



TIFF Server For IIS

Reference Guide Version 2.5

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1 INTRODUCTION

The Aquaforest Tiff Server enables users to view TIFF files within a web site or web-based application without requiring the use of special image viewer plugins or applets. The product is most commonly used to enable web-based delivery of scanned documents either to a web browser in PNG format, or to the Adobe Acrobat viewer in PDF format.

The product consists of two components :

- A component which runs on the server that converts the required document pages to PNG or PDF format on-the-fly, enabling the images to be viewed by any modern browser.
- An HTML/JavaScript “viewer” component which allows the user to move between document pages and perform other operations such as view thumbnails, resize, rotate etc.

In addition, TIFF Server includes an application called “TIFF Server Explorer” which provides an intuitive web-based application for users to find, view, convert and annotate TIFF images held in a set of folders that are structured in a hierarchical manner. See section 12 for more details.

Key features of the product are :

- High quality viewing of single and multi-page TIFF files.
- Ease of administration - no plugin or applet is required by the user.
- Generation of PDF versions of TIFF files
- High performance treatment of very large documents, as only the required pages are delivered to the user.
- Simple integration of the product with custom web-based applications.
- Easily customizable viewer user interface
- Dynamic and static stamp generation
- Support for Annotations
- Server-based licensing
- Support for images stored in SQL Server databases

2 SYSTEM REQUIREMENTS AND SUPPORTED FILE FORMATS

2.1 Server Requirements

- IIS 5.0 or later with Version 5 of the MS Scripting Engines
- Version 1.1 of the .Net Framework
- Windows 2000/2003 or Windows XP Professional with IIS
- Approximately 50MB of disk space
- For PDF and Printing functions, Acrobat reader 5.0 or later is recommended
- For Annotations, IE6 and Acrobat Reader 6 are required

2.2 Supported Browsers

Internet Explorer 5.5 or later. Netscape 6.2 and Netscape 7.1. Note that certain features, in particular annotations, and some other features noted in section 4.2) are not supported under Netscape.

2.3 Supported TIFF File Formats

- CCITT Group 3 (1-D), Group 3 (2-D)
- CCITT Group 4, CCITT RLE
- Uncompressed (Bitonal)
- JPEG Compression (“Type 6”)
- LZW
- PNG files and directories of PNG files are also supported
- JPEG files [NB Annotations on JPEGs will be displayed in the browser but not converted to PDF]
- Burnt-in redactions are only supported for TIFF Files (see section 11.9)

3 INSTALLATION AND CONFIGURATION

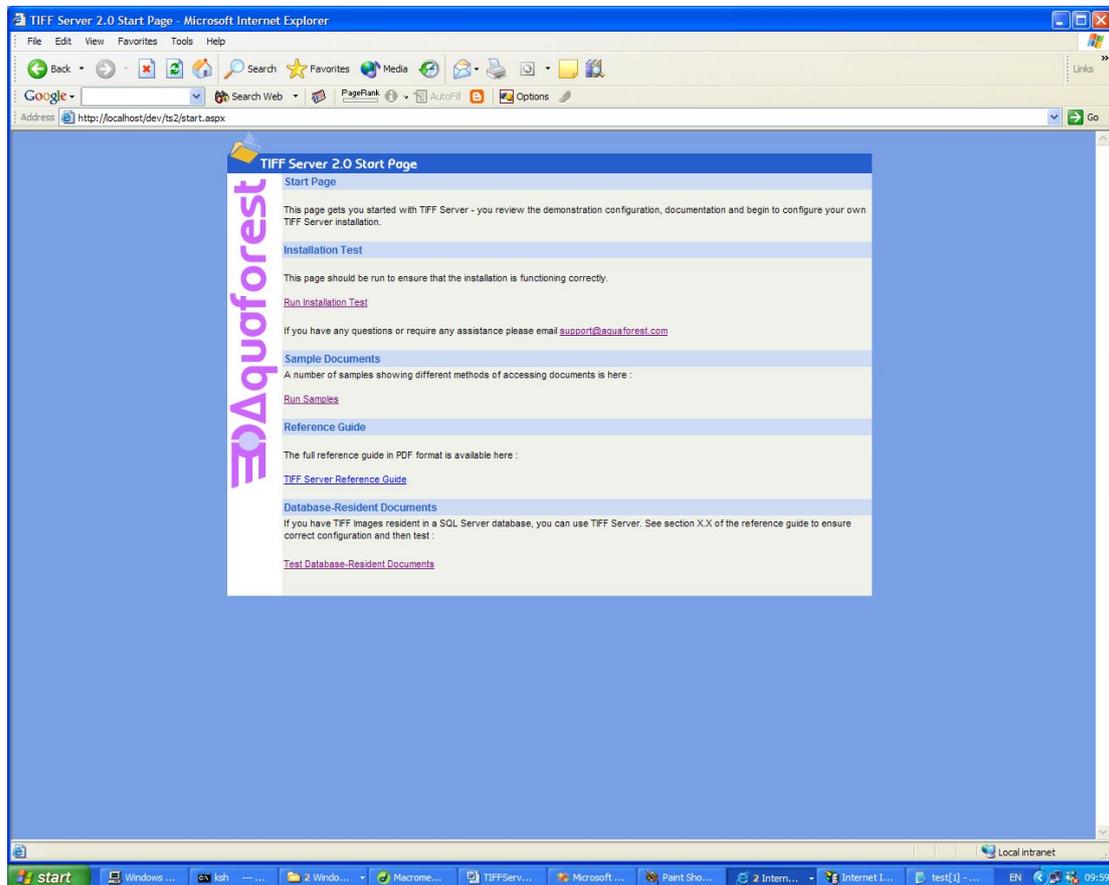
3.1 Installing TIFF Server

The source media zip file contains a Windows Installer setup.msi which will install TIFF Server under a specified virtual directory and web server. By default the product will be installed under /tiffserver on the default (port 80) web server – this typically maps to the directory c:\inetpub\wwwroot\tiffserver.

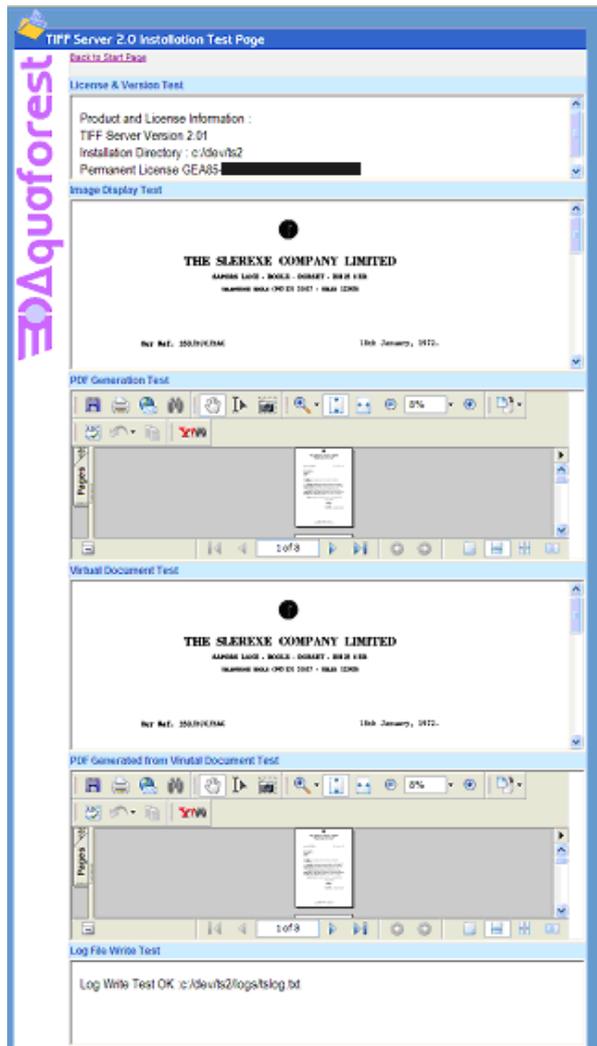
3.2 Testing The Installation

To test the installation, run the test and sample pages from <http://yourserver/tiffserver/test.aspx> Any problems running this sample application should give evident error messages, but if you are unable to resolve a problem please contact support@aquaforest.com See the section below for troubleshooting information.

Start Page :



Expected Installation Test Results :

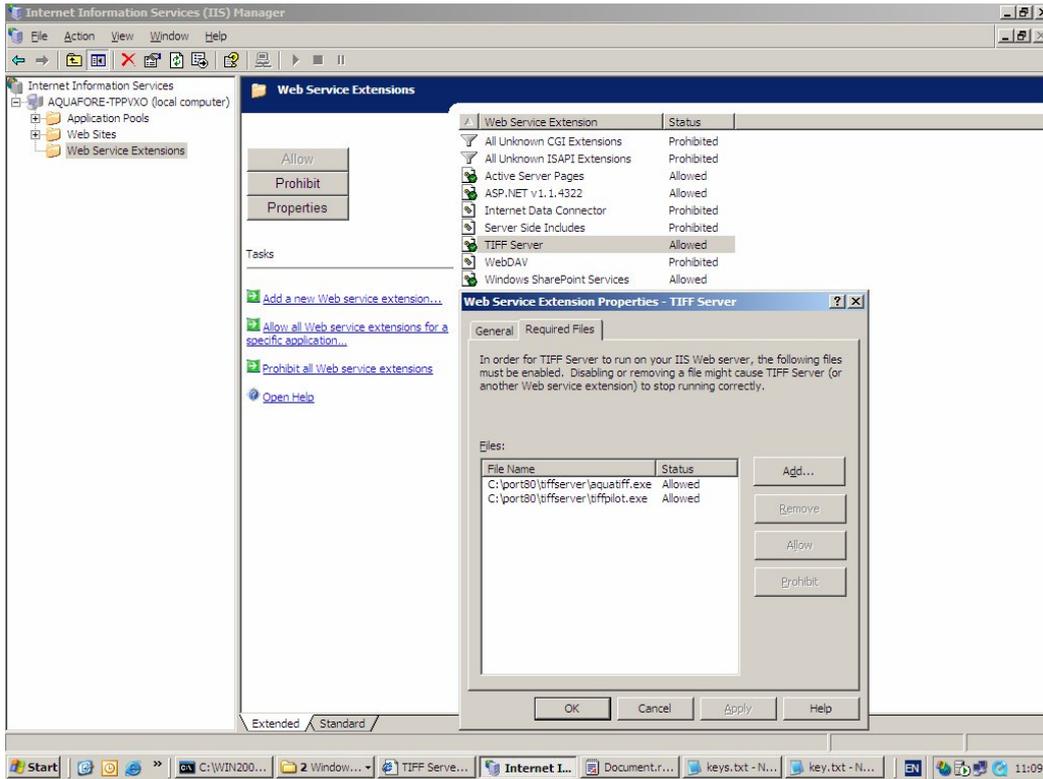


3.3 Licensing

The software requires the user of a licence key file (key.txt in the TIFFServer\bin directory). The licence file is used to determine whether the software is a trial version or for permanent keys which version of the software has been licensed. The downloaded product includes a trial license which has no time limit, but all document pages are stamped. To see information relating to the product version and licence file, see the “Version Information” section of the test.aspx test page.

3.4 Windows 2003 Users

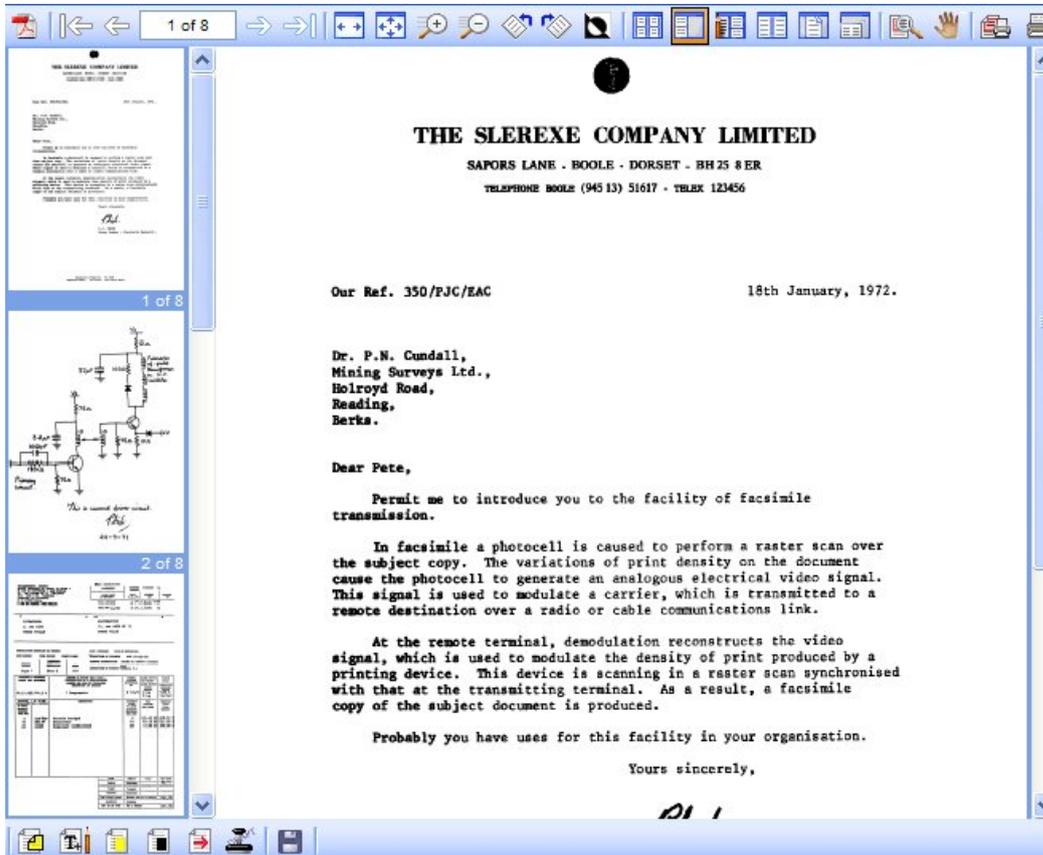
IIS 6 on Windows 2003 is by default “locked down” so that neither ASP nor CGI executables are able to run. To configure IIS for use with TIFF Server you will need to use the “Web Service Extensions” of IIS manager and ensure that ASP.Net Pages and either .exe CGI executables (in general) or the TIFF Server executables (specifically) are allowed. See below for an example configuration :



4 USING THE VIEWER

4.1 Image Viewing and Manipulation

The screenshot below shows the Tiff Image Server in use, viewing one of the sample documents. The table below describes the actions available.



4.2 Document Viewer Facilities

ICON	DESCRIPTION	ICON	DESCRIPTION
	Go to Next Page.		Resize the image "fit to window"
	Go to Previous Page.		Resize the image "fit to width"
	Go to Next Document		Show Thumbnail display
	Go to Previous Document		Show Thumbnails to the Left of Main Image
	Rotate the image left 90 degrees.		Show Two Page Display
	Rotate the image right 90 degrees.		Show Single Page Display.
	Invert The Image		Open In Full Window.
	Shrink The Image		Convert to PDF and display in a new window.
	Enlarge The Image		Zoom in on selection.
	Pan Image. (IE only)		Print document.
	Print zoomed selection		Display index of annotations to the left of the document.
	Go to first page		Go to last page

4.3 Document Printing

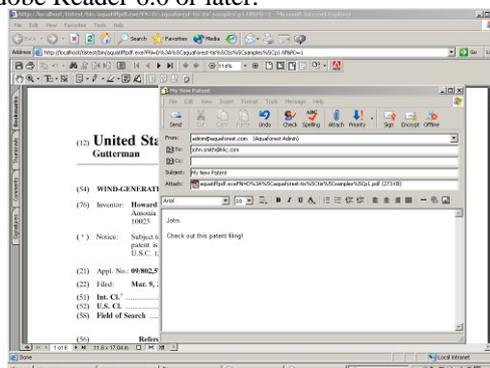
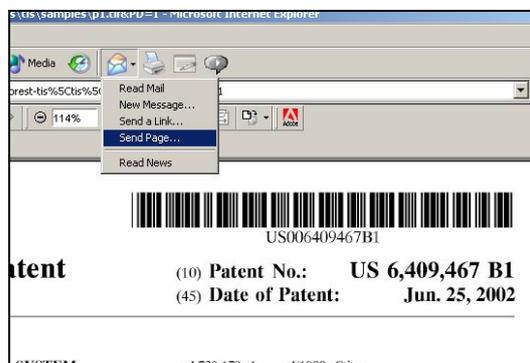
Whilst single pages can be printed from within the browser, printing or saving a document is best achieved by using the print function within the viewer – note that this function generates a PDF version of the document to a hidden frame and invokes the print function from there, so is reliant upon the Acrobat reader being available on the client PC.

4.4 Document Saving

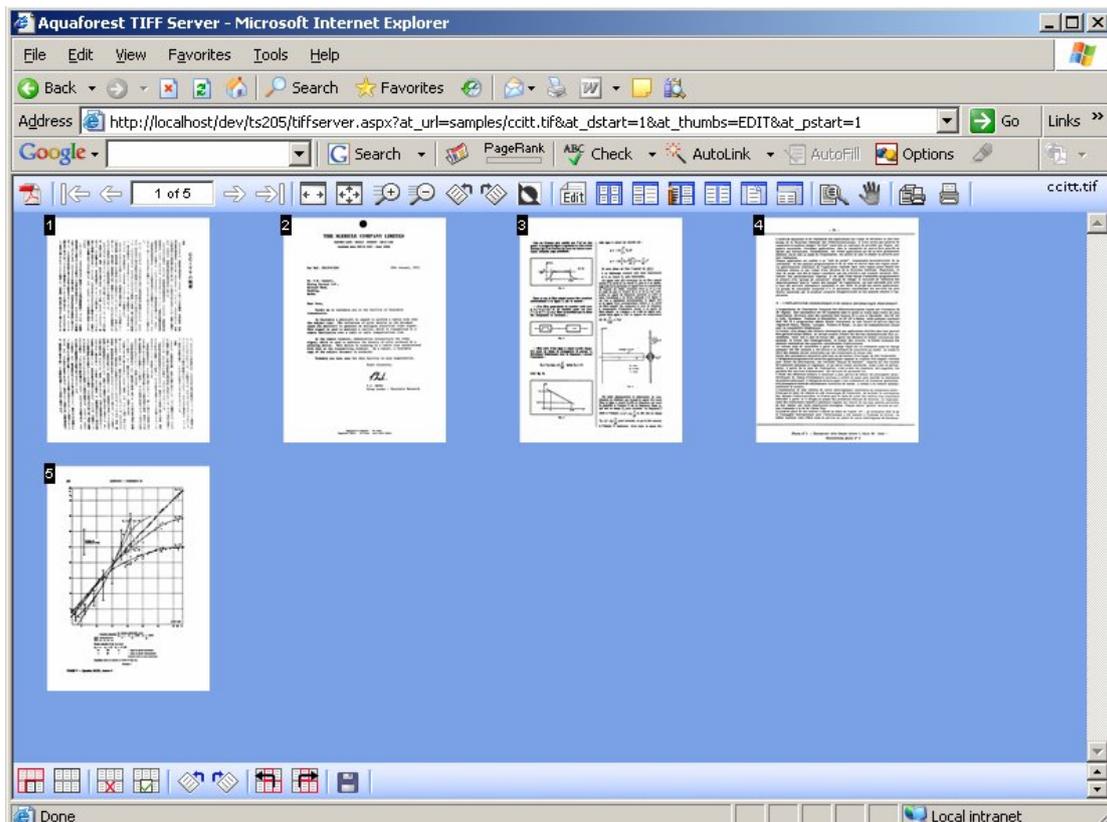
Saving a document is best achieved by using the PDF function to convert the document to PDF and saving from there.

4.5 Emailing Documents

Once the document is displayed within the Acrobat Reader, it may be emailed by using the browser's send page button or with the email document function in Adobe Reader 6.0 or later.



4.6 Editing Documents



TIFF Server provides a mode where documents can be edited via a thumbnail display as shown below. Edit mode is accessed via the “Edit” Icon on any of the display pages, once it has been enabled via the menu_editdoc option in the config.inc file. The following functions are available :

ICON	DESCRIPTION	ICON	DESCRIPTION
	Split before selected page.		Rotate the image left 90 degrees.
	Remove splits.		Rotate the image right 90 degrees.
	Delete selected page		Move the selected page(s) before the next selected page
	UnDelete selected page.		Move the selected page(s) after the next selected page
	Save edits. A copy of the original document will be saved if edit_arch_folder is defined in config.inc.		

4.6.1 Selection of Pages

Whereas the “view only” thumbnail display allows a user to click on an image and then the full page image is displayed, clicking on a page in the edit doc display will simply “highlight” the image with a border. Clicking on a highlighted image will deselect it. This will be used in conjunction with the delete page and split operations.

4.6.2 Reordering

A set of images can be selected (not necessarily adjacent) and moved to a new position. To ensure that this function is usable in documents with larger numbers of pages, the pages do not need to be “dragged” but just selected and then either “Move Before” or “Move After” used (see below).

4.6.3 Bottom Menu

The Edit doc display will have its own “bottom” menu (in the same position as the annotations menu usually is) with the following icons :

4.6.4 Split Before

This operation is only valid when one page is selected. This introduces a split before the currently selected page. A marker appears to indicate the split, and the currently selected page is deselected.

4.6.5 Remove Splits

This removes all splits from the display.

4.6.6 Delete Page

This will mark the currently selected page for deletion. This will be indicated by a large red X appearing over the page image.

4.6.7 UnDelete Page

This removes the deletion mark from the currently selected page.

4.7 Move Before

This enables selection of the target location for the move. When the target page is clicked, this moves the set of selected pages (in order) before the target page.

4.8 Move After

This enables selection of the target location for the move. When the target page is clicked, this moves the set of selected pages (in order) after the target page.

4.8.1 Save

The browser posts the list of changes to a new server page which loads the original TIFF file and generates the new TIFF file(s) according to the reordering, splitting and deletion edits.

Similarly if there is an annotation file it is loaded and new annotation file(s) are generated.

Where new files are created as a result of splits, additional files are named *filename_n.tif* and *filename_n_ann.xml* where filename is the original tiff file (without the extension). N is the split number starting at 1. So for example, if a file *ccitt.tif* is split into 3 parts, there will be 3 resulting files : *ccitt.tif* (part 1) *ccitt_1.tif* (part 2) and *ccitt_2.tif* (part 3).

4.8.2 Archiving Edited Files

The replaced versions of edited files can be saved to an archive directory, by specifying the full path in *config.inc* under *edit_arch_folder*. Replaced files will be copied to this directory, with the file name being prefixed by a timestamp.

5 ACCESSING DOCUMENTS

TIFF Server supports the concepts of defining documents for display in a variety of ways

5.1 Accessing Documents via URLs

A single document may be accessed using the `at_url` parameter. The URL must be local to the machine on which TIFF Server is installed. Eg :

http://localhost/tiffserver/tiffserver.aspx?at_url=/images/doc1.tif

To access documents on remote file systems either a UNC can be used (see below) or by defining a local URL in IIS to refer to the remote file system.

5.2 Accessing Documents via Paths or UNC's

A single document may be accessed using Paths or UNC's with the `at_url` parameter. Where a path is used, this must be a path recognized on the machine where TIFF Server is installed.

http://localhost/tiffserver/tiffserver.aspx?at_path=C:\images\doc1.tif

5.3 Accessing Documents on Remote File systems

This can be achieved by either of the following methods. In the example a remote server DOCSTORE has a share called images. There can be security issues relating to remote file access –see below.

Using a UNC :

http://localhost/tiffserver/tiffserver.aspx?at_path=\\DOCSTORE\images\doc.tif

Using a URL

A local virtual directory should be created (called remote images in this example) that points to the remote filestore ([\\DOCSTORE\images](http://localhost/tiffserver/tiffserver.aspx?at_path=\\DOCSTORE\images\doc.tif)) :

http://localhost/tiffserver/tiffserver.aspx?at_url=/remoteimages/doc1.tif

5.3.1 Related Security Issues

Use of the product to access files residing on network drives may require a minor adjustment of IIS security parameters, as the default security model (IIS running as IUSR_ServerName) will not enable IIS to invoke programs (such as the Tiff Image Server) to access remote files.

The simplest solution to this issue is to set the security properties of the following file using the IIS administration tool.

tssp.aspx
tsspan.aspx
aquatiff.exe
tiffpilot.exe

To do this, navigate down to the Tiff Image Sever directory in the IIS administration tool. Right click on the file(s) that you need to change. Choose Properties | File Security |Edit. You can set Anonymous Access and specify an appropriately empowered domain user and password as the account that will be used to execute aquatiff.exe and tiffpilot.exe.

If your security model mandates an alternative approach, the principle still applies that quatiff.exe and tiffpilot.exe must be run under an account with sufficient privilege.

5.4 Directory Documents

TIFF Server allows multiple *single page* TIFF files to be merged on the fly into a single document. The `at_url` parameter should specify a directory which contains a set of TIFF files (most commonly an ordered set of single page tiff files). Pages will be ordered in windows sort order.

URL Example

http://localhost/tiffserver/tiffserver.aspx?at_url=/images/directory1234

UNC Example

http://localhost/tiffserver/tiffserver.aspx?at_path=\\DOCSTORE\images\directory1234

5.5 Multi-Documents

A set of documents can be displayed as part of a “set” which each individual document being displayed in the usual way, but with the addition of next and previous document icons being *displayed* in the interface.

This requires the use of the `at_multi` parameter (which specifies the total number of documents) and a set of parameters `at_url1`, `at_url2`... as shown in the example below :

http://localhost/tiffserver/tiffserver.aspx?at_multi=3&at_url1=samples/ccitt.tif&at_url2=docs/english_aquatiff120f.pdf&at_url3=images/aquaforest.png

5.6 Compound Documents

A set of single-page TIFF documents (that may or may not be in the same directory) may be specified. Along with the page ordering by using a compound document which requires the use of an XML virtual document. A brief example is shown below & Section 5.7 goes into detail :

http://localhost/dev/ts2/tiffserver.aspx?at_url=samples/vd3.xml&at_vdoc=url

Where the contents of `vd3.xml` may be :

```
<?xml version="1.0" encoding="ISO8859-1" ?>
<ts_vdoc>
<ts_vdoc_type>multifile</ts_vdoc_type>
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ab.tif</ts_vdoc_url>
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ac.tif</ts_vdoc_url>
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ad.tif</ts_vdoc_url>
</ts_vdoc>
```

5.7 XML Virtual Documents

All of the types of document definitions in 5.1 through 5.6 may be specified through the use of an XML virtual document. Each document will have a structure as follows

```
<?xml version="1.0" encoding="ISO8859-1" ?>
<ts_vdoc>
<ts_vdoc_type>document type</ts_vdoc_type>
    document specifications
</ts_vdoc>
```

5.7.1 document type

Where document type is one of the following :

ts_vdoc value	Description
file	A single document file (5.1, 5.2 or 5.3)
directory	A single directory document (5.4)
multidoc	An ordered set of documents (5.5)
multifile	An ordered set of single path TIFF files (5.6)

5.7.2 document specifications

Files are specified using either URLs such as

```
<ts_vdoc_url>samples/ccitt.tif</ts_vdoc_url>
```

Or Paths/UNCs such as

```
<ts_vdoc_path>\\YOUR-447023AE6B\IMAGES\directory1234\ccitt.tif</ts_vdoc_path>
```

5.7.3 Referring to XML Virtual Documents :

The usual at_url and at_path parameters may be used to refer to the XML file :

http://localhost/dev/ts2/tiffserver.aspx?at_url=samples/vd3.xml&at_vdoc=url or :
http://localhost/dev/ts2/tiffserver.aspx?at_path=c:\samples\vd3.xml&at_vdoc=path

5.7.4 Examples

Single File URL

```
<?xml version="1.0" encoding="ISO8859-1" ?>  
<ts_vdoc>  
<ts_vdoc_type>file</ts_vdoc_type>  
<ts_vdoc_url>samples/ccitt.tif</ts_vdoc_url>  
</ts_vdoc>
```

Directory UNC

```
<?xml version="1.0" encoding="ISO8859-1" ?>  
<ts_vdoc>  
<ts_vdoc_type>directory</ts_vdoc_type>  
<ts_vdoc_path>\\YOUR-447023AE6B\IMAGES\directory1234</ts_vdoc_path>  
</ts_vdoc>
```

Multi-Document

```
<?xml version="1.0" encoding="ISO8859-1" ?>  
<ts_vdoc>  
<ts_vdoc_type>multidoc</ts_vdoc_type>  
<ts_vdoc_url>samples/ccitt.tif</ts_vdoc_url>  
<ts_vdoc_url>docs/english_aquatiff120f.pdf</ts_vdoc_url>  
<ts_vdoc_url>images/aquaforest.png</ts_vdoc_url>  
</ts_vdoc>
```

Compound Document

```
<?xml version="1.0" encoding="ISO8859-1" ?>  
<ts_vdoc>  
<ts_vdoc_type>multifile</ts_vdoc_type>  
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ab.tif</ts_vdoc_url>  
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ac.tif</ts_vdoc_url>  
<ts_vdoc_url>samples/single_page_tiffs/p1_split_ad.tif</ts_vdoc_url>  
</ts_vdoc>
```

5.8 Session-based XML Virtual Documents

Virtual XML documents may also be stored as an ASP.Net Session variable AT_VDOC. In this case the following URL may be used.

http://localhost/dev/ts2/tiffserver.aspx?at_vdoc=session

Here is an example of setting the AT_VDOC session variable :

```
<%  
  
// Example Session Virtual Document  
  
var s='<?xml version="1.0" encoding="ISO8859-1" ?> '  
s+='<ts_vdoc>';  
s+='<ts_vdoc_type>multifile</ts_vdoc_type>';  
s+='<ts_vdoc_url>samples/single_page_tiffs/p1_split_ac.tif</ts_vdoc_url>';  
s+='<ts_vdoc_url>samples/single_page_tiffs/p1_split_aa.tif</ts_vdoc_url>';  
s+='<ts_vdoc_url>samples/single_page_tiffs/p1_split_ab.tif</ts_vdoc_url>';  
s+='</ts_vdoc>';  
  
Session["AT_VDOC"]=s;  
  
%>
```

6 DATABASE-RESIDENT DOCUMENT IMAGES

TIFF Server 2.0 supports the access of document images stored in SQL Server 2000 image columns. To configure the product for use with a database, the config.inc file in the TIFF Server directory needs to be modified.

(a) Firstly, locate the following lines, and change GDI to DB

```
// Backend Config - Allowable Values : .NET, CGI or DB
var ts_backend=".NET";
```

(b) Then the default database settings need to be changed where necessary :

```
else if (ts_backend=="DB")
{
    var ts_url_mappath=false; /* URL Should be mapped to path before passing to any
of the following */
    var ts_image_url="tssp.aspx"; /* Backend Image Processing */
    var ts_an_url="tsspan.aspx"; /* Backend Annotation Processing */
    var ts_info_url="tssp.aspx"; /* Image Info Delivery */
    var ts_pdf_url="tssp.pdf.aspx"; /* Backend PDF Generation */

    /* Default Database Settings */
    /* Default Database Settings */
    var ts_cstring="Server=127.0.0.1;User Id=sa;Password=;Initial
Catalog=tiffserver_docs;";
    var ts_image_table="tiffserver_docs_table";
    var ts_image_table_key="doc_id";
    var ts_image_column="doc_contents";
    var ts_annotation_table="tiffserver_docs_table";
    var ts_annotation_table_key="doc_id";
    var ts_annotation_column="doc_annotations";
}
```

Variable	Description
ts_cstring	Database Connection String
ts_image_table	Name of the table containing the document images
ts_image_table_key	The key column of the table [A single key column is required]
ts_image_column	Name of the <i>image</i> column holding the document image
ts_annotation_table	Name of the table to hold annotations
ts_annotation_table_key	The key column of the table [A single key column is required]
ts_annotation_column	Name of the <i>text</i> column to hold annotations

(c) For test purposes, a backup of a sample database – tiffserver_docs.bak is included in the samples directory. If this is restored to a database of the same name, and the default connection string adjusted for your database server, you will be able to use <http://server/tiffserver/dbsample.aspx> to test database connectivity. The database contains a single table tiffserver_docs_table with one sample row. The table has the definition shown below :

```
CREATE TABLE [dbo].[tiffserver_docs_table] (  
    [doc_id] [int] NULL ,  
    [doc_contents] [image] NULL ,  
    [doc_annotations] [text] COLLATE SQL_Latin1_General_CP1_CI_AS NULL ,  
    [timestamp] [timestamp] NULL  
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
```

(d) Accessing database-resident documents can be made by using the at_url parameter and passing the key of the required row.

For example http://localhost/dev/ts2/tiffserver.aspx?at_url=1234 will use the where clause “WHERE doc_id=1234”.

7 INTEGRATING TIFF SERVER WITH ASP.NET

7.1 Integrating the viewer

TIFF Server provides a URL interface which can be called from independent web-based applications, where the image viewer may be either a full browser screen or perhaps just a frame.

Parameter	Allowable Values	Notes
at_url	URL of the TIFF document to be displayed. Alternatively this may be the URL of a directory of single page TIFF files to be presented as a single merged document.	
at_path	Path or UNC of the TIFF document to be displayed.	
at_vdoc	Used for virtual documents to define the type. May be one of : url, path or session.	
at_multi	1-999	For multi-document display, indicates the number of documents.
at_url1, at_url2, at_url3 etc	URL of the TIFF document to be displayed.	For multi-document display, the URL of each document.
at_dstart	The document page number that will be first displayed. Allowable range 1 – 9999.	Optional. Default is 1.
at_thumbs	HIDE (Default) FSC SHOW LHS DBL	Optional. Determines which style of window is shown. The user can switch this setting dynamically whilst viewing a document. HIDE, FSC=Single Page Display SHOW=Thumbnails only LHS=Thumbnails to Left of Image DBL=Two Page Display
at_pstart	The document page number that will be first displayed. Allowable range 1 – 9999.	Optional. Default is 1.
at_sn	Stamp Name	Optional.
at_sv	Stamp Value	Value to be substituted for %s in the stamp definition string.
at_pagetitle	String	Page title for aquatiff.asp to replace the default value.
at_infopane	String	Value to replace the default value (file name) for the top line of the infopane.
at_sub_start_page	Start Page Number (Default =1)	Display a subset of the document, starting at page at_sub_start_page
at_sub_page_count	Number of pages to display (Default=number of pages from at_sub_page_count to the last page)	
at_viewannot	On or off	If set to on annotations will be displayed. If set to off they will not be displayed. If not specified or set to any other value they will be displayed if menu_annots in the config file is set to true, otherwise they will not be.
at_editannot		If set to on, the annotation menu will be displayed. If set to off the annotation menu will not be displayed. If not specified or set to any other value then if menu_annots in the config file is set to true annotations will be editable otherwise they will not be.

at_editdoc	On or off	If set to on, the edit doc menu icon will be displayed. If set to off the edit doc menu icon will not be displayed. If not specified or set to any other value then if menu_editdoc in the config file is set to true images will be editable otherwise they will not be.
At_adobe	On or off	If set to off, the menu options that are dependent upon the presence of Adobe reader will not be displayed. These are "PDF" "Print" and "Print Selection"

Example URL

http://localhost/aquatiff/tiffserver.aspx?at_url=samples/ccitt.tif&at_thumbs=LHS&at_pstart=1

7.2 Integrating with ASP.Net

If you are developing in-line displays where TIFF Server is just part of the display of a page being developed in Visual Studio.Net, a simple IFRAME could be used, as demonstrated in the TIFF Server sample pages.

Alternatively a straightforward method can be used to implement a simple TIFF Server Web User Control that can be within a Web Form Panel Control, and the document location can be controlled via Server-Side code.

A small sample ASP.Net (Visual Studio 2003) project can be found in the TIFF Server folder under the tsexample directory. This demonstrates a simple Web User Control implemented in TIFFServer.ascx and TIFFServer.ascx.cs. It can be accessed via <http://localhost/tiffserver/tsexample/webform1.aspx>

It provides for three properties; docURL which specifies the at_url parameter, TIFFServerParams which can be used to pass in any other parameters to tiffserver.aspx (see example above) and TIFFServerURL which should be adjusted if TIFF Server is not in the default location.

Example (see WebForm1.aspx.cs)

```
private void Page_Load(object sender, System.EventArgs e)
{
    TIFFServer.TIFFServerParams="&at_thumbs=LHS";

    if(Select1.SelectedIndex==0)
        TIFFServer.docURL="samples/camera.tif";
    else
    if(Select1.SelectedIndex==1)
        TIFFServer.docURL="samples/medical.tif";
    else
    if(Select1.SelectedIndex==2)
        TIFFServer.docURL="samples/ccitt.tif";
    else
        TIFFServer.docURL="samples/pl.tif";
}
```

Control Implementation – TIFFServer.ascx.cs

```
public abstract class TIFFServer : System.Web.UI.UserControl
{
    public static string docURL;
    public static string TIFFServerURL="/tiffserver/tiffserver.aspx";
    public static string TIFFServerParams="";

    private void Page_Load(object sender, System.EventArgs e)
    {
```

```
    }  
    protected override void Render(HtmlTextWriter writer)  
    {  
        writer.Write("<iframe id=TIFFServer WIDTH=\"100%\"  
height=\"100%\" src=\"");  
        writer.Write("/tiffserver/tiffserver.aspx?at_url="+docURL);  
        writer.Write(TIFFServerParams);  
        writer.Write(">");  
        base.Render (writer);  
    }  
    .....  
}
```

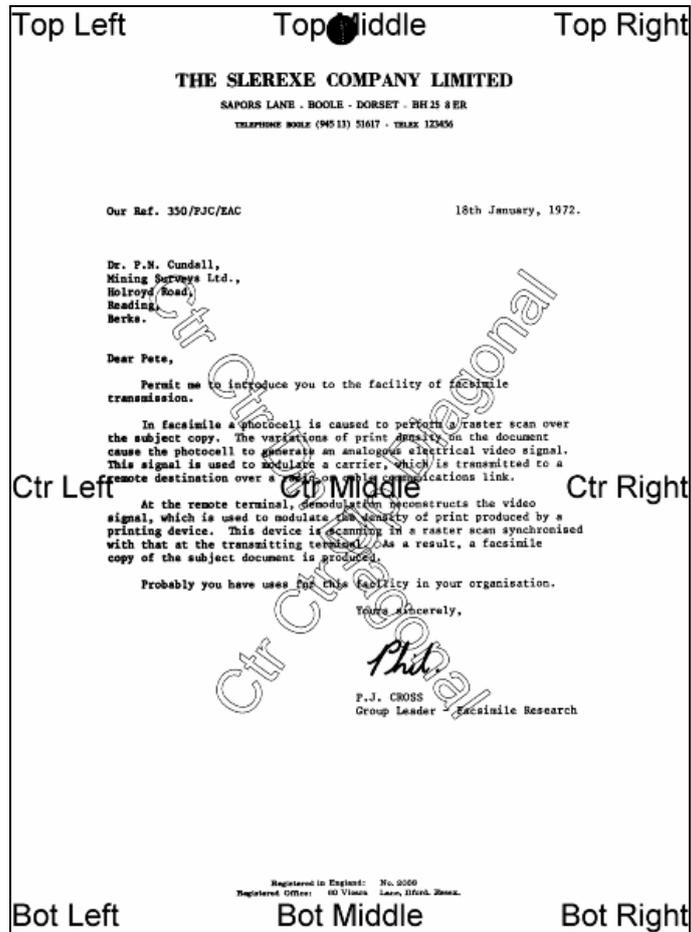
8 USING STAMPS

The TIFF Image Server allows dynamic and static textual stamps to be placed onto the images and PDF documents by means of a stamps configuration file (stamps.txt in the stamps directory) together with appropriate URL parameters.

Supported compression schemes for use of this feature are :

- CCITT Group 3 (1-D), Group 3 (2-D)
- CCITT Group 4
- CCITT RLE
- Uncompressed (Bitonal)

8.1 Stamp Placement



The image above indicates the possible placement for stamps. These are determined according to the parameters in the stamps.txt configuration file. The product comes with a sample set of stamps that are used with the sample images.

8.2 Stamp Specifications

For example, the stamp that reads “Ctr Ctr Up Diagonal” would be produced by the following lines in the file :

```
BEGINSTAMP
afsName=STAMP
afsText=Ctr Ctr Up Diagonal
afsFontSize=63
afsFont=HELVETICA
afsTextMode=1
afsVpos=CENTER
afsHpos=CENTER
afsDiag=UP
ENDSTAMP
```

Here is a description of each of the parameters *which are case sensitive* :

Parameter	Description
BEGINSTAMP	Required to mark the beginning of a stamp specification.
ENDSTAMP	Required to mark the end of a stamp specification.
afsName	Stamp name. If the stamp name is “STAMP” then the stamp will always be applied. Any other name is used as an identifier and the stamp will only be applied when the at_sn or SN parameters match the name. (See the reference guide section on integration, and the sample pages for details)
afsText	Stamp text. This may be a fixed piece of text, or may include %p (which will be replaced by the page number) or %s which will be replaced by the value of the at_sv or SV parameters match the name. (See the reference guide section on integration, and the sample pages for details)
afsFontSize	Point size for the stamp text.
afsFont	Font to be used. The following are supported : TIMES-ROMAN HELVETICA COURIER
afsTextMode	1=Outlined Text 2=Sold Text
afsVpos	Vertical Position of the stamp, which may be one of the following : TOP CENTER BOTTOM
afsHpos	Horizontal Position of the stamp, which may be one of the following : LEFT CENTER RIGHT
afsDiag	Diagonal orientation of the stamp, which may be one of the following : NONE UP DOWN
afsWeight	Font Weight : 0 (default) – 5 (most bold)
afsStartPage	First page of the document to which stamps should be applied (default 1)
afsEndPage	Last page of the document to which stamps should be applied (default 0 which means there is not a limit)
afsPageIncrement	Determines whether stamps should only be applied every <i>n</i> th page where <i>n</i> is afsPageIncrement. Default is 0 which means stamps will be applied to all pages (subject to start/end page specifications).

9 ADVANCED INTEGRATION

It is also possible to directly access the underlying TIFF Server component pages executable (tssp.aspx or aquatiff.exe) in order to provide more customised capabilities. You may wish to review the source code for the viewer to understand how to implement this type of integration.

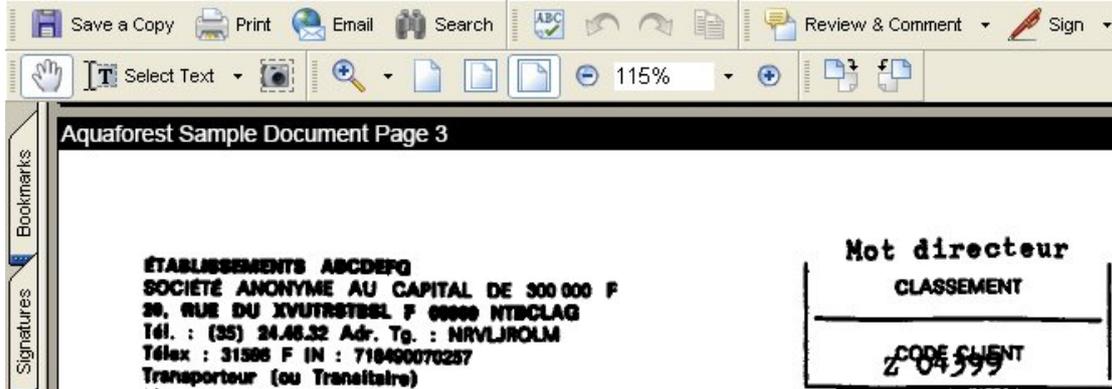
Param	Allowable Values	Notes
FN	Fully qualified file name of the TIFF document to be displayed. Alternatively may be a directory when used in conjunction with MF (see below).	Mandatory.
VD	For virtual documents. One of url, path or session (tssp.aspx only)	
PN	Display the specified page number Allowable range is 1 – 9999.	Optional. Default is 1.
WI	Resize image to specified width in pixels. Allowable range 1 – 9999.	Optional. NB If height is not specified, the resize height will be calculated to preserve the aspect ratio.
HI	Resize image to specified height in pixels. Allowable range 1 – 9999.	Optional. NB If width is not specified, the resize width will be calculated to preserve the aspect ratio.
FW	If set to 1, fit to Window.	Optional. If set, requires both WI and HI to be set with the width and height of the window.
RO	Rotate the image clockwise by the specified number of degrees. Supported values are 90, 180 and 270.	Optional.
IN	Invert the image (switch the photometric value). Allowable values 1 (invert the current setting) or 0.	Optional.
PC	Return page count. Allowable values YES or NO.	<p>This option should be used to determine the number of pages in a document and is designed to be called as the subject of <SCRIPT> SRC attribute.</p> <p>A small piece of JavaScript code will be returned that sets the value of afPageCount to the number of pages in the document. Eg :</p> <pre>afPageCount=4;</pre> <p>This Error conditions are indicated by the following negative values being set for afPageCount :</p> <ul style="list-style-type: none"> -1 : Image format unsupported -2 : No valid licence key -3 : Could not open image file -4 : Invalid file type
SN	Stamp Name	See section 6.
SV	Stamp Value	Value to be substituted for %s in the stamp definition string.
MF	Multifile Merge	MF parameter should be used (and set=1) when FN has been set to a directory of single page TIFF files.

Example URLs

<http://localhost/tiffserver/tssp.aspx?FN=D:\aquaforestis\tis\samples\ccitt.tif&WI=796&PN=1>

9.1 PDF File Generation

It is also possible to directly access the CGI executable (tiffpilot.exe) or ASP.Net page (tssp.pdf.aspx) as shown below. This also enables access to the PDF “Annotation Box” feature which creates a fixed “annotation” at the top of each page. The annotation will be a text box (black background, white text) with contents determined by the parameters marked with an * below – an example is shown below.



Parameter	Allowable Values	Notes
FN	Fully qualified file name of the TIFF document to be displayed.	Mandatory.
PD	1.	Mandatory.
SN	Stamp Name	
SV	Stamp Value	Value to be substituted for %s in the stamp definition string.
*AS	String	Annotation string. May include %p which will be replaced by the page number., and %n which will be replaced by the total number of pages in the document.
*AH	Integer	Annotation “box” height (default value=13)
*AF	1-3	Font : 1=HELVETICA (default) 2=COURIER 3=TIMES-ROMAN
*AZ	Integer	Font Size (default value=9)
*AJ	1-3	Justification : 1=LEFT (default) 2=CENTER 3=RIGHT
SS	Page Number	Start page number for sub-documents (also see parameters for aquatiff.asp)
SC	Page Count	Page count for sub-documents.
SF	Scale Factor	SF allows a scale factor to be applied to the image. So, for example SF=0.9 will scale the TIFF Images to 90% of their original size.

Example URLs

<http://localhost/tiffserver/tiffpilot.exe?FN=C:\inetpub\wwwroot\tiffserver\samples\ccitt.tif&PD=1>

9.2 Data Capture Zoning

To enable improved productivity in forms-based data capture processes, TIFF Server has a set of support functions which can be used to control the exact section of a document that is displayed in the top left corner of the document viewer window, and provides a test harness to aid development of applications that require such facilities.

The test harness <http://yourserver/tiffserver/zoning.htm> can be accessed in a similar fashion to the sample pages.

The screenshot shows a web browser window titled "http://localhost/dev/ts/120f/zoning.htm - Tiscali 10.0". The browser's address bar contains the URL "http://localhost/dev/ts/120f/zoning.htm". The page content is divided into two main sections. On the left is a "Data Capture Zoning Test Harness" control panel with a blue background. It contains several buttons: "TIFFServerEnableClickCapture()", "TIFFServerGetLastClick()", "TIFFServerAdjustDisplay()", and "TIFFServerNewDocument()". There are also input fields for "X" (value: 0.6280814576634512), "Y" (value: 0.2983159582999198), and "at_url" (value: samples/medical.tif). On the right is a form titled "a. INSURED'S DATE OF BIRTH" with fields for MM, DD, and YY (05, 29, 63) and a "SEX" field with radio buttons for "M" and "F". Below this is "b. EMPLOYER'S NAME OR SCHOOL NAME" with the text "Sunbelt Manufacturing". Then "c. INSURANCE PLAN NAME OR PROGRAM NAME" with "BC/BS". A question "d. IS THERE ANOTHER HEALTH BENEFIT PLAN?" has radio buttons for "YES" and "NO" (checked). Below that is "13. INSURED'S OR AUTHORIZED PERSON'S SIGNATURE" with a "SIGNED" line. Then "16. DATES PATIENT UNABLE TO WORK IN CURRENT OCCUPATION" with "FROM" (02/23/99) and "TO" (03/01/99) fields. Then "18. HOSPITALIZATION DATES RELATED TO CURRENT SERVICES" with "FROM" (02/23/99) and "TO" (02/28/99) fields. Then "20. OUTSIDE LAB?" with radio buttons for "YES" (checked) and "NO", and a "\$ CHARGES" field with "700 00". Finally, "22. MEDICAID RESUBMISSION CODE" and "ORIGINAL REF. NO." fields.

The facility allows control of the X and Y point which appears at the top left hand corner of the display, and can be controlled by making calls to `TIFFServerAdjustDisplay()` when required – for example, moving around a form as a user tabs from one field to another.

The X and Y values are scaled between 0 and 1. To assist with determining what values should be used to move to a particular point on a page, two methods are provided – `TIFFServerEnableClickCapture()` to enable the click point capture and `TIFFServerGetLastClick()` which returns a string with the X and Y values separated by a comma. Capture of multiple point values will require repeated use of both methods. The `zoning.htm` page shows usage of these methods.

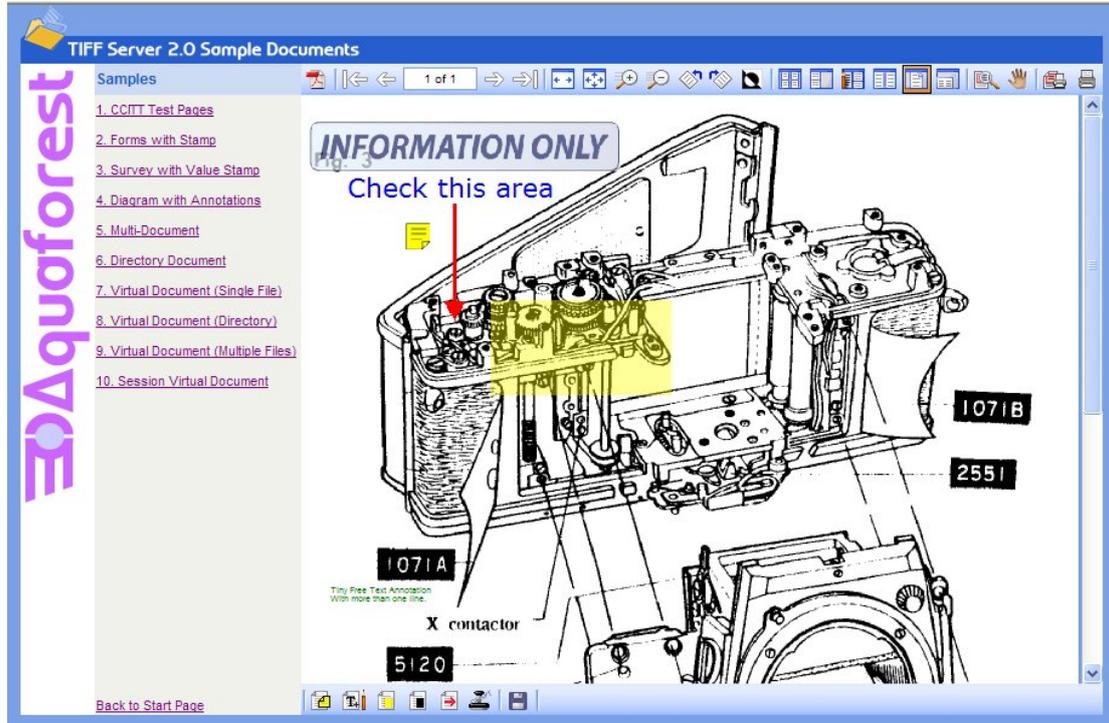
To adjust the page display such that a particular point is at the top left hand corner of the display, `TIFFServerAdjustDisplay(x,y)` can be used. Furthermore, to specify a new document to be displayed, at a particular point and page, the `TIFFServerNewDocument(at_url, at_pstart, x, y)` method can be used.

9.2.1 Calling The Methods

All the methods are client-side JavaScript in `aquatiff.asp`. Examples of calling the methods are provided in `zoning.htm`. Calls take the form of `<window ref>.methodname(params)` where `<window ref>` is determined by the reference to the window or frame that `aquatiff.asp` has been invoked in. For example, in `zoning.htm` an `iframe` with an id of `tiffserver` is used, so method references such as `tiffserver.TIFFServerGetLastClick()` may be used.

10 ANNOTATIONS

TIFF Server enables a number of different annotation types to be associated with a document.



10.1 Annotation Types

The following annotation types are available :

ICON	DESCRIPTION	ICON	DESCRIPTION
	Sticky Note Annotation		Free Text Annotation
	Highlight		Redact.
	Arrow		Rubber Stamp Annotation
	Save Annotations.		

By default redaction annotations are not burnt into the image and therefore cannot be regarded as secure for information hiding purposes. TIFF Server can be configured for secure redaction - see section 11.7 for more details.

10.2 Annotation Storage

Annotations are stored in a file separately from the TIFF image but in the same directory. Annotation files are stored in XML format and use the ending `ann.xml` instead of `.tif`. So for example, `/docs/samples/ccitt.tif` would have an annotation file at `/docs/samples/ccitt_ann.xml`

10.3 Printing Annotations

This can be achieved by using the convert to PDF function, and then choosing print.

10.4 Disallowing Annotation Use

The `config.inc` file includes a set of variables which can be used to configure the appearance or non-appearance of annotation menu items (`menu_annots_...` etc) and can also be used to turn annotation facilities off entirely by setting `menu_annots=false;`

10.5 Editing Annotations

The chart below indicates the editing facilities available for each annotation type.

Annotation Type	Edit	Move	Delete
 Sticky Note	Double Click	Drag & Drop	Single click, then press del / delete
 Highlight	N/A	Drag & Drop	Single click, then press del / delete
 Arrow	N/A	Drag & Drop	Single click, then press del / delete
 Free Text	Double Click	Drag & Drop	Single click, then press del / delete
 Redaction	N/A	Drag & Drop	Single click, then press del / delete
 Stamp	N/A	Drag & Drop	Single click, then press del / delete

10.6 Customising Stamp Annotations

The default set of stamp annotations are based around the Adobe PDF 1.5 “Standard Business” set of stamps. Adding custom stamps requires that a suitable PNG image is made to represent the stamp in the browser display, and that the custom/stamps.inc file is updated.

The following is a guide for adding custom stamps. See sample_stamps.inc for an example.

a. Choose a name for the stamp (eg changeInProgress), and the text that will appear on the stamp (eg "Change in Process").

b. The PNG file should be named sta_XXX.png where XXX is the stamp name, and be placed in the custom/images directory.

c. In custom/stamps.inc The following arrays should be added to :

```
customStampName (Stamp Name - both client & Server)
customStampText (Stamp Text - both client & Server)
customStampHeights & Widths should be updated accordingly.
```

d. If required the appearance specification for the generated PDF version of the "stamp" can be adjusted or customised in the genCustomStampPDF function.

10.7 Annotation File Format

Some information regarding the annotation XML format is provided for convenience. A sample annotation file (with a single highlight box) is shown below.

```
<?xml version="1.0" encoding="ISO8859-1" ?><ts_annot>
<annot_page page='1'>
<annot id='annot0'>
<!--
<pdf page='1' sequence='0'>/Type /Annot /F 68 /Subtype /Square /IC [1.0 1.0
0.0] /CA 0.5 /Rect [ %f %f %f %f ] /Contents ()</pdf>-->
<pdf_params page='1' sequence='0'>0.17988394584139267 0.2435567010309278
0.4003868471953579 0.1301546391752577 </pdf_params>
<jso>hil "undefined"undefined"undefined"undefined"179.88394584139266"756.443
2989690722"annot0"1034"776"228"88"</jso>
</annot>
</annot_page></ts_annot>
```

Tag	Description
Annot_page	This has one attribute "Page" which indicates the page that the annotation should be applied to.
Annot	Each separate annotation has an within each page ie, annot0, annot 1 etc. Each new page starts the id sequence again at annot0.
Pdf (in comments)	This is the set of PDF commands used to render the annotation in the PDF converted version of the file. An understanding of the internals of Portable Document Format is required. Adobe's "PDF Reference" book (ISBN 0-321-30474-8) provides detailed information.
Pdf Parameters	This provide parameters for the PDF commands, typically the co-ordinates of the annotation (using a 0 – 1 basis).
jso	This provides a set of variables delimited by " used to render the annotation within client-side javascript in the TIFF Server viewer.

JSO Variable #	Description
1 – Annotation Type	Stn – Sticky Note Hil - Highlight Red - Redaction Frt – Free Text Sta - Stamp Arr – Arrow
2 – Sub-Type	For Type="arr" : LeftArrow, RightArrow, UpArrow, DownArrow Type="sta" : Approved, Completed, Confidential, Draft,Final, ForComment, ForPublicRelease,InformationOnly, NotApproved, NotForPublicRelease, Void
3 – Font	For Type="frt" : Arial, Times-Roman, Verdana, Courier
4 - Font Size	For Type="frt" :9, 12,16,26,32
5 – Color	For Type="frt" :green, black, red, yellow, blue
6 – Contents	For Type="frt", Type="stn" : The text of the annotation
7 – Start X	X co-ordinate of top-left of annotation
8 – Start Y	Y co-ordinate of top-left of annotation
9 – Annotation ID	As the "annot" tag
10 – Image Width	Width in pixels of the image to which the annotation is to be applied
11 – Image Height	Height in pixels of the image to which the annotation is to be applied
12 – Annotation Width	Width in pixels of the annotation
13 – Annotation Height	Height in pixels of the annotation

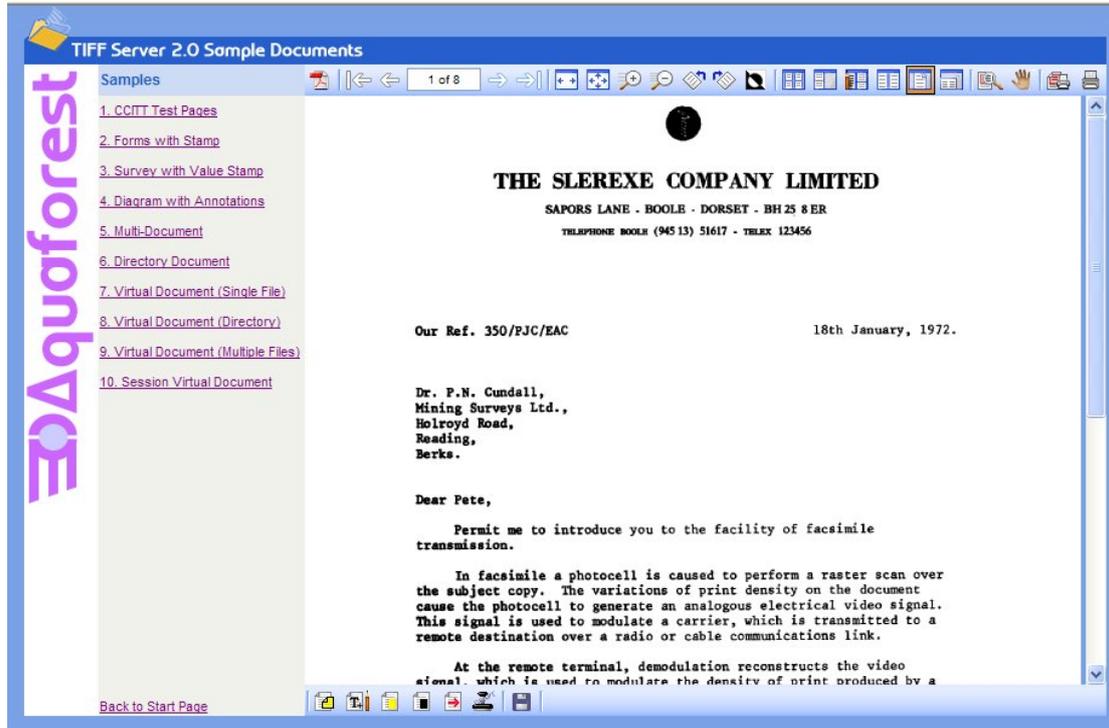
11 CUSTOMIZING AND CONFIGURING TIFF SERVER

TIFF Server may be configured in a number of ways, controlled by variables in the config.inc file.

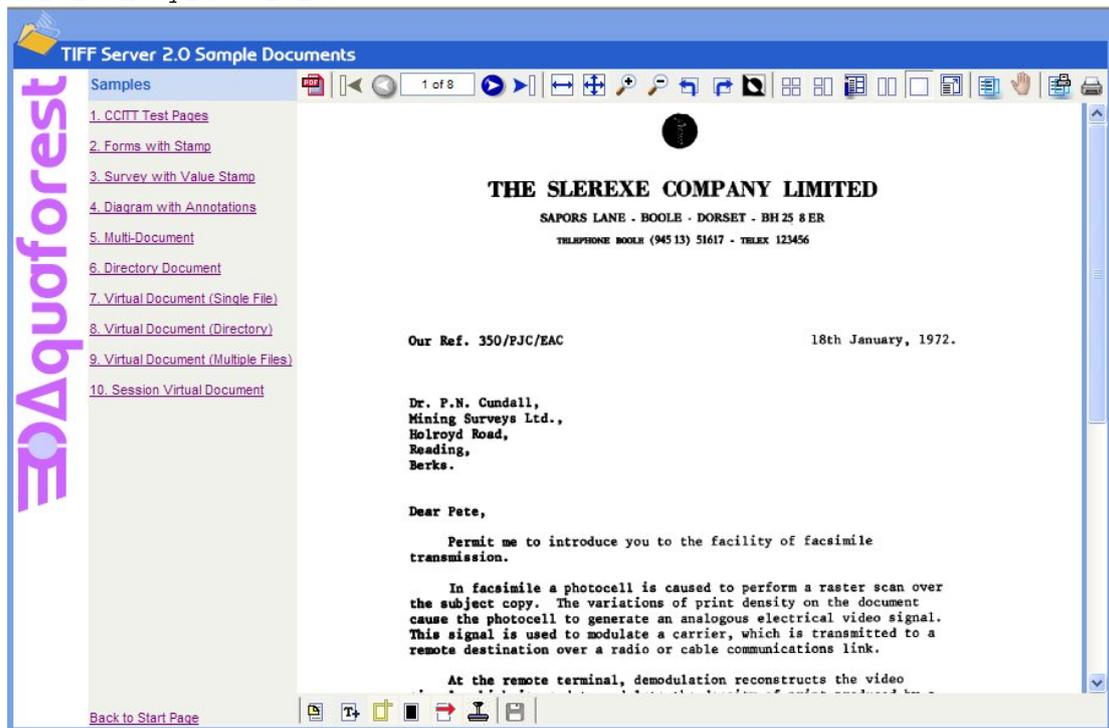
11.1 Customising The Icon Set

The product comes with a choice of 2 icon sets which define the look and feel.

`var iconStyle="V2.0";` (This is the default) :



`var iconStyle="V1.2";`



11.2 Display Customizations

The following variables are supported to allow various display customizations as noted :

Config Variable	Notes
ts_page_title	Used to determine the default aquatiff.asp page title (when at_pagetitle is not defined.) If this variable is set to null in config.inc then the page will not have a title.
ts_thumbnail_width_standard	The pixel or percentage width of the thumbnail frame in thumbs-left mode
ts_thumbnail_width_full	The pixel or percentage width of the thumbnail frame in thumbs-left mode when the display is launched using the “Full Window” icon.
ts_fsc_thumbnail_width	The pixel width of the thumbnail in full thumbnail layout mode
ts_bgcolor	Frame background colors
ts_fgcolor	Text Color [Mainly for Thumbnail captions]
ts_info_fgcolor	Text Color for Infopane
ts_lhs_thumbnails_max	This is the maximum number of thumbnails in thumbs-left mode The config.inc parameter can be set to the limit value. If the limit value is exceeded, a link “View all Thumbnails” is displayed at the bottom of the frame which if clicked will take the user to the thumbnails layout page to view all the thumbnails.
ts_use_sub_page_count	If it is set to true, then aquatiff.exe is not called to determine the actual page count.

11.3 Configuring The Toolbar

The image viewer toolbar may be configured by adjusting parameters in the config.inc file. Each toolbar menu item has a boolean variable which determines whether the item should be displayed or not. All toolbar items are shown by default and which variable relates to which option should be clear from comments in the file. For example :

```
/* Fit Window */  
var menu_ftw=true;
```

11.4 Configuring Printing

By default the product is configured to use “PDF Printing” where the print button initiates the generation of a PDF file (with an *openaction* of print set) into a hidden frame. This is transparent to the user, but does require Acrobat Reader 5.0 or later to be available on the client PC. If the product is being deployed in an environment where Acrobat Reader will not be available, it may be appropriate to set `prnt_pdf` to false and consider adjusting `printWidth` :

```
/* Print Functionality - Set to True to Use PDF - */  
/* if set to false JavaScript will be used, */  
/* but this can only print the current page */  
  
var prnt_pdf=true;  
  
/* Print Width For JavaScript Printing */  
var printWidth=650;
```

11.5 Backend Configuration

TIFF Server supports a number of different backend options, and can be customized to support custom methods. The supported backend options are as follows :

Option	Description
<code>var ts_backend=".NET";</code>	This is the default – image processing is carried out via ASP.Net and .Net components. PDF generation is initiated by .Net and passed to the tiffpilot.exe CGI process.
<code>var ts_backend="CGI";</code>	This was the only option in previous versions. Requests are dealt with by the aquatiff.exe and tiffpilot.exe CGI processes.
<code>var ts_backend="DB";</code>	This allows support for images stored in a SQL Server database.

Option	Description
<code>var ts_net_backend="GDIONLY";</code>	This only applies when <code>ts_backend=".NET"</code> . If set to "GDIONLY", the Microsoft GDI+ classes are used for image processing.
<code>var ts_net_backend="CUSTOM";</code>	This only applies when <code>ts_backend=".NET"</code> . If set to "CUSTOM", a special customizable class is used to obtain image and annotations. See 11.6 below.

11.6 Custom Backend Development

TIFF Server is delivered with the C# source code for a special customizable class, AquaforestTIFFServerStream. This class has three methods which can be used to customize TIFF Server so that for example, the product can read encrypted TIFF images or read from a database other than SQL Server. The sample project uses a simple "encryption" scheme.

The Microsoft Visual Studio 2003 project can be found in `custom/AquaforestTIFFServerStream` in the TIFF Server installation folder.

static public MemoryStream GetStream(string TIFFFilePath)

This method returns a TIFF file as a memory MemoryStream. The supplied implementation returns the TIFF file specified by the TIFFFilePath parameter as a MemoryStream.

static public string GetAnnotations(string AnFilePath)

This method returns the contents of an annotation file as a string. The supplied implementation returns the annotation file specified by the AnFilePath parameter as a string.

static public bool SaveAnnotations(string FilePath, string Annotations)

This method saves the contents of an annotation file. The supplied implementation saves the string in the specified annotation file.

11.6.1 Implementing a Custom Backend

This involves the following steps

- Set `ts_net_backend=".CUSTOM"` in the `config.inc` file.
- Make the required changes to the AquaforestTIFFServerStream class and rebuild.

- Move the AquaforestTIFFServerStream.dll (from custom/AquaforestTIFFServerStream/bin) to the bin directory.
- Run iisreset

11.7 Edit Functionality and Custom Modules

When a custom backend is implemented the following custom method will be called :

```
CustomClass.SaveEditedImages(String TIFFFileName, MemoryStream[] TiffStreams, String AnnotationFileName, MemoryStream[] AnnotationStreams)
```

Where FileName is the full path of the original TIFF file, and one MemoryStream is provided for each newly generated TIFF file.

11.8 File Locking in Edit Functionality with Custom Modules

If locking is turned on (via lock_editdoc in config.inc) and the backend is CUSTOM call will be made to a custom module to Lock before opening the edit page :

```
Bool CustomClass.Lock(string FileName)
```

If this returns true, the user will be allowed to edit. If it is false, display the message “This file is currently being edited by another user!” and return to previous view.

Similarly an Unlock operation (after save or discard) will also be called.

```
Void CustomClass.Unlock(string FileName)
```

Note : On a normal save, save the images, calls unlock and returns to thumbnail view of the original file name (if splits occurred, it will be the new image of the original file name).

11.9 Secure Redactions.

By default, black-box annotations (“Redaction”) is not actually “burnt” into the image displayed in the browser or PDF file, but is added as a separate layer. For security, it is possible to configure TIFF Server in two alternate ways to securely hide the redacted area.

Option 1 – The underlying TIFF file is not changed, but Images delivered to users who do not have permission to edit redactions will have the redaction burnt-in to both the browser images and generated PDF files.

This can be done by setting ts_secure_redaction=true in the config.inc file. This feature is only available with the .NET backend.

Option 2 – The underlying TIFF file is actually changed with the area defined by the redaction annotation. This can be performed by using the “Permanently Redact TIFF File” menu button. To enable use of the button set var menu_annots_perm_red=true; in the config.inc file. It is also possible to configure an archive folder, where copies of files prior to redaction are saved. This can be done by setting var redaction_arch_folder="[archive folder location]" in config.inc. Archived files are named *timestampname.tif* where name.tif is the original file name.

Option 3 – The underlying TIFF file is actually changed with the area defined by the redaction annotation, using a command line tool rather than the TIFF Server interface. The executable burnredaction.exe is in the TIFF Server bin folder.

```
burnredaction.exe tiff_file annotation_file archive_folder
```

A copy of the image will be saved to the folder defined by e. If *archive_folder* is not specified to a copy will not be saved. The copied file will be named %timestamp%filename where %timestamp% is the current time and %filename% is the original filename.

11.10 Server Error Messages

By default, in the event of an error processing an image, a detailed diagnostic error message is displayed in place of the image, and the message is also logged in the TIFF Server log file. It is possible to define a generic message via `genericErrorMessage` that will be displayed to the user instead. [The full message is always written to the log file]. The default setting is "" which indicates that the detailed message is shown.

A generic error message can be configured as shown in the following example :

```
var genericErrorMessage="An Error has occurred. \nPlease contact support";
```

11.11 Custom Capture Zones

Two optional menu icons "Select Zone" and "Capture" are available to support custom zoned capture. These menu items can be configured on or off via `config.inc` (with the variables shown below).

```
/* Select Zone / Capture */  
var menu_selzone=true;  
var menu_capzone=true;
```

The presence of the menu items can also be defined via the `tiffserver.aspx` URL by using `at_selzone` and `at_capzone` set to "on" or "off".

Upon pressing "Select Zone" the user is able to define an area of the image, in a similar fashion to that currently allowed by "Print Area". The user selects a section of the page/image (they should only be allowed to select one area at a time, so if they try to zone another section after the first, the first zoned area would go away and the new one would be the current zone)

Then the user can click button called Capture. This invokes a call to the new custom module method `SetZonedImage` and then clears the Zoned area from the page. If the call is unsuccessful an error message is given, otherwise the clearing of the zoned area will indicate to the user that the operation has been successful.

The "Zone" mode is still available for the user to capture multiple zones until the "Select Zone" icon is pressed again, turning the mode off.

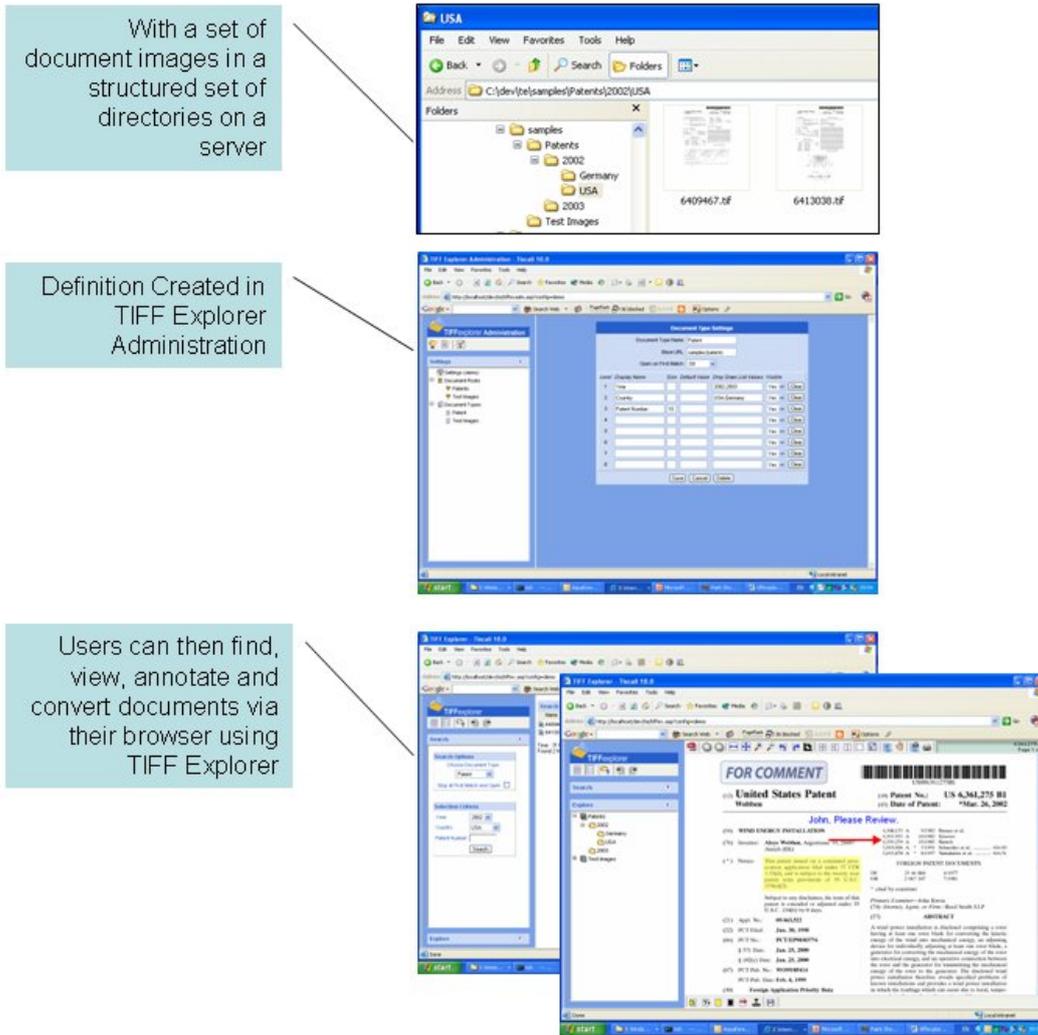
The custom module has the following definition :

```
Public bool SetZonedImage(string sFilePath, MemoryStream msImageSection)
```

The `msImageSection` is a stream of an unencrypted image representing the segment of the image selected by the user. The method will return true if successful otherwise false.

12 TIFF SERVER EXPLORER

TIFF Server Explorer provides an intuitive web-based application for users to find, view, convert and annotate TIFF images held in a set of folders that are structured in a hierarchical manner, as outlined with the diagram below.



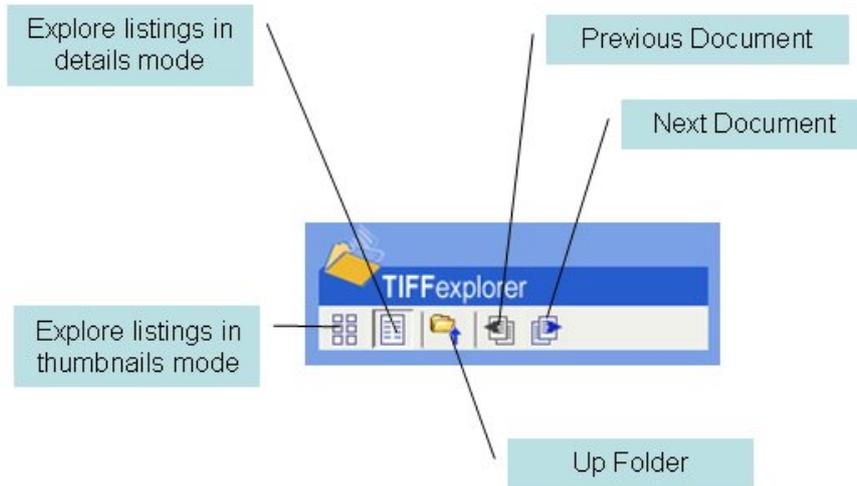
12.1 Getting Started and Testing The Installation

- To get started access the TIFF Explorer start.aspx page (replacing server and virtual directory names as appropriate) : <http://yourservertiffserver/tiffxstart.aspx>
- This startup page enables entry of the license key that you will have received.

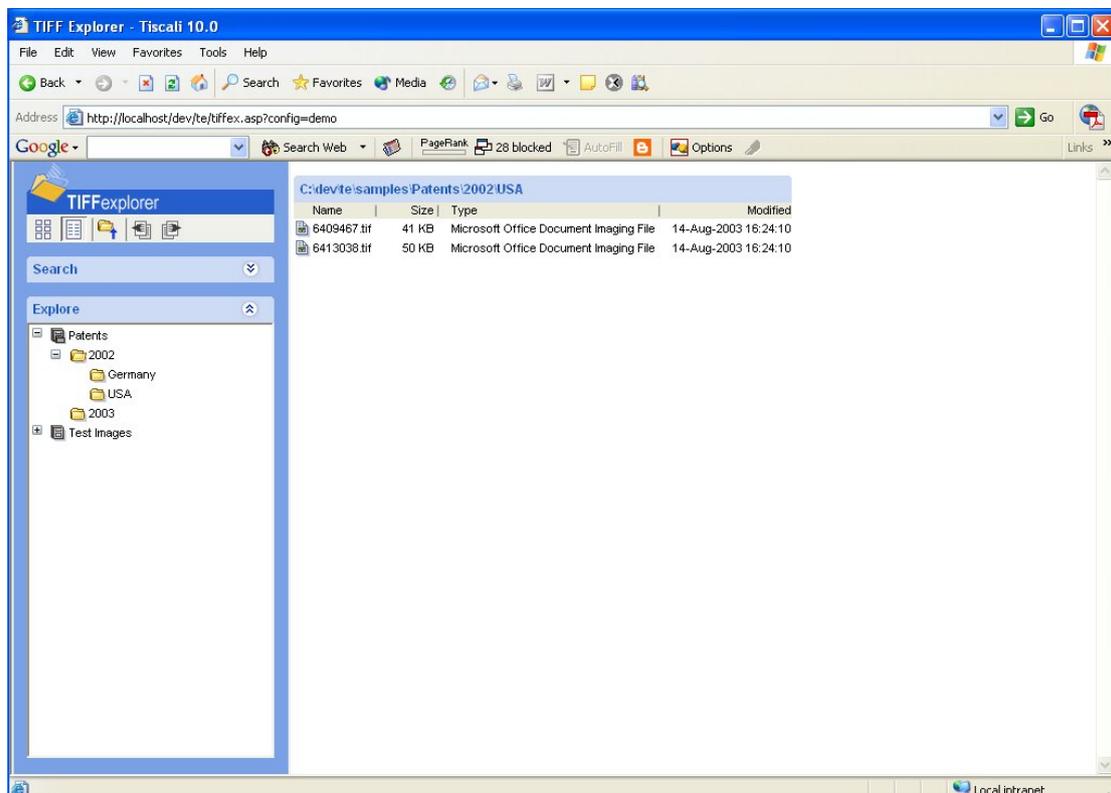
TIFF Server Explorer allows users to operate in either “Explore” mode, similar to Windows Explorer, and in “Search” mode which is perhaps comparable in some ways with the Windows Explorer “Find” facility.

12.2 Explore Mode

The controls available to the user in Explore mode are shown below :



A typical Explore display is shown below. The left hand panel allows navigation of the Document Roots as defined in the TIFF Server Explorer administration.



12.3 Search

A typical search display is shown below. Users can select one of the Document Types that have been defined, and enter selection criteria. They may choose to leave some or all of the criteria blank, and can elect to stop the search at the first match and automatically open the located document. This can be useful when working with documents that are easily uniquely identified from their file name.

The screenshot displays the TIFF Explorer application window. The interface includes a search sidebar on the left with the following sections:

- Search Options:**
 - Choose Document Type: Patent (dropdown)
 - Stop at First Match and Open:
- Selection Criteria:**
 - Year: 2002 (dropdown)
 - Country: USA (dropdown)
 - Patent Number: 6413038 (text input)
 - Search button
- Explore:** (dropdown menu)

The main content area displays the following information:

INFORMATION ONLY  US006413038B1

(12) **United States Patent** (10) **Patent No.: US 6,413,038 B1**
Lord (45) **Date of Patent: Jul. 2, 2002**

(54) **WINDMILL** OTHER PUBLICATIONS
 Jack Par, The wind power book; 1981, Published by Chesire Books, p. 101.*
 * cited by examiner

(76) **Inventor: Donald Lord, 912 E. Boone St., Santa Maria, CA (US) 93454**
Primary Examiner—F. Daniel Lopez
Assistant Examiner—Kimya N McCoy

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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 (51) **Int. Cl. 7** **F03D 7/00**
 (52) **U.S. Cl.** **415/4.2; 415/122.1; 415/213.1; 416/244 R**

(58) **Field of Search** 415/4.2, 4.4, 907, 415/2.1, 122.1, 213.1, 141, 4.1; 416/110, 111, 119, 170 R, 244 R; 52/146, 651.01, 152

(56) **References Cited**
 U.S. PATENT DOCUMENTS
 223,308 A * 1/1880 Barker 416/119
 320,190 A * 6/1885 Stoddard 415/141
 376,357 A * 1/1888 Weeks 415/146
 1,718,682 A * 6/1979 Boss 416/155

(57) **ABSTRACT**
 A windmill for efficiently catching wind for turning an axle. The windmill includes a support structure. The support structure includes a plurality of generally vertically oriented posts. Each of the posts is spaced from each other. Each of the posts has a top edge. A covering is positioned on and is securely coupled to each of the top edge of the posts. A first axle is elongate and has a first end rotatably coupled to a bottom surface of the covering. The first axle has an upper portion and a lower portion. Each of a plurality of vanes is comprised of a top arm, a bottom arm and an end portion. Each of the arms has a first end securely attached to the upper portion of the first axle and a second end securely attached to an opposite end of the end portion such that a frame is defined. Each of a plurality of panels is substantially rigid and has a front side, a back side, a top edge, a bottom edge, a first side edge and a second side edge. Each of the top edges is hingedly coupled to one of the top arms and each of the bottom edges is hingedly coupled to a bottom

The application window also shows a Windows taskbar at the bottom with the Start button and several open applications: Neil Pitman, 3 Internet..., te, tiffexplorer1..., Microsoft De..., Paint Shop Pr..., and system tray icons including a clock showing 18:26.

13 TIFF SERVER EXPLORER CONFIGURATION

The TIFF Explorer administrative application can be accessed via the start page or via <http://yourserver/tiffserver/tiffexadm.asp>. This section describes each of the main aspects of the administrative pages.

13.1 Using Multiple Configurations

An installation of TIFF Explorer may have multiple configurations – in fact, when the product is installed it comes with a demonstration configuration and a “root” configuration which is the default. Both `tiffexadm.aspx` and `tiffex.aspx` take a `config` parameter :

Examples

<http://yourserver/tiffexplorer/tiffexadm.aspx?config=demo>

<http://yourserver/tiffexplorer/tiffex.aspx?config=demo>

The name of the configuration is the name of the xml configuration file in the `config` directory (without the `.xml` suffix) – so for example the `demo` configuration file is called `demo.xml`.

13.1.1 Creating a New Configuration

To create a completely new configuration, create an appropriately named new configuration file by copying the `root_template.xml` file in the `config` directory and then launch `tiffexadm.aspx` with the name of the new configuration.

13.1.2 Deleting a Configuration

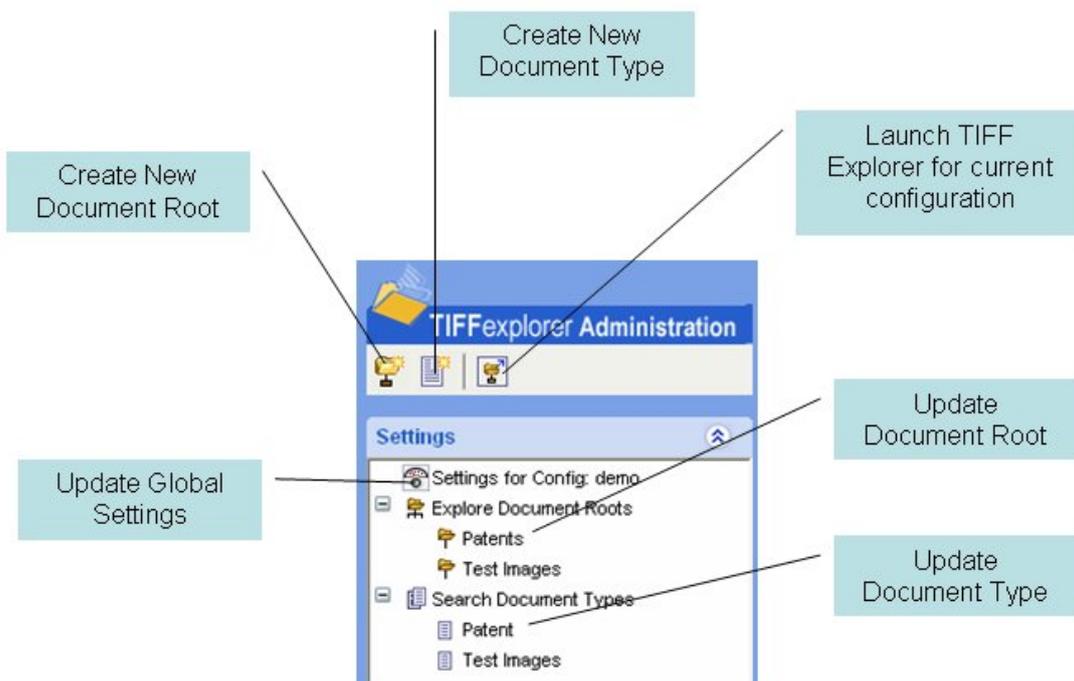
To delete a configuration, simply delete the corresponding xml file in the `config` directory.

13.1.3 Restoring a Configuration

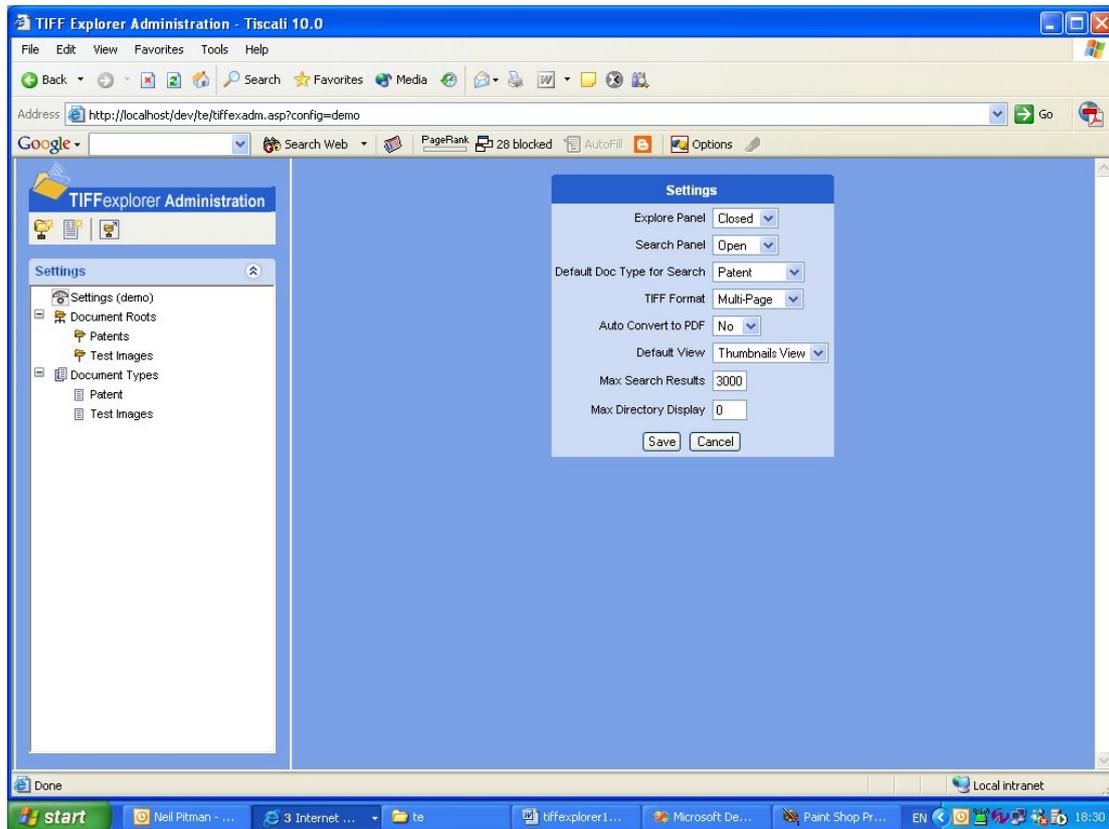
Each time the TIFF Server Explorer administration application updates a configuration it makes a backup copy of the previous version to a file in the `config` directory with a `_backup.xml` suffix, which can be used to copy over the updated version in order to roll back the most recent change.

13.2 TIFF Explorer Administration Control Panel

The diagram below indicates how to invoke each of the functions within the administration application:

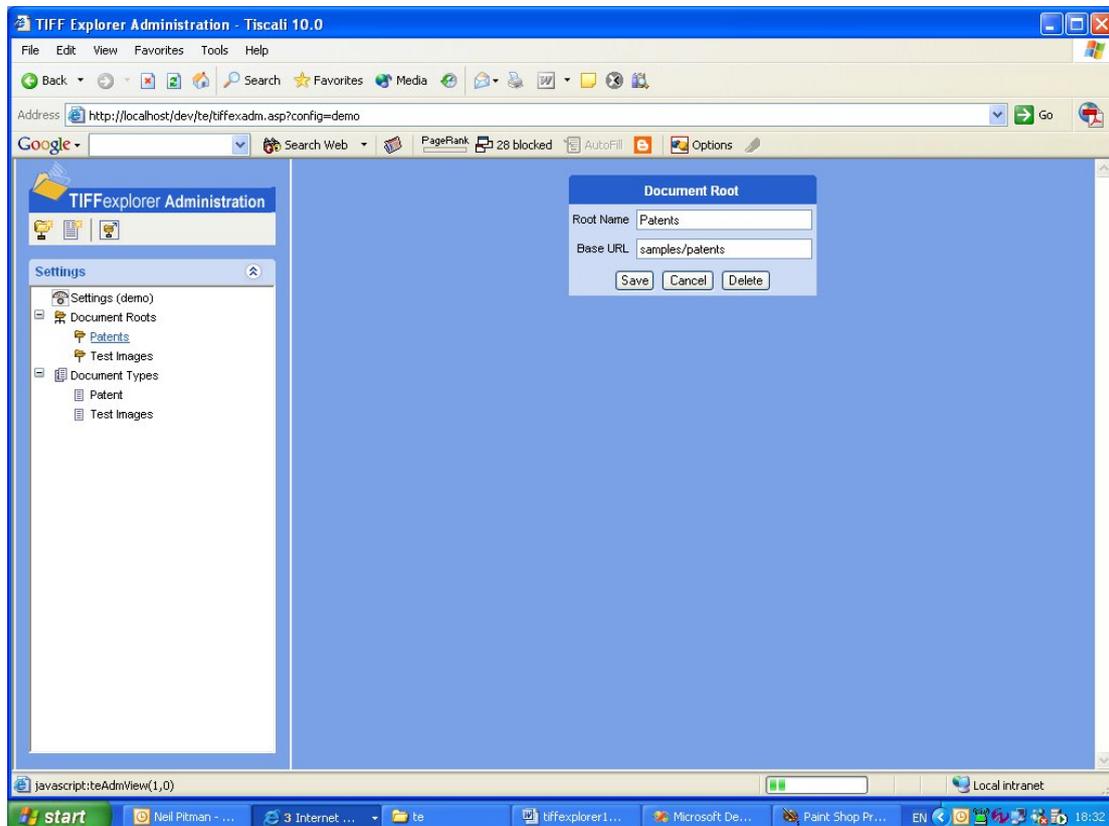


13.3 Global Configuration Settings



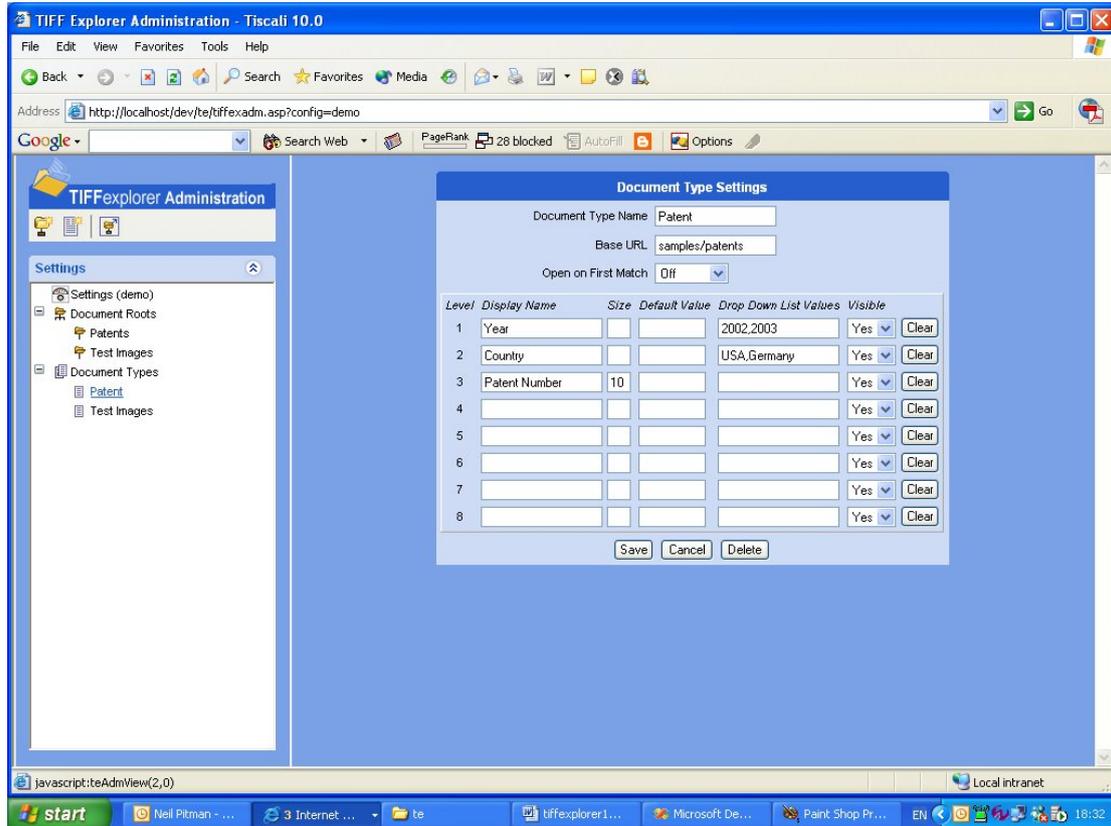
Parameter	Allowable Values	Notes
<i>Explore Panel</i>	Open Closed Hidden	Determines whether the initial user view of TIFF Explorer shows the Explore Panel open, closed or hidden.
<i>Search Panel</i>	Open Closed Hidden	Determines whether the initial user view of TIFF Explorer shows the Search Panel open, closed or hidden. If both Explore and Search panels are set to “Open”, the Search panel takes precedence.
<i>Default Doc Type for Search</i>	[document type name]	The name of the document type that will be selected by default when the search panel is initially opened.
<i>TIFF Format</i>	Multi Page Single Page	TIFF Explorer supports both Multi-Page TIFF files and directories of single page files which can be presented to the user as a single merged document.
<i>Auto Convert to PDF</i>	No Yes	If set to “Yes” documents will be automatically converted and presented to the user as PDF rather than using the TIFF Server viewer.
<i>Default View</i>	Details Thumbnails	The explore details page can display documents in either detail or thumbnail format. The setting determines the display method used when TIFF Explorer is initially launched.
<i>Max Search Results</i>	≥ 0	Specifies the maximum number of documents that will be returned from a search. If set to 0, there is no limit.
<i>Max Directory Display</i>	≥ 0	Specifies the maximum number of documents that will be listed in a directory display. If set to 0, there is no limit.

13.4 Document Root Configuration (For TIFF Explorer EXPLORE Mode)



Parameter	Allowable Values	Notes
<i>Root Name</i>		The name used on the TIFF Explorer “explore” display. Eg : Claims Documents
<i>Base URL</i>	A valid URL on the current server (excluding http://servername)	The base URL of the document root. If it does not begin with /, then the root is relative to the TIFF Explorer installation directory. Eg : /docs/claims

13.5 Document Type Configuration (for TIFF Explorer SEARCH Mode)



Parameter	Allowable Values	Notes
<i>Document Type Name</i>		The name used on the TIFF Explorer “search” display drop-down. Eg : Claims Documents
<i>Base URL</i>	A valid URL on the current server (excluding http://servername)	The base URL of the document root. If it does not begin with /, then the root is relative to the TIFF Explorer installation directory. Eg : /docs/claims
<i>Open on first match</i>	On Off Disabled	This feature determines whether a search is terminated on the first match, and the found document is automatically displayed (if set to On when the search is run) or whether the full set of matching documents is shown. This setting is just a default – the user can change it when running a search, unless set to “disabled” in which case the user is not able to change the setting and is assumed to be “off”.
<i>Level</i>		Indicates the level in the folder hierarchy that the attribute refers to.
<i>Display Name</i>		This is the name that will be displayed to users in the search panel.
<i>Size</i>		The size of the entry field in the search panel.
<i>Default Value</i>		Default value of the entry field in the search panel.
<i>Drop Down List Values</i>		This can be set to a list of comma separated values, in which case it will be used as the basis for a drop down list which will be offered to the user rather than an entry field.
<i>Visible</i>	Yes No	If set to “No” then the user will not be presented with the field when searching. If a default value has been set then this value will be used in the search.

13.5.1 TIFF Explorer User Application ASP.Net Pages

Page	Purpose
tiffex.aspx	Entry point and frame setup
te001.aspx	Left hand side control panel
te002.aspx	Explore Panel
te003.aspx	Right hand side directory display
te004.aspx	Subfolder XML generation (for explore panel)
te005.aspx	Left hand side search panel
te006.aspx	Search processing and results
te007.aspx	Splash page
te008.aspx	Stop search control

13.5.2 TIFF Explorer Administration Application ASP.Net Pages

Page	Purpose
tiffexadm.aspx	Entry point and frame setup
teadm001.aspx	Left hand side control panel
teadm002.aspx	Explore panel for selection of document roots and types
teadm003.aspx	Settings Page
teadm004.aspx	Document Root Page
teadm005.aspx	Document Type Page
teadm006.aspx	Save configuration file processing
teadm007.aspx	Splash page

13.5.3 TIFF Explorer Common Files

Page	Function
teconfig.inc	Application core settings and common functions (Server-Side)
teconfig.js	Application core settings and common functions (Client-Side)
teCSS.inc	Style Sheet

13.6 Advanced Configuration Parameters

The teconfig.inc file includes a number of special parameters that are used to control the behaviour of the application :

```
// Explore Hierarchy Levels Limit
var max_levels=12;

// Thumbnail Display Configuration
var imagewidth=100;
var iperrow=5;
var adjustTND=true;

// Valid File Extensions
var teFileTypes='g3f,g3s,tif,jpg'; // Should be lower case

// Admin Configuration
var max_attribute_levels=8;

// Search Configuration
var wildcardMethod="FULL"; /* LHS or FULL */
```

Variable	Notes
<i>Max_levels</i>	Defines the maximum number of levels of directory that TIFF Explorer will navigate in Explore mode.
<i>Imagewidth</i>	This defines the thumbnail display image width, in pixels.
<i>Iperrow</i>	If adjustTND is set to false, this defines the number of thumbnail images per row.
<i>adjustTND</i>	If set to true, TIFF Explorer will determine the number of thumbnail images per display row. If set to false, iperrow is used to determine this.
<i>teFileTypes</i>	A comma separated list of file type extensions that the product will consider as valid TIFF files.
<i>Max_attribute_levels</i>	This sets that maximum number of attributes (which equates to folder levels) that can be associated with a document type for use in search mode.
<i>wildcardMethod</i>	<p>In search mode, a wildcard is always prepended and appended to the user-entered string for a field, so that for example "ABC1" will match "ABC12" and "BBC13".</p> <p>If this is set to "LHS", then a wildcard is only appended to the string, so in the above example, "ABC1" would only match "ABC12".</p>

14 TIFF SERVER DIRECTORIES

For reference, the following subdirectories are created within the TIFF Server root folder:

14.1 Root Folder

File	Function
tiffserver.aspx	Entry point and viewer control
atf001.aspx	Main Image Display Frame
atf002.aspx	Thumbnail frame
atf003.aspx	Menu Button Frame
atf004.aspx	Hidden Frame For PDF Printint
atf005.aspx	Annotations Menu
tssp.aspx	Image Display Page
tsspan.aspx	Annotation Retrieve / Save
tssp.pdf.aspx	PDF Generation
tiffpilot.exe	PDF Generation
Start.aspx	Launch page for test and samples
Sample.aspx	Sample Documents
Test.aspx	Test pages
Dbsample.aspx	Database-resident document test page
config.inc	Product Configuration and Options

14.2 Sub Folders

Directory	Contents
<i>bin</i>	TIFF Server .Net DLLs
<i>custom</i>	Custom Annotation Stamps
<i>Config</i>	TIFF Server Explorer configuration XML files
<i>docs</i>	Documentation
<i>images</i>	Default Icons & Images
<i>images_alt</i>	Alternate Icons & Images
<i>license</i>	License Key file
<i>Logs</i>	TIFF Server Log File
<i>samples</i>	Sample Documents
<i>stamps</i>	Stamp Definitions
<i>temp</i>	Temporary Files.

14.3 Temporary Files

The product may create temporary files where necessary in converting from one TIFF format to another – sometimes required when generating PDFs to ensure that the TIFF format is compatible with that accepted by PDF. These files (named TMP999.tif where 999 is the process ID) will be created (and destroyed once the process is complete) in a directory according to the following precedence.

- (1) The directory specified by the TMP environment variable, if defined.
- (2) The directory specified by the TMPDIR environment variable, if defined.
- (3) The TIFF Image Server *bin* directory

The CGI executable (tiffpilot.exe) will need permission to write files into this directory if such conversions are necessary.

15 PRODUCT VERSION HISTORY

15.1 Version 2.51

Reference	Change
251-01	Added support for burning in redactions (see 11.9)
251-02	Added native support for JPEGs
251-03	Documented Annotation XML file format

15.2 Version 2.50

Reference	Change
206-01	Added custom zoned capture (see 11.11)
206-02	Added PNG Support
206-03	Added Edit Document Support

15.3 Version 2.04

Reference	Change
204-01	Added custom stream class (see 11.5)
204-01	Added secure redaction (see 11.7)

15.4 Version 2.02

Reference	Change
202-01	TIFF Server Explorer now included.

15.5 Version 2.0

Reference	Change
200-01	New Annotation List feature showing an index of annotations and allowing navigation between annotated pages.
200-02	Support for images using LZW compression

200-03	Support for SQL Server database stored images and annotations.
200-04	New Virtual Document feature allowing a number of new options including a set of single page TIFF files to be specified in an XML document and treated as if they were a single document. See section 5 for more details.
200-05	TIFF Server is now an ASP.Net application. Aquatiff.asp is now named tiffserver.aspx.
200-06	New page navigation by page number, or to first / last page.

15.6 Version 1.20

Reference	Change
120-01	Added Annotation Support
120-02	Updated Interface to XP-Style
120-03	Added Print Zoomed Selection
120-04	Added ability to merge a directory set of single page TIFF files and present them to the user as a single file.
120-05	Support for Custom Stamps
120-06	Various customizable display options added (see section 9.1)
120-07	PDF Annotation Box
120-08	Sub-document support

15.7 Version 1.10

Reference	Change
110f01	Added native support for JPEG files
110b01	Added config.inc to support configuration of menu options and printing mechanisms.
110a01	Added support for JPEG compression within TIFF files.
110a02	Added support for static and dynamic stamps. See section 6.
110a03	Added a print button within the viewer application. See section 4.3.

15.8 Version 1.02

Reference	Change
102c01	Changed location of temporary files that may sometimes be generated during conversion to PDF. Files will be placed in \$TMP if defined otherwise \$TMPDIR, or finally in the TIFF Image Server bin directory.
102b01	Added support for CCITT RLE and Uncompressed files.
102b02	Corrected intermittent javascript error that could occur under some circumstances in atf001.asp
102a01	Added the demo asp application to the distribution and included documentation highlighting key points for developers shown in the demo.
10201	File specifications that included spaces in the directory path or file name itself were not accepted. This has now been corrected.
10202	Added the -3 (cannot open file) and -4 (invalid file type) error conditions for the PC option of aquatiff.exe.
10203	Adjustments have been made to the viewer UI to better support 800 x 600 resolution mode. These include movement of the "Create PDF" icon to the first position, and ensuring that the text for filename and page numbers will not "break" causing the menu to scroll. The viewer can now be fully used with a width of only 400 pixels.
10204	Read only licence files can now be opened for verification of the licence key.