Getting Started with CTFax

Introduction
System Components
Procedures

About CTFax
System Specification

About CTFax

This document describes CTFax, a client-server fax system for Microsoft Windows NT and Windows 95. The system supports concurrent sending and receiving of multiple fax documents utilizing one or more fax modems attached to the fax server. The system was designed and implemented from the scratch, and it takes the advantage of the Microsoft Windows NT / 95 architecture. The system features robust and flexible fax server, and simple, straightforward and intuitive fax client processing capabilities for users on the Windows desktop.

System Specification

The system enables any Microsoft Windows NT / 95 network user to send and receive fax messages, using one or more Class 2 or Class 2.0 fax modems attached to a fax server running on a Microsoft Windows NT computer. In addition, the system enables any Microsoft Windows application that can print, to create and send a fax document. A fax document created and formatted on a client computer is being forwarded to the fax server, and then sent over a fax modem to the intended recipient.

The system can receive a fax message sent by any Group 3 fax device or a fax modem, and make it available for later retrieval to any Windows NT / 95 addressed user on the network. Fax modems attached to a fax server receive fax messages, the fax server stores them, and a fax client application delivers them to the end user on the Windows desktop.

Fax service is available for any client computer on your LAN having installed CTFax client software (client computers don't need modems). Of course, you can install both client and server part on the same computer too.

CTFax also enables any LAN user to send fax messages to other LAN users attached to the same CTFax server.

CTFax is intended to be used on **Windows NT 4.0** (server & client part) and **Windows 95** (client part only).

It supports up to 128 modems simultaneously and unlimited number of users.

Some of supported hardware is listed in the CTFax Installation Guide document.

Please note that CTFax can exchange faxes with any fax modem (fax machine), but on the server side we do support only class2 & class2.0 fax modems (the older class1 fax modems aren't supported).

System Components

From user's viewpoint, the CTFax package consists of the five basic components:

- CTFax Setup Program
- CTFax Server
- CTFax Printer Driver
- CTFax Manager
- CTFax Viewer

CTFax Server is responsible for multiple modems handling, multiple remote client connection request validation and handling, fax messages queue and history handling, management of the registered LAN users database and the global address book.

CTFax Printer Driver, CTFax Manager and CTFax Viewer are client-side components. Printer driver responsibility is to aid any Windows application that is capable of printing documents to fax the same. CTFax Manager is responsible for managing fax messages, address books, user administration and modem configuring. CTFax Viewer is responsible for viewing and printing fax messages.

CTFax Server

CTFax Server is implemented as a **Windows NT Win32 Service**, so it is active all the time regardless of users logging on and off. After you install the CTFax Server on a Windows NT computer, you can proof its presence by activating Control Panel, and then clicking on Services, or by activating CTFax Manager and trying to get information from the server.

CTFax Server's main tasks are: multiple modems handling, multiple remote client connection request validation and handling, fax messages queue and history handling, management of the registered LAN users database and the global address book.

The CTFax Server keeps the **database of the LAN users** attached to (registered on) it. Every user, identified by his/her Windows NT user name, can have the following special rights: administration, dispatching of faxes, and global address book change.

CTFax users with administration right can add new CTFax users, remove them or change their data; view, add, change or delete modem configurations; view and manipulate (in certain limits) server's sending and receiving queues, fax history database ('journal' database), and event log.

CTFax users with **dispatching right** have the responsibility to forward faxes received by modem but not addressed to any particular user of the system.

CTFax users with **right to change the global address book** can add, delete or modify entries in the global address book, which all other users can only view and select entries from it when sending faxes.

Multiple modems can be attached to, and handled by the CTFax Server at the same time. Each modem is configured and managed separately, and can be set to either send, receive or send and receive faxes. A CTFax user with administration rights can configure every particular modem in the system with the aid of the CTFax Manager application. Modem and port configuration can be added to, changed or deleted from the modem database. User can even define a number of different modem configurations for the same port, but only one configuration for a certain port can be enabled at a time. This feature can be useful in testing phase, when administrator can quickly test different configurations, without having to retype modem parameters each time. During server startup, every modem is configured according to the saved data.

Fax messages received by modems reside in the **receiving queue** until a dispatcher retrieves and dispatches them to LAN users (namely, in this CTFax implementation all such faxes are 'anonymous' - i.e. their destination is not known until the dispatcher views their images and decide to whom they belong).

Each fax sent by some LAN user and scheduled to be sent by modem, wait in the **sending queue** until the server dispatches it to a particular modem. If a sending attempt is unsuccessful, the fax waits in queue for the next attempt. After a certain (configurable) number of attempts is exhausted, the fax is being deleted from the queue.

The server also keeps the database of all sent and received faxes (the **history database**, or 'journal').

A CTFax administrator can get and view the whole contents of the receiving and sending queue and the history database. Other users can only get lists of faxes belonging to them. However, a

fax administrator cannot view the images of faxes that doesn't belong to him/her.

CTFax Printer Driver

Sorry, help not available at the moment!

Setup Program

Sorry, help not available at the moment!

CTFax Manager

HOW TO USE CTFAX MANAGER

You can find the CTFax Manager application under the **Start -> Programs -> CTFax** program group. When you activate the application, you'll see that it contains two window panes. The **left pane** (tree pane) has a tree-like structure with names of particular lists that you can view in the **right pane**. Every time you click on a list's name, the list contents appears in the right pane.

You can use the **right mouse button** to activate context menus in both panes. When you click the right mouse button in the right pane, the activated **context menu** depends on the list currently displayed. When you click the right mouse button in the left pane, the activated context menu depends on the currently selected item.

Another way to use commands from the context menus is through the main menu 'Action' sub-menu. In case of the left pane, the displayed sub-menu depends on the item currently selected in the left pane. In case of the right pane, the displayed sub-menu depends on the list currently displayed in the right pane.

CTFAX MANAGER LISTS

In the left pane of the CTFax Manager application there are two main groups of lists: **Personal** Folders and Fax Servers.

Personal folders

The lists placed underneath the Personal Folders tree node (Input Box, Output Box, Sent Faxes, Dispatch Box and Address Book) are personal lists of that particular user who has started the CTFax Manager application. They reside on the computer the user is working on (or somewhere else on the network if the user had set paths in a different manner).

Input Box

The Input Box is a list of received faxes. Every time when user selects **Input Box**, the CTFax Manager connects to the CTFax Server and asks for a list of his or her received faxes. If the server delivers some faxes, a dialog box with corresponding message will appear. New faxes are displayed in **Input Box** together with existing ones.

Output Box

The Output Box is actually a list of faxes that couldn't be sent to the server. If user tries to send a fax, and the fax server cannot receive it (perhaps because the server application is not active at the time), the fax will arrive into the user's **Output Box**, so that it can be sent at a later time.

Dispatch Box

The Dispatch Box is a list of received 'anonymous' faxes. When a new fax is received by a modem, its recipient is usually unknown (that's while they are called anonymous). We should emphasize here that there is possibility in the message format to have an information about the final recipient. This means that all faxes received by modem wouldn't be anonymous. However,

this useful feature isn't implemented at present time.

Every time when a user with the '**Dispatch faxes**' right selects Dispatch Box, CTFax Manager connects to the CTFax Server and asks for a list of received anonymous faxes. If it finds something a dialog box with an informative message will appear.

User with 'Dispatch faxes' permission can then take a look into the fax image (usually s/he'll need to view only the first (cover) page, where usually resides information for whom is that fax destined) and, now when s/he knows to whom is the fax destined, s/he can dispatch the fax to that user.

To make it clear, we will describe the whole procedure of receiving a fax:

Server puts a newly received fax into the **receiving queue** where all received faxes reside until a user with dispatching rights picks up a list of anonymous faxes. When the dispatcher (user with 'Dispatch faxes' rights) gets an anonymous faxes list, the anonymous faxes are transferred to the dispatcher's client computer, where (s)he activates the 'Dispatch' command and writes, in a dialog box, a fax **recipient user name**. Dispatch function then returns fax to the server, which puts it in its receiving queue (but now this fax is no longer anonymous, now it has a specific destination).

Let us assume that the fax was for a user with user name 'jsmith'. When the user 'jsmith' next time starts his CTFax Manager and selects 'Input Box', in order to check newly received faxes, he will receive from the server all faxes destined to him. The faxes are transferred to his computer and deleted from the server's queue (server only keeps track of all sent/received faxes and not the faxes themselves).

The user can then or at a later time, obtain a list (**journal**) containing information about all of his sent /received faxes.

Personal Address Book

The Personal Folders->Address Book is the local address book (user's private address book) used for saving fax numbers and other data of user's business partners, friends, etc.

Fax Server

Registered Users

The Registered Users folder contains a list of local (LAN) fax users registered on this CTFax server, and their rights in the system.

User rights

In the 'Add User' dialog box you can grant to user the following rights:

Global Address Book Change;

Dispatch faxes;

Administration.

User with 'Global Address Book Change' permission can read/write/modify global address book (which resides on the server computer), all others can only read the global address book (but

they can manage their personal address books residing on their local computers). Global address book should contain addresses of interest for the company as a whole (business partners, etc.).

User with 'Dispatch faxes' permission can dispatch anonymous faxes.

When a new fax is received by modem, the recipient is usually unknown (that's while they are called anonymous).

User who has 'Dispatch faxes' rights can obtain anonymous faxes from the server, take a look into the fax image and, after deciding for whom the fax is designated, dispatch that fax to this user.

User with 'Administration' permission can add and delete users, modify their rights in the system and read/write/modify port and modem configurations.

'Administrator' (user with CTFax 'Administration' right) can manage global receiving/sending queue and global journal lists including right to delete (abort) any fax request, while ordinary user can manage only his/her request(s).

'Administrator' can see server's log where he can find useful information about server errors and warnings, and all events in the system.

Modems

The Modems folder contains a list of modem configurations from the server's modem database.

In most cases, you will find that default values are working fine, otherwise you will need to change offending parameter(s).

Standard options

Some of the parameters are self explaining, while others may be rather cryptic at first sight. We will explain, in short, their action:

Port Name	Serial port name (e.g. COM2);					
Modem Name	Fax modem name (e.g. 3Com, Hayes, Telebit,);					
Configuration Enabled	. Enables/Disables this configuration profile;					
Port Data Rate Serial port data rate determines character speed						
	between PC and modem (e.g. 38400);					
Fax Modem Data Rate	Fax Modem Data Rate determines speed between					
	two fax modems (e.g. 14400);					
Send/Receive Mode	Determines whether this line will be used for					
	sending faxes only, receiving only or					
	both (sending and receiving);					
Rings Before Answer	Defines number of rings before answering a phone					
	call on fax reception					
Pulse/Tone Dial	Pulse (rotary) or tone (MFC) dialing when sending					
	faxes by modem;					
Dial Prefix	The number needed to reach an outside line when					
	sending faxes by modem, such as 9, or 7,. Do not					

enter an area code in this field. Use a comma after each numeric code, such as 9,. The comma produces a pause so that your phone system has a chance to respond after the previous input.

Flow Control The method of regulating the flow of information between your PC and modem.

HW(RTS/CTS) flow control is the most preferable choice.

Note: You should always use flow control. If your modem doesn't react as it should and/or you get a message from the system that your modem is configured without flow control, find specific command in your modem user's guide and write it in the

'Additional Init String' field (Advanced options).

Eg. AT S58=2 S68=255 defines HW (RTS/CTS) flow control for Telebit World Blazer modem. Other modems may have different init strings (e.g. AT &K3).

Refer to your modem user's guide for the particular command, if the default one doesn't work.

Advanced options

Speaker Volume You can choose between (Low, Medium and High); **Speaker On/Off** Turns speaker On, Off, On Until Carrier, ... etc.; **Disable Call Waiting String** ... If your fax and phone line share the same

number, and if the phone line has

Call Waiting, then incoming calls can
interrupt the fax transmission. Most phone
systems allow you to disable call waiting by
dialing either 1170 or *70 before you make a
call. By entering this code in 'Disable Call
Waiting String' field, you ensure that fax
transmissions are not interrupted by call
waiting. You can disable call waiting for

outgoing faxes only.

Class2DataRateBitOrder 'Standard' behavior for class2 fax modems is to reverse data bit order when receiving faxes.

If it is not case with your modem, you can choose a different setting.

Additional Init String You can put here a number of modem

commands specific for your modem

type, and

they will be executed after the

standard modem

initialization.

Global Receiving Queue & Global Sending Queue

Global Receiving Queue and Global Sending Queue folders contain list of **all** faxes received or waiting to be sent, respectively with all relevant information.

Personal Receiving Queue & Personal Sending Queue

Personal Receiving Queue and Personal Sending Queue folders contain list of **user's** personal faxes received or waiting to be sent, respectively with all relevant information.

Global Journal & Personal Journal

The Global Journal list contains the history of all faxes in the system that have been sent or received so far.

The Personal Journal list contains information about the history of all faxes received or sent by a particular user.

Fax messages are not being written into the history database until they are removed from the server's sending or receiving queue.

Global Address Book

The Global Address Book is system-wide address book used for saving addresses (fax numbers and other relevant data) that are meaningful and useful for most LAN fax users (e.g. business partners addresses).

Event Log

The Event Log keeps track of all system-wide error and warning messages, as well as all events in the system.

CTFax Viewer

Sorry, help not available at the moment!

Procedures

After Successful Installation

Sending Fax Messages

Aborting Fax Messages

Receiving Fax Messages

Viewing Fax Messages

Dispatching Fax Messages

Viewing Status of Fax Messages

Viewing History of Fax Messages

Viewing System Log

Address Books Management

System Administration

After Successful Installation

After successful installation, the user 'Administrator' and other local NT users are already registered in the CTFax user database, but without any special rights. The user 'Administrator' can change their permissions: some of them can be given dispatching right, global address book change right, or CTFax administration right.

After installation, no **modems** are added to the CTFax modem database, so it is necessary to add them before using CTFax for sending / receiving fax messages by modems.

The **global address book** is already created but empty, and you may wish to add entries in it, so you can select them when sending fax messages.

You may also change server parameters relevant for sending / receiving faxes, such as: fax station identifier, number of retries and interval between retries.

<u>User Management</u> <u>Port and Modem Configuring</u> <u>Address Books Management</u>

Sending Fax Messages

Open any application with printing capabilities, such as Word, Excel, ..., and activate the **Print** command. In the dialog box you should select the **CTFax Printer**. You may configure other options too (paper size, ...etc.). When you activate the **OK** button, the system will show you a dialog box waiting for you to type or select the fax destination (fax number(s) or **LAN user name**(s) separated by spaces) and other. Finally you activate the **Send Fax** button, and **that's all**.

If the server can't receive the fax you are trying to send it (the server may be in the **suspended** mode or it may be **turned off**), the fax will be saved in your **Output Box** and you can try to send it at a later time.

For a quick test, you may send a fax to yourself (easily by typing or selecting your user name in the 'Send Fax To' dialog box). The fax will appear in your Input Box, as all other faxes destined to you.

Sending Fax Messages from Output Box

All faxes that a user tries to send to the server, but server fro any reason cannot receive them at the moment, are saved in the user's Output Box. The user can send them later by either clicking the right mouse button in the right pane and selecting the 'Send' command, or by using the submenu 'Action' -> 'Right Pane Action'.

Exchanging Faxes within Local Area Network (LAN)

This procedure is similar to sending faxes by modem, except that you type a LAN user name instead of the fax number in the 'Send Fax To' dialog box.

The recipient will receive the fax in her/his Input Box.

Aborting Fax Messages

To abort a fax that is currently in the process of sending or queued for sending, you have to select the fax in the **Global Sending Queue** or **Personal Sending Queue** list, and either select the '**Delete**' command from the context menu activated by the right mouse button, or by using the menu 'Action'->'Right Pane Action' and then selecting the '**Delete**' command.

Receiving Fax Messages

Ordinary, when a new fax arrives through **LAN** (Local Area Network), it is placed in recipient's **Input Box**, where s/he can view it by activating the 'View' command.

When a new fax arrives by **modem**, its recipient is usually unknown (that's while they are called anonymous). The fax is waiting in the receiving queue for a user with dispatching right (a **fax dispatcher**) to get it and dispatch it to some other user.

A fax dispatcher retrieves the fax (among other anonymous faxes) from the server, views its contents (usually the first page is sufficient) to determine its recipient, and then dispatches it to this user.

Now the fax again resides in the receiving queue but it is no more 'anonymous'.

When the recipient next time selects or refreshes the 'Input Box' list in order to check newly received faxes, s/he will get the fax from the server.

Viewing Fax Messages

Sorry, help not available at the moment!

Dispatching Fax Messages

destination).

When a new fax is received by a modem, its recipient is usually unknown (that's while they are called anonymous), and there must be someone who will deliver these 'anonymous faxes' to their recipients. The fax dispatchers (users with fax dispatching rights) have this duty.

(We should emphasize here that there is possibility in the message format to have an information about the final recipient. This means that all faxes received by modem wouldn't be anonymous. However, this useful feature isn't implemented at present time.)

The Personal Folders->Dispatch Box in CTFax Manager is a list of received 'anonymous' faxes. Every time when a user with the '**Dispatch faxes**' right selects Dispatch Box, CTFax Manager connects to the CTFax Server and asks for a list of received anonymous faxes. If it finds something a dialog box with an informative message will appear.

User with 'Dispatch faxes' permission can then take a look into the fax image (usually s/he'll need to view only the first (cover) page, where usually resides information for whom is that fax destined) and, now when s/he knows to whom is the fax destined, s/he can dispatch the fax to that user.

To make it clear, we will describe the whole procedure of receiving a fax: Server puts a newly received fax into the **receiving queue** where all received faxes reside until a user with dispatching rights picks up a list of anonymous faxes. When the dispatcher (user with 'Dispatch faxes' rights) gets an anonymous faxes list, the anonymous faxes are transferred to the dispatcher's client computer, where (s)he activates the 'Dispatch' command and writes, in a dialog box, a fax **recipient user name**. Dispatch function then returns fax to the server, which puts it in its receiving queue (but now this fax is no longer anonymous, now it has a specific

Let us assume that the fax was for a user with user name 'jsmith'. When the user 'jsmith' next time starts his CTFax Manager and selects 'Input Box', in order to check newly received faxes, he will receive from the server all faxes destined to him. The faxes are transferred to his computer and deleted from the server's queue (server only keeps track of all sent/received faxes and not the faxes themselves).

The user can then or at a later time, obtain a list (**journal**) containing information about all of his sent /received faxes.

Viewing Status of Fax Messages

Personal Receiving Queue and Personal Sending Queue folders contain list of **user's** personal faxes received or waiting to be sent, respectively with all relevant information. User can view in these lists when is his/her fax scheduled for sending, or even whether it is currently in process of sending by modem; or in case of a fax received from modem, was it received OK, or perhaps partially if some communication error had occurred; along with other information that could be useful, like number of pages etc.

Global Receiving Queue and Global Sending Queue folders contain list of **all** faxes received or waiting to be sent, respectively with all relevant information. Only the CTFax administrators have permission to view (and manipulate eventually) these lists. The format is basically the same as for personal queues.

Viewing History of Sent/Received Faxes

The Global Journal list contains the history of all faxes in the system that have been sent or received so far. Only CTFax administrators can view this list.

The Personal Journal list contains information about the history of all faxes received or sent by a particular user.

Fax messages are not being written into the history database until they are removed from the server's sending or receiving queue.

Viewing System Log

The Event Log keeps track of all system-wide error and warning messages, as well as all events in the system. Only the CTFax administrators can view this list.

Address Books Management

The Global Address Book is system-wide address book used for saving addresses (fax numbers and other relevant data) that are meaningful and useful for most LAN fax users (e.g. business partners addresses). All registered users can view the global address book and select its entries when sending faxes, but only the users with a special right are allowed to add, modify and delete book entries.

System Administration

<u>User Management</u> <u>Port and Modem Configuring</u>

How to add a new user?

To add new users into CTFax Server database—you have to select 'Registered Users', under 'Fax Servers'->"Your_FaxServer_Name", and then either click the right mouse button—or use the sub-menu—'Action'->'Right Pane Action' to select the 'Add' command. Then you type in the user name, his/her full name, description, and, most important of all, you can grant the user special permissions (rights).

Please note: only users with CTFax 'Administration' right can add new users (as well as remove them or modify their data).

User rights

In the 'Add User' dialog box you can grant to user the following rights:

Global Address Book Change;

Dispatch faxes;

Administration.

User with 'Global Address Book Change' permission can read/write/modify global address book (which resides on the server computer), all others can only read the global address book (but they can manage their personal address books residing on their local computers). Global address book should contain addresses of interest for the company as a whole (business partners, etc.).

User with 'Dispatch faxes' permission can dispatch anonymous faxes.

When a new fax is received by modem, the recipient is usually unknown (that's while they are called anonymous).

User who has 'Dispatch faxes' rights can obtain anonymous faxes from the server, take a look into the fax image and, after deciding for whom the fax is designated, dispatch that fax to this user.

User with 'Administration' permission can add and delete users, modify their rights in the system and read/write/modify port and modem configurations.

'Administrator' (user with CTFax 'Administration' right) can manage global receiving/sending queue and global journal lists including right to delete (abort) any fax request, while ordinary user can manage only his/her request(s).

'Administrator' can see server's log where he can find useful information about server errors and warnings, and all events in the system.

How to add a new modem?

Users with CTFax 'Administration' permission can read/write/modify port and modem configurations using 'CTFax Manager' application.

To configure port(s) and modem(s) on CTFax Server you have to select 'Modems', under 'Fax Servers'->"Your_FaxServer_Name", and then either click the right mouse button or use the sub-menu 'Action'->'Right Pane Action' to select a particular command (Add, Copy, Edit, Delete, ...).

In most cases, you will find that default values are working fine, otherwise you will need to change offending parameter(s).

Standard options

Some of the parameters are self explaining, while others may be rather cryptic at first sight. We will explain, in short, their action:

Port Name Serial port name (e.g. COM2); Modem Name Fax modem name (e.g. 3Com, Hayes, Telebit, ...); **Configuration Enabled** ... Enables/Disables this configuration profile; Port Data Rate Serial port data rate determines character speed between PC and modem (e.g. 38400); Fax Modem Data Rate ... Fax Modem Data Rate determines speed between two fax modems (e.g. 14400); **Send/Receive Mode** Determines whether this line will be used for sending faxes only, receiving only or both (sending and receiving); Rings Before Answer Defines number of rings before answering a phone call on fax reception **Pulse/Tone Dial** Pulse (rotary) or tone (MFC) dialing when sending faxes by modem; **Dial Prefix** The number needed to reach an outside line when sending faxes by modem, such as 9, or 7,. Do not enter an area code in this field. Use a comma after each numeric code, such as 9.. The comma produces a pause so that your phone system has a chance to respond after the previous input. Flow Control The method of regulating the flow of information between your PC and modem. HW(RTS/CTS) flow control is the most preferable choice.

Note: You should always use flow control. If your modem doesn't react as it should and/or you get a message from the system that your modem is configured without flow control, find specific command in your modem user's guide and write it in the

'Additional Init String' field (Advanced options).

Eg. AT S58=2 S68=255 defines HW (RTS/CTS) flow control for Telebit World Blazer modem.

Other modems may have different init strings (e.g. AT &K3).

Refer to your modem user's guide for the particular command, if the default one doesn't work.

Advanced options

Speaker Volume You can choose between (Low, Medium and High); Speaker On/Off Turns speaker On, Off, On Until Carrier, ... etc.; Disable Call Waiting String ... If your fax and phone line share the same

number, and if the phone line has

Call Waiting then incoming calls

Call Waiting, then incoming calls can interrupt the fax transmission. Most phone systems allow you to disable call waiting by dialing either 1170 or *70 before you make a call. By entering this code in 'Disable Call

Waiting String' field, you ensure that fax transmissions are not interrupted by call waiting. You can disable call waiting for outgoing faxes only.

Class2DataRateBitOrder 'Standard' behavior for class2 fax modems is

to reverse data bit order when receiving faxes. If it is not case with your modem, you can

choose a different setting.

Additional Init String You can put here a number of modem

commands specific for your modem

type, and

they will be executed after the

standard modem

initialization.