ZDS Corporation

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ZDS Search Installation and Operations Guide

Release 1.43

9/27/2004

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Table of Contents

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1. Introduction

This document describes how to install, tune, and use ZDS Search for SourceSafe™.

1.1 How ZDS Search Works

ZDS Search is browser based. The index is available to anyone on your Intranet.

It is normally installed as shown in the diagram below, where the grey boxes indicate the three ZDS Index components.

A single server can be used if desired, but it is more usual to assign Web server, index generation, and SourceSafe database support to different networked servers.
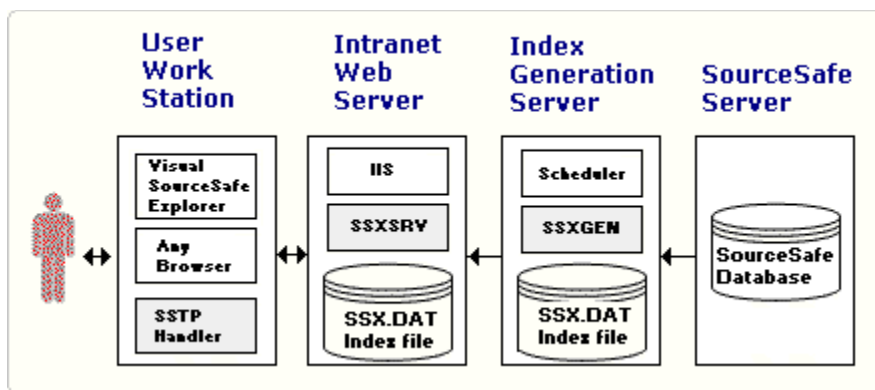
- Index generation is done by **ssxgen.exe** which runs at night under a scheduler.

- The index file generated is copied to a web server.

- The user accesses the index using any browser. The web server runs cgi-bin executable **ssxsrv.exe** to search the generated index.

- When the user clicks on a file citation, **sstphandler.exe** installed on the client launches Microsoft's Visual SourceSafe Explorer, open at the project containing the file.

  The handler uses standard Microsoft technology to do this.

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1.2 Initial Time and Space Requirement Guidelines

To decide where to install the generation program you need to make a quick estimate of the space required, and the time it will take to run.

The space requirement is almost entirely that required to store the index and working files. The system executables are written in 'c' and assembler for maximum speed and minimum space. The current release executables are only about 50K each.

The total size of your SourceSafe database is easily determined.

Most databases contain high percentages of files which have been deleted but not purged and which will not be indexed.

Using the total database size to be conservative, we suggest initially:

- On the generation server reserving 100% of the space used by the SourceSafe™ database being indexed.

- On the generation server setting up the scheduler assuming a generation run time of 1Mb/sec (based on a Pentium II).

  Scale this according to the processor on your server and multiply by the size of your database to get an initial generation run time estimate.

- On the web server reserving 20% of the space used by the SourceSafe™ database being indexed.

The final time and space requirements will be determined by the results of the tuning step (Section 3.).

2. Installation

Installing ZDS Index is a three step process:

- Install the Index generation program on an application server.
- Install the index server program on a web server.
- Install the sstp handler on Client workstations.

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2.1. Installing the Index Generation program

The index generation program can be installed either on a server of it's own or the SourceSafe™ server itself. Whichever server is selected should have free space at least equal to the size of the SourceSafe database.

2.1.1. Unpack the distribution

Select a directory on the server you have chosen for index generation.
Copy the distribution zip file into it, and unzip the file. This tree will be created:

```
:..ZDS
   :..ssx              ssx.reg
      :..sstphandler   sstphandler.exe
      :..ssxgen        ssxgen.exe  ssx.ini  ssgencopy.bat
      :..ssxsrv
         :..bin         ssxsrv.exe
         :..data        userguide.txt  zds.css  gif's
         :..logs
```

2.1.2 Customize ssx.ini for your organization

Open ..\ssxgen\ssx.ini in a text editor and change these entries:

[ssxgen]

SourceSafeDatabaseName=?

This tells the sstp handler program which database to open. Specify one of available database names listed in the Visual SourceSafe Explorer 'Open SourceSafe Database' dialog.
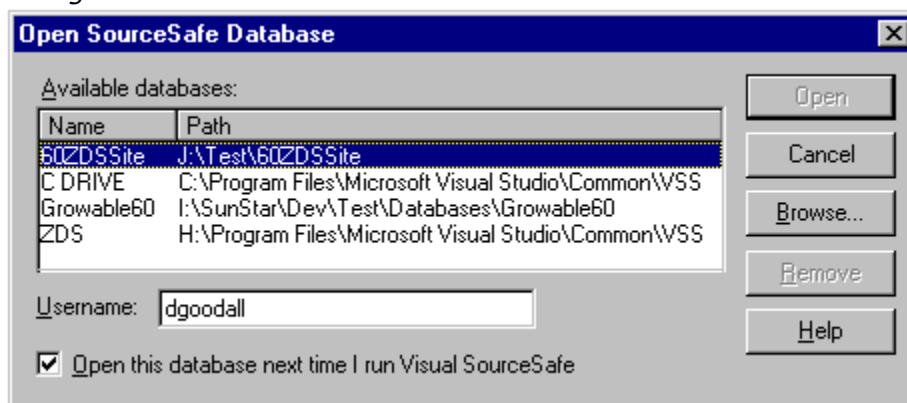
PathToVssDataDirectory=

This tells the index generation program where to find the input SourceSafe database. The directory path may be specified in two ways :

Mapped drive e.g.:	*Universal Naming Convention (UNC) e.g.:*
x:\share-name\vss\data	*\\server-name\share-name\vss\data*

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PathToOutputIndexDirectory=..\ssxsrv\data

*This tells the index generation program where to output the ssx.dat index file.
The directory path may be specified in two other ways:*

Mapped drive e.g.:	Universal Naming Convention (UNC) e.g.:
x:\share-name\ZDS\ssx\ssxsrv\data	*\\server-name\share-name\ZDS\ssx\ssxsrv\data*

[Support]
AlertList=

*The search programs will email problem notifications to the email addressees on this
list. Items in the list are comma separated. No spaces are allowed after the comma
separators. For example: djohnson@sonoma.com,dcamillo@sonoma.com*

SenderEmail=

Specify the email address of the mail sender. For example: ssx@mycompany.com

MailServer=

*Specify the mail server. For example: mail2@mycompany.com
The default is 127.0.0.1*

You may change other parameters if you wish but we suggest that you defer this
until the system is up and running.

2.1.3 Automate index generation under a scheduler

You will need a scheduler program to invoke 'ssxgencopy.bat' during the night.

If you do not already have one installed we recommend 'ezScheduler' from American
Systems. This is reliable, simple to operate, and available as a free download from
http://www.americansys.com/ezscheduler.htm.

Set up the scheduler to launch 'ssxgencopy.bat' during the night every weekday at a
time which will allow indexing to complete well before the normal start of the
business day.

If you have automated backups running during the night, it is desirable to schedule
index generation so as not to conflict with the backup, as both tasks are heavily I/O
bound.

2.1.4 Install registry keys for test support

Click on the distribution ssx\ssx.reg file.

This will install registry entries under the keys :
'HKEY_LOCAL_MACHINE\Zds Corporation\ZDS Search'

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2.1.5 Test your installation

🔵 **Test generation :**

Open a Command window.
Change to the ssxgen directory.
Run 'ssxgen'

The generation program will display progress, and will create
- Log file 'ssxgen.log' in the ssxgen directory.
- The 'ssx.dat' index file in the ZDS\ssx\ssxsrv\data directory.

Review the log to confirm that the index was generated successfully.

🔵 **Test the index :**

Change to the ssxsrv\bin directory.

Enter ssxsrv #ssx_status# and press enter.
Locate ZDS\ssx\ssxsrv\bin\search.html with Explorer and click on it.
The Status report should appear in the browser window.

Enter ssxsrv #ssx_cfg# and press enter to re-generate search.html.
Refresh the browser window to view the Configuration Report.

Enter search keywords e.g : ssxsrv hollyhocks and press enter to re-generate
search.html. Refresh the browser window to view the search results.

Refer to section 2.1.7 below for trouble-shooting hints.

🔵 **Test the scheduler starts up the batch file** :

Set the scheduler to run the batch file immediately, and execute it.
Check that the batch file is started.

To save time, since the only object is to ensure that scheduler is correctly
configured to start ZDS\ssx\ssxgen\ssxgencopy.bat, we suggest that you :
- Save the ssxgencopy.bat file.
- Comment out the ssxgen and copy steps.
- Run the immediate execution to ensure that the batch file gets executed.
- Check that ssx.dat got copied to the target web server 'data' directory.
- Restore the original ssxgencopy.bat file

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2.1.6 Trouble shooting

If you experience problems obtaining a search.html test output page when testing the index, then run ssxsrv with the special keyword #ssx_diagnostics#

This may be used either alone or in combination with other keywords e.g :

ssxsrv #ssx_diagnostics#
ssxsrv #ssx_cfg# #ssx_diagnostics#
ssxsrv hollyhocks #ssx_diagnostics#
ssxsrv #ssx_diagnostics# #ssx_cfg#

When the #ssx_diagnostics# keyword is present ssxsrv will print out to the console information on the configuration parameters it is using when it initializes.

For example :

 I:\SUNSTAR\ZDS\ssx\ssxsrv\bin>ssxsrv #ssx_diagnostics# #ssx_cfg#

 Info : The Current directory on startup was [I:\SUNSTAR\ZDS\ssx\ssxsrv\bin]

 Info : CMD_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN = []
 Info : CMD_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_DATA = [..\data]
 Info : CMD_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_LOGS = [..\logs]
 Info : CMD_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_CGI_BIN = [..\bin]
 Info : CMD_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_SSXSRV_DATA = [..\data]

 Info : Test Search page will be written as [I:\SUNSTAR\ZDS\ssx\ssxsrv\bin\search.html}

 Info : Style sheet location = [../data/zds.css]
 Info : Logo image location = [../data/logo.gif]
 Info : User guide location = [../logs/userguide.html]
 Info : User guide action   = [../bin/ssxsrv.exe]

 Info : The index file will be opened as [..\data\ssx.dat]

This information will usually pinpoint the configuration parameter that is causing the problem.

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2.2 Installing the index server program on the web server.

2.2.1 Create empty directories to hold the index server files.

```
:..ZDS
   :..ssx            ssx.reg
      :..ssxsrv
         :..data     userguide.txt, zds.css, gif's
         :..logs
```

Copy the contents of the distribution 'data' directory into the 'data' directory.

The 'data' directory needs to be writable. Every night a revised ssx.dat will be copied to it. You may want to edit userguide.txt from time to time.

The 'logs' directory must be writable at all times. The index server will write a log (ssxsrv.log) and the user guide (userguide,html) into it.

It is good practice not to store writable directories or files within your cgi-bin or docs trees, and we suggest that you establish the ZDS tree outside both of these trees.

2.2.2 Customize the batch file for your organization

Now that you have set up the ZDS Search tree on the web server, you know where updated ssx.dat index files are to be transferred to.

Open ..\ssxgen\ssxgencopy.bat in the generation server's ssxgen directory in a text editor.

Change the path to the directory on the web server to which you want to copy the 'ssx.dat' index file when it has been generated.

If you prefer to pull the 'ssx.dat' file to the web server rather than push it, then you should delete the lines that copy the 'ssx.dat' file, and you must set up your own procedures to transfer new 'ssx.dat' files to the web server.

2.2.3 Cgi-bin directory setup.

Copy ssxsrv.exe from the distribution 'ssxsrv\bin' directory into your cgi-bin directory.

The cgi-bin directory in which ssxsrv.exe is installed must be configured to support 'Scripts and Executables'.

Ssxsrv.exe is a Win32 Console cgi script and like all scripts in your cgi-bin directory should have execute only privileges, and no read, no write, no browse, no index permissions.

It is good practice that your cgi-bin should be separate from the document tree.

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2.2.4 Set up paths for the index server program.

The paths specified are purely relative. For example:

For the tree:	The relative path from 'cgi-bin' to 'data' is:

:...cgi-bin
:
:..ZDS
   :..ssx
      :.ssxsrv
         :..data
         :..logs
	'..\ZDS\ssx\ssxsrv\data'
	
	which can be read as
	- move up one directory (..\) from 'cgi-bin'
	- then move down to 'ZDS\ssx\ssxsrv\data'.

The Paths may be set up either as registry entries or environment variables.
The choice is yours.

Alternative a. Registry keys

Normally you will want to install the index server program on a (web) server that is different from the index generation server.

Copy the ssx.reg file from the distribution into the web server's ssx directory, and click on it to install these registry entries:

HKEY_LOCAL_MACHINE
  :..SOFTWARE
     :..ZDS Corporation
       :..ZDS Search

SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN=
SSX_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_DATA =**???**\zds\ssx\ssxsrv\data
SSX_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_LOGS =**???**\zds\ssx\sssxrv\logs

SSX_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_CGI_BIN =**???**\cgi-bin
SSX_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_SSXSRV_DATA =..\data

Use regedit or regedt32 to change the **???** *paths to match your installation.*

CMD… values will also be installed to support DOD command line testing.
You do not need to change the CMD… entries.

Alternative b. Environment variables.

These can be set up via the 'Settings' 'Control Panel' 'System' 'Environment Tab'.

Enter these variables, changing the **???** *paths shown to match your installation.*

SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN=
SSX_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_DATA=**???**\zds\ssx\ssxsrv\data
SSX_RELATIVE_PATH_FROM_CGI_BIN_TO_SSXSRV_LOGS=**???**\zds\ssx\ssxsrv\logs

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SSX_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_CGI_BIN =**???**\cgi-bin
SSX_RELATIVE_PATH_FROM_SSXSRV_LOGS_TO_SSXSRV_DATA =..\data

On Windows NT(tm) you must reboot the server for the environment variables to take effect.

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2.2.5 Web Server Current Directory Configuration

This configuration is optional. It is provided as a convenience for IIS web server installations, and you may not need it.

Web Servers that comply with the WWW Common Gateway Interface Version 1.1 Revision 03 Internet draft recommendations set the current directory on startup of ssxsrv.exe to the directory from which the web server ran it (cgi-bin).

At the time of writing Apache for Windows is known to do this*.

If you are running Apache as your web server, or another web server compliant with the WWW internet draft recommendations, then go on to section 2.2.5.

Microsoft's IIS web server product by default sets the working directories of CGI scripts to the 'root' or 'virtual paths or homes' directory regardless of where the script was found.

If you have configured IIS to set the working directory for scripts to cgi-bin. (Appendix D may be helpful) then go on to section 2.2.5.

If you do not want to change your IIS setup, you can configure ZDS Search to clean up after IIS with parameter: SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN.

On startup ssxsrv obtains the current directory.

If SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN is not null then ssxsrv appends it to the current directory and changes the current working directory to the extended path.

For example, if the current directory is '..\root' when IIS starts up ssxsrv from the cgi-bin directory immediately below root then specify

SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN = \cgi-bin

ssxsrv will change the current working directory to ..\root\cgi-bin.

SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN may be set up either as a registry entry or as an environment variable. The choice is yours.

The distribution ssxsrv.reg has an SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN value name entry that you can modify with regedit.

Alternatively, to set it up as an environment variable, use the 'Settings' 'Control Panel' 'System' 'Environment Tab' to enter:

SSX_PATH_FROM_STARTUP_ROOT_TO_CGI_BIN =**???**\cgi-bin

changing the **???** path as necessary.

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2.2.6 Provide access to ZDS Search from an Intranet Page

Decide which intranet page you want to use to provide access to ZDS Search.

Add a form to this page to invoke ZDS Search. For example :

To do this copy and paste the following XHTML code into your intranet page , and modify it to suit your requirements:

```
<subhead>SourceSafe database search</subhead>

<p>ZDS search works just like Google. Enter a keyword or keywords and click
Go!</p>

<form name="searchform" action="???/cgi-bin/ssxsrv.exe" method="get" >
 <table>
   <tr>
     <td>
        <input type="text" size="50" maxlength="90" name="input" value="" />
        <input type="submit" name="search" value="Go"/>
     </td>
   </tr>
 </table>
</form>
```

2.2.7 Test your installation

Click on the link. The ZDS search page should be displayed in your browser.

To test that email notifications are working, temporarily rename ssx.dat on the web server to something different then try a search. The search page should show:

Search error!
ERROR : Unable to open [..\zds\ssx\ssxsrv\data\ssx.dat]
GetLastError=[2] The system cannot find the file specified.
ssxsrv v1.37 ended abnormally. Exit code=[128]
Please advise your systems support group.

The addressees on the AlertList should receive emails with this error notification.

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2.3. Installing the sstp handler on Client workstations

2.3.1. Create a directory to hold 'sstphandler.exe'

on the user's computer and place 'sstphandler.exe' in it.

2.3.2. Register the handler with Windows™

In a Command window execute the 'sstphandler' program with argument '-register'
e.g: sstphandler –register

This will cause the program to install the required registry entries.

2.3.3 How sstphandler works

sstphandler does two registry lookups for information maintained by SourceSafe :

1. HKEY_CLASSES_ROOT
   :..SCC.Status.File DefaultIcon : REG_SZ :SomePathUsuallyToWin32\ssexp.exe, 0

in order to locate the Visual SourceSafe Explorer client program.

2. HKEY_LOCAL_MACHINE
    :..SOFTWARE
       :..Microsoft
          :..SourceSafe
             :..Databases

to get the path to the database named in the sstp://[DatabaseName] link.

sstphandler launches the SourceSafe client program (1.) with instructions to open
the indexed database (2.), open at the project containing the file link you clicked on.

2.3.4 Test your installation

Load the ZDS search page in your browser and execute a search.
Click on any citation returned.

If the handler has been installed successfully, the Visual SourceSafe™ Explorer client
window will open at the project containing the file.

If not, use the registry editor ('C:\winnt\System32\regedit32.exe') to verify that the
required registry entries specified have been added correctly under key
HKEY_CLASSES_ROOT\sstp.

The 'command' and 'DefaultIcon' subkey <No Name> paths should be set to the
location where you installed the 'sstp' directory.

See Appendix A : SSTP Protocol 'How Windows resolves links for ZDS Index' for
further details.

This completes the installation.

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3. Tuning

ZDS Search provides the ability for each organization to tailor the system to their own individual requirements to minimize index generation time and index size.

There is no magic number for the size of the index, but it is recommended that you take the time for the review and make changes that seem desirable.

The benefit is reduced index generation time, and disc space usage on the generation and web servers.

Reducing index size does not affect the response time spectrum which is designed to be essentially constant whatever the database size.

3.1 Minimizing Index size and generation time

Use the special #ssx_status# and #ssx_cfg# keywords to obtain status and configuration reports.

Review the status report summaries of the contributions made by the top ten extensions and files to the index. You may want to change the configuration settings that control the exclusion of specified extensions and files.

Two other settings control the length of terms that will be indexed. Please read the notes on the status report carefully before considering changing these.

3.2 Security Settings

Security related settings are never displayed to the user, and therefore, by design, do not appear on the #ssx_cfg# report.

UseClientNetbiosNameAsSsxSrvLogUserId=

The default is No.
If set to Yes the server log will identify the user by netbios name e.g.:

`Mon Mar 22 2004 21:29:54 `**`User=ZENIE`**` Time=8 ms Results=24 Keywords=strcpy`

This is useful information in identifying who is using the service. If you want to log this information but do not want regular users to be aware that this report exists, then edit the User Guide (See section 3.3) to remove the reference to the #ssx_log# report.

EnableReferenceFromHostWebServerCheck=

The default is No.
If set to Yes the server will check that it is being invoked by the web server hosting it. This can be used to screen out undesired calls.

`If set to 'Yes' and the check fails, the user is sent a 'Search found no matches' page. A security alert email is sent, and the event is logged.`

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3.3 Customizing the User Guide

ZDS Search provides a user guide page which you can customize if you wish.

For example, you may not want general users to be aware of one or all of the special reports, and want to remove that content.

To change the User Guide page, open 'userguide.txt' in 'Notepad' or a similar flat text file editor.

You may enter any valid Xhtml in the userguide.txt file. If you are not familiar with Xhtml then these hints may be helpful:

   1.1
  will cause a line break.

   1.2 myHeading will create a
     heading line with 'myHeading' in an accent color.

   1.3 <p>The text between these opening and closing tags will be
     printed as a new paragraph.</p>

   1.4 The text between these opening and closing tags will be
     printed in bold.

ZDS Index does not validate the contents of 'userguide.txt' so be careful to modify it correctly.

When you have finished editing 'userguide.txt' , copy it to the web server's 'ZDS\ssx\ssxsrv\data' directory.

The next time you click on the 'User Guide' link on a search page, the server will create an updated 'userguide.html' page incorporating your updates, and will write an entry to the server log confirming that it has done so.

You should check the page to make sure you are satisfied with your changes.

3.4 Feedback

ZDS Corporation would very much appreciate it, if after running the system for a month, you would email dave_goodall@ezds.com or support@ezds.com with copies of these reports :

#ssx_cfg#	Configuration settings
#ssx_status#	Index build information
#ssx_log#	Index response time
#ssx_tech#	Technical index internals information

Any information you supply will be held in strict confidence and not disclosed to third parties.

Your responses will help us to improve the product.

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4. Operation

4.1 Server upgrades

Frequent upgrades and re-configuration of server hardware and operating systems are a fact of life.

Recognizing this, the product is not tied to your hardware in any way.

You may move the application between servers in your organization without restriction.

Upgrading the hardware on which you have installed the application will not affect it (except to make it run faster).

4.2 Product updates

Installing upgrades on the server side requires simply copying new versions of ssxgen.exe and ssxsrv.exe onto the web and generation servers respectively.

Upgrades to the client side protocol handler which is simply a launcher for Visual SourceSafe Explorer, are likely to be infrequent. If required, then simply copy the upgraded sstphandler.exe to the directory you have set up on client workstations.

4.3 Index Generation

The index generation process creates an index file (ssx.dat) and two temporary (.tmp) working files.

Unless you have real disc space constraints, we recommend that you leave the .tmp files permanently in place for two reasons:

- As they are regenerated every time the index is run (usually nightly) leaving them in place means that you will have a more accurate picture of space available.
- With the files in place the generation program does less work to estimate and iteratively resize files every time the index is re-generated.

4.4 Support

Contact us at 'support@ezds.com'

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Appendix A : SSTP Protocol

How Windows resolves links for standard protocols

The 'File Transfer Protocol' and 'HyperText Transfer Protocol' are industry standard protocols installed as part of your operating system.

If you click on an 'http' link, Windows looks up the protocol in the Registry and loads Internet Explorer to handle it, passing IE the appropriate parameters.

The supporting registry entries for the 'http' protocol are :

```
HKEY_CLASSES_ROOT
   :.. http                <No Name>:REG_SZ:URL:HyperText Transfer Protocol
   :   :                   URL Protocol:REG_SZ:
   :   :
   :   :..DefaultIcon      <No Name>:REG_EXPAND_SZ:
   :   :                   %SystemRoot%\system32\url.dll,0
   :   :..shell
   :      :..open
   :         :.. command <No Name>:REG_SZ:
                          "C:\PROGRA~1\Plus\MICROS~1\iexplore.exe" -nohome
```

How Windows resolves links for the 'sstp' protocol

ZDS Index uses exactly the same mechanism. Similar entries in the registry define the custom 'sstp' 'SourceSafe Transfer Protocol'.

Each file on a ZDS search page is a clickable link that uses protocol 'sstp' instead of 'http'.

For example : 'sstp://[SourceSafeDatabaseName]
$/Sales/Prospects/DallasMarket2004.doc".

Clicking on the link causes Windows to load the 'SstpHandler' program,
passing it the link information. The handler translates the link to a command that Microsoft Visual SourceSafe Explorer understands, opens the database specified in the link, and launches VSE open at the project containing the document.

The supporting registry entries are :
```
HKEY_CLASSES_ROOT
   :.. sstp                <No Name>:REG_SZ:URL:SourceSafe Transfer Protocol
      :                    URL Protocol:REG_SZ:URL:SourceSafe Transfer Protocol
      :
      :..DefaultIcon       <No Name>:REG_SZ:[PathTo]\sstp\SstpHandler.exe
      :..shell
         :..open
            :.. command <No Name>:REG_SZ:"[PathTo]\sstp\SstpHandler.exe" "%1"
```

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Appendix B : Error Handling

ZDS Search is comprehensively error trapped.

The two console programs (ssxgen and ssxsrv) will log error messages to their error logs, send an email error notification to the alert list, and return dos exit codes.

Ssxsrv will additionally display the error on the search results page.

The sstp handler does not log errors, but instead displays an error dialog to the user.

All programs return 0 for Success. Error exit codes, in numeric order by program are:

```
ssxgen

 32  ERROR : [n] Unable to determine machine word size
 33  ERROR : Invalid syntax or missing parameter
 34  ERROR : Unable to determine current launch directory
 35  ERROR : Unable to open file names.dat.
 36  ERROR : Failed to open project data file [%s] [%s]
 37  ERROR : Pass 4 FileNodeCnt=[n] not equal to Pass 2 FileNodeCnt=[n]
 38  ERROR : Pass 4 TermNodeCnt=[n] not equal to Pass 2 TermNodeCnt=[n]
 39  ERROR : traversing [n] node file chain starting at node [%lu]
 40  ERROR : Unable to get file size for [filename]
 41  ERROR : CreateFile() returned an invalid handle
 42  ERROR : Unable to open [filename] [reason]
 43  ERROR : writing [n] bytes to [filename]
 44  ERROR : Invalid %s=%s value.
 45  ERROR : Unable to determine free bytes available.
 53  ERROR : Configuration setting '%s' has not been defined in %s
 54  ERROR : Unable to get file attributes for [%s] %s
 55  The nn day trial period has expired. To register please visit
http://www.ezds.com
 56  ERROR : Key length exceeded
 57  ERROR : Key signature invalid
 58  ERROR : Key decode failed
 59  ERROR : Key marker not found.
 60  ERROR : Unable to read from file [%s] %s
 61  ERROR : Unable to set file pointer for [%s] %s
 62  ERROR : Unable to allocate %lu byte buffer
 63  ERROR : '%s' key file too small - only %d bytes long
 96  ERROR : Invalid record type [0x%x] found at abs [0].
 97  ERROR : Invalid record type [0x%x] found at abs [0].
 98  ERROR : Invalid record type [0x%x] found at abs [n].
 99  ERROR : Invalid record type [0x%x] found at [n] walking pf chain.
100  ERROR : Invalid record type [0x%x] found at abs [n].
104  ERROR : Unable to allocate [n] bytes for [x] x [y] byte %s array.
128  ERROR : Unable to open [filename]
129  ERROR : Unable to get file size for [filename]
130  ERROR : Unable to close the file handle for [filename]
131  ERROR : Unable to map [filename]
132  ERROR : Unable to set file view for [filename]
133  ERROR : Unable to get file information by handle for [filename]
136  ERROR : Unable to flush view of file for [filename]
137  ERROR : Unable to unmap view of file for [filename]
138  ERROR : Unable to release file mapping object handle for [filename]
139  ERROR : Unable to set file pointer for [%s] %s
140  ERROR : Unable to set end of file for [%s] %s"
141  ERROR : Unable to close the file handle for [filename]
144  ERROR : Unable to open program log file %s.
```

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ssxsrv
```

```
 65   ERROR : Unable to open %s
 66   ERROR : The index is not available. Index generation may be in progress.
 67   ERROR : The server program version (%s) does not match the generation
program version (%s)
 68   ERROR : Keyword array sort failed.
 69   ERROR : Unable to get current directory.
 70   ERROR : Current directory buffer size too small. Assigned:%u Required:%lu.
 71   ERROR : Relative path variable %s has not been set
 72   ERROR : Unable to read registry value %s for key %s %s
 73   ERROR : Relative path variable %s has not been set
 74   ERROR : Unable to set current directory
 75   ERROR : Unable to get user data
 76   ERROR : Unable to get block data
 77   ERROR : Path name %s too long
 96   ERROR : Invalid record type [0x%x] found at abs [0].
 97   ERROR : Invalid record type [0x%x] found at abs [0].
 98   ERROR : Invalid record type [0x%x] found at abs [n].
 99   ERROR : Invalid record type [0x%x] found at [n] walking pf chain.
100   ERROR : Invalid record type [0x%x] found at abs [n].
104   ERROR : Unable to allocate [n] bytes for [x] x [y] byte %s array.
105   ERROR : NULL request method.
107   ERROR : No query string for GET.
108   ERROR : No content length specified for POST.
109   ERROR : Content type has not been set.
110   ERROR : Unknown content type %s for POST.
111   ERROR : POST content buffer allocation failed.
112   ERROR : POST content buffer read failed.
113   ERROR : ??? request method not handled.
114   ERROR : No equals sign following Name.
116   ERROR : Unable to create new %s file : %s is missing
117   ERROR : Unable to open [%s] %s
118   ERROR : %s text is too long.
128   ERROR : Unable to open [filename]
129   ERROR : Unable to get file size for [filename]
130   ERROR : Unable to close the file handle for [filename]
131   ERROR : Unable to map [filename]
132   ERROR : Unable to set file view for [filename]
133   ERROR : Unable to get file information by handle for [filename]
136   ERROR : Unable to flush view of file for [filename]
137   ERROR : Unable to unmap view of file for [filename]
138   ERROR : Unable to release file mapping object handle for [filename]
139   ERROR : Unable to set file pointer for [%s] %s
140   ERROR : Unable to set end of file for [%s] %s"
141   ERROR : Unable to close the file handle for [filename]
144   ERROR : Unable to open program log file %s.

160   SECURITY ALERT! The server has refused a reference from an unknown web
server (%s) which is not it's host (%s)."
```

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```
Sstphandler

 1  ERROR : VSS versions before 5.0 are not supported.
 2  ERROR : No argument specified.
 3  ERROR : '%s' is not a valid argument.
 4  ERROR : '%s' is not a valid VSS filepath.
 5  ERROR : '%s' supplied without a valid VSS filepath.
 6  ERROR : 0x%X initializing COM libraries.
 7  ERROR : 0x%X finding SourceSafe Automation object.
 8  ERROR : 0x%X creating SourceSafe Automation object.
 9  ERROR : Unable to locate ssapi.dll.
10  ERROR : Unable to get OS version information.
11  ERROR : Program requires true 32-bit platform to run : XT,2K,XP or above.
12  ERROR : 0x%X opening %s registry key [%s].\n\n%s
13  ERROR : 0x%X querying %s registry key [%s] value [%s].\n%s
14  ERROR : 0x%X registering '%s' protocol.
15  ERROR : Unable to determine path of protocol handler executable.
20  ERROR : Unable to get user name.
21  ERROR : 0x%X Unable to open SourceSafe database '%s'.
22  ERROR : 0x%X Unable to find document '%s' in SourceSafe   database '%s'.
            Please start your SourceSafe Client and use 'File' 'Open' to
            verify that the correct database has been selected
23  ERROR : 0x%X Unable to determine if '%s' is a Project or a File.
24  ERROR : '%s' is not a file.
25  ERROR : 0x%X Unable to determine if '%s' is deleted.
26  ERROR : File '%s' is marked 'deleted' and cannot be viewed.
27  ERROR : 0x%X '%s' is not a valid vss name.
28  ERROR : 0x%X executing [%s] to open SourceSafe project [%s]\n%s.
30  ERROR_: Unable to extract a valid SourceSafe database name from link'%s'."
31  ERROR : The index database name [%s] does not match any value.
32  ERROR : Unable to locate ssexp.exe
```

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Appendix C : De-Installation

1. Generation Server
   Delete the 'ZDS' directories.
   Remove the
   'HKEY_LOCAL_MACHINE\ZDS Corporation\ZDS Search' registry entries.

   Remove scheduler invocation.

2. Web Server
   Delete the 'ZDS' directories.
   Remove either the 'SSX' environment entries or the
   'HKEY_LOCAL_MACHINE\ZDS Corporation\ZDS Search' registry entries.

3. Client workstations
   Delete the 'sstp' directory.
   Remove the 'HKEY_CLASSES_ROOT\sstp' registry keys.

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Appendix D : Current Directory

1. The WWW Common Gateway Interface Version 1.1 Revision 03 Internet draft, Section 8.2. Recommendations for Servers' states that :

'Where applicable, servers SHOULD set the current working directory to the directory in which the script is located before invoking it.'

This specification uses the same words as RFC 1123 [5] to define the significance of each particular requirement and the word SHOULD or the adjective 'recommended' means that 'there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.'

2. Apache on Windows complies with the draft specification recommendation and does cd into the directory of the cgi script before running the script.

Microsoft's IIS product does not follow the recommendation, and the IIS rule is that working directories of CGI scripts are set to the 'root' or 'virtual paths or homes' directory regardless of where the script was found e.g :

	Current working directory on startup of script
:.. root-virtual path or home :..cgi-bin (scripts)	▫ IIS ▫ Apache

3. IIS configuration

To configure IIS so that it will set the current working directory to the directory containing ssxsrv.exe before running it we suggest that you create cgi-bin as a virtual directory (right-click-new-virtual-directory) pointing, for example, to d:\web\cgi-bin.

References.

(a) The WWW Common Gateway Interface Version 1.1 Revision 03
     Internet draft
     http://cgi-spec.golux.com/draft-coar-cgi-v11-03-clean.html

(b) ISAPI Perl Primer : Gunther Birznieks, August 16, 2000
     http://www.serverwatch.com/tutorials/article.php/10825_1407921_6
     (Note - this article refers to virtual roots, but means virtual directories.)

(c) IIS Misbehaviour Problems : 2.2 Current Working Directory
     http://webdevelopment.developersnetwork.com/Articles.asp?Article=178

[End Document]