Multi-Tech Fax Enhancements

Reference Guide

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Revision	Date	Description
A	10/23/02	Initial release.
B	04/18/07	Updated the Technical Support contact list.
C	11/01/07	Remove France from Technical Support contact list.
D	05/17/10	Remove three invalid hyperlinks on page 4. Removed Technical Support. Users should see the product document for Technical Support.

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Multi-Tech Fax Enhancements

This document is intended to help fax developers take advantage of Multi-Tech System's V.34 Fax/Real-Time-Fax-Compression-Conversion features in all Multi-Tech V.92 modems. For any acronyms that you don't understand, check the glossary at the end of this document.

Note: You must support Class 2.0 in your application to take advantage of these features.

Support for V.34 Fax (Also Known as SuperG3)

By adding support for V.34 fax, you can give your customers double the throughput when connecting to V.34 fax capable fax machines. The changes to accomplish this support are straightforward and uncomplicated.

Here are the steps:

1. Change your +FCLASS initialization from AT+FCLASS=2.0 to AT+FCLASS=2.1

2. When setting the +FCC command, set the baud rate value to +FCC=,D (this means 33.6bps)

3. When receiving +FIS and +FCS responses, handle values > 5 (where 6=16,800, 7=19200, ...D=33600, and values go up by 2400 baud)

Support for Real-Time-Fax-Compression-Conversion (RTFCC)

By adding support for RTFCC, you can gain a 30% improvement in speed if you normally store your faxes in MH mode and manage to negotiate ECM/MMR with the remote fax machine (speed improvement will vary by file content and most fax machines will support ECM/MMR at V.17 speeds). Note that this enhancement is only available with newer firmware revisions. The changes to accomplish this support are also straightforward and uncomplicated.

Here are the steps:

1. Make sure the modem supports RTFFC by issuing a +FFC=? command. You should receive a (00-03),(00-02),(00-03),(00-02) response.

2. When sending a fax, set the +FCC command to +FCC=,,,,3,1. This will set the negotiated data-compression to MMR and enable ECM.

3. When sending page, send a <DLE> byte followed by <6Bh>, <6Ch>, or <6Eh> byte if the fax format you store your faxes in is MH, MR, or MMR respectively, and then send your page data as usual.

Conclusion

If you support these Multi-Tech Fax Enhancements, you can reduce your faxing time by 30% on a majority of faxes and additional performance improvements when connecting to fax machines that support V.34 fax. In addition, you have the added advantage of error-free faxes for most transmissions.

Glossary

MH - Modified Huffman - A fax compression that compresses data horizontally on each fax scan line. Otherwise known as 1D compression.

MR - Modified READ - A fax compression that compresses data horizontally and vertically (by only encoding changes from one scan line to another -- this is also known as 2D compression). It interleaves 1D and 2D compressed lines because this compression can be used in non error-corrected connections, which makes sure errors don't propagate down the page.

MMR - Modified Modified READ - A fax compression, which is like MR except that all lines are 2D lines. Error correction is required for this type of compression to prevent errors from propagating down the page.

ECM - Error Correction Mode - This refers to a protocol defined in T.30 Annex A/C to ensure faxes are transmitted without error. Many fax modems do not support this because it requires extra memory on board the fax modem.

Other Multi-Tech Fax Documents

These documents are available on Multi-Tech Web site:

Fax Class 1 and Class 1.0 Developer's Guide
Fax Classes 2 and 2.0/2.1 Developer's Guide
Fax Overview