance (Figure 1.11).
Post Installation Configuration

Following the installation of SmartSearch on the secondary server, the configurations should now be updated to direct the installation to use the primary servers SQL databases and the permissions must be changed on the services.

Configuration Guides/Connection Strings

The connection strings on the secondary server must be updated in the following files to point to your primary SmartSearch server’s SQL instance:

Note: The following paths are based on default locations, if you specified alternate installation paths on your primary SmartSearch server’s installation you will need to change the files relative to those paths.

- C:\inetpub\wwwroot\getsmart\web.config (Figure 1.12).

```xml
<configuration>
  <appSettings>
    <add key="DataBaseName" value="ss-server\tempInstance"/>
  </appSettings>
  <connectionStrings>
    <add connectionString="Data Source=ss-server\tempInstance;Initial Catalog=SSMaster;Integrated Security=SSPI;" name="GetSys"/>
    <add connectionString="Data Source=ss-server\tempInstance;Initial Catalog=SSMaster;Integrated Security=SSPI;" name="SetIBDS"/>
    <add connectionString="Data Source=ss-server\tempInstance;Initial Catalog=SmartSearch;Integrated Security=SSPI;MultipleActiveResultSets=true;" name="GetSmart"/>
  </connectionStrings>
</configuration>
```
Two new configuration files must be created and configured so that the secondary server will write its
capture workflow batches into the primary server’s mongo database. Navigate to the following locations
and create a file called: mongo.xml.

- C:\inetpub\wwwroot\Square9REST\bin\mongo.xml
- C:\GetSmart\mongo.xml

In this file enter the following information (Figure 1.17).

<i>Note: Change the server name to your primary server name or IP address.</i>
Restart IIS on the secondary server. All connections and capture workflows executed by this secondary server should now release in tandem to the primary servers database and all documents will be stored in the appropriate file system upon import.

**Services**

The services on the secondary server must also be changed to be run as a user that has permission to the SQL databases on the primary server.

The following services must have their user changed:

- ssCaptureWorkflow
- SSImp Engine

**Important Technical Notes**

Each server will have its own set of capture workflows. Duplicate capture workflows may be created for a single workflow process, but will be kept on their individual servers in their own C:\GetSmart\99 folders.

- **Note:** Import Scan capture workflows will not display within SmartCapture unless the SmartCapture configuration is modified to connect to the server that contains the Import Scans capture workflow. Duplicate capture workflows must have their own unique import folder, even if it is identical to another capture workflow process.

**Client Configuration**

Clients can be balanced across the two servers to allow for additional load balancing. The following should be taken into consideration:

- The license pool is shared, so you will still only be able to use the same total number of active clients.
- Each client installation can only be configured to use one of the servers at a time; if you wish to change the server a client uses, you will need to uninstall first.

Configuring a client to connect to the desired server is mostly automated for you by the initial installation. At the time of SmartSearch Installation a “SmartSearch Client Installation” folder should have been created on each server. You then need only share the SmartSearch Client Installation folder on each server out to the network.

To install a client configured to connect to the primary server:

1. Browse to: \ss-server\SmartSearch Client Installation\ (Figure 1.18).
2. Run the ssClient.msi.

3. Follow the instructions in the client installer.

To install a client configured to connect to the secondary server:

1. Browse to `\ss-app2\SmartSearch Client Installation`.

2. Run the ssClient.msi.

3. Follow the Instructions in the client installer.

To change the server a client is configured to connect to:

1. Open the Windows Control Panel.

2. Open Programs and Features or Add/Remove Programs (depending on the version of Windows).

3. Select SSClient (Figure 1.19).
4. Click Uninstall.

5. Repeat the above installation procedures for either the primary or secondary server.

### Registration

The two servers will be registered using the same serial number; however, both will need to be registered with their own UID (Unique Identifier). If the first server has already been registered using the automated Web Registration feature, the second server will still need to be registered manually (Call 203-789-0889, Option 1).

> Note: Both servers will share the same license pool and count towards your total number of active users.

### Document Workflow

Due to the nature of Document Workflow system workflows and because they run directly against the SQL database, the Document Workflow service (ssDocumentWorkflow) should ONLY be run on the primary server.

To disable the Document Workflow service on the secondary server:

1. Launch the Services control panel (services.msc).
2. Right click on ssDocumentWorkflow.
4. In the Properties window select “Disabled” from the Startup type dropdown list (Figure 1.20).
5. Press the Stop button if the service is currently running.

6. Press Ok to save the changes.

Backup Considerations

As always we strongly recommend that regular backups be taken of both your documents and the database. With load balancing the practices should be the same; you will want to keep backups of both the filesystems document/image storage (the “SmartSearch” folder containing the Inboxes and Archives) as well as the SQL databases (smartsearch, ssmaster, and ssprocessing as well as any additional databases created if Multi-database support is licensed).

Additionally you may wish to backup each server’s application directory (C:\gtsmart, by default), as well as the web site folders (located in c:\inetpub\wwwroot, by default) in order to backup the settings of your load balancing configuration.

Special Considerations

Upgrades

When upgrading an installation that has been set up for load balancing, special care must be taken to preserve the configuration. Unnecessary upgrades may want to be avoided to prevent the need for manual reconfiguration, and the effects of the new version should be considered.

Content Search

Content Search services can run on multiple servers; however, for this to work correctly, the content search “full text” database paths must be unified.

Separate Authentication

The servers can be setup to share a common authentication server or can have separate servers or domains used for authentication. In the latter case, authorized user/group names MUST ALWAYS be unique across all SmartSearch servers.