TFTP ActiveX Control for Microsoft® Windows™

Contents

1. Overview

1.1. Introduction

The Magneto Software TFTP ActiveX control (sktftp.ocx) allows developers to integrate TFTP based file transfer capabilities into their 32-Bit or 64-Bit applications.

TFTP is a UDP based protocol that is simpler to use than the File Transfer Protocol (FTP) but less capable. An application may use TFTP to download/upload files where user authentication is not required and location is identified.

TFTP ActiveX control allows downloading and uploading multiple files simultaneously.
It is fully compliant with RFC 1350, RFC2347, RFC2348 and RFC2349

It can be used from any Windows development environment, including Visual Studio.

It comes with complete documentation, sample code, and working demo programs.

Additional information about TFTP Protocol can be found at these locations:

RFC 1350 – THE TFTP PROTOCOL
TFTP Option Extension
TFTP Blocksize Option
TFTP Timeout Interval and Transfer Size Options

1.2. Usage

TFTP ActiveX control is capable of performing multiple TFTP upload/download queries simultaneously.

1.3. Interface Summary

1.3.1. _DSKTftp

Specifies a collection of methods and properties to accomplish TFTP file transfer.

1.3.2. _DSKTftpEvents

Specifies a collection of events supported by TFTP control.

1.4. Property Summary

optBlockSize
Blocksize value for file transfer

optExtensionBlockSize
Toggle ‘Blocksize’ option

optExtensionTimeout
Toggle ‘Timeout’ option

optExtensionTsize
Toggle ‘Tsize’ option

optMode

Select ASCII or binary transfer

optPort
The UDP port where the remote TFTP server is listening

optRetries

Maximum number of retries for the data transfers

optTimeout

Timeout value for file transfer

1.5. Event Summary

TftpCompleted
Indicate that TFTP control has stopped processing all upload/download requests.

TftpQueryCompleted
Indicate that TFTP control has stopped processing single specific upload/download request.

1.6. Method Summary

Get
Download a file from the remote host

Put
Upload a file to the remote host

TftpReset
This method terminates any pending TFTP requests

ResetTftpSettings
Reset all SkTFTP settings back to default values.

TftpGetStatus
Use TFTP control default settings

2. Properties

2.1. optBlocksize

Summary

Blocksize value for file transfer

Description

This property determines the blocksize used during file transfer. The transfer time decreases with an increase in blocksize. The reason for the reduction in time is the reduction in the number of packets sent. For example, by increasing the blocksize from 512 octets to 1024 octets, not only is the number of data packets halved, but the number of acknowledgement packets is also halved (along with the number of times the data transmitter must wait for an ACK). A secondary effect is the efficiency gained by reducing the per-packet framing and processing overhead.
This property can have any value between 8 and 65464.
The default value for this property is 512 bytes.

2.2. optExtensionBlockSize

Summary

Toggles the Blocksize option.

Summary

The *optExtensionBlockSize* property toggles the Blocksize option in the TFTP Read Request or Write Request. By default the *optExtensionBlockSize* option is enable.

2.3. optExtensionTimeout

Summary

Toggles the Timeout option.

Description

The *optExtensionTimeout* property toggles the Timeout option in the TFTP Read Request or Write Request. By default the *optExtensionTimeout* option is enable.

2.4. optExtensionTsize

Summary

Toggles the Transfer Size option.

Description

The *optExtensionTsize* property toggles the tsize option in the TFTP Read Request or Write Request. By default the *optExtensionTsize* option is enable.

2.5. optMode

Summary

Select ASCII or binary transfer

Description

This property determines if the server will perform any type of file conversion during file transfers. This property has two possible values:

1 – Binary (default)

0 – ASCII

This property defaults to binary transfers.

FTP servers require that you specify the type of data you expect to be in the files you're transferring back and forth.

When the *optMode* property is set to 1 (Binary), then no file conversion is performed. This allows undisturbed transfers of non-text files, such as compressed files, archives and executables.

When the *optMode* property is set to 0 (ASCII), then carriage return and line feed pairs are converted to line feeds during put operations and line feeds are expanded into carriage return and line feed pairs during get operations. The ASCII mode conversion is normally used to convert text files to a format suitable for text editors on the destination machine.

Unless you're sure that you will be transferring ASCII-only files, it is best to switch optMode to 1 (Binary) prior to any file transfers.

2.6. optPort

Summary

The UDP port where the remote TFTP server is listening

Description

This property can be changed at design time or at run time, but must be set before calling Get or Put method. The default value for this property is 69.

2.7. optRetries

Summary

Maximum number of retries for the data transfers.
The default value for this property is 3.

2.8. optTimeout

Summary

Timeout value for file transfer

Description

The *optTimeOut* property specifies the get or put timeout period in seconds. This property can be changed at design time or at run time, but must be set before calling Get or Put method. The default value for this property is 5 seconds.

3. Methods

3.1. Get

Summary

The Get method transfers a file from the remote machine and stores it locally.

Syntax

long Get(BSTR strHost, BSTR strRemoteFile, BSTR strLocalFile)

Description

The Get method transfers a file from the remote machine and stores it locally.

The host name must be set to the name or IP address of the TFTP server.

Parameters

strHost

[in] The name of the host from where the file has to be transferred.

strRemoteFile

[in] The file on the remote host.

strLocalFile

[in] Local file name.

Return value:

Zero indicates that no error occurred. If the call fails, the Win32 error number is returned.

3.2. Put

Summary

Put a file on the remote host

Syntax

long Put(BSTR strHost, BSTR strRemoteFile, BSTR strLocalFile)

Description

The Put method transfers file from the local machine to remote machine.

The host name must be set to the name or IP address of the TFTP server.

Parameters

strHost

[in] The name of the host from where the file has to be transferred.

strRemoteFile

[in] Remote file name

strLocalFile

[in] Local file name.

Return value:

Zero indicates that no error occurred. If the call fails, the Win32 error number is returned.

3.3. ResetTftpSettings

Summary

Set control properties to there default values.

Syntax

void ResetTftpSettings()

Description

Reset control properties in order to use default values:

optBlksize – 512 (bytes)

optMode – 1 (binary)

optTimeout – 5 (seconds)

optPort – 69

optRetries – 3

optTsize – 1 (enabled)

Parameters

N/A

Return value:

This function does not return a value.

3.4. TftpReset

Summary

Abort all SkFTP requests.

Syntax

void TftpReset()

Description

Aborts all files transfer in progress.

Parameters

N/A

Return value:

This function does not return a value.

3.5. TftpGetStatus

Summary

Get a SkFTP query status.

Syntax

long TftpGetStatus(VARIANT* pvarAction,

VARIANT* pvarHost,

VARIANT* pvarRemoteFile,

VARIANT* pvarLocalFile,

VARIANT* pvarStatus,

VARIANT* pvarMode,

VARIANT* pvarSize,

VARIANT* pvarTime)

Description

Note: This method should be used only when TFTP control is used as a COM server, not an ActiveX control, for instance, when TFTP control is instantiated from ASP page or Windows Scripting Host.

When TFTP is used as regular ActiveX control, notification event TftpQueryCompleted should be used instead.

Parameters

pvarAction

[in] The name of the host from where the file has to be transferred.

pvarHost

[in] The name of the host from where the file has to be transferred.

pvarRemoteFile

[in] Remote file name.

pvarLocalFile

[in] Local file name

pvarStatus

[in] Local file name

pvarSize

[in] Local file name

pvarTime

[in] Local file name

Return value:

This function does not return a value.

4. Events

4.1. TftpCompleted

Summary

Indicate that TFTP control has stopped processing all upload/download requests.

Syntax

void TftpCompleted()

Description

Indicate that TFTP control has stopped processing all upload/download requests.

Parameters

N/A

Return value:

None

4.2. TftpQueryCompleted

Summary

Occurs when TFTP control has stopped processing single specific upload/download request.

Syntax

```
void TftpQueryCompleted( short nAction,
                         BSTR strHost,
                         BSTR strRemoteFile,
                         BSTR strLocalFile,
                         long lStatus,
                         short nMode,
                         long lSize,
                         long lTime)
```

Description

Indicate that TFTP control has stopped processing single specific upload/download request.

Parameters

nAction

[in] Type of action performed. 0 – get action, 1 – put action

strHost

[in] The name of the host from where the file has to be transferred

strRemoteFile

[in] Remote file name

strLocalFile

[in] Local file name.

lStatus

[in] Status of the query. See the complete list of

supported error codes.

nMode

[in] Type of transfer performed. 1 - binary transfer, 0 –ASCII transfer

lSize

[in] Size of the file to be transferred

lTime

[in] time elapsed to complete the operation

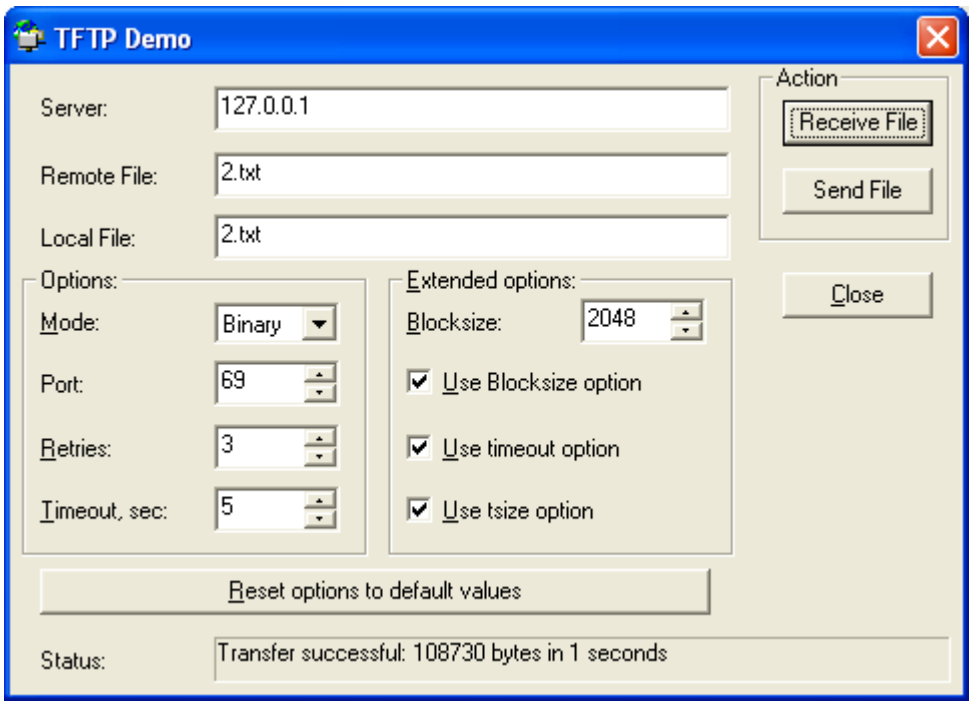
Return value:

None

5. Examples

TFTP ActiveX control comes with complete documentation, VC++/VB/VB.Net sample code, and working demo programs distributed during install time.
Demo programs below were written to use TFTP control to retrieve process related information.

Figure 1 TFTP Demo


TFTP Demo
Server:
127.0.0.1
Remote File:
2.txt
Local File:
2.txt
Action
Receive File
Send File
Close
Options:
Mode:
Binary
Port:
69
Retries:
3
Timeout, sec:
5
Extended options:
Blocksize:
2048
Use Blocksize option
Use timeout option
Use tsize option
Reset options to default values
Status:
Transfer successful: 108730 bytes in 1 seconds