

Δquaforest

TIFF Server Reference Guide



TIFF Server Reference Guide



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Content

1	INTRODUCTION	7
2	SYSTEM REQUIREMENTS AND SUPPORTED FILE FORMATS	8
2.1	Supported Browsers	9
2.2	PDF Viewers Support	9
2.3	Supported TIFF File Formats	10
2.4	Supported Image / Document Type Summary	10
2.5	Licensing	10
3	INSTALLATION	11
3.1	Copy Tiff Server Files	11
3.2	Install prerequisites	11
3.3	Add and configure Tiff Server Web Application	11
3.3.1	Adding Tiff Server as a Web Application	11
3.3.2	Permissions	12
3.3.3	Applications Pool	13
3.4	Test Tiff Server	14
4	USING THE VIEWER	15
4.1	Image Viewing and Manipulation	15
4.2	Document Viewer Facilities	16
4.3	Document Printing	17
4.4	Document Saving	17
4.5	Emailing Documents	17
5	EDITING DOCUMENTS	18
5.1	Selection of Pages	19
5.2	Reordering	19
5.3	Bottom Menu	19
5.4	Split Before	19
5.5	Remove Splits	19
5.6	Delete Page	19

5.7	Undelete Page	19
5.8	Move Before	19
5.9	Move After	19
5.10	Save	20
5.11	Archiving Edited Files	20
5.12	Edit with LIBTIFF	20
6	ANNOTATIONS	21
6.1	Annotation Types	21
6.2	Annotation Storage	21
6.3	Printing Annotations	22
6.4	Disallowing Annotation Use	22
6.5	Editing Annotations	22
6.6	Customizing Stamp Annotations	23
6.7	Annotation File Format	24
7	ACCESSING DOCUMENTS	26
7.1	Accessing Documents via URLs	26
7.2	Accessing Documents via Paths or UNC's	26
7.3	Accessing Documents on Remote File systems	26
7.3.1	Related Security Issues	27
7.4	Directory Documents	27
7.5	Multi-Documents	28
7.6	Compound Documents	28
7.7	XML Virtual Documents	29
7.8	Document type	29
7.9	document specifications	29
7.10	Referring to XML Virtual Documents :	29
7.10.1	Examples	30
7.11	Session-based XML Virtual Documents	31
7.12	HTTP-based document access	32
8	DATABASE-RESIDENT DOCUMENT IMAGES	33
9	INTEGRATING TIFF SERVER WITH ASP.NET	36

9.1	Integrating the viewer	36
9.2	Integrating with ASP.Net	38
9.3	Application Integration for Shared Sessions	39
10	USING STAMPS	40
10.1	Stamp Placement	40
10.2	Stamp Usage	40
10.3	Stamp Specifications	41
11	ADVANCED INTEGRATION	42
11.1	PDF File Generation	44
11.2	Data Capture Zoning	45
11.1.1	Calling The Methods	45
12	CUSTOMIZING AND CONFIGURING TIFF SERVER	46
12.1	Customising the Icon Set (config_ui.inc)	46
12.2	Display Customizations (config_ui.inc)	47
12.3	Configuring The Toolbar (config_ui.inc)	48
12.4	Configuring Printing (config_ui.inc)	48
12.5	Configuring Pan Direction	48
12.6	Backend Configuration (config.inc)	49
12.7	Custom Backend Development	50
11.1.2	Implementing a Custom Backend	50
12.8	Edit Functionality and Custom Modules	50
12.9	File Locking in Edit Functionality with Custom Modules	50
12.10	Secure Redactions.	51
12.11	Error and Informational Messages	52
12.11.1	Browser Alert Messages	52
12.11.2	Server Messages	52
12.12	Custom Capture Zones	52
13	CUSTOM AUDITING AND SECURITY	53
13.1	Auditing	53
13.2	Custom Auditing	54
13.3	Custom Security	54
13.4	Support for Adapting the <i>AquaforestTIFFServerAudit</i> class	54

14	SUPPORT FOR PDF FILES	55
14.1	Unsupported Functions	55
14.2	Conversion Configuration	55
14.3	Security Configuration	55
15	TIFF SERVER DIRECTORIES	56
15.1	Root Folder	56
15.2	Sub Folders	56
15.3	Temporary Files	57
16	TIFF PILOT	58
16.1	Setting Up TIFF Server to use the CGI Component (IIS)	58
16.2	Accessing Documents via Paths or UNC's	60
16.3	Accessing Documents on Remote File systems	60
16.4	Accessing Documents via URLs	60
16.5	Directory Documents	60
16.6	Compound Documents	60
16.7	XML Virtual Documents	61
16.7.1	document type	61
16.7.2	document specifications	61
16.7.3	Referring to XML Virtual Documents :	61
16.7.4	Examples	61
16.8	Session-based XML Virtual Documents	62
16.9	PDF Annotation Box Feature	63
16.10	Text File Support	63
16.11	Passing PDF Files	63
16.12	TIFF Pilot Parameter Summary	64
17	PDF CONVERSION CUSTOM SECURITY DLL	65
17.1	TIFFServerCustumSecurity	65
17.2	PilotControl	65
18	TIFF PILOT CONFIGURATION PARAMETERS	66
19	MIGRATING FROM TIFF PILOT	66
20	ACKNOWLEDGEMENTS	67

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 enables 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.

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

Windows Versions	Windows Server 2016 Windows Server 2012 R2 Windows 10 Windows 8
IIS Version	10.0
Applications/Languages	Classic ASP ASP.Net
Microsoft .Net Framework	Version 3.5 or 4.0 or 4.5
Disk Space	1GB
Adobe Reader Versions	Version 7.0 or later (required for PDF Viewing and Printing)
Visual C++ Runtime	2010 x86 (For Tiffpilot.exe)

2.1 Supported Browsers

	Internet Explorer	Firefox	Chrome	Edge	Safari
Versions Tested	11.0	71.0	90.0	90.0	14.1
Platforms Tested	Windows	Windows	Windows	Windows	MacOS
TIFF Display	✓	✓	✓	✓	✓
PDF Display	✓	✓	✓	✓	✓
PDF Generation	✓	✓	✓	✓	✓
Printing	✓	✓	✓	✓	✓
Emailing	*	*	*	*	*
Annotations	✓	✓	**	✓	✓
Custom Stamps	✓	✓	✓	✓	✓
TIFF Editing	✓	✓	✓	✓	✓
Text Stamps	✓	✓	✓	✓	✓

* - Browser based PDF viewers require the PDF to be saved and emails

** - Some annotation types may not be available.

2.2 PDF Viewers Support

When generating PDF files or printing TIFF files the pdf plugin used in the web browser will affect the way TIFF Server behaves. Below are the results seen in a few browsers

	Adobe Viewer	PDF.js	Foxit	Chrome PDF Viewer
Printing Tiff Files	✓	X	✓	✓
Annotations	✓	Displays only sticky notes	✓	X

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" and "Type 7")
- 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)

2.4 Supported Image / Document Type Summary

	TIFF	PDF	PNG	JPEG
Single File	✓	✓	✓	✓
Directory Document	✓		✓	✓
Virtual XML Document	✓	✓	✓	✓
Multi- document	✓	✓	✓	✓
PDF Generation and Printing	✓			
Burnt-in Redactions	✓			
Editing	✓			

2.5 Licensing

The software requires a license key file (key.txt) in the license directory. The license file is used to determine whether the software is a trial version or is fully 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 license file, see the "Version Information" section of the test.aspx test page.

3 Installation

3.1 Copy Tiff Server Files

Open the zip archive file. Copy the Tiffserver folder to your choice of installation location. This is traditionally c:\inetpub\wwwroot, making the final path: C:\inetpub\wwwroot\tiffserver.

The instructions from hereon in assume this location and the default web site.

3.2 Install prerequisites

Run the **TIFF Server Prerequisites.msi** file found in the archive to install the required libraries.

TIFF-Server-4.2.zip

Name	Type
tiffserver	File folder
README.txt	Text Document
TIFF Server Prerequisites.msi	Windows Installer Package

3.3 Add and configure Tiff Server Web Application

3.3.1 Adding Tiff Server as a Web Application

Start the Internet Information Services Management (IISM) application.

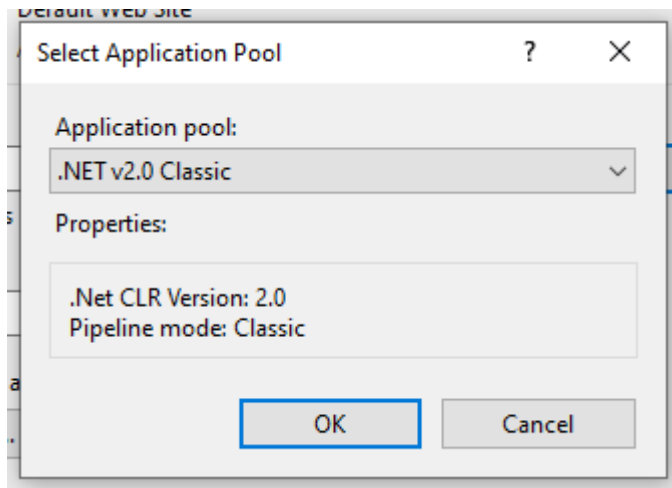
In the Connections pane (left side of IISM), open the Sites leaf on the tree and then open the Default Website.

Right Click on the Default Website and select Add Web Application from the context menu.

The screenshot shows the 'Add Application' dialog box in IIS Manager. The 'Site name' is 'Default Web Site' and the 'Path' is '/'. The 'Alias' field is empty. The 'Application pool' is 'DefaultAppPool' with a 'Select...' button. The 'Example' is 'sales'. The 'Physical path' is empty with a browse button (...). Under 'Pass-through authentication', there are 'Connect as...' and 'Test Settings...' buttons. There is an unchecked checkbox for 'Enable Preload'. At the bottom are 'OK' and 'Cancel' buttons.

Enter the name (Tiff Server).

Select the application pool by clicking on the Select... button.



Select .Net v2.0 Classic.

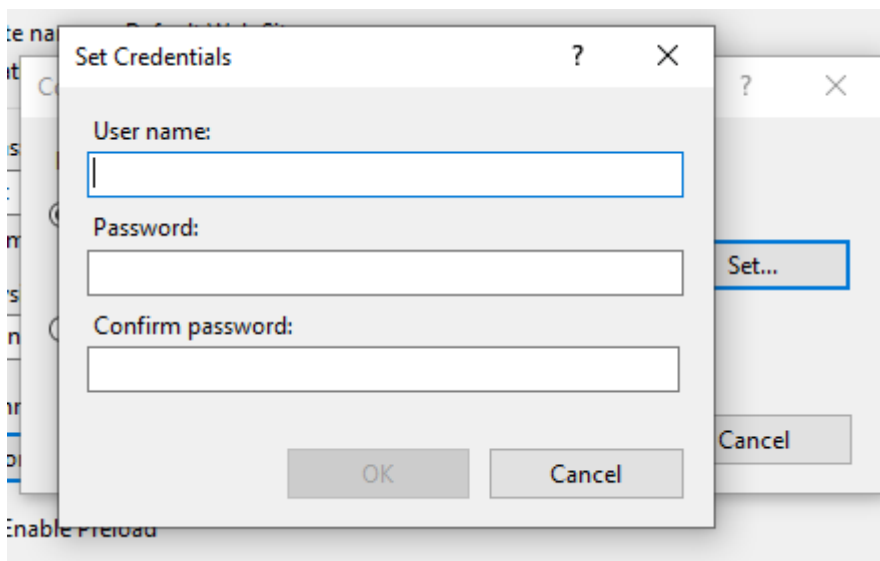
Add the physical path to the web application (in this example C:\inetpub\wwwroot\tiffserver).

3.3.2 Permissions

Tiff Server requires Administrator rights to the folder (and its children) containing TIFF Server and to the location of the image files. This may be a specific user or the IISUSER on the machine.

Once this user has been created (or permissions granted to an existing user), click on the Connect as... button.

Click on the Specific User radio button and then click on Set...



Enter the username and the password. Click on OK then OK again.

Test the settings using the Test Settings button.

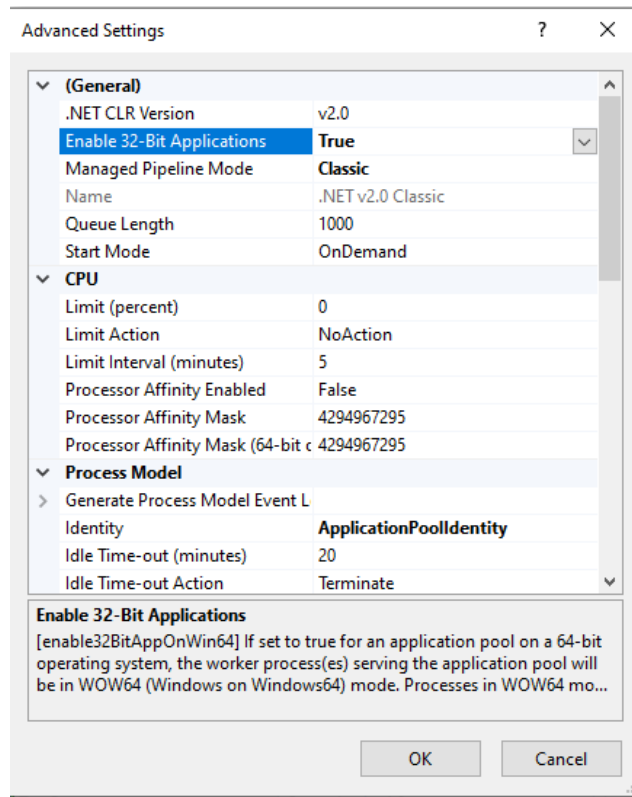
Click on OK to complete the application set up.

3.3.3 Applications Pool

Tiff Server is a 32-Bit application, the application pool needs to be set to enable 32bit applications.

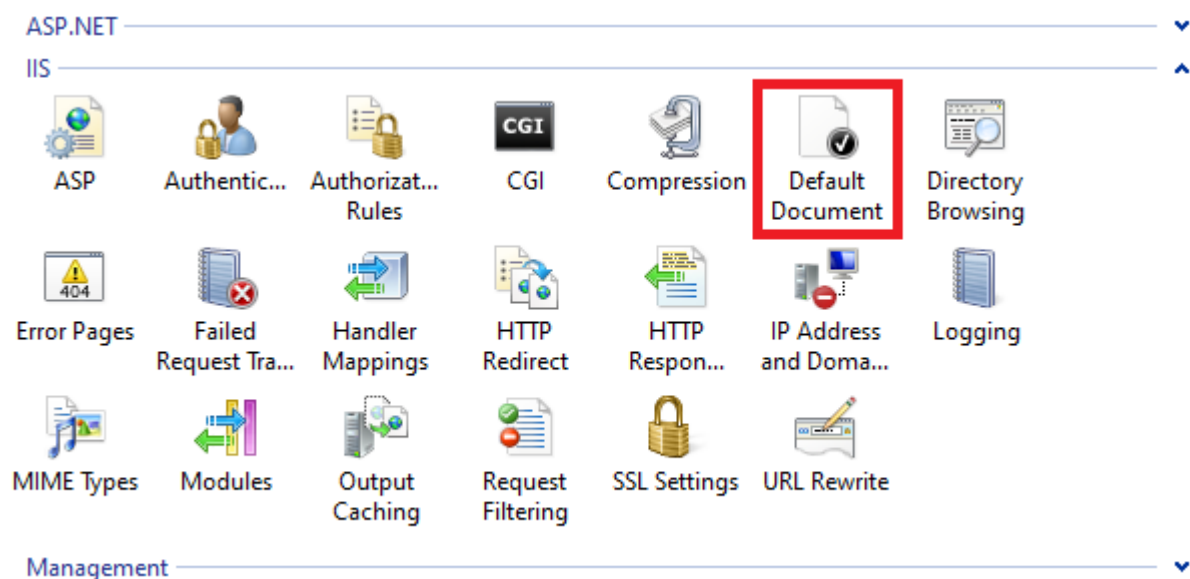
If you have 64 bit application on your site, then a separate application pool will need to be created.

Click on the Applications Pool entry in the Connections pane. Find the .Net v2.0 Classic application pool and right click and select Additional Settings from the context menu.



Ensure that Enable 32-bit Applications is set to True. Click on OK.

The IIS installation should include the Tiff Server start page (Start.aspx) as a default document (the file returned when no file is specified in a URL). This can be checked by clicking on the Tiff Server Web Application on the right side of IISM and selecting the Default Document from the main pane.



If start.aspx is not on the list add it using the Add... link on the right hand side.

3.4 Test Tiff Server


To test the installation, right click on the new web application and select Manage Website and then Browse. If the installation is correct, the default browser will display the following information.

TIFF SERVER 4.2


Aquaforest

Start Page


This page gets you started with TIFF Server - you review the demonstration configuration, documentation and begin to configure your own TIFF Server installation.




Installation Test
This page should be run to ensure that the installation is functioning correctly.



Sample Documents
A number of samples showing different methods of accessing documents is here.



Reference Guides
The full reference guide in PDF format is available here.



Database-Resident Documents
If you have TIFF Images resident in a SQL Server database, you can use TIFF Server.
See section 6 of the reference guide to ensure correct configuration and then test.

Click on the Installation Test and it will display the test page:

Installation Test

This page ensures that the installation is functioning correctly.

Source Back end mode: .NET

PDF Back end mode: .NET


.NET Back end mode: GDIOONLY

License & Version Test


Product and License Information :
TIFF Server Version 4.1.2.10417
Installation Directory : C:\inetpub\wwwroot\tiffserver
Trial License

Image Display Test
(C:\inetpub\wwwroot\tiffserver\samples\ccitt.tif)

For more information : <http://www.aquaforest.com>




PDF Generation Test
(C:\inetpub\wwwroot\tiffserver\samples\ccitt.tif)




Virtual Document Test
(C:\inetpub\wwwroot\tiffserver\samples\vd1.xml)

For more information : <http://www.aquaforest.com>



PDF Generated from Virtual Document Test
(C:\inetpub\wwwroot\tiffserver\samples\vd1.xml)



Log File Write Test

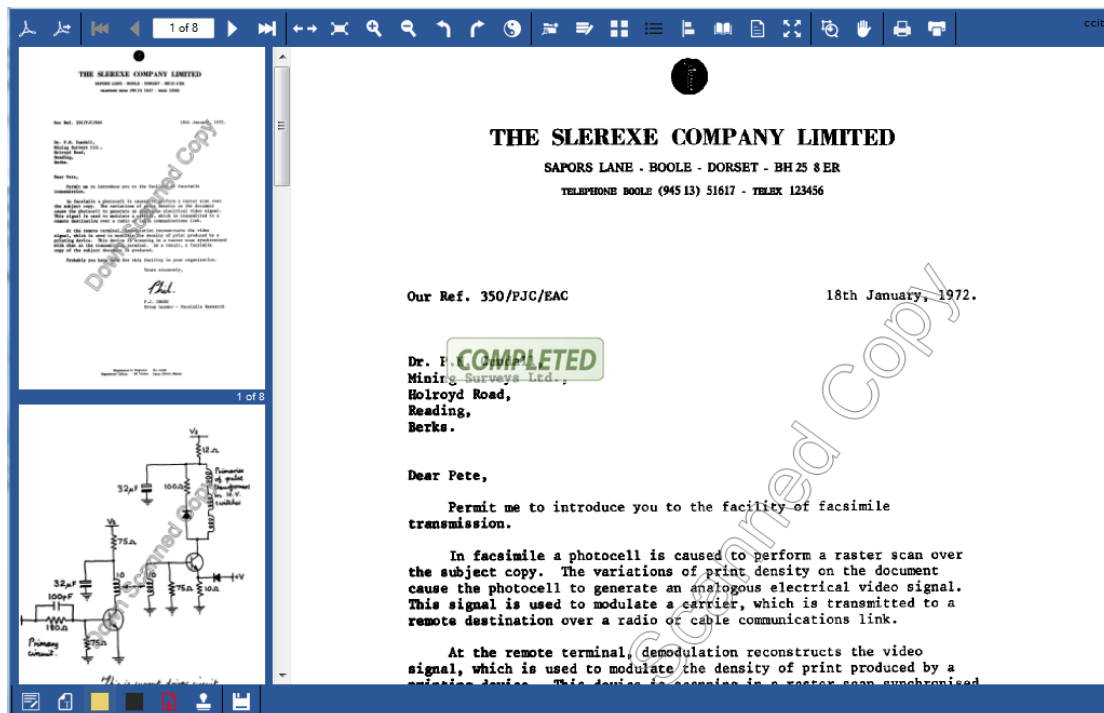
Log Write Test OK : C:\inetpub\wwwroot\tiffserver\logs\log.txt

See also **Setting Up TIFF Server to use the CGI Component (IIS)** (section 18.1 of the reference guide) if you need to use TiffPilot.

























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. For historical reasons this defaults to "reverse-y" – see section 14.5		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

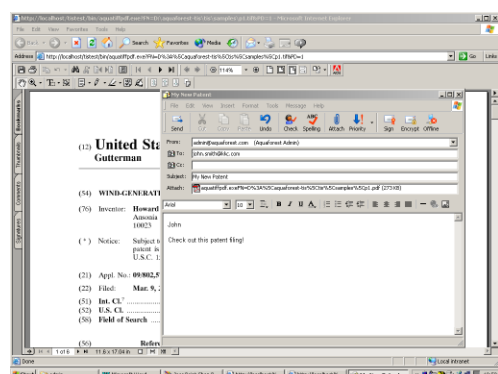
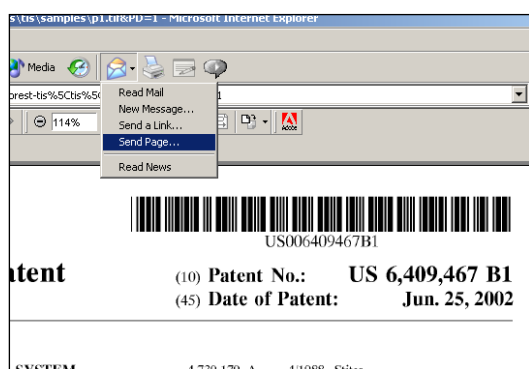
Whilst single pages can be printed from within the browser, printing or saving a document is best achieved by using the print function within the viewer – note that this function generates a PDF version of the document to a hidden frame and invokes the print function from there, so is reliant upon the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

4.4 Document Saving

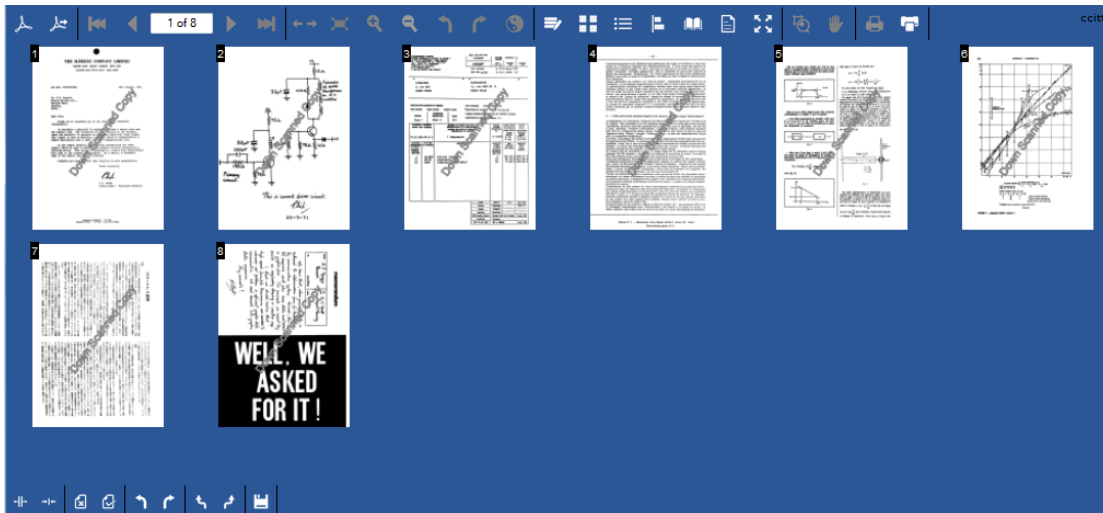
Saving a document is best achieved by using the PDF function to convert the document to PDF and saving from there.

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.



5 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_ui.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_ui.inc.		

5.1 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.

5.2 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).

5.3 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:

5.4 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.

5.5 Remove Splits

This removes all splits from the display.

5.6 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.

5.7 Undelete Page

This removes the deletion mark from the currently selected page.

5.8 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.

5.9 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.

5.10 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).

5.11 Archiving Edited Files

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

5.12 Edit with LIBTIFF

When you edit a tiff file in tiff server while the LIBTIFF flag is used, not all the TIFF tags will be copied over, this is because the LIBTIFF method was introduced to read the image data from problematic files.

The image quality is retained, but all colored images are saved as LZW, while black and white images are saved as Group4.

Below is the list of tags present in the new TIFF file:

- SubFileType
- ImageWidth
- ImageLength
- BitsPerSample
- Compression
- Photometric
- StripOffsets
- SamplesPerPixel
- RowsPerStrip
- StripByteCounts
- XResolution
- YResolution
- ResolutionUnit








6 Annotations

TIFF Server provides tools to apply a different annotation types to the document.



6.1 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 [14.9](#) for more details.

6.2 Annotation Storage

By default 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 .tiff. So for example, **/docs/samples/ccitt.tif** would have an annotation file at **/docs/samples/ccitt_ann.xml**

An alternate annotation location can be set in config.inc.

For example setting:

```
Session["alt_annotation_location"]="\\\\aquaforest4\\annots\\";
```

Would result in an annotation file that would have been stored in C:\images\set1\image_ann.xml would instead be stored in \\aquaforest4\annots\ set1\image_ann.xml

6.3 Printing Annotations







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

6.4 Disallowing Annotation Use

The config_ui.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;

6.5 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

6.6 Customizing 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 (e.g. changeInProcess), and the text that will appear on the stamp (e.g. "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.

6.7 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"756.4432989690722"an
not0"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 i.e., 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

7 Accessing Documents

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

7.1 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=samples/ccitt.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.

7.2 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:\inetpub\wwwroot\tiffserver\samples\ccitt.tif

7.3 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)):

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

7.3.1 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

tiffpilot.exe

To do this, navigate down to the Tiff Image Server 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.

7.4 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/test/tiffserver.aspx?at_url=samples/DirectoryDocuments`

UNC Example

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

7.5 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_aquatic.tif&at_url3=images/aquaforest.png

7.6 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>
```

7.7 XML Virtual Documents

All of the types of document definitions in 9.1 through 9.6 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>
```

7.8 Document type

Where document type is one of the following :

ts_vdoc value	Description
file	A single document file (7.1 , 7.2 or 7.3)
directory	A single directory document (7.4)
multidoc	An ordered set of documents (7.5)
multifile	An ordered set of single path TIFF files (7.6)

7.9 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>
```

7.10 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

7.10.1 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>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>
```

7.11 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;  
  
%>
```


7.12 HTTP-based document access

The `at_http` parameter can be used to display TIFF documents accessed via HTTP rather than via direct file access. Note that the current authentication context is used, so there can be no additional security requirements.

URL Example

http://localhost/tiffserver/tiffserver.aspx?at_http=/server/images/directory123/file.tif

TIFF Server also allows `<ts_vdoc_url>` to contain external URLs such as shown in the example below. Note that the current security context is used to make the HTTP request and this needs to be sufficient to access the document.

```
<?xml version="1.0" encoding="ISO8859-1" ?>
<ts_vdoc>
<ts_vdoc_type>file</ts_vdoc_type>
<ts_vdoc_url>http://test.com/alfresco/SpacesStore/f929bb1e-41c0-11dc-
82b5a789db0779ac/000ED3A0.tif?ticket=TICKET_6933c72fc83ad141a947ecd3b9fb85a888883e3b
</ts_vdoc_url>
</ts_vdoc>
```

8 Database-Resident Document Images

TIFF Server supports the access of document images stored in SQL Server image columns.

Note: Images can either be retrieved from a database or via filepaths and URLs – not both. There is a [Sample Documents](#) page specifically for database usage.

Version 4.2+ changed the database settings location to the web.config file. Switching between Database and file access is still controlled by config.inc.

Changes:

- (a) Create the required database table and connection information.

This is an example script to create the table.

```
USE [TiffServer1]
GO
SET ANSI_NULLS ON
GO

SET QUOTED_IDENTIFIER ON
GO

CREATE TABLE [dbo].[tiffserver_docs_table] (
  [doc_id] [int] IDENTITY(1,1) NOT NULL,
  [doc_contents] [image] NULL,
  [doc_annotations] [text] NULL,
  [timestamp] [timestamp] NULL,
  CONSTRAINT [PK_doc_id] PRIMARY KEY CLUSTERED
  (
    [doc_id] ASC
  )WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =
OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON,
OPTIMIZE_FOR_SEQUENTIAL_KEY = OFF) ON [PRIMARY]
) ON [PRIMARY] TEXTIMAGE_ON [PRIMARY]
GO
```

It has integrated image and annotation columns. It is possible to use separate tables for images and annotations. Contact support@aquaforest.com for more information.

(b) Change the default database settings in web.config as required

```
<setting name="ts_image_column" serializeAs="String">
  <value>doc_contents</value>
</setting>
<setting name="ts_image_table" serializeAs="String">
  <value>tiffserver_docs_table</value>
</setting>
<setting name="ts_image_table_key" serializeAs="String">
  <value>doc_id</value>
</setting>
<setting name="ts_annotation_table" serializeAs="String">
  <value>tiffserver_docs_table</value>
</setting>
<setting name="ts_annotation_table_key" serializeAs="String">
  <value>doc_id</value>
</setting>
<setting name="ts_annotation_column" serializeAs="String">
  <value>doc_annotations</value>
</setting>
<setting name="ts_cstring" serializeAs="String">
  <value>Server=localhost;Database=TiffServer1;Trusted_Connection=True;</value>
</setting>
```

name	Description
ts_cstring	Database Connection String Though username and password can be included in the connection string, it is more secure to use the Trusted_Connection=True option and make the IIS user a database user with the required (and no more) database connection and permissions.
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) Finally, locate the following line in config.inc, and change GDI to DB to begin accessing images and annotations via the database.

```
// Backend Config - Allowable Values : .NET, CGI or DB
```

```
var ts_backend="DB";
```

For test purposes, a backup of a sample database – tiffserver_docs.bak is included in the samples directory. To use this, create database called tiffserver_docs and then restore the backup from the backup file using the “Overwrite Existing Database” option.

Ensure that the default connection string is 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.

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”.

9 Integrating TIFF Server with ASP.Net

9.1 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 tiffserver.aspx to replace the default value.
at_infopane	String	Value to replace the default value (file name) for the top line of the inforpane.
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	<p>If set to on annotations will be displayed.</p> <p>If set to off they will not be displayed.</p> <p>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.</p>
at_editannot		<p>If set to on, the annotation menu will be displayed.</p> <p>If set to off the annotation menu will not be displayed.</p> <p>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.</p>
at_editdoc	On or off	<p>If set to on, the edit doc menu icon will be displayed.</p> <p>If set to off the edit doc menu icon will not be displayed.</p> <p>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.</p>
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

9.2 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 2005) 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);
    }
    .....
}
```

9.3 Application Integration for Shared Sessions

In order to make use of Session-based XML virtual documents it is necessary to the ASP.Net application incorporate TIFF Server so that TIFF Server has access to the same set of session variables.

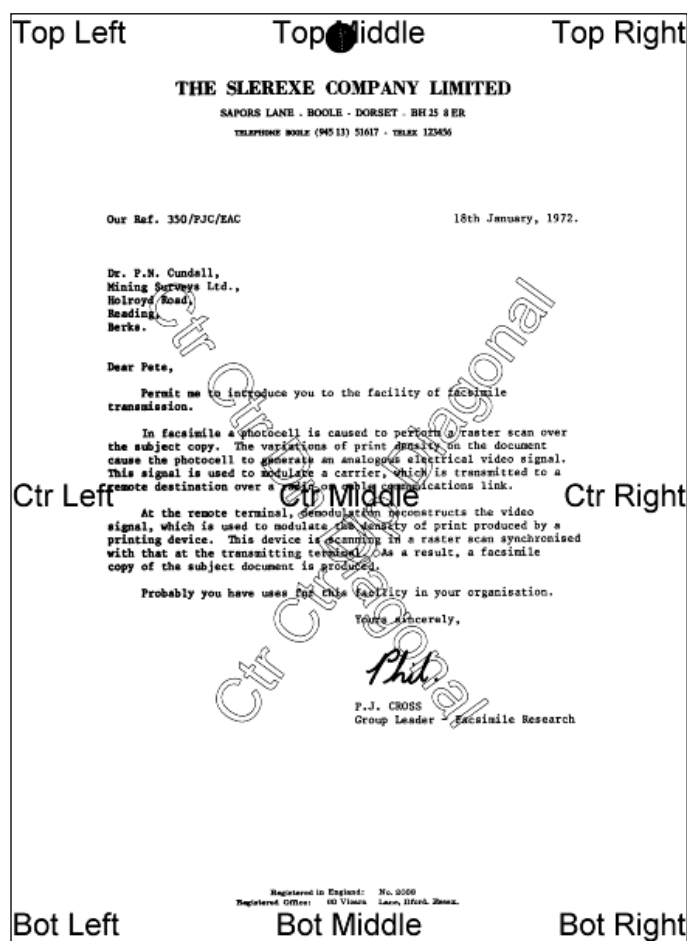
10 Using Stamps

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)

10.1 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.

10.2 Stamp Usage

The following URL displays the file "survey 1964.tif" with dynamic Stamp3 with the value "June 12th 1962"

tiffserver.aspx?at_url=samples/survey%201964.tif&at_sn=STAMP3&at_sv=June%2012th%201962

10.3 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=Solid 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).

11 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 customized 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>

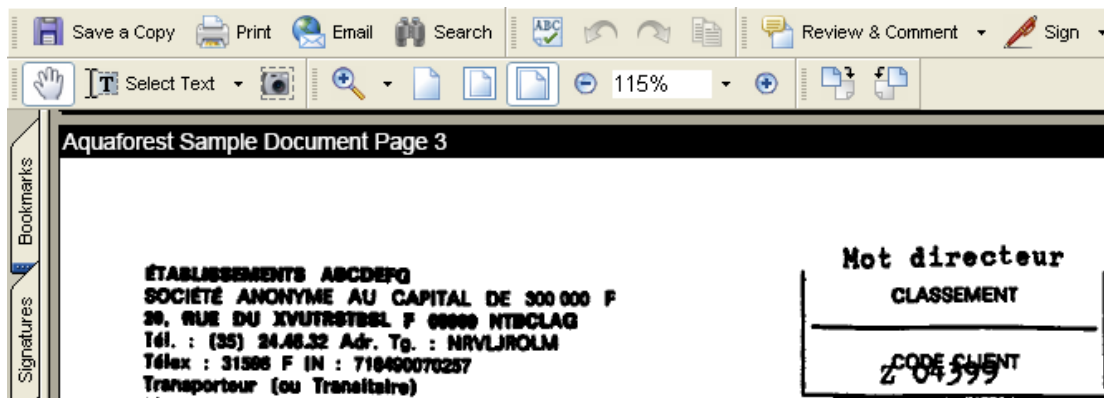
		<p>This Error conditions are indicated by the following negative values being set for afPageCount :</p> <p>-1 : Image format unsupported</p> <p>-2 : No valid license key</p> <p>-3 : Could not open image file</p> <p>-4 : Invalid file type</p>
SN	Stamp Name	See section 6.
SV	Stamp Value	Value to be substituted 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:\aquaforesttis\tis\samples\ccitt.tif&WI=796&PN=1>

11.1 PDF File Generation

It is also possible to directly access the CGI executable (tiffpilot.exe) or ASP.Net page (tssppdf.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.



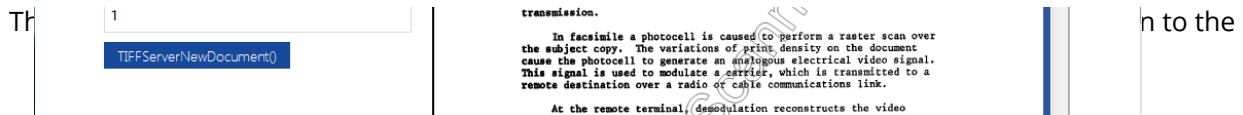
Parameter	Allowable Values	Notes
FN	Fully qualified file name of the TIFF document to be displayed.	Mandatory.
PD	1.	Mandatory.
SN	Stamp Name	
SV	Stamp Value	Value to be substituted for %s in the stamp definition string.
*AS	String	Annotation string. May include %p which will be replaced by the page 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.aspx)
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
```

11.2 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 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.

1.1.1 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.

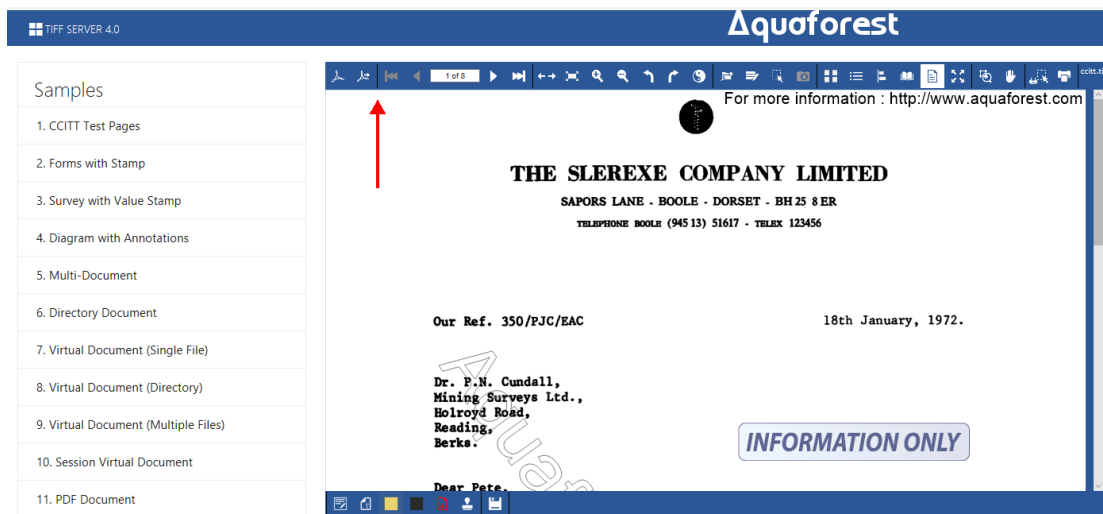
12 Customizing and Configuring TIFF Server

TIFF Server may be configured in a number of ways, controlled by variables in the config.inc, config_ui.inc and config_lang.inc files.

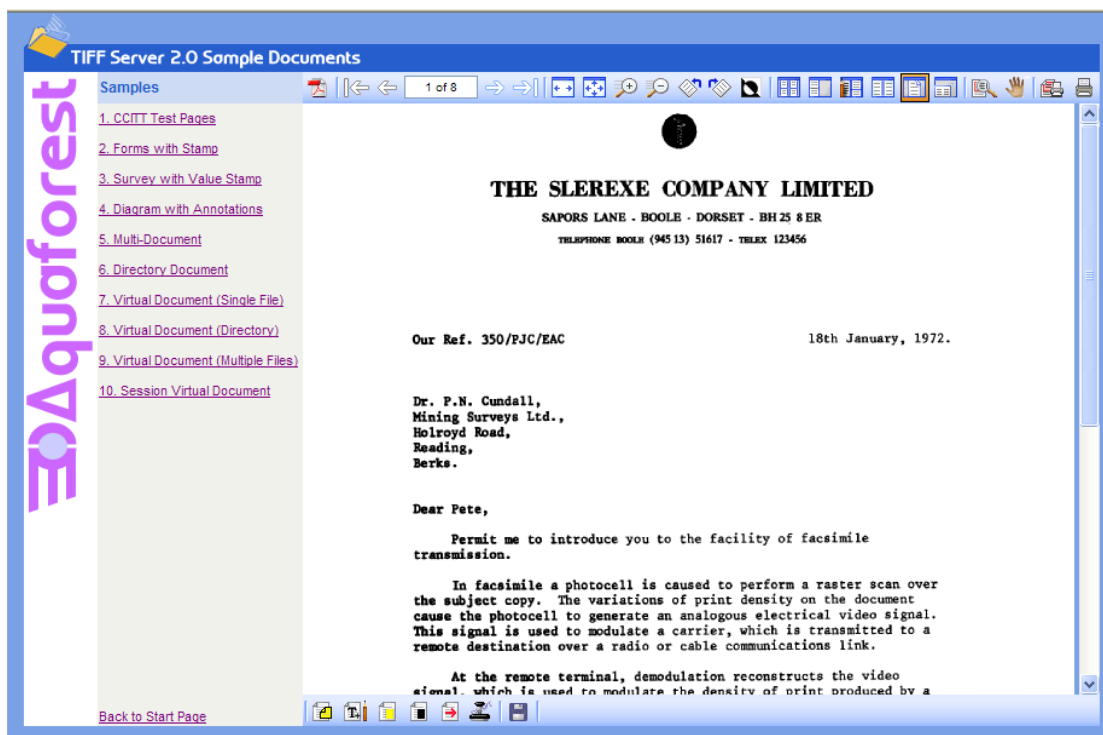
12.1 Customising the Icon Set (config_ui.inc)

The product comes with a choice of 3 icon sets which define the look and feel.

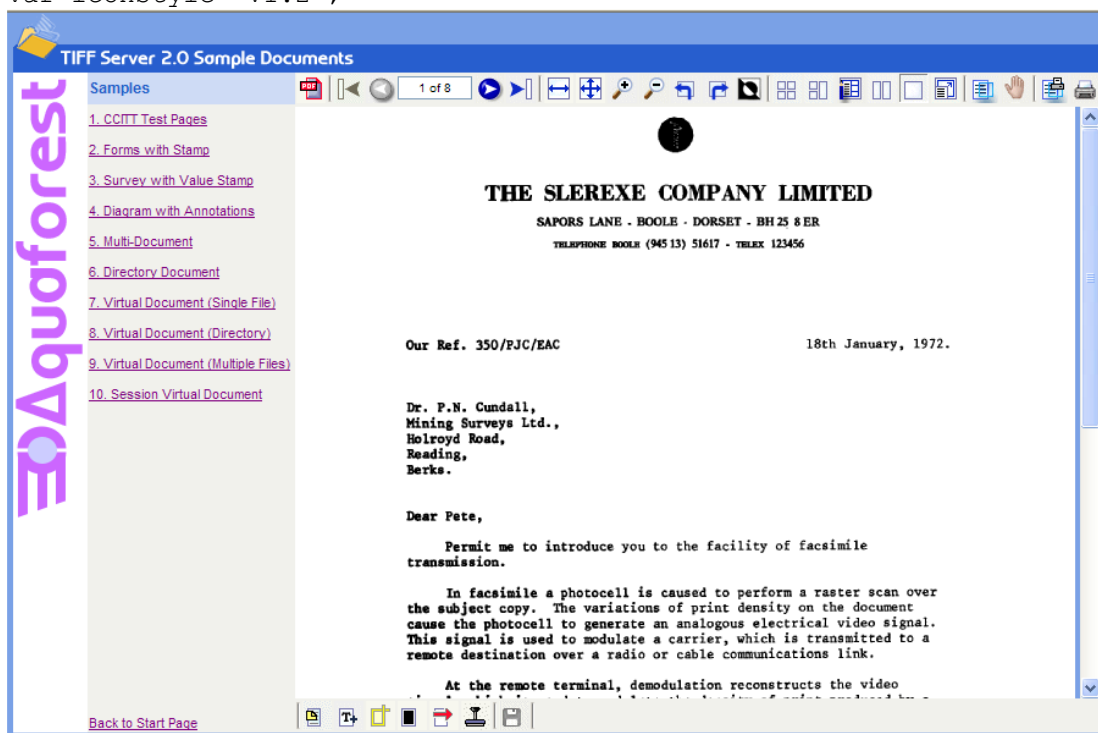
```
var iconStyle="V3.0"; (This is the default);
```



```
var iconStyle="V2.0";) :
```



```
var iconStyle="V1.2";
```



12.2 Display Customizations (config_ui.inc)

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

Config Variable	Notes
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.
iconStyle	Possible values are v1.2,v2.0,v3.0. Examples are shown above.
metroColor	Use this to set the theme color.
ts_use_sub_page_count	If it is set to true, then aquatiff.exe is not called to determine the actual page count.

--	--

12.3 Configuring The Toolbar (config_ui.inc)

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;
```

12.4 Configuring Printing (config_ui.inc)

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;
```

12.5 Configuring Pan Direction

The pan direction can be configured via `panDirection` which can be set to "reverse-y" or "standard". Previous releases of TIFF Server did not have this option and behaviour was "reverse-y"

```
var panDirection="reverse-y";
```

12.6 Backend Configuration (config.inc)

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
<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="LIBTIFF";</code>	This uses LIBTIFF.net to read the images in the backend, it is the best option for problematic files like tiffs with old style jpeg compression.
<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 14.6 below.

Option	Description
<code>var ts_pdf_backend=".NET";</code>	PDF generation is carried out via ASP.Net and .Net components.
<code>var ts_pdf_backend="CGI";</code>	PDF generation is initiated by .Net and passed to the tiffpilot.exe CGI process.
<code>var check_tiff_files = "true"</code>	This variable was introduced to help with the handling of problematic TIFF files, it repairs the file before converting it to a PDF file and it also repairs the TIFF file before rendering it.

Option	Description
<code>var ts_log_file="";</code>	Provide a path here if you want to change the location of TIFF Server's log files.

12.7 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 2005 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 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.

1.1.2 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

12.8 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.

12.9 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).

12.10 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.

12.11 Error and Informational Messages

12.11.1 Browser Alert Messages

All alert messages can be customized, suppressed or replaced with alternate functionality by editing the messages.js file

12.11.2 Server 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` in `config_ui.inc` 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="There is a problem displaying this page. A message has  
been written to the log file.";
```

12.12 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 mslImageSection)
```

The `mslImageSection` 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.

13 Custom Auditing and Security

13.1 Auditing

TIFF Server can be configured to audit actions taken by users such as viewing or printing TIFF files. The variable `ts_audit_file` in `config.inc` can be set to specify a log file path. If the variable is set to the empty string

```
// Audit File Path - empty string for no auditing - see section 15 of the  
reference guide  
  
var ts_audit_file="c:/audit/tiffserver.csv";
```

By default the audit file has a CSV format as shown below

Timestamp, Action, Status, File Path, User ID, IP Address, Request URL

Example :

```
02/06/2008 17:14:11, VIEW, OK , C:\dev\ts30\dev\tiffserver\tiffserver\samples\medical.tif, user1,  
127.0.0.1,http://localhost/tsdev/tssp.aspx?VD=&PC=Y&FN=C:\dev\ts30\dev\tiffserver\tiffserver\samples  
\medical.tif&MD=1
```

The set of actions that are written to the audit log are as follows :

Action	Description
VIEW	Viewing a TIFF file. Strictly speaking it is actually the initial request for a page count that is logged to avoid logging for each individual page that is viewed.
PRINT	Printing the file via the "Print" Icon
PDF	Generating a PDF equivalent of the TIFF file via the "PDF" Icon
SAVEPDF	Generating a PDF equivalent of the TIFF file via the "Save PDF" Icon
GETANNOTATIONS	Retrieval of the annotation XML file.
SAVEANNOTATIONS	Updating of the annotation XML file.
EDIT	Retrieval of the TIFF file for use in the "Edit" screen.
SAVEEDIT	Updating of the TIFF file after using the "Save" icon in the Edit screen.

13.2 Custom Auditing

Source code is provided for the auditing class which enables complete customization of action auditing. The class is *AquaforestTIFFServerAudit* and is provided as a project in the TIFF Server custom folder (typically C:\inetpub\wwwroot\tiffserver\custom). The project will build AquaforestTIFFServerAudit.dll and this dll should be placed in the TIFF Server bin folder, replacing the distribution copy which should be backed up first.

13.3 Custom Security

The *AquaforestTIFFServerAudit* class can also be used to implement custom security checks by customizing the `securityCheck` method to return false when a specific request should be rejected. The class has access to the complete Action type and the full set of Request and Session objects via `HttpContext.Current`.

The provided code will ensure a message is issued when access is denied : `You do not have permission to access this file. Please contact your system administrator.`

13.4 Support for Adapting the *AquaforestTIFFServerAudit* class

The code should be reasonably self-explanatory but please email support@aquaforest.com with any questions.

14 Support for PDF Files

In order to instruct TIFF Server to use the alternative rendering method the parameter `at_alt=1` should be added to `tiffserver.aspx`. For example :

http://localhost/tiffserver/tiffserver.aspx?at_url=/images/doc1.tif&at_alt=1

If there is a need to access `tssp.aspx` directly the parameter `AR=1` can be used.

14.1 Unsupported Functions

A number of the standard menu items are disabled when displaying PDFs. These are :

- PDF (The PDF download function is still available)
- Invert
- Edit Document
- Print (The document can be printed by opening the PDF download and using Adobe Reader Print)
- Print Selection
- In addition, although annotations can be applied to PDFs these are not carried through to "Save PDF" which merely allows the user to download the source PDF file.

14.2 Conversion Configuration

Two configuration options are available in `config.inc`. The first, `ts_renderpdf_dpi` specifies the dpi to be used in the image generated from each PDF page – the default is 150.

The second, `ts_renderpdf_resize_quality` determines the method used to resize the image. If it is set to 1 then a high quality smoothing mode is used. If set to 2 bicubic interpolation is used.

```
Session["ts_renderpdf_dpi"]=150;  
Session["ts_renderpdf_resize_quality"]=1;
```

14.3 Security Configuration

In order to work correctly with the PDF to Image conversion component, the IIS application needs to have access to the Windows System32 folder and %TEMP%. A symptom of insufficient privilege is the PDF page displaying with missing text. Depending upon system settings, this may require a security setting other than anonymous / local system which would not have sufficient privilege.

15 TIFF Server Directories

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

15.1 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 Print
atf005.aspx	Annotations Menu
tssp.aspx	Image Display Page
tsspan.aspx	Annotation Retrieve / Save
tssp.pdf.aspx	PDF Generation
tiffpilot.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

15.2 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>CSS</i>	Cascading Style Sheets
<i>docs</i>	Documentation
<i>images</i>	Default Icons & Images
<i>images_alt</i>	Alternate Icons & Images
Image_metro	Metro Icons
<i>js</i>	Javascript and JQuery

<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.

15.3 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

16 TIFF Pilot

TIFF Pilot is a component of TIFF Server that is used to display TIFF or text documents as PDF files.

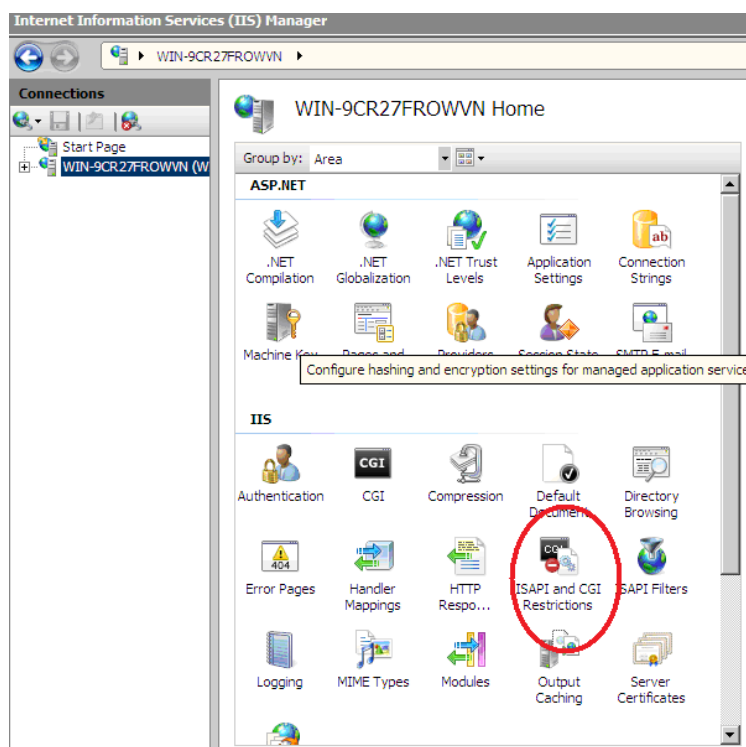
TIFF Pilot uses two different backends to generate PDF files:

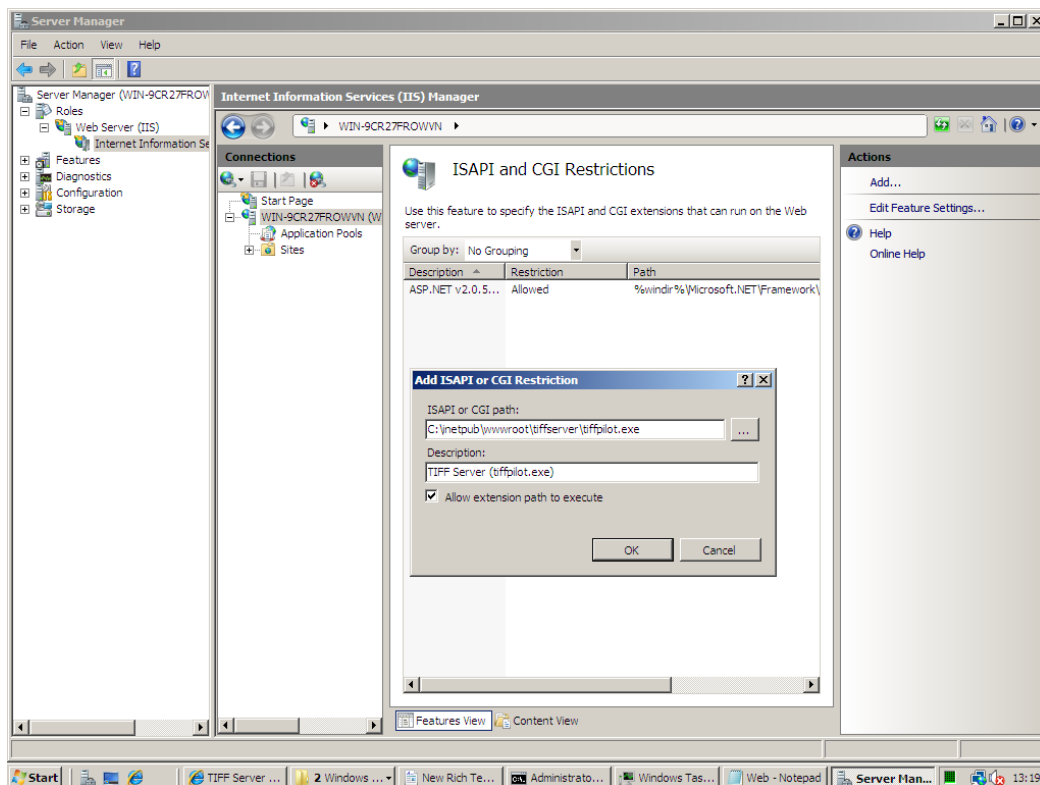
- CGI : This is a c++ component named tiffpilot.exe, it uses unmanaged code to convert TIFF files to PDF files, to make use of this component, you should set **ts_pdf_backend** = "CGI"; in the config.inc file.
- .NET : This is a new c# component introduced in version 4.0, it uses 100% managed code to convert TIFF files to PDF, this is set to default as it has proven to be more reliable during our QA tests. **ts_pdf_backend** = ".NET"; in the config.inc file.

Tiff pilot supports the concepts of defining documents for display in a variety of ways.

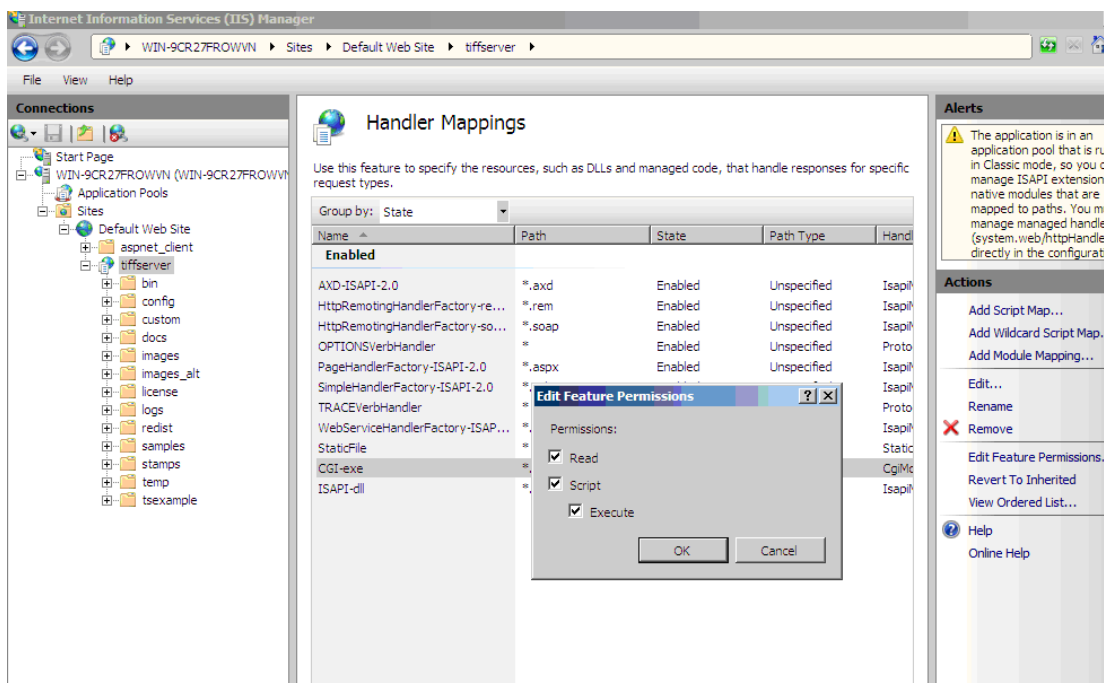
16.1 Setting Up TIFF Server to use the CGI Component (IIS)

Add [Installfolder]\tiffpilot.exe as an allowed web service extension. This file is used to generate PDF versions of TIFFs and to provide support for printing. If CGI has been enabled on the server already all that is required is to add tiffpilot.exe to the list of allowed executable under the "ISAPI and CGI Restrictions" section at the server level.





If the "ISAPI and CGI Restrictions" icon does not appear, you need to ensure that CGI is enabled on the server. This involves adding the CGI component of IIS via "Turn Windows Features On or off" or "Manager Server Roles", and then enabling of the CGI handler mapping.



16.2 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 pilot is installed.

<http://localhost/tiffserver/tiffpilot.aspx?FN=C:\images\doc1.tif>

16.3 Accessing Documents on Remote File systems

The remote machine (DOCSTORE) has a share called images. There can be security issues relating to remote file access –see below.

Using a UNC :

<http://localhost/tiffserver/tiffpilot.aspx?FN=\\DOCSTORE\images\doc.tif>

16.4 Accessing Documents via URLs

This can be done by using XML virtual documents (see 24.6).

16.5 Directory Documents

Tiff pilot 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.

UNC Example

<http://localhost/tiffserver/tiffpilot.aspx?FN=\\DOCSTORE\images\directory1234>

16.6 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 5.6 goes into detail :

<http://localhost/tiffserver/tiffpilot.aspx?FN=C:\tiffpilot\samples\d3.xml&VD=path>

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>

```

16.7 XML Virtual Documents

All of the types of document definitions in 24.1 through 24.4 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>

```

16.7.1 document type

Where document type is one of the following :

ts_vdoc value	Description
file	A single document file
directory	A single directory document
multidoc	An ordered set of documents
multifile	An ordered set of single path TIFF files

16.7.2 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>

```

16.7.3 Referring to XML Virtual Documents :

The FN parameters may be used to refer to the XML file and the VD parameter should be set as shown.

<http://localhost/tiffserver/tiffpilot.aspx?FN=c:\samples\vd3.xml&VD=path>

16.7.4 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>
```

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>
```

16.8 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/tiffpilot/tiffpilot.aspx?VD=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>';
```

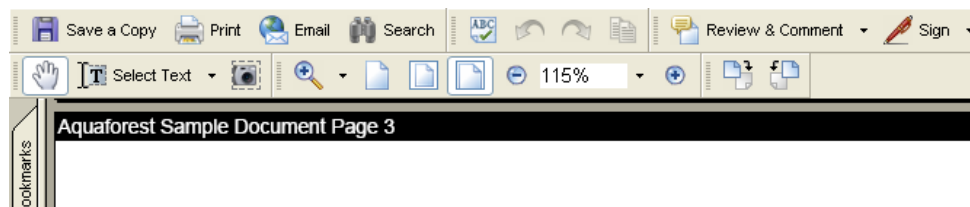
```
s+='</ts_vdoc>';
```

```
Session["AT_VDOC"]=s;
```

```
%>
```

16.9 PDF Annotation Box Feature

The PDF “Annotation Box” feature 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.



16.10 Text File Support

A text file may be passed using the FN parameter. A simple PDF file will be generated and streamed to the browser using the parameters described in the “TIFF Pilot Configuration Parameters” section.

16.11 Passing PDF Files

If a PDF file is passed using the FN parameter, the file is streamed to the browser by tiffpilot.aspx with no additional conversion.

16.12TIFF Pilot Parameter Summary

Parameter	Allowable Values	Notes
FN	Fully qualified file name of the TIFF or Text document or virtual document to be displayed.	Mandatory.
VD		If FN represents a virtual document, this should be set to <i>path</i>
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
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.
SPDF	1	When set, the generated PDF will be "downloaded" to the user rather than displayed, allowing the user to save the file.

*only available when access via tiffpilot.exe rather than tiffpilot.aspx

17 PDF Conversion Custom Security DLL

The custom security DLL can be used to by the end user to make some security checks before deciding if the conversion should take place or not.

17.1 TIFFServerCustomSecurity

This is a c# project which is shipped out with tiffserver for the user to customise. This DLL will be used by the .NET TIFF to PDF conversion component.

This DLL has a single method in the CustomSecurity.cs class named AllowAccess.

```
public static bool AllowAccess(string fileName)
```

The allowAccess class method returns true or false depending upon whether access should be allowed to the current file request. The template code includes code to extract the requested filename from the query string.

The project is a Visual Studio 2012 project in the TIFF Server custom folder :

```
....\tiffserver\custom\ TIFFServerCustomSecurity
```

The project will build TIFFServerCustomSecurity.dll and this dll should be placed in the TIFF Server folder, replacing the distribution copy which should be backed up first.

The code should be reasonably self-explanatory but please email support@aquaforest.com with any questions.

17.2 PilotControl

A class is provided with TIFF Pilot - the code contains one method which may be customized to meet specific security needs. The DLL produced is called by tiffpilot.exe.

```
bool pilotControl::allowAccess()
```

The allowAccess method returns true or false depending upon whether access should be allowed to the current file request. The template code includes code to extract the requested filename from the query string.

The Visual C++ source code is provided as a Visual Studio 2008 project in the TIFF Server custom folder :
....\tiffserver\custom\pilotControl_D

The project will build pilotControl_D.dll and this dll should be placed in the TIFF Server folder, replacing the distribution copy which should be backed up first.

The code should be reasonably self-explanatory but please email support@aquaforest.com with any questions.

18 TIFF Pilot Configuration Parameters

The web.config file enables a number of parameters to be set under the <applicationSettings> section

Parameter Name	Description
Ts_gen_font	The font to be used when generating PDF from text files. Default TIMES_ROMAN – can also be set to COURIER
Ts_gen_fontsize	Font size to be used when generating PDF from text files. Default 10.
Ts_gen_pagesize	Page size to be used when generating PDF from text files. Default A4. Can also be LETTER.
Ts_gen_pagesep	Line of text to be treated as a page separator to be used when generating PDF from text files. Default _P_.
Ts_gen_pageend	Line of text to be treated as a file end indicator to be used when generating PDF from text files. Default _E_.

19 Migrating from TIFF Pilot

The TIFF Pilot functionality is included as part of the TIFF Server product and migration is straightforward as the same documented URL parameters can be used. TIFF Server can be installed side-by-side with the stand-alone TIFF Pilot product to enable migration testing. The only URL change that is required is to adjust the address for the location of TIFF Server rather than TIFF Pilot.

For example :

<http://localhost/tiffpilot/tiffpilot.aspx?FN=C:\images\doc1.tif>

may become

<http://localhost/tiffserver/tiffpilot.aspx?FN=C:\images\doc1.tif>

20 Acknowledgements

This product makes use of a number of Open Source components which are included in binary form. The appropriate acknowledgements and copyright notices are given below.

Name	Homepage
BitMiracle.LibTiff.NET	Homepage GitHub
IKVM.NET	Homepage Sourceforge
Victor Image Processing	Homepage
Libtiff	Homepage
PDFBox	Homepage

21 Support

Any problems running this application should give evident error messages, but if you are unable to resolve a problem please contact support@aquaforest.com.