

DIRECT INBOUND FAX ROUTING UTILIZING DTMF TONES

APPLIES TO BROOKTROUT TR
SERIES LOOP-START BOARDS

TECHNICAL WHITEPAPER



Written by Brooktrout Technologies, Inc.

This document is intended to highlight some system characteristics that are necessary in order to implement a direct inbound fax routing solution using: DTMF tones generated by telecommunications equipment; a TR series loop-start board; and Imecom Group's DM Fax Server solution. A general outline will be followed by technical detail of certain key features and characteristics for each element of the system. This document is intended for use by VARs and system integrators; however it may be of use to developers unfamiliar with this method of routing. This implementation often uses features of a PABX and application software that were not intended for this purpose, and the installation can require a degree of improvisation. Where possible, inbound routing using a Brooktrout BRI-ISDN board or analog DID board (or, for higher volume situations, Brooktrout T1 boards) is advised for faster, more reliable service.

Important Note: All Brooktrout TR series loop-start boards--TR114 boards and TruFax boards--are capable of doing DTMF routing. However, the enabling and control of DTMF routing is entirely handled through Imecom DM Fax Server application. Questions on how to configure Brooktrout boards for DTMF routing should be directed to Imecom Group, Inc. T

"MANUAL" SENDING OF DTMF TONES *

* Requires extra steps on the part of the person sending the fax, as no telecom equipment is regenerating DTMF digits to the Brooktrout board

1. The sending fax machine dials the number for the TR114.
2. TR series board answers the call (goes off-hook); typically the fax application instructs the board to play a tone (or in the case of TR114 boards, there's an option of playing a voice prompt) alerting the sender that the board's ready to accept DTMF digits.
3. The sender types in the extension of the person they want to send the fax to; if they're sending through a desktop fax program, they would type in the number followed by a series of pauses, to allow the call time to reach our board. The Brooktrout board would accept the digits, then answer the call and receive the fax from there.

DTMF ROUTING WITH TELECOM EQUIPMENT

1. The sending fax machine dials the number for the TR114.
2. PABX rings the TR114, and plays ringing tone to the sending fax machine.
3. TR114 answers the call (goes off-hook).
4. PABX senses this, and sends down the last few digits of the dialed number as DTMF tones (usually the last 3 or 4 digits of the phone number).
5. Application software collects these digits and looks up in a table, to determine who or where to route the incoming fax.
6. PABX connects the sending fax machine to the TR114.
7. The fax is then received and routed to the correct location.



SYSTEM REQUIREMENTS:

The PABX should:

- Provide a standard loop-start line for the TR114. (Loop-start is often referred to as "POTS", for Plain Old Telephone Service.)
- Be capable of assigning a sub-group of numbers to a single port. When any number within the subgroup is dialed, the call is automatically routed to the same port.
- Be able to send down the dialed number or part of the dialed number to the port as DTMF digits after the call has been answered. This is commonly called **after-dialing**, and is a feature provided for the PABX to communicate with other peripherals, such as voice mail.
- Send the first DTMF digit *no earlier* than 200ms after the call has been answered by the TR114. Ideally this parameter would be programmable, or significantly longer than the 200ms required by the TR114 to allow for delays within the application.

Many systems are capable of sending down a pre-defined number of digits, and stripping off any leading digits. For example, a typical system can be programmed to send down the last 4 digits.

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Imecom Group, Inc. was founded in 1989 and is headquartered in New Hampshire. Imecom is a member of the Prologue Software Group which is headquartered in France. Together, Imecom Group and Prologue Software Group have established a customer base that includes 2,100 development partners and 5,300 value added resellers, which in turn have established 650,000 installations across the globe. There are now more than 2,200,000 users of Prologue products worldwide.

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