



## Inbound Routing with NetSatisFAXTion®

### Routing Terms

#### DID

Direct Inward Dialing (DID) is a service of a local phone company (or **local exchange carrier**) that provides a block of telephone numbers for calling into a company's **private branch exchange** (PBX) system. Using DID, a company can offer its customers individual phone numbers for each person or workstation within the company without requiring a physical line into the PBX for each possible connection.

For example, a company might rent 100 phone numbers from the phone company that could be called over eight physical telephone lines (these are called "trunk lines"). This would allow up to eight ongoing calls at a time; additional inbound calls would get a busy signal until one of the calls completed or be able to leave a voice mail message. The PBX automatically switches a call for a given phone number to the appropriate workstation in the company. A PBX switchboard operator is not involved.

A DID system can be used for **fax** and voice mail as well as for live voice connections. Compared to regular PBX service, DID saves the cost of a switchboard operator, calls go through faster, and callers feel they are calling a person rather than a company.

#### DNIS

DNIS (Dialed Number Identification Service) is a telephone service that identifies for the receiver of a call the number that the caller dialed. It's a common feature of 800 and 900 lines. If you have multiple 800 or 900 numbers to the same destination, DNIS tells which number was called. DNIS works by passing the touch tone digits (**dual tone multi frequency** or MF digits) to the destination where a special facility can read and display them or make them available for **call center** programming.

#### DTMF

DTMF (dual tone multi frequency) is the signal to the phone company that you generate when you press an ordinary telephone's touch keys. In the United States and perhaps elsewhere, it's known as "Touchtone" phone (formerly a registered trademark of AT&T). DTMF has generally replaced loop disconnect ("pulse") dialling. With DTMF, each key you press on your phone generates two tones of specific frequencies. So that a voice can't imitate the tones, one tone is generated from a high-frequency group of tones and the other from a low frequency group.

#### CSID

Caller Subscriber Identification Number is the identification of the sending fax machine. It is a number or name that is programmed into the fax machine.

#### CO

The telephone company switching equipment to which your telephone system is connected.

#### PBX

A PBX (private branch exchange) is a telephone system within an **enterprise** that switches calls between enterprise users on local lines while allowing all users to share a certain number of external phone lines. The main purpose of a PBX is to save the cost of requiring a line for each user to the telephone company's central office.

The PBX is owned and operated by the enterprise rather than the telephone company (which may be a supplier or service provider, however). Private branch exchanges used **analog** technology originally. Today, PBXs use **digital** technology (digital signals are converted to analog for outside calls on the local loop using **plain old telephone service**).

## Hunt Group

A group of telephone numbers that looks like a single number to the outside world. If the main number is dialed, but busy, the ring will be routed to an available number in the hunt group. Numbers in the hunt group can also be individually dialed, where only the dialed number will ring, and outgoing calls can be placed on any of them.

Automatically forwards calls from a busy line to an open line. Allows for hunting to start at the dialed number and continues in ascending order to the last number in the hunt group. Hunting then proceeds to the first number of the hunt group and continues through the group until the idle line is reached or the number just preceding the dialed number is reached. Only if all lines are busy does the call receive a busy signal.

## OCR

OCR (optical character recognition) is the recognition of printed or written **text characters** by a computer. This involves photostating of the text character-by-character, analysis of the scanned-in image, and then translation of the character image into character codes, such as **ASCII**, commonly used in data processing.

In OCR processing, the scanned-in image or **bitmap** is analyzed for light and dark areas in order to identify each alphabetic letter or numeric digit. When a character is recognized, it is converted into an ASCII code. Special circuit boards and computer chips designed expressly for OCR are used to speed up the recognition process.

OCR is being used by libraries to digitize and preserve their holdings. OCR is also used to process checks and credit card slips and sort the mail. Billions of magazines and letters are sorted every day by OCR machines, considerably speeding up mail delivery.

## T1

The T1 (or T-1) carrier is the most commonly used digital line in the United States, Canada, and Japan. In these countries, it carries 24 pulse code modulation (**PCM**) signals using time-division multiplexing (**TDM**) at an overall rate of 1.544 million bits per second (**Mbps**). T1 lines use copper wire and span distances within and between major metropolitan areas. A T1 Outstate System has been developed for longer distances between cities.

## ANI

ANI (Automatic Number Identification) is a service that provides the receiver of a telephone call with the number of the calling phone. It is only available on digital T1 lines.

## Caller ID

A phone network service feature that permits the recipient of an incoming call to determine, even before answering, the number from which the incoming call is being placed. Caller ID signaling is sent between the first and second ring and is only available on analog phone lines.

## Inbound Routing Methods

### ▼ Manual

### ▼ Automatic Routing Methods

- DID
- DNIS
- DTMF
- Port/Channel
- CSID

### ▼ Fax Export<sup>1</sup>

- DID
- DNIS
- DTMF
- Port/Channel

### ▼ AutoPrint<sup>1</sup>

- Global

- Group Based

<sup>1</sup> Additional routing methods that can be used in conjunction with either manual or automatic fax routing.

## Requirements and Notes for Routing Methods

### Manual

#### Requirements

- Can use either analog or digital T1 phone lines
- Uses any NET SatisFAXtion supported fax hardware (Mainpine, Eicon and Brooktrout)

#### Recommended Use

Use when receiving a small number of inbound faxes or have a dedicated individual responsible for routing faxes.

#### Routing Clients

- Route via NET SatisFAXtion Administration
  - Route to any NET SatisFAXtion user
    - ü User -> FAXability Client
    - ü User -> E-mail Client
    - ü User -> WinFax PRO Client
    - ü User -> Public Exchange Folder
    - ü User -> Any e-mail Address
  - Route to any NET SatisFAXtion group
  - Has security to only allow viewing of first page of received fax (Router)
- Route via FAXability Client (forwarding)
  - Can only route to a specific user not a group
  - No first view first page only security
- Route via E-mail Client (Outlook)
  - Allows e-mail user for route or forward to any local e-mail user or e-mail address
  - No first view first page only security

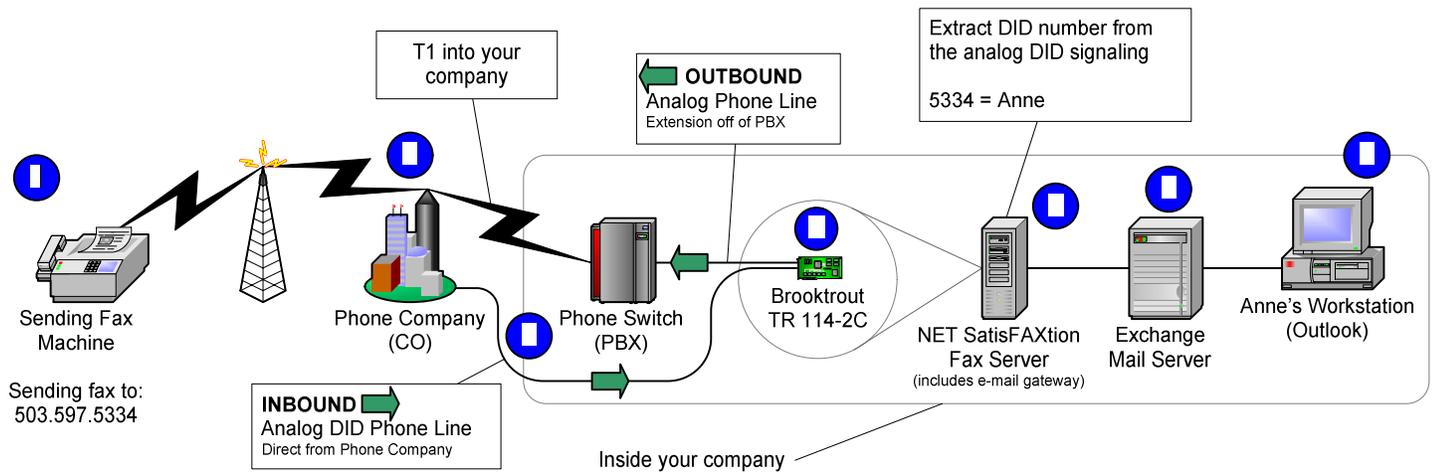
## Analog DID

### Requirements

- DID numbers
- In front of phone switch solution (analog DID lines come directly from phone company)
- Requires special analog DID phone lines (this is not a standard analog phone line)
- Uses special analog DID fax hardware and power supply (Brooktrout)
- Inbound only, requires extra lines for outbound faxing

### Recommended Use

An environment where inbound fax routing to individuals is needed with 100% accuracy. Small number of incoming faxes requiring 2 to 4 lines for incoming faxes. Each individual has their own personal fax number that they can receive faxes with. Do not have a PBX that can be configured for DTMF pass-through allowing for DTMF routing.



### How Analog DID Inbound Routing Works

- 1 – A fax is sent to a DID number of 503.597.5334.
- 2 – The call passes through the phone company and is routed to your company.
- 3 – The call is sent to the analog DID line that goes to your company. This analog DID line carries the DID number that the fax was sent to as part of the signaling.
- 4 – The Brooktrout TR 114-2C fax card detects the incoming call, answers, extracts the DID number for the analog signaling and then receives the connected call.
- 5 – The fax is received by the fax server. Once the fax is completed, a lookup is done on the received DID number. The fax is then routed to that user.
- 6 – Since the user is setup to receive faxes in their Outlook e-mail client, the fax is routed to the Exchange server.
- 7 – Anne receives the fax as a PDF document attached to an e-mail in her Inbox.

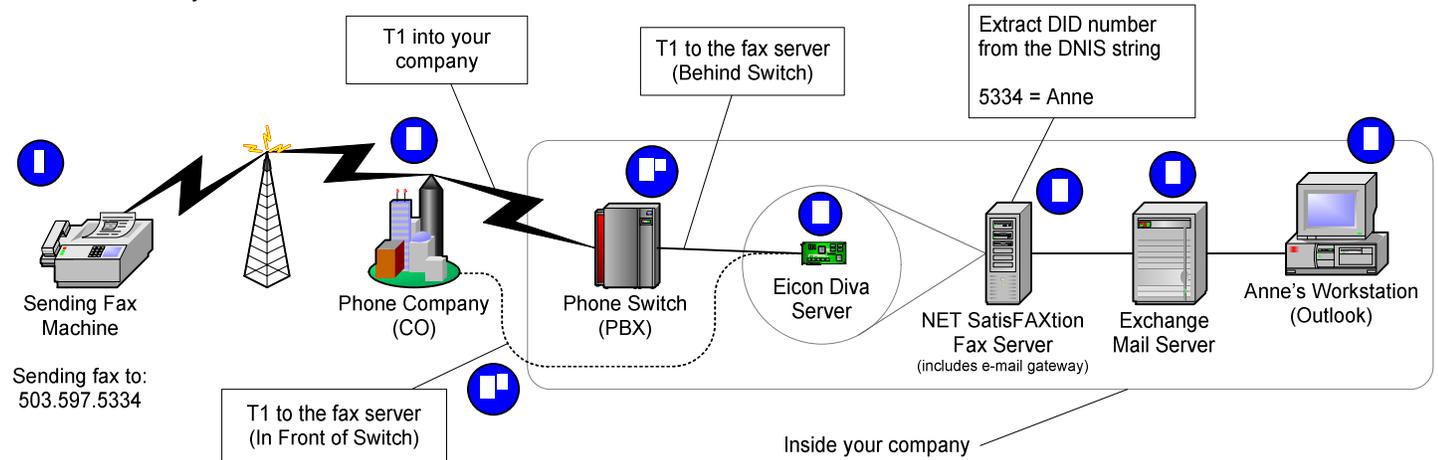
## DNIS

### Requirements

- DID numbers
- Either in front of phone switch (T1 comes directly from phone company) or behind phone switch (T1 comes out of PBX)
- Requires a digital T1 phone line(s)
- Uses digital T1 fax hardware (Eicon or Brooktrout)
- Supports both inbound and outbound on same port

### Recommended Use

An environment where inbound fax routing to individuals is needed with 100% accuracy. Large number of incoming faxes requiring 8 to 24 or more lines for incoming faxes. Each individual has their own personal fax number that they can receive faxes with.



### How DNIS Inbound Routing Works

- 1 – A fax is sent to a DID number of 503.597.5334.
- 2 – The call passes through the phone company and is routed to your company.
- 3<sup>a</sup> – This is the “Behind the Switch” connection method where the T1 connected to the fax server comes off of your companies PBX. Your companies phone switch (PBX) routes the call (fax) to a hunt group setup for the T1 that is connected to the fax server. The call is then routed to one of the physical T1 channels.
- 3<sup>b</sup> – This is the “In Front of the Switch” connection method where the T1 connected to the fax server comes directly from the phone company. The phone company routes the call (fax) to a channel on the T1 that goes directly to your company and is connected to the fax server.
- 4 – The Eicon Diva Server T1 fax card detects an inbound call, answers, extracts the DID number from the DNIS string and then receives the connected call.
- 5 – The fax is received by the fax server. Once the fax is completed, a lookup is done on the received DID number. The fax is then routed to that user.
- 6 – Since the user is setup to receive faxes in their Outlook e-mail client, the fax is routed to the Exchange server.
- 7 – Anne receives the fax as a PDF document attached to an e-mail in her Inbox.

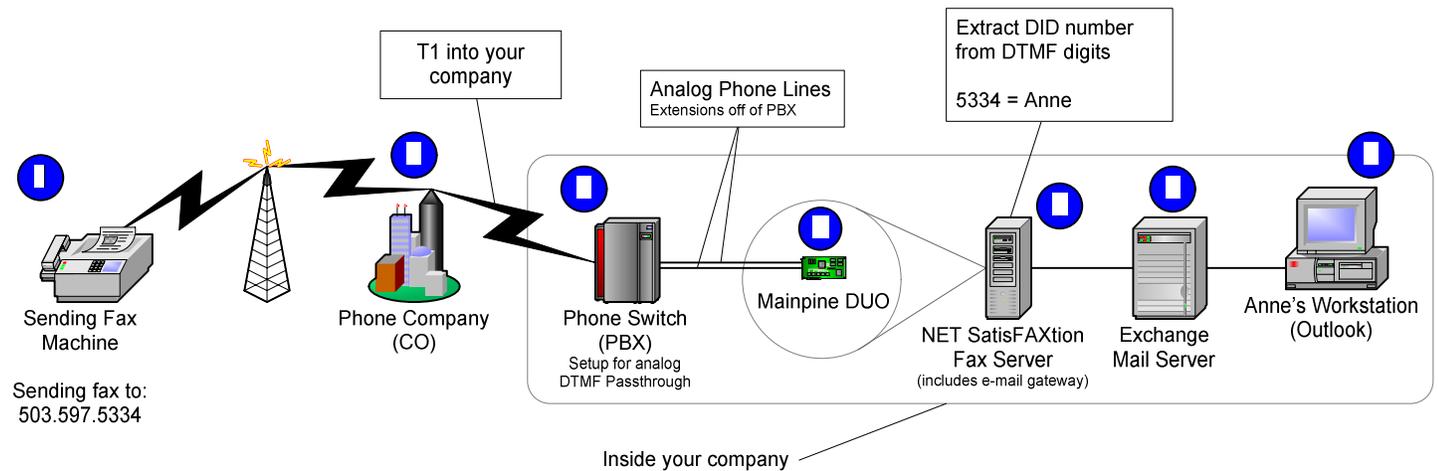
## DTMF

### Requirements

- DID numbers
- Behind phone switch solution (analog phone lines come out of PBX)
- Analog phone lines
- Uses analog fax hardware (Mainpine or Brooktrout)
- Supports both inbound and outbound on same port
- Requires a phone system (PBX) that supports DTMF pass-through

### Recommended Use

An environment where inbound fax routing to individuals is needed with 100% accuracy. Small number of incoming faxes requiring 2 to 4 lines for incoming faxes. Each individual has their own personal fax number that they can receive faxes with.



### How DTMF Inbound Routing Works

- 1 – A fax is sent to a DID number of 503.597.5334.
- 2 – The call passes through the phone company and is routed to your company.
- 3 – Your company's phone switch (PBX) routes the call (fax) to a hunt group setup that has the 2 analog phone lines (extensions). The call is then routed to one of the physical analog phone lines that is connected to the fax server. The DID number that the fax was sent to is passed as DTMF digits before the call is connected.
- 4 – The Mainpine DUO fax card detects the ring, answers, listens for the DTMF digits and then receives the connected call.
- 5 – The fax is received by the fax server. Once the fax is completed, a lookup is done on the received DID number. The fax is then routed to that user.
- 6 – Since the user is setup to receive faxes in their Outlook e-mail client, the fax is routed to the Exchange server.
- 7 – Anne receives the fax as a PDF document attached to an e-mail in her Inbox.

## **Port/Channel**

### Requirements

- Can use either analog phone lines or digital T1 line(s)
- Uses any NET SatisFAXtion supported fax hardware

### Recommended Use

An environment where inbound fax routing to individuals is not needed but rather routing to a department or workgroup is sufficient. Faxes can then be routed within the department or workgroup manually. Routing is done with 100% accuracy. Sufficient for either a small number of incoming faxes requiring 2 to 4 lines for incoming faxes or a large number of incoming faxes requiring 8 to 24 lines. Can also be used for applications where there are only several (2 to 4) individuals who need to receive inbound faxes routed to them.

## **CSID**

### Requirements

- Can use either analog or digital T1 phone lines
- Uses any NET SatisFAXtion supported fax hardware (Mainpine, Eicon and Brooktrout)
- Must know what sending fax machines CSID is set to

### Recommended Use

The recommended application is when you know and can control who is sending your company faxes. This is due to making sure that you know the CSID's of the sending fax machines.

Not used much and limited to only one CSID entry per user or group.

## **RECIPIENTS FOR AUTOMATIC ROUTING**

NET SatisFAXtion can automatically route incoming faxes to any of the following clients.

- FAXability fax clients
- E-mail clients (Outlook)
- Public Exchange Folders
- Any e-mail address
- NET SatisFAXtion Groups

## **FAX EXPORT ROUTING METHODS**

Fax Export supports the following routing methods.

- DID
- DNIS
- DTMF
- Port/Channel

For each of these methods, fax export copies (exports) an image of the fax to a separate folder for each unique routing data.

Fax Export can be used in conjunction with any of the described routing methods. Fax Export is only available with the Enterprise Edition of NET SatisFAXtion (refer to pricing for more information).

## **AUTOPRINT**

AutoPrint has the following basic methods.

- Global
- Group Based

Autoprint is part of the base software of both the Small Business Edition and Enterprise Edition versions of NET SatisFAXtion.

**Global**

With global autoprint every fax that is received by the NET SatisFAXtion system is printed to a single network printer.

**Group Based**

Group based autoprint allows printing received faxes to different network printers. A printer is assigned to a group that is configured for autoprint. Any fax that is automatically routed to a user within this group is autoprinted on the specified printer.

**OTHER NOTES**

When routing to e-mail clients, public Exchange folders or any e-mail address, the received fax can be configured to be either an Adobe PDF document or a TIFF image file.

Fax Export also supports either PDF or TIFF file types.

In addition to all mention inbound routing methods, the fax can be autoprinted