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Request for Comments: #### Y.Montgénie
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TFTP Bigfile Option

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Abstract

The Trivial File Transfer Protocol (TFTP) is a simple protocol used to transfer files over a network. However, it has certain limitations, particularly about the maximum size of files that can be transferred. This memo defines a new TFTP option called "bigfile" that allows the transfer of files larger than the current TFTP limit.

Introduction

TFTP is a simple protocol that allows a client to request a file from a server or to send a file to a server. The current TFTP specification (RFC 1350) limits the size of files that can be transferred to 32 MB. This limitation can be a problem when transferring large files, such as disk images or virtual machine files.

The "bigfile" option defined in this memo allows TFTP clients and servers to transfer files larger than 32 MB. The option is negotiated during the initial TFTP connection setup, enabling the transfer of files without any restrictions on their size.

Terminology

The following terms are used throughout this document.

Bigfile
: A new TFTP option that allows clients and servers to transfer files larger than 32MB by using a variable-sized block format.

Large file
: A file that is larger than the maximum size supported by TFTP's fixed-size block format (32 MB).

Option negotiation
: The process by which a TFTP client and server exchange information about the options they support. This process is defined in RFC 2347 and is used to negotiate the bigfile option.

Specification of the Bigfile Option

The bigfile option is used to negotiate the maximum file size that can be transferred using TFTP. The option is negotiated using the TFTP option negotiation mechanism defined in RFC 2347. In our implementation of the 'bigfile' option, we chose to keep block numbers encoded over 2 bytes to ensure compatibility with existing TFTP implementations. However, to allow the transfer of files larger than 32 MB, we use the principle of a modulo. After reaching 65355, the block number resets to 1. Thus, allowing the transfer of virtually infinite file sizes.

The bigfile option has the following format:

Opcode	Filename	Mode	Option
2	filename	mode	bigfile

Where:

Opcode: The TFTP opcode for request (RRQ or WRQ).
Filename : The name of the file requested.
Mode : The mode used (netascii or octet)

When a TFTP server receives a request containing the bigfile option, it should respond with an option acknowledgement (OACK) packet containing the bigfile option. If the server does not support the bigfile option, it should respond with an error packet containing the error code "Unknown transfer ID" (5).

When a TFTP client receives an OACK packet containing the bigfile option,
it should use the value field to determine if the server support or not the option. If the value is zero, the client should assume that the server does not support the bigfile option and should use the default maximum file size of 32 MB.

If the client receives an error packet containing the error code "Unknown transfer ID" (5) in response to a request containing the bigfile option, it should assume that the server does not support the bigfile option and should use the default maximum file size of 32 MB.

Example:

The following example shows our TFTP client negotiating the bigfile option with our TFTP server:

Client --> Server:

Opcode	Filename	Mode	Option
2	“foo.txt”	octet	bigfile

Server --> Client:

```
+-----------+------------+
| Opcode |   Option  |
+-----------+------------+
|      6     |    bigfile  |
+------------------------+
```

In this example, the client sends a request containing the bigfile option. The server responds with an OACK packet containing the bigfile option indicating that the server handle bigfile option. If the 'bigfile' option is not used, the TFTP server and client work normally with a maximum file size of 32 MB. This is the default behavior specified in the original TFTP protocol (RFC 1350).

References

RFC 1350: The TFTP Protocol (Revision 2)
RFC 2347: TFTP Option Extension

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